

PRESSURE ULCER/INJURY RECURRENCE

CLINICAL PATHWAY - PRESSURE ULCER/INJURY PREVENTION IN TRANSITION FROM HOSPITAL TO HOME AND LONG-TERM CARE



PREVENTION OF PU/PI IN TRANSITION FROM HOSPITAL TO HOME OR LONG-TERM CARE



IMPLEMENT KEY PU/PI PREVENTION STRATEGIES

Beginning in the acute phase, and continue through rehabilitation and continue in community or long-term care environment.

- Observe and manage skin, moisture and incontinence.
- Check surfaces, medical devices and equipment.
- Focus on positioning, repositioning, safe transfers and pressure relief.
- Focus on nutrition and fluid intake.
- Educate individuals with SCI, their relatives and caregivers in PU/PI prevention.



HOSPITAL - ACUTE IN-PATIENT CARE

- Implement PU/PI prevention measures immediately after the SCI before admission to hospital, and maintain them throughout hospitalisation, including during examinations, care and treatment.
- Prioritise PU/PI prevention as PU/PI in the acute phase can delay rehabilitation and increase the risk of PU/PI recurrence.

TRANSFER FROM HOSPITAL TO REHABILITATION

Early transfer to specialised SCI rehabilitation facility reduces the risk of recurrent PU/PI.

REHABILITATION PHASE

- Implement PU/PI prevention measures.
- A multidisciplinary approach involving SCI-specialised team is recommended.
- Educate people with SCI and their relatives in PU/PI prevention strategies.

TRANSFER FROM REHABILITATION TO COMMUNITY OR LONG TERM CARE

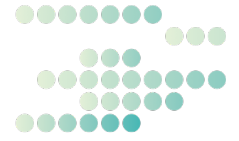
- Thorough planning of the transition is essential.
- Lifelong follow-up services, either in-person or via telemedicine, are recommended.

COMMUNITY – LONG-TERM CARE

- Comprehensive discharge planning from hospital or rehabilitation centre is crucial for PU/PI prevention.
- Implement PU/PI prevention measures.
- Ensure necessary accommodation, home modifications and timely access to required assistive devices.
- Establish follow-up services with access to multidisciplinary SCI-specialised team.
- Contact SCI-specialised healthcare professionals if local management is insufficient, complications arise or specialised support is needed.

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HOSPITAL: ACUTE IN-PATIENT CARE

PU/PI prevention must begin immediately after the SCI, even before hospital admission, and continue throughout hospitalisation during all examinations, care and treatment. Early implementation of PU/PI prevention is essential, as up to one third of individuals develop a PU/PI during the acute or rehabilitation phases. This delays rehabilitation and increases the risk of future recurrence. An early transfer to a specialised SCI unit is vital, as research shows a clear link between the timing of transfer and the occurrence of PU/PI. Individuals who are transferred early to a specialised unit experience fewer and less severe PU/PI compared to those transferred later.

REHABILITATION PHASE: REHABILITATION FACILITY

An interdisciplinary approach involving SCI-specialised teams, including physiotherapists, occupational therapists and physicians with SCI training, wound care clinicians, nurses, psychologist, social worker and dietitian, is essential for effective rehabilitation and PU/PI prevention.

Research highlights the benefits of integrated, specialised care for individuals with spinal cord injuries (SCI). Centres with experienced inter professional teams comprising physicians, nurses, therapists, dietitians, psychologists and social workers - consistently achieve better outcomes than general hospitals. These teams provide specialised rehabilitation, manage complications, offer psychological support and educate patients and caregivers. By developing personalised care plans, they help patients achieve functional gains more quickly and reduce the risk of complications such as pressure ulcers. Delays in accessing specialised care can increase the risk of future complications. Early intervention by SCI-specialised teams is therefore essential for improving recovery and long-term quality of life.

Education on skin integrity, self-care strategies and pressure relief techniques should be an integral part of rehabilitation programs. Community outings-activities or trips

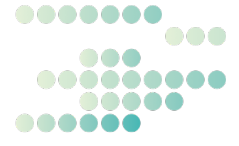
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outside the rehabilitation centre, such as shopping, attending social events or visiting public places or engaging in leisure activities – offer individuals with SCI and their families practical opportunities to apply prevention strategies in everyday life.

