ACUTE COMMUNICABLE DISEASE CONTROL PROGRAM

SCABIES PREVENTION AND CONTROL GUIDELINES

FOR HEALTHCARE SETTINGS

July 2019

LOS ANGELES COUNTY HEALTH AGENCY

COUNTY OF LOS ANGELES Public Health

www.publichealth.lacounty.gov/acd/Diseases/Scabies.htm

TABLE OF CONTENTS

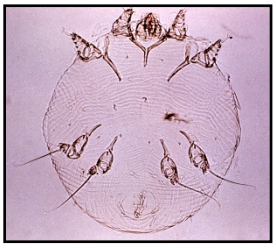
TABLE OF CONTENTS (cont.)

Scabies Prevention and Control Guidelines for Healthcare Settings

(Revised July 2019)

I. INTRODUCTION

Scabies is an ectoparasitic infestation of the skin caused by the human itch mite, *Sarcoptes scabiei* var. *hominis*. The actual incidence of scabies in Los Angeles County (LAC) is unknown because single cases of scabies are not reportable to public health. Outbreaks of scabies infestations in healthcare facilities (HCF) are reportable to public health and present a continuing problem in LAC. While regarded as a nuisance disease by many healthcare professionals, scabies outbreaks in HCFs can be extremely costly in terms of direct and indirect costs of outbreak management, poor public relations, and discomfort and anxiety of affected patients, residents, employees, and their family members. Furthermore, secondary bacterial skin infection is a common complication of scabies infestation that, in elderly or immunocompromised individuals, can lead to sepsis and even death.



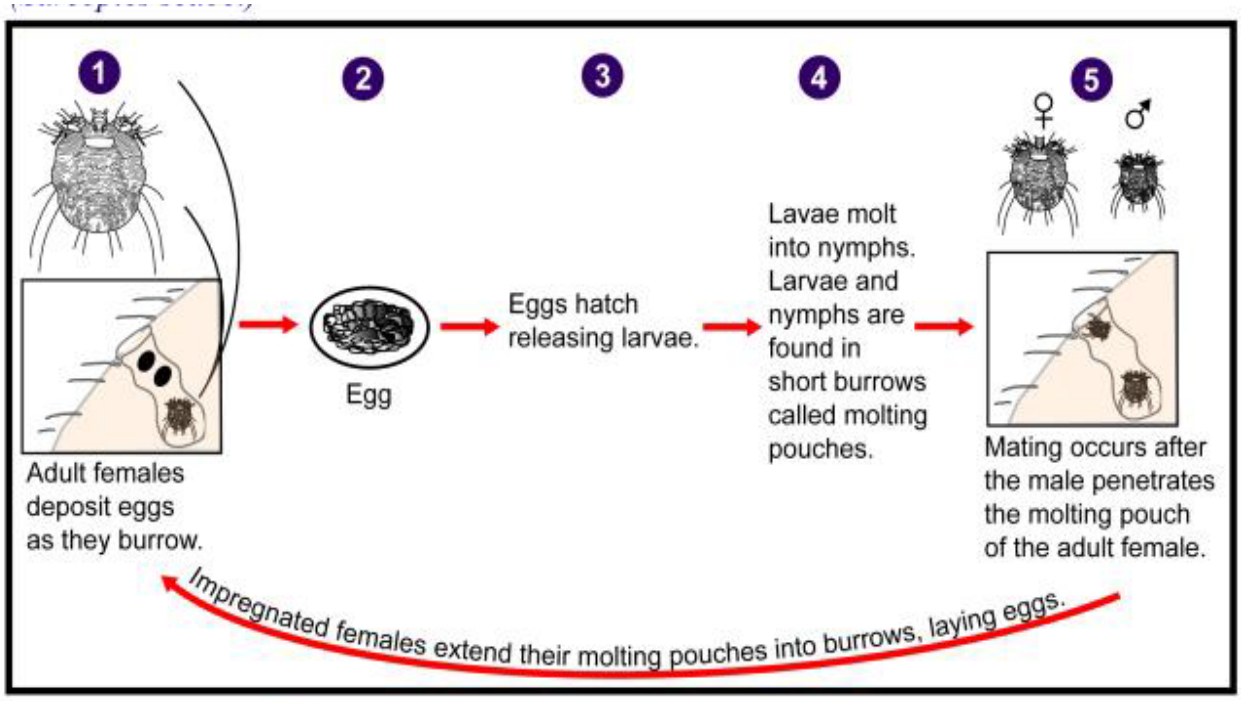
Several factors influence the extent of scabies transmission within a facility, including the mite load and the required level of care of the source case, as well as the duration of the exposure period. Each HCF scabies outbreak is unique and requires an individualized approach. These guidelines provide a rational approach to the prevention and control of scabies in HCF. They are intended to assist HCFs in developing a scabies prevention and control program, and they are based on best practices, state and federal scabies guidelines, literature review and the extensive experience of Acute Communicable Disease Control Program (ACDC) staff.

II. GENERAL INFORMATION

A. Biology of the Scabies Mite

Infestation begins when one or several pregnant female mites are transferred from the skin of an infested person to the skin of an uninfested person. After transfer from the skin of an infested person, or, rarely, from fomites to the skin of an uninfested person, the adult female mite travels on the skin surface at the rate of about 1 inch per minute seeking a burrow site. After finding a suitable location, she burrows into superficial layers of the skin, forming a slightly elevated narrow tunnel where she deposits 2 to 3 eggs daily during her 4 to 6-week life span. The eggs progress through larval and nymphal stages to form adults in 10 to 17 days. The adults migrate to the skin surface and mate. The males die quickly, and the females penetrate the skin and repeat the cycle. The mite requires human skin to complete its life cycle and is unable to survive off the host at room temperature for more than 3 to 4 days.

Figure 1. Scabies Lifecycle



B. Clinical Presentation

Scabies infestations generally present clinically as typical (classic, regular) or atypical (crusted, keratotic, hyperkeratotic or Norwegian).

1. Typical Scabies

Patients/residents with typical scabies usually have only 10 to 15 live adult female mites on the body at any given time. Usually only one or two mites, and frequently none, are recovered from skin scrapings. Intense pruritus, usually worse at night, and a papular rash with or without burrows occur. The rash and pruritus result from an immune-mediated delayed hypersensitivity reaction to the mite, its eggs and fecal material. Areas of the body commonly involved are wrists, finger webs, antecubital fossae,

anterior axillary folds, breasts, waistline, lower abdomen, genitals, and buttocks. The scalp and face are rarely involved in adults but may be observed in young children with scabies.

