

# Pressure Ulcer and Skin Care

Pressure ulcers are a frequent, costly, and potentially life-threatening complication of spinal cord injury.

Pressure ulcers can have a major impact on quality of life.

Prevention, early detection, and treatment are key. General practitioners, therefore, play a critical role.

Daily skin checks, regular pressure redistribution, and offloading play an important role in the prevention of pressure ulcers.

Pressure ulcers often start in the dermis before breakdown is visible in the epidermis.

Treatment of pressure ulcers is best done through a multidisciplinary team approach that includes a physician, wound care nurse, physiotherapist/occupational therapist, and other specialists as required.

Clarifying the goals of care early on is important (i.e., healing, maintenance, palliation).

## Definition

### Pressure Ulcers:

Pressure ulcers are lesions caused by unrelieved pressure, or pressure in combination with shear and/or friction, resulting in damage of underlying tissue. They usually occur over bony prominences. The pressure ulcer staging classification is intended to describe the severity of tissue damage. Accurate staging is essential because allowable services, supplies/ equipment, and treatment options are often linked to the severity of the pressure ulcer.

## Staging

The International NPUAP/EPUAP pressure ulcer classification system

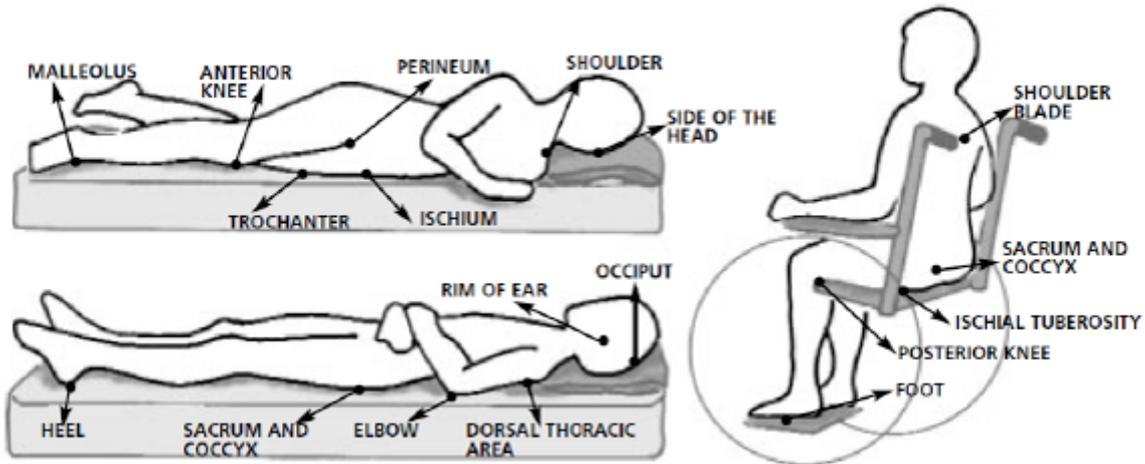
*Reproduced from National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory Panel (2014) Guideline on the Prevention and Treatment for Pressure Ulcers: Clinical Practice Guideline. Quick reference guide.*

# Incidence and prevalence

Annual incidence rate of pressure ulcers ranges from 20-31%. Prevalence ranges from 10.2-30% ([scireproject.com](http://scireproject.com)).

