SA Health

Scabies management in care facilities, 2012

Management guidelines for the control of scabies in health and residential care facilities

Government of South Australia
SA Health

References

These guidelines were produced by members of Health Protection Programs and the Communicable Disease Control Branch, Department for Health and Ageing, South Australia, with reference to the following texts:

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Contents

Glossary of terms

Dermatitis
A generic term for inflammation of the skin, dermatitis is often due to an allergic reaction.

Desiccate
A process of drying which kill insects. Scabies mites will desiccate if removed from the body.

Dermatologist
A physician who specialises in the diagnosis and treatment of skin disorders.

Dermoscopy
A non-invasive diagnostic technique in which a hand held microscope is used to illuminate and magnify skin without removing it.

Fomite
Any inanimate object capable of transmitting an infectious organism.

Incubation period
The time between exposure to an infectious agent and the development of symptoms. Some diseases (like scabies) can be transmitted during the incubation period.

Infection
An invasion of the body by microorganisms such as bacteria and viruses.

Infestation
An invasion by pests or parasites, an infestation can include parasites living in or on the body as well as in the environment.

Infectious disease physician
A physician who specialises in the diagnosis and treatment of infectious diseases.

Keratolytic agent
Medication used to remove the outer layer of skin. Keratolyic agents can be used to remove crusted skin when treating crusted scabies.

Mites
Small insects, closely related to spiders. Mites are often parasitic.

Personal protective equipment (PPE)
Equipment and clothing specifically designed to protect the wearer from harm. PPE for scabies includes disposable long sleeved gloves and gowns.

Mange
An animal disease similar to scabies. The mites which cause mange may be passed on to humans, but will only breed on the host animal and do not cause lasting infestation of humans.

Residential care facility
Facilities which provide care and accommodation for people unable to live independently; they include hostel/ supported care facilities and nursing homes.

Scabicides
Chemicals that selectively kill scabies, they are the active ingredients in effective scabies medication.

Secondary infection
A second infection caused as a result of a first infection or disease, this includes infections due to scratching when the itch is caused by a primary infection.

Skin scraping
A diagnostic technique in which the outer layer of skin is removed using a scalpel and examined under a microscope for the presence of parasites, their eggs and faeces.

Introduction

Scabies is an infestation of the skin by the parasitic mite *Sarcoptes scabiei* var *hominis*. Scabies mites are less than 0.5mm long, and cannot be easily identified without magnification. Female scabies mites live in burrows beneath the skin, where they feed and lay eggs. The parasites and their faeces cause an allergic reaction which manifests as a severe itch and a rash consisting of small red papules (bumps). In most cases of scabies infestation, only 10 to 20 mites are involved. Scabies mites are not known to transmit secondary infections, however severe scratching can lead to secondary infection.

Scabies infestations occur worldwide and although anyone can get scabies, infestations are often associated with residential care facilities. Infestation with scabies is not an indication of poor hygiene.

Transmission

Scabies is transmitted when a pregnant female mite migrates from one person to another. Transmission usually occurs via prolonged, direct skin to skin contact. Scabies is often transmitted during sexual contact and to a lesser extent through contact with fomites (any inanimate object capable of transmitting an infectious organism such as towels, clothing or bed linen) freshly contaminated by an infested person. Under normal conditions, scabies mites can not survive away from a host for longer than 72 hours*.

As transmission only requires one impregnated female, in some cases it can occur with very limited contact. Therefore, precautions are required when managing any person infested with scabies. Once a person is infested it will take only one generation (10 - 17 days) for new infectious females to be produced.

Animal variants of the scabies mite can cause mange in pets and livestock. These mites can be transmitted to humans, but infestations with the animal variants of scabies are generally self limiting and do not usually require treatment. Animals with manage can be treated to prevent human cases.

*- there are differing viewpoints regarding the length of isolation which should be used to treat fomites. Laboratory experiments indicate scabies mites will desiccate and die within 36 hours of separation from their host, however the presence of skin flakes or higher than usual humidity can provide shelter and has been shown to increase survival times.

Incubation period (time between becoming infested and developing symptoms)

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

Figure 1: Characteristic scabies rash of small, red papules.

Image credit: Image generated by Cixi. Public Domain.

Symptoms

The characteristic symptoms of a scabies infestation are intense itching and a rash of small red papules (bumps) (figure 1, p 3). The itch is particularly noticeable when the body is warm; for example, after a hot shower or while in bed at night. Both the rash and itch may occur extensively over the body or be localised at commonly infested areas such as between the fingers and around the wrists, elbows, armpits, genitals, nipples, abdomen, belt-line and buttocks (figure 2, p 5). The head, neck, palms and soles may also be infested in at risk groups; these include young children, elderly, immune compromised or institutionalised, and indigenous persons from central and northern Australia.

Thread-like tunnels caused by burrowing mites may be visible as faint grey lines or curves in the skin. Tunnels may be 10mm or longer in length but are often difficult to detect due to the low number of mites present in a typical case. Tunnels are most commonly seen on the hands but may be located in other commonly infested areas (figure 3, p 5).

Once the infestation has been eliminated, it may take between 2 to 4 weeks for symptoms to fully resolve. If symptoms persist beyond this period or new burrows develop it may indicate a treatment failure.

