



CENTRE FOR DISEASE CONTROL
NORTHERN TERRITORY

Healthy Skin Program

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

February 2003



Northern Territory Government
Department of Health and Community Services

COMMENTS ARE WELCOME AND SHOULD BE DIRECTED TO THE PROJECT/RESEARCH OFFICER

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Section 1 Background Information

1.1 Guiding statement

A coordinated, community-based approach is required to reduce the prevalence of scabies and skin sores within Northern Territory (NT) communities.

1.2 Objectives

- To provide a community-based framework for implementation of a Healthy Skin Program.
- To reduce prevalence of scabies, streptococcal skin sores and associated post streptococcal illness in NT communities.

1.3 Rationale

Scabies is currently endemic in many remote Aboriginal communities with prevalence up to 50% in children and 25% in adults. Apart from the individual discomfort caused by scabies, it underlies 50% to 70% of streptococcal skin infections. Control of scabies is therefore critical in controlling streptococcal skin infections and its sequelae.

Outbreaks of Acute Post Streptococcal Glomerulonephritis (APSGN) have been documented in the NT since 1965, with large periodic outbreaks involving numerous communities. APSGN occurs following streptococcal skin infection and is characterized by oedema (most noticeably facial), haematuria and hypertension. Recent NT studies have shown that children who have had APSGN have an increased risk of six times for developing adult renal disease. Rates of acute rheumatic fever (ARF) and prevalence of rheumatic heart disease (RHD) in Top End communities are among the highest in the world. High rates of skin infection allowing the streptococcus to remain circulating in communities are likely to be a significant factor in the high rates of RHD and renal disease in the NT.

Treating individuals or even whole families for scabies has not been successful in reducing community rates as many treated cases rapidly become reinfected. A committed and coordinated approach involving the entire community in an initial education, screening and treatment program with an ongoing surveillance and follow-up program has been shown to be effective in reducing and maintaining reduced scabies prevalence rates.

Section 2 Definitions & Clinical Presentation

2.1 Scabies

Identification

A parasitic infestation of the skin caused by a mite, *Sarcoptes scabiei*, whose penetration is visible as papules, vesicles or tiny linear burrows containing the mites and their eggs. Scabies can be identified by small papules and scratch marks commonly found around web spaces between fingers, toes and anterior surfaces of wrists and elbows. Other sites include axillary folds, belt lines, thighs, abdomen and buttocks. Burrows are often not seen in tropical regions. Infants may have widespread lesions involving the head, neck, palms and soles. Itching is generally intense and often more severe at night.

Mode of transmission

Mites are transferred by direct contact with an infested person and can burrow beneath the skin in 2.5 minutes. Infestation from undergarments and bedclothes occurs only if these have been contaminated by the infested person immediately beforehand. The scabies mite that infects dogs is a different type to human scabies, and treating dogs is not necessary to reduce scabies prevalence amongst people.

Incubation period

Itching develops in those not previously exposed to scabies within 4 to 6 weeks. Those previously exposed develop symptoms 1 to 4 days after re-exposure.

2.2 Crusted (Norwegian) scabies

Crusted scabies is due to the same scabies mite but there is an over proliferation of scabies mites. It can occur in association with underlying immune deficiencies, including human immunodeficiency virus (HIV), hematological malignancy, immunosuppressive therapy, connective tissue diseases and neurologic illnesses, although the majority of cases in the NT have no obvious immune problems. In central Australia crusted scabies has been associated with HTLV-I infection. People with crusted scabies often have no itch and the rash manifests as generalised 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 on the skin to severe, covering the entire body. It may be misdiagnosed as other conditions such as psoriasis or fungal infections. As diagnosis by clinical picture

may be difficult, microscopic examination of skin scrapings to detect the presence of mites and/or their eggs is recommended.

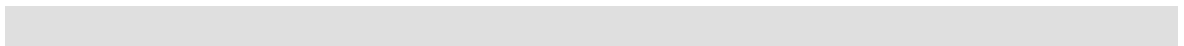
Individuals with crusted scabies are highly infectious, require systemic treatment and often hospitalisation. They are highly vulnerable to reinfection. Cases of crusted scabies have an associated high morbidity and secondary skin sepsis may result in life threatening bacteraemia. Undiagnosed cases of crusted scabies play an important role in reinfection of treated household members.