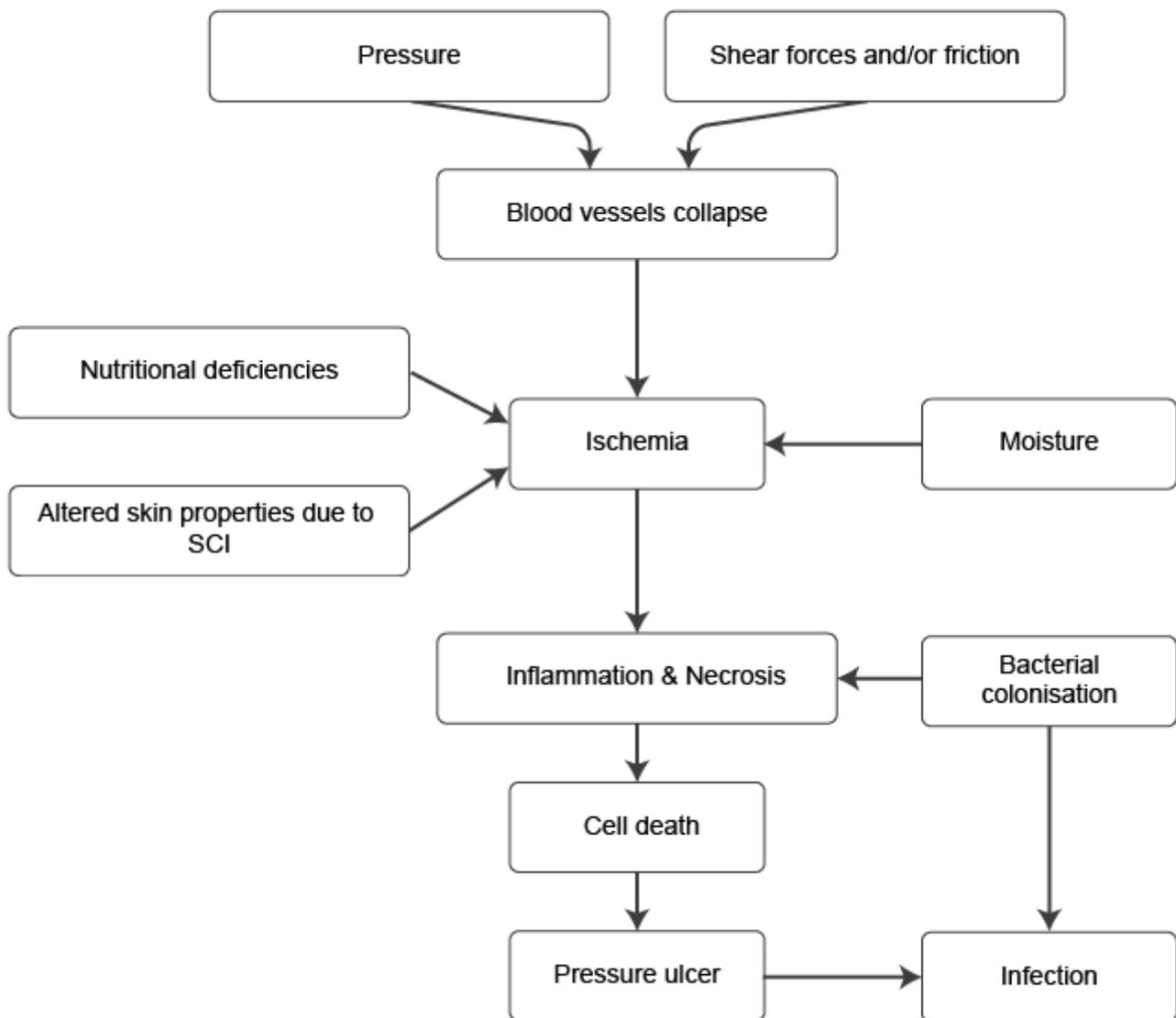
Most common sites for pressure ulcers are bony prominences such as the sacrum, ischial tuberosities, and heels/feet.

7-8% of those who develop pressure ulcers will die from related complications (e.g., sepsis, osteomyelitis) (Richards et al., 2004).



*Reproduced from Pressure Ulcers. Caring for Persons with Spinal Cord Injury - e-learning resource for family physicians. [eprimarycare.onf.org/PressureUlcers.html](http://eprimarycare.onf.org/PressureUlcers.html)*

# Pathophysiology



- Development of pressure ulcers is a multifactorial process
- Pressure ulcers are thought to be the result of inadequate tissue perfusion, impaired lymphatic function, and mechanical tissue destruction.

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## Signs and symptoms

Ulcers are often not recognised until the ulcer has significantly progressed or has become infected when pressure is of greater intensity and duration. Cell death happens quicker in muscle cells than skin cells so frequent skin checks are important to identify subtle underlying tissue changes.

Extra vigilance is required with patients with darker skin. The typical redness or other colour changes associated with pressure ulcers are less visible. Therefore, compare the area of skin alteration with an adjacent or opposite area of the body.

**When assessing the ulcer, the following should be observed:**

- **Anatomic location** and **stage** (see Pressure Ulcer >> Definition).

- **Size:** Length, width, depth in cms? Increasing or decreasing?
- **Undermining or tunnelling/sinus tracts:** Absent or present (check size with probe)?
- **Wound edges:** Attached or not attached? Maceration?
- **Peripheral tissue:** Colour changes? Oedema or induration? Cellulitis?
- **Odour:** Absent or present?
- **Exudate:** Colour, consistency, and amount?
- **Wound bed:** Granulation, hypergranulation, friable, necrotic tissue, avascular?
- **Pain:** Type, location, quantity (use a scale)?

