PREVENTION AND CONTROL OF SCABIES IN CALIFORNIA LONG-TERM CARE FACILITIES

California Department of Public Health
Division of Communicable Disease Control
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CONTENTS

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INTRODUCTION

Scabies is a parasitic disease (infestation) of the skin caused by the human itch mite, *Sarcoptes scabiei.* The actual incidence of scabies in California is unknown because single occurrences of the disease are not reportable to county health departments.

In young, healthy persons scabies is generally considered to be more of a nuisance than a disease. In elderly persons, especially those with chronic diseases, scabies is generally not diagnosed until cutaneous (skin) lesions and symptoms are apparent. Because of the long incubation period, many exposures may occur before a diagnosis of scabies is suspected.

In long-term care facilities, the identification of scabies in a resident or health care worker often results in anxiety which is accompanied by excessive measures to control the transmission of the scabies mite. Such measures as closing the facility to new admissions for a period of time and the use of mass prophylaxis to treat all residents, employees, visitors and volunteers are common. These measures are often unnecessary and result in needless expense to the facility.

Because of the number of outbreaks reported by long-term care facilities, these recommendations were developed by the Department of Public Health to provide a rational approach to the prevention and control of scabies in California long-term care facilities. They are intended to be advisory only and were developed to assist long-term care facility infection control committees in the development of a rational approach to reducing the transmission of scabies. The implementation of all or part of the elements of these recommendations will depend on what has worked for long term care facilities in the past. If a facility has existing policies to prevent and control the transmission of scabies, there may be no need to modify these procedures. On the other hand, if a long-term care facility has continuing problems with endemic scabies, these recommendations may be helpful in the development of policies and procedures to prevent and control scabies outbreaks.

BIOLOGY OF THE SCABIES MITE [(1)]

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. Following transfer, the female mites wander haphazardly around the surface of the skin for several hours at the speed of 1 inch per minute before selecting a suitable burrow site. Once a site is selected, the mites use their mouth and legs to tear into the surface of the skin. A saliva-like substance is also secreted which aids in the burrowing process by dissolving the skin. When a burrow is complete, a female will lay 2-3 eggs in a burrow. This cycle is repeated many times during the two month life span of the fertile females.

The eggs hatch in 3-4 days, producing larvae. The larvae migrate to the surface of the skin within a day after hatching, dig a shallow burrow and feed on fluids contained in the skin cells. Over the next 3-4 days the outer skin layer of the larvae is shed (molt) and the mites develop into sexually immature nymphs (young adults). A final molt occurs 4-6 days later resulting in sexually mature male and female adult mites. The male

mites have a very short life span (1-2 days) spent seeking out unmated females.

Although the pregnant female can lay up to three eggs per day during her two-month life span, fewer than 10% of the eggs live long enough to reach adult stage. Most of the eggs are removed from the skin during bathing or other actions such as scratching or rubbing of the skin. Once a mite leaves the skin of the host, life is terminated in about 2-3 days due to lack of a food source.

PROGRESSION OF SCABIES INFESTATION

The severity of scabies infestation is directly related to the number of mites residing on the skin and the length of time between initial infestation and subsequent diagnosis and treatment. Persons with typical scabies generally have fewer than 50 live mites on their skin at any given time. If diagnosis and treatment are delayed, the number of live mites multiplies resulting in heavier or atypical infestations. Keratotic or crusted scabies, sometimes referred to as Norwegian scabies, was first described in persons diagnosed with leprosy in Norway. This severe form of scabies occurs when treatment for infestation has been delayed for many months and is characterized by thick, crusted lesions. Imbedded within these crusts are thousands to millions of live mites.

There are several physiological and immunological factors that influence the progression of infestation. Persons diagnosed with renal failure, insulin dependent diabetes, or severe mental retardation may progress from typical to atypical scabies in a shorter period of time than healthy persons may. Crusted scabies is more commonly associated with persons diagnosed with acquired immunodeficiency syndrome (AIDS), T cell leukemia and those who are receiving steroids or immunosuppressive therapy.[(2)]

TRANSMISSION

The scabies mite is generally transmitted from one person to another by direct contact with the skin of the infested person. In the community, sporadic scabies is often transmitted during sexual contact. Scabies may also be acquired by wearing an infested persons clothing (fomites) such as sweaters, coats or scarves. Children may transmit scabies to siblings who share common living quarters and to their parents during normal physical contact such as hugging, bathing or bed making. In long-term care facilities, scabies may be introduced into the facility by a newly admitted resident with an unrecognized infestation or by visitors or health care workers as a result of contact with an infested person in the home or community.

