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# PRESSURE ULCER/INJURY RECURRENCE

## GUIDE FOR SELF-ASSESSMENT AND MANAGEMENT

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### Guide for self-assessment and management of pressure injuries/ulcers in individuals with spinal cord injury

This guide provides practical advice for individuals with spinal cord injury (SCI), their family members, caregivers, and healthcare providers on how to assess and manage pressure injuries/pressure ulcers.

It includes information on how to:

- Recognise early signs of pressure damage,
- Recognise early signs of infection or worsening,
- Use a mirror for skin checks.

The guide also includes considerations for people with dark skin tones and tips for managing incontinence. We also acknowledge the challenges faced by people with SCI, such as limited access to specialised care and the impact of mental health and geographic barriers. These factors can influence how pressure injuries/pressure ulcers are managed and prevented.

### Understanding the risk of pressure injuries/pressure ulcers in people living with SCI

People living with SCI are more likely to develop pressure injuries/pressure ulcers because they may not be able to feel pain or discomfort when pressure builds up on certain areas of the body. Without this feeling, they may not know that skin is being damaged, especially if they are unable to move themselves often. The risk increases if a person has additional issues, such as bladder or bowel control problems, which can lead to excess moisture on the skin. Since they may not be able to sense or respond to this discomfort, the prolonged exposure can further contribute to skin breakdown<sup>6,7</sup>.

When assessing pressure ulcer risk, it is important to prioritise pressure over time as a key factor, while recognising that other contributing factors, such as moisture or shear, may amplify or "dampen down" the overall impact. Both high pressure over a short period (e.g., prolonged sitting on a hard surface without movement) and moderate to low pressure over an extended period (e.g., lying in one position for hours) can lead to skin breakdown. Understanding this balance helps in tailoring prevention strategies, ensuring that pressure relief remains the primary focus while managing additional risks like moisture, shear and friction.

### Key risk factors<sup>1,6</sup>

- **Loss of sensation:** SCI often causes a loss of feeling in the body below the injury. This means you may not feel when pressure is building up, making it harder to detect the early signs of damage.

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- **Immobility:** If you cannot move or change positions regularly, pressure stays on certain parts of your body for longer periods. This is especially true for high-risk areas such as the lower back (including the lower buttocks, ischium, and sacrum), heels, hips, and elbows.
- **Incontinence:** Bladder and bowel control may be affected after an SCI, which means moisture can build up in areas like the buttocks or groin. This increases the risk of skin breakdown.
- **Poor circulation:** SCI can affect blood flow, especially to the legs and feet. Without good circulation, the skin has a harder time healing when damaged, and pressure injuries/pressure ulcers can worsen quickly<sup>3</sup>.
- **Pain:** This is a crucial factor in assessing the risk of pressure ulcer development and progression (Vierck 2020). Pain at specific body locations, especially over bony prominences, can serve as a warning sign of tissue damage before visible skin changes occur. However, pain assessment in individuals with SCI presents unique challenges. More than 80% of individuals with SCI experience chronic pain, which may not always be directly related to pressure-induced tissue damage. In cases of complete SCI, the disruption of normal sensory transmission can result in neuropathic pain, where the brain misinterprets signals from the affected areas. Despite these complexities, pain remains an essential aspect of PI risk assessment for both patients and caregivers.
- Structural changes in the skin and underlying tissues after SCI—such as increased intramuscular fat, altered collagen synthesis, muscle atrophy, and bone deformities—reduce the body's ability to withstand mechanical stress, significantly increasing the risk of pressure injuries.

### 1. How pressure injuries/pressure ulcers develop: Timelines and progression from early signs to tissue damage under the skin



Pressure injuries/pressure ulcers can develop quickly, but the exact timing can vary based on individual health factors like circulation, nutrition, comorbidities, age, and mobility. The development of a pressure ulcer depends on how long pressure is applied to the skin and the person's specific health situation. Some people may develop ulcers faster or slower than others<sup>4</sup>. If untreated, ulcers can worsen and lead to severe tissue damage or infection.