## Causative factors

### *Risk factors for pressure ulcers*

### Demographics

- Advanced age
- Male gender
- Lower educational level
- Unemployed

### Physical

- Inability to feel pain
- Decreased level of activity
- Moisture (e.g., urinary and faecal incontinence)
- Friction and shear (e.g., spasticity, slides down chair/bed)
- Poor nutrition and/or hydration
- Muscle atrophy
- Low BP
- Increased co-morbidities
- Inappropriate equipment

### Psychological

- Depression/anxiety
- Cognitive impairment
- Substance abuse (inc. smoking)

## Management and recommendations

It is important to clarify the goals of care early on (i.e., healing, maintenance, palliation).

### *Prevention*

- Provide patient and family with information around early recognition and treatment
- Encourage daily skin checks, especially of Areas at Risk, to facilitate early detection
- Inform about the need for regular repositioning and optimal positioning. **Regular pressure relief is the most important prevention.** Shift weight in wheelchair every hour for 2 minutes and in bed every 2-4 hours

- Keep skin clean, dry, and supple
- Recommend skin barrier products if exposure to excessive moisture cannot be avoided
- Verify adequate transfer techniques and equipment
- Facilitate acquisition of adequate equipment and support surfaces (e.g., chair, bed, car) and regular seating/positioning assessment
- Promote smoking cessation
- Teach importance of good nutrition and hydration
- Instruct to keep head of bed less than 30 degrees unless contraindicated

### *Investigations*

- **If impaired healing capacity suspected:** Haemoglobin
- **If infection suspected:** FBC, inflammatory markers, culture and sensitivity of wound (ensure wound is well irrigated and culture sample is from deeper tissue)
- **If nutrition impairment suspected:** Body weight, albumin, transferrin.
- **If osteomyelitis suspected:** X-ray, bone scan, or MRI of adjacent bone
- **If chronic wound is not healing despite best practices:** Consider referral for a tissue biopsy to rule out the presence of an underlying malignancy (e.g., Marjolin ulcer)

### *General management*

- Implement strategies to mitigate or remove contributing factors
- **Regular pressure relief is the most important management**
- For grade 1 pressure ulcer - pressure relief including bed rest is the best way to manage these and prevent further deterioration
- Refer to local wound management clinic/wound specialist
- Ask patient to take regular photographs to monitor wound progression
- Cleanse with non-cytotoxic solution or wound cleanser (e.g., sterile water, normal saline) and avoid antiseptic agents (e.g., hydrogen peroxide, rubbing alcohol)
- For wounds with potential to heal, debride areas with devitalised tissue (except for heel pressure ulcers).
- For wounds with potential to heal, use wound dressing products that keep ulcer wound bed moist but surrounding skin dry (except for heel pressure ulcers).
- For heel pressure ulcers, advise patient not to wear shoes and no weight bearing, provide patient with pressure relieving heel protector if possible.
- Consider barrier creams such as cavlon or proshield barrier cream to protect vulnerable skin areas
- Consider emollients, moisturisers and soap substitutes for patients who have persistently dry skin, this is often required in hospitals, nursing homes (due dry humidity) or patients with thermoregulation dysfunction.
- Monitor wound healing every 2-4 weeks
- Change treatment if no response after 2-4 weeks or signs and symptoms of infection
- Surgical referral if stage 4 or deep stage 3 with tunnelling/sinus tracts
- Consider biophysical agents in conjunction with wound specialist (e.g., electrical stimulation, ultrasound, phototherapy, negative pressure wound therapy, hyperbaric oxygen)
- Consider biologic agents (e.g., skin substitute, extracellular matrix scaffolds, molecular and cellular regulators)
- Consider enhanced foods or oral supplements between meals if calorie/protein deficiency suspected.
- Consider vitamin and mineral supplements if deficiencies suspected (expert opinion). Daily multivitamin and Vitamin C (500mg BD). If the pressure ulcer is draining large amounts of exudation and/or the patient has poor nutritional intake, consider two to four weeks of 40mg of elemental zinc

daily (e.g., Zinc Sulphate 220mg). Adequate protein and hydration, unless contraindicated, are also necessary for wound healing.

### ***Follow-up***

- Preventative measures are key as there is a high rate of recurrence among patients with spinal cord injury (see Management and recommendations)
- Ask patient to bring photographs of wound, documentation from wound care nurse, and dressings to appointments
- Coordinate services and plan appointments on days dressings need changing
- Ask patient to keep a log of pressure ulcer history so healthcare team members can be informed and remain vigilant
- Provide patient with education ([LSCIC patient education pack](#))

### **References**

Consortium for Spinal Cord Medicine. (2000). Pressure Ulcer prevention and treatment following spinal cord injury: A clinical practice guideline for health-care professionals. Washington, DC: Paralyzed Veterans of America.

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