2. Atypical Scabies Atypical (Norwegian) or Crusted Scabies

When diagnosis and treatment are delayed, scabies can have an unusual or atypical presentation, involving heavy infestation with hundreds to millions of mites. When extensive hyperkeratotic skin lesions with crusting and scaling develop, the infestation is called atypical scabies.

Atypical scabies is highly contagious because large numbers of mites (up to 2 million)are imbedded in the thick crusts and are easily shed in scales and flakes from affected skin. Atypical clinical presentations are more prevalent in institutionalized or debilitated patients/residents, or those who are immunosuppressed from underlying disease or drug therapy. Atypical scabies is commonly misdiagnosed by clinicians, and patients/residents with atypical scabies may develop symptoms in as little as a few days.

C. Epidemiology of Scabies

1. Transmission

Transfer of the mite is usually from one person to another by direct skin-to-skin contact. It may also be transmitted through sexual contact. Procedures such as bathing a patient/resident, applying body lotions, back rubs, or any extensive hands-on contact can provide an opportunity for mite transmission. Mites may also be transmitted via clothing, bed linen or other fomites. Fomites play a minor role in situations where the infestation in the source case is typical scabies; the inanimate environment of patients/residents with atypical scabies, however, has been shown to be heavily contaminated with mature and immature mites. In HCF, scabies may be introduced into the facility by a newly admitted resident with an unrecognized infestation or by visitors or healthcare workers as a result of contact in the home or community with a person who has scabies.

2. Incubation Period

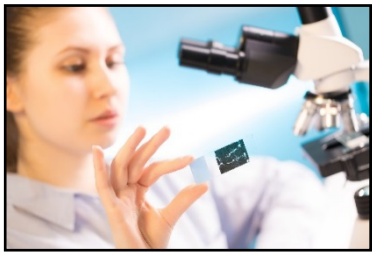
In a previously unexposed healthy individual, the interval between exposure and the onset of itching is usually 2-6 weeks. In persons who have been sensitized to the mite by a previous infestation, re-exposure may produce symptoms in 48 hours or less (owing to prior sensitization or contact with the mite and its saliva and feces). Following exposure to a source case with atypical scabies involving extremely large numbers of mites, the incubation period may be reduced from the usual time of 2-6 weeks to as little as a few days.

3. Period of Communicability

Since the scabies mite is an ectoparasite, **an exposed individual is potentially immediately infectious to others, even in the absence of symptoms.** Cases are communicable from the time of infestation until mites and eggs are destroyed by treatment.

D. Diagnosis

Definitive diagnosis requires microscopic identification of the mite and/or its eggs or fecal pellets on specimens collected by skin scraping, biopsy or other means (**Appendix C**, "Scabies Skin Scraping Procedure"). The yield from skin scrapings is highly dependent on the experience of the operator and the severity of the infestation. **A negative skin scraping from a person with typical scabies does not rule out scabies infestation**; mites are easily recovered, however, in skin scrapings from persons with atypical scabies.



III. SCABIES PREVENTION AND CONTROL PROGRAM

It is recommended that healthcare facilities incorporate a scabies prevention program that involves all levels of the healthcare team. The program should include an assessment of the skin, hair and nail beds of all new admissions as soon as possible following arrival. Pruritus, rashes and skin lesions should be documented and brought to the attention of the nursing supervisor and the attending physician for further follow-up.

Essential elements of a successful scabies prevention program include:

1. Written policies and procedures for prevention and control of healthcare-associated scabies, including environmental cleaning of patient/resident shared items;

2. Healthcare workers (HCW) who are trained to be suspicious of scabies in themselves or their patients/residents if unexplained rash or pruritus occurs and to report such occurrences to their supervisors;

3. A policy to screen newly admitted patients/residents for scabies during the initial assessment, especially if transferred from another healthcare facility. Any suspect patient/resident will immediately be placed on contact precautions until examined for scabies;

4. A policy to ensure early identification and aggressive treatment of patients/residents with atypical scabies. Skin scraping is recommended prior to treatment for patients/residents diagnosed with atypical scabies;

5. A policy to ensure that symptomatic HCW be evaluated by employee/occupational health or their private healthcare provider;

6. Access to and use as needed of the diagnostic skills of a clinician and/or other healthcare consultant experienced in recognizing scabies to evaluate difficult or unusual cases or response to treatment;

7. Assurance of adequate support from administration, medical staff, infection prevention, employee health and line staff for appropriate evaluation and treatment of employees, in-house patients/residents and exposed discharged patients/residents should an outbreak of scabies occur.

IV. SCABIES OUTBREAK MANAGEMENT

A. Overview

The primary goal of an outbreak investigation is to identify risk factors contributing to the outbreak and to take corrective action to prevent further transmission of scabies cases. An outbreak can be defined as an increase in the incidence of new cases above baseline within a

defined time period and within a defined geographical location (nursing unit, one floor or one wing, a department or, in some cases, the entire hospital).

A "baseline" for scabies is not a standard hospital measurement and the definition of a scabies outbreak may be multifaceted. Scabies can be diagnosed clinically or via skin scraping. A case definition should be developed to determine whether an outbreak has occurred or to estimate the magnitude of the outbreak. The case definition should include the patient's/resident's clinical presentation, method of diagnosis (clinical or via skin scraping) and epidemiologic linkages to other patients/residents and/or symptomatic HCW. A clinically suspect case is defined as a person whom a healthcare provider believes, after weighing signs, symptoms and/or laboratory evidence, to probably have a reportable disease or condition.

Below is an example of a scabies acute care hospital or long-term care facility **outbreak definition**:

- **Two (2) or more clinically suspect or confirmed cases of scabies identified in patients/residents, healthcare workers, volunteers and/or visitors during a six (6) week time period**

Healthcare-associated transmission is highly probable if scabies is identified in two or more HCWs who have worked in the same area of the facility within the previous six weeks and who do not have an apparent source of exposure outside the facility.

Outbreak management should include planning for personal protective equipment (PPE) and pharmacy supplies. Provisions should be made for obtaining additional PPE such as disposable, long sleeve gowns and gloves. The pharmacy should also arrange to obtain permethrin cream 5% (Elimite®). If ivermectin (Stromectol®) is recommended as a scabies treatment option, the pharmaceutical company should be notified, and arrangements made for overnight shipping if necessary.

During an outbreak, daily patient/resident skin assessments should be performed on the affected unit and documented in the patient's/resident's medical record.

B. Summary of Action Steps

1. Evaluate patients/residents on affected units and immediately place patients/residents with suspected scabies in contact precautions (**Appendix I**).

2. Immediately remove from work any HCW with signs and symptoms of scabies and refer to employee health, other healthcare consultant or clinician experienced in the diagnosis of scabies.

