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DEPARTMENT OF **HEALTH**



Healthy Skin Program

Guidelines for Community Control of Scabies, Skin Sores, Tinea and Crusted Scabies in the Northern Territory

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Section 1 Background information

1.1 Objectives

To provide a guideline for the community control of scabies, skin sores and tinea infection in remote communities.

To reduce the prevalence of scabies, tinea, streptococcal skin sores and associated post streptococcal illness in the Northern Territory (NT).

1.2 Rationale

Scabies is endemic in many remote Aboriginal communities, and underlies a large proportion of streptococcal skin infections.[1-3] Control of scabies is therefore critical in controlling streptococcal skin infections and their sequelae.[4-6] Outbreaks of acute post streptococcal glomerulonephritis (APSGN) have been documented in the NT with large periodic outbreaks involving numerous communities.[7] APSGN occurs following streptococcal skin infection and is characterised by oedema (most noticeably of the face), haematuria and hypertension. NT studies have shown that children who have had APSGN are 6 times more likely to develop chronic kidney disease (CKD) as adults.[8,9] For more information see the *Northern Territory Guidelines for Acute Post-Streptococcal Glomerulonephritis*.

The incidence of acute rheumatic fever (ARF) and prevalence of rheumatic heart disease (RHD) in Top End communities are among the highest in the world.[10-13] Low incidence of streptococcal pharyngitis and high incidence of streptococcal skin infections and ARF in Indigenous communities have led to the hypothesis that ARF can occur as a complication of streptococcal skin infection. For further information see the *Australian Guideline for Prevention, Diagnosis and Management of Acute Rheumatic Fever and Rheumatic Heart Disease* (2nd edition).

The high rate of streptococcal infection is therefore likely to be a significant contributing factor to the high prevalence of CKD and RHD in the NT. Control of scabies is essential for prevention of streptococcal skin infection.

Section 2 Definitions and clinical presentation

2.1 Scabies

Scabies is a parasitic infestation of the skin caused by a mite, *Sarcoptes scabiei (*Appendix 1)*.*[14] Penetration of the skin leads to papules, vesicles and/or tiny linear burrows that contain the mites and their eggs. Scabies papules and scratch marks are commonly found in the web spaces between fingers and toes, and on the anterior surfaces of the wrists and elbows. Other common sites include axillary folds, belt line, thighs, abdomen and buttocks. Burrows may not be seen. Infants may have widespread lesions involving the head, neck, palms and soles. Itching is generally intense and often more severe at night. Mites are transferred by direct contact with skin and can burrow into the skin within 2.5 minutes. Transmission from undergarments and bedclothes occurs only if these have been contaminated immediately prior to contact. The scabies mite that affects dogs does not cause human infestation. Symptoms develop 2-6 weeks after exposure if there has been no previous episode of scabies infection. The incubation period is 1-4 days in individuals who have previously been exposed.

2.2 Crusted scabies

Crusted scabies is due to the same scabies mite. It occurs when the immune system fails to control the infestation, and there is hyperproliferation of mites. In Central Australia, crusted scabies has been associated with human T-cell lymphotropic virus 1 (HTLV–1) infection.[15] A large proportion of cases in the Top End have no identifiable immunological defect.[16-18] People with crusted scabies often have no itch and the rash manifests as scaling and crusting of skin, often on buttocks, elbows and arms. Palms and soles of feet may be fissured. Cases can range from mild with only a few patches, to severe infestation covering the entire body. It may be misdiagnosed as other conditions such as psoriasis or fungal infection. Microscopic examination of skin scrapings to detect the presence of mites and/or their eggs is required to make the diagnosis.

Individuals with crusted scabies are highly infectious to other people. They are also at high risk of reinfection after initial successful treatment.[18] Crusted scabies is associated with high morbidity, and secondary skin sepsis may result in life threatening bacteraemia. Undiagnosed cases of crusted scabies can lead to recurrent infection of treated household members.

2.3 Skin sores (impetigo)

Skin sores are almost always due to Group A *Streptococcus* (GAS) but *Staphylococcus aureus* can also be isolated (see fact sheet, Appendix 2). The lesions start as pustules which subsequently break down and form crusts. Skin sores often occur as a complication of scabies, and even though there is a crust, this should not be referred to as crusted scabies. Eradication of GAS is important to prevent post streptococcal disease including APSGN and ARF. GAS is usually the primary pathogen so antibiotic treatment to cover *S. aureus* is usually not required for initial empirical therapy.

2.4 Tinea

Tinea is a fungal infection that is caused by the dermatophytes *Trichophyton*, *Epidermophyton* and *Microsporum*. It is usually spread between humans, but some tinea species have primary animal hosts and therefore can be acquired from animals such as cats and dogs. In the Top End, the majority of tinea infection is caused by a granular variant of *Trichophyton rubrum,* which is only spread from person to person, has no animal reservoir and often causes extensive and severe tinea of the body and nails.[19] There are a number of names given to tinea disease, depending on

the part of the body involved. Tinea can involve the body (tinea corporis, ringworm), feet (tinea pedis, athlete's foot), scalp (tinea capitis), groin folds (tinea cruris, jock itch) and nails (tinea unguium, onychomycosis).

Tinea of the body starts as an itchy, scaly patch that spreads outwards with central clearing, forming ring-shaped lesions. These can join together to form very large lesions. Tinea of the feet presents as itchy, red fissures and erosions between the toes, but can progress to an extensive scaly rash involving the rest of the foot. Tinea of the nails presents with white-yellow discolouration, thickening and irregularity of the nails, with or without accumulation of flaky debris between the nail and the nail bed. All forms of tinea can cause discomfort, there may be skin breakdown as a result of scratching, and lesions may become secondarily infected with streptococci and staphylococci.

Section 3 Skin checks, treatment and follow-up

Effective diagnosis and treatment of scabies, skin sores and tinea requires a proactive approach. The skin can be examined opportunistically when a patient presents for other reasons, and as part of routine health checks. When scabies, skin sores and/or tinea are identified, it important to take time to explain the correct method of application of cream and/or administration of the antibiotic course, to encourage and facilitate completion of the treatment course, and to review the patient to ensure there has been a clinical response.[20-22] Adequate treatment of the household is also important. When there are recurrent episodes of scabies within a household, a case management approach is recommended.

3.1 Skin checks

A skin check is included in child health assessments at 6 weeks, 4, 6, 9, 12 and 18 months, and at 2, 3, 4 and 5 years of age (CARPA).[16] This age group has the highest prevalence of scabies and skin sores.[23-25] Check the entire skin including the scalp.

Many communities will also have school age health screening programs. A skin check should be included as part of this. In this age group, check hands, arms, legs, feet and waist. Only check the rest of the skin if scabies or sores are noted, or if itching is present on other parts of the body.

An adult health check is recommended every 1-2 years from age 15 (CARPA).[16] A skin examination should be included as part of this.

3.2 Treatment

3.2.1 Scabies

- Treat persons older than 2 months with 5% permethrin cream.[16,20] Treatment should be applied late in the afternoon or evening, left on overnight (8–12 hours) and washed off in the morning. It must be applied from head-to-toe, ensuring the whole body is covered but avoiding the eyes and mouth. Make sure that the cream covers between the fingers and toes, soles of feet, under nails, behind ears, the groin, bottom and genitalia. Wear gloves while applying the cream to others. This treatment should be repeated at 1-2 weeks, and a clinic recall is recommended to ensure that this takes place
- Treat infants less than 2 months of age with crotamiton 10% cream (Eurax) daily for 3 days.[16] Leave cream on for 24 hours. Permethrin is not recommended for use on children less than 2 months of age
- If there have been 2 or more presentations of scabies where permethrin 5% has not worked AND reinfection is thought to be unlikely (child treated properly in clinic and all contacts treated), treat with whole-body application of benzyl benzoate.[16] Leave the lotion on for 24 hours, and repeat treatment in 1 week. Do not use benzyl benzoate in children under 6 months of age. For children 6-23 months dilute benzyl benzoate 25% with 3 parts water and for children 2-12 years of age dilute with equal parts water. In children over 12 years of age and in adults use full strength benzyl benzoate 25%. Benzyl benzoate occasionally causes severe skin irritation which usually resolves in 15 minutes. In older children and adults if there is a reaction which settles quickly, further doses of benzyl benzoate 25% can be diluted with equal parts water and administered with or without an oral antihistamine
- Oral ivermectin can also be used for treatment of typical (non-crusted) scabies where topical treatments have failed or are contraindicated.[16,20] Ivermectin should not be used in children under 5 years of age or less than 15kg in weight. Ivermectin should not be taken during pregnancy, and unless pregnancy testing is practical, it should not be given to females who

could be pregnant. A medical consult is required prior to use of ivermectin, and an infectious diseases physician can be consulted if the doctor is unfamiliar with this medication

- All members of the affected household should be treated for scabies, even if they have no clinical evidence of scabies. This is because scabies has a long incubation period, and other household members may be infected but asymptomatic
- Encourage the family to wash clothes and sheets with washing powder and dry in the sun, and to air mattresses, pillows and blankets in the sun.

3.2.2 Crusted scabies

Management of crusted scabies is discussed in Section 4.

3.2.3 Skin sores

- Treat with a single intramuscular (IM) dose of benzathine penicillin G (BPG)[16,26]
  - 0-3 months, 3-6kg: 225mg (0.5ml)
  - 3-6 months, 6-10kg: 337.5mg (0.8ml)
  - 1-2 years, 10-15kg: 450mg (1ml)
  - 4 years, 15-20kg: 675mg (1.6ml)
  - 6 years and older, ≥20kg: 900mg (2.3ml)
- Trimethoprim-sulfamethoxazole 4+20mg/kg/dose twice daily for 5 days is an alternative to benzathine penicillin G[16,27]
- Topical antibiotics including mupirocin are not recommended due to the often widespread nature of sores and the potential for the emergence of antibiotic resistance
- If there is concurrent scabies infection, permethrin 5% cream can be applied at the time antibiotic treatment is given, including to the skin sores. There is no need to wait for healing, as permethrin causes very little skin irritation
- Children with skin sores should be excluded from childcare or school until appropriate antibiotic treatment has been taken for at least 24 hours
- Any sores on exposed skin should be covered with a watertight dressing. Dispose of dressings such that they cannot be accessed by children
- Do not touch sores directly. Wash hands before and after changing dressings, or if there is inadvertent contact with the sore.

3.2.4 Tinea

- Tinea of the body:
  - Collect skin scrapings from the scaly edge of the area of tinea for fungal culture. Collect skin scrapings by running a surgical blade held perpendicular to the skin across the affected area using light pressure. Skin flakes should be collected in a sterile container (yellow topped urine jar is suitable) and stored in the refrigerator. Be careful not to break the skin
  - For small patches of ringworm apply miconazole 2% cream twice a day for 4-6 weeks (including for 2 weeks after the rash has resolved)
  - For widespread rash, give terbinafine oral daily for 2 weeks. See below regarding terbinafine precautions and dosing.
- Tinea of the scalp:
  - Collect skin scrapings and pull some broken hairs for fungal culture
  - Wash head with selenium sulfide 2.5% shampoo 3 times per week for 2 weeks
  - If there is extensive scalp tinea, give terbinafine oral daily for 4 weeks. See below regarding terbinafine precautions and dosing.

- Tinea of the nails:
  - Collect clippings and collect material from under nail for fungal culture
  - If the person is high risk (e.g. recurrent cellulitis, diabetes) or there is concern about appearance, give terbinafine oral daily for 6 weeks for fingernails or 12 weeks for toenails. See below regarding terbinafine precautions and dosing.
- Precautions with oral terbinafine:
  - Rare but serious side effects may develop, usually after 4 weeks of treatment, including liver toxicity, blood abnormalities such as severe neutropenia and skin rash
  - Check LFTs & FBE before treatment and at 2 and 4 weeks; discuss results with a medical officer if these are abnormal. Therapy and monitoring can continue if there is only mild liver function abnormality, but therapy must be stopped immediately if neutropenia develops
  - Wait until after pregnancy and breastfeeding before treating, if possible.
- Terbinafine dosing:
  - 10-20kg, age 1-6 years, 62.5mg daily
  - 21-40kg, age 7-12 years, 125mg daily
  - >40kg, age >12 years, 250mg daily.

3.3 Follow-up

It is important to ensure that treatment of scabies, skin sores and tinea has led to cure. A clinic recall 4 weeks after treatment for scabies treatment is recommended. If there is treatment failure or reinfection, treatment of the case and household should be repeated. See below regarding management of recurrent scabies.

3.4 Recurrent scabies

Where there are recurrent episodes of scabies in a household, a case management approach is recommended. This is outlined in detail in the *Managing Households With Recurrent Scabies, 2014 Edition* guide developed by One Disease (Appendix 3).[28] In summary, this approach includes a home visit assessment for causes of scabies recurrence such as inadequate application of cream/lotion, broken health hardware and exclusion of a crusted scabies contact. A treatment approach should be planned in consultation with the family and may include a 'Mini-Skin Day' which involves treatment of multiple closely-related households. If the family agrees, help to facilitate a clean-up of the house, and consider the use of an insecticide bomb for each bedroom. See Section 4.3 Treatment of house for crusted scabies cases.

Section 4 Diagnosis and management of crusted scabies

4.1 Medical assessment and diagnosis

Crusted scabies is characterised by thickened, scaly, hyperkeratotic patches which are often not itchy. Confusingly, skin sores often have a crust; this is **not** crusted scabies. Common sites for crusted scabies include the buttocks, hands, feet, elbows and armpits. Consultation with an infectious diseases physician regarding the diagnosis is recommended. *Managing Crusted Scabies in Remote Aboriginal Communities*[29] Appendix 4 provides pictorial information.

Wear gloves while examining patients with possible crusted scabies.

4.1.1 Crusted scabies grading scale

This scale[18] assesses the severity of disease and guides treatment duration. Assess each of the following parameters and add up the score.

A. Distribution and extent of crusting

1. Wrists, web spaces, feet only AND <10% total body surface area (TBSA)
2. Above plus forearms, lower legs, buttocks, trunk OR 10-30% TBSA
3. Above plus scalp OR >30% TBSA.

B. Crusting / shedding

1. Mild crusting (<5mm depth of crust), minimal skin shedding
2. Moderate (5-10mm) crusting, moderate skin shedding
3. Severe (>10mm) crusting, profuse skin shedding.

C. Past episodes

1. Never had it before
2. 1-3 prior hospitalisations for crusted scabies OR depigmentation of elbows and/or knees
3. ≥4 prior hospitalisations for crusted scabies OR depigmentation as above PLUS depigmentation of legs/back or residual skin thickening/ichthyosis.

D. Skin condition

1. No cracking or pyoderma
2. Multiple pustules and/or weeping sores and/or superficial skin cracking
3. Deep skin cracking with bleeding, widespread purulent exudate.

ADD SCORE FOR A + B + C + D.

SCORE FOR GRADING: 4-6 = Grade 1, 7-9 = Grade 2, 10-12 = Grade 3.

4.1.2 Investigations

For each episode: skin scrapings (for scabies microscopy and fungal culture), FBE, UEC, CRP, LFTs.

Consider: skin swab for microscopy and bacterial culture, blood cultures, nail clippings for fungal culture.

If not previously done: HIV Ab, HTLV-1 Ab, ANA, C3, C4, immunoglobulins, T-cell subsets.

Collect skin scrapings by running a surgical blade held perpendicular to the skin across the affected area using light pressure. Skin flakes should be collected in a sterile container (yellow topped urine jar is suitable) and stored in the refrigerator. Be careful not to break the skin.

4.2 Treatment of crusted scabies cases and their contacts

4.2.1 Treatment of cases

Consider treating Grade 1 cases in the community in consultation with an infectious diseases physician. Grade 2 and 3 cases will need to be admitted to hospital. Treatment involves a combination of oral ivermectin and topical treatments.

Ivermectin: 200mcg/kg/dose (3mg tablets which can be split, round dose up to nearest 1.5mg). This should be given as directly observed therapy with each dose documented in the patient chart. Ivermectin should be taken with a fatty meal.[20]

Grade 1: 3 doses on days 0, 1 and 7.

Grade 2: 5 doses on days 0, 1, 7, 8, 14.

Grade 3: 7 doses on days 0, 1, 7, 8, 14, 21, 28.

Topical treatments:

- Benzyl benzoate 25% lotion (+/- tea tree oil 5%): Apply to the whole body second daily after bathing for the 1st week, then 2-3 times weekly until cured. Apply from head-to-toe, ensuring the whole body is covered but avoiding the eyes and mouth. Make sure that the lotion covers between the fingers and toes, soles of feet, under nails, behind ears, the groin, bottom and genitalia. Wear gloves while applying the lotion to others. Do not apply on same day as Calmurid. Use permethrin 5% cream if benzyl benzoate is not available
- Calmurid® (urea 10%, lactic acid 5% in sorbolene cream): This softens skin crusts and facilitates shedding, thereby allowing better penetration of scabies lotion or cream. Apply after bathing on the days not applying the topical scabicide. Calmurid® only needs to be applied to crusted or thickened skin areas
- The nail beds can serve as a reservoir for mites. Trim nails adequately, and if concerned about concurrent tinea infection of nails, send clippings for fungal culture and consider treatment (see Section 3.2.4 Tinea).

4.2.2 Treatment of contacts of crusted scabies cases

Treat all household and close contacts with single application of permethrin 5% cream (head to toe), or crotamiton 10% cream if under 2 months of age.

All contacts who themselves have clinical scabies should complete a full treatment course as described in Section 3.2.1 Scabies. Household contacts should be treated either the day of or the day prior to the house being treated.

4.3 Treatment of house for crusted scabies cases

Scabies mites can only survive off the human host for up to around 3 days, but potentially for several days longer if attached to shed skin in dark, moist environments. The homes of patients with crusted scabies should therefore be treated once the patient begins treatment or is admitted to hospital. With support, the patient's family can take responsibility for household treatment. Clinic

staff will need to liaise with the family to explain what needs to be done to help ensure that their home is free of scabies mites.

Machine wash any clothes, bedding and towels used by the patient during the preceding 3 days on a hot water cycle (50-60°C). If a hot machine wash is not available, items should be washed then dried in the sun. Items that cannot be washed can be decontaminated by removing from any contact for at least 3 days.

The house should be thoroughly vacuumed or swept then mopped to remove dust and skin particles which could harbor mites. The vacuum bag or sweepings should be disposed of in an outside rubbish bin. Mattresses and soft furnishings such as lounges should also be vacuumed or swept. If possible they should also be left in full sun for at least several hours to help kill any remaining mites. Pyrethroid-based insecticide sprays (available at community stores) can be used to decontaminate mattresses and soft furnishings. A small amount of spray should be evenly applied across the surface of the item. The directions on the label should be followed.

Fumigation of the house is not necessary if the house is thoroughly cleaned and clothes and bedding are washed in hot water. However in severe cases and where the family wishes, insecticide bombs containing pyrethroids can be used to help kill any scabies mites remaining in the house. Insecticide bombs can be purchased by the family at the community store. In order for the insecticide bomb to be effective all the windows in the house must be closed. Where windows or louvres are missing, cardboard or plastic sheeting can be used to seal the house. The following safety precautions need to be followed:

- Read the label and follow directions carefully
- Remove all children, pets, and toys from the house prior to treatment
- Cover or remove food and utensils from the house prior to treatment
- Leave the house immediately once the insecticide bombs have been released. Stay out of the house until the time indicated on the label has passed, usually 2 to 4 hours
- Upon returning open all windows and doors to air out the house
- Keep any unused product away from children, for example, in a locked cupboard or shed.

The Environmental Health Branch of the Department of Health can provide further advice on the use of insecticide bombs.

4.4 Follow-up

Regular follow-up of individuals with crusted scabies is recommended to ensure a durable response to treatment.[30] A suggested plan is outlined in *Managing Crusted Scabies in Remote Aboriginal Communities*, 2014 edition,[29] prepared by One Disease. This includes regular skin examinations (fortnightly or monthly) and regular application of Calmurid. If there have been multiple previous episodes of crusted scabies, consider initial fortnightly prophylactic benzyl benzoate, with subsequent review to determine longer intervals between prophylactic benzyl benzoate. If recurrences occur, consider possible causes such as inadequate treatment of contacts or lotion/cream not applied adequately. Consider repeating household treatment.

Section 5 Active surveillance and whole-of-community treatment

Since the 1990s, some NT communities have implemented Healthy Skin Programs which involve community education, active surveillance for scabies and skin sores, and whole-of-community treatment for scabies.[31-35] Some data suggest that this approach can lead to a significant decrease in the prevalence of scabies and skin sores, however maintenance where there is a lower level of prevalence is challenging. The degree of movement between communities is high, making re-introduction of scabies a major factor in scabies recrudescence and therefore regional coordination is recommended. A committed approach with regular surveillance and repeat treatment of households or whole community if required is important. The ability to carry out surveillance and whole-of-community treatment will depend on clinic resources and other support, and some communities may choose to undertake this only if scabies reaches particularly high prevalence, in order to reduce scabies to a more manageable level.

A Healthy Skin Program can be divided into the following 5 phases:

- Planning
- Community involvement and education
- Base-line screening and whole-of-community treatment
- Maintenance
- Evaluation

5.1 Planning

People to involve in the initial planning will vary from community to community but may include health staff, council workers, women's centre staff, school teachers and visiting health staff such as environmental health officers and health promotion officers.

See Appendix 5, for a list of educational resources.

5.1.1 Initial community screening and treatment

A realistic timeframe for the initial community screening and treatment is required. This may need up to 3 months of planning to allow for community awareness and education activities to take place. Small communities may only require one day to screen and treat everyone, but larger communities may need to allow up to a week of screening and treatment. Other community events should be taken into consideration when deciding on the dates.

5.1.2 Resources required

- Community population list
- Extra supplies of scabies and skin sore treatments
- Extra health staff and community members (if required) for baseline screening and treatment

5.1.3 Education requirements of health staff

Plan an education session for health staff to ensure everyone understands the issues and will be delivering the same health message to the community. A discussion on the diagnosis of scabies, crusted scabies and skin sores and appropriate treatment should be included.

5.1.4 Ongoing program

Ways of ensuring the sustainability of the program should be discussed. This should include community education on how the lowered scabies rates will be maintained rather than just focusing on the initial screening and treatment.

5.2 Community involvement and education

This phase may take up to 2 months depending on the size of the community, other community events and available resources.