Scabies is generally transmitted to health care workers by direct skin-to-skin contact with an infested resident. Activities such as performing physical assessments, bathing and changing a resident's soiled linen are conducive to transmission because physical contact is often prolonged. Transmission may occur between residents during social or recreational activities.

The mite can only survive for a short period of time on inanimate objects. The survival time will vary depending on the temperature and humidity. Mites only live for a few hours on dry surfaces, clothing and bedding. Under ideal temperature and moisture conditions, the life expectancy of the mite may increase to 3-4 days.

The role of inanimate objects such as fabric covered chairs and sofas will play little, if any, role in the transmission of scabies if the infestation is typical. However, if the infestation is atypical or has progressed to the crusted stage, the environment may also

harbor mites and contribute to transmission.

SIGNS AND SYMPTOMS

In healthy persons with no prior history of infestation, there will be no signs or symptoms immediately following exposure and during the initial 4 to 6 week incubation period. Following the incubation period, the infested person will complain of pruritus (itching) which intensifies at bedtime under the warmth of the blankets. Pruritus is a cell-mediated hypersensitivity (allergic) response to the mites, eggs and feces imbedded in the skin. In previously infested persons, pruritus may be noticeable as soon as 48 hours following reinfestation.

Skin lesions are generally seen on the hands, wrists, elbows, folds of armpits, female breasts or the male genitals. In long term care facility residents, lesions may be more predominate on the areas of the skin having contact with moist sheets such as the back and buttocks.

In typical scabies, the rash is generally characterized as red, raised bumps (papules). Pustules, burrows, blisters or nodules are seldom seen because the skin is often excoriated due to the intensity of itching and scratching. Burrows can sometimes be visualized with the assistance of a magnifying lens and will appear as short, wavy, elevated lines of red skin. As the infestation progresses, the rash may mimic other dermatological conditions. These conditions include eczema, drug reaction, impetigo, folliculitis, dermatitis herpetiformis, pyoderma, tinea, pityriasis, psoriasis, syphilis, mycosis fungoides, lupus, acute urticaria, insect bites, and contact dermatitis.

The excoriated skin lesions may become infected with microorganisms such as *Staphylococcus aureus* or beta hemolytic streptococci. This may contribute to the misdiagnosis of scabies because physicians may attribute the acute inflammatory condition to pyoderma as opposed to a secondary bacterial infection associated with scabies. [(3)]

CONFIRMATION OF SYMPTOMATIC CASE(S)

The diagnosis of typical scabies can be especially difficult in elderly persons living in long term care facilities. Their skin is generally dry and scaly and there may be pre-existing, chronic dermatological conditions for which oral or topical steroids have been prescribed. Usually, the first indication that a scabies infestation is evolving is complaints of itching and new onset of a rash by one or more residents within a period of 5-12 days. Exposed health care workers, volunteers and frequent visitors may also complain of itching and rash at about the same time. Skin scrapings, when performed properly, will almost always be positive in persons suspected of having atypical or crusted scabies. However, newly infested persons are more likely to have typical scabies and skin scrapings, even when repeated several time at different sites, may be negative.

Although skin scrapings are generally negative in typical scabies, it is recommended that this procedure be performed on at least one (1) symptomatic case (resident or health care worker). (See Appendix A) The absence of mites, eggs or fecal pellets on microscopic examination does not guarantee that the resident does not have scabies. However, a positive skin scraping should assist physicians in the development of appropriate therapeutic and prophylactic treatment plans.

If skin scrapings are negative, the "burrow ink-test" may provide clues to aid in the

diagnosis. This test requires a light source, magnifying lens and a black or green felt tip pen. After an unexcoriated, intact wavy, red line (burrow) is located, ink is rubbed directly over the suspect burrow. The ink is immediately and gently wiped off with an alcohol-impregnated sponge. After removing the excess ink, the remaining ink will appear as a black or green zigzag line under magnification. This is an insensitive method of diagnosing scabies and may only be useful for a few days following the onset of signs and symptoms.

