

**GUIDELINE FOR MANAGEMENT OF SCABIES
IN ADULTS AND CHILDREN**

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FOREWORD

Scabies, or the Seven Year Itch, is caused by the mite *Sarcoptes scabiei*. It is both endemic and epidemic in countries worldwide, and studies have indicated that disease burden climbs and falls in response to social and environmental factors, giving rise to an apparent cyclical prevalence.

In Malaysia, Kaur & Nadeswary (1980) reported the prevalence was 11.6%, and high among children and teenagers, the worst affected being those in the 5-9 years old age group (24%). In another report by M Zayyid et al (2010) the documented overall prevalence rate for scabies was 31% among children at welfare homes.

Scabies affects families, particularly the most vulnerable and has the greatest impact on young children. Infestation with scabies significantly impacts quality of life and is linked to pyoderma and consequently to severe long-term sequelae such as post-streptococcal glomerulonephritis, rheumatic fever and sepsis. The disease is strongly associated with poverty and overcrowding, and the associated stigma can ostracise affected individuals.

Disease control requires treatment of the affected individuals and all those who have been in contact with them but is often hampered by inappropriate or delayed diagnosis, poor treatment compliance, and improper use of topical compounds such as permethrin, lindane or benzyl benzoate. In addition to concerns over toxicity with such compounds, parasite resistance seems to be increasing. The new highly effective drug, oral Ivermectin may offer a new paradigm in scabies management. It is successfully used in community control programmes.

Failure to coordinate notification, education, treatment and disinfection leads to failure to control scabies epidemics.

The purpose of this guideline is to provide a best standardized practice approach to the diagnosis, treatment, management and prevention of scabies, as well as new therapeutic strategies.

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INTRODUCTION

Scabies is caused by the mite, *Sarcoptes scabiei var. hominis*, which burrows into the upper layer of the skin - the stratum corneum. The female lays eggs in the tracks of the burrows. The eggs and mite proteins produce an allergic reaction and this reaction, is responsible for the characteristic itching and rash.

Scabies is normally acquired from skin-to-skin contact with another individual who has scabies. It is frequently acquired among children and can also be sexually transmitted. It is sometimes transmitted from care providers or beddings.

The incubation period for those without previous exposure to scabies is 2 to 6 weeks. Individuals who have been previously infested with scabies develop symptoms within 1 to 5 days of re-exposure.

CLINICAL MANIFESTATION

Classical

Symptoms

- The main symptom is itch, which usually develops within 2 to 6 weeks after infestation.
- The itch is generalized, very intense and intractable.
- The itch is worst at night.
- History of itch among family members within the same period

Physical Examination

- Presence of small erythematous papulovesicular lesions predominantly over anterior axillary folds, nipple area, periumbilical skin, elbows, volar surface of the wrists, interdigital web spaces, belt line, thighs, buttocks, penis, scrotum, ankles and typically except for the head, face, and neck in adults.
- Infants and young children may develop similar lesions diffusely, but unlike adults, lesions are common on the face, scalp, neck, palms and soles.

- Scabies burrows are most easily found on the hands, especially finger webs and on the wrists; other sites of predilection are the feet, axillae, umbilicus, male genitalia and breast areolas in women.
- In infants, burrows are common on the palms and soles, and sides of the feet. They can also be found on the heads of infants particularly post auricular folds.
- The typical burrow is a serpiginous tract that measures 1cm in length. It may be obscured by excoriation marks or by vesiculation in infants.
- The reddish-brown nodules of scabies are seen in axillary and inguinal regions, wrists and male genitalia and these may persist for several months. These nodules are caused by delayed hypersensitivity reaction to the female mite, its eggs and faeces (scybala) deposited in the epidermis, rather than by an active infection.
- Some of the lesions may be altered by excoriations, eczematization and secondary bacterial infection.



Figure1 Clinical features of scabies in infants:
Vesiculopustular lesions on both hands and the web of fingers

Figure 2 Clinical features of scabies in infant:



(A): Papules and burrows on medial aspect of the feet;



(B): Vesiculopustular lesions on lateral aspect of the hands.



(C): Scabies nodules in the axillary region



(D): Diffuse erythematous maculopapular eruption and scattered nodules.

Crusted (Norwegian)

- It is an uncommon form of scabies
- It is highly contagious with huge numbers of mites
- More common in immunocompromised and neurologically impaired individuals, but may also occur in otherwise healthy subjects.
- Pruritus may be minimal or absent, or the host may be physically incapable of scratching.
- Characterized by diffuse hyperkeratosis, associated with variable degree of underlying erythroderma.
- Hyperkeratosis and crusting are particularly severe on the hands, including the palms and soles, under the fingernails, on the ears, trunk and extremities



Figure 3: (A&B) Crusted (Norwegian) scabies in a teenage girl, note the thick scaly skin over the hands



Figure 4: Hyperkeratosis and crusting gluteal cleft and folds.

DIAGNOSIS

- It is important to establish a firm diagnosis of scabies before treatment. Antiscabietic therapy may aggravate other dermatoses such as atopic dermatitis and cause unnecessary skin irritation.
- Scabies should be suspected in infants or children with generalized pruritus of recent onset and the characteristic eruptions.
- Other family members are usually, but not invariably affected. A history of scabies in a family member or contact with scabies should be sought out specifically.
- Scabies diagnosis is confirmed by microscopic identification of the mite, eggs or scybala.

Dermatoscopy and digital photography are non-invasive and effective methods for identifying the presence of scabies mites.

TREATMENT - General measures

- Patients must receive detailed information about scabies infestation and therapeutic options, including the amount of drug to be used and proper administration.
- Topical treatment must be applied to the entire skin surface, from jawline downwards including all body folds, groin, navel and external genitalia, as well as the skin under the nails (especially crusted scabies).
- In adults with classical scabies, treating the face is controversial, but in babies, the face must be treated, because transmission may occur from breastfeeding. At any time during treatment, medications should be re-applied if it is washed off i.e. after hand washing.
- If the treatment is applied by someone without scabies, this person should wear medical gloves during application.
- Patients with scabies and their close physical contacts, even without symptoms, should receive treatment at the same time. Prescriptions must be provided for all household members and sexual partners.

- After completion of treatment, patients should use fresh, clean bedding and clothing. If possible, potentially contaminated clothes and bedding should be washed at high temperature (>50°C) or kept in a plastic bag for up to 72 hours, because mites that are separated from the human host will die within this time period.
- The use of insecticidal powder or aerosol products should be reserved for materials or objects that cannot be washed.

TREATMENT- drug therapy

Table 1 below summarizes the doses and side effects of common agents used in scabies management.

Treatment	Treatment regime	Contraindication/ Caution	Side effects	Comments
Permethrin 5% Cream /lotion	Rinse off after 8 to 12 hours & repeat 1 week later	Percutaneous absorption in animal tests shows 40-400 times lower than Lindane 1%	Itching & burning/stinging sensation on application	First-line therapy by CDC. Effective, well tolerated and safe
BenzyI Benzoate 10 – 25% lotion	Rinse off after 24 hours then reapply. To be kept on the skin surface continuously for 24 hours for 2-3 days (with baths taken between each application)	Pregnant & breast feeding women and infants less than 2 years	Skin irritation and burning sensation. May casue conjunctivitis if exposed to eyes. May worsen/cause post- scabetic eczematous reaction. Affect compliance	Effective & inexpensive Compliance is an issue.
Precipitated sulphur 6 to 10% Petroleum base	Rinse off after 24 hrs and then reapply every 24 hours for the next 3 days (with a bath taken between each application)	Low toxicity	Messy, malodororous, stain clothing, causes irritant contact dermatitis	Safe for infants, pregnant and breastfeeding women