### Pressure ulcer stages and their development

- **Category 1 (early signs)**
  - **Signs:** The skin looks red, irritated, or discoloured and may feel warmer than the surrounding skin. It might also be tender when touched.
  - **Time to develop:** This can happen quickly, even within 30 minutes of sustained pressure on the skin.
  - **What to do:** If you see redness, relieve the pressure immediately by changing positions. If the redness or discolouration doesn't go away within a few minutes, it is important to see a healthcare professional.
- **Category 2 (partial-thickness loss)**
  - **Signs:** The skin may develop blisters or small open sores. The tissue under the skin is now exposed — this could include structures such as bone or cartilage in areas with little or no subcutaneous fat.
  - **Time to develop:** Usually after 2-3 days of sustained pressure.
  - **What to do:** Seek help from a healthcare provider right away. Stage 2 pressure injuries/pressure ulcers can worsen quickly, so getting treatment early is crucial<sup>5</sup>.
- **Category 3 (full-thickness skin loss)**
  - **Signs:** The PU gets deeper, exposing fat tissue underneath the skin. It may be painful, and the edges of the wound may start to break down. The tissue under the skin is now exposed — this could include structures such as bone or cartilage in areas with little or no subcutaneous fat.
  - **Time to develop:** Patient dependent; but mostly between a few hours and a few days or more if untreated.
  - **What to do:** Specialised wound care is needed at this stage, and treatment may include cleansing the wound or possibly more intensive medical care.
- **Category 4 (full-thickness tissue loss)**
  - **Signs:** There is severe tissue loss, exposing muscle or bone. The risk of infection is high at this stage.

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- **Time to develop:** Patient dependent; but mostly between a few hours and a few days or more if left untreated.
- **What to do:** This is an emergency requiring immediate medical attention. Intensive, highly specialised treatment may be necessary, including surgery or interventions to manage infection and promote wound healing<sup>2</sup>.

## 2. Self-assessment for pressure injuries/pressure ulcers in SCI: key areas to focus on

### Using pain as a crucial indicator

- **Pain mapping:** In individuals with SCI, pain perception can be altered or even absent below the level of injury, making the early detection of pressure-related issues more challenging. However, for those who do experience pain, documenting its location and characteristics is essential for distinguishing between different types of pain and identifying potential early signs of tissue damage. For SCI patients with reduced or no sensation, caregivers play a critical role in monitoring for subtle signs of distress, such as involuntary muscle spasms, sweating, or changes in posture, which may indicate underlying discomfort or pressure buildup.
- **Frequent positioning checks:** Even when pain is not felt due to sensory loss, caregivers should routinely inspect high-risk areas for redness, discolouration, swelling, or temperature changes, which may indicate tissue breakdown.
- **Patient-reported pain trends:** If a patient reports worsening pain in an area subjected to prolonged pressure, this should trigger an immediate assessment for early-stage pressure injury/pressure ulcer development.
- **Pressure redistribution strategies:** The use of pressure-relieving cushions and mattresses, and frequent repositioning should be prioritised for individuals who experience localised discomfort.
- **Early identification:** Even if a patient has reduced or altered sensation, caregivers should pay attention to any reports of discomfort, as this may indicate tissue stress.



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- **Regular (at least once a day, and preferably during each repositioning) skin inspections:** Patients should conduct self-checks using mirrors, or caregivers should inspect areas that are difficult for the patient to see.
- **Optimising mobility:** Patients should be encouraged to frequently shift positions, even if movement is minimal, to relieve prolonged pressure on vulnerable areas. Incorporating micro-shifting, repositioning, and body lifts can significantly reduce pressure buildup. Small postural adjustments, such as tilting, leaning, or slightly shifting weight every few minutes, help redistribute pressure, while body lifts (for those with upper body strength) can provide even greater relief by momentarily offloading pressure points.
- **Managing neuropathic pain:** While neuropathic pain does not always indicate pressure injury/pressure ulcer development, its management (e.g., through medications, physiotherapy, or electrical stimulation therapy) can improve overall comfort and reduce secondary risk factors.
- **Education on pain and pressure injury/pressure ulcer risk:** Carers should receive training on differentiating pain types and responding appropriately, ensuring timely interventions.
- **Multidisciplinary approach:** Collaboration with healthcare professionals, including physiotherapists, wound care specialists, and pain management teams, can optimise strategies for both pain relief and pressure injury/pressure ulcer prevention.

Pain assessment, despite its complexities in individuals with SCI, remains a valuable component of pressure injury/pressure ulcer risk management. By incorporating pain mapping, proactive positioning, and comprehensive education, both patients and caregivers can play an active role in reducing the risk of pressure injuries/pressure ulcers and improving overall quality of life.

Because people with SCI may not feel pain or discomfort, regular self-assessment is very important to spot early signs of pressure injuries/pressure ulcers. If you are unable to inspect your skin yourself, ask a caregiver or family member to help you check hard-to-reach areas. It is also helpful to use tools like mirrors or cameras to inspect areas you cannot see directly<sup>6</sup>.