SCABIES PREVENTION PROGRAM

Long-term care facilities should have a scabies prevention program. This 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. A skin assessment should be repeated at least every 4 weeks and any signs or symptoms suggestive of infestation should be documented and communicated to the infection control practitioner. When scabies is suspected, an immediate search for additional cases should be initiated.

Health care workers should be educated about the epidemiology of scabies and how to identify and report any unusual pruritus, rashes or skin lesions. In addition to education, health care workers, visitors and volunteers should be instructed to report any exposure to scabies in the home or the community.

SCABIES CONTROL PROGRAM

A scabies control program should be developed and approved by the infection control committee. The program should designate a physician such as the medical director who will act as the program coordinator. This physician should be given the authority to notify attending physicians, perform diagnostic procedures such as skin scrapings and to order prophylactic and therapeutic scabicide treatments on exposed residents.

The infection control practitioner should be responsible for (1) identification of contacts of symptomatic case(s), (2) prevention of transmission, (3) treatment of symptomatic cases, (4) treatment of contacts, (5) post-treatment assessment and (6) assessment of treatment failures.

Identification of Contacts of Symptomatic Case(s)

As soon as a possible case of scabies is identified, the infection control practitioner should develop a contact identification list. This list should identify every resident, health care worker, visitor and volunteer who may have had direct, physical contact with the case within the previous month. If more than one symptomatic case is identified, a separate contact list for each case may be required. Initially, the contact identification list should be limited to the nursing unit where the suspect or confirmed case resides. This list should contain the following: (See Appendix B1 - B4)

1. Include the nursing unit, room number, name, date of onset of symptoms, results of skin scrapings, date of initial treatment, date of follow-up treatment, results of treatments (e.g. condition resolved or not resolved) and the date and results of

repeat skin scrapings, if performed.

2. Identify roommates of the case. Include roommates who have been discharged, moved to other nursing units or to another health care facility within the previous month.

3. Determine the daily routines of the case for the previous month and identify exposed residents located on the same nursing unit or on other nursing units.

4. Determine if the case was transferred to another health care facility for treatment, such as dialysis, within the past month. Notify the other facility's infection control practitioner.

5. Notify visitors (spouse, family members or friends) who may have visited the case within the past month.

6. Identify health care workers and volunteers who have had direct physical contact with the case within the past month. Determine if these contacts are symptomatic or asymptomatic.

7. Determine if household contacts or the sexual partner of symptomatic health care worker, volunteer or visitor has signs or symptoms of scabies infestation.

8. Determine if there are symptomatic health care workers, residents, volunteers or visitors on other nursing units. If an initial evaluation indicates no unusual complaints of pruritus or changes in the condition of the skin, treatment may not be indicated. However, a follow-up evaluation should be done at least every other day for four (4) weeks.

After developing a contact identification list, the infection control practitioner should determine who should receive treatment and the treatment schedules to be followed. Resident, health care worker, visitor and volunteer contacts determined to be symptomatic should be treated as soon as possible, preferably within the first 24 - 48 hour treatment period.

Controlling Transmission (Typical, Atypical and Crusted Scabies)

Typical Scabies Infestation

The following precautions should assist in the development of an effective plan to control further transmission.

1. Place symptomatic resident(s) on isolation precautions in their assigned rooms. Restrict resident(s) to their room(s) for the duration of the first treatment period (8-12 hours). Following bathing to remove the first application of scabicide, discontinue isolation precautions. Isolation precautions are not necessary for prophylactic treatments (e.g., follow-up treatments or treatment of asymptomatic contacts).

2. Wear cloth or disposable long sleeve gowns when applying the scabicide and for all direct resident contacts during the defined treatment period. Gowns may be reused by the same health care worker during an entire shift and then discarded.

3. Wear gloves when applying the scabicide and for all direct resident contacts during the defined treatment period. The cuff of the glove should cover the wrist of the gown. Gloves should be discarded immediately following the completion of any task involving skin contact during the defined treatment period.

4. Instruct visitors to wear a long sleeve gown and gloves until after the scabicide has been washed off.

5. Wash hands, wrists and lower arms following removal of gowns and gloves.

6. Bathe or shower the resident(s) prior to applying scabicide if the resident has not been bathed within the previous 24 hours. Wash hair and clip and clean resident's finger and toe nails.

