

Managing Scabies in Age-related Residential Care

Guideline Responsibilities and Authorisation

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Managing Scabies in Age-related Residential Care

1. Overview

1.1 Purpose

To provide a standardised best practice approach to the diagnosis, treatment, management and prevention of scabies in Age-related residential care (ARC).

1.2 Scope

Applies to ARC facility staff.

1.3 Patient / client group

All people living in ARC; as close contact living environments are associated with Scabies transmission.

1.4 Definitions

Scabies	is a contagious inflammatory disease of the skin that is primarily caused by the female scabies mite <i>Sarcoptes scabiei variety hominis</i> . It is characterised by an intensely itchy skin rash that is an allergic reaction to the trail of debris, faeces and saliva deposited in the stratum corneum (just under the skin) by the scabies mite. Scabies presents in different forms, including papules, nodules and vesicles ¹ , dependant on the host's immune system, it is classified by the skin reaction to the presence of the scabies mite.
Classifications of Scabies	
Classical Scabies:	Presents with small numbers of burrows on hands and wrists, associated with papular rash on trunk and limbs that is intensely itchy, worse at night and often after a hot shower/bath. The itch is due to variable hypersensitivity reaction to the mite, its eggs and faeces. Transmission of classical scabies requires skin to skin contact of at least 10 minutes as there are only 10-15 mites on the person.
Nodular scabies:	Includes clusters of persistent itchy 5-15mm firm nodules in armpits, breast, groin and genital areas (shaft of penis). They may persist several weeks after scabies mites have been eradicated ⁹ .
Crusted scabies AKA Hyper-infestation or Norwegian	Most commonly occurs in older, immune-compromised or institutionalised people, including people with dementia and downs syndrome. Crusted scabies is highly contagious as the individual is infested by thousands or up to 2 million ² mites living on the skin surface. This presents as thick skin scaling (hyperkeratosis) or crusts that resemble psoriasis, often located on the palms, in the finger webs, under finger nails and on the soles of the feet as well as trunk, ears and eyebrows and can be associated with skin fissures. The typical intense itch of classical scabies is often mild or even absent leading to delayed or missed diagnosis ³ . A case of crusted scabies is the usual reason for a scabies outbreak in aged residential care.
Complicated Scabies	Scabies associated with impetigo, urticaria, cellulitis, dermatitis, pyelonephritis, abscesses, pneumonia, septicaemia and other secondary diseases.

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1.5 Natural history of *Sarcoptes scabiei* var. *hominis* (Scabies mite)

- *Sarcoptes scabiei* is a parasite that lives on the outside of the human body. It is specific to humans and at 0.3mm long it is barely visible to the naked eye. It is prevalent in New Zealand and the 2010 Global Burden of Disease study placed scabies among the 50 most common infectious diseases in the world⁴, affecting 200 million people at any one time^{1,5}
- Following a single fertilisation after which the male dies, the female mite burrows into the skin, often in protected areas such as skin folds between fingers, feeds off skin cells and lays two to three eggs daily for the rest of her life (1 to 2 months). It takes the fertilised female approximately 1 hour to submerge below the skin and she can burrow along under the skin at a rate of up to 5mm per day. Eggs take 2 to 4 days to hatch and larva take 7 to 9 days to mature, during which time they sit on the skin or make temporary burrows around hair follicles.
- The female can walk quite rapidly on warm skin (2.5 cm per minute) or almost from human head to toe in one hour, so burrows are found in many regions of the body.

2. Clinical Management

2.1 Roles and Responsibilities

All Staff

It is the responsibility of all staff to maintain a high index of suspicion for scabies. Itchy / scratchy rashes in two or more people (residents and/or staff) consider as scabies until proven otherwise.