3. Meet with key staff to coordinate control measures and give adequate resources to accomplish the objective in a timely manner. Representatives from the following departments should be included: administration, employee health, environmental services, infection prevention, pharmacy, medicine and nursing.

4. Search for a possible source case. If two or more employees working in the same unit/area are diagnosed with scabies, it is likely that the source case was a patient/resident with atypical or crusted scabies infestation.

5. Confirm the presence of scabies by microscopic identification of the mite or its products (skin scraping) in one or more symptomatic patients/residents or HCW. The absence of mites does not rule out scabies infestation.

6. Report healthcare-associated scabies outbreaks (two or more cases) to LAC Department of Public Health.

7. Prepare a line listing of symptomatic patients/residents and HCW with a separate line list of their contacts (**Appendix J and K**). Evaluate contacts for scabies.

8. Treat symptomatic patients/residents and HCW with an approved scabicide, provide prophylactic scabicide to all contacts of symptomatic cases, and perform environmental cleaning of affected units. Ideally, these steps (treatment, prophylaxis, and environmental cleaning) should all be accomplished within the same 24-hour period to prevent re-infestation of treated or prophylaxed individuals.

9. Provide training to all staff on scabies signs and symptoms. Emphasize that people can be infested and contagious for up to 6 weeks before symptoms begin.

10. Perform environmental cleaning of affected units (**Appendix I**).

11. Arrange for follow-up evaluation and prophylactic treatment of discharged patients/residents who were scabies contacts. (**Appendix L and M**).

12. Communicate with the affected patient's/resident's family members and provide scabies education.

C. Management of Symptomatic Cases

Often the first indications of a scabies outbreak are complaints of itching and rash in two or more HCW or patients/residents. Properly performed skin scrapings will almost always be positive in persons with atypical scabies but are generally negative in cases of typical scabies, even when performed by experienced healthcare providers. None-the-less, it is recommended that efforts be made to confirm the diagnosis of scabies by skin scraping in at least one symptomatic individual.

1. Symptomatic Healthcare Workers

Healthcare workers refer to all facility employees, contract employees, medical staff, house staff, students, religious workers and volunteers, etc.

a. Immediately remove from work any HCW with signs or symptoms consistent with scabies and refer to employee health or other designated consultant experienced in the diagnosis of scabies. Confirm the presence of scabies by microscopic identification of the mite or its products in one or more symptomatic patient/resident or employee (**Appendix C**).

b. Prepare a line-listing of **symptomatic HCW** that includes name, age, gender, symptoms, date of onset, result of scabies evaluation, any prior treatment for scabies, usual work and "float" assignments from six weeks before onset of symptoms until the current date, and symptoms in household or other close contacts (**Appendix K**).

c. Treat all HCWs with confirmed or suspected scabies infestation with an approved scabicide according to consultant's recommendation (**Appendix D**). **Review scabicide package insert before prescribing, dispensing, or applying scabicide. Provide clearly written instructions for proper application of dispensed scabicide** (**Appendix F**). Re-evaluate cases weekly at a minimum, or more often to monitor response to treatment. Provide scabies education and reinforce hand hygiene messages.

d. Symptomatic HCW can return to work as soon as treatment is completed but should use gowns and gloves for direct patient/resident care to prevent reinfestation until all control measures for affected units/areas have been completed.

e. Provide scabicide prophylaxis, along with written instructions for application, for all household contacts of symptomatic HCW.

2. Symptomatic Patients/Residents

a. Immediately place any patient/resident with suspected scabies infestation on contact precautions as outlined in the CDC "Guideline for Isolation Precautions in Hospitals" and "Contact Precautions and Environmental Control for Patients/Resident with Scabies" (**Appendix I**). For patients/residents with typical scabies, maintain contact precautions until treatment is completed. For patients/residents with atypical or crusted scabies, contact precautions should be maintained until treatment is completed and the signs and symptoms of infestation have abated.

b. Attempt to confirm the diagnosis of scabies by microscopic identification of the mite, its eggs, or fecal pellets if the patient/resident is the suspected source of the outbreak or if the clinical diagnosis of scabies is in question (**Appendix C**). If a patient/resident is a suspected case of atypical scabies**,** obtain clinician consult for assistance with diagnosis and management.

c. Treat with an approved scabicide according to the clinician's recommendation or as described in "Scabies Treatment and Prophylaxis" (**Appendix D**).

d. Perform environmental cleaning of patient's/resident's room/area (**Appendix I**).

e. Symptomatic patients/residents with suspected scabies, or patients/residents diagnosed with typical scabies who are pending transfer to another healthcare facility, should remain on contact precautions until diagnosis and treatment with a scabicide. Contact precautions may be discontinued 24 hours after treatment. Patients/residents diagnosed with atypical or crusted scabies should remain on contact precautions until all treatments are completed. The receiving facility should be informed of the

patient's/resident's diagnosis, treatment and isolation status; all should be documented in the medical record on the patient/resident interfacility transfer form.

D. Management of Contacts

Contacts to typical (classic) scabies cases are defined as persons who had direct "hands-on" contact, handled infested clothing or bed linen, or slept in the same bed as the patient/resident during the exposure period.

Contacts to atypical (Norwegian) or crusted scabies also include persons who had substantial contact with an atypical scabies patient's/resident's environment, including HCWs who worked (regular or "float" assignment) on the same unit/area as the patient/resident during the exposure period. If the patient/resident was housed on more than one unit before control measures were initiated, each unit must be considered affected.

The outbreak **exposure period** is the period between the admission date of the scabies index patient/resident and the date the patient/resident is correctly diagnosed, and control measures are implemented. If the patient/resident is a long-term care resident this period extends from six weeks prior to onset of symptoms**.** The identification of two or more symptomatic HCW assigned to the same unit suggests that prophylaxis is indicated for all unit/area contacts, whether or not they were direct contacts of a known scabies case.

Occasionally, an index or source patient/resident cannot be identified. In this situation, the exposure period should be considered to extend from 6 weeks before onset of symptoms (most often in HCW) to the date of implementation of control measures.

Scabies exposures can be classified as primary or secondary. Primary exposure is defined as direct skin-to-skin contact with the scabies patient/resident. Scabicide treatment and/or prophylaxis is provided to the patient/resident, family member or HCW who has a primary exposure. Secondary exposure is defined as exposure to a person who had direct contact to another person with a primary exposure. Scabicide treatment or prophylaxis is not recommended for secondary exposure to typical scabies.