5.2.1 Community participation

Talk with different community organisations to identify community members who will support the program and take the message to the community. They will include community leaders, elders, council members, education staff, health boards, arts centre staff, women's centre members, outstation resource centres and others specific to your community. These people should be involved in planning, the community treatment day and the ongoing maintenance program.

5.2.2 Community education

Plan to provide school and community education sessions and decide on the messages you want to convey to the community. Schools may run a competition for children to develop posters about scabies and skin sores. Local organisations often donate prizes, and the posters can be used for community education. Communities can develop their own video story and show this locally.

Key messages for community education include:

- The relationship between scabies, skin sores and kidney and heart disease
- The success of the program in other communities
- The importance of treating everyone, whether they have scabies or not
- How to apply scabies creams and lotions
- An ongoing program to keep scabies rates low
- The importance of washing children to reduce skin infection
- Health hardware to enable washing of children.

5.3 Baseline screening and community treatment

5.3.1 Reasons for screening

- To establish the baseline scabies and skin sore prevalence in the community
- To identify individuals with infected sores requiring treatment
- To identify individuals with scabies requiring further application(s) of cream/lotion to complete a full treatment course.

5.3.2 Who to screen

Children 0-3 years of age are an appropriate group for selective screening. These children have the highest rates of scabies and skin sores, and are an easy group to access.[23] Smaller communities may decide to include children up to 5 years of age or even children up to age 15; this could be as part of a school age health screening program.

It is not essential to screen adults, however all adults should be encouraged to be treated for scabies.

5.3.3 How and where to screen

A designated screening centre will need to be organised and well-advertised prior to the treatment day. An appropriate centre may be the school, health clinic or women's centre.

In larger communities health workers may decide to divide into teams to conduct mobile screening while another team works at a screening centre. Refer people with other skin problems (for example, tinea) to the clinic for treatment.

See Appendix 6 for a checklist of equipment required for screening and treatment.

5.3.4 Documentation

Accurate documentation is important as this will assist in follow up of cases and contacts. Clinic staff should decide on the most appropriate record keeping method for the community (for example, Primary Care Information System, Communicare) taking into account the need for follow up of scabies, crusted scabies and household reinfections.

Infected sores should also be documented; these will be moist and have pus or a yellow/brown crust. Do not record non-infected cuts, scratches or insect bites.

See Appendix 7 and Appendix 8 for a spreadsheet example for baseline screening and flow chart.

5.3.5 Whole-of-community treatment

Scabies whole-of-community treatment should be discussed and where appropriate offered at the time of screening, with treatments as outlined in Section 3 above. Successful whole-of-community treatments have included using only topical permethrin for all,[32,33,36] or oral ivermectin for older children and adults and topical permethrin for younger children and women who may be pregnant.[37,38] Health staff should demonstrate the correct way to apply the cream. When present, skin sores will also need to be treated.

5.4 Maintenance program

An ongoing maintenance program is essential to ensure community scabies prevalence rates are maintained at the lowered level. A return to previous high prevalence rates has been seen in communities where a maintenance program has not been implemented. A maintenance program involves:

- Promotion of washing and maintenance of health hardware
- Promotion of early presentation of scabies cases
- Ensuring treatment of new cases and household contacts
- Regular surveillance of young children to monitor prevalence.

See Appendix 9 and Appendix 10 for spread sheet example for follow-up screening and treatment, and flowchart.

5.4.1 Follow-up and surveillance screening

All cases of scabies identified during the initial screening should receive a full treatment course and be followed up as described in Section 3. Management of crusted scabies is discussed in Section 4.

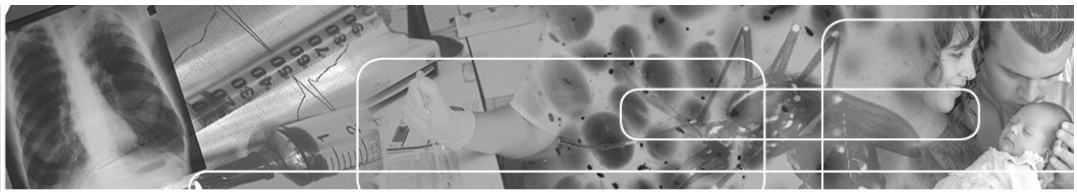
Community surveillance should be regular if possible and focused on identifying treatment failure or reinfection. Surveillance following the community treatment day should be done approximately 6 weeks later, and subsequently 2-4 times per year if resources allow. An appropriate population for surveillance includes children 0-3 years of age. Smaller communities may have capacity to include older children. It is important to document which children have had scabies, skin sores and treatment such that households with frequent recurrences are identified. See Section 3.4 and Appendix 3 regarding management of recurrent scabies.

5.5 Evaluation

After each survey:

- Use graphs and pictures to present scabies rates to community decision-makers such as councils, women's centres, community elders and teachers
- Write a short report on how the program is going and discuss it with the relevant health service managers and program staff, environmental health officers and relevant stakeholders.

Appendix 1 Scabies fact sheet



Centre for Disease Control

August 2015

Scabies

What is scabies?

Scabies is a skin condition caused by a microscopic mite called *Sarcoptes scabiei*. The mites burrow under the skin and the females lay eggs. The itch results from the inflammatory response to mite excreta and other components.

It is a common problem in many remote Aboriginal communities within the Northern Territory where in some areas up to 50% of children and 25% of adults are affected.

What are the symptoms?

The first time someone is infected symptoms do not appear until 2-6 weeks after exposure. If someone has been infected previously, symptoms usually take 1-4 days to appear.

A red lumpy rash appears. Rarely little burrow markings about 10mm long can also be seen. In adults the rash is usually around the buttocks, wrist and ankles, and between the fingers and toes. It also commonly occurs in the folds of the skin around the armpits, elbows and genitals. In young children the rash may be from head to toe with early pustule formation on the hands and feet. The rash is very itchy, often much more so at night.

Are there any complications?

Scratching of the affected area often causes secondary infection with *Streptococcus* and *Staphylococcus* bacteria. Streptococcal infections can be associated with inflammation of the kidneys (glomerulonephritis) which increases the risk of kidney failure later in life. Streptococcal infection can also be associated with inflammation of the heart (acute rheumatic fever) which can lead to rheumatic heart disease and heart failure. Early treatment for streptococcal infections is therefore important.

How is it spread?

The scabies mite is spread from person to person by direct physical contact. Contact must be prolonged - a quick handshake or hug will not spread it. It can also be spread by clothes and linen that have been used by a person with scabies if they have been worn or used immediately beforehand. The scabies mite is able to survive outside the human body for approximately 3 days in climatic conditions of high humidity and warm temperatures. People with untreated crusted scabies can be 'core transmitters' of scabies in communities and health care facilities. Scabies will continue to be spread until all mites and eggs are destroyed.

A similar condition occurs in dogs, however the mite that causes dog scabies is different from that which causes human scabies.

Who is most at risk?

Scabies occurs worldwide, however people living in crowded conditions with poor hygiene and malnutrition are most at risk.

How is scabies treated?

For the individual

Creams available for the treatment of scabies include:

- 5% Permethrin (Lyclear), apply in the evening, leave on overnight, wash off in morning, repeat treatment day 7
- For babies less than 2 months old: Crotamiton (Eurax), apply daily for 3 days

Apply the cream from head to toe, including the genitalia but avoiding the eyes and mouth. Adequate application of the cream is very important.

Application of the treatment and contraindications vary depending on which one is used, so it is important to read the instructions carefully.

CENTRE FOR DISEASE CONTROL

The person who is infected should first have a shower or bath to soften the skin. The treatment should then be applied to the skin as per the instructions and left on for the recommended period of time before washing it off. While the treatment is on the skin a complete set of new clothes should be worn.

Tingling and itching may still be present for 1 to 2 weeks after treatment.

For others in the house

For the treatment to be successful all members of the household and other close contacts should be treated at the same time as the infected person. Contacts may be incubating scabies at the time of treatment and may not show any symptoms.

For the household

The sheets, towels and clothing used by the affected person in the 3 days prior to their being treated should be washed. A hot wash cycle (50-60°C) should be used or items should be dried in the sun to kill mites. Mattresses, pillows and blankets should be placed in the sun. The house also needs to be thoroughly cleaned. The floor and any soft furnishing such as lounges should be well vacuumed to remove dust and skin particles which may harbour mites. There should be no body contact for 3 days for items that cannot be washed or put in the sun.

How is scabies prevented?

Early diagnosis and prompt treatment helps to prevent the spread of scabies.

Healthy Skin Programs are conducted in some communities, for further information about this contact your nearest health centre.

What is Crusted (Norwegian) scabies?

While most people are infested with about 10 to 15 mites, in crusted scabies, there is infestation with thousands of mites. Sometimes this happens because a person's immune system is not working well due to other illness. However, in many cases in the NT there are no clear underlying immune problems.

Crusted scabies does not look like scabies. The rash appears as scaling, thickening and crusting of the skin. Often this appears on buttocks, elbows and arms.

Mild cases of crusted scabies can be treated in the community with creams and oral ivermectin. Severe cases will require admission to hospital.

For more information about management recurrent or crusted scabies see the One Disease website.

http://1disease.org/wp-content/uploads/2014/07/Recurrent-Scabies-guide-2014_final1.pdf

http://www.healthinfonet.ecu.edu.au/uploads/resources/27857_27857.pdf

For more information contact the Centre for Disease Control in your region

Alice Springs	8951 7540
Darwin	8922 8044
Katherine	8973 9049
Nhulunbuy	8987 0357
Tennant Creek	8962 4259

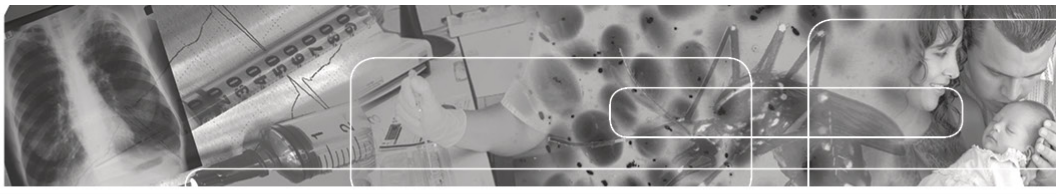
or

www.nt.gov.au/health/cdc

www.nt.gov.au/**health**

Scabies

Appendix 2 Impetigo (school sores) fact sheet



Centre for Disease Control

August 2015

Impetigo (school sores)

Description

Impetigo is a skin infection caused by *Streptococcus* and/or *Staphylococcus* bacteria, which commonly occurs in school-aged children. Impetigo appears as flat, yellow, crusty or moist patches or blisters on the skin, usually in exposed areas such as the face, arms and legs. The sores can be more than 1cm in diameter. The disease is very infectious, but it is not dangerous.

Streptococcus and *Staphylococcus* bacteria often live harmlessly on and in the body, such as on the skin and in the nose. Cuts, abrasions, or dry and cracked skin may allow the bacteria to cause infections in deeper layers. Healthy intact skin can sometime develop impetigo as well.

How does it spread?

The sores are filled with bacteria, which spread by contact with the sores or infected fluid. Because the sores are usually itchy, people can scratch them and spread the infection, via their hands, to other parts of the body or to other people. The infection can also be spread by touching contaminated clothing or other items.

