The SCI Pressure Injury Toolkit

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PI MOC Implementation Project

• MOH Knowledge Translation Grant:
  “Developing a community of practice for knowledge translation and practice improvement in spinal cord injury and traumatic brain injury”

• Implementation Science study design:
  - Careful consideration of context and current practice in diverse settings
  - Iteratively defining best practice
  - Mapping of different practice pathways
  - Identifying opportunities to enhance specific processes to improve practice
  - Evaluation includes acceptability, feasibility and compatibility or “fit” with existing modes of service-delivery

Model of Care launched April 2014

Online Decision Support Tool

- **SCI Pressure Injury Toolkit** informed by CPGs and best practice principles from original MOC consultation and stakeholder dialogue.

- **Toolkit** will provide access to triage/referral pathway, risk assessment tools, SCI specific assessment tools and coordinated care plan templates.

- The resource will be hosted on the ACI website and will also provide links to other helpful online consumer and clinician resources.

SCI specific complications include AD, Pain, Spasm, PE/DVT
Aim of the toolkit:

To enable health professionals to undertake comprehensive assessment and management of pressure injuries in people with a spinal cord injury. Key messages are to:

1. “Think beyond the wound” and consider the causes and contributing factors that impact upon wound healing and increase future risk of skin breakdown.

2. Incorporate best practice principles and evidence informed decision-making into pressure injury management for people with spinal cord injury.

3. Re-assess wound healing regularly to monitor progress and to reduce risk of developing complex or chronic wounds that may impact negatively on health, participation and quality of life.

NB. Whilst the toolkit may be useful for adults with other neurological conditions such as Spina Bifida, additional resources (eg: SBART) will be necessary to adequately support pressure injury care in these individuals. (NB: further consultation required)
Diverse range of pressure injury resources now available for SCI and non-SCI populations

Evidence based practice guidelines for the dietetic management of adults with pressure injuries
1. Screening
Person with SCI presents with a pressure injury

2. Assessment
Wound Assessment
Red Flags Screening
Yellow Flags Screening
Cause & Contributing Factors

3. Management / Treatment:
Wound
Cause & Contributing Factors

4. Re-Assessment
Wound Healed Successfully

Monitor

Tertiary Referral

If wound deteriorating or not responding to treatment, tertiary referral to spinal pressure injury services may be required.

Early tertiary referral is required for Grade III-IV or DTI pressure injuries or complex co-morbidities.

Person with SCI and carers encouraged to perform routine twice daily skin inspection.

Community nursing to perform pressure injury screening during routine monthly catheter change.

MORE INFO
Assessment

A comprehensive assessment should include:

- **The Wound**
  - Clinical history
  - Physical examination
  - Skin assessment
  - Laboratory tests
  - Risk factor Re-assessment

- **Cause & Contributing Factors**
  - Nutritional assessment
  - Continence assessment
  - Cognitive assessment
  - Psychological assessment
  - Social assessment
  - Financial assessment
  - Personal care needs assessment
  - Mobility and activity assessment
  - Position, Posture and equipment assessment
  - Assessment of extrinsic risk factors

After SCI, in addition to the above assessment processes, **screening for red flags** is required during the assessment phase and **consideration of yellow flags** is also recommended.
Wound Assessment

**LOCATION**
- Helps to identify possible causes
- Helps to identify positioning to allow healing
- Remember risk to other areas / bony prominences

**SIZE**
- Consistent measurement will improve accuracy and assist reassessment:
  - Length
  - Width
  - Depth
  - Depth of undermining

**STAGE**
- Identify the stage of the pressure injury:
  - Stage 1
  - Stage 2
  - Stage 3
  - Stage 4
  - Suspected DTI
  - Unstagable

**VALIDATED TOOLS**
- Validated Wound Assessment Tool helps to systematically evaluate and document to improve treatment planning and reassessment.
  - BWAT
  - PWAT
  - PUSH tool
  - Acetate Trace
  - Photography

The wound cannot be treated in isolation [CBPG; Pan Pac]
Location: Posture – Sitting

- Sitting results in pressure through the ischial tuberosity's (IT’s) or the “sitting bones”
- A pressure injury of the IT’s has very serious implications in people with SCI

- The ischial tuberosity, known as “IT’s” or “sitting bones” are at risk due to extended periods using a wheelchair for mobility. The skin over the IT’s may also be scraped from trauma during transfers if adequate clearance is not achieved.