- For primary exposure to a patient/resident diagnosed with typical or atypical scabies, scabicide treatment or prophylaxis should be provided.
- For secondary exposure to a patient/resident diagnosed with atypical scabies, scabicide treatment or prophylaxis should be provided.

- For secondary exposure to a patient/resident diagnosed with typical scabies, scabicide treatment or prophylaxis is not recommended; in this scenario, health education should be provided (Table 1).

Table 1. Classification of Scabies Exposure

Scabies Type	Primary Exposure	Secondary Exposure
Typical	Provide scabicide treatment or prophylaxis	No scabicide; provide health education
Atypical	Provide scabicide treatment or prophylaxis	Provide scabicide treatment or prophylaxis

a. HCW Contacts

a. Identify and prepare a line listing of all HCW who were direct contacts to a patient/resident or fellow HCW with scabies during the exposure period (Appendix K).

b. Interview HCW to determine the presence of scabies symptoms and possible source of exposure; manage as a case if symptomatic.

c. Provide prophylactic scabicide along with written instructions for application (Appendix D), to all HCW with direct contact to a scabies case. **HCW who refuse prophylactic treatment must be required to wear gowns and gloves for contact with patients/residents or fellow HCW for 6 weeks from the date of last potential exposure** (usually 6 weeks from implementation of control measures).

b. Patient/Resident Contacts

a. Identify and prepare a line listing of all patients/residents who were contacts to a patient/resident with scabies or HCW with scabies during the exposure period (Appendix J). This includes patients/residents who resided on the same ward as an atypical scabies case during the exposure period, defined as six weeks prior to symptom onset, and those who were already discharged.

b. Examine **in-house patient/resident contacts** to determine presence of signs and symptoms of scabies. If symptomatic, manage as a case.

c. Apply prophylactic scabicide (**Appendix D)**, to in-house patients/residents with direct contact to a scabies case.

d. Patients/residents who resided on the same ward as an atypical scabies patient/resident with no direct contact to the case should be monitored with daily skin observations until six weeks past the date of last potential exposure, and follow-up as appropriate.

e. Notify **discharged patients/residents** of their potential exposure to scabies. Screen discharged patients/residents for symptoms of scabies. Symptomatic patients/residents should receive treatment and their family contacts should receive prophylaxis. Asymptomatic patients/residents should be directed to follow up with their physician regarding possible scabies exposure and at a minimum, observe skin daily until six weeks past the date of last potential exposure. **It is the responsibility of the facility to ensure that all discharged exposed patients/residents receive appropriate follow-up** (Appendices L and M, Sample Letter to Discharged Patients/Residents and Sample Letter to Physicians of Discharged Patients/Residents respectively).

f. Notify facilities to which patient/resident contacts have been transferred of the potential exposure.

E. Extending Recommendations for Prophylaxis

Facility-wide (mass) prophylaxis of all patients/residents and at-risk HCW (HCW involved in direct patient/resident care or exposed to the patient/resident care environment) should be considered if positive skin scrapings are found in patients/residents or employees assigned to two or more areas of the facility where no direct link with an infested patient/resident or HCW can be established.

F. Notification of Staff, Visitors, and Household Members

HCW, volunteers, family members, sexual partners, and others who had direct contact with a scabies case should be notified immediately of the facility outbreak and assessed for symptoms. A scabies fact sheet and notification letter, which includes information about the scope of the outbreak and strategies that are being implemented to control the outbreak and prevent future cases, should be distributed to the above groups.

V. PATIENT/RESIDENT TRANSFER TO ANOTHER HEALTHCARE FACILITY

Patients/residents diagnosed with typical or atypical scabies who are ready for discharge or transfer to another healthcare facility can be transferred as medically appropriate. Contact precautions can be discontinued 24 hours after treatment is completed. Skin scraping for clearance prior to transfer **is not** recommended. The interfacility transfer form should accompany the patient/resident and document if the patient/resident requires additional scabicide treatment or other follow-up instructions post discharge. The LAC Healthcare Facility Transfer Form can be found at: www.publichealth.lacounty.gov/acd/docs/FacilityTransferForm.pdf.

VI. REPORTING

All outbreaks of scabies are required to be reported to the County of Los Angeles Department of Public Health during **normal business hours**, **Monday through Friday, 8:00 A.M. to 5:00 P.M.** Acute care facilities should report by phone to the Morbidity Unit at (888) 397-3993 or report electronically via the Communicable Disease Reporting System. Long-term care facilities and home health agencies should report by phone to the Morbidity Unit at (888) 397-3993. Outbreaks are also reportable to LAC Department of Public Health, Health Facilities Inspection Division, Licensing and Certification.

These guidelines and additional scabies information and resources can be found at the ACDC website www.ph.lacounty.gov/acd/diseases/scabies.htm.

APPENDICES

APPENDIX A

THE SPREAD OF SCABIES: ACTION STEPS

1. Evaluate patients/residents on affected units and immediately place patients/residents with suspected scabies in contact precautions.

2. Immediately remove from work any healthcare worker with signs and symptoms of scabies and refer to employee health or other healthcare consultant or clinician experienced in the diagnosis of scabies.

3. Meet with key staff to coordinate control measures and give adequate resources to accomplish the objective in a timely manner.

4. Search for a possible source case. If two or more employees working in the same unit/area are diagnosed with scabies, it is likely that the source case was a patient/resident with **atypical scabies** infestation.

5. Confirm the presence of scabies by microscopic identification of the mite or its products (skin scraping) in one or more symptomatic patients/residents or employees. The absence of mites does not rule out scabies infestation.

6. Report healthcare-acquired scabies outbreaks to public health.

7. Prepare a line listing of symptomatic patients/residents and healthcare workers with a separate line list of their contacts. Evaluate contacts for scabies.

8. Treat symptomatic patients/residents and healthcare workers with an approved scabicide, provide prophylactic scabicide to all contacts of symptomatic cases, and perform environmental cleaning of affected units.

9. Provide training to all staff on scabies signs and symptoms. Stress that people can be infested and contagious for up to 6 weeks before any symptoms start.

10. Perform environmental cleaning of affected units.

11. Arrange for follow-up evaluation and prophylactic treatment of discharged patients/residents who were contacts to scabies.

12. Communicate with the affected patient's/resident's family members and provide scabies education.

APPENDIX B

SCABIES OUTBREAK MANAGEMENT CHECKLIST

Outbreak Interventions				
Communication	**N/A**	**Completed**	**Date**	**Signature**
Notification of facility administration				
Notification of infection prevention and control team				
Outbreak reported to the local health officer – LAC Morbidity Unit				
Outbreak reported to LAC Health Facilities Inspection Division or CDPH Licensing & Certification local office				
Notification of patients/residents and family/visitors				
Health facility closed to new admissions				
Health facility reopened to new admissions				
Investigation and Monitoring	**N/A**	**Completed**	**Date**	**Signature**
Symptomatic healthcare workers (HCW) removed from work and referred to Employee Health and/or evaluated by a clinician				
Patients/residents evaluated for scabies and placed on contact precautions				
Patient/resident line list completed				
HCW line list completed				
Confirm scabies diagnosis by skin scraping in symptomatic patients/residents/HCW				
Daily skin assessments documented on all exposed patients/residents				
Treatment	**N/A**	**Completed**	**Date**	**Signature**
Symptomatic patients/residents/HCW treated with scabicide				
Prophylactic treatment offered to staff				
Prophylactic treatment offered to family/visitors				
Environmental Cleaning	**N/A**	**Completed**	**Date**	**Signature**
Enhanced environmental cleaning conducted throughout the outbreak period				
Education	**N/A**	**Completed**	**Date**	**Signature**
Scabies training provided to all staff				

APPENDIX C

SCABIES SKIN SCRAPING PROCEDURE

The diagnosis of scabies can be confirmed by microscopic identification of mites, eggs or fecal pellets from specimens obtained by skin scrapings. A physician or nurse from the facility can be taught the procedure by a clinician, the consulting physician or by a nurse or technician who has had professional training to perform the procedure. A confirmed diagnosis of scabies should be made in at least one symptomatic case before recommending wide-spread scabicide prophylaxis in healthcare facility outbreaks.

Equipment

1. Gloves and gowns
2. Magnifying glass
3. Light source
4. Felt tip pen, green or blue washable ink
5. Alcohol swabs/wipes
6. #15 scalpel blade and handle,
7. Glass slides or curettes for scraping
8. Mineral oil or immersion oil
9. Slides and cover slips
10. Laboratory requisition forms
11. Sharps container
12. Clear nail polish
13. Microscope
14. Kelly clamp or forceps

Procedure

1. Assess the patient's/resident's skin with a magnifying lens and look for lesions suggestive of scabies infestation. The shoulders, back, abdomen, hands, wrists, elbows, buttocks, axillae, knees, thighs and breasts are common sites for burrows. A bright light and magnifying lens will assist in visualizing the tiny dark speck (the mite) at the end of the burrow.
2. Identify these high yield lesions by applying mineral oil (best used over dry scaly areas) or by applying the burrow ink test to possible burrows. The burrow ink test is done by using a wide felt tip pen (blue or green are best) over burrows and then wiping off with an alcohol swab. The alcohol will remove most surface ink but will not remove the ink taken up by the burrow, thus leaving a dark irregular line.
3. Apply mineral oil or preferably microscope immersion oil to lesions or scalpel blade and glass slides.
4. Scrape non-excoriated, non-inflamed areas (burrows and papules) vigorously with a #15 scalpel blade or glass slide held at a 90-degree angle to the skin, while holding the skin taut, until the stratum corneum is removed (vigorous scraping appropriately results in a few red blood cells visible under the microscope, but there should not be frank bleeding). Some practitioners prefer using a small curette. Change blades or curettes between scrapings on different persons. Blades can be placed on and removed from the handle with forceps. Used blades must be placed in a sharps container.
5. Transfer skin scrapings from **multiple sites** (at least 4-6 different sites) to a single slide or to separate slides. These scrapings can be pushed onto the slide edge and then moved to the center of the slide.
6. Place the cover slip over onto slide.
7. Examine entire slide methodically under low power (2.5-4x) and then at 25-50x magnification. Microscopic examination of the skin scrapings should be performed at the facility; however, if the practitioner is not trained in reading the prepared slides, the cover slip should be secured to the slide at all edges with clear nail polish and transported by courier or mail (in a secure mailer) to a hospital, laboratory or physician's office with prior-arrangements.

APPENDIX D

SCABIES TREATMENT AND PROPHYLAXIS

A. Application of Scabicides: General Principles

1. Follow directions and precautions outlined in the package insert accompanying scabicide.
2. Gowns and gloves are worn when applying scabicides to patients/residents.
3. Bathe patients/residents as usual and change bed linens. Allow skin to dry and cool completely.
4. Apply scabicide to every square inch of skin, from the posterior ear folds down over the entire body. Include intergluteal cleft, umbilicus, skin folds, palms and soles, and webs between fingers and toes. If scabicide is washed off during handwashing, toileting, or perineal care, it must be reapplied.
5. In infants and young toddlers, the elderly, and the immunocompromised, the head (forehead, temples, and scalp) requires application of scabicide. Pay close attention to the area behind the ears. Do not get the scabicide near the eyes or mouth. Prior treatment failure may be an indication to include the head upon retreatment.
6. Fingernails and toenails should be clipped and scabicide applied under nails.
7. A cleansing shower or bath is taken when scabicide is to be removed.
8. Linens and clothing are changed after treatment. Contaminated clothing and linens may be washed in the hot cycle of the washing machine and dried in the hot cycle of the dryer or dry-cleaned.
9. Provide detailed written instructions for scabicide use when dispensing scabicide for home application by employees and household members.

B. Scabicides

1. 5% permethrin cream (*Elimite®, Acticin)* - currently considered drug of choice.
    a. The usual adult dose is 30 grams. A 60-gram tube should treat two adults.
    b. For adults and children, the cream should be massaged into the skin from below the chin to the soles of the feet. Scabies rarely infests the scalp of adults, although the hairline, neck, temple, and forehead may be infested in infants and geriatric patients/residents. Infants should be treated on the scalp, temple and forehead.
    c. The patient/resident should be instructed to remove the medication by thoroughly bathing 8 to 14 hours after application. Contact with the eyes and mouth should be avoided. If contact with the eyes occurs, they should be immediately flushed with water.
    d. Permethrin is regarded as safe for children two months of age and older. No instance of toxicity following accidental ingestion has been reported. The most commonly reported side effects are pruritus, edema and erythema, which may continue for up to two weeks after treatment. Patients/residents should be told that the itching or stinging of scabies infestation may continue after treatment, and repeated application of the scabicide should be avoided unless additional application is part of the initial treatment regimen. Two or more

applications, each about a week apart, may be necessary to eliminate all mites, especially when treating atypical scabies. Demonstrable living mites after 14 days indicate that retreatment is necessary.

e. Although animal studies showed no adverse effects to reproductive function or damage to the fetus, no adequate studies have been done on pregnant women. Therefore, permethrin should be used during pregnancy only when clearly necessary. If treatment is necessary for lactating mothers, breast-feeding should be discontinued during the treatment period.