Incubation period

The incubation period depends on the bacteria causing the sores. It is usually 1-3 days for streptococcal infections and 4-10 days for staphylococcal infections.

Infectious period

People are infectious for as long as there is fluid weeping from the sores. They are no longer infectious 24 hours after starting antibiotic treatment, or when the sores have healed.

Exclusion period

Children with impetigo should be excluded (from school/care services) until appropriate antibiotic treatment has commenced. Any sores on exposed skin should be covered with a watertight dressing.

Responsibilities of educators and other staff (education and care services)

- Advise the parent to keep the child at home until they have had antibiotic treatment for at least 24 hours, or until the sores are dry
- Cover sores with a waterproof dressing, and put all dressings in a lidded bin as soon as they are removed
- Make sure staff and children practise effective hand hygiene
- Ensure that appropriate cleaning practices are being followed in the education and care service.

Responsibilities of parents

- Keep the child at home until they have had antibiotic treatment for at least 24 hours. If antibiotics are not used, keep child at home until the sores are dry
- Cover any sores on exposed skin with a waterproof dressing
- Encourage effective hand hygiene at home.

Controlling the spread of infection

- Ensure that staff and children practise effective hand hygiene
- Ensure that appropriate cleaning practices are being followed
- Cover sores with a waterproof dressing, and put all dressings in a lidded bin as soon as they are removed.

Treatment

A doctor may recommend the use of antibiotic ointment or antibiotics taken by mouth. The child should go back to their doctor if the condition does not improve.

Based on material provided by the National Health and Medical Research Council

www.nt.gov.au/**health**

Impetigo (school sores)

Appendix 3

Managing Households With Recurrent Scabies

2014 EDITION

Breaking the cycle of recurrent scabies and skin sores

Document prepared by:

EveryVoiceCounts.org
Program design and people empowerment

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Appendix 3

RECURRENT SCABIES BREAKING THE CYCLE

Introduction

- Scabies and related skin sores and chronic diseases (rheumatic heart and renal disease) affect many children in remote communities and add to clinical workloads (e.g. data from Northern Australia showed 7 out of every 10 children had scabies before age 1).
- For some of these children the infection will be very hard to clear requiring multiple scabies treatments and benzathine penicillin injections for resulting skin sores.
- This document guides clinical and community staff on strategies to break the cycle of recurrent infections.

*Time spent on individual early case management of these children and households can lead to improved outcomes, interruption of transmission and reduced workload for clinics in the long run.

Case Management Approach to recurrent scabies

- The reasons for recurrent scabies infections are complex and so a case management approach is needed to break the cycle.
- It is most important not to blame the mother or extended family.
- Do not label the mother or family non-compliant, to do so is to imply that the mother wants a sick child with poor looking skin.
- Done well this public health activity can lead to rapid improvements in health and quality of life for the family and bring the family, community and health centre closer together.

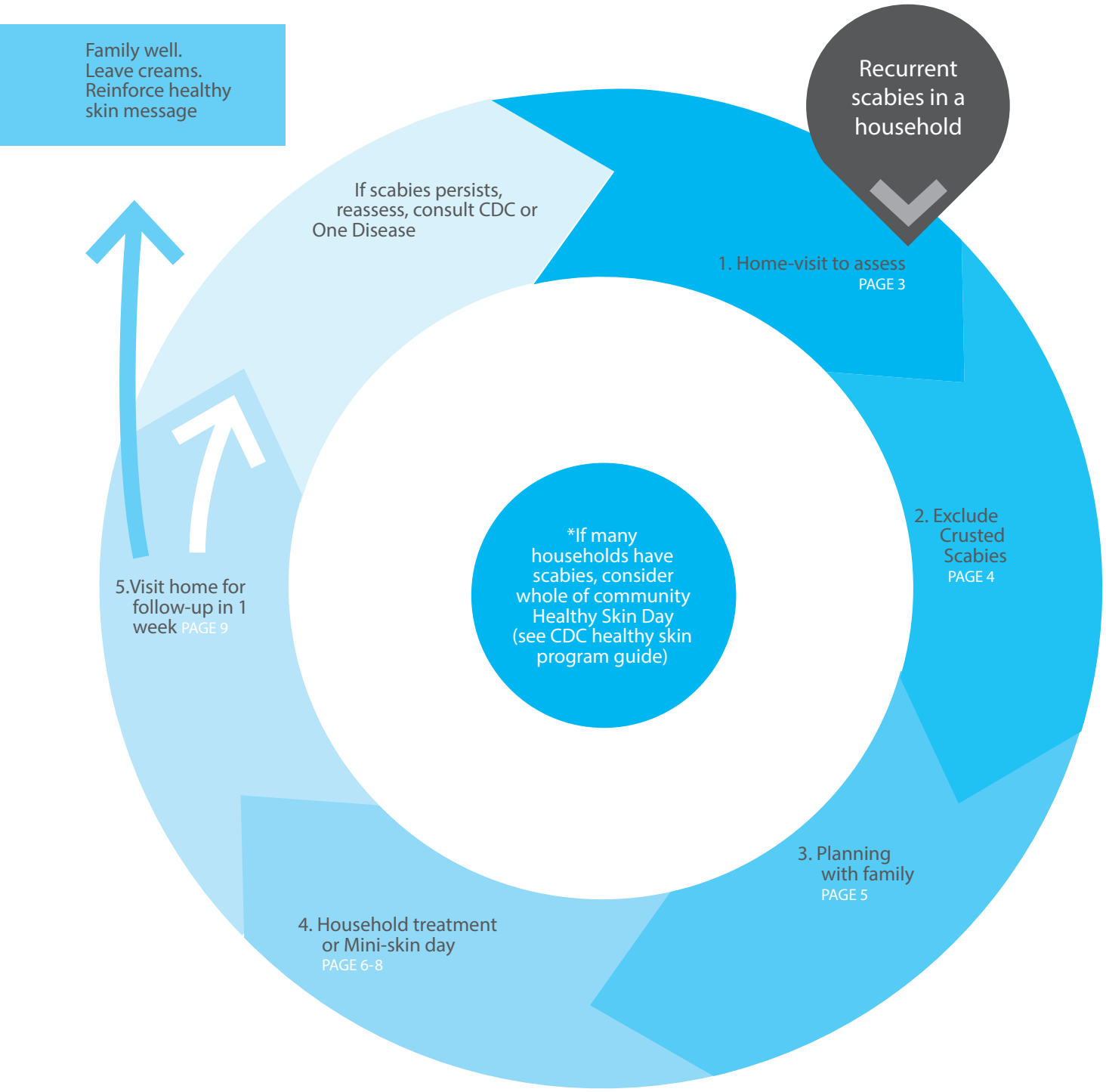
*All clinical protocols in this guide are based on the CARPA Standard Treatment Manual 6th Ed.
Please follow CARPA at all times.



Appendix 3

RECURRENT SCABIES IN A CHILD OR HOUSEHOLD

If a patient has 3 or more presentations with scabies +/- sores over a period of 2 months we recommend investigating further.



Appendix 3

1 VISIT FAMILY AT HOME

Home visits are important to build trust and see the situation the child is in. This cannot be done from the Health Centre.

Assess causes of recurrence

Causes of recurrent scabies in a child despite treatment:

1. Treatment was not used correctly (i.e. not full body application including hair/head, creams left overnight and reapplied if hands are washed, second treatment for cases one week later- not required in contacts).
2. All household cases AND contacts did not use the creams. Often only the child (and mother) and symptomatic contacts use creams but recurrences can occur from contacts without clinical scabies who are less likely to use treatment.
3. Household has an unmanaged case of crusted scabies.
4. Less common: Permethrin failure or transmission from bedding/clothes.

Engage families in finding solutions

1. Where does the mother of the child sit in the family hierarchy? To ensure effective household treatment, a senior member of the household must be involved when developing treatment plan with child's mother.
2. What other problems are going on within the family? It may be more effective to delay treatment day if there are other crises present.
3. Is the health hardware in the house working? Being an advocate with the Shire or Council to get critical health hardware fixed will build trust. It is important not to over-promise and to focus on broken taps, blocked toilets, blocked drains.
4. Explain to the mother, family members and particularly the senior member of the household, the importance of everyone using the scabies creams to break transmission and allow contacts to remain well.

Appendix 3

2 EXCLUDE CRUSTED SCABIES

Is there a known case of Crusted Scabies or a member of the family who may have it?

Ask:

- Community staff and long-term clinical staff at the health centre if any household members have been diagnosed with crusted scabies or had recurrent treatments in hospital in the past

Crusted scabies is a highly infectious form of scabies that causes recurrent outbreaks of scabies in households and communities.

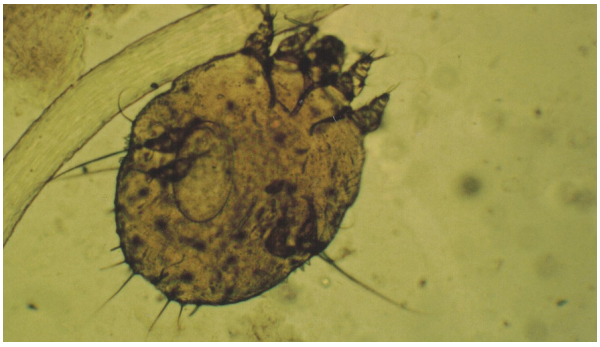
Check:

- Look for thickened, scaly skin patches — may be 1–2 areas (e.g. bottom, hands, feet, shoulders) or may cover whole body with thick/flaky crust.
- Scale may have distinctive creamy colour, even in dark skinned people.
- Can look like tinea, psoriasis, eczema, dermatitis.
- Often not itchy.

If crusted scabies is suspected — medical review as soon as possible



*See Managing Crusted Scabies Guide for detailed steps in diagnosis and treatment and contact the Infectious Disease team at Darwin or Alice Springs hospitals.



Appendix 3

3 PLANNING WITH FAMILY

Household treatment options

1. Education only. Reinforce importance of "all of household" treatment to senior household member and supply creams

*Requires more effort but higher chance of success

2. Clinic facilitated home based treatment of all members of a household.

*Requires more effort but higher chance of success

3. Mini skin day. Clinic facilitated treatment of 1-3 households in an extended family (households where children/adults interact closely).

Considerations

- Repeated treatments and recurrences undermine confidence in the treatment and make future engagement harder.
- Therefore, where frequent treatments have been attempted, it may be appropriate to go straight to the more intensive but effective mini-skin day (see 3. above).

Appendix 3

4 HOUSEHOLD TREATMENT

Select medications to use

Treat all of the household (scabies cases and contacts) on day 1
Repeat for scabies cases only (not contacts) in 1 week.

First line treatments;

Permethrin 5%

Instructions on use of permethrin (as per CARPA scabies chapter).

- Do not use in children under 2 months (use crotamiton e.g. Eurax).
- Use in children 2 months and over and adults.
- Apply thin layer of permethrin 5% cream on whole body including head and face — avoid eyes, mouth *.
- Requires overnight application.

Benzyl Benzoate

Benzyl benzoate has a faster kill time than permethrin and is preferred. However, it can cause transient burning sensation in some patients so give warning and test on a patch of skin first.

Instructions on the use of benzyl benzoate 25% emulsion (as per CARPA scabies chapter).