Scabies infestations can be asymptomatic, but carriers are still able to transmit the disease.

Atypical symptoms

Scabies can present with atypical symptoms in infants, young children and the elderly or bedridden. In the elderly, scabies may present with persistent nodular lesions, and may infest the scalp and skin above the neck. Nodular lesions may persist after the successful eradication of scabies and can be treated with an intralesional corticosteroid. Scabies lesions can occur extensively on the back for bedridden patients. In infants, lesions are often vesicles, and nodules frequently involve the face, scalp, palms and soles of feet.

In some immunocompromised, elderly, disabled or debilitated people crusted scabies (formerly known as Norwegian scabies) may occur. Crusted scabies is a more severe form of scabies in which thousands to millions of mites infest an individual. It presents with severe dermatitis but the itch may be mild or absent. As with the typical scabies rash, the crusted skin associated with crusted scabies can occur as a generalised condition or be localised in infested areas. Due to the intense skin crusting, treatment of crusted scabies is difficult.

Crusted scabies is highly contagious and often misdiagnosed, leading to outbreaks in care facilities. Special precautions are required to prevent transmission to others when managing crusted scabies (see management of crusted scabies, p 14).

Diagnosis

Initial diagnosis should be confirmed by a medical practitioner using proper diagnostic techniques, as a scabies infestation may present similarly to other skin conditions such as eczema and dermatitis. In an outbreak scenario, patients should be treated presumptively if diagnosed though contact with known cases and the presentation of characteristic symptoms. However; reassessment by a medical practitioner may be necessary if treatment appears to have failed.

Microscopic confirmation of scabies mites, eggs or faeces in the skin through a skin scraping or dermoscopy is recommended to confirm the diagnosis. Unfortunately, false negative results from skin scrapings and dermoscopy are common as the infested person may have only a few mites and these can easily be missed when collecting or inspecting the skin scraping.

Scabies life cycle, transmission and symptoms

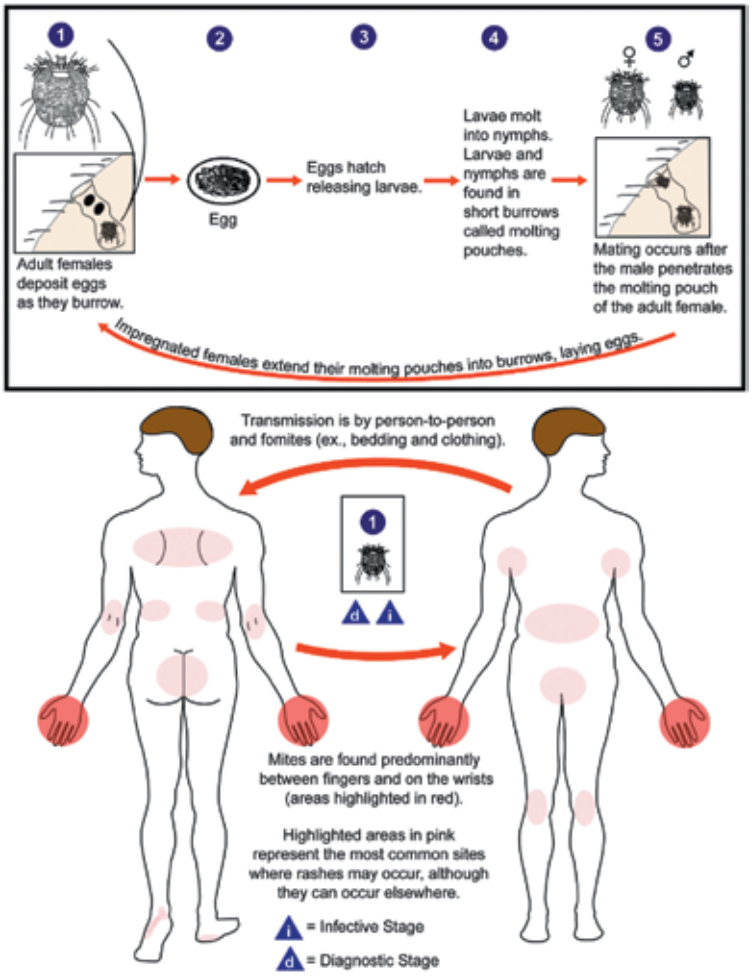

Image from the Public Health Image Library, Centers for Disease Control and Prevention.

Figure 2: An overview of the scabies life cycle and the most common sites of infestation and where rashes occur.

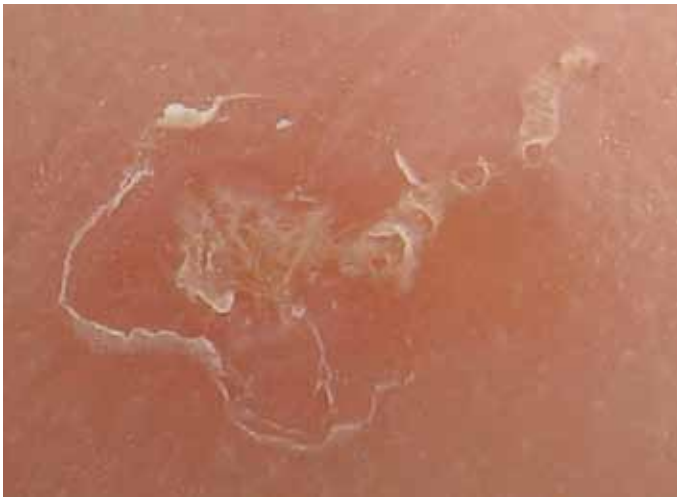

Image generated by Michael Geary. Public domain.