2.3 Infected scabies

Scabies frequently become infected, with both *Group A streptococcus* (GAS) and *staphylococcus aureus*. Eradication of the GAS is important to prevent post streptococcal disease. Single dose benzathine penicillin will eradicate streptococcus. Antibiotic treatment for staphylococcus is usually not required.

2.4 Impetigo / skin sores (no scabies)

Skin sores that are unrelated to scabies are more likely to be on the legs, and be due to minor trauma or insect bites. Antibiotic treatment is recommended for multiple sores and is also aimed at eradicating streptococcus. If there are blister type pustules, this is more likely to be due to staphylococcus. For recommended treatment refer to CARPA Standard treatment manual.



Section 3 Healthy Skin Program

Since 1992, many communities have implemented Healthy Skin programs in the NT. Initial whole population treatment and selective screening has been successful in reducing scabies prevalence from up to 61% to down to 3% across these communities. Ongoing data has been collected in 5 communities at 6 months post the initial treatment day. Three of these communities have maintained low rates, however in the other two communities the prevalence rates had increased to 29%. The necessity of a well planned, coordinated and committed community-approach to an ongoing Healthy Skin Program to reduce scabies prevalence cannot be over emphasised. The program is not just the community treatment day. The aim of the treatment day is to reduce prevalence to a manageable level (approximately 5%) so that focus can be on scabies eradication.

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**

3.1 Planning

Planning is the key to successful implementation of any program. People to be involved 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 1 for a list of educational resources developed in other communities.

Initial community screening and treatment

Set a realistic timeframe for the initial community screening and treatment. 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 plan for up to a week of screening and treatment. Other community events should be taken into consideration when deciding on the dates.

Resources required

- Community population list
- Extra supplies for scabies and infected skin sores treatment need to be ordered.
- Extra health staff and community members may be required for the baseline screening and treatment.

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 both scabies and crusted scabies and appropriate treatment should be included.

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.

3.2 Community Involvement & Education

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

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, teachers, CDEP workers, Health Boards, Arts Centre staff, Women's centre members, outstation resource centres etc. These people should be involved in planning, the community treatment day and ongoing maintenance program.

Community education

Plan to provide school and community education sessions and decide on the messages you want to convey to the community. Schoolteachers may decide to run a poster competition for children who develop posters about scabies and skin sores. Local organizations often donate prizes, and the posters can then be used for community education. Many communities develop their own video story, and show this locally on the BRACS system.

Key messages for community education include:

- Relationship between scabies, skin sores and kidney and RHD sickness
- Success of program in other communities
- Importance of treating everyone whether they have scabies or not
- How to apply scabicide
- Ongoing program to keep scabies rates low
- Importance of washing children to reduce skin infection
- Housing functionality to enable washing of children

3.3 Baseline screening and community treatment

Reason for screening

- To establish the baseline scabies and skin sore prevalence in the community.
- To determine which individuals have infected sores and need antibiotics.

Who to screen

- Children 0 to 3 years of age are a useful group for selective screening. They usually have the highest rates of scabies and skin sores, and they are an easy group to access. Smaller communities may decide to include up to 5 year olds or up to 15 year olds.
- It is not essential to screen adults, however all adults should be encouraged to be treated regardless of whether they are screened or not.

How & where to screen

- A designated screening centre could be organized 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.
- To ensure consistency screening should be carried out in the following manner:
 - ◇ Young children: check all of skin, including scalp.
 - ◇ School children: check hands, arms, legs, feet and waist. Only check rest of skin if scabies or sores noted, or if itching is present on other parts of the body.
 - ◇ If screening adults: check hands, arms and feet, unless scabies or sores found.

- Refer people with other skin problems (eg ringworm) to the clinic for treatment.

See Appendix 2 for a check list of equipment required for screening and treatment.

Documentation

Accurate documentation is important as this will assist in follow up of cases and contacts and targeted surveillance. Clinic staff should decide on the most appropriate record keeping method for the community taking into account the need for follow up of moderate/severe scabies, crusted scabies and being alerted to household reinfections.

