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1.0 INTRODUCTION

The following is a guideline for the management of scabies infestation in healthcare facilities and the community. Individual cases of scabies are not a reportable condition in the province of British Columbia. Outbreaks in facilities or schools/daycares should be reported to local public health units. The primary goal of managing cases of scabies infestation is to prevent the further transmission to others who may have close contact with the case. This may include household or sexual contacts, health care workers, residents in health care facilities, or school classmates.

2.0 EPIDEMIOLOGY

Scabies presents clinically as an itchy rash found particularly around the fingers, wrists, elbows and armpits. In infants the rash may also be on the head, neck, palms and soles. Immunocomprimised persons may have crusted lesions with many mites on any part of the body (Norwegian scabies). The rash is caused by a mite that burrows under the skin to lay its eggs. Sensitization to the proteins of the mite gives rise to the itchy rash. Secondary skin infections may occur. Itching is worse at night. In persons without previous exposure, it may take four to six weeks for symptoms to develop. In persons with previous exposure to scabies, itching may develop in one to four days after infestation.

The condition is cause by the mite *Sarcoptes scabiei.* The only reservoir is humans. A slightly different mite causes scabies in dogs, which may be transmitted to humans, but is a self-limited infestation. Transmission takes place through direct skin-to-skin contact. Transmission may also occur through contact with fomites such as clothing and bedding if they have been contaminated by an infested person immediately beforehand. Transmission can occur as long as the infested person remains untreated and until 24 hours after treatment. The mites do not live more than three to four days without contact with skin.

Scabies infestations may be typical or crusted. In crusted scabies (Norwegian scabies), skin infestation may be widespread and show extensive crusting and scaling.

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 period of time and within a defined geographical location (nursing unit, one floor or one wing, a class room and in some cases, the entire school or facility). The purpose of developing a case definition is to estimate the magnitude of the outbreak.

3.0 DIAGNOSIS

Diagnosis of scabies is made through a combination of history of intense itching (especially at night), a classic rash and the identification of mites from scrapings of affected skin. Skin scrapings are obtained with a scalpel and placed on a slide with mineral oil and examined microscopically for eggs, mature and immature mites and fecal pellets. Since persons with typical scabies are generally infested with relatively few mites at one time, confirmation of an infestation is difficult. If skin scrapings are negative or unavailable and all other symptoms point to a scabies infestation it may be necessary to proceed with the control measures based on symptoms rather than a verified diagnosis. If crusted scabies is suspected, at least one skin scraping should be done. Negative scrapings in a person with suspected crusted scabies should lead to a reconsideration of the diagnosis. See Appendix 5 for instructions on obtaining scrapings. The technique should be reviewed prior to attempting skin scrapings.

4.0 MANAGEMENT OF CASES

- The pruritis associated with scabies may be treated with diphenhydramine HCL or other anti-puretic medication if necessary. The pruritis may persist for up to three weeks after treatment even though the mites are dead and it is not an indication to retreat unless live mites are identified.
- The specific treatment of choice for scabies infestation is creams or lotions containing 5% permetherin as it is highly effective, minimally absorbed and minimally toxic. An alternative is 1% lindane but treatment resistance has occurred and it has the potential for neurotoxicity if misused. For infants, pregnant women and elderly with preexisting neurological conditions, 1% lindane is not the preferred treatment. A pharmacist should be consulted regarding alternative treatments. 10% crotamiton cream may be used for infants but has been associated with treatment failures. Invermectin in a single dose administered orally is considered for persons whose infestation is refractory to topical treatment, but is not approved for this purpose.
- If there is a superimposed bacterial skin infection, it should be treated at the same time as the scabies treatment.

4.1 TREATMENT

- Thoroughly massage the dermal cream or lotion into the skin from the neck to soles of the feet, paying particular attention to the areas between the fingers and toes, wrists, axillae, external genitalia and buttocks.
- Reapply to the hands, genitalia and buttocks if washed off within eight hours of application. It is not necessary to apply a thick visible layer of cream to the skin.
- Scabies rarely infects the scalp of adults, although the hairline, neck, temples and forehead may be involved in geriatric patients. Eyes and mouth should be avoided. Children should be supervised by an adult when applying dermal cream or lotion.
- Remove the dermal cream after 8 to 12 hours by washing (shower or bath).
- In the majority of persons, scabies infestation is cleared with a single application. If necessary, a second application may be given seven to 10 days after the first, but only if live mites can be demonstrated or new lesions appear.
- Note that a flare in the level of itchiness following treatment is normal and not an indication of treatment failure.
- A sample worksheet for treatment of residents in Residential Care Faculties is provided as Appendix 1.