Figure 3: Magnified image of a scabies burrow. Damage to the skin caused by the patient scratching can be seen at the tunnel entrance. The tunnel extends to the top right where a female mite has burrowed.

Medical treatments for scabies

Once diagnosed, most scabies infestations can be easily treated using anti-scabie medications called scabicides. Whilst an overview of the recommended treatment methods is provided below, advice should be always sought from a medical professional and the directions on the scabicide label should be followed. All close contacts should be treated concurrently to ensure that asymptomatic cases, including cases yet to develop symptoms, receive treatment. If multiple cases occur or there is a case of crusted scabies, the treatment circle should be expanded to cover all at risk residents in the affected area. It is important that environmental disinfestation occurs in conjunction with medical treatment.

Topical permethrin is the first line treatment for typical scabies. If the patient is allergic to permethrin or if permethrin fails, topical benzyl benzoate can be used as an alternative. Other treatments for scabies are generally only used if standard treatments have failed and should only be considered under advice from a medical practitioner.

Once the infestation has been eliminated, it may take 2-4 weeks for the itch to fully resolve, though some improvement of the rash and itch is usually seen within the first week. If symptoms persist beyond 4 weeks or new burrows develop, it may indicate a treatment failure. Over-treatment is common and should be avoided due to potential toxicity.

Bacterial infections may occur where the skin has broken from scratching. Procedures should be in place to reduce scratching (see managing symptoms, p 7). In the event of a bacterial infection treatment for impetigo is recommended.

When applying topical scabicides it is extremely important that treatment is thorough. Lack of coverage is the primary reason for treatment failures. Always follow the directions on the product label.

If treatment failure or recurrence is suspected seek medical re-assessment. If a third treatment is required, active infestation with scabies should be confirmed microscopically through a skin scraping or dermoscopy by a medical professional.

Permethrin

Topical permethrin (5%) is the first line treatment for scabies. It is available as both a cream and a lotion. 1% permethin treatments are for use against head lice and should not be used for treating scabies. Permethrin is registered for use on adults and children older than six months. Permethrin should be applied topically to dry skin from the neck down.

Permethrin should be left on the skin for a minimum of eight hours (e.g. overnight), though may be used for up to 24 hours if there has been a previous treatment failure. The initial treatment should be followed by a second treatment one week later to kill any mites hatched from surviving eggs.

Pregnancy: Permethrin is a category B2 drug*.

Breastfeeding: Permethrin is compatible with breastfeeding. Treatment should be washed thoroughly from the nipple to ensure infants do not ingest the product and then reapplied after breastfeeding.

*-B2 drug: Drugs which have been taken by only a limited number of pregnant women and women of childbearing age, without an increase in the frequency of malformation or other direct or indirect harmful effects on the human fetus having been observed. Studies in animals are inadequate or may be lacking, but available data show no evidence of an increased occurrence of fetal damage.

Benzyl benzoate

Benzyl benzoate (25%) is the second line treatment for typical scabies. It is available as an emulsion and should be applied topically from the neck down. Benzyle benzoate is registered for use on all people but is not recommended for young children (< 6 months). Benzyl benzoate should be applied **topically** to dry skin from the neck down.

Benzyl benzoate should be left on the skin for a full 24 hours. The initial treatment should be followed by a second treatment one week later to kill any mites hatched from surviving eggs.

If benzyl benzoate is to be used on children between 6 months and 2 years old it should be diluted 1 part emulsion to 3 parts water. In children 2 to 12 years old and sensitive adults it should be diluted 1 part emulsion to 2 parts water.

Pregnancy: Benzyl benzoate is a category B2 drug.

Breastfeeding: There is currently insufficient data regarding the use of Benzyl benzoate in breastfeeding. Permethrin is the preferred scabicide in breastfeeding mothers.

Ivermectin

Ivermectin is an antiparasitic drug which is effective against crusted scabies and scabies in immunocompromised individuals. It has also been used effectively for the mass treatment of scabies in outbreak scenarios. In Australia it is not registered for use against scabies or in children less than five years of age, and should not be considered a standard treatment. While it is not registered for use against scabies, its safety has been assessed as part of its registration process for use against other parasitic infestations.

Ivermectin is ingested orally and can be used in conjunction with topical scabicides. It should only be used under the supervision of a consulting medical practitioner who will determine the combination of systematic and topic treatments as required. In scenarios where a mass prescription of ivermectin may be necessary a dermatologist or infectious disease physician should be consulted to collaborate with staff and patients.

Pregnancy: Ivermectin is a category B3 drug*.

Breastfeeding: Ivermectin is compatible with breastfeeding.

*-B3 drug: Drugs which have been taken by only a limited number of pregnant women and women of childbearing age, without an increase in the frequency of malformation or other direct or indirect harmful effects on the human fetus having been observed. Studies in animals have shown evidence of an increased occurrence of fetal damage, the significance of which is considered uncertain in humans.