7. Apply the scabicide from the hairline and ears to the soles of the feet. Use a soft brush, such as a toothbrush, and apply scabicide under the finger and toenails. Reapply the scabicide immediately after hand washing or cleansing of the perineal-rectal area following incontinence, and other areas of the body which have become moist. If the resident perspires heavily, the scabicide may have to be reapplied to the back, buttocks and the backs of the legs several times during the treatment period.

8. Place all washable personal clothes worn by the resident during the preceding week into a plastic bag, seal and send home with family members to wash and dry. Instruct family members to wash clothes in hot water and laundry detergent and to dry in a hot dryer.

9. Place all non-washable personal clothes such as shoes, coats, jackets and scarves worn by the resident during the preceding week in a plastic bag. Instruct family members to have items dry cleaned or place them into a hot dryer for 20 minutes. If this is not possible, seal the plastic bag for 5-7 days.

10. Change all bed linens including blankets and spreads following the initial application of scabicide. Remove all used towels, wash cloths and bedclothes worn by the resident. Place these items in a plastic bag and send to the laundry for processing.

11. Instruct laundry personal not to sort personal clothes, sheets, towels or bedspreads and to wash and dry these items separate from other facility laundry.

12. Change bed linens, towels and clothing after the scabicide has been washed off.

13. Disinfect mattress, pillow covers, bedside equipment and floors after scabicide has been washed off.

14. Disinfect multiple use equipment such as walking belts and blood pressure cuffs.

15. Discard any topical creams, ointments or lotions used by symptomatic cases.

Atypical Scabies Infestation

The following precautions should assist in development of an effective plan to control further transmission.

1. Place resident diagnosed with atypical scabies on isolation precautions in a private room. Maintain isolation precautions until after the second application of scabicide and at least two (2) skin scrapings are negative.

2. Place symptomatic contacts on isolation precautions in their assigned rooms. Restrict contact(s) to their room for the duration of the treatment period (8-12 hours - symptomatic contacts should be considered to have typical scabies). Following bathing to remove the scabicide, precautions can be discontinued. Isolation precautions are not necessary for prophylactic treatments (e.g., follow-up treatments or treatment of asymptomatic contacts).

3. Wear cloth or disposable long sleeve gowns when applying the scabicide and for all direct resident contacts during the treatment period. Gowns may be reused by the same health care worker during an entire shift and then discarded.

4. Wear gloves when applying the scabicide and for all direct resident contacts until post-treatment skin scrapings are negative. The cuff of the glove should cover the wrist of the gown. Gloves should be discarded immediately following the completion of any task involving skin contact during the treatment period.

5. Remove upholstered furniture from the room and cover with plastic for 7-10 days.

6. Follow the infection control precautions delineated for typical scabies listed in numbers 4 through 15, above.

Crusted or Keratotic Scabies

The following precautions should assist in the development of an effective plan to control further transmission.

1. Place symptomatic resident on contact isolation precautions in a private room until at least three (3) negative skin scrapings have been documented. This may take from 7-30 days or longer, depending on the severity of the infestation.

2. Place symptomatic contacts on isolation precautions in their assigned rooms. Restrict contact(s) to their room for the duration of the treatment period (8-12 hours - symptomatic contacts should be considered to have typical scabies). Following bathing to remove the scabicide, precautions can be discontinued. Isolation

precautions are not necessary for prophylactic treatments (e.g., follow-up treatments or treatment of asymptomatic contacts).

3. Wear cloth or disposable long sleeve gowns when applying the scabicide and for all direct resident contacts while resident is in isolation. Gowns may be reused by the same health care worker during an entire shift and then discarded.

4. Wear gloves when applying the scabicide and for all direct resident contacts until post-treatment skin scrapings are negative. The cuff of the glove should cover the wrist of the gown. Gloves should be discarded immediately following the completion of any task involving skin contact during the treatment period.

5. Remove upholstered furniture from the room and cover with plastic for 7-10 days.

6. Follow the infection control precautions delineated for typical scabies listed in numbers 4 through 15, above.

7. Perform skin scrapings when the condition of the skin is noticeably improved, e.g., the crusted lesions have begun to resolve and signs and symptoms associated with scabies have improved.

Treatment of Symptomatic Cases

Effective treatment of typical scabies requires the application of a safe and effective scabicide (agent that kills the mite). Until recently, the standard treatment was 1% Lindane (Kwell). However, the scabies mite has become increasingly resistant to this product and it is no longer recommended for the treatment of scabies. Additionally, neurotoxicity has been reported in some patients following a single application.