A well-structured transition from hospital or rehabilitation centre to home care or long-term care is vital for maintaining continuity in preventive effort, including preparing necessary equipment and appropriate accommodation. During rehabilitation, individuals with spinal cord injury (SCI) are in environments adapted for reduced mobility and wheelchair use, including accessible facilities and safe transfer options. At home, similar adjustments are needed, such as:



- Access modifications: Ramps or stair lifts for safe entry and exit.
- Bathroom adaptations: Raised toilet seats, grab bars, and shower chairs to prevent PU/PI.
- Mobility aids: A customised wheelchair for daily activities and pressure relief.
- Safe transfers: Ceiling or mobile lifts to reduce shear forces.
- Home adjustments: Rearranging furniture for ease of movement and safety.

These adaptations help maintain PU/PI prevention strategies and support the individual's independence and quality of life.

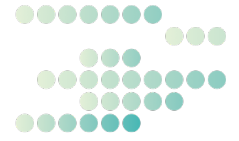
COMMUNITY: HOME CARE OR LONG-TERM CARE

Lifelong follow-up services are recommended to monitor risk factors and facilitate early intervention. These services provide individuals with SCI and their caregivers the opportunity to consult or involve SCI-specialised teams, either in-person or via telemedicine. Follow-up care can be scheduled as regular outpatient visits at the specialist unit, while also allowing individuals with SCI and their caregivers to contact SCI-specialised teams as needed.

There is a need for prompt assessment and management at the first sign of PU/PI development to prevent progression and complications. Immediate contact with SCI-specialised healthcare professionals should be established if local expertise within the municipality is insufficient to manage the condition or if the municipal healthcare staff feel they require specialist support and guidance. Prompt assessment and management can prevent the progression of minor skin issues into severe injuries, reducing the risk of complications and improving long-term outcomes. Early intervention enables timely adjustments to care plans, positioning, transfers, pressure relief strategies and other relevant interventions.

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KEY PU/PI PREVENTION STRATEGIES FROM IN-HOSPITAL CARE, REHABILITATION TO HOME OR LONG-TERM CARE

Systematic PU/PI prevention measures should be combined with individual prevention plans based on risk assessment, skin observations and clinical judgement. Where possible, involve patient and relatives in the plans. Preventive measures include frequent repositioning, appropriate support surfaces, skin assessments and patient and caregiver education on PU/PI risks.

A holistic approach and interdisciplinary teams must ensure that all healthcare activities and interventions minimise pressure-related damage from activities of daily living, exercise, care and treatment and transitions during the day. PU/PI prevention is a life-long responsibility, starting from the acute phase and continuing through rehabilitation, home care or long-term care after a SCI. A comprehensive, multifaceted approach is required.

The following key preventive measures are essential and further detailed below:

1. Observation and management of skin, moisture and incontinence.
2. Surfaces, medical devices and equipment.
3. Positioning and repositioning, transfers and pressure relief
4. Focus on nutrition and fluid intake.
5. Education of individuals with SCI, their relatives and caregivers.

1. Observation and management of skin, moisture and incontinence

Skin care and skin check

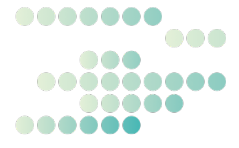
- Perform proper skin care to support tissue viability: Maintain gentle hygiene and apply appropriate skin care products to promote skin health.
- Avoid rubbing and scrubbing the skin and allow the skin dry completely before covering it.
- Inspect the skin and soft tissue systematically for any signs of PU/PI such as redness/discoloration, texture changes or temperature differences.
- Pay special attention to high-risk areas (e.g. bony prominences and under medical devices).

Frequency of skin checks

- The frequency of skin checks should depend on the phase and condition of the individual with SCI, as well as observations of the skin:

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- Check the skin at every repositioning during in-hospital care in the acute phase and at any signs of pressure on the skin.
- Conduct skin checks at least once a day, but preferable twice daily, during rehabilitation.
- Perform skin checks at least one a day at home care or long-term care settings.
- Increase the frequency of skin checks in the following situations:
 - If the individual's condition deteriorates.
 - When introducing new surfaces, medical devices or equipment, including training devices.
 - At the first sign of skin breakdown or any indication of PU/PI.
- Consider involving staff specialised in tissue viability and the prevention and treatment of PU/PI for additional support.

Manage moisture and incontinence

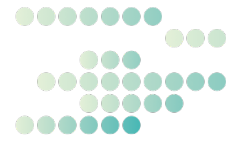
- Implement strategies to manage moisture and incontinence, as excessive moisture can compromise skin integrity.
- Manage incontinence by using high-quality absorbent products and barrier creams to protect the skin.
- Minimise the use of non-breathable materials, such as standard diapers, which can create a humid microclimate.
- Consider involving staff specialised in continence management for additional support.