Treating young children

Although permethrin is not registered for use on children less than six months of age, it is the preferred agent when the treatment of children is necessary. Advice should be sought from a dermatologist or infectious disease physician prior to treatment, to weigh the risks and benefits of treatment against the high morbidly of untreated scabies. If treating children <2 years of age topical scabicides should be applied to the whole body including skin above the neck.

Treating crusted scabies

Treatment of crusted scabies is more complex and should be undertaken in consultation with an infectious diseases physician or dermatologist. The treatment of choice for crusted scabies is ivermectin in association with a topical scabicide and topical keratolytics on days when scabicide is not applied.

Managing symptoms

The itching associated with a scabies infestation can be managed with moisturisers, topical corticosteroids or antihistamines. These treatments are not capable of destroying or inactivating the scabies parasite but can help manage symptoms. As the itch may take 2 to 4 weeks to subside completely after treatment, managing the symptoms can reduce the risk of secondary infections. Persistent nodular lesions may not resolve once the infestation is eliminated and can be treated with an intralesional corticosteroid.

Some of these treatments may not be suitable for pregnant/lactating women and young children. Their use should be only as directed on the label or as directed by a medical professional.

Treating infested items (fomites)

Scabies can be transmitted to people through infested items (fomites) the patient has been in contact with, necessitating the disinfestation of personal effects, clothing, linen and mattresses. Fomites should be treated in conjunction with each application of topical scabicide.

Fomites are generally treated with heat (such as a hot wash) or isolated for 72 hours (seven days for crusted scabies) to kill mites. The specific requirements of environmental disinfestation depend of the severity of the infestation and are discussed further in the relevant management sections.

If care facilities are fitted with warm water systems their washing machines may not be able to achieve the temperatures necessary for disinfestation. In this case other methods should be used, such as placing fomites in sealed bags until scabies mites have desiccated.

Management guidelines

Management of an isolated scabies case (excluding crusted scabies)

An isolated case of scabies is not an immediate risk to the health of staff and residents, however it must be managed correctly to prevent the infestation spreading.

The following precautions should be taken to limit contact with infested individuals as soon as diagnosis is made until 24 hours after the commencement of treatment:

- Staff coming into contact with an infested person should wear appropriate personal protective equipment (PPE) such as disposable long sleeved gowns and gloves.
- Post contact precautions such as hand washing after contact with infested residents, minimising skin to skin contact where possible and the correct disposal of PPE after use should be implemented to ensure the infestation does not spread.
- If possible, isolate the person with scabies from others until 24 hours after the first treatment (e.g. place in a single room).

Treating fomites

Fomites should be treated concurrently with the patient. It is important that infested residents are supplied with clean clothing and linen during the treatment and again once the treatment is complete.

- Underwear, clothing, towels, bed linen and personal effects such as slippers, bed jackets, dressing gowns and knee rugs 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.

Management of contacts and surveillance

All those who have had prolonged skin to skin contact with an infested person or their environment within the incubation period (see incubation period, p 3) should be treated concurrently with the case, to ensure the infestation is eradicated. Infested staff can return to work 24 hours after their first treatment.

Following the initial round of treatments a program of post- intervention monitoring should be put in place to ensure the treatment has been effective.

- The first round of observations should occur 7 days after the initial treatment, when the second treatment is conducted.
- As scabies may take up to six weeks to develop symptoms, surveillance should continue for this period to ensure the infestation is eradicated.
- Consult a dermatologist or infectious disease physician if re-infestation or treatment failure is suspected.

Efforts should be made to identify unreported or unrecognised cases among contacts. Everyone who was treated should be included in the post-intervention monitoring process. If more cases of scabies develop see management of multiple scabies cases (p 11).

Communication

Meetings may be necessary to facilitate the distribution of information to staff and ensure they are fully aware of current control measures. This will assist in identifying and treating any subsequent cases.

- Written information regarding scabies should be provided to staff, infested individuals and all close contacts. Appendix A (p 17) can be photocopied and distributed as needed.
- Ensure staff are immediately updated regarding any management changes and new cases. Management plans should be readily accessible for all staff.
- Notify institutions to or from which infested or exposed individuals have transferred.
- In the event that the person with scabies is to be moved, the transport provider (e.g. South Australian Ambulance Service) must be notified in advance of the presence of the scabies infestation.

Treatment with topical scabicides

Ensure all close contacts are treated concurrently with the case and always refer to the directions on the product label. Although these directions have been developed for use with 5% permethrin and 25% benzyl benzoate topical scabicides, constancy cannot be guaranteed for all products

Appendix B also contains treatment instructions which can be photocopied and used by staff as necessary.

- 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 etc.
- Apply permethrin (5%) for 8 hours or benzyl benzoate (25%) for 24 hours. Permethrin based medication should be applied in the evening and left overnight.
  - Apply thoroughly to all skin from the neck down. Insufficient coverage is the primary 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, mittens applied to the hands will prevent removal and ingestion of the treatment product.
  - If there have been treatment failures, or if treating at risk groups*, the treatment area should be increased to include skin above the neck (avoid contact with eyes and mucous membranes).
  - If the treatment is washed off or otherwise removed (e.g. hand washing or pressure area care) ensure it is reapplied immediately.