4.2 PRECAUTIONS

- Permethrin should not be used on a person with known hypersensitivity to chrysanthemums.
- Lindane should be used during pregnancy only if clearly needed and should not be used by breastfeeding mothers. It should be used only under the direction of a physician.
- Lindane is contraindicated in persons with seizure disorders and in children less than two years of age.
- Convulsions have occurred in persons who have ingested lindane, who have overdosed themselves or who have inflamed skin at the time of application. It should be used only under the direction of a physician in patients who have excoriated skin.

4.3 TREATMENT OF CRUSTED (NORWEGIAN) SCABIES

- In the usual scabies infestations, 10 to 15 mites can be found on the body. In crusted scabies, where the patient does not respond well immunologically to the infestation, thousands of mites can be present, making treatment difficult. Although the mite is still sensitive to the usual treatment, the huge number of mites and the accompanying rash make repeat treatment mandatory.
- Treatment should focus on areas where mites can be sequestered, such as under fingernails (these may be cut and brushed before treatment) and in skin folds, including the umbilicus.
- For persons in institutions who have crusted scabies, contact precautions should be maintained until the patient's rash has resolved, confirming adequacy of treatment.

4.4 ENVIROMENTAL MEASURES

- All linen, towels and clothing used in the previous four days should be washed in hot water (60° C) and heated drying. Items that cannot be washed in hot water should be stored in a plastic bag for at least seven days before reusing.
- There is no need for special treatment of furniture, mattresses or rugs or fumigation of areas. General cleaning and thorough vacuuming is recommended, including soft or upholstered furniture.

4.5 MANAGEMENT OF CONTACTS

- Household, sexual contacts and other close contacts where skin to skin contact or sharing of cloths or bed linens has occurred should be treated prophylactically at the same time as the index case. Bedding and clothing worn next to the skin should be laundered as above.
- Contacts of persons with crusted scabies should be treated in some institutional outbreaks, such as those occurring in residential care facilities, prophylaxis of all residents and staff may be necessary. Direct contact with persons with crusted scabies should be avoided until cure is confirmed.
- School children with scabies may return to school/daycare after treatment. Confirmed cases in children should be managed on an individual basis. The school should be notified of the case, and parents of other children who may have been exposed to scabies should be notified by letter. A sample letter is included as appendix 4. Mass screening of school contacts is not useful, as it is quite possible to be infested without having signs or symptoms.

5.0 MANAGEMENT OF OUTBREAKS IN INSTITUTIONS

The above measures apply to scabies in institutions. However because of the enhanced opportunities for transmission, additional factors must be considered:

- Control of an outbreak involves a choice between treating only symptomatic cases and their known contacts and treating all possible contacts including asymptomatic patients, healthcare workers, volunteers, and visitors. There is limited published information on which to base any recommendations. Treatment of only symptomatic cases and their identified contacts may result in silent, continuous transmission over a sustained period of time. As a result, retreatment of all or some of the cases may be required.
- If the identified source person was diagnosed with crusted scabies and has been in the facility for many days or weeks mass prophylaxis may be necessary.
- Limited prophylaxis should be done if the outbreak is confined to a specific unit.
- Institute contact precautions as soon as scabies is suspected as the cause of a rash in a patient or resident. Maintain contact precautions until 24 hours after initiation of treatment.
- Only patients who have symptoms or have positive skin scrapings need to be placed on precautions. Patients with crusted scabies should be on precautions until the signs and symptoms of infestation have abated.
- Attempt to confirm the diagnosis. This may require the consultation of a dermatologist. It may be worthwhile; however, as control measures may involve treatment of staff and residents. Rashes are often atypical in residential care residents. If confirmation of the diagnosis is not possible, control measures will need to be followed based on clinical symptoms.
- Identify institutional contacts of the infested person. Offer examination, and if symptoms of scabies are present, treatment of these persons. Family contacts should also be treated.
- Institute in-service training for staff regarding scabies and its treatment. Staff fears of spreading the infestation to family members must be dealt with. Staff and residents should be kept aware of the control measures.
- After treatment of the index case and contacts, do not re-treat unless there is demonstration of live mites at least one week after treatment. New rashes may just represent an allergic response to dead mites that have not yet been shed from the skin.
- Failure to ensure live mites are present will lead to over-treatment of staff and patients. It is not unusual in an institutional setting to have one or two secondary cases after the initial treatment, but transmission should cease with the institution of contact precautions.