2.2 Diagnosis⁶

- There is no standard diagnostic test for scabies¹
- In frail older adults living in ARC facilities scabies infestations spread quickly and outbreaks are difficult to manage so maintaining a high index of suspicion for scabies is vital. Any rash affecting more than one person (residents or staff) should be considered scabies until proven otherwise.
- Delayed diagnosis contributes to outbreaks that can be prolonged and difficult to control. Skin checks of all people in the facility, including those without symptoms is necessary to find the index case⁷
- Skin scrapings
 - The diagnosis of classical scabies is made clinically Skin scrapings are **not recommended** in classical scabies as they often produce a false negative delaying and treatment and facilitating outbreaks in aged residential care.
 - The diagnosis of crusted scabies is also made clinically; however it can be supported by viewing numerous mites in scrapings of crusts (microscopy) or dermoscopy, raised immunoglobulin E (IgE) and eosinophilia⁸. If skin scrapings are negative but there is clinical suspicion of scabies take further scrapings.
- Clinical diagnosis
 - There is usually a history of an intensely itchy rash on the trunk, limbs, or hands, which is worse when hot (at night or after a shower or bath). Due to the itch, the skin is often scratched, and secondary infections and eczema can be present.

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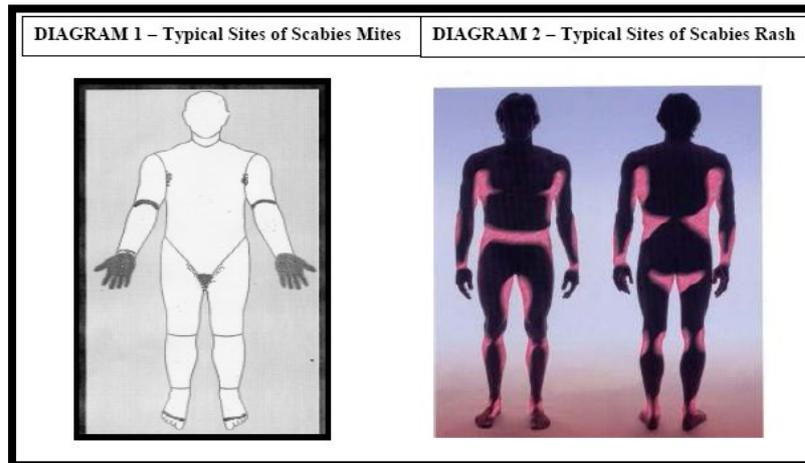
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- Itch is an important diagnostic criteria. However the development of itch is variable depending on previous exposure and classification of scabies.
 - First infestation - several weeks (4-6) from infestation to developing itch
 - Previous scabies - people are sensitised and the itch develops in hours to days
 - Crusted Scabies - the itch may be absent.
- The history of a rash affecting more than one person in ARC is so critical to accurate diagnosis that the general practitioner (GP) must be informed if there is more than one person with symptoms, even if that person is not under the care of that particular GP.
- Other important aspects of clinical diagnosis are onset, location of rash, identification of burrows, contact with a scabies positive person.
- A confident clinical diagnosis can be made if burrows are identified on the wrists, finger web spaces and/or sides and soles of feet. Scabies burrows are best seen under magnification (dermoscopy) through which burrows ending with tiny grey triangles (the mites) can be seen. Burrows can be difficult to identify if the skin has been scratched, is infected or if eczema is present⁶.
- Scabies hypersensitivity rash typically affects trunk and limbs especially forearms and waist. It is often polymorphic with scattered erythematous papules (red bumps), pustules and urticated plaques (hive-like). Folliculitis (pimples), impetigo (sores) and eczema (dry or blistered patches) are common in persistent cases. Longstanding infestation leads to clusters of larger nodules in armpits, groins, genitalia and breasts¹.
- Residents with long standing skin conditions can get super-imposed scabies, do not assume these residents are free of infestation.
- Review by a dermatologist is recommended if there is any doubt of the diagnosis, either directly or via the GP.
- Population Health units are available to give advice on the investigation and management of cases and contacts. They do not diagnose or prescribe treatment options.

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2.3 Pictorial support



Classical Scabies



Fig 1- Classical single scabies burrow



Fig 2 - Classical Scabies in staff. Small excoriations on forearms and hands are typical of scabies in a staff member



Fig 3 - Polymorphous rash - papules, hive-like plaques, scratch marks in classical scabies



Fig 4 Extensive burrows in classical scabies (late diagnosis)