See Appendix 3 for a spreadsheet example for baseline screening.

- Moderate to severe scabies includes infants with pustules on hands and feet and older children and adults with multiple scabies lesions.
- Only infected sores should be documented. Infected sores will be moist and have pus or a yellow/brown crust. Do not record non-infected cuts, scratches or insect bites.

Treatment

Infected sores

- Treat all cases with a single intramuscular (IM) dose of benzathine penicillin (erythromycin or roxithromycin for 10 days if allergic to penicillin).
- Permethrin 5% cream can be applied at the time antibiotic treatment is given. There is no need to wait for healing, as permethrin has very low skin irritation.

Scabies

- Treatment must be offered to the **whole community** at the same time and health staff should visit households to demonstrate the correct way to apply the cream. Apply the cream to a young child as a simple way of demonstrating correct treatment.
- Infants less than 2 months of age are treated with sulphur 5% cream daily for 2 to 3 days or crotamiton 10% cream (Eurax) daily for 3 to 5 days. Wash off and reapply the cream each day.

Permethrin is not recommended for use on children less than 2 months of age.

- Everyone older than 2 months is treated with 5% permethrin cream. 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 eyes and mouth.
- People with moderate or severe scabies should have a second treatment of 5% permethrin at 2 weeks.

Previously only young children were treated from head to toe, but in endemic areas many older children and adults have scabies on their head and neck.

Crusted scabies

Management of crusted scabies will be discussed in Section 4.

3.4 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:

- Promoting washing of children and maintenance of health hardware to do this
- Promoting early presentation of any scabies cases
- Ensure treatment of any new cases and household contacts
- Regular surveillance of young children to monitor prevalence

See Appendix 4 for spreadsheet example for follow up screening and treatment

Follow up and surveillance screening

Surveillance must be regular and focused on identifying reinfection. Reinfection requires active contact tracing and if a child has frequent scabies infestation, then they may be in contact with an undiagnosed case of crusted scabies.

Who to follow up & deciding on the surveillance target group

All cases of moderate/severe scabies identified during the initial screening should be retreated in 2 weeks. Management of crusted scabies is discussed in Section 4.

A target population for regular surveillance must be decided upon. As young children have higher rates of scabies and skin sores it should include children 0-3 years of age, or children 0-5 years. In smaller communities children up to 10 or 15 years may be included.

When should regular surveillance be carried out?

Surveillance following the community treatment day should be done approximately 6 weeks later. Ongoing surveillance could be incorporated into GAA and should be done at least 3 times per year.

Surveillance outcomes & documentation

- treat any skin sores with penicillin (erythromycin or roxithromycin if allergic)
- treat any child with scabies AND all family members living with them

- maintain documentation indicating which children have had scabies, skin sores and treatment to highlight any children/households that are frequently reinfected
- frequently reinfected cases should alert staff to the possibility of contact with an undiagnosed case of crusted scabies

3.5 Evaluation

Start a file and after each surveillance:

- Use graphs, pictures etc to present scabies rates to community decision-makers such as Councils, Woman's Centres, community elders and teachers.
- Write a short report on how the program is going and discuss it with the Healthy Skin Team, rural health coordinators, EHOs etc.

See The Public Health Bush Book or discuss with public health staff about creating pictorial graphs

Section 4 Management of Crusted Scabies

4.1 Medical assessment and diagnosis

Assess:

- extent and severity of rash: thickened skin patches may be localised in one or two areas (bottom, hands, feet, shoulders) or cover the whole body with a thick flaky crust, the rash is often not itchy and can look like tinea, psoriasis or eczema/ dermatitis
- secondary skin infection
- weight (check for weight loss)
- other examination as indicated (eg: spleen, lymph nodes, leprosy)

Blood tests: FBC, ESR, eosinophil count, CRP

UEC, LFT, ANF

Venous blood glucose

HIV Ab, HTLV-1 Ab

Complement – C3, C4

Skin: skin scrapings for M&C: ask for scabies microscopy and fungal culture
skin swabs for microscopy and culture if indicated

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.