- Sliding forward in the wheelchair or sitting reclined in bed > 30 degrees back of bed elevation, additional forces such as shear or friction may be created affecting the sacrum

- In this position, the heel is also at risk due to increases in pressure from positioning, inability to move the lower limbs easily to re-distribute pressure, and reduced or absent sensation.

If wound is on a sitting surface refer to OT or seating therapist as soon as possible
Stage: Suspected Deep Tissue Injury

- Purple or maroon localised area, discoloured intact skin, or a blood filled blister due to damage to the underlying soft tissue from pressure and/or shear.
- The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue.
- Deep tissue injury difficult to detect in individuals with darker skin tone.
- Evolution may include a think blister over a dark wound bed. The PI may further evolve and become covered by thin eschar. Evolution may be rapid exposing additional layers of tissue even with optimal treatment.

Spinal Tip!
- Deep Tissue Injury involves progressive damage from the muscle layer to the dermis and is characteristic of patients with impaired motosensory function (Gefen 2007).
- Obesity can increase the risk of Deep Tissue Injury after SCI, likely due to increased internal stress combined with muscle atrophy (Elsner and Gefen 2008) and vascular compromise.
- Consider ultrasound imaging of the tissue overlying the ischial tuberosity (IT) to identify potential deep tissue injury (CBPG Recommendation 1.7 Level III)

For more details visit: www.awma.com.au
Assessment – Red Flags Screening

It is important to screen for Red Flags that require urgent clinical attention. Red flags that may be associated with pressure injuries after SCI include:

- **Persistent Autonomic Dysreflexia (AD)** *
  - This is a Medical Emergency - refer directly to AD treatment algorithm
  - Persistent or recurrent AD may indicate a change in wound status

- **Signs of sepsis**

*AD is a potentially life-threatening condition, which affects individuals with spinal cord injury (SCI) above the major splanchnic outflow (typically from a lesion at or above the T6 neurological level) (Teasall et al 2000)*

Also consider potential for rapid deterioration from:

- **Severe malnutrition**
- **Presence of multiple pressure injuries**
- **Wound Deterioration**
- **Secondary complications of bedrest**
Potential Red Flags: Complications of Bed Rest

Definition:
- Bed rest is often required for healing of pressure injuries, particularly those located on a sitting surface. However, bed rest may also contribute to development of complications that need to assessed for on a regular basis during the wound healing period.
- Secondary complications may include:
  - Deep Venous Thrombosis (DVT)
  - Pulmonary Embolism (PE)
  - Pneumonia
  - Secondary pressure areas
  - Dehydration / Malnutrition
  - Contractures

Clinical Presentation:
- Hypotension
- Shortness of breath
- Localised calf swelling and redness (+/- pain depending on person's level of SCI and sensation)
- Chest Pain on deep inspiration
- Productive cough / Difficulty expectorating secretions

Spinal Tip! People with SCI on bed rest are at an increased risk of developing respiratory complications. Muscles of respiration may be affected by the SCI and assistance may be required to cough

Assessment:
- Blood Pressure
- Respiratory Rate
- Auscultation
- Visual inspection and palpation of calf

Investigations:
- Doppler ultrasound if DVT suspected
- Spiral CT or V/Q testing may be required if PE suspected
- Chest XRAY, Sputum Culture etc if pneumonia suspected

Treatment:
- Preventative medication may be considered – early referral to GP for anticoagulants
- Consider respiratory exercise program whilst on bed rest

Resources:
- [http://www.elearnsci.org](http://www.elearnsci.org)
- [http://www.elearnsci.org/module.aspx?id=212&category=Doctors&module=Early+and+late+complications+in+SCI%3a+Cardiovascular&lesson=Overview](http://www.elearnsci.org/module.aspx?id=212&category=Doctors&module=Early+and+late+complications+in+SCI%3a+Cardiovascular&lesson=Overview)
Yellow flags: Depression

Clinical Presentation:
- Early morning awakening
- Altered appetite
- Significant weight change
- Reduced motivation +/- withdrawal from valued activities
- Depressed mood

Possible Diagnosis: Depression

Assessment:
Assessment Tools:
- HADS
- DASS-21
- Kessler 10
- Other: ______________

Treatment:
- Antidepressant medications ________________
- Cognitive behavioural therapy
- Other: ________________