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Crusted Scabies



Fig 4 - Thick crusting in Crusted Scabies

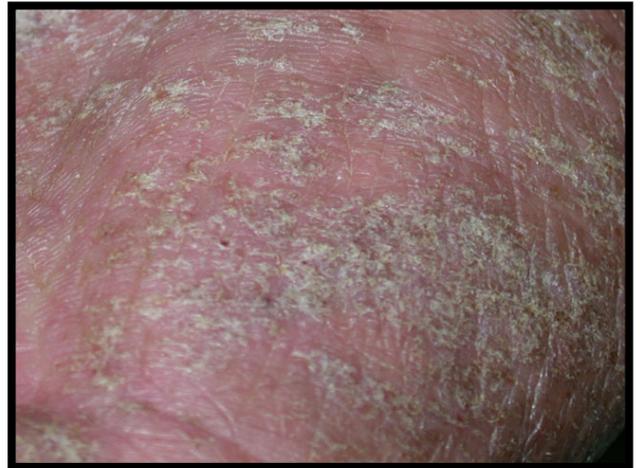


Fig 5 - Numerous scaly burrows - Crusted Scabies



Fig 6 – (left) Dermoscopy view of burrows in Crusted Scabies

Scabies mite, darker triangular shape at far end of burrow.

- **Nodular Scabies**



Fig 7 - Persistent scabies nodules, these are often seen best in the groin

- **Complicated (Infected) Scabies**



Fig 8 - Pustules indicate infected scabies burrows

Photographs accessed from DermNetNZ.org with permission

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2.4 Treatment

Classical scabies – healthy mobile individuals

It is recommended that **classical scabies** in healthy, mobile individuals is treated topically with 5% permethrin lotion or cream (two doses one to two weeks apart). Systemic treatment with ivermectin¹ may be considered to manage the sheer logistics of applying topical treatment to multiple residents being treated concurrently. Clinical trials have shown that the efficacy of systemic ivermectin and topical permethrin is similar⁹. However, treatment failure can occur when treating large populations and when treating people who are unable to understand the need for total skin coverage (e.g. people with impaired cognition)⁶.

Classical scabies - debilitated, bed-bound or immobile resident:

It is recommended that **classical scabies** in debilitated, bed-bound or immobile residents or those who are unable to comply with the application of topical therapy are treated with oral ivermectin; 200 mcg/kg (two doses one to two weeks apart). Topical treatment with 5% permethrin is an option, but treatment failure is common.

Crusted scabies

It is recommended that **crusted scabies** is treated with oral ivermectin; 200 mcg/kg. Successful treatment of crusted scabies can require two to four doses of ivermectin (each one to two weeks apart), plus topical 5% permethrin all over (weekly) and to crusted areas (daily) and 6% salicylic acid ointment applied to crusted areas for debridement (daily).

2.5 Extent of Treatment¹⁰

The extent of treatment of the population in aged residential care depends on the number and location of residents and staff affected by scabies. Scabies treatment may be contained to one unit of a facility (e.g. dementia unit) provided staff and residents do not routinely move between units. If staff and/or residents routinely move between units to the whole facility must be considered potentially contaminated.

Due to the variable incubation period, treatment of scabies always includes simultaneous treatment of close contacts of affected individuals. Carefully consider whether to treat close contacts of asymptomatic staff or visitors.

Due to scabicides being ineffective against eggs, treatment is considered to be at least two treatments with anti-scabies medication (i.e. ivermectin and/or permethrin) one to two weeks apart, this includes asymptomatic close contacts.

Close contacts are defined as people providing direct personal care (staff and others), regular visitors who usually touch residents, intimate contacts and co-habitants; this includes intimate relationships between residents.

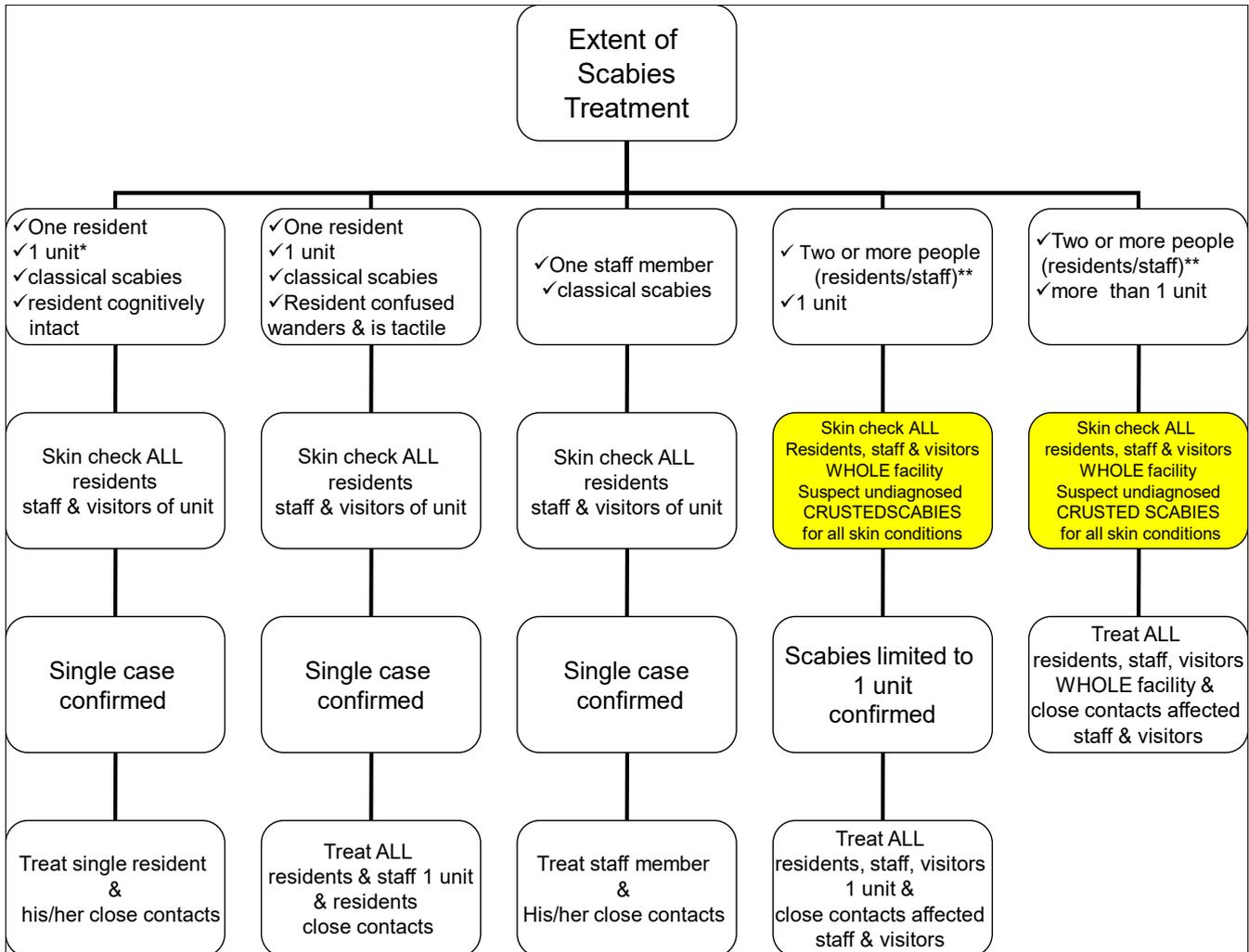
The discovery of scabies in any resident or staff member necessitates the checking of skin of all residents, staff and visitors at least of that unit (see flow chart)

¹ivermectin is subsidised via special authority form **SA1225** the full conditions of the application are on the form. <http://www.pharmac.govt.nz/2014/04/01/SA1225.pdf>

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Extent of Treatment



* A "unit" is a discrete building/wing/section of a residential care facility that has staff and residents separate from the rest of the facility.

** If two or more people are suspected of having a scabies infestation it is recommended that support with diagnosis and treatment regimes are accessed from a dermatology specialist and contact tracing support is accessed via population health.

2.6 Co-ordination of treatment

Co-ordination of treatment and environmental decontamination is the key to the successful eradication of scabies from an ARC facility. Communication with, and the cooperation of, the whole team (family, visitors, residents, staff, GP, laundry and cleaning services, pharmacy) and the development of a plan of action is essential, even if this delays treatment for a few days