- If the specimen is being collected to **aid diagnosis**, send it to your usual laboratory service. Request skin m/c/s and specify scabies and fungal.
- If the specimen is to **assess treatment effectiveness**, it should be forwarded to Menzies School of Health Research within 48 hours and labelled *Attention Shelley Walton, Lab 1, MSHR, RDH campus*. The specimen will be treated differently and examined for both dead and live mites.

4.2 Treatment of cases and contacts

Treatment of cases

Treat milder cases in the community, in consultation with Infectious Diseases physician if you are not familiar with treating this condition. Severe cases will need to be admitted to hospital.

Two treatments:

- Lactic acid cream (Calmurid) to soften skin crusts and allow penetration of scabies cream.
- Permethrin 5% cream OR benzyl benzoate lotion **plus** oral ivermectin to kill scabies mites.

Lactic acid cream: apply once daily to rash only (softens skin) after bath or shower. Do not apply on treatment day with permethrin/benzyl benzoate.

Permethrin cream or benzyl benzoate: apply twice weekly after bath or shower for 2 weeks then weekly for 4 weeks. Cover the whole body, including head and face. Leave on for **24 hours** (instead of usual 8 hours).

Ivermectin: 200mcg/kg/dose (do not use less than 200mcg/kg/dose – can use up to 300 mcg/kg/dose) – tablets are 3 mg each and **should be given as directly observed therapy** with each dose documented in the patient chart. Best given on an empty stomach.

Mild crusted scabies – Give 3 oral doses: Day 1, Day 8, Day 15.

Moderate crusted scabies - Give 5 oral doses: Day 1, Day 2, Day 8, Day 9, Day 15.

Severe crusted scabies – admit to hospital for fully supervised therapy - up to 7 doses ivermectin may be required plus more frequent topical therapy.

***Note:** Ivermectin is not licensed in Australia for use in scabies, but it can be prescribed by a doctor familiar with the drug and its effects on crusted scabies. It is not approved for use in children or in pregnant women, but can be prescribed for children with crusted scabies by a doctor familiar with the drug and its effects on crusted scabies.*

Treatment of contacts

Treat all household and close contacts with single application of permethrin (head to toe). Contacts with extensive scabies, especially young children should have a second treatment after 2 weeks. Household contacts should be treated either the day of or the day prior to the house being treated.

4.3 Treatment of House

Insecticide treatment of their usual residence (and other houses the person may have regularly stayed at) is required only for people with crusted scabies as they are highly infectious. It is not recommended for normal scabies cases. House treatment may be arranged by contacting the Environmental Health Officer.

See Appendix 7 for Environmental Health guidelines on treating the house

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Appendix 1 Educational Resource / Ideas list

Creating community awareness:

- plan a barbeque, football game or other community activity to celebrate
- organise poster competitions, displays etc
- work with councils and Environmental Health Officer's (EHO) to arrange a community/house clean up day on the same day as community scabies treatment

WHO	WHAT	TITLE
Nalkanbuy Health Service Galiwinku Aboriginal Services Inc 08 8987 9031	Flip Chart	Healthy Skin Story
Nalkanbuy Health Service Galiwinku Aboriginal Services Inc 08 8987 9031	Video	The Galiwinku Healthy Skin Story
Australian Kidney Foundation THS Reprint CDC-8922 8044 / 8951 6918	Poster	Scabies and Skin Sores
THS CDC-8922 8044 / 8951 6918	Pamphlet	Scabies
Tropical Public Health Unit QLD Health 07 4050 3600	Poster	Deadly Kids
Tropical Public Health Unit QLD Health 07 4050 3600	Fact Sheet	Scabies
Staying Healthy in Child Care 3 rd edition www.nhmrc.health.gov.au	Paper	Scabies & other mites causing Skin disease
Women's & Children's Hospital Adelaide 08 8161 7000	Information Sheet	The Treatment of Scabies
Janice Money Pjmoney@bigpond.com	CD ROM	Scabies
ARDS Inc 89823444	Video 30 mins (language) \$33	Scabies
Goldfields Public health Service, Kalgoorlie 08 9021 2622	Video, Poster, School education package	The scabies story: under your skin
Menzies School of Health Research 8922 8196	Flipchart	Scabies

The Healthy Skin Team with the Cooperative Centre for Aboriginal and Tropical Health (CRCATH) are currently researching the Healthy Skin program to assess issues of sustainability. The team will provide advice for your health team and community groups interested in running a healthy skin program.