Referrals to consider:
- Psychologist
- Psychiatrist
- Other: ________________

Resources:
- Guide for Health Professionals on the Psychosocial Care of People with Spinal Cord Injury
- Spinal Cord Injury Research Evidence summary – Depression
- Depression following SCI – Clinical Practice Guideline
  [http://www.pva.org/site/c.ajIRK9NJLcJ2E/b.8907633/k.4A9/PDFs_Clinical_Practice_Guidelines_CPGs.htm](http://www.pva.org/site/c.ajIRK9NJLcJ2E/b.8907633/k.4A9/PDFs_Clinical_Practice_Guidelines_CPGs.htm)

Consumer Resources:
- Beyond blue [www.beyondblue.org.au](http://www.beyondblue.org.au)
- Mental Health Helpline: 1800 011 511
- Lifeline: 13 11 14
- Other: ________________
Causes and Contributing Factors

- It is important to consider both the **wound** and the **cause and contributing factors** in your assessment.
- These factors may have contributed to wound development, and may also impact upon non-healing or delay healing of the wound, as well as affecting the person's future pressure injury risk.
- These factors may include:
  - Spinal Specific Medical Conditions
  - Underlying Medical Conditions
  - Nutrition
  - Mechanical forces:
    - Pressure
    - Friction
    - Shear
  - Microclimate
  - Psychosocial and Lifestyle Factors

**Spinal Tip!** The cornerstone of good treatment and management for SCI PI is a comprehensive assessment process.
Mechanical factors:

24 Hour Pressure Injury Screening

- Mobility Task
- Equipment
- Duration
- Technique
- Assistance required?

1. Personal care: 8%
2. Transport: 8%
3. Work / Study: 25%
4. Leisure: 17%
5. Sleep: 42%

Pressure
Friction
Shear
Microclimate
Psychosocial and Lifestyle

- Identify psychosocial factors that can impact upon wound healing including:
  - Psychological disorders (eg: depression, anxiety, addiction, psychosis)
  - Social and financial support factors
    - Living alone
    - Need for care
    - Caregiver burden
    - Financial concerns
    - Work commitments
    - Family commitments
  - Self Management Capacity
    - Knowledge and beliefs about managing pressure injuries
    - Pressure injury prevention strategies
    - Coping & Problem solving strategies
  - Lifestyle priorities

Psychological disorders, negative self concept and poorly managed anger can interfere with cooperation with health care providers. Supports may be of critical importance in sustaining the optimal treatment plan. Conflicting motivations, such as wanting to stay fully engaged in either vocational or recreational pursuits, may interfere with maintaining a strict regimen of pressure ulcer prevention.
Pressure Injury Treatment Strategies

Pressure ulcer clinical management aims to stimulate physiologic wound healing with pressure relief, debridement, control of colonization or wound infection, nutrition supplementation and measures to prevent recurrence (Kruger et al 2013).

The NSW State Spinal Cord Injury Service Model of Care for Integrated Management of Pressure Injuries in People with Spinal Cord Injury and Spina Bifida states that interventions should be designed to:

1. Prevent occurrence of PI
2. Prevent deterioration of PI
3. Prevent recurrence of PI

“A health promotion approach should be encouraged, with an emphasis on client and care-giver education, restoring or maintaining self-efficacy and engaging in supported self-management where possible.”

Treatment Domains:

The Wound

- Dressing, Positioning
- Education

Cause and Contributing Factors

- Underlying medical conditions
- SCI-related medical conditions
- Malnutrition
- Pressure, friction, shear or microclimate including:
  - 24 hour equipment use
  - 24 hour activity
- Psychosocial and lifestyle risk factors
Consumer Resources

- Spinal Cord Injury University for Healthy Living
  http://www.sci-u.ca/skin/player.html

- 5 part e-learning series for consumers regarding learning about many different aspects of pressure injury prevention and management
  http://www.healthlearnpa.com/Pressure-Ulcer-Program.php

- Apparelyzed website:
  http://www.apparelyzed.com/pressuresores.html

- Preventing and treating pressure sores - A guide for people with spinal cord injury

- The Pressure Ulcer Prevention Project
  http://www.usc.edu/programs/pups/

- What to do if you are admitted to hospital brochure

- When Spinal Injury Affects You Fact Sheets: Your Skin
Thank You!

If you would like more information please contact JWCRR Project Officer, Lyndall Katte on 9926 4794 or via email lyndall.katte@sydney.edu.au

To contribute to the development of the SCI Pressure Injury Toolkit, click on the link below: