



Skin Infections in Pacific peoples

Multiple factors can contribute to the development of skin infections

Serious skin infections, such as cellulitis, abscesses and impetigo, are an increasingly common reason for hospital admission in Pacific peoples. Pacific children living in New Zealand have a disproportionately higher rate of hospitalisation for serious skin infection compared with other ethnic groups.¹

Multiple factors can contribute to the development of skin infections, including:

Injuries, insect bites and poor skin health:

- Broken skin as a result of grazes, cuts, bites, stings, infestations, burns, accidental falls or sports injuries increases the risk of cellulitis and other infections
- Eczema has been identified as a significant contributor to skin infections. The dryness, cracking, itching and scratching that eczema causes, increases the risk of bacteria entering through the skin. New Zealand children have a higher prevalence of eczema compared to children in many other countries.²

Lack of awareness:

- Health literacy among Pacific peoples can be variable, and Pacific language translated patient information is not always available. This can lead to delays in treatment and serious complications.

- The importance of basic hygiene measures to reduce infection such as washing hands, keeping fingernails trimmed to avoid scratching and covering sores, may not always be understood

Overcrowding:

- Large numbers of people per household and sharing of contaminated bed linen and towels increases the likelihood of transmission of bacteria from person to person

Low socioeconomic status:

- Limited access to hot water, washing machines and driers reduces standards of personal and clothing/linen hygiene
- Reduced access to first aid supplies, e.g. plasters, dressings, insect repellent and emollients increases the risk of infection
- Reduced access to medical care due to barriers such as cost, lack of transport and language, increases the risk of serious infection and complications

Promoting skin health can prevent skin infections

Keeping the skin clean is the best way to keep it healthy. Simple information to promote healthy habits can make a difference such as the “clean, cut and cover” message:

Clean hands often

Cut fingernails short


Cover sores with a plaster


The role of antiseptics

Many clinicians use antiseptic solutions or creams when cleaning a wound or insect bite. Although there is no clear evidence that antiseptics are not effective, there does not appear to be any evidence that they are superior to simple cleaning practices, e.g. thorough washing. There is also concern that unnecessary use of antiseptics or disinfectants around the house may promote bacterial resistance. Active promotion of the use of antiseptics is not recommended.²

The use of plain soap is recommended for hand washing. Household antibacterial soaps are generally no more effective than plain soap in reducing bacterial levels on the hands, or in reducing infectious diseases.³ If dry or sensitive skin is a problem, a soap substitute such as aqueous cream or a cleanser that has the same pH as the skin (5.5) can be used. Alcohol hand rubs are also effective at reducing bacterial load.

The frequency of recurrent skin infections may be reduced with a regular quarter-filled bath to which one capful of household bleach has been stirred into the water. Care should be taken to clarify measurement with a “bottle cap or a soup spoon” so as not to be misunderstood as cupful. If there is no bath in the house, a similar dilution of bleach into a clean bucket or basinful of water is an alternative.

 **Best Practice Tip:** Many low decile households do not buy sticking plasters, and many people believe cheap generic supermarket brands are inferior to marketed brands. Consider including plain sticking plasters in your dressings stock to reinforce that covering sores with basic products is both effective wound care and accessible on a tight household budget.

 For further information about skin health and hygiene, including downloadable patient information in different language options, see: www.skininfections.co.nz

Cellulitis

Cellulitis is a common bacterial infection of the skin, which is most commonly seen in children and elderly people, but can affect people of all ages.² Cellulitis is a common cause of admission to hospital but hospitalisations are generally preventable if treatment is sought early. Pacific peoples require hospitalisation for cellulitis at a rate 1.5 times that of the total New Zealand population.⁴

Infection results from the invasion of skin structures by endogenous skin flora or by exogenous pathogenic organisms. All layers of the skin, fascia and muscle may be involved. The limbs are most often affected but cellulitis can occur anywhere on the body. Symptoms and signs, e.g. redness, increased warmth, tenderness and swelling, are usually localised to the affected area but patients can become generally unwell with fevers, chills and shakes due to bacteraemia.³ Complications include endocarditis, gram-negative sepsis and streptococcal glomerulonephritis.⁵

The most common infecting organisms are *Streptococcus pyogenes* and *Staphylococcus aureus*. Cellulitis associated with furuncles, carbuncles or abscesses is usually caused by *S. aureus*.⁶

Cellulitis is more common in people with:³

- Previous cellulitis
- Venous disease, e.g. gravitational eczema, leg ulceration or lymphoedema
- Current or prior injury, e.g. trauma, surgical wounds, radiotherapy
- Diabetes
- Alcoholism
- Obesity
- Pregnancy
- Tinea pedis (athlete's foot) in the toes of the affected limb

Pacific adults have higher rates of diabetes and obesity than other New Zealanders,⁷ which makes them a higher risk group for cellulitis.