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2.7 Guideline

ACTION	RATIONALE
<p>1. Treatment</p> <p>Treat all affected residents/staff/close contacts on the same day (24 hour period). Staff on duty should treat themselves after treating residents and decontaminating the environment.</p> <p>Staff off duty and affected visitors, friends/families should treat themselves prior returning to the facility</p> <p>Advice regarding investigation of outbreak and contact tracing is available from Population Health Units.</p> <p>Treatment for scabies infestation is generally prescribed by the nurse practitioner (NP) / general practitioner (GP) however lotions and creams can be purchased over the counter</p>	<p>To avoid risk of re-infestation and treatment failure</p> <p>To prevent inadvertent re-infestation of themselves during resident and environment decontamination</p> <p>Involving the primary care giver ensures medication safety.</p>
<p>2. 5% permethrin lotion or cream is applied to the whole body including the scalp, neck, face and ears. Take particular care to ensure permethrin is applied to the webs of the fingers and toes and under finger and toe nails (use a nail brush as necessary), in the umbilicus, to the genitals and other skin folds¹¹.</p> <p>NOTE: For bed bound frail residents pay particular attention to the scalp, face and neck.</p> <p>Wash off the lotion or cream after at least 8 hours (up to 14 hours).</p> <p>If areas (eg hands or bottom) are washed during this time, re-apply the lotion or cream. After this time remove via usual personal care methods.</p> <p>Repeat this treatment in one to two weeks</p>	<p>These are areas of particular infestation. New Zealand Formulary states: “<i>manufacturer application recommends excluding head, however application should include scalp, neck and face</i>”¹²</p> <p>Frail older adults experience infestation in the scalp/head¹³.</p> <p>Permethrin is an insecticide and needs prolonged contact to be effective.</p> <p>Treatment is repeated to kill any hatchlings and to cover any areas of skin inadvertently missed during application one.</p>

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ACTION	RATIONALE										
<p>3. If treating with ivermectin (Stromectol™)² the dose is calculated by resident weight (200 micrograms per kilogram) and rounded up to available tablet size dependent on resident weight (it is supplied as 3 mg tablets)</p> <table border="1" data-bbox="338 555 756 728"> <thead> <tr> <th>Kilograms</th> <th>tablets</th> </tr> </thead> <tbody> <tr> <td>25 – 35</td> <td>2</td> </tr> <tr> <td>36 - 50</td> <td>3</td> </tr> <tr> <td>51 - 65</td> <td>4</td> </tr> <tr> <td>66 – 79</td> <td>5</td> </tr> </tbody> </table> <p>This dose is repeated in one to two weeks. It may be necessary to repeat the dose up to four times for crusted scabies under the direction of a dermatologist.</p>	Kilograms	tablets	25 – 35	2	36 - 50	3	51 - 65	4	66 – 79	5	<p>Repeated doses 1-2 weeks apart have a 98% cure rate. The cure rate of a single dose is as low as 70% in immuno-compromised patients.</p> <p>Ivermectin is effective against mites not eggs. Treatment is repeated to kill hatchlings.</p> <p>The sheer volume of mites in crusted scabies can reduce the effectiveness of ivermectin</p>
Kilograms	tablets										
25 – 35	2										
36 - 50	3										
51 - 65	4										
66 – 79	5										
<p>4. Severe crusted scabies warrants the combined use of ivermectin (2-4 doses), 5% permethrin (to entire body once a week and daily to crusted plaques) and 6% salicylic acid debridement of crusts (daily).</p> <p>This should be done under the direction of a dermatologist³ either directly or via the GP</p>	<p>Crusted scabies requires aggressive treatment to successfully treat due to the large number of mites and mite protection offered by the crusted skin. This degree of treatment needs specialist review and advice</p>										
<p>5. All residents should have a complete head to toe skin assessment one week after the second treatment. If scabies does not appear to be improving the patient(s) should be reassessed by the GP or dermatologist.</p>	<p>To detect unsuccessful treatment early and avoid facility re-infestation</p>										

² ivermectin is subsidised via special authority form SA1225 the full conditions of the application are on the form. <http://www.pharmac.govt.nz/2014/04/01/SA1225.pdf>

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ACTION	RATIONALE
<p>6. On the morning after everyone has been treated, it is recommended bedding and towels are changed and hot washed (50°C or 120°F for at least 10 minutes) and hot dried (hottest tumble dryer setting for 20 minutes). For bedding that cannot be hot washed/dried, see options below</p> <p>Contaminated clothing (clothing worn immediately prior to treatment and stored clothing that has been regularly handled by contaminated person) should also be decontaminated using one of the following methods</p> <ul style="list-style-type: none"> • hot wash and dry as above or • dry clean or • seal in plastic bag for one week (7 days) at room temperature or • seal in plastic bag and freeze to below -20°C for at least 12 hours ¹⁴ 	<p>Bedding is the most likely to be contaminated. In classical scabies evidence of transmission from bedding is limited, in crusted scabies this is much more likely. This recommendation is to reduce risk of treatment failure¹.</p> <p>In the laboratory mites have survived off host for 14 days in warm moist environments. In normal circumstances mites live up to a few days off host¹⁵</p>
<p>7. Environmental decontamination includes:</p> <p>Thorough vacuuming of soft furnishings. Individual residents furnishings that are not impervious should be covered by plastic or a clean sheet during treatment and for 7 days afterward.</p> <p>Thorough vacuuming of carpets.</p> <p>Wiping down hard surfaces with a solution of detergent and water.</p> <p>Decontamination of curtains that have been regularly handled by residents with crusted scabies (as per clothing above).</p> <p>Cleaning items used by multiple residents (walking belts, wheelchairs, blood pressure cuff) after treatment.</p> <p>Sealing cosmetics in plastic bag for 2 weeks at room temperature.</p> <p>Note: Spraying with pesticide sprays or fogs is unnecessary and is discouraged.</p>	<p>In the laboratory mites have survived off host for 14 days in warm moist environments. In normal circumstances mites live up to a few days off host.</p> <p>Items that have been regularly handled are more likely to be contaminated</p>

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ACTION	RATIONALE
<p>8. Infection control precautions; the scabies mite is transmitted by direct skin to skin contact with an infested person or contaminated surface. In addition to standard precautions (hand hygiene) contact precautions are recommended, particularly with in the event of crusted scabies.</p> <p>Direct care staff should wear disposable gloves and long sleeved impervious gowns when:</p> <ul style="list-style-type: none"> • providing personal care for a person with scabies • handling potentially contaminated clothing, linen and equipment of the person with scabies • this should continue until the resident is successfully treated ¹⁶ <p>Laundry staff: ideally contaminated linen should be sealed in dissolvable laundry bags and be placed in washing machines without opening. If this is not possible laundry staff must wear disposable gloves and long sleeved impervious gowns when handling contaminated linen.</p> <p>Visitors: it is ideal to limit visitors during treatment but if that is not possible, visitors should also use contact precautions (disposable gloves and hand washing) when visiting residents with crusted scabies.</p> <p>Isolation: it is recommended that residents with crusted scabies are isolated to their room until at least after the second treatment with ivermectin</p>	
<p>9. Surveillance</p> <p>It is recommended that a scabies outbreak log is kept during the whole treatment period and follow up period</p> <p>For individual residents accurately document the progress of the rash and itch at least weekly following treatment; itching can persist for several weeks following successful treatment.</p> <p>At six weeks if itch persists (particularly if itch intensity is increasing) this may indicate treatment failure and needs reassessment.</p>	<p>The itch or rash associated with scabies can persist for weeks after treatment.</p> <p>Treatment failure in an individual can re-infest a facility.</p>

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ACTION	RATIONALE
<p>10. Treat associated symptoms</p> <p>Pruritus (itch) is likely to need active treatment. Anti-histamines, emollients and/or steroid creams can be useful; discuss this with the resident's NP/GP. Examples include:</p> <p><u>Crotamiton</u> cream 10% (Itch-soothe) a weak scabicide can be used to reduce itch¹⁷. However permethrin has been shown to be more effective in reducing itch in one trial¹⁸</p> <p><u>Emollient</u>: Cetamacrogol wax and paraffin cream: Non-ionic cream (Health E) 500g</p> <p>Secondary bacterial infections (usually streptococci and/or staphylococci) need treating with oral antibiotics</p> <p>Commonly treated with oral flucloxacillin for 7 days</p>	<p>Symptomatic treatment reduces the chance of secondary infection, behavioural disturbance and aids sleep</p> <p>Hydrates and soften skin, provides barrier to external irritants. Can be frequently reapplied</p> <p>Untreated secondary infections can lead to cellulitis, pyelonephritis, internal abscesses, pneumonia, septicaemia and ultimately death</p>
<p>11. Prevention¹⁹</p> <p>Isolate and screen all incoming residents (new residents, returning residents and residents from other ARC facilities).</p> <p>Screening consists of a full skin check completed by a nurse and GP or dermatologist, it is recommended that this occurs within 24 hours of arrival.</p> <p>Contact precautions are recommended until the skin check is completed.</p> <p>Where isolation is not possible (eg cognitively impaired residents) a skin check is still necessary to predict risk to other residents.</p> <p>Document and obtain a medical diagnosis of any rash. Do not treat symptoms (i.e. itch) without obtaining a diagnosis.</p> <p>Share information; notify originating and receiving facilities if you discover scabies in your facility and/or transferring resident.</p> <p>Maintain a high index of suspicion for scabies at all times; in residential care itchy, scratched rashes in more than one resident is scabies until proved otherwise.</p> <p>Have a low threshold for treating scabies</p>	<p>Resident movement is the most common route of transmission.</p> <p>Scabies is common, transfers quickly in ARC and is hard to eradicate.</p> <p>Avoid a potential outbreak of scabies</p> <p>Treatments that mask itch in scabies risk provoking an outbreak of scabies.</p> <p>The identification and active treatment of scabies is evidence of high quality care.</p> <p>Treatment of scabies is low-risk compared to the risk of miss-diagnosis</p>