Treatment	Treatment regime	Contraindication/ Caution	Side effects	Comments
Crotamiton 10% Ointment	Classical scabies: Rinse off after 24 hours and reapply for 5-7 additional days Nodular scabies: Apply to the nodules 3 times a day for 7-14 days	Avoid massive & prolonged use in pregnant women and infants	Irritant contact dermatitis "	Use for treatment of nodules in children. Lack of efficacy and toxicity data.
Lindane 1% Lotion/cream (Gamma benzene hexachloride)	Rinse off after 6-8 hours (single application)	Pregnant & breast feeding women, infants, children <10 years, patients with seizure disorders. Avoid applying after a hot bath to prevent/reduce percutaneous absorption	Neurotoxicity; Cramps, dizziness, seizures in children. Hypoplastic anaemia and cancer	Not used in UK or Australia. Resistance to Lindane has been reported.
Ivermectin	Oral drug 200 ug/kg single dose and repeat after 2 weeks	Not for children below 5 years old or less than 15kg, Avoid in pregnant and lactating women.	Use with other drugs which reinforces GABA activity can lead to augmented activity (valproate, barbiturates, benzodiazepines)	Suitable for patients unlikely to adhere to topical therapy. Useful for mass treatment or outbreaks. Effective if combined with EBB in patients with AIDS

Please refer Appendices for patient instructions (pg 14/15)

Treatment in specific considerations

Clinical condition	Recommended therapy	Alternative therapy	Additional measures	Comments
Classical scabies i. Infants < 2 months	Sulphur 6% in petroleum in ointment base for 3 days	-	Treat whole body including the face (avoid eyes and mouth)	Treat all family members/close contacts simultaneously
ii. Children < 2 years	Two applications of Permethrin 5% for 8-12 hours at one week apart	Sulphur 6% in petroleum for 3 days	Treat whole body including the face (avoid eyes and mouth)	Crotamiton cream TDS for 5-7days for nodular scabies
iii. Children < 12 years	Two applications of permethrin 5% for 8-12 hours at one week apart	Benzyl Benzoate 12.5% Whole body neck and below for 3 consecutive days		Crotamiton cream TDS for 7-14 days for nodular scabies
iv. Adults	Two applications of permethrin 5% for 8-12 hours at one week apart	Benzyl Benzoate 25% whole body; neck and below for 3 consecutive days		People in close physical contact, even without symptoms, should receive treatment at the same time
v. Pregnancy/ lactating women	Two applications of permethrin 5% for 8-12 hours at one week apart	-		
Crusted scabies	Permethrin and Ivermectin for Scabies	Oral ivermectin alone or in combination with permethrin is very useful OR Several applications of Benzyl Benzoate	Apply keratolytic agents (salicylic acid ointment) to hyperkeratotic areas. Keep nails short and apply medication to subungual areas.	Patients may need admission. Strict control to prevent spread of infection

Treatment of infection in scabies

Secondary bacterial infection is a common complication in scabies due to disruption of the epidermal barrier caused by excoriations.

- Treat with systemic antibiotics which covers gram positive organism – for a minimum of 7 days
- The timing of antibiotic commencement depends on the condition of the patient; it can be started concurrently with scabicides or delayed for 48 hours to allow partial healing of the erosions.
- Use antiseptic soaks/bath e.g. KMnO_4 (1:10,000) in impetiginized scabies
- Topical antibiotic is not indicated in patients who are already treated with systemic antibiotics

Treatment of Nodular Scabies

- Individual nodules can be treated with:
 - Topical anti-inflammatory agents; e.g. topical corticosteroids of mid potent to potent for a short duration of 2 weeks.
 - Crotamiton cream twice daily for 7 to 14 days.

Treatment of itch in scabies

Itching usually persists for about one to two weeks after successful treatment but it should be evaluated if prolonged. Causes of persistent itching include cutaneous irritation, allergic contact dermatitis to medicaments, post-scabetic eczema or possible treatment failure (please refer below). The treatment includes:

- i. Antihistamines: chlorpheniramine, hydroxyzine, diphenhydramine, dexchlorpheniramine. Sedative antihistamines must be used with caution in children less than 2 years old.
- ii. Corticosteroids: topical or short course of oral steroids (0.5mg/kg depending on the severity).
- iii. Emollients: regular application of emollients for dry and eczematous skin.