Cellulitis treatment

Most patients can be treated with oral antibiotics at home, usually for seven to ten days. However, if there are signs of systemic illness, extensive cellulitis or poor response to oral antibiotics, treatment with intravenous antibiotics may be needed.

The first choice oral antibiotic is flucloxacillin. Alternatives include erythromycin, roxithromycin, cefaclor or co-trimoxazole. Oral doses of flucloxacillin should be taken at least 30 minutes before meals as the presence of food in the stomach reduces absorption.

Flucloxacillin is bactericidal with a mode of action similar to that of benzylpenicillin, and is active against penicillinase-producing and non-penicillinase-producing staphylococci. Flucloxacillin alone is sufficient to treat skin infections that involve both *S. aureus* and *S. pyogenes*. Combination with penicillin is not required as flucloxacillin is active against the large majority of staphylococcal and streptococcal species that cause cellulitis when given at the appropriate dose, i.e. 500 mg four times a day for adults.

Flucloxacillin suspension is recommended for children. Although adherence is sometimes an issue with this medicine due to its taste, parents should be encouraged to persevere with giving flucloxacillin (unless allergic). It is a relatively safe medicine to use in children, and as it is a narrow spectrum antibiotic, it does not contribute to increasing bacterial resistance.

 For further information see “Antibiotic choices for common infections”, BPJ 21, (Jun, 2009).

Impetigo

Impetigo is a highly contagious skin infection which is most common in infants and school children. It is also known as “school sores”. Impetigo often starts at the site of a minor skin injury such as a graze, an insect bite or scratched eczema, although it can also develop in healthy skin. It is more common in hot, humid weather and where there are conditions of poor hygiene or close physical contact.⁷

Educating patients about skin infections

Patients should be advised to seek medical attention if a sore or area of redness has any of the following features:

- Is greater than the size of a ten cent coin (approximately 1.5 cm)
- Is increasing in size
- Has pus
- Has red streaks coming from it
- Is not getting better within two days
- Is located close to the eye

A skin infection in a person who is immunocompromised or has diabetes requires closer monitoring. It is also important to determine if there is a history of injury with the possibility of a foreign body within the wound.

Explain to patients that if skin infections are left untreated serious complications can occur that may require hospitalisation including:

- Deeper abscesses, which can form in the lungs, kidneys, joints, muscles, bone and brain
- Septicaemia
- Osteomyelitis and septic arthritis
- Acute glomerulonephritis

It can become a recurrent problem within families and households.

Similar to cellulitis, impetigo is most commonly caused by *Staphylococcus aureus* and *Streptococcus pyogenes*.³ Impetigo is usually not serious, and may resolve spontaneously in two to three weeks. However, as it can sometimes lead to complications such as cellulitis, treatment with a topical or oral antibiotic is recommended.³

Impetigo generally presents with pustules and round, oozing patches which increase in size each day. There may be clear blisters, which rupture to form a golden yellow crust. It most often occurs on exposed areas such as the face and hands, or in skin folds, particularly the axillae.³

Systemic signs are not usually present, however if the infection is extensive, fever and regional lymphadenopathy may occur.⁸

Community outbreaks of impetigo

Recurrent infection and community outbreaks of impetigo may result from the nasal carriage of causative micro-organisms or from fomite colonisation e.g. bed sheets, towels and clothing that may be shared.


If nasal carriage is suspected (as in recurrent infection), a nasal swab should be taken to confirm this. A topical antibiotic (such as fusidic acid 2% ointment) may be applied inside each nostril, three times per day for seven days. All household members and close contacts should also be treated.³

Impetigo treatment

Impetigo is diagnosed clinically and swabs for microbiological analysis are not usually required unless there is recurrent infection, treatment failure or a community outbreak (see sidebar).