- Special attention should be paid to the items that infested residents have had direct skin contact with in the previous 4 days. These include clothing, wheelchair cushions, shoes, slippers, coats, lap blankets, etc. Items that cannot be washed in hot water (60° C) should be place in a sealed plastic bag for 7 days, placed in a hot dryer or dry cleaned.
- In facilities with a high percentage of demented residents transmission through fomites may occur more frequently due to inadvertent sharing of clothing, beds and other personal items.
- If outbreak control measures have been successful, no new cases should be seen within several weeks following treatment. However cases can still occur as late as six (6) weeks following the last exposure. If cases are still occurring several weeks following prophylaxis, either the source case was not identified, was not treated appropriately, or there is a new unidentified source(s) somewhere in the facility.
- Sample worksheets for managing an infested resident and resident and staff contacts in a Residential Care Facility are provided as Appendices 1, 2 and 3.

6.0 REFERENCES

Flinders, DC and Schweinitz, PD. Pediculosis and Scabies. American Family Physician 2004. American Academy of Family Physicians.

Manitoba Public Health. Communicable Disease Management Protocol: Scabies. November 2001.

Heymann, D.L. (2004). Control of Communicable Diseases in Man. 18th edition, American Public Health Association, Washington, D.C.

Pickering LK et al. Red Book 2000. 25th edition. American Academy of Paediatrics, Elk Grove Village, IL.

California Department of Health. Management of Scabies Outbreaks in California Health Care Facilities. May 1999.

Degelau, J. Scabies in long-term care facilities. Infection Control Hospital Epidemiology. 1992; 13:421-425.

Porto, I. Antiparasitic Drugs and Lactation: Focus on Antihelmintics, Scabicides, and Pediculicides. Journal of Human Lactation 19 (4), 2003.

APPENDIX 1: SCABIES CASE WORKSHEET - RESIDENT

Resident name_____ Room_____

Symptoms observed:_____

Resident's Attending Physician_____

Scabies Diagnosed By Whom? _____

Diagnosis Method: Skin Scraping_____ Visual Exam _____

Diagnosis Made: Scabies_____ Query Scabies_____ Other_____

Bath/shower given, if needed: Date_____ Time_____

Scabicide treatment applied Date_____ Time_____

Gown/gloves worn during bath and Rx application? Yes____ No____

Bed linen changed Date_____ Time_____

Gown/gloves worn to strip bed? Yes_____ No_____

Personal clothing washed Date_____ Time_____

Adequate hand washing afterward? Yes_____ No_____

Signature of nurse _____

10-Hour Follow-Up

Follow-up bath (soap) Date_____ Time_____

Bed stripped Date_____ Time_____

Gown/gloves worn during bath? Yes_____ No_____

Gown/gloves worn to strip bed? Yes_____ No_____

Adequate hand washing afterward? Yes_____ No_____

Signature of nurse_____

72 Hour Follow-Up

Any further symptoms observed or reported? Yes_____ No_____

Signature of nurse_____

Seven Day Follow-Up

Any further symptoms observed or reported? Yes_____ No_____

Signature of nurse_____

APPENDIX 2: SCABIES - CONTACT TRACING WORKSHEET

Resident's Name_____ Room _____

Resident's Attending Physician_____

Scabies Diagnosed By Whom? _____

Diagnosis Method: Skin Scraping_____ Visual Exam _____

Diagnosis Made: Scabies____ Query Scabies_____ Other_____

Symptoms Reported: _____

Possible Contacts (Other Patients, Staff): _____

Did The Resident Come From Another Facility? Yes____ No_____
If yes, where?_____

If yes, was that facility notified? Yes_____ No_____

Has the resident had problems with skin lesions in the past? Yes____ No_____

If Yes, Date_____Symptoms:_____

Treatment Given _____ Result_____

Notification: Attending Physician □ Infection Control Practitioner □
Manager □ Pharmacy □ Laundry □ Building Services □
Occupational Health Nurse □

APPENDIX 3: WORKSHEET FOR OCCUPATIONAL HEALTH AND SAFETY PROGRAM – SCABIES CASE IN AN EMPLOYEE

Employee name: _____

Position/department: _____

Name and location of patient contact for scabies: _____

_____

Date(s) employee had contact with patient: _____
(yyyy/mm/dd)

Date patient's symptoms first noted: _____
(yyyy/mm/dd)

Date patient reported to occupational health nurse: _____
(yyyy/mm/dd)

If employee has symptoms, describe (what, where, how long):

_____

Has employee seen their doctor? Yes ☐ No ☐

If yes, advice given/treatment prescribed: _____

Date seen in O.H. &S. Department: _____
(yyyy/mm/dd)

Treatment: _____ Date: _____
(yyyy/mm/dd)

List others in employee's home and date treated: _____

_____

_____
(yyyy/mm/dd)

List all areas employee has worked in during the six weeks prior to onset of symptoms:

_____

Where is employee currently working? _____

List employee's possible contacts (children, grandchildren in school, family members working in institutions or recently hospitalised):

_____

List any other institution/facility employee works in: _____

_____

Employee signature _____

APPENDIX 4: SAMPLE LETTER TO PARENTS

Dear Parents:

An individual in your child's school has scabies. This is a skin disease caused by a tiny mite which burrows under the skin. The mite causes itching and rashes. Scabies is not an indication of uncleanliness.