*- at risk groups include children younger than two years, the elderly and frail, immune compromised, immobile, institutionalised, and indigenous persons from central and northern Australia.

- 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.
- 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 for 72 hours. Surfaces such as furniture and carpets may be disinfested with heat (such as steam) or by physically removing scabies mites (e.g. vacuuming).
- Repeat the treatment in seven (7) days to kill newly hatched mites. If treatment failure or recurrent infestation is suspected seek medical re-assessment. **If a third treatment is required, active infestation with scabies should be confirmed microscopically through a skin scraping or dermoscopy by a medical professional.**

Management of multiple or recurring scabies cases

Multiple cases of scabies may arise due to transmission of the scabies mite within the care facility. These situations must be managed carefully to ensure the infestation does not turn into a full scale outbreak. A sudden outbreak of scabies suggests that transmission has been occurring unrecognised within the facility for several weeks to months.

The most common cause of a scabies outbreak in a care facility is an unidentified or misdiagnosed case of crusted scabies. A delay in the diagnosis of crusted scabies will allow the disease to become established prior to other infested residents and staff developing symptoms and facilitates easy environmental transmission though fomites and shared amenities. If multiple residents and/or staff develop scabies infestations all staff and residents in the affected area(s) should be monitored for crusted scabies and considered for treatment.

Other causes of multiple cases of scabies include:

- New residents who were infested when they arrived may not have been diagnosed; particularly if asymptomatic.
- Infested members of staff.
- A recurring infestation following treatment (see below).
- Asymptomatic or misdiagnosed individuals.

The following precautions should be taken to limit contact with infested individuals as soon as diagnosis is made until 24 hours after the commencement of treatment:

- Staff coming into contact with an infested person should wear appropriate personal protective equipment (PPE) such as disposable long sleeved gowns and gloves.
- Post contact precautions such as hand washing after contact with infested residents, minimising skin to skin contact where possible and the correct disposal of PPE after use should be implemented to ensure the infestation does not spread.
- If possible, isolate those with scabies from uninfested residents until the infestation is clear or until 24 hours after their first treatment.
- Management may wish to exclude infested individuals from contact with residents and staff from other areas of the facility until 24 hours after commencement of treatment. In some cases, management may decide to restrict transfers in and out of the affected area.
- Communication with local pharmacies is essential to ensure that adequate stocks of medication are available.

Recurring cases

After successful treatment some improvement usually occurs within one week, though the itch can remain for up to three weeks. If symptoms persist beyond 4 weeks or new burrows develop it may indicate a treatment failure. If treatment failure or recurrence is suspected seek medical re-assessment. **Microscopic confirmation of scabies infestation through a skin scraping or dermoscopy is recommended to support the diagnosis, prior to the application of a third treatment.**

The common causes for recurring infestations are:

- Insufficient coverage of the body with the scabicide. Mites may have colonised the skin above the neck. The treatment area should be expanded to cover the whole body including the scalp and the topical scabicide should be applied thoroughly.
- Failure to adhere to treatment directions. Ensure that you read and follow the instructions on the label.
- There may be an unidentified patch of crusted scabies on the scalp, face, behind the ears or beneath the toes. Check for crusted scabies before further treatment. If crusted scabies is found see management of crusted scabies (p 14).
- Insufficient management of scabies mites in the environment. Ensure appropriate management of fomites when treatment with topical scabicides commences.
- Resistance to the treatment product (active ingredient) can also result in treatment failure. If resistance to the scabicide is suspected a treatment with a different active ingredient should be used.
- Re-infestation of the same individual may be caused by another infested resident (or staff member). Staff should check all contacts for crusted scabies and consider expanding the treatment circle (see management of contacts, p 12).
- Overuse of topical scabicidals with resultant irritant dermatitis which may be mistaken for treatment failure.

Treating fomites

For small numbers (or recurring cases) of typical scabies, fomites should be treated as outlined for individual cases (p 9) and should always be treated concurrently with the resident(s). It is important that infested residents are supplied with clean clothing and linen during the treatment and again once the treatment is complete.

If there are multiple scabies cases in the facility, the treatment of potentially infested surfaces should also be considered:

- All non-fabric surfaces such as vinyl chairs and plastic mattress covers can be wiped thoroughly with a normal cleaning product and have their seams vacuumed with a high suction nozzle. The vacuum cleaner bag should be disposed of after use.
- Fabric surfaces (including upholstered furniture) can be vacuumed and have their seams treated with an insecticide, or be steam cleaned. The vacuum cleaner bag should be disposed of after use.
- Where possible, amenities such as toilets and chairs should not be shared between infested and uninfested residents.

Surveillance

Progression to an epidemic can be prevented if all sources are identified and treated early. A staff member or group of staff should be allocated to monitor all known and potential cases and to coordinate treatment.

Records should be kept of all infested residents and staff, including the dates of: their exposure (if known), onset of symptoms and treatments; as well as their known contacts, location within the facility and the results of post treatment evaluations. This information should be used to determine at risk areas of the facility, co-ordinate treatment and facilitate early identification of (and response to) potential outbreaks.

A proactive screening and evaluation process should be implemented which involves:

- Prompt identification of any cases of crusted scabies associated with the outbreak.
- Evaluating undiagnosed skin rashes and suspected cases using proper diagnostic methods.
- Monitoring case numbers and distribution to identify unreported or unrecognised cases and contacts so that treatment can be effective.
- Increased scrutiny of other sections or wards for scabies.
- It may be necessary to monitor all residents of the facility if some staff members work in multiple sections or wards.

