

Pressure Injury Prevention

for Patients with Spinal Cord Injury while in Hospital

[Pressure injury prevention \(PIP\)](#) for all patients in hospital is a priority for Alberta Health Services. PIP is an Accreditation Canada required organizational practice.

AHS has adopted the following acronym for PIP: **SSKIN+**

SSKIN+ is a bundle of multiple actions/interventions that work together to help prevent pressure injuries.



SSKIN+ was adapted for AHS and Covenant Health based on the successful Stop the Pressure program implemented in the United Kingdom within the National Health System. Pressure injury prevention (PIP) bundles are recommended as best practice for implementation of PIP in health care systems by the National Pressure Injury Advisory Panel and European Pressure Ulcer Advisory Panel.

[What is SSKIN+ Poster](#)

Patients with Spinal Cord Injury (SCI) are at higher risk for the development and poor healing of pressure injuries (PI) for the following reasons:

- The neurological impairment that accompanies SCI impairs the ability to sense pressure on tissues and to self-reposition (offload or redistribute pressure) or move their own body to manage that pressure.
- When persons with SCI use manual weight shifting or offloading methods, the tissues don't reperfuse (return of blood flow) as well as in persons who do not have SCI.
- Almost immediately after an SCI occurs, there are physiological changes that increase the risk for pressure injury, as well as impair the healing process of the skin, including:
 - Altered inflammatory response and changes to the immune response
 - Changes that decrease the inflammatory phase of tissue healing and reduce oxygen levels (in the skin and tissues)
 - Altered collagen formation so that skin becomes thick, dense, and less elastic
- Persons with SCI have decreased blood flow to the skin below the level of the injury, which may be due to the loss of autonomic regulation
- People with SCI often experience bowel and bladder neurological dysfunction. This may result in incontinence, which increases the skin's exposure to moisture and impairs the skin's ability to tolerate pressure
- The risk of developing a PI is always present for individuals following a SCI which also impacts their activities of daily living.

The **SSKIN+** acronym is used to organize the actions and interventions needed to prevent pressure injuries for all persons at risk. There is a pressure injury prevention care plan in the wound care and prevention Clinical Care Topic (CCT). The sections below highlight some of the interventions that are especially important for persons with SCI due to their life long increased risk of PI.



Skin inspection daily for signs of breakdown. Inspect for redness, moisture-associated skin damage, tears and open areas. Include skin folds.

In addition to the skin inspection considerations for all people at risk of PI, consider the following for persons with SCI:

- It is important that persons with SCI, their families, loved ones, and caregivers are encouraged to perform their own daily skin inspections, whether at home, at an alternate living facility, or in hospital. It is helpful to save a photo record of recent skin inspections on a smart phone, for example. A photo record of skin inspections, or more specifically of skin breakdown or healing, will assist with knowing the “baseline” status so there is something to compare changes to. It is difficult to determine progress (positive or negative) if the skin has only seen it once or twice.
- Skin inspections should be completed as part of the daily routine, and also after changing positions or locations. For example, when the person with a SCI transfers back to bed from their wheelchair, it is important to inspect for any redness to determine whether the wheelchair and seating components are managing pressure effectively, or if seated offloading /pressure redistribution was sufficient. If there is redness at this time, it is important to check the wheelchair for fit and the cushion and backrest for function, and to contact an occupational therapist to address any concerns. Continue to reassess and monitor area of redness and apply barrier creams to protect the skin.
- The wheelchair is not the only surface used by patients with SCI's. If a reddened/non-blanchable areas appear on the skin, problem-solving for the cause should be done (e.g. commode chair, bed, use of slings or transfer boards, transportation, leisure/sports equipment etc.)



Is patient on the correct **support surface** (mattress, seating cushion)?

In addition to the support surface considerations for all people at risk of PI, consider the following for persons with SCI:

- Mattress selection is very important for persons with SCI. Use the [WOCN Support Surface Selection Algorithm](#) or a unit- or site-specific selection tool to help choose the correct mattress for the person with SCI. Most selection tools use the Braden score and

consider whether the person already has a PI in order to help choose a mattress. Because persons with a SCI are at higher risk of PI, the SCI itself should be considered as independent risk even if the Braden score is high and the person does not have any pressure injuries.