- Apply topically to skin from the neck down and leave on overnight.
- Do not use in children under 2 years (use permethrin or if under 2 months use crotamiton e.g. Eurax)
- Children 2–12 years and sensitive adults - dilute with equal parts water (1:1).
- Adults - apply directly.
- Benzyl benzoate may occasionally cause severe skin irritation, usually resolves in 15 minutes.
- Before application, first test on a small area of skin.

* Make sure cream covers between fingers and toes, feet, including soles of feet, under nails, buttocks. Leave on overnight and advise to reapply after washing hands.

Consider;

Ivermectin

Consider Ivermectin in males over age 5 (NB: STROMECTOL (ivermectin) is indicated for the treatment of human sarcoptic scabies when prior topical treatment has failed or is contraindicated. Treatment is only justified when the diagnosis of scabies has been established clinically and/or by parasitological examination. Without formal diagnosis, treatment is not justified in case of pruritus alone. At all times follow CARPA Guidelines.

- Comprehensive coverage is critical to effectiveness of control efforts. Certain groups in the house may not want to use creams, undermining control.
- Consult a medical officer to be part of the day to consider the use of ivermectin in men.

Note:

- Do not give to women (ivermectin cannot be used during pregnancy and pregnancy testing is impractical in community control programs).
- Do not give to children under 5.

Dosing of ivermectin :

- 200mcg/kg rounded up to nearest 3mg.
- Contact with no clinical scabies-ivermectin Day 1 only
- Contact with suspected clinical scabies-ivermectin on Days 1 and 8.

Appendix 3

4 HOUSEHOLD TREATMENT

Making sure everyone joins in

The application of creams is inconvenient but ensuring all household members use the treatment is critical to the success. Make it a fun occasion and consider the following tips to get everyone involved

Strategies for success

- Take time to get the support and interest of a senior household member. Explain the benefits in terms of reduced sores and improved sleep. It is important to be flexible on the timing.
- Select a day and time when most of household will be present (e.g. after school in the afternoon).
- Involve senior members of household in helping others apply creams.
- Start the application of creams during the home visit. Start by involving mothers to apply creams on children.
- Often young children will be frightened. Start with an older person, apply on arms of mothers, staff to get things started. After initial reluctance a tipping point is reached where everyone joins in. The trick is to stay positive and keep going until you reach this point.
- Encourage older teens and adults to help each other with application. Highlight wearing creams as a sign of their support for household health and wellbeing.
- Ensure privacy and appropriate consent before applying creams. Parents should apply creams on children and be present at all times.
- Be discrete. The family may not want the whole community to know they are being treated for scabies.

Considerations

- Screen children and record names of children with scabies. Refer other conditions to health centre for treatment.
- If the family agrees, organise a clean-up for the house. If possible supply cleaning products and equipment.
- Encourage household to put bedding, clothes and mattresses in the sun.
- If it is requested by the family, set insecticide bombs in the house (available over-the-counter in stores). Ensure families read and understand the nstructions.
- Avoid other health promotion or clinical activities while doing a mini skin day.

Appendix 3

4 HOUSEHOLD TREATMENT

Skin day checklist

Checklist:

1. Select appropriate day in consultation with senior members of the community.
2. Exclude crusted scabies cases.
3. Ensure sufficient clinical staff attending on the day (2-3 staff per household).
4. Take consumables: Permethrin, Benzyl benzoate (cups to mix BB 1:1 with tap water for children 2-12 years) and crotamiton cream, gloves, rubbish bags etc.
5. Take a sheet to record names of those with scabies to enter into health centre records. Use the sheet to follow up for the 2nd dose of treatment 1 week later.





And most importantly – have fun.

This is a recurrent and common disease that is associated with shame. Household treatment places a significant burden on families so focus on building rapport and engaging family members to take ownership.

Appendix 3

5 FOLLOW UP IN 1 WEEK

Follow-up in one week

If the scabies is resolved

- Make sure a good supply of permethrin is left with the family to treat visitors.
- Leave the cream with the family leader (e.g. senior female member).

If the scabies persists

- Visit the family at their home and discuss the treatment (E.g. what went well and what could be improved)
- Offer more scabies cream and promote the use of the cream with all contacts.
- Review previous steps to check if something else can be done to assist the family.
- If the scabies persists speak to a One Disease representatives for program guidance.
- At this stage it is more important than ever not to blame the family. In these cases there is normally something else going on and if that can be resolved the scabies will often be fixed by the family themselves. This may just take time and patience.

Problem solve with the family.
They are part of the treatment team.

Consider a Healthy Skin Day If many households have scabies

(see CDC Healthy Skin Program Guidelines and call One Disease for advice)

Appendix 3

FOR MORE INFORMATION

For clinical advice consult the CARPA Standard Treatment Manual or infectious diseases specialists via the switchboards of Royal Darwin or Alice Springs hospitals.

For information on this document contact One Disease www.1disease.org or contact@1disease.org

Useful Scabies Resources

NT CDC Healthy Skin Program Guidelines (planning a healthy skin day)
http://www.health.nt.gov.au/Centre_for_Disease_Control/Publications/CDC_Protocols/index.aspx

Flipchart – recognising and treating skin conditions (Menzies)
http://www.menzies.edu.au/icms_docs/162092_Recognising_and_Treating_Skin_Conditions.pdf

Developed by program strategy and implementation consultants, EveryVoiceCounts and the One Disease team.

Thanks to Prof. Bart Currie for expert advice and pictures used.

Approved by the medical reference group of the East Arnhem Scabies Control Program.

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EveryVoiceCounts.org
Program design and people empowerment

Northern Territory Government

MIWATJ HEALTH

Appendix 3

Appendix 4

Managing Crusted Scabies in Remote Aboriginal Communities

2014 EDITION

Chronic disease case management of crusted scabies to break the cycle of recurrences and transmission

Document prepared by:



EveryVoiceCounts.org
Program design and people empowerment

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BELIEVE. CONNECT. INSPIRE

Appendix 4

CRUSTED SCABIES AND ITS SIGNIFICANCE

What is it?

- A severe form of scabies, caused when an individual's immune system is not able to control mite proliferation.
- Hyper-infection develops, often with up to a million or more scabies mites. This is compared with 5-10 mites in simple scabies.
- Abnormally thick layers of keratinised cells in the stratum corneum, mixed with thousands of scabies mites, eggs, mite faeces and shed skin. Hyperkeratosis can be localised or widespread.
- In scabies endemic areas, crusted scabies must be treated as a chronic condition.

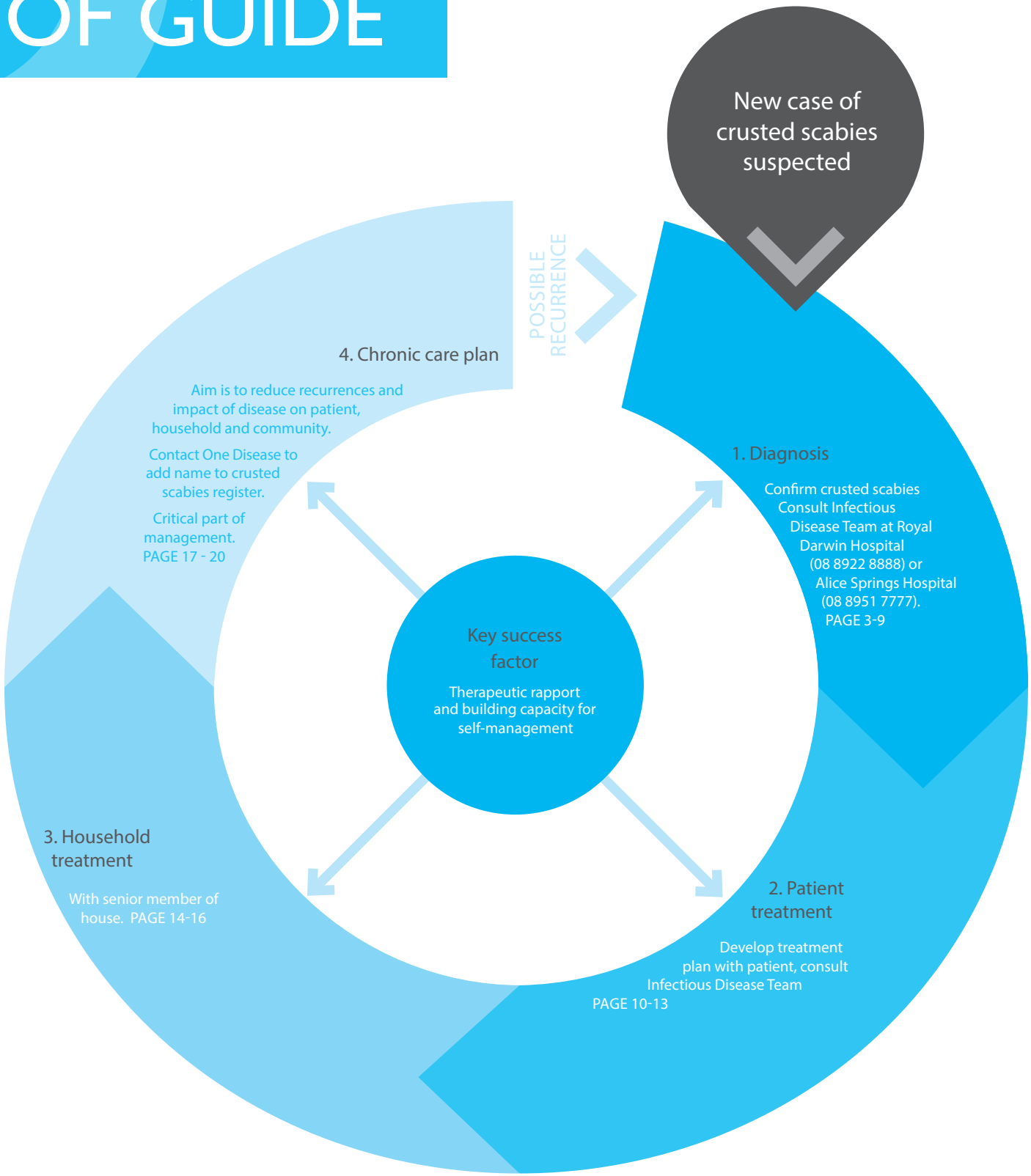
What is its significance?

- Individuals with crusted scabies experience lower life expectancy, frequent hospitalisations and develop secondary bacterial complications.
- Household contacts of unmanaged crusted scabies have high risk of recurrent scabies, Strep A skin sores, poor sleep, disruption of school and work. Strep A skin sores are associated with chronic heart and renal disease.
- Crusted scabies is highly infectious and causes outbreaks of scabies. Effective management is essential to the control of scabies in communities.

*All clinical protocols in the guide are based on the CARPA Standard Treatment Manual 6th Ed. Please follow CARPA at all times.

Appendix 4

SUMMARY OF GUIDE



Appendix 4

1 DIAGNOSIS

Diagnosis can be difficult

Prompt and correct diagnoses of crusted scabies is vital. Misdiagnosis results in unnecessary and expensive treatment and puts the patient on an unnecessary chronic condition management plan. Time spent properly confirming diagnoses will save time and resources in the future.