Following the initial round of treatments a program of post-intervention monitoring should be put in place to ensure the treated infestations have been successfully eliminates.

- The first round of observations should occur 7 days after the initial treatment, when the second treatment is conducted.
- As scabies may take up to six weeks to develop symptoms surveillance should continue for this period to ensure the infestation is eradicated.
- Consult a dermatologist or infectious disease physician if re-infestation or treatment failure is suspected.

If additional cases emerge despite control measures, an unrecognised source of scabies may be present.

Management of contacts

As with a single scabies case, all contacts who have had prolonged skin to skin contact with a confirmed case or their environment within the relevant incubation period (see incubation period, p 3) should be treated concurrently with the case. As multiple cases arise or cases recur the treatment circle should be expanded proportionately and consideration should be given to treating all residents and staff in the infested ward/institution.

If case numbers are high and spread across different wards or sections of the facility it may become difficult or impossible to treat all residents concurrently. In this scenario it may be prudent to isolate areas of the facility and treat them section by section. This should only be done when completely necessary and people (including staff) should not be allowed to move between treated and untreated areas.

Where possible, staff who care for infested residents should not care for uninfested residents.

Communication

Meetings may be necessary to facilitate the distribution of information to staff and ensure they are fully aware of current control measures. Consideration should be given to including residents to ensure they are properly informed. This will assist in identifying and treating any subsequent cases.

- Written information regarding scabies should be provided to staff, infested individuals, all contacts that require treatment and laundry staff. Appendix A (p 17) can be photocopied and distributed as needed.
- Ensure staff are immediately updated regarding any management changes and new cases. Management plans should be readily accessible for all staff.
- Appropriate signage on entrances to infested wards and facilities may be used to inform visitors about the contact precautions they should take.
- Notify other institutions to or from which infested and exposed individuals have transferred.
- In the event that a person with scabies is to be moved, the transport provider (e.g. South Australian Ambulance Service) must be notified in advance of the presence of the scabies infestation.
- A dermatologist or infectious disease physician should be consulted to help manage the treatment phase and provide advice on managing the infestation.
- Communication with local pharmacies is essential to ensure that adequate stocks of medication are available.

Treatment

Treatment must be coordinated to minimise the risk of treatment failure. All cases, contacts and fomites should be treated concurrently. Treatment can become complicated if a large number of individuals require treatment, and the directions below should be followed.

- The treatment circle should be expanded proportionately to the level of risk and staff who have had any skin to skin contact with an infested individual should be treated as a precaution.
- Consideration should be given to treating all staff and residents in an infested area, or isolating wards/sections and treating them sequentially (see management of contacts, p 12).
- Treatment should be offered to the household members of affected staff when facility wide intervention is required.
- In cases where drug resistance is suspected (such as recurring cases) a scabicide with a different active ingredient should be used.
- If the number of residents requiring treatment becomes unmanageable, mass treatment with ivermectin, combined with concurrent fomite treatment, may be a more feasible strategy. Medical advice should be sought from a dermatologist or infectious diseases physician in this situation.

Detailed treatment instructions for cases of non crusted scabies can be found on page 10, or alternatively in appendix B (p 19).

Management of crusted scabies

Crusted scabies can occur in debilitated, immunocompromised, institutionalised, or elderly persons. It is extremely contagious and special precautions must be taken to minimise the risk of scabies spreading throughout the facility. Be aware that crusted scabies is often not obvious as there may be no itch and crusting may be misdiagnosed or hidden beneath clothing or hair.

When dealing with a case or cases of crusted scabies it is recommended that strict precautions are in place to minimise the risk of scabies spreading. These should include:

- Staff coming into contact with an infested person should wear appropriate personal protective equipment (PPE) such as disposable long sleeved gowns and disposable gloves and shoe covers.
- PPE should also be used when dealing with clothing, linen and personal effects belonging to infested individuals.
- Post contact precautions such as hand washing after contact with infested residents, minimising skin to skin contact where possible and the correct disposal of PPE after use should be implemented to ensure the infestation does not spread.
- Individuals with crusted scabies should be excluded from contact with other residents and staff members until their case has been resolved.
- Limit visitors for residents with crusted scabies; visitors should use the same contact precautions and protective clothing as staff.
- Staff caring for residents with crusted scabies should be excluded from contact with other residents.

Treating fomites

As with typical scabies, fomites should be treated concurrently with the patient, each time a treatment is applied. There are additional concerns when dealing with a case of crusted scabies. Due to the large number of scabies mites associated with a case of crusted scabies, the patient's personal effects and their room become highly contaminated. Skin flakes dislodged from crusted skin can shelter scabies parasites, increasing the time taken to kill them to as much as seven days.