<u>Permethrin (Elimite) 5% Cream</u>

The current recommended treatment for scabies is 5% permethrin cream, a synthetic pyrethroid. When applied to the skin as directed, it is approximately 90% effective after one application.[4] Two applications may be required and is often recommended to assure complete eradication. The cream has a low rate of reported side effects, which consist of burning, stinging or itching immediately following application.

Animal studies have shown no adverse effects to reproductive function or to the fetus. However, studies have not been done on pregnant women. Therefore, permethrin should be used during pregnancy only if there is a clear indication for treatment. Breast-feeding should be discontinued during the treatment period. Permethrin is safe for children 2 months of age or older.

Application of Permethrin:

To avoid treatment failures, permethrin must only be applied by health care workers who have been specifically trained in application techniques.

1. Treat case(s) and their contacts during a defined 24-48 hour treatment period. Symptomatic cases should be treated during the first 24-hour treatment period. Asymptomatic contacts can be treated during the second 24-hour treatment period.

2. Massage permethrin into the skin covering the entire body from the hairline to the soles of the feet. Include the forehead, ears, and neck. Avoid the mucous membranes of the eyes, nose and mouth. Flush the eyes with copious amounts of water if permethrin exposure occurs.

3. Reapply permethrin to areas of the body, which have become moist following application.

4. Bathe or shower and shampoo the resident within 8-12 hours following treatment to remove the scabicide.

5. If a second application of permethrin is necessary, it can be applied immediately following the removal of the first application or up to 3-7 days later. Bathe or shower and shampoo the resident 8-12 hours following the second application.

6. If symptoms of scabies persist, a third and fourth application of permethrin may be required.

Crotamiton (Eurax) 10%

Crotamiton lotion is only about 50% effective in the treatment of scabies. The safety and effectiveness in children has not been established. Allergic and irritant dermatitis may occur in some persons. The product should not be used on acutely inflamed or open skin lesions. There are no human or animal data on the safety of this product during pregnancy.

Ivermectin (Mectizan)

Ivermectin is an antiparasitic agent that has been used to treat onchocerciasis (river blindness) in Africa. A single oral dose of 200 ug/kg (12 mg) used in conjunction with karyolytic agents has been effective in the treatment of crusted scabies. For an update on ivermectin, see "Control of Scabies Outbreaks in California Health Care Facilities," February, 1999.

Alternative Treatments for Crusted Scabies (See Appendix C)

Treatment of Health Care Worker, Visitor and Volunteer Contacts

Symptomatic health care workers, volunteers and visitors and their contacts should be treated during the same treatment period as the symptomatic residents are treated. Health care workers should be allowed to return to work following a single application (8-12 hours) of permethrin. Follow-up treatments are not necessary unless re-exposure occurs or symptoms persist. The following information may be useful in determining

who needs to be treated.

1. Contact with a symptomatic case has not been substantiated. No treatment is required. However, approval of one (1) application of scabicide should be granted if requested.

2. Contact with a symptomatic case is minimal such as delivering dietary trays or newspapers and books. Treatment is not necessary. However, approval for one (1) application of scabicide should be granted if requested.

3. Contact with a symptomatic case is substantial such as bed making, physical assessment or turning resident. Asymptomatic and symptomatic persons should be treated with one (1) application of permethrin. Family members, roommates and sexual partners of symptomatic cases should also be treated at the same time. Retreatment may be necessary if symptoms persist following the first treatment.

Symptomatic health care workers, volunteers and visitors should follow the instructions for washing cloths and decontaminating the home environment outlined in the prevention of transmission section of this guideline.

Post Treatment Assessment

If treatment with permethrin has been effective, the intensity of pruritus and rash should gradually resolve over a 7-14 day period. If signs and symptoms persist or intensify or if new lesions are identified within 7-14 days, treatment failure should be considered. Dermatologists recommend applying 1% hydrocortisone cream or triamcinolone cream (0.1%- 0.025%) to the most intense areas of pruritus and a lubricating agent or emollient to the areas of the skin less affected. Steroid creams, however, should not be applied until after the scabicide has been removed. Antihistamines may also be effective in relieving some of the symptoms.

Assessment of Treatment Failures

There are a number of reasons for treatment failures and the continued propagation of new cases in health care facilities. The most common reasons are:

1. Poor application technique. To be effective, scabicides must be applied to every square inch of the skin from hair and ear line to the palms of the hands and soles of the feet (finger and toenails).

2. Continued contact with untreated or unsuccessfully treated residents or health care workers.

3. Reluctance of health care worker to disclose symptoms suggestive of scabies for fear of uncompensated time off.

4. Failure of residents who have immunosuppressive diseases such as acquired immunodeficiency syndrome (AIDS) to respond appropriately to the scabicide.

5. Continued use of topical steroids during the treatment period(s).

6. Failure to kill the scabies mite in clothing, upholstered furniture or carpeting.

REPORTING OUTBREAKS

Outbreaks should be reported to the local health officer and to the California Department of Public Health, Licensing and Certification District Office. Two (2) or more confirmed cases or one (1) confirmed case and at least two (2) suspect cases occurring among residents, health care workers, visitors or volunteers during a 2 week period should be considered an outbreak for reporting purposes. A separate set of recommendations, "Control of Scabies Outbreaks in California Healthcare Facilities," March 2008, is available.

SUMMARY

The diagnosis of a single case of scabies in a long-term care facility is expensive, frustrating and results in a substantial amount of fear and anxiety for everyone involved. Health care workers must maintain a high degree of suspicion and take immediate action when signs and symptoms suggestive of infestation are observed. The first and most important step in preventing an outbreak is educating health care workers to perform a frequent and thorough skin assessment on all residents. Skin assessments should be documented and any findings suggestive of infestations should be communicated to the infection control practitioner. Once a suspect case is identified, appropriate diagnostic procedures should be performed. Controlling the transmission of scabies once a case has been identified requires immediate action. Contacts must be identified, isolation precautions must be implemented and a determination of who should be treated must be made. During the post treatment period, residents, health care workers, volunteers and visitors must be observed for possible treatment failure or reinfestation.

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APPENDIX A – PROCEDURE FOR SKIN SCRAPING

Skin scrapings should always be performed by a clinician who is trained to perform the procedure. Nurse practitioners and physician's assistants can also perform the procedure if they have been trained by a clinician.

1. Obtain the following equipment:

   Gloves and gowns
   Slides and cover slips
   Magnifying lens and light source such as goose neck lamp
   Alcohol impregnated wipes
   Felt tip pen (green or blue)
   Clear nail polish
   Mineral oil and dropper
   Potassium hydroxide
   Applicator sticks
   Disposable hypodermic needles (18-20 gauge x 1.5-2.0 inches)
   Surgical blade handle and # 15 surgical blade
   Sharps container
   Compound microscope (if available)

2. Procedure:

   A. Observe 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.

   B. Using a hand held magnifying lens and a strong light, look for new burrows or papules. If the burrow or papule is very fresh, a tiny speck (mite) may be visualized at either end of the burrow or in the papule. The mite will not be found in excoriated, scabbed or infected skin lesions. Preserved, unscratched papules may sometimes be found in a grouping of scratched papules.

   C. Visualize burrows using the "burrow ink test" described in the text.

   D. Select an unexcoriated burrow or papule.

   E. Prepare slides by dipping an applicator stick into mineral oil and transferring 2-3 drops to the center of several clean slides.

   F. Dip a hypodermic needle into the mineral oil and transfer a drop of oil to the lesion selected for scraping and spread the oil evenly over the intended scraping site.

   G. Hold the skin taut with one hand and hold the hypodermic needle at about a 5-10 degree angle with the other hand. If a surgical blade is used, hold blade at a 90 degree angle.

H. Apply light pressure and scrape the lesion making several movements across the lesion. Increase the pressure slightly while scraping. A small amount of blood may be visible, however, there should be no frank bleeding.

I. Transfer skin scrapings to prepared slide and place a cover slip over the scrapings.

J. Obtain at least 4-6 scrapings per resident.

K. Examine the entire slide preparation under low power magnification for evidence of mites, eggs or fecal pellets. If a compound microscope is not available at the facility, secure the cover slips with clear nail polish and transport slides to a clinical laboratory, physician's office or local public health laboratory.

If more than one resident has signs or symptoms of infestation, repeat the procedure using clean equipment on at least one other symptomatic resident. If health care workers are symptomatic, skin scrapings should be performed on at least one (1) symptomatic health care worker.