To make a positive diagnosis you must confirm a & b, (and ideally c & d):

A. Identify / confirm clinical appearance

B. Take skin scrapings

C. Audit patient clinical files

D. Conduct tracing

Appendix 4

1 DIAGNOSIS

A Identify / confirm clinical appearance

Characteristic crusted skin patches:

- Thickened, scaly skin patches. Often not itchy.
- Often, but not always on buttocks, hands, feet, elbows and armpits
- Scale may have distinctive creamy colour
- Do not confuse with tinea, psoriasis, eczema or dermatitis as it may look similar.

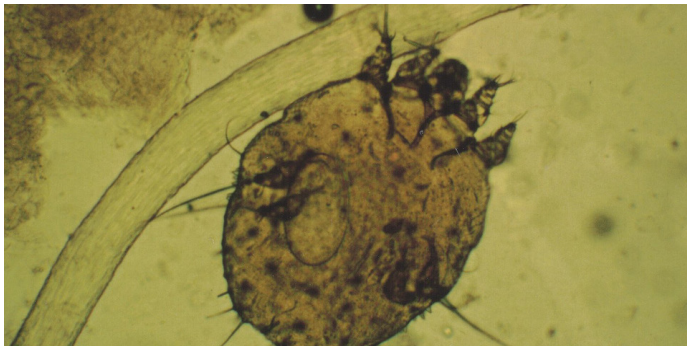
Specialist diagnosis recommended:

- The diagnosis can be difficult. Always consult Infectious Disease Team via switch at Royal Darwin Hospital on 08 8922 8888 or Alice Springs Hospital on 08 8951 7777.
- As underlying immune deficiency can be cause of the disease further testing is warranted. Discuss with infectious disease specialist.

Alert:

- Staff and carers should practice infection control procedures including wearing disposable gloves.
- Take care not to come in contact with scabies-containing fomites such as bedding or seating.
- If you think you have been exposed to scabies during the course of your work you may wish to apply a scabicide cream preventatively (e.g. benzyl benzoate) to exposed areas.





Appendix 4

1 DIAGNOSIS

A Clinical appearance



Crusted scabies cannot be excluded unless buttocks are seen (common area for crusts).

Hyper-keratotic (thick, scaly, cream coloured) areas with significant skin shedding (highly infectious).





Depigmented areas of skin. This is evidence of repeated recurrences of past crusting signifying chronicity and severity (add to grading scale pg 12).





Crusted scabies in a patient with claw hand from past leprosy.

Crusted scabies of the toes and feet.

Appendix 4

1 DIAGNOSIS

A Clinical Appearance: Common errors

It is common for immediate contacts of patients with crusted scabies to be misdiagnosed. See p9 for more information about contact tracing.

Misdiagnosing crusted sores (scabs, dry exudate) and or fungal as crusted scabies



Scabies papules.

Crusted sores and fungal infection.

This is not crusted scabies.

Scabies vesicle.

This is simple scabies with localised epidermal thickening.



Crusted sores.
This is not crusted scabies.





Appendix 4

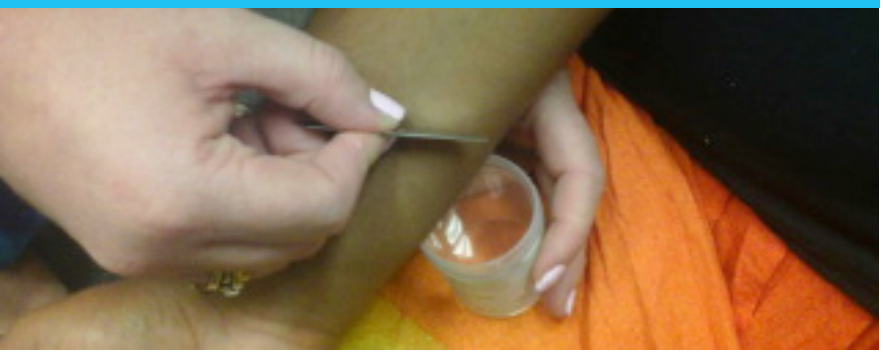
1 DIAGNOSIS

B Skin scrapings

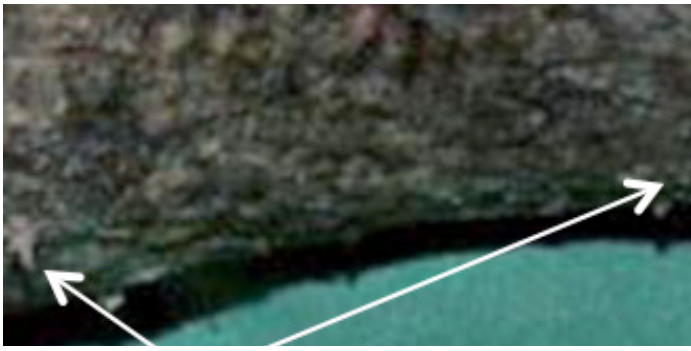
Collection

1. Identify an area of suspected crusting (thickened, scaly skin).
2. Gently use the sharp side of a sterile scalpel held at a 90º angle to scrape loose flakes of skin into a sterile urine collection jar. If true crusting is present skin should be easily collected.

Collection technique



Collect loose flakes of skin from areas of suspected crusting



3. Don't rush the process. The more skin collected the greater the chance of confirming the diagnosis. A few pieces of skin may be sufficient, but collect as much skin as possible.
4. If skin is not readily falling into the jar crusted scabies is less likely.
5. Do not cut or injure the skin. Infection and sepsis is a real risk in these patients.
6. Send collected sample to lab for testing. Make sure to request testing of scabies mites.
7. Absence of mites from skin scrapings does not rule out the possibility of crusted scabies. If results are positive this greatly increases the likelihood of crusted scabies.

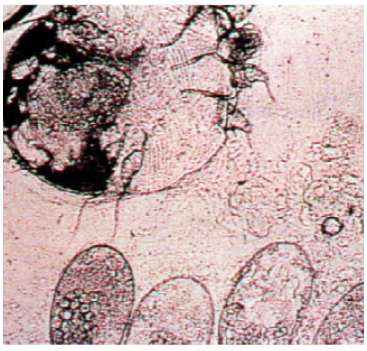
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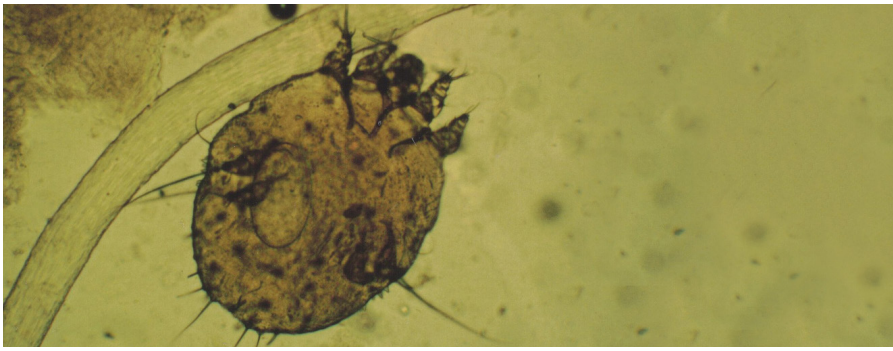
1 DIAGNOSIS

C Audit patient clinical files

- People who develop crusted scabies once are vulnerable to redeveloping the disease for life. They often have multiple admissions for crusted scabies going back many years. With clinic staff turnover being high, this knowledge can be lost.
- Review electronic notes for past diagnoses and or hospitalisation for crusted scabies.
- If available review paper notes for past diagnoses and or hospitalisation for crusted scabies.
- Add past crusted scabies to grading scale pg 11.

Magnified scabies mites.



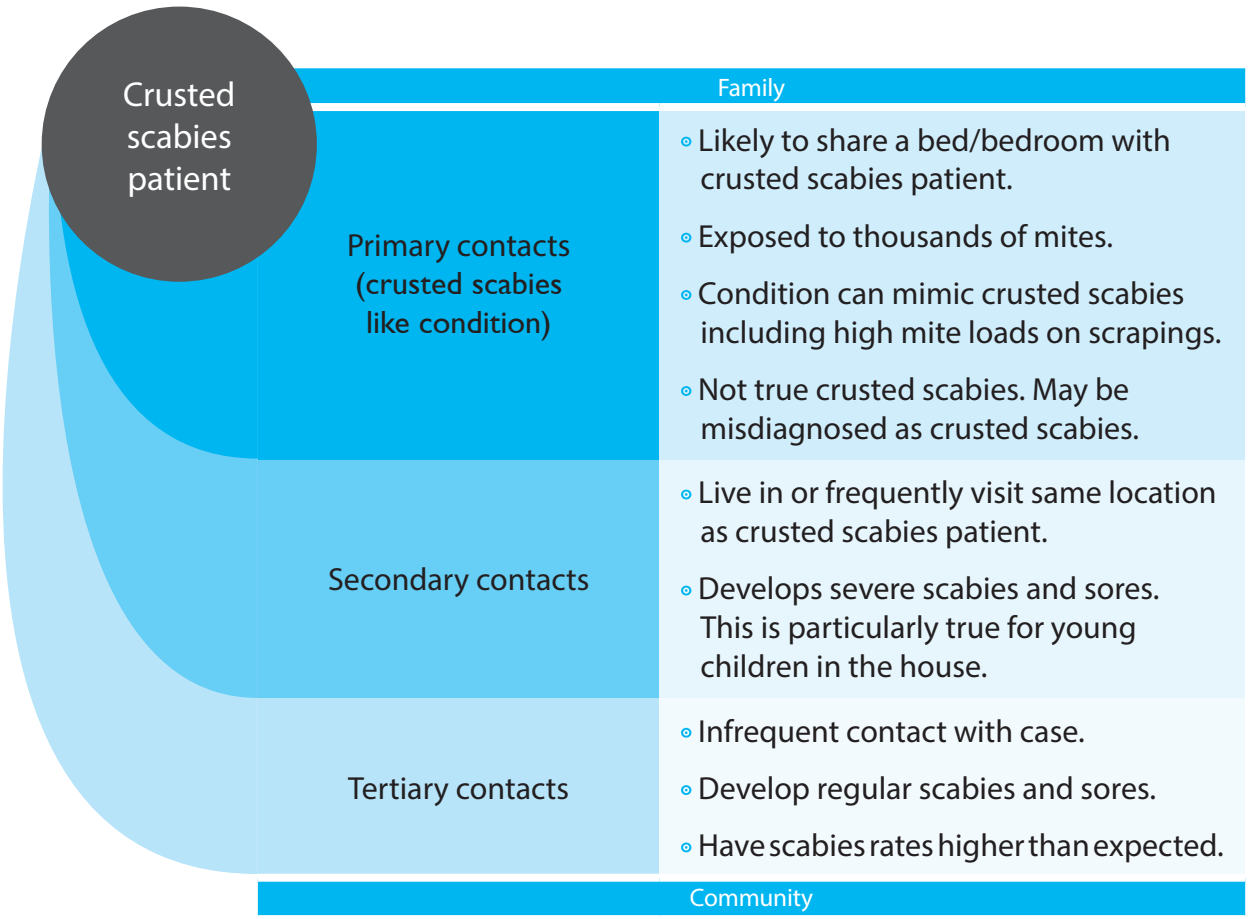


Appendix 4

1 DIAGNOSIS

D Contact tracing

- Crusted scabies patients are super spreaders/core transmitters of scabies.
- Where outbreaks of scabies or recurrent scabies occur in families, look for crusted scabies.
- Close contacts of crusted scabies can exhibit severe scabies rashes and may have been misdiagnosed with crusted scabies (crusted scabies like condition).
- Condition can mimic crusted scabies and may be positive for mites on scrapings.
- If primary and secondary contacts have little to no scabies crusted scabies is unlikely.
- Children with 10 or more interactions with the local health centre for scabies in a one year period strongly indicate uncontrolled crusted scabies in their household.