The following procedures are required:

- Underwear, clothing, towels, bed linen and personal effects such as slippers, bed jackets, dressing gowns and knee rugs used by the affected person in the seven days prior to treatment should be laundered using a hot wash cycle (>50°C) or hot tumble dried to kill the mites.
- Fomites that require treatment should be collected and transported in plastic bags and emptied directly into the washer to avoid contaminating other areas.
- If items are unable to be laundered or hot tumble dried, place them in a plastic bag and leave them for at least seven days before airing and reusing.
- Smooth floors should be thoroughly mopped using detergent. Carpets should be steam cleaned, or vacuumed and treated with an insecticide to remove and kill mites. The vacuum cleaner bag should be disposed of after use.
- Fabric surfaces such as armchairs and mattresses should be gently ironed or steam cleaned, then vacuumed to remove scabies mites. The vacuum cleaner bag should be disposed of after use.
- Non-fabric surfaces such as vinyl chairs and plastic mattress covers should be wiped thoroughly with a normal cleaning product and have their seams vacuumed with a high suction nozzle. The vacuum cleaner bag should be disposed of after use.
- Amenities such as toilets and showers should not be shared with a resident who has crusted scabies.

Due to the large number of mites present in cases of crusted scabies there are situations where insecticides may be used to treat fomites, such as for treating upholstered furnishings and carpets when other disinfection methods are not available or unsuitable. Insecticides should only be used as directed on the label and never applied to a person's skin or to surfaces they are expected to have direct skin to skin contact with, such as linen and clothing.

Surveillance

As crusted scabies is extremely infectious, a surveillance program should be in place to identify any resulting cases of scabies. This should include:

- Increased scrutiny of staff and residents in the infested section or ward following the initial round of treatments.
- Evaluating undiagnosed skin rashes and suspected cases using proper diagnostic methods.
- Staff involved in treating the infested resident should be closely monitored for symptoms of scabies.

Following the initial round of treatments a program of post- intervention monitoring plan should be put in place for all treated individuals to ensure the infestation have been successfully eliminated.

- The first round of observations should occur 7 days after the initial treatment, when the second treatment is conducted.
- As scabies may take up to six weeks to develop symptoms surveillance should continue for this period to ensure the infestation is eradicated.
- Consult a dermatologist or infectious disease physician if re-infestation or treatment failure is suspected.

Management of contacts

All those who have had any contact with the infested person or fomites within their incubation period (see incubation period, p 3) should be treated concurrently. Due to the highly contagious nature of the disease precautionary treatment should be strongly considered for everybody in the affected ward. This may include laundry staff if they have and contact with infested clothing and linen.

Staff treating residents with crusted scabies should be monitored closely and offered precautionary treatment if infestation is suspected.

Communication

Meetings may be necessary to facilitate the distribution of information to staff and ensure they are fully aware of current control measures. Consideration should be given to including residents to ensure they are properly informed. This will assist in identifying and treating any subsequent cases.

- Written information regarding scabies should be provided to staff, infested individuals, contacts that require treatment and laundry staff. Appendix A (p 17) can be photocopied and distributed as needed.
- Ensure staff are immediately updated regarding any management changes and new cases. Management plans should be readily accessible for all staff.
- Notify other institutions to or from which infested and exposed individuals have transferred.
- In the event that the person with crusted scabies is to be moved, the transport provider (e.g. South Australian Ambulance Service) must be notified in advance of the presence of the scabies infestation.

Treatment

When treating crusted scabies it is recommended that a dermatologist or infectious diseases physician is engaged to provide advice and determine a treatment regime. Treatment regimes should be based on the severity of the infestation.

The treatment of choice for crusted scabies is ivermectin in association with a topical scabicide and topical keratolytics (e.g. salicylic acid 5% to 10% in sorbolene cream, or lactic acid 5% plus urea 10% in sorbolene cream) on days when scabicide is not applied.

The consulting physician should determine when the case of crusted scabies has been resolved. Typically, a case of crusted scabies is considered resolved when clinical symptoms have ceased and microscopic analysis of the skin or skin scrapings have found no evidence of an active infestation 2-4 weeks after treatment.

When treating any case of crusted scabies, topical scabicides should be applied to the whole body including above the neck, paying particular attention to the scalp, behind the ear folds, the face and beneath the toe and finger nails.

Further information

Further information on the management, control, diagnosis and treatment of scabies can be found at:

SA Health

Infection Control Service
08 7425 7161

You've Got What?

www.health.sa.gov.au/pehs/ygw/scabies-pehs-sahealth-2009.pdf

Scabies fact sheets and information

www.dh.sa.gov.au/pehs/topics/topic-scabies.htm

08 8226 7100

Department of Health and Ageing (Commonwealth)

Guidelines for the control of public health pests - lice, fleas, scabies, bird mites, bedbugs and ticks

http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-enhealth-vermin-cnt.htm

Centers for Disease Control and Prevention, Atlanta, USA

General information, diagnosis and treatment

http://www.cdc.gov/parasites/scabies/

Resources for health professionals – institutional settings

http://www.cdc.gov/parasites/scabies/health_professionals/institutions.html

Department of Medical Entomology, Westmead Hospital, Sydney, Australia

Clinical presentation, laboratory diagnosis, treatment and control

http://medent.usyd.edu.au/fact/scabies.html

Scabies: Prevention and treatment

Scabies is an infectious skin condition caused by tiny mites that burrow into the skin and cause intense itching.

It is spread mainly through direct skin contact with an infected person and occasionally by contaminated bedding, towels and clothes.

What is scabies?

