Management of Scabies

What is scabies?

1. Scabies is an infestation caused by the mite Sarcoptes scabei.

2. The mite burrows into the superficial, top layers of the skin where the female lays eggs.

3. It is usually transmitted by close human skin to skin contact, e.g. holding a baby, sexual activity, sharing a bed, school children holding hands. Contact must be of sufficient duration to allow transfer of the mite, which cannot survive for long off the human body. However, it can live for limited periods in clothing and bed sheets within shed skin.

Which population is particularly at risk?

- Scabies is one of the most common skin conditions seen in tropical countries
- It commonly affects all members of a household who share beds or who live in close proximity in overcrowded conditions. Those who live in an institution, for example a prison, are also vulnerable.
- The poor are particularly vulnerable as are those with compromised immune systems, e.g. those with HIV infection.

What are the clinical symptoms?

1. Intense itching especially at night.

2. Itch is caused by the patient’s own reaction to the mite and symptoms may therefore only commence up to 6 weeks after infection. Symptoms are unlikely to stop straight after treatment and may persist for another 10 days to 2 weeks.

3. In individuals who are immune compromised, itch may not be as prevalent.

4. The commonest skin lesions are small papules. It is sometimes possible to see the burrows of the mite as faint erythematous, curvy lines with a small but visible dilatation (where the mite is) at one end. A magnifying glass may be helpful in identifying this.

5. Important areas to look for papules and burrows are: in finger webs, flexural areas including wrists and elbows, buttocks and in adults the external genitalia and breasts, in women. Adults are rarely infested above the neck (unless immunosuppressed). In very young children (and particularly babies) infestation may occur above the neck and on the soles of the feet and palms where small blisters maybe seen.

6. Within a household there is often considerable variation in these signs but key diagnostic clues are:

   - Itching affecting different members of the same household (although some members might not be itchy);
   - The presence of papules, as well as burrows, in those with itching;
   - In men, papules on the penis or scrotum accompanied by widespread itching.
7. Damage to the skin caused by scratching can potentially lead to bacterial skin infection. Bacterial skin infection, secondary to scabies, usually presents with small pustules and is a very common complication and might dominate the clinical picture.

**How is diagnosis confirmed?**
1. By taking a skin scraping along one of the burrows and examining it in potassium (or sodium) hydroxide under a low resolution microscope.
2. Adult and immature mites as well as eggs and egg cases can be seen.
3. This diagnostic test is only possible, however, if personnel have adequate training and facilities for carrying out such investigations. It is quite a time consuming procedure and in typical cases is unnecessary.

**What might it be confused with?**
1. Eczema and other dry skin conditions.
2. Papular urticaria as a result of a prolonged papular response to insect bites.
3. In onchocerciasis endemic regions, itching may result from the presence of microfilaria in the skin. However, the presence of burrows and involvement of specific body sites, particularly the fingers, suggests scabies.
4. Bacterial skin infection due to another cause. However it is always important to examine patients with skin infection, for scabies.

**What preventive measures should be taken?**
- Avoiding the risk factors associated with scabies is clearly not practical for most people. Therefore the most important strategy for prevention is early treatment of those who show symptoms and all the people who they come into close contact with.

**Which treatments are considered to be most effective?**
The following topical treatments are considered most effective in this order. (There is a shortage of comparative clinical trial data on which to form an evidenced-based analysis of the relative efficacy of different treatments. There are also very few clinical trials derived from community based studies in the developing world):
1. Permethrin 5%
2. Malathion
3. Benzyl Benzoate
4. Sulphur ointment
5. Lindane (is not available in many countries)
6. Ivermectin (orally and topically) has been shown to be effective in the treatment of scabies but is not licensed for this purpose.

**How should the treatments be applied?**
- Very importantly the individual with symptoms and all those with whom they have had close physical contact (even if they do not itch), must be treated (usually a whole household). What’s more they all need to be treated at the same time.
The sequence of events is as follows:

1. A suitable place for applying medications which provides an appropriate level of privacy should be identified;

2. Any bacterial skin infection should be treated;

3. The skin should be washed but not with hot water (washing with hot water causes vasodilation and increased absorption of the treatment into the blood vessels rather than the superficial layers of the skin);

4. In adults, the treatment is applied from the neck down (unless the adult is immunosuppressed, in which case the head is also included. In countries where a significant proportion of the population is likely to be immunosuppressed the instruction should be to apply the treatment all over, to all patients.) In babies and children it is always applied all over;

5. Care should be taken to ensure that every part of the skin is treated including the flexures, external genitals and under the finger and toe nails;

6. Care should be taken to ensure that children and infants do not put their hands in their mouths once the treatment has been applied. If available, cotton mittens might be useful. These will also help to stop the damage caused by scratching;

7. Do not wash treatment off the hands after applying the treatment. Always reapply after hand washing. Hands should be washed prior to using them for eating or food preparation. The treatment should be reapplied after eating;

8. The treatment should be applied to those with symptoms and contacts, at the same time;

9. Exact application techniques will depend on which treatment is being used. Ointments can be applied with the fingers but lotions may be more effectively applied using a clean rag or cloth;

10. It is important that the correct amount is used; exact amounts will depend on the manufacturer’s instructions although guidelines are given below. (All the quantities relate to the active ingredient mixed in a carrier base). Too little will mean that the mites are not all killed and the infestation will continue. Too much increases the likelihood of irritating the skin.
PERMETHRIN 5%

Single application to be left on 8-24 hours (in an infant under 6, 8 hours) then bath
Wash bed linen and clothes

Dosage per application:
- In children up to 1 year 4g
- In children 1-4 years 8g
- In children 5-11 years 15g
- In children 12 years to adult 30g (large adults may need up to 60g)

MALATHION

Apply and leave on for 24 hours then bathe
Wash bed linen and clothes
Re-apply 3-4 days later for a further 24 hours
Wash bed linen and clothes

Dosage per application:
- In children up to 1 year 20 mls
- In children 1-4 years 40 mls
- In children 5-11 years 100 mls
- In children 12 years to adult 200 mls

BENZYL BENZOATE 10-25% in solution

Apply before retiring to bed
Re-apply the following morning
Leave on until the evening and then bath.
Wash bed linen and clothes

Dosage per application:
- In children over 12 years and adults 200 mls application (in children under 12 it is often irritant)

SULPHUR 4% in Vaseline base

Apply before retiring to bed on 3 consecutive nights
Bathe in the morning between each application
After the final application wash bed linen and clothes
Can be repeated after 10 days if necessary

Dosage per application: In children up to 1 year 8g
- In children 1-4 years 12 g
- In children 5-11 years 25g
- In children 12 years to adult 50g
LINDANE 1%

Single application to be left on for 12-24 hours, then bathe
Wash bed linen and clothes

Dosage per application:
- In children over 12 years and
- adults 200 mls application
- (Not recommended for use in children under 12 as this can be irritant)

What are the common concurrent problems?
1. Bacterial skin infections.
2. Contact eczema due to the irritancy of the treatments especially if they are used repeatedly.

What are the unusual concurrent problems?
1. Crusted or Norwegian scabies describes hyper proliferation of the mites in individuals who usually have some immunological, neurological or mental deficit. It is an important presentation in AIDS patients. The individual remains asymptomatic and does not complain of itching. Their skin, however, will respond with an exfoliative, crusted dermatitis on risk areas such as the hands, elbows. Atypical presentations e.g. a single crusted nail infestation have been recorded. The shed skin is saturated with mites which makes this type of scabies extremely infectious. Treatment should be prolonged and if given topically re-applied regularly over a 2-3 week period.

2. Glomerulonephritis can result if a secondary bacterial infection (Streptococcus) is present.

What are the commonly held misconceptions about the condition?
1. That it can be caught from animals.
2. That it indicates poor hygiene. Whilst poor hygiene may make infections worse, the key risk for the development of scabies is the opportunity for close contact with an infected individual in overcrowded living and sleeping conditions.

Summary of treatment regimes

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<th>Treatment</th>
<th>DOSE</th>
<th>APPLICATION</th>
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<tbody>
<tr>
<td></td>
<td>0-1 year</td>
<td>1-4 years</td>
</tr>
<tr>
<td>Permethrin5%</td>
<td>4g</td>
<td>8g</td>
</tr>
<tr>
<td>Malathion</td>
<td>20mls</td>
<td>40mls</td>
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<tr>
<td>Benzyl Benzoate</td>
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<td>Not recommended</td>
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<tr>
<td>Sulphur 4%</td>
<td>8g</td>
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<tr>
<td>Lindane 1%</td>
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