Appendix 4

2 PATIENT TREATMENT

Appendix 4

2 PATIENT TREATMENT

Grade Disease

Choose best option in each category and add numbers to get score

a: Distribution and extent of crusting

1. Wrists, web spaces, feet only — less than 10% Total Body Surface Area (TBSA)
2. As above plus forearms, lower legs, buttocks, trunk OR 10–30% of TBSA
3. As above plus scalp OR more than 30% TBSA

b: Crusting/Shedding

1. Mild crusting (less than 5mm deep), minimal skin shedding
2. Moderate crusting 5–10mm deep), moderate skin shedding
3. Severe crusting (more than 10mm deep), profuse skin shedding

c: Past episodes

1. Never had it before
2. 1–3 prior hospitalisations for crusted scabies OR depigmentation of elbows, knees
3. More than 4 prior hospitalisations for crusted scabies OR depigmentation as above PLUS legs/back or residual skin thickening/ scaly skin (ichthyosis)

D: Skin conditions

1. No cracking or pus in skin (pyoderma)
2. Multiple pustules and/or weeping sore and/or superficial skin cracking
3. Deep skin cracking with bleeding, widespread purulent exudates

Score:	
4 – 6	= Grade 1
7 – 9	= Grade 2
10 – 12	= Grade 3



Depigmentation



Severe crusting (more than 10mm deep), profuse skin shedding

Appendix 4

2 PATIENT TREATMENT

Working together

Patients suffer life-long stigmatisation and blame and often avoid health services

1. Identify any fears the patient has which could be barriers to treatment	Common concerns of crusted scabies patients: ◦ Hospitalisation in an isolation ward. ◦ Worry about onerous burden involved in whole of household treatment. ◦ Failure of previous treatments reduces motivation to try again and again.
2. Work with patient and family to develop a treatment plan they are comfortable with	Common mistakes in case management of crusted scabies: ◦ Failing to take time to visit families at home. ◦ Focusing on clinical protocols before establishing rapport. ◦ Not spending time explaining the disease, its chronicity and the importance of compliance to break the cycle of recurrences. ◦ Not taking time to win the support of a senior member of the household to ensure compliance with household treatment. While it can be frustrating, do not label the patient or family non-compliant. The family has to be part of the treatment team.

Appendix 4

2 PATIENT TREATMENT

Ideally all patients should be admitted to hospital for treatment (especially Grades 2-3). This is due to risk of sepsis, re-infection from fomites and contacts and infection control. For first diagnosis hospitalisation is especially important as possible underlying immune deficiencies needs to be investigated.

For community based treatment of crusted scabies at home it is very important that the topical therapy is supervised by the health staff-preferably all doses but especially the first.

Community based treatment:

1. Give ivermectin single dose on days 0, 1, 7. Give with food or milk for better absorption. (N.B. Longer treatment needed for Grade 2-3. Contact Infectious Disease Team at Royal Darwin Hospital on 08 8922 8888 or Alice Springs Hospital on 08 8951 7777).
2. Give topical agents (critical part of treatment):
    - Lactic acid and urea cream (e.g. Calmurid) every second day to soften skin. Don't use on the same day as scabies cream. Applying lactic acid/urea and the next day a warm soaking bath/ shower and scrubbing with a sponge is critical for removal of crusts.
    - Benzyl benzoate 25% with/without tea tree oil OR permethrin every second day for the first week.
      Dilute benzyl benzoate for children under 12.

    THEN twice a week until well. Put on after soaking in the bath/shower.
3. Patients must be seen daily , linen and clothes must be washed and sunned daily during household treatment.

Appendix 4

3 HOUSEHOLD TREATMENT

Creating a scabies free household

- Home visits are critical to gain trust, understanding and treatment success.
- It is important to ensure the household is scabies free to prevent recurrences in the crusted scabies at-risk person.
- The cycle of transmission can be broken: consistent application of this chronic disease approach improves quality of life for households and reduces clinical workloads.

Appendix 4

3 HOUSEHOLD TREATMENT

Select medications to use

Treat all of the household (scabies cases and contacts) on day 1
Repeat for scabies cases only (not contacts) in 1 week.

First line treatments;

Permethrin 5%

Instructions on use of permethrin (as per CARPA scabies chapter).

- Do not use in children under 2 months (use crotamiton e.g. Eurax).
- Use in children 2 months and over and adults.
- Apply thin layer of permethrin 5% cream on whole body including head and face — avoid eyes, and mouth.
- Requires overnight application.

Benzyl benzoate

Benzyl benzoate has a faster kill time than permethrin and is preferred. However, it can cause transient burning sensation in some patients so give a warning and test on a patch of skin first.

Instructions on the use of benzyl benzoate 25% emulsion (as per CARPA scabies chapter).

- Apply topically to skin from the neck down and leave on overnight.
- Do not use in children under 2 years (use permethrin or if under 2 months use crotamiton e.g. Eurax).
- Children 2–12 years and sensitive adults -dilute with equal parts water (1:1).
- Adults – apply directly.
- Benzyl benzoate may occasionally cause severe skin irritation, usually resolves in 15 minutes.
- Before application, first test on small area of skin.

Make sure cream covers between fingers and toes, feet including soles of feet, under nails, buttocks. Leave on overnight and advise to reapply after washing hands.

Consider;

Ivermectin

Consider ivermectin in males over age 5 (NB: STROMECTOL (ivermectin) is indicated for the treatment of human sarcoptic scabies when prior topical treatment has failed or is contraindicated.

Treatment is only justified when the diagnosis of scabies has been established clinically and/or by parasitological examination. Without formal diagnosis, treatment is not justified in the case of pruritus alone. At all times follow CARPA Guidelines.

- Comprehensive coverage is critical to effectiveness of control efforts. Certain groups in the house may not want to use creams, undermining control.
- Consult a medical officer to be part of the day to consider the use of ivermectin in men.

Note:

- Do not give to women (as ivermectin cannot be used during pregnancy and pregnancy testing is impractical in community control programs).
- Do not give to children under 5.

Dosing of ivermectin :

- 200mcg/kg rounded up to nearest 3mg.
- Contact with no clinical scabies- ivermectin Day 1 only
- Contact with suspected clinical scabies- ivermectin on Days 1 and 8..

Appendix 4

3 HOUSEHOLD TREATMENT

Making sure everyone joins in

The application of creams is inconvenient but ensuring all household members use the treatment is critical to the success. Make it a fun occasion and consider the following tips to get everyone involved.

Strategies for success

- Take time to get the support and interest of a senior household member. Explain the benefits in terms of reduced sores and improved sleep. It is important to be flexible on the timing.
- Select a day and time when most of household will be present (e.g. after school in the afternoon).
- Involve senior members of household in helping others apply creams.
- Start the application of creams during the home visit. Start by involving mothers to apply creams on children.
- Often young children will be frightened. Start with an older person, apply on arms of mothers, staff to get things started. After initial reluctance a tipping point is reached where everyone joins in. The trick is to stay positive and keep going until you reach this point.
- Encourage older teens and adults to help each other with application. Highlight wearing creams as a sign of their support for household health and wellbeing.
- Ensure privacy and appropriate consent before applying creams. Parents should apply creams on children and be present at all times.
- Be discrete. The family may not want the whole community to know they are being treated for scabies.

Considerations

- Screen children and record names of children with scabies. Refer other conditions to health centre for treatment.
- If the family agrees, organise a clean-up for the house. If possible supply cleaning products and equipment.
- Encourage household to put bedding, clothes and mattresses in the sun.
- If it is requested by the family, set insecticide bombs in the house (available over-the-counter in stores). Ensure families read and understand instructions.
- Avoid other health promotion or clinical activities while doing a mini skin day.

Appendix 4

4 CHRONIC CARE PLAN

Maintenance plan to prevent recurrences once patient and family are treated and free of scabies.

Appendix 4

4 CHRONIC CARE PLAN

Essentials

- Ensure a regular supply of creams (e.g. 2 benzyl benzoate, 4 lactic acid/urea (Calmurid) and 4 moisturisers per month) are given to patient. Breakdown in supply of these creams to patient are a common cause of recurrence.
- Only benzyl benzoate should be used for regular preventative treatment (regular use of permethrin or ivermectin can lead to development of resistance).
- Patients should not share a bed and should have a hospital grade mattress which can be easily cleaned (where possible).
- Patients at high risk of re-exposure to scabies are those living in a house with many occupants especially young children.
- An intensive phase of clinic involvement is important to show the patient and household the benefit of adherence to the chronic care plan (e.g sleep).
- The patient's seniority in the house is critical. More support is needed for patients without seniority.

*The ultimate goal should be self-care and management with clinics supplying creams and conducting skin checks.



Appendix 4

4 CHRONIC CARE PLAN

Ongoing management

Ongoing management is required after a full treatment for crusted scabies as per guidelines and where an excellent response has occured with no evidence of residual active scabies.

Risk of recurrence and severity	How to grade	Frequency of skin checks	Preventative treatments
Low - Moderate	Low infectivity: Crusts isolated and discrete patches — less than 5% Total Body Surface Area (TBSA). Skin: Minimal shedding chronicity 0–3 prior hospitalisations for crusted scabies.	Monthly (examine skin including buttocks)	1. Encourage regular use of lactic acid/ urea (Calmurid) and moisturiser on areas affected by past crusting. 2. Apply benzyl benzoate as needed if exposed to scabies. Consider supervision of benzyl benzoate.
High	High infectivity: ◦ Crusts lower legs, buttocks, trunk OR 10% or more of TBSA Skin: Current or past heavy shedding. AND chronicity : ◦ More than 3 prior hospitalisations for crusted scabies. And/ordepigmentation of legs/back or residual skin thickening/ scaly skin (ichthyosis).	Fortnightly (examine skin including buttocks)	1. Encourage regular use of lactic acid/ urea (Calmurid) and moisturiser on areas affected by past crusting. 2. Apply benzyl benzoate from neck down fortnightly. 3. As needed apply benzyl benzoate immediately to any areas exposed to scabies (e.g. hands after visit of affected person).

Appendix 4

4 CHRONIC CARE PLAN

Recurrences are to be expected

Detect, treat early and don't get disillusioned.

Problem-solve with the family as they are part of the treatment team.

- Common causes of recurrence include:
  - Not treating all contacts.
  - Failure to apply creams to hard to reach areas, especially buttocks.
  - Running out of supplies of preventative creams.
  - Visitors with scabies re-introduce the disease to the household.
- Offer more scabies cream and promote their use with all household contacts.
- Consider repeating household treatment and expanding it to include closely related households that could be the source of re-infection.
- If scabies persists speak to the One Disease team for program guidance.

At this stage it is more important than ever not to blame the family. In these cases there is normally something else going on and if that can be resolved the scabies will often be fixed by the family themselves. This may just take time and patience.

If many household have scabies consider a Healthy Skin Day. See CDC Healthy Skin Program Guidelines and/or call One Disease for advice.