2. Surfaces, medical devices and equipment

- Optimise all support surfaces, including wheelchair cushions, toilet seats, shower chairs, armchairs, beds, car seats, sports equipment and more.
- Check the quality and functionality of support surfaces daily and replace outdated and defective equipment.
- Optimise support surfaces in all situations:
 - During in-hospital care, including transportation, diagnostics procedures, surgery and general care.
 - During rehabilitation, including training activities, community outings* and all activities of daily living.
- In home care or long-term care environments, covering activities of daily living, transportation, travel, work and sports activities.

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- Consider the influence of clothing, footwear and other fabrics on pressure distribution.
- Avoid clothing with thick seams or back pockets that could increase pressure on certain areas.
- Recommend wearing footwear that is at least one size larger to accommodate for swelling and reduce pressure.

* Community outings refer to activities or trips outside the home, such as shopping, attending social events or visiting public places.

Minimise risk of PU/PI from medical devices and equipment

- Use medical devices such as spine boards, scoop boards/combi boards and rigid neck collars only when necessary and reduce immobilisation as soon as it is safe to do so.
- Regularly inspect the skin beneath equipment and medical devices and promptly remove any unnecessary equipment.
- Reposition medical devices and equipment when possible and remove them once they are no longer required.
- Ensure equipment and medical devices are properly adjusted to prevent excessive tightness, shear and pressure.
- Consider applying protective bandages or a prophylactic dressing under medical devices to minimise skin damage.
- Consider involving staff with expertise in seating and positioning to optimise patient comfort and pressure relief.

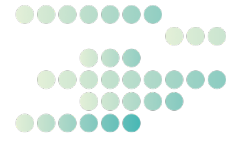
3. Positioning, pressure relief and transfers

Positioning and repositioning

- Ensure systematic repositioning of individuals with SCI, based on observations of the skin.
- Use micro-movements to relieve pressure if the patient is critically ill or immobilised due to unstable conditions.
- In the seated position, ensure optimal balance between pressure distribution and a stable seated posture, allowing the individual to participate in desired daily activities while avoiding shear and friction.
- In the lying position, ensure effective offloading of bony prominences and optimal pressure redistribution. Recommended strategies include a 30-degree side-lying position and keeping the heels elevated.

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- Keep the bed as flat as possible. Unless medically required, avoid sitting in bed with the head of the bed elevated more than 30 degrees to minimise shear stress on the sacrum. If head elevation is necessary, elevate the legs simultaneously and support the individual in semi-Fowler's position. Instead of prolonged bed elevation, mobilise to a stable position in an appropriate wheelchair or armchair.
- Conduct an activity and sitting assessment every two years, or sooner if the individual's condition or life situation changes.
- Consider involving staff with expertise in seating, as well as professionals specialising in PU/PI prevention through repositioning and transfers.

Pressure relief

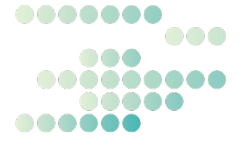
- In case of any signs of pressure, increase the frequency of repositioning and offload the affected areas.
- Develop individualised, effective pressure-relieving and offloading routines for individuals with SCI based on skin observations:
 - In the acute phase, use high-quality pressure-relieving surfaces and ensure correct positioning and frequent repositioning.
 - During rehabilitation, educate the individual with SCI on suitable pressure-relieving techniques and manoeuvres.
 - In home care or long-term care environments, implement, monitor and regularly evaluate pressure relief routines manoeuvres.
- Assess and evaluate pressure-relieving routines and manoeuvres regularly to ensure they remain effective and appropriate for the individual's condition.
- If bedrest is recommended for pressure relief or offloading, ensure that staff and individuals with SCI understand that this does not include sitting in bed.
- Any recommendation of bedrest to promote healing of an existing PU/PI must be balanced with the individual's physical and emotional well-being.
- Consider involving staff with specialist expertise in seating assessment and/or staff experiences in PU/PI prevention through effective repositioning and transfers.
- Involve staff specialised in tissue viability and the prevention and treatment of PU/PI, particularly in complex cases.

Transfers

- Avoid shear and friction during transfers and repositioning by using sliding sheets and techniques specifically designed to minimise these risks.

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- Use appropriate equipment designed for moving and handling, ensuring it is not left under the individual during sitting or lying unless the equipment is intended for that purpose.
- Include the assessment and evaluation of transfer routines in the regularly performed activity and seating assessments.
- Consider involving seating specialised staff and/or staff specialised in PU/PI preventing repositioning and transfers.