- Generally, persons with a SCI will require a higher-functioning mattress (for example, low air loss or alternating pressure) than the standard foam hospital mattresses.
- When in hospital, the person with a SCI may have increased risk of pressure, moisture and heat management needs. The selection of mattress, wheelchair, and wheelchair seating components (such as cushion and backrest) should not solely rely on the person's report of what they use or sleep on at home. If appropriate, the patient's own wheelchair and cushion should be brought into hospital as this has been specifically set up for them.
- Avoid seating persons with a SCI in a hospital cardiac, geriatric chair or standard wheelchair without discussing other seating options or adaptations with an occupational therapist or physiotherapist. Most of these types of chairs have insufficient pressure redistribution support and are not fit to the body, which can put the person with SCI at increased risk of a PI.
- Many hospital commode chairs are not padded and can cause significant pressure on bony prominences. A padded commode chair should be utilized for patients with a SCI during bowel care (as they are often sitting for a significant amount of time).
- When seated, the person with a SCI should only use their prescribed wheelchair cushion, and ensure that the cushion is in good repair (inflated correctly, intact, clean) and orientated in the right direction.
- Regardless of the support surface, the person will still require manual repositioning (either independently or with help) to offload or redistribute pressure. This needs to be done at the recommended frequency and duration on a consistent basis as part of their daily routine whether up in the chair or while in bed.



Keep moving. Assist patient to mobilize. Reposition at least every two hours to offload and redistribute pressure over the bony prominences. Protect from **devices** that may apply pressure to skin and mucosal membranes (e.g. IV tubing, oxygen tubing, catheter, splints, etc.)

In addition to the pressure, friction and shear management considerations for all people at risk of PI, consider the following for persons with SCI:

- When in hospital, the person with a SCI may have increased pressure, moisture and heat management needs due to being acutely ill, and a patient-centered repositioning schedule should be created with the patient and family, considering the following: patient concerns: home schedule, ability to self-offload/redistribute pressure, combining with other care, level of risk, and effectiveness (developing redness). A general

recommendation for repositioning schedules while in BED is every 2-4 hours. If pain is a concern with repositioning/turning, provide pain medication if applicable prior to turning to promote comfort and compliance with turning/repositioning. The use of a timer may enable patients, caregiver and families to be consistent with offloading.

- Repositioning in a hospital bed with a 30-degree side-tilt helps to offload the sacrum, which is at high risk of PI.
- It is also important for persons with a SCI, when sitting in a WHEELCHAIR, to offload every 15 to 30 minutes, by tilting their tilt-in-space wheelchair as far back as it will tilt, or by using manual self-offloading (weight shifting) methods such as forward- or side-leaning, and leg crossing.
 - In a manual tilt chair, the tilting is done by caregivers and if the patient is unable to get out of this position, bringing their chair back to the upright position also needs to be part of this routine.
 - In a chair with power tilt, the patient can be independent but should be monitored/cued to use the full tilt range of the chair.
- Consult an occupational therapist or physiotherapist for concerns regarding the ability of the person with SCI to self-offload or redistribute pressure in the wheelchair. The use of a timer may enable patients, caregiver and families to be consistent with offloading or redistributing pressure.
- Many persons with SCI use indwelling urinary catheters – ensure the catheter is secured to the thigh with a securement device to prevent a device-related pressure injury to the meatus of the urethra
- Other device-related pressure injuries can be caused by:
 - Sitting/lying on medical devices such as catheters or non-medical devices (e.g. phone, remote controls, pens, wheelchair seatbelts, etc.)
 - Tight clothing, shoes or stockings
 - Other catheters, drains, or medical tubing (e.g. Oxygen tubing)
 - Other medical devices, such as leg bag straps, cervical collars, orthotics or splints
- Help the person with a SCI ensure that their clothing does not contribute to high pressures when seated in a wheelchair or lying in bed – this means avoiding thick or bulky fabrics, posterior buttons, zippers, seams and folds between the person and their support surface.
- When assisting patients to transfer from bed to chair or vice versa:
 - With transfer boards: Ensure that the patient is not sliding on the transfer board to decrease friction and shear (use push blocks if available to ensure lifting the buttocks completely off the board).
 - When using lifts to transfer, ensure that the sling is not left under the patient and remove arm rests from wheelchairs if available prior to transferring to prevent potential injury.