For small localised patches of impetigo, topical treatment is recommended initially. Fusidic acid cream applied for seven days is a suitable choice.⁹ Crusts should be gently removed before applying the cream.

Oral antibiotics should be used for extensive disease or systemic infection or when topical treatment fails. Flucloxacillin for seven days is a suitable choice as it is effective against *S. aureus* and *S. pyogenes*.³ Erythromycin may be used for people who are allergic to penicillins. Broad spectrum antibiotics such as amoxicillin clavulanate are inappropriate because the organisms are usually known and are susceptible to narrow spectrum antibiotics.

 For further information see “Management of impetigo”, BPJ 19 (Feb, 2009) and “Antibiotic choices for common infections”, BPJ 21 (Jun, 2009).

During the infectious stage, i.e. while the impetigo is oozing or crusted or within 24 hours of starting antibiotic treatment, advise the patient or their caregiver to:³

- Cover the affected areas (where practical)
- Avoid close contact with others
- Use separate towels and flannels
- Change clothes and linen daily and wash in hot water (or use bleach or hot iron)

Children with impetigo must stay away from school or day care until the crusts have dried out.

As days off school equate to increasing educational disparity and parental time off work (without pay for wage earners), families should be encouraged to take precautions in preventing skin infections.

Scabies

A scabies outbreak can occur within any community, regardless of socioeconomic group or level of personal hygiene. One of the major factors is overcrowding, which is usually associated with low socioeconomic conditions, but the underlying reason is close body-to-body contact.¹⁰ Scabies is endemic in many of the Pacific Islands.¹¹ Family members visiting from the Islands and new immigrants to New Zealand may be carriers of the infection.

Transmission of the scabies mite (*Sarcoptes scabiei*) usually occurs via close skin-to-skin contact with an infested person. For example, sleeping in the same bed or even holding hands. Fomites such as sheets, towels and other inanimate objects can also carry the scabies mite.⁹

Scabies infection produces intense pruritus, especially on the trunk and limbs, and at night. There are usually limited visible signs of the infestation but burrows may sometimes be observed on the wrists, finger web spaces or the sides and soles of the feet. Complaints of intense pruritus should raise a suspicion of scabies, especially if there is a family report of similar symptoms.¹¹

Scabies treatment


Treatment of both the infested person and their close physical contacts should begin immediately, regardless of whether they are symptomatic. Finger and toe nails should be cut short to prevent scratching and carriage of mites and eggs.¹⁰

Scabies will not resolve spontaneously without treatment. Permethrin appears to be the most effective topical scabicide.¹² Malathion lotion may also be considered. Topical gamma benzene hexachloride (Lindane or Benhex) has been used in the past but is now not recommended due to toxicity concerns.¹³ Success or failure of therapy for scabies infestation depends much more on correct application of the topical preparation and treating all household contacts, than on which scabicide to use.¹³ Permethrin 5% lotion (A-Scabies®) and malathion 0.5%

liquid (A-Lices®, Derbac-M®) are both available fully funded in New Zealand.

Scabicides should be applied to the entire body, from below the chin and ears, concentrating on the areas between the toes and fingers, genitals and under the nails (use a soft brush if required). Treatment should be applied to the face (avoid eye area) and scalp in children aged under two years, people who are immunocompromised and elderly people. Treatment should be reapplied to areas that are washed within the application time e.g. after hand washing. The treatment (both lotion and cream formulae) needs to be left on the body overnight and washed off the following morning. Repeat application of the treatment is required in 10–14 days. Linen and clothing should also be washed regularly.

Symptoms of itch can continue for several weeks after treatment. The most frequent complication of treatment with topical scabicides is post-scabies eczema (generalised eczematous dermatitis). Because of the irritant effects of the various formulations, xerosis (dry skin) might increase and worsen eczema, which could be mistaken for drug failure or re-infestation. Therefore, rehydration of the skin using emollients and anti-inflammatory therapy with topical steroids can be useful.¹¹

 For further information see Scabies diagnosis and management, BPJ 19 (Feb, 2009).





“The capacity to blunder slightly is the real marvel of DNA. Without this special attribute, we would still be anaerobic bacteria and there would be no music.” — Lewis Thomas

Improve patient safety by sharing solutions and prevent these incidents from occurring again. Report patient safety incidents here:

www.bpac.org.nz/safety

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