

Non-healing Ulcers

This fact sheet has information on non-healing ulcers, including those that are caused by nontuberculosis mycobacteria (NTM).

Causes of non-healing (chronic) ulceration include:

- problems with blood supply or drainage
- nerve damage
- excess pressure or trauma
- cancer
- infection
- insect bites and stings

When determining the cause of a non-healing ulcer, it is always important to assess the blood supply and nerve function to the area and ask about any preceding trauma. If cancer or an unusual infection is suspected, a skin biopsy may be required from the edge of a suspicious lesion.

It is important to seek medical attention early for non-healing ulcers to allow for further investigations and treatment at an early stage.

Ulcers that do not show significant improvement or have not healed after a 2-week period should be assessed by a clinician.

Vascular disease

Chronic leg ulcers are commonly caused by a poor blood supply to the legs and feet (peripheral vascular disease) or poor drainage of blood from the legs (venous insufficiency). More common in old age and particularly in smokers; narrowing of the blood vessels may lead to reduced blood flow, which can lead to symptoms of cold feet and pain when walking.

Minor trauma to the lower limbs can also lead to a non-healing ulcer. The poor blood supply reduces the body's ability to heal following an injury. Rarely, blood vessels can become inflamed as part of an autoimmune disease. This will often be associated with a rash, and chronic ulcers can form.

Diabetes

Non-healing ulcers commonly occur in people who have diabetes mellitus, particularly if their blood sugar levels are too high or if they have a history of smoking. Poorly controlled diabetes (with high blood sugar levels) is a risk factor for causing narrowing of large arteries which supply blood to the legs, which can cause restricted blood flow and damage to much smaller blood vessels. This can damage nerves and leads to loss of sensation in the feet, making the feet vulnerable to trauma.

Poor wound healing and chronic ulceration may be an indication to check for elevated blood sugar levels or assess for any macrovascular or microvascular complications of diabetes.

Pressure areas

Physical disability, frailty in the elderly and spinal cord damage may lead to impaired mobility and excess pressure being placed on the sacrum, buttocks, heels and other parts of the body.

Physical inactivity can predispose to developing pressure sores and skin breakdown, with the subsequent formation of a non-healing ulcer at sites of ill-fitting shoes or after prolonged use of a cast or splint on limbs.

Unless the pressure point is relieved, the wound will not heal. Sometimes surgical intervention is required, and a skin graft may be necessary to close the wound.

Skin cancer

Skin cancer is one of the most common cancers diagnosed in Australia (specifically non-melanoma skin cancer) and Australia has one of the highest rates of melanoma in the world. Skin cancers can present as a non-healing, sometimes ulcerated lesion, and early medical attention is particularly important for further investigation and treatment.

Skin cancers treated at an early stage are often curable. A delay in treatment may result in the need for more extensive surgery or in spread to other parts of the body. Any suspicious, changing and bleeding or ulcerative lesions should be biopsied at the edge of the lesion.

Underlying infection of the bone

Particularly if left untreated for a long time, chronic ulcers can become deep and extend to the bone which may allow bacteria to infect the bone. Bone infections are very serious and once this occurs, the skin ulcer will not heal unless the bone infection is treated (often requiring both surgery and an extended course of antibiotics). Sometimes infection spreads to the bone through the bloodstream, in which pus can build up and drain through the skin; this can also present as a non-healing skin lesion.

Melioidosis

Melioidosis is caused by a soil-dwelling bacterium (*Burkholderia pseudomallei*) which is found in tropical regions across northern Australia. More common in the wet season, it occurs when people have frequent contact with wet soil or surface water which is contaminated with the bacteria.

Skin abrasions and skin sores can cause breaks in the skin which may lead to skin and soft tissue infections. The bacteria can then also enter the bloodstream and cause disease in other parts of the body, which can be life-threatening. It may occur many months or even years after the initial exposure, particularly at times of stress or illness and people with immunosuppression or diabetes mellitus are at higher risk.

It is important that shoes are worn and gloves are used to minimise exposure to soil which may be contaminated.

Diagnosis is made by growing the bacterium from clinical specimens (such as a swab).

Treatment involves intravenous antibiotics followed by a long course of oral antibiotics. Infectious Diseases specialist involvement is required, with involvement from the Centre for Disease Control.

Read more on [melioidosis](#).

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Nontuberculous mycobacteria (NTM)

NTM are found in soil and water in tropical and temperate parts of Australia and infect the lungs and lymph nodes, and can cause non-healing skin ulcers. NTM skin and soft-tissue disease occur when specific bacteria enter through a break in the skin from trauma or as a complication of a surgical procedure. There are sometimes geographical clusters of cases, however the causes of this clustering remains unclear.

Mycobacterium ulcerans skin lesions typically start as a painless and small lesion, which may appear like a mosquito bite, that increases in size and becomes a non-healing and indurated ulcer. *M. ulcerans* skin lesions usually remain painless and have edge that are often rolled, which is known as indurated. If untreated, the lesion continues to increase in size and can extend deeper to involve tendons, ligaments and bone.

Mycobacterium marinum is another example of a rapidly growing NTM which causes skin and soft tissue infections after recreational or occupational exposure to an infected water source, such as fish tanks and marine farms.

NTM skin and soft tissue infections are diagnosed by the presence of Acid-Fast Bacilli on microscopy, culture and/or PCR from an ulcer swab or biopsy. There should be a high index of suspicion for all non-healing ulcers. Treatment of NTM depends on the organism type but often requires complex management with prolonged antibiotic treatment, good wound care and sometimes surgical intervention in particularly extensive or refractory cases.

Infectious Diseases specialist involvement is required, with involvement from the Centre for Disease Control.

Leprosy

Leprosy is a chronic bacterial infection of the skin and peripheral nerves, caused by *Mycobacterium leprae*. Leprosy is now uncommon in the NT, but it is a tropical disease which should still be considered for skin and neurological presentations in Aboriginal and Torres Strait Islander and migrant populations.

Damage to nerves can lead to loss of sensation and numbness in the hands and lower limbs, as well as a rash. People with leprosy are more prone to trauma of these non-feeling areas, which may lead to non-healing ulcers. Infectious Diseases specialist involvement is required, with involvement from the Centre for Disease Control.

Read more on [leprosy](#).

Other infections

Non-healing ulcers can be caused by other infections, including Sporotrichosis and other fungi, Nocardia, actinomycosis and chromoblastomycosis. Some of these are environmental organisms which should be suspected if there is recreational or occupational exposure to soil, mulch, hay or other plant material. The diagnostic laboratory should be made aware so that clinical samples can be set up for appropriate testing.

Syphilis is a sexually transmitted infection caused by the bacterium *Treponema pallidum*, which has increased in prevalence across northern Australia in the past few years. A painless red ulcer may occur at the site of entry of the bacterium, which is typically a solitary lesion on the genital area. The ulcer is usually self-limiting and will likely resolve within a few weeks, but it is important to seek medical advice for treatment of the disease with antibiotics.

Contact

For any complicated cases, Infectious Diseases specialist involvement is required with involvement from the Centre for Disease Control where appropriate.

For more information contact the [TB Clinic](#) in your region.

Location	Phone
Darwin (Top End Region)	(08) 8922 8044 or 1800 008 002
Katherine (Big Rivers Region)	(08) 8973 9049
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