Scabies is spread from person to person by close contact with skin or clothing from someone with scabies. Therefore, we would like you to check your child for possible signs of this infestation. Rashes most commonly occur between the fingers, around the wrists, elbows, waistline, abdomen and chest. In persons that have not had scabies before, these signs and symptoms may not occur for four to six weeks.

If you are concerned that your child or someone else in the family has this condition, please see your family doctor so that a diagnosis can be made and treatment can be given. If one person in a family has scabies, it is recommended that all family members be treated. Other close contacts may require treatment as well. Please discuss this with your family doctor. The public health nurse can assist you if you have any questions about scabies.

_____	_____
Principal	Public Health Nurse
_____	_____
Phone	Phone

APPENDIX 5: PROCEDURE FOR SKIN SCRAPING

A physician, nurse or other healthcare professional who has been trained to perform the procedure should only do skin scrapings. If no one is available in your facility a dermatologist may need to be consulted.

A. Obtain the following equipment

Gloves and gowns
Slides and cover slips
Magnifying lens and light source such as goose neck lamp
Mineral oil and dropper *
Applicator sticks*
15 surgical blade*
Sharps container
Compound microscope (if available)
*these items are single use and should not be used on multiple persons

B. Procedure

1. Observe client'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.
2. 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.
3. Select an unexcoriated burrow or papule.
4. Prepare slide by dipping an applicator stick into mineral oil and transferring 2-3 drops to the center of the clean slide.
5. Dip applicator stick 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.
6. Hold the skin taut with one hand and hold the surgical blade at a 90° angle.
7. 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.
8. Transfer skin scrapings to the prepared slide. Scrape several sites if available and transfer to the same slide. Place a cover slip over the scrapings.
9. 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, transport slides to a clinical laboratory or BCCDC Laboratory Services (Parasitology requisition form HLTH 1808).

APPENDIX 6: SCABIES FACT SHEET

What is scabies? Scabies is a contagious skin condition (infestation, not infection). It is caused by a very tiny insect sometimes called the "itch mite". These mites are about the size of a dot at the end of this sentence. They are grayish in color and nearly transparent. The female scabies mite burrows or tunnels into the outer layer of skin in a thin red line about a half-inch long and then lays eggs. Such a burrow is usually very hard to identify. The first location is usually in the webs between the fingers or toes, around the wrist or the navel. It can also be found on the back of elbows, the folds of the armpits, the beltline and abdomen, about the creases of the groin, and on the genital organs. Small children, especially babies, may have involvement of the face, scalp, palms of the hands, or soles of the feet.

What are symptoms of scabies? The symptoms of scabies are an allergic reaction to the mites. There is usually an itching skin irritation and tiny reddened dots with surrounding redness or streaks of redness. Itching is usually worse at night. Persons who have never had scabies before usually notice symptoms about 4 to 6 weeks after their contact with someone with scabies. Persons who have had previous infestations of scabies develop symptoms sooner, often within a few days to 1 week.

How is scabies transmitted? The mite is generally transmitted from person-to-person by close body (skin) contact. Sharing clothing and bedding with infested persons can also spread the infestation. Shaking hands, holding, or clasping hands as in children's games can be a method of transfer. The mites do not survive more than a few days off the body.

How is scabies diagnosed? Scabies is diagnosed by looking at the rash with a magnifying lens. A doctor or nurse may also obtain small samples of scraped skin to look for the itch mite under a microscope.

How is scabies treated? Treatment usually consists of an application of a cream that must be prescribed by a doctor. **Always follow the directions provided with the medication.** It is put on the skin from the neck down, left on for about 12 hours (often overnight), and then washed off. After putting the cream on the skin you should put on clean clothes. The cream can be showered off the morning after the treatment. Itching may persist for 1-2 weeks after treatment. This does not mean treatment has failed but rather that reaction to the dead mite and its byproducts has continued for a while. Medication to reduce itching may be prescribed. Avoid scratching because the skin may become infected. Infection with bacteria of a scratched area may require treatment as well.

How can the spread of scabies be prevented? Person with symptoms should be checked and treated by their doctor as soon as possible. Persons living in the same house and having skin-to-skin contact with someone with scabies should be treated at the same time to prevent scabies before symptoms develop. If you wait until symptoms develop, mites may already be transferred to other persons. Wash bedding, clothing, towels, and other bath linen that are used within 4 days before treatment in a washer using hot water and dry using the hot drier cycle. Clothing and items that cannot be washed should be stored in a closed plastic bag for seven days.

This fact sheet is not intended to be used as a substitute for appropriate professional advice.