Appendix 4

FOR MORE INFORMATION

For clinical advice consult the CARPA Standard Treatment Manual or infectious diseases specialists via the switchboards of Royal Darwin Hospital on 08 8922 8888 or Alice Springs Hospital on 08 8951 7777.

For information on this document contact One Disease www.1disease.org or contact@1disease.org

Useful Scabies Resources

NT CDC Healthy Skin Program Guidelines (planning a healthy skin day)
http://www.health.nt.gov.au/Centre_for_Disease_Control/Publications/CDC_Protocols/index.aspx

Flipchart – recognising and treating skin conditions (Menzies)
http://www.menzies.edu.au/icms_docs/162092_Recognising_and_Treating_Skin_Conditions.pdf

Developed by program strategy and implementation consultants, EveryVoiceCounts and the One Disease team.

Thanks to Prof. Bart Currie for expert advice and pictures used.

Approved by the medical reference group of the East Arnhem Scabies Control Program.

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Program design and people empowerment

Northern Territory Government

MIWATJ HEALTH

Appendix 4

Appendix 5 Educational resource list

TITLE	WHAT	SOURCE
Managing Households With Recurrent Scabies	eBook	One Disease http://1disease.org/wp-content/uploads/2014/07/Recurrent-Scabies-guide-2014_final1.pdf
Managing Crusted Scabies in Remote Aboriginal Communities	eBook	One Disease http://www.healthinfonet.ecu.edu.au/uploads/resources/27857_27857.pdf
CARPA Standard Treatment Manual	Book	Centre for Remote Health
Healthy Skin Story Scabies	Flipchart	http://www.healthinfonet.ecu.edu.au/key-resources/promotion-resources?lid=18932
Recognising and Treating Skin Conditions	Flipchart	http://www.menzies.edu.au/page/Resources/Recognising_and_treating_skin_conditions/
Scabies	Fact sheet	NT Centre for Disease Control - http://www.health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/47/10.pdf&siteID=1&str_title=Scabies.pdf
Scabies prevention and treatment	Information Sheet	Fact sheet South Australian Health
Scabies and other mites causing skin disease	Fact sheet	Staying Healthy in Child Care 5th edition http://www.nhmrc.gov.au/_files_nhmr

Further information is available from One Disease | Menzies Building
RDH Campus , Rocklands Drive Tiwi NT 0810
+61 448 071 503 | www.1disease.org

Appendix 6 Equipment list for community screening and treatment

General

- Community population list
- Screening spread sheet
- Pens/paper
- Sharps container
- Alcohol swabs
- Needles and syringes
- Gloves
- Hand wash
- Scales

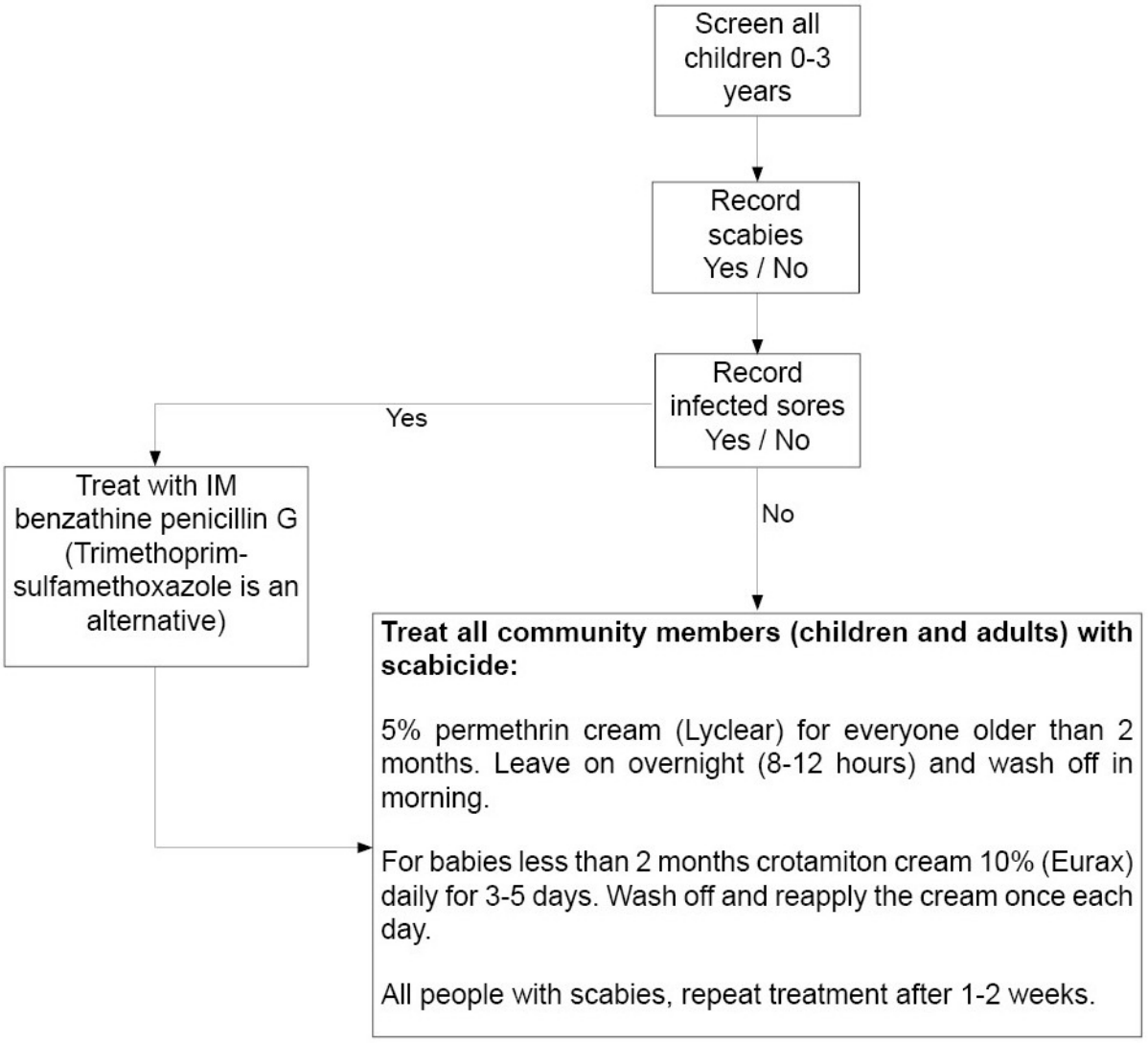
Scabies and skin sores treatment

- Permethrin cream (Lyclear)
- ~ 1 tube for 2 adults
- ~ 1 tube for 4 children
- ~ 1 tube for 8 babies
- Crotamiton cream (Eurax)
- Benzathine penicillin G (2.3mL) – store in esky to maintain temperature between 2–8^{o}C

Appendix 7 Example spreadsheet for baseline screening

Name	DOB	Date Checked	Scabies Yes / No	Infected skin sores Yes / No	BPG given Yes/ No	Follow up required Yes / No

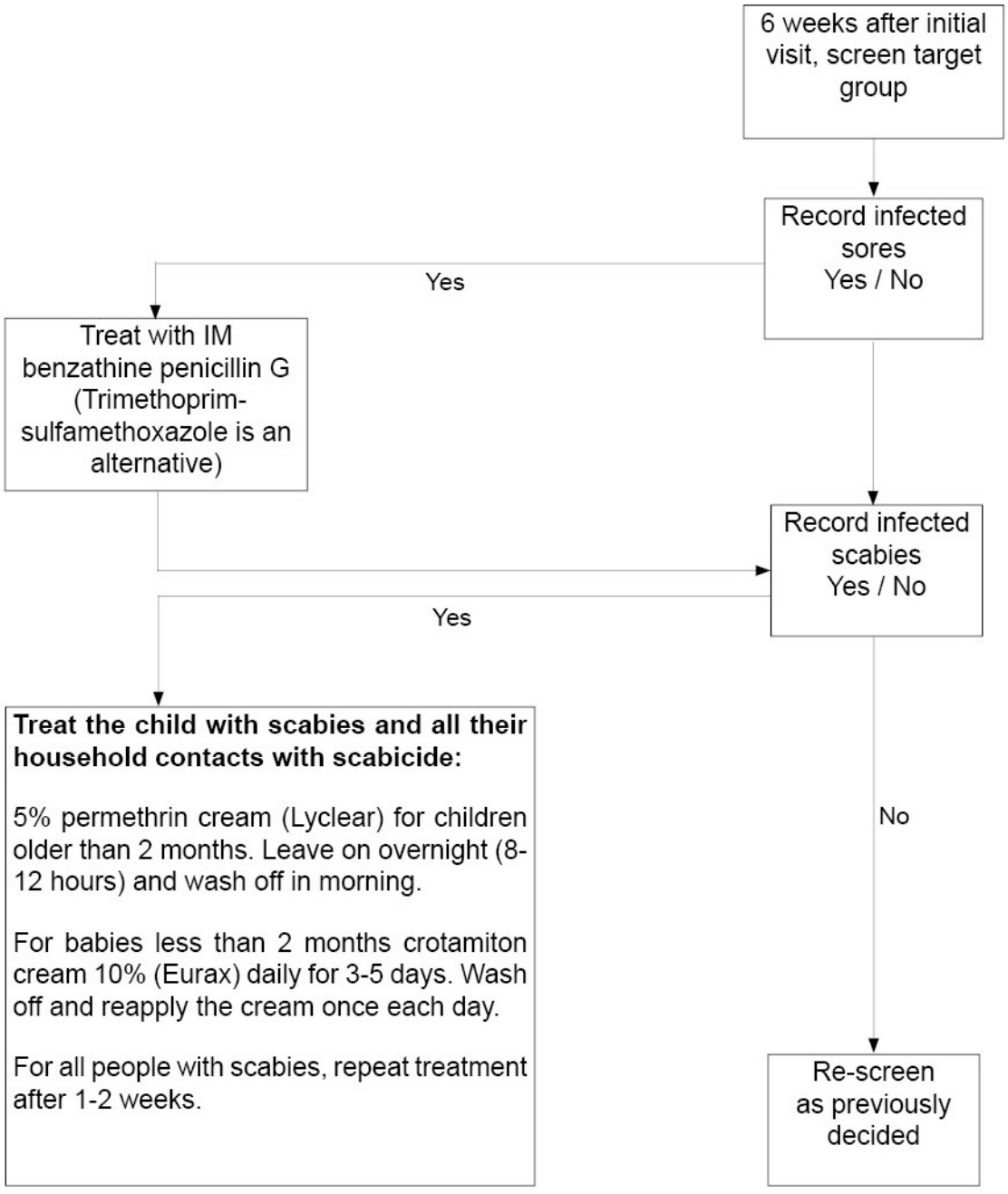
Appendix 8 Baseline screening and community treatment



Appendix 9 Example spreadsheet for ongoing surveillance

Name	DOB	3 month follow up date:		6 month follow up date:		9 month follow up date:		12 month follow up date:	
		skin sores yes/no	scabies yes/no	skin sores yes/no	scabies yes/no	skin sores yes/no	scabies yes/no	skin sores yes/no	scabies yes/no

Appendix 10 Maintenance program



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Guidelines for Community Control of Scabies, Skin Sores, Tinea and Crusted Scabies in the Northern Territory

Northern Territory Department of Health
Centre for Disease Control

www.nt.gov.au/health/cdc