Scabies is an infectious skin condition caused by the mite *Sarcoptes scabiei* var *hominis*. Scabies mites are less than 0.5mm long, and cannot be easily identified without magnification. Female scabies mites live in burrows beneath the skin, where they feed and lay eggs.

The mites and their faeces cause an allergic reaction which manifests as a severe itch and a rash consisting of small red bumps. In most cases of scabies infestation, only 10 to 20 mites are involved. Scabies infestations occur worldwide and anyone can get scabies. Infestation with scabies is not an indication of poor hygiene.

Although scabies typically cause intense itching, there is no evidence that scabies mites spread other infections. However, severe or prolonged scratching due to scabies can result in secondary bacterial infections.

How is scabies spread?

Scabies is transmitted when a pregnant female mite migrates from one person to another. Transmission usually occurs via prolonged, direct skin to skin contact. It is often transmitted during sexual contact, though occasionally through contact with contaminated bedding, towels and clothes.

Under normal conditions a scabies mite cannot survive away from a host for longer than 72 hours. Any items potentially infested during these 72 hours must be thoroughly decontaminated at the time of treatment (see "Treating infested items").

Once a person is infested it will take only one generation (10 - 17 days) for new infectious females to be produced, however symptoms may take up to a month to develop after the first exposure (those with previous exposure to scabies will develop symptoms more quickly).

Animal variants of the scabies mite can cause mange in pets and livestock. These mites can be transmitted to humans, but do not cause on-going infestation. Animals with mange should be treated to prevent human cases.

How is scabies diagnosed?

Diagnosis should be confirmed by a medical practitioner using proper diagnostic techniques, as a scabies infestation may present with similar symptoms to other skin conditions, such as eczema and dermatitis.

Microscopic confirmation of scabies mites, eggs or faeces in the skin through a skin scraping or dermoscopy is recommended to confirm the diagnosis.

Government of South Australia
SA Health

Scabies: Prevention and treatment

Treating infested items

Scabies can be transmitted to people through infested items (fomites) the infested person has been in contact with, necessitating the disinfestation of personal effects, clothing, linen and mattresses. Fomites should be treated in conjunction with each application of topical scabicide.

Fomites are generally treated with heat (such as a hot wash) or isolated for 72 hours to kill mites. It is recommended that clothing and linen that have been used within the last 72 hours are washed on a hot wash (>50°C) or tumble dried. Items which can not be washed (fragile or personal effects) should be sealed in bags and left for 72 hours. Mattresses should be steam cleaned or ironed. Insecticides are generally not needed.

Treatment

Once diagnosed, most scabies infestations are easily treated. Your doctor will prescribe a cream or lotion that should be applied to all skin from the neck down and left on for at least eight hours (depending on the treatment) to kill the mites burrowed beneath the skin. Topical permethrin cream (5%) is the first line treatment for typical scabies. Always follow the directions on the product label. It is important to discuss treatment options with your doctor before treating infants, pregnant or breastfeeding women, the elderly, or those with pre-existing skin conditions.

As current treatments for scabies are not effective against scabie eggs a second treatment will be required in seven days (or as per label direction) to kill mites that have hatched since the first application.

When applying topical scabies treatments it is extremely important that treatment is thorough. Lack of coverage is the primary reason for treatment failures.

All close family, friends and sexual contacts must be treated at the same time (regardless of whether they show symptoms) to prevent further spread or reinfestation. Environmental disinfection should occur at the same time.

Once the infestation has been eliminated, it may take 2-4 weeks for the itch to fully resolve, though some improvement of the rash and itch is usually seen within the first week. If treatment failure or reinfestation is suspected seek medical re-assessment. If a third treatment is required, active infestation with scabies should be confirmed microscopically through a skin scraping or dermoscopy by a medical professional.

Failure to: adhere to the label directions, cover skin sufficiently, retreat in seven days, treat contacts and disinfest the environment may result in a treatment failure.

As there should be no surviving adult mites upon completion of the first treatment, it is generally fine to return to work/school the day after the first treatment.

For more information

Health Protection Programs
SA Health
Telephone: 08 8226 7100
Fax: 08 8226 7102
Telephone: 08 8226 7100
Email: healthprotectionprograms@health.sa.gov.au
www.health.sa.gov.au

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SA Health

Public Health Fact Sheet

Directions for the application of a topical scabicide

Ensure the case and all close contacts are treated concurrently. Always follow the directions on the product label. Although these directions have been developed for use with 5% permethrin and 25% benzyl benzoate topical scabicides, constancy cannot be guaranteed for all products

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 etc.

2 Apply permethrin (5%) for 8 hours or benzyl benzoate (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 the neck down. Insufficient coverage is the primary 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, mittens applied to the hands 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 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 can not be washed should be tumble dried or bagged for 72 hours. Surfaces such as furniture and carpets may be disinfested with heat (such as steam) or by physically removing scabies mites (e.g. vacuuming).

8 Repeat the treatment in seven (7) days to kill newly hatched mites. If treatment failure or recurrent infestation is suspected seek medical re-assessment. If a third treatment is required, active infestation with scabies should be confirmed microscopically through a skin scraping or dermoscopy by a medical professional.

*- at risk groups include children younger than two years, the elderly and frail, immune compromised, immobile, institutionalised, and indigenous persons from central and northern Australia.

For more information

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