Managing Crusted Scabies in Remote Aboriginal Communities

2014 EDITION

Chronic disease case management of crusted scabies to break the cycle of recurrences and transmission
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*
1. Diagnosis

Confirm crusted scabies
Consult Infectious Disease Team at Royal Darwin Hospital (08 8922 8888) or Alice Springs Hospital (08 8951 7777).

2. Patient treatment

Develop treatment plan with patient, consult Infectious Disease Team.

3. Household treatment

With senior member of house.

4. Chronic care plan

Aim is to reduce recurrences and impact of disease on patient, household and community.

Contact One Disease to add name to crusted scabies register.

Critical part of management.

Key success factor
Therapeutic rapport and building capacity for self-management.

New case of crusted scabies suspected
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 Skin scrapings
C Audit patient clinical files
D Contact tracing
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, 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 08 8922 8888 or Alice Springs Hospital 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.
A **Clinical appearance**

- 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 cannot be excluded unless buttocks are seen (common area for crusts).
- Crusted scabies in a patient with claw hand from past leprosy.
- Crusted scabies of the toes and feet.
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.
  This is not crusted scabies.
- Scabies vesicle.

This is simple scabies with localised epidermal thickening.

- Crusted sores.
  This is not crusted scabies.
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 90° angle to scrape loose flakes of skin into a sterile urine collection jar. If true crusting is present skin should be easily collected.

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.
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 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.
Crusted scabies patients are super spreaders/core transmitters of scabies.

With outbreaks of scabies or recurrent scabies in families look for crusted scabies.

Close contacts of crusted scabies can exhibit severe scabies rashes and 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.

**Contact tracing**

- **Primary contacts (crusted scabies like condition)**
  - Likely to share a bed/bedroom with crusted scabies patient.
  - Exposed to thousands of mites.
  - Condition can mimic crusted scabies including high mite loads on scrapings.
  - Not true crusted scabies. May be misdiagnosed as crusted scabies.

- **Secondary contacts**
  - Live in or frequently visit same location as crusted scabies patient.
  - Develops severe scabies and sores. This is particularly true for young children in the house.

- **Tertiary contacts**
  - Infrequent contact with case.
  - Develop regular scabies and sores.
  - Have scabies rates higher than expected.

**Community**

**Crusted scabies patient**

1. DIAGNOSIS
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 (5–10mm deep) crusting, moderate skin shedding
3. Severe (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:

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
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<tbody>
<tr>
<td>4 – 6</td>
<td>Grade 1</td>
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<tr>
<td>7 – 9</td>
<td>Grade 2</td>
</tr>
<tr>
<td>10 – 12</td>
<td>Grade 3</td>
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</tbody>
</table>

Depigmentation

Severe crusting (more than 10mm deep), profuse skin shedding
## 2. PATIENT TREATMENT

### Working together

Patients suffer lifelong stigmatisation and blame and often avoid health services.

<table>
<thead>
<tr>
<th>1. Identify any fears the patient has which could be barriers to treatment</th>
<th>Common concerns of crusted scabies patients:</th>
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<tbody>
<tr>
<td></td>
<td>• Hospitalisation in an isolation ward.</td>
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<td>• Worry about onerous burden involved in whole of household treatment.</td>
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<td>• Failure of previous treatments reduces motivation to try again and again.</td>
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<table>
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<tr>
<th>2. Work with patient and family to develop a treatment plan they are comfortable with</th>
<th>Common mistakes in case management of crusted scabies:</th>
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<tbody>
<tr>
<td></td>
<td>• Failing to take time to visit families at home.</td>
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<td>• Focusing on clinical protocols before establishing rapport.</td>
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<td>• Not spending time explaining the disease, its chronicity and the importance of compliance to break the cycle of recurrences.</td>
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<td>• Not taking time to win the support of a senior member of the household to ensure compliance with household treatment.</td>
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<td>• While it can be frustrating, do not label the patient or family non-compliant. The family has to be part of the treatment team.</td>
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Ideally all patients should be admitted to hospital for treatment (esp. 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 deficiency 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 08 8922 8888 or Alice Springs Hospital 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 same day as scabies cream. Applying lactic acid/urea and then 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 first week. Dilute benzyl benzoate for children under 12.

   THEN twice a week until well. Put on after soaking bath/shower.

3. Patients must be seen daily and linen and clothes must be washed and sunned daily during 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.
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 child 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 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 child under 2 years (use permethrin or if under 2 months use crotamiton e.g. Eurax cream).
  - Child 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.

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 (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.

* 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.
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 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 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.
CHRONIC CARE PLAN

Maintenance plan to prevent recurrences once patient and family are treated and free of scabies.
4 CHRONIC CARE PLAN

Essentials

- Ensure a regular supply of creams to patient (e.g. 2 benzyl benzoate, 4 lactic acid/urea (Calmurid) and 4 moisturisers per month) 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 skin checks.
### Ongoing management

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

<table>
<thead>
<tr>
<th>Risk of recurrence and severity</th>
<th>How to grade</th>
<th>Frequency of skin checks</th>
<th>Preventative treatments</th>
</tr>
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<tbody>
<tr>
<td>Low - Moderate</td>
<td>Crusts isolated and discrete patches — less than 5% Total Body Surface Area (TBSA). Skin: Minimal shedding. Chronicity 0–3 prior hospitalisations for crusted scabies.</td>
<td>Monthly (examine skin including buttocks)</td>
<td>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.</td>
</tr>
</tbody>
</table>
| 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/or depigmentation 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). |
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 disease to 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 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.
For clinical advice consult the CARPA standard treatment manual or infectious diseases specialists via the switchboards of Royal Darwin Hospital 08 8922 8888 or Alice Springs Hospital 08 8951 7777.

For information on this document contact One Disease [www.1disease.org](http://www.1disease.org) or [contact@1disease.org](mailto:contact@1disease.org)

Useful Scabies Resources

NT CDC Healthy Skin Program Guidelines (planning a healthy skin day)

Flipchart – recognising and treating skin conditions (Menzies)

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.