Protect the skin from **incontinence** and other moisture (e.g. perspiration, wound drainage). Use barrier cream as required. Avoid unnecessary incontinence products.

In addition to the moisture management considerations for all people at risk of PI, consider the following for persons with a SCI:

- Persons with a SCI often have neurogenic bowel and bladder dysfunction, which can lead to incontinence and issues with moisture management.
- For persons with a recent SCI, health care providers often provide care and management of neurogenic bowel and bladder dysfunction as the person recovers from the acute phase of their injury. As the person moves from acute to rehabilitation phases, persons with a SCI tend to take on more responsibility and direction for this care and/or management.
- It is very important that health care providers defer to the expertise of the person living with a SCI when assisting with the management of neurogenic bowel and bladder dysfunction to avoid incontinence and keep moisture to a minimum.
- If a padded/reclining commode chair is not available on your unit, consider borrowing one from another unit. Bowel routines can take a great deal of time so a padded commode chair will assist in minimizing pressure on bony prominences.
- Moisture can accumulate on the skin and pool under the body due to sweating as a result of autonomic dysfunction, including autonomic dysreflexia – it is important to attend to this moisture and keep skin dry.
- Incontinence covers on cushions are primarily meant to protect the cushion and may result in moisture pooling on the cover. If an episode of incontinence occurs, ensure the cushion and cover are clean and dry before using again. The cover is an integral component of the cushion's pressure management features.



Optimize **nutrition and hydration** by offering drinks and snacks. Assess intake, manage fluid balance and ensure patient has a dietitian consult if required.

In addition to the nutrition and hydration considerations for all people at risk of PI, consider the following for persons with a SCI:

- Persons with a SCI who do not have the hand or arm function to eat and drink independently rely on others for their nutritional needs, and often do not receive their optimal nutritional or fluid intake. Ensure that snacks and drinks are offered freely and regularly and avoid imparting an impression that this task is burdensome to care providers.
 - Use adaptive devices to maximize independence (e.g., CamelBak® reservoirs, accessible containers, etc.).

- A referral for a Registered Dietitian consultation should be considered for all patients with a SCI, as nutritional needs change with a SCI, increasing the risk of pressure injury and for promoting optimal healing of existing pressure injuries.
 - In addition to the nutrition requirements outlined in [AHS Nutrition Guideline: Pressure Injuries - Prevention and Management](#), persons with SCI may have additional nutritional requirements as outlined in [Canadian Best Practice Guidelines for the Prevention and Management of Pressure Ulcers in People with Spinal Cord Injury \(2013\)](#)



Complete pressure injury **risk assessment**, and implement prevention strategies (SSKIN+) as required.

Engage patients and families. **Educate** them about pressure injury risk and prevention.

In addition to the considerations for all people at risk of PI, consider the following for persons with SCI:

- Occasionally, persons with a SCI may score high on a validated PI risk assessment tool (eg. Braden), meaning that they are determined not to be at risk according to the tool. Risk assessment tools are intended to provide information for the care provider to use in their assessment of the patient's whole risk. Additional risk factors not addressed in the tool should be taken into consideration. This requires the care provider to use clinical judgment to determine the patient's whole risk. The existence of a SCI needs to be considered as an additional risk, regardless of the risk assessment score.
- Engagement of patients and families in PIP is especially important for persons with a SCI, due to the long-term nature of potentially new functional and physiological deficits. It is the care provider's responsibility to help patients and their families engage in PIP by:
 - Ensuring they are aware of the risk of PI
 - Providing education, guidance and resources on PI and PIP using the teach-back method
 - Monitoring effectiveness of education through questions and observation of what the patient initiates or requests as an active participant in their skin care.
 - Providing opportunities, permission and expectations/accountability for participation in preventative interventions, or direction of the performance of interventions.
 - Using skin care and PIP as a gateway to engage families in managing or directing care in other domains, such as bowel and bladder management/health.
 - Ensure prior to discharge from hospital that patients have access to equipment and referral to social supports to assist in PIP.

PIP is important for all patients in hospital, but particularly for patients with a SCI as they have additional risk factors. For MORE information on pressure injury prevention in Alberta hospitals, please visit the [NRV SCN PIP webpage](#) or the AHS Accreditation PIP webpage.

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An additional resource is the International Clinical Practice Guidelines for the Prevention and Treatment of Pressure Ulcers/Injuries endorsed by the European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance.

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