APPENDIX B1 – INDEX CASE HISTORY AND CONTACT IDENTIFICATION

Unit	Room #	Resident Name	Date of Symptoms Onset	Results of Skin Scraping (+, -, not done)	Date 1st Treatment	Symptoms Resolved (Y/N; Date)	Date of 2nd Treatment	Symptoms Resolved (Y/N; Date)	Results of follow up Skin Scraping (+, -, not done)

Comments: Resident has ☐ Typical; ☐ Atypical; ☐ Crusted Scabies

Recommended treatment: ☐ 5% Permethrin (Elimite); ☐ Alternative (identify below)

CONTACT IDENTIFICATION -- SYMPTOMATIC RESIDENTS

Unit	Room #	Name	Date of Symptoms Onset	Results of Skin Scraping (+, -, not done)	Date of Treatment	Date of 2nd Treatment	Symptoms Resolved (Y/N; Date)	Comments

APPENDIX B2 – INDEX CASE HISTORY AND CONTACT IDENTIFICATION

Unit	Room #	Resident Name	Date of Symptoms Onset	Results of skin scraping (+, -, not done)	Date 1st treatment	Symptoms Resolved (Y/N; Date)	Date 2nd treatment	Symptoms Resolved (Y/N; Date)	Results of follow up skin scraping (+, -, not done)
			See Appendix A1						

Comments:

CONTACT IDENTIFICATION -- ASYMPTOMATIC RESIDENTS

Unit	Room #	Name	Results of Skin Scraping (+, -, not done)	Date of 1st Treatment	Date of 2nd Treatment	Symptoms Resolved (Y/N; Date)	Comments

APPENDIX B3 – SYMPTOMATIC CONTACT IDENTIFICATION LIST
Healthcare Workers, Volunteers, Visitors

RESIDENT CONTACT: (Name)_____

Symptomatic Contact Name	HCW	VOL	VIS	Date of Symptoms Onset	Results of Skin Scraping (+, -, not done)	Date of Treatment	Symptoms Resolved (Y/N; Date)	Date Family Treated	Comments

APPENDIX B4 – ASYMPTOMATIC CONTACT IDENTIFICATION LIST
Healthcare Workers, Volunteers, Visitors

RESIDENT CONTACT: (Name)_____

Asymptomatic Contact Name	HCW	VOL	VIS	Treatment Recommended (Y/N)	Date of Treatment	Comments

APPENDIX C – ALTERNATIVE TREATMENT FOR CRUSTED SCABIES

Patients with crusted scabies often require several scabicides to completely kill all the mites. If substantial improvement is noted after 2 or 3 treatments with permethrin, the attending physician may elect to continue with this scabicide; otherwise, alternate treatment plans may be used.

1. Treatment Option A:

   A. Bathe resident in lukewarm water for 10 minutes and apply permethrin for 24 hours.

   B. Bathe resident in lukewarm water on days 2, 4 and 6, apply cromamiton on days 3 and 5 only.

   C. Apply permethrin on days 7, 14, 21 and 28.

   D. Bathe resident 24 hours following each application of permethrin.

   E. Observe and assess resident for improvement. If no improvement, repeat treatment option A or choose an alternative treatment plan.

2. Treatment Option B:

   A. Bathe resident in lukewarm water for 10 minutes and apply permethrin for 24 hours.

   B. Reapply permethrin 12 hours following the first application and leave on for 24 hours.

   C. Bathe resident in lukewarm water to remove permethrin.

   D. Apply crotamiton every day for 3 weeks. Bathe resident every other day.

   E. Observe and reassess resident for improvement during the 4th week. If no improvement, repeat treatment option B for an additional week or choose another option.

3. Treatment Option C:

   A. Bathe resident in lukewarm water for 10 minutes and apply permethrin.

   B. Give Ivermectin 200 ug/kg.

   C. Reapply permethrin 12 hours following the first application and leave on for 12 hours.

   D. Bathe resident in lukewarm water to remove permethrin.

E. Observe and assess for improvement for at least 4 weeks. If no improvement, select another treatment option or consult with dermatologist.

For all optional treatment plans, at least 3 skin scrapings performed at least one (1) week after the completion of the selected treatment should be negative before scabies is declared cured.