Contact:

Christine Connors CRCATH ph: 8922 8218 email: christine.connors@nt.gov.au
 Norma Bengner MSHR ph: 8922 7877 email: norma.bengner@mshr.edu.au
 Melita McKinnon MSHR ph: 8922 8393 email: melita.mckinnon@mshr.edu.au

Ken O'Brien DHCS (EHO) ph: 8922 8273 email: ken.obrien@nt.gov.au
 Nicola Slavin DHCS (EHO) ph: 8922 8349 email: nicola.slavin@nt.gov.au

Appendix 2 Equipment List

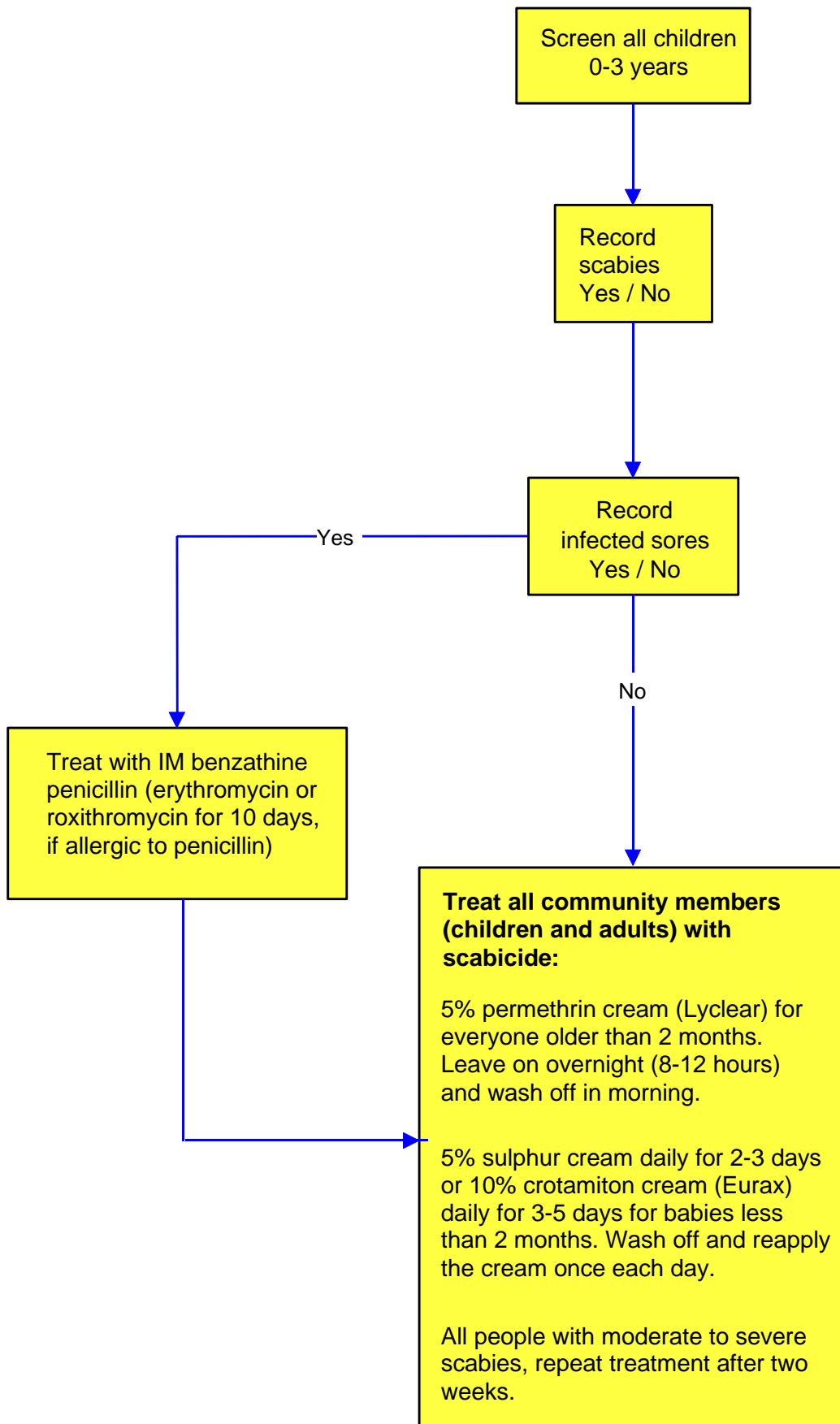
General:

- ⇒ Community population list
- ⇒ Screening spreadsheet
- ⇒ Pens/paper
- ⇒ Sharps container
- ⇒ Alcohol swabs
- ⇒ Needles & syringes
- ⇒ Gloves
- ⇒ Hand wash
- ⇒ Scales

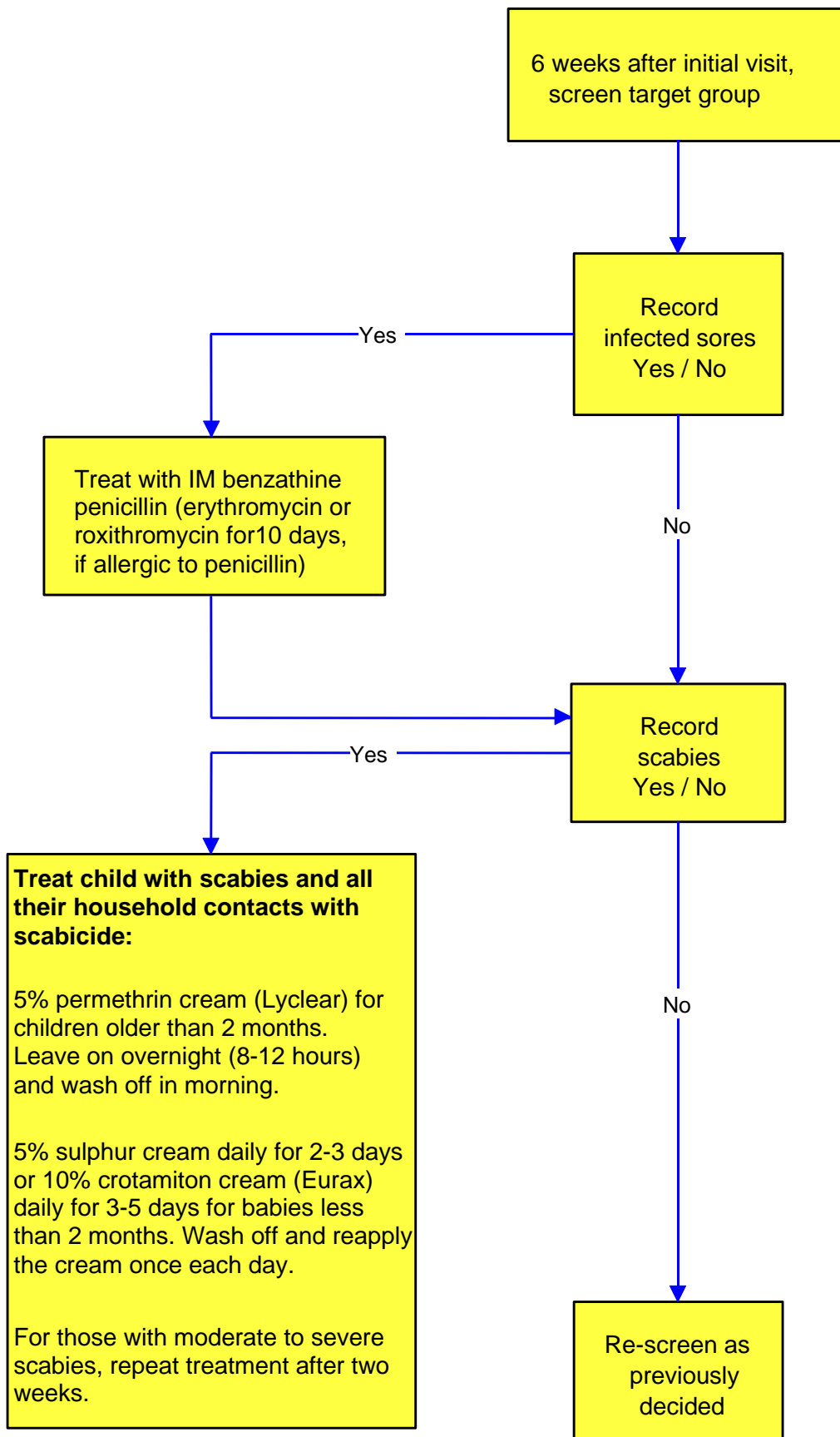
Scabies and skin sores treatment:

- ⇒ Permethrin cream (Lyclear)
 - ~ 1 tube for 2 adults
 - ~ 1 tube for 4 children
 - ~ 1 tube for 8 babies
- ⇒ Crotamiton cream (Eurax)
- ⇒ Benzathine penicillin (2ml) – in esky to maintain temperature between 2-8° C

Appendix 5 Baseline screening & community treatment



Appendix 6 Maintenance Program



Appendix 7

Housing Treatment - Crusted Scabies Protocol

Environmental Health Component

Guidelines for treatment of a house

The treatment of a home for scabies forms part of the Crusted Scabies protocol. The protocol was developed by Environmental Health Officers (EHOs), Infectious Diseases Physician, Public Health Physicians and CDC.

1. Clinic staff contact the Environmental Health Officer to advise them of a case of Crusted Scabies.
2. A date is negotiated with Clinic staff to implement the first stage of the protocol.
3. The date of house treatment is usually the day before the patient with Crusted Scabies is discharged from hospital.
4. Contact the family of the patient prior to the day of treatment and advise them of proposed action.

On the day:

1. Meet with family (at the home in which patient is to live in upon discharge from hospital). This should be done in the presence of a community representative (as agreed to by family)

Advise family to:

- Remove food and food utensils
 - Arrange for the house to be cleaned
 - Wash clothes, towels, blankets, sheets, pillow cases
 - Hang washed laundry in sun
 - Put pillows and mattresses in sun
 - Consider new mattresses for all family members living in the house
2. Close all windows. Where a house has no windows seal the windows with plastic sheeting or other appropriate materials.
 3. With guidance from the EHO, use a pesticide smoke generator as per Instructions and Safety requirements.
Eg: Emperor Smoke Generator available at Garrards Pesticides 89472856.
Usually require 2 smoke generators for a standard house (14 square)
 4. Family need to remain out of the house whilst it is being treated.
Approximately 3 – 4 hours
 5. Open all windows and doors to fully ventilate the house or as per instructions before advising family to re- enter. Approximately ½ Hour.

6. Advise family that they may clean floors, benches and other surfaces upon re-entering the house although the Emperor Smoke Generator does not leave residual chemical.

Clinic staff will advise family on procedure for the application of medicated creams etc. May be conducted whilst house is being treated or the day before the treatment of the house.

Role of EHO/Suitably trained person

1. Contact the family and advise of proposed action
2. Negotiate times and day to carry out treatment of family and house with clinic staff and family.
3. Provide family with information, advice and support
4. Suitably trained person to carry out the ignition of the pesticide bomb.
5. Where possible train a local person to carry out treatment of the home.
6. Always include the family in the implementation of the protocol eg: sealing windows.
7. Assist clinic staff where necessary

Role of Clinic Staff

1. Confirm discharge day of patient from hospital
2. Contact EHO and negotiate date of treatment
3. Prescribe medication to family members and ensure treatment is carried out.

Role of Family

1. Washing of clothing, linen etc.
2. Providing new mattresses
3. Cleaning of house and preparing house for the pesticide treatment.

For further information, contact

Centre for Disease Control (CDC), Darwin

Ph: 8922 8044 Fax: 8922 8310

OR

Your regional CDC

Nhulunbuy Ph: 8987 0359

Katherine Ph: 8973 9049

Alice Springs Ph: 8951 7550

Tennant Creek Ph: 8962 4259