Treatment of contacts

A contact is defined as someone who has had prolonged (greater than 10 minutes on any one occasion) skin to skin contact over the previous two months. Members of the affected household and all close contacts should be treated, even in the absence of symptoms, at the same time. All contacts need to be managed in exactly the same way as the patient; however for most, only one treatment is needed. Only symptomatic contacts require two treatments (with permethrin 5%).

Treatment for fomites

Fomites should be treated concurrently, these include:

- Underwear, clothing, towels, bed linen and personal effects such as slippers, bed jackets and dressing gowns used by the affected person in the 72 hours prior to treatment should be laundered using a hot wash cycle (>50°C) or hot tumble dried to kill the mites.
- If items are unable to be laundered or hot tumble dried, place them in a plastic bag and leave them for 72 hours before airing and reusing.
- Mattresses should be thoroughly vacuumed, ironed or steam cleaned, paying particular attention to the seams.
- Where possible, amenities such as toilets and chairs should not be shared (until 24 hours after the first treatment).

Additional environmental controls, such as the use of an insecticide, are not necessary.

OUTBREAKS IN INSTITUTION/SCHOOL/NURSERY/HOME

- School children with scabies should be given leave from school until 24 hours after the start of treatment. The school should be notified of the case, and parents of other children who may have been exposed to scabies should be notified by letter from the school.

Mass screening of school contacts is not useful, as it is quite possible to be infected without having signs or symptoms.

- **Penolong Pegawai Kesihatan Persekitaran (PPKP)** from the local District Health Office (*Pejabat Kesihatan Daerah*) should be alerted of any suspected outbreaks.

Written action plan to patients upon dispensing medications:

- How to apply medications correctly (site and duration)
- Caution against bathing with warm/hot water as it can increase percutaneous absorption of certain medications
- School leave or medical leave to patients for proper administration of medication and reduce risk of transmission to others (as patients remains infective 24 hours after application)

FOLLOW UP

- Repeat visits 2 weeks and 4 weeks after initial treatment are recommended.
- Patients should be reviewed again at the end of one month to ensure that he/she is cured from scabies. This is the length of time taken for lesions to heal and in case where there is inadequate treatment, for residual eggs and mites to reach maturity causing symptoms to reappear. Patients can be re-treated if necessary.

TREATMENT FAILURE

Can be recognized in patients with

1. New papules/vesicles or burrows appearing at any stage after completion of a course of scabicides.
2. The itch still persists at least 6 weeks after the first course of treatment of scabicides (particularly, if it persists at the same intensity or is increasing in intensity).

Should be suspected in:-

- **Improper and inadequate application.** The drug should be applied from the neck downwards all over the body. The most common mistake is that the drug is applied only to the affected areas, which leads to a relapse of the disease. The drug dispensed should be used neat and should not be diluted.
- Allergic contact dermatitis to scabicides should be excluded. The symptoms may affect patients' adherence to treatment.
- **Reinfestation.** Failure of simultaneous treatment of family members/contacts

Management of treatment failure

- Re-educate and re-counsel patient and family members
- Re-treat with topical scabicides using an alternative agent

INDICATIONS FOR REFERRAL TO SPECIALIST CARE:

- Diagnostic uncertainty / failure to respond to adequate treatment of the patient and contacts
- Crusted scabies
- Patients with complications such as severe infections

References

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Cara-cara menggunakan ubat kudis buta.

Pastikan pesakit dan orang yang berhubung rapat dengannya (contohnya ahli keluarga yang tinggal dalam satu rumah) dirawat bersama. Ikut arahan pada label produk. Berikut adalah cara-cara menggunakan ubat topikal 5% Permethrin, 12.5% dan 25% Benzyl Benzoate:-