### High-risk areas for pressure injuries/pressure ulcers

- Common pressure ulcer locations vary depending on the position most frequently maintained by the SCI patient. Common areas include the sacrum (lower back), heels, hips, elbows, buttocks, shoulders, and the back of the

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head. In wheelchair users, additional high-risk areas include the outer side or lateral surface of the knee and lower extremities, particularly due to poor wheelchair positioning.



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- Other areas to check include toes, ears, and skin folds, especially in larger individuals. These areas can develop ulcers if moisture or friction builds up<sup>5</sup>.

### Effective self-assessment steps

1. **Use a mirror for inspection:** A long-handled mirror can help you check areas like the sacrum and heels when lying down. If you cannot reach these spots, use a smartphone or digital camera to take pictures for later inspection.
  - **What to look for:** Redness, swelling, blisters, abrasion, or changes in skin texture. If you have darker skin, look for darker, purplish, or ashen areas instead of redness.
2. **Use photography:** Taking photographs can help you track the progress of any damage over time. Use a body map to record where damage is located. Make sure the background is clear and include something for scale, like a ruler<sup>6</sup>.
3. **Temperature check:** Use the back of your hand to gently feel for warmer areas on the skin. This can indicate early pressure damage, even before visible signs appear.
4. **Pain or tenderness:** Ask yourself if any area feels uncomfortable, especially when moving or changing positions. Even if you cannot feel pain, this is a good way to check for developing issues.
5. **Drainage or odour:** If you have a wound or ulcer, check for signs of infection like yellow or green discharge or a foul smell. These could be signs that medical attention is needed<sup>7</sup>.
6. **Considerations for individuals with dark skin tones:** For individuals with dark skin, early signs of pressure injuries/pressure ulcers may be less visible, as redness can be harder to detect. Therefore, it is essential to look for changes in skin colour, texture, or temperature to identify potential tissue damage early. Monitoring areas of increased firmness, swelling, or warmth can help in the early detection and prevention of pressure injuries/pressure ulcers<sup>6</sup>.

### Visual signs to look for

- Darker areas of skin that might appear purple, blue, or brown instead of red.

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- Skin that looks shiny, feels tight, or is indented.
- Changes in skin texture, such as areas that feel firmer or softer than the surrounding skin.

### Additional tips

- Reposition regularly, even if there are no visible signs of damage.
- Feel warmth or swelling in key areas like your back, heels, and elbows.
- Use a mirror or ask someone to help you check hard-to-see areas.

### 3. Continence management for pressure ulcer prevention



Incontinence (difficulty controlling urination or bowel movements) is a significant factor that can increase the risk of pressure injuries/pressure ulcers. When moisture builds up on the skin, it can weaken the skin and make it more prone to damage. Managing continence well can reduce the risk of skin breakdown<sup>7</sup>.

#### Continence management tips

1. **Change incontinence products regularly:** Change pads or briefs every 2-3 hours to keep the skin dry and prevent moisture buildup. Use superabsorbent products that wick moisture away from the skin.
2. **Use barrier creams:** Apply a moisture barrier leave-on product to protect the skin from urine or stool. This acts as a shield, preventing skin breakdown.
3. **Clean and dry the skin:** Always clean your skin thoroughly with mild soap and water after an incontinence episode, and make sure to dry the skin completely before applying any products.



### 4. Signs of infection and worsening ulcers

Infections can make pressure injuries/pressure ulcers worse and cause serious health problems if not treated quickly. Because SCI often leads to reduced feeling in the body, you may not notice an infection until it's more severe<sup>4</sup>.

#### Signs of infection:

- **Local signs:** Increased redness or discolouration, warmth, swelling, or foul-smelling discharge from the wound.
- **Systemic signs (infection spreading to the body):** Fever, chills, increased spasticity, rapid heart rate, or confusion (cognitive changes) and nausea and feeling of discomfort.

#### When to seek medical help:

- **Early signs of infection:** If you notice increased pain, swelling, or discharge, seek medical advice immediately.
- **Worsening condition:** If the ulcer isn't improving or starts to get worse, or if you develop signs like fever or confusion, seek immediate medical attention<sup>3</sup>.

### 5. Conclusion and final thoughts

Managing pressure injuries/pressure ulcers is crucial for individuals with SCI, and early intervention is key. Regular self-assessment, including using mirrors and checking skin temperature, can help you catch early signs of damage. Working closely with caregivers, healthcare providers, and using adaptive technology like pressure-redistributing cushions can further reduce the risk of developing pressure injuries/pressure ulcers<sup>6,7</sup>.

Remember, pressure injuries/pressure ulcers are mostly preventable. By staying vigilant and proactive, you can protect your skin, avoid complications, and maintain a better quality of life.

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