4. Nutrition and fluid

- Ensure adequate nutrition and fluid intake during the acute phase, rehabilitation and in home care or long-term care settings, based on an individual assessment.
- Optimise food and fluid intake according to the individual's needs, keeping in mind that both BMI and energy requirements are typically reduced after the SCI compared to pre-injury levels.
- Conduct blood tests as appropriate to monitor nutritional status and deficiencies.
- Consider involving a dietitian for nutritional optimisation. If eating or swallowing difficulties are present, involve an occupational therapist for support.

5. Education in PU/PI prevention

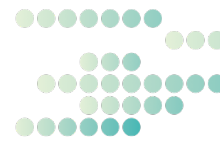
- Educate healthcare professionals on PU/PI prevention, ensuring they fully understand PU/PI formation as the foundation for effective prevention. Emphasise the unique risk factors associated with SCI, such as structural skin and tissue changes, altered blood supply and impaired oxygenation.
- Provide ongoing, tailored education on PU/PI prevention for individuals with SCI and their relatives and caregivers, ensuring it is appropriate to their condition, comprehension level and readiness to engage.
- Use diverse teaching methods and materials to accommodate varying learning styles and knowledge levels, such as short instruction videos or infographics.
- Education programmes should as minimum cover the following topics:
 - Observations and management of skin, moisture and incontinence.
 - Surfaces, medical devices and equipment.

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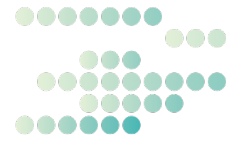


- Positioning and repositioning, transfers and pressure relief.
- Nutrition and fluid management.



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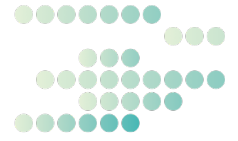


References

- Annual Statistical Report for the Spinal Cord Injury Model Systems. Report. Birmingham, Alabama: NSCISC National Spinal Cord Injury Statistical Center; 2023.
- Chabra HS. ISCoS textbook on comprehensive management of spinal cord injuries: Wolters kluwer india Pvt Ltd; 2015.
- Consortium for Spinal Cord Medicine Clinical Practice Guidelines. Pressure ulcer prevention and treatment following spinal cord injury: a clinical practice guideline for health-care professionals. *J Spinal Cord Med* 2001;24(Suppl 1):S40–101.
- National Pressure Injury Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Pressure Ulcers/Injuries: Definition and Etiology. In: Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. The International Guideline: Fourth Edition. Emily Haesler (Ed.). 2025. [cited: 15/6/2025]. Available from: <https://internationalguideline.com>
- Fletcher J, Beeckman D, Boyles A et al (2020) International Best Practice Recommendations: Prevention and management of moisture-associated skin damage (MASD). *Wounds International*. Available online at www.woundsinternational.com
- Gefen A, Brienza DM, Cuddigan J, Haesler E, Kottner J. Our contemporary understanding of the aetiology of pressure ulcers/pressure injuries. *International wound journal*. 2022;19(3):692-704.
- Gefen A. Tissue changes in patients following spinal cord injury and implications for wheelchair cushions and tissue loading: a literature review. *Ostomy/wound management*. 2014;60(2):34-45.
- Houghton PE, Campbell K. Canadian best practice guidelines for the prevention and management of pressure ulcers in people with Spinal Cord Injury: a resource handbook for clinicians. Canada: Ontario Neurotrauma Foundation; 2013.
- Krishnan S, Nash F, Baker N, Fowler D, Rayman G. Reduction in diabetic amputations over 11 years in a defined UK population: benefits of multidisciplinary team work and continuous prospective audit. *Diabetes Care* 2008;31:99–101.
- Medicine CfSC. Pressure Ulcer Prevention and Treatment Following Spinal Cord Injury: A Clinical Practice Guideline for Health-Care Professionals.

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Second edition ed. Consortium, for, Spinal, Cord, Medicine, editors:
Consortium for Spinal Cord Medicine; 2014.

- Shiferaw WS, Akalu TY, Mulugeta H, Aynalem YA. The global burden of pressure ulcers among patients with spinal cord injury: a systematic review and meta-analysis. *BMC Musculoskeletal Disorders*. 2020;21(1):334.
- Soegaard K, Sollie M, Beeckman D, Biering-Sørensen F, Ahm-Sørensen J. Interventions, stakeholders, and organization related to pressure ulcer prevention for individuals with spinal cord injuries in transition from hospital to home-A scoping review. *Journal of tissue viability*. 2023.
- Soegaard, K., Beeckman, D., Verhaeghe, S., Biering-Sørensen, F., & Sørensen, J. A. (2024). Development of a clinical practice guideline on pressure ulcers in people with spinal cord injuries inspired by the ADAPTE method. *Spinal Cord*, 1-9.