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ACTION	RATIONALE
<p>12. Staff education</p> <p>Education of staff includes what causes scabies, their role in identification of potential scabies, infection control principles, talking to families/visitors about scabies. Resources to assist this process include; this guideline and the Waikato Scabies flip chart</p>	<p>Fully informed staff are critical to identifying and controlling scabies infestations</p>
<p>13. Family/visitor information</p> <p>Families can help control the transmission of scabies if provided with the correct information.</p>	<p>It is important families and visitors understand that scabies is not a result of poor hygiene. Identification, treatment, management and prevention of scabies is an indicator of a responsible provider .</p>

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3. Patient information

What is scabies?

It is an itchy skin condition caused by tiny insects (Scabies mites) that lay eggs under the skin. The itch is an allergic reaction to the mite. Often the itch is so intense (worse when warm) that people seek help

What do the mites look like?

They cannot be seen by the human eye

How did I get scabies?

Scabies mites transfer by direct skin to skin contact or contact with contaminated environments (mites can survive 3 to 7 days in the environment). Unfortunately people can have scabies for 3-4 weeks before they itch and some older people with poor immune systems never itch, so are unaware they have scabies

Is there more than one type of scabies?

There is one Scabies mite that causes different skin reactions in health and debilitated people. It is the skin reaction that is named. Healthy people get *classical scabies*, the rash is usually between fingers and in wrists and sometimes on the trunk. There are only 10-15 mites in the skin

Frail older people can get *crusted scabies*. The skin has a crusty/scally look and often does not itch. There are thousands or millions of mites in the skin, so this type of scabies is easy to spread to other people and the environment.

Why is it prevalent in residential care?

The combination of close contact living and the delay between getting scabies mites in the skin and starting to itch means the mite can spread before people are aware they are infested.

How is it diagnosed?

A history of an intensely itchy rash in multiple residents/staff is the main clue. Scabies can be difficult to identify as people can have more than one skin condition. Crusted scabies can be confirmed with skin scrapings, however this is generally not helpful in classical scabies as the mite is often missed.

What is the treatment?

Treatment is individualised. It can include permethrin cream applied all over the skin, ivermectin tablets and treatment for associated itch and skin infections. Two treatments are generally required as the treatment cannot kill scabies eggs.

Why I am having to wait for treatment?

To avoid re-infestation in a facility everyone must be treated on the same day, this takes a coordinated response.

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4. Audit

4.1 Indicators

- There is documented evidence of treatment as per 2.7
- Ivermectin doses are calculated correctly by weight
- An accurate and contemporaneous log for all outbreaks

5. Evidence Base

5.1 References

- ¹ Chandler & Fuller (2019) A review of scabies: an infestation more than skin deep *Dermatology* 235:70-90
- ² Centres of disease control (2017) Parasites: Scabies – epidemiology and risk factors accessed 7 April 2017 from <https://www.cdc.gov/parasites/scabies/epi.html>
- ³ Yélamos, O., Mir-Bonafé, J.F., López-Ferrer, A., Garcia-Muret, M.P., Alegre, M., Puig, L. (2016) Crusted (Norwegian) scabies: an under-recognized infestation characterized by an atypical presentation and delayed diagnosis. *Journal of the European Academy of Dermatology & Venereology*; Vol. 30 Issue 3, p483-485, 3p
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