2. 10% crotamiton cream or lotion (*Eurax)*
   a. Massage thoroughly into skin once a day for two to five days. Remove by bathing 48 hours after last application.
   b. Crotamiton is 60% effective when full five-day course is given.
   c. Can be used on young children and elderly with dry, sensitive, but no denuded skin.
   d. Avoid contact with eyes and mucous membranes.

3. Ivermectin (*Mectizan® or Stromectol®)* Oral

Ivermectin is an oral antiparasitic agent approved for the treatment of worm infestations. Evidence suggests that oral ivermectin may be a safe and effective treatment for scabies; however, ivermectin is not FDA-approved for this use. Oral ivermectin has been reported effective in the treatment of atypical scabies; its use should be considered for patients/residents who have failed treatment with or who cannot tolerate FDA-approved topical medications for the treatment of scabies. The dosage of ivermectin is 200 mcg/kg orally. It should be taken on an empty stomach with water. A total of two or more doses at least 7 days apart may be necessary to eliminate a scabies infestation. The safety of ivermectin in children weighing less than 15 kg and in pregnant women has not been established.

C. Treatment Regimen for Typical Scabies Infestation

1. Whether a symptomatic case or asymptomatic carrier, a single adequate application of 5% permethrin cream is usually sufficient to eradicate typical scabies when the manufacturers' package insert is correctly followed. Reevaluate the response to treatment in 14 days.

2. In facilities with recurrent or endemic scabies or when application of scabicide for treatment of symptomatic scabies is not performed by a trained individual, a second application 3 - 7 days after the first is recommended by some authorities.

3. Asymptomatic contacts, including household and sexual contacts, of persons with clinical or confirmed scabies require one treatment with reevaluation in 14 days.

D. Treatment Regimens for Atypical (Norwegian) or Crusted Scabies

1. Patients/residents with atypical scabies and other variants of severe atypical scabies are best managed with the assistance of a clinician. Controlled studies to determine the most effective regimen for treatment of atypical scabies infestation have not been performed. The following

regimens were selected from several that have appeared in the literature and have been successful in single or small series of cases. They are included as examples and are not necessarily endorsed by ACDC.

2. Patients/residents with atypical or keratotic lesions should be soaked in a tub of lukewarm water for 10 minutes immediately prior to application of scabicide to hydrate the skin; use of keratolytic agents (e.g., salicylic acid) may soften scales and enhance penetration of scabicide. Allow skin to cool before applying scabicide.

3. Regimen A
   a. Apply 5% permethrin cream for 12 hours, followed by repeat application of 5% permethrin cream for 12 hours, wash off.
   b. After seven days, repeat step (a), above.
   c. Seven days following last treatment, obtain scrapings from at least 3 sites. If scrapings are positive or if symptoms are unabated, treat again.

4. Regimen B
   a. Apply 5% permethrin cream, as previously described, on day one.
   b. Apply 10% crotamiton lotion, as previously described, on days 2-6.
   c. Reapply 5% permethrin cream on day 7.
   d. Reassess on days 7 through 14, obtain scrapings from at least 3 sites in one month. If scrapings are positive or if symptoms unabated, begin regimen again.

5. Regimen C
   a. Ivermectin 200 ug/kg in a single oral dose in combination with 5% permethrin cream on day one.
   b. Two weeks after therapy (day 15), obtain scrapings from at least 3 sites. If scrapings are positive or if symptoms unabated, treat again.

E. Treatment Failures

1. Treatment failures can result from:
   a. Inadequate or improper application of scabicide;
   b. Infected, atypical, or keratotic lesions with insufficient penetration of scabicide;
   c. Reinfestation from untreated contacts;
   d. Resistance of mites to scabicide.

2. Pruritus and rash can continue for 1- 4 weeks after treatment and should not be considered evidence of treatment failure until one month after the last treatment. To ameliorate these signs and symptoms, some clinicians use hydrocortisone cream 1% or triamcinolone cream (0.1%-0.025%) applied to the most intense rash sites **after** the first scabicide treatment. Oral antihistamines are also used to alleviate the hypersensitivity response

APPENDIX E

SCABIES TREATMENT OPTIONS

Scabies Classification	Treatment Options	Dose	How to Treat	Duration of Treatment	Who to Treat?
Typical Scabies	Treatment A 5% permethrin cream (*Elimite®, Acticin)*	Adult dose – 30 grams 60-gram tube can treat two adults	Massage cream into skin from under chin to soles of feet Attention to hairline, neck, temple in geriatric patients/residents	One treatment usually sufficient May repeat if needed 7 days after 1st treatment	Cases > 2 months, healthy adults Used for prophylaxis of asymptomatic contacts
	Treatment B Ivermectin (*Mectizan® or Stromectol®)* oral antiparasitic Used for patients/residents who have failed treatment with or cannot tolerate topical treatment	200 mcg/kg	Given orally to treat suspect/confirmed cases of scabies	Single dose; 2nd dose may be necessary to eliminate infection	Cases > 12 years
Atypical (Norwegian) or Crusted Scabies	Treatment A 5% permethrin cream (*Elimite®, Acticin)*	Adult dose – 30 grams	Massage cream into skin from under chin to soles of feet	Apply once, 2nd application 12 hrs. later May repeat if needed 7 days after 1st round of treatment	Cases > 2 months, healthy adults
	Treatment B 5% permethrin cream (*Elimite®, Acticin)* 10% crotamiton lotion (*Eurax*)	Adult dose – 30 grams Enough lotion to cover skin chin to feet	Apply permethrin once as above and again 12 hrs. later on day 1 and day 7 Apply crotamiton as above on days 2-6	One-week long treatment sufficient; reassess 7 days after treatment completed	Cases > 2 months, healthy adults
	Treatment C 5% permethrin cream (*Elimite®, Acticin*) Ivermectin (*Mectizan® or Stromectol®)* oral antiparasitic	Adult dose – 30 grams 200 mcg/kg	Apply permethrin once as above and again 12 hrs. later Single oral dose	One treatment; reassess 14 days after treatment	Cases > 12 years

APPENDIX F

SCABIES TREATMENT OR PROPHYLAXIS WITH PERMETHRIN (ELIMITE®

Clothing, towels, and bed linen that have been used within the last four days should be machine washed and dried using the hot cycle. Articles that cannot be washed can be dry cleaned or tied in a plastic bag for 3 to 7 days. Floors and carpets should be vacuumed, and the vacuum bag placed in a plastic bag and discarded.

DIRECTIONS

1. Take a bath, soaping the body completely, rinse well, and then dry thoroughly. Allow your body to cool.

2. Apply Elimite® into the skin from the chin to the soles of the feet. Scabies rarely infests the scalp of adults, although the hairline, neck, temple, and forehead may be infested in infants and geriatric patients/residents. Pay particular attention to skin folds and creases. Avoid contact with the eyes. Reapply if washed off following use of the toilet, handwashing, etc.

3. Put on clean clothing. Use freshly laundered bed linens and towels.

4. Leave cream on for at least 8 hours but no more than 14 hours, and then take a warm shower or bath, soaping the body completely, rinsing and drying well.

5. Put on clean clothing. Re-launder towels and bed linens used during treatment.

6. Itching may continue for several days or weeks.

7. A single treatment is generally adequate.

CAUTION

1. If pregnant or a nursing mother, consult your private physician.

2. Elimite® is approved for use in children two months of age and older.

Frequently Asked Questions (FAQs)

SCABIES

1. What is Scabies?

Scabies is a skin infestation caused by human itch mites (tiny bugs). Mites crawl under a person's skin and lay eggs. Scabies infestations often happen in crowded places where close body and skin contact is frequent (such as nursing homes, prisons, childcare centers). Scabies is found worldwide and affects people of all races and social classes.

2. How does Scabies spread?

Scabies usually spreads from having frequent and direct skin on skin contact with a person already infested with Scabies, including sexual partners and household members. Healthcare workers may get infested through skin contact with patients/residents with undiagnosed scabies. Scabies may also spread through contact with an infested person's clothing, bedding or other items.

3. What are the signs of Scabies?

The most common sign of scabies is deep itching (mostly at night). A person with scabies can also get a pimple-like itchy rash and thin pencil-mark lines on their skin. These signs can start to show about 2 to 6 weeks after becoming infested with scabies.

4. How is Scabies treated?

A special medicine (a cream or lotion) prescribed by a doctor is needed to kill the mites. Over-the-counter anti-itch products don't kill the mites. The medicine must be applied over the person's entire body. In addition, all clothing, bedding, and other items that came in contact with the person with scabies need to be cleaned using hot washer and dryer cycles. If someone in your house has scabies, everyone who lives there also should be treated at the same time. Itching may continue 2 to 4 weeks after treatment.

5. How can you prevent the spread of Scabies?

- Avoid prolonged direct touching of the skin and belongings (clothing, bedding) of people who have scabies.
- All infested items like bedding and clothing should be cleaned using hot water and dryer cycles. Put items that can't be washed or cleaned in a closed plastic bag for 3 to 7 days to kill the mites.
- Clean and vacuum all rooms that were used by a person with scabies.
- Medical treatment is needed for all household members, even if they aren't itching or don't have a skin rash.

Key Points:

- Scabies usually spreads through frequent and direct skin on skin contact with a person who has scabies.
- A prescribed medicine is needed to treat scabies. If you feel deep itching, see a doctor to be tested for scabies.
- It is important to wash all items that belong to a person with scabies using hot water and a hot dryer cycle.
- Itching may continue 2 to 4 weeks after treatment for scabies.

For more information:

Los Angeles County, Department of Public Health
http://publichealth.lacounty.gov/acd/Diseases/SCABIES.htm

California Department of Public Health
https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Scabies.aspx

Centers for Disease Control and Prevention (CDC)
http://www.cdc.gov/parasites/SCABIES

Frequently Asked Questions (FAQs)

SCABIES FACT SHEET FOR HEALTHCARE WORKERS

1. What is scabies?

Scabies is an infestation of the skin caused by a mite. The female mite burrows into the top layer of the skin. This forms a slightly raised tunnel where the mite lays eggs and leaves waste.

2. How is scabies spread?

The mite is passed from person to person by skin contact or sharing bedding, clothing or other linens with a person who has scabies.

3. What are the symptoms and when do they appear?

The most common symptom is an itchy rash. Often the rash itches most at night. It can appear anywhere on the body but is usually on the hands, wrists, elbows, breasts, armpits, waistline, and groin.

Healthcare workers who have never had scabies before usually notice symptoms about 2 to 6 weeks after their contact with someone with scabies. Healthcare workers who have had scabies before may notice their symptoms sooner, often within a few days to 1 week.

4. How is scabies diagnosed?

Scabies is diagnosed by a doctor or other clinician looking at the rash and/or by taking a scraping from the skin.

5. What is the treatment?

A medicated cream will be prescribed by your doctor or other clinician. It is put on the skin, left on for several hours, and then washed off. You must put on clean clothes and use freshly laundered bed and bath linens. An oral medication may also be prescribed.

Key Points:

- Scabies usually spreads through frequent and direct skin on skin contact with a person who has scabies.
- A prescribed medicine is needed to treat scabies. If you feel deep itching, see a doctor to be tested for scabies.
- It is important to wash all items that belong to a person with scabies using hot water and a hot dryer cycle.
- Itching may continue 2 to 4 weeks after treatment for scabies.

For more information:

Los Angeles County, Department of Public Health
http://publichealth.lacounty.gov/acd/Diseases/SCABIES.htm

California Department of Public Health
https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Scabies.aspx

Centers for Disease Control and Prevention (CDC)
http://www.cdc.gov/parasites/SCABIES

6. As a healthcare worker, what do I do if I think I have scabies?

Healthcare workers must report symptoms consistent with scabies immediately to their employer. The healthcare worker must be removed from work and referred to employee health.

7. Can I spread scabies to my patients/residents or co-workers?

Yes, a person is probably able to spread scabies from the moment of direct contact until after all treatment is complete.

8. When can I return to work if I am a healthcare worker who has been diagnosed with scabies and my job requires skin-to-skin contact with patients/residents?

A healthcare worker can return to work the day following overnight treatment with 5% permethrin cream. Gowns and gloves should be worn 2-3 days for direct patient/resident care until all control measures have been completed to prevent reinfestation.

9. If a co-worker is diagnosed with scabies, what precautions must be taken?

Scabies usually is spread by prolonged skin-to-skin contact with an infested person; persons who have had such contact should be evaluated by a physician or other clinician and treated if necessary.

10. Can a healthcare worker get scabies again?

Yes. In fact, the symptoms (itching and rash) will appear more quickly.

11. Can my family get scabies?

A healthcare worker with scabies can transmit the disease to household members. Household members and other persons with skin-to-skin contact should be preventively treated. Clothing, bedding, and bath linens used within the 3 days before initiation of therapy should be washed in a washer using hot water and dried using the hot drier cycle. Clothing and other items that cannot be laundered should be stored in a closed plastic bag for 3 to 7 days.

APPENDIX I

CONTACT PRECAUTIONS AND ENVIRONMENTAL CONTROL FOR PATIENTS/RESIDENTS WITH SCABIES

A. Typical Scabies

1. Place patients/residents with typical scabies on contact precautions during the treatment period; 24 hours after application of 5% permethrin cream or 24 hours after last application of scabicides requiring more than one application.

2. HCWs must wear gloves and a long-sleeved gown for direct hands-on contact. Wash hands after removal of gloves.

3. Place bed linens, towels and clothing used by an affected person during the 3 days prior to initiation of treatment in plastic bags inside the patient's/resident's room, handled by gloved and gowned HCW without sorting, and washed in hot water. The hot cycle of the dryer should be used. Non-washable blankets and articles can be placed in a plastic bag for 3 to 7 days, dry cleaned or tumbled in a hot dryer.

4. Change all bed linens, towels and clothes daily.

5. Disinfect multiple patient/resident -use items, such as walking belts, blood pressure cuffs, stethoscopes, wheelchairs, etc., before using on other patients/residents. Discard all creams, lotions or ointments used prior to effective treatment.

6. Vacuum mattresses, upholstered furniture and carpeting. There is no need for special treatment of furniture, mattresses or rugs or fumigation of areas. General cleaning and thorough vacuuming is recommended.

7. Routine disinfection procedures are adequate.

8. Symptomatic HCW can return to work as soon as treatment is completed but should use gowns and gloves for direct patient/resident care to prevent reinfestation until all control measures for affected units/areas have been completed.

B. Atypical (Norwegian) or Crusted Scabies

(Maintain contact precautions until all treatments are completed and/or patient/resident is determined by clinician or primary care provider to be scabies free).

1. Assign patient/resident to a private room, if possible. Restrict visitors until treatment regimen completed; alternatively, require visitors to gown and glove as required for contact precautions. If resources permit, cohort employees to care for this patient/resident only (no other direct care responsibilities) until effective treatment is completed.

2. HCWs must wear gloves and a long-sleeved gown with the wrist area covered to attend to patient/resident needs, for housekeeping duties, and handling of laundry. Remove gown before leaving the room. Wash hands.

3. Bed linens, towels and clothing used by the affected persons during the 3 days prior to initiation of treatment should be placed in plastic bags inside the patient's/resident's room, handled by gloved and gowned laundry workers without sorting, and laundered in hot water. The hot cycle of the dryer should be used 50 ºC (122 ºF) for 10 minutes. Non-washable blankets and articles can be placed in a plastic bag for 3 to 7 days, dry cleaned or tumbled in a hot dryer for 20 minutes.

4. Change all bed linens, towels and clothes daily.

5. Blood pressure cuffs, walking belts, stethoscopes, etc. should be designated for single patient/resident use and left in the patient's/resident's room. Discard all creams, lotions or ointments used prior to effective treatment.

6. Upholstered furniture containing any cloth fabric should be removed from the room and, if necessary, replaced with plastic or vinyl furniture. Mattresses must be covered with plastic or vinyl.

7. The patient's/resident's room should be vacuumed daily with a vacuum cleaner designated for this room alone, followed by routine room cleaning and disinfection. The vacuum cleaner bag should be changed daily; removal and disposal of contaminated bags should be performed in accordance with infection control protocol.

8. The room should be terminally cleaned upon patient/resident discharge or transfer.

APPENDIX J

FACILITY NAME

SCABIES CASE/CONTACT LINELIST FORM: PATIENT/RESIDENT

IP Name: _____ Contact Person: _____

Date: _____

Patient Information								Patient Location		Illness Description						
Name	MRN	Age	Sex	Admit date	Discharge date / To Where	Admission Dx	Exposure Dates	Room # / Unit & Location	Unit / Bed after Exposure	Onset Date	Evaluated for Scabies	Skin Scraping (Y/N)	Scabies Sign Sx	Number of Scabies Tx	Scabies Tx Name	Scabies Tx Date(s)

APPENDIX K

FACILITY NAME

SCABIES CASE/CONTACT LINELIST FORM: HEALTHCARE WORKER

IP Name: _____ Contact Person: _____

Date: _____

Healthcare Worker Name	Age	Sex	Job Title	Location Description Rash	Date Onset Sx	Dx Eval by	Usual Work Assignment	Other Work Assignment	Skin Scraping (Y/N)	Scabicide Dates	Follow Up Results	Family Member Sx	Procedure	Family Member Tx

APPENDIX L

Sample Letter to Discharged Patients/Residents

Facility Letterhead

Date

Dear Patient/Resident:

During your recent hospitalization you may have been exposed to scabies. Although it is unlikely that the exposure will result in you becoming infected with scabies, we want to alert you to the possible exposure. We are working in collaboration with Los Angeles County Public Health and want to ensure that you are informed of the possible exposure and that the appropriate follow-up steps are taken, if needed.

Scabies is a contagious skin condition caused by a mite that requires skin-to-skin contact. Signs and symptoms include a rash and itching, especially at night. It can appear anywhere on the body but is usually on the hands, wrists, elbows, breasts, armpits, waistline, and groin. The rash can also include tiny blisters and scales. Scabies has a long incubation period (the time from possible exposure to the time symptoms develop), usually four to six weeks. Persons who have scabies are infectious to others, even before symptoms develop. Scabies is diagnosed by a physician, nurse practitioner or other clinician looking at the rash and/or taking a scraping from the skin. Usually, scabies is easily treated by a medicated cream or oral medication prescribed by your physician.

Public Health recommends that you check your skin daily and, if a rash and/or itching occurs, notify your personal physician as soon as possible. Or you may call me at _____ if you have any questions.

Thank you for your cooperation.

Sincerely,

Name, Title

APPENDIX M

Sample Letter to Physicians of Discharged Patients/Residents

Facility Letterhead

Date

Dear Physician:

Our medical center is currently experiencing an outbreak of scabies. The period of potential exposure was from _____ to _____.

Patients/residents whose last date of exposure was more than six weeks ago should be questioned regarding symptoms consistent with scabies. Those patients/residents found to be symptomatic should be evaluated and treated as necessary. Family members and other close contacts should receive prophylactic scabicide therapy at the same time the patient/resident is treated. Permethrin cream 5% (Elimite®) is the recommended agent for treatment of scabies.

Patients/residents whose last date of exposure was less than six weeks from this date should be treated with topical scabicide or monitored for symptoms until the six-week period is over. Close contacts of symptomatic patients/residents should also receive treatment or monitoring as well.

Enclosed is a list of your patients/residents who are considered exposed and their last date of exposure. Please notify ___ at ___ if any of your patients/residents develop scabies. Thank you for your assistance.

Sincerely,

Name, Title

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www.publichealth.lacounty.gov/acd

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