1. Pesakit perlu mandi dengan air suam atau mandi menggunakan sabun dan keringkan badan sebelum menggunakan ubat. Mereka juga perlu memakai pakaian, cadar, dan tuala yang bersih.
2. Ubat topikal 12.5% atau 25% Benzyl Benzoate perlu disapu untuk 24 jam. Manakala bagi 5% Permethrin, ubat perlu disapu untuk 8 jam iaitu sapu pada waktu malam dan biarkan semalaman.
3. Ubat perlu disapu pada seluruh bahagian kulit dari leher ke bawah. Sebab utama rawatan tidak berkesan kerana ubat tidak disapu dengan betul. Pastikan ubat disapu pada semua bahagian pelipat termasuk celah jari tangan dan kaki, bahagian alat sulit, pusat, dan ketiak. Pastikan kuku dipotong, dan sapu ubat dengan nipis pada bahagian bawah kuku menggunakan berus kuku. Untuk bayi pula, sarung tangan perlu dipakai bagi mengelakkan ubat hilang dari kulit dan termakan ubat.
4. Sekiranya rawatan gagal atau pesakit dalam kumpulan berisiko*, bahagian kulit yang perlu disapu adalah termasuk muka dan kepala (elakkan mata dan mukosa).
5. Pastikan ubat disapu semula dengan serta merta sekiranya ubat telah dibasuh atau hilang dari kulit (contohnya membasuh tangan).
6. Apabila masa yang diperlukan telah cukup, basuh ubat menggunakan sabun dan mandi dengan air suam. Pakaian dan cadar yang bersih perlu digunakan selepas rawatan. Bagi pesakit yang bekerja, mereka boleh kembali bekerja 24 jam selepas rawatan pertama.
7. Basuh cadar dan pakaian yang telah digunakan 72 jam lebih awal sebelum rawatan dengan air panas (>50°C). Bagi item yang tidak boleh dibasuh, bungkus dalam beg plastik selama 72 jam. Permukaan perabot dan permaidani haruslah dinyahjangkit dengan haba (seperti stim) atau hilangkan hama kudis buta secara fizikal (seperti menggunakan penyedut hampagas).
8. Ulang rawatan selepas 7 hari untuk membunuh hama yang baru menetas. Sekiranya rawatan gagal atau disyaki jangkitan berulang, sila rujuk kepada doktor semula.

*kumpulan berisiko termasuk kanak-kanak berumur kurang 2 tahun, orang tua, pesakit yang mempunyai sistem imun yang lemah, pesakit yang tidak boleh bergerak/lumpuh atau pesakit yang tinggal di pusat-pusat jagaan tertentu seperti rumah orang tua.

Directions for the application of topical scabicide

Ensure the case and all close contacts are treated concurrently. Always follow the directions on the product label. Below is the direction for application of topical 5% Permethrin, 12.5% and 25% Benzyl Benzoate.

Treatment Directions

1. Individuals to be treated should have a warm shower or bath with soap, and dry their body prior to treatment. They should also apply clean clothing, bed linen, and only use clean towels.
2. Apply permethrin (5%) for 8 hours or benzyl benzoate (12.5% or 25%) for 24 hours, being sure to adhere to the instructions on the label. Permethrin based medications should be applied in the evening and left overnight.
3. Apply thoroughly to all skin from neck down. Insufficient coverage is the main cause of treatment failure. Ensure all skin folds are treated including finger webs, toe webs, anal and vaginal clefts, belly button and armpits. Fingernails should be trimmed and a thin layer of medication applied beneath the nail using a nailbrush. In infants, hands covered with mittens will prevent removal and ingestion of the treatment product.
4. If there have been treatment failures, or if treating at risk groups*, the treatment area should be increased to include the skin above the neck (avoid contact with eyes and mucous membranes).
5. If the treatment is washed off or otherwise removed (e.g. hand washing or pressure area care) ensure it is reapplied immediately.
6. Once the required time has passed, wash off topical scabicides using soap in a warm shower or bath. Clean clothes and linen should be supplied again after treatment. If treating staff, they can return to work 24 hours after their first treatment.
7. Hot wash (>50°C) all linen and clothing worn in the past 72 hours, items which cannot be washed should be tumble dried or bagged in a plastic bag for 72 hours. Surfaces such as furniture and carpets may be disinfected with heat (such as steam) or by physically removing scabies mites (e.g. vacuuming).
8. Repeat the treatment after seven (7) days to kill newly hatched mites. If treatment failure or recurrent infestation is suspected seek medical re-assessment.

**- at risk groups include children younger than two years, the elderly and frail, immune compromised, immobile or institutionalised*