

# CSI Guide and Resource Pack



## promoting healthy skin

*Champions for Skin Integrity*



## About this guide

Congratulations on wanting to become a Champion for Skin Integrity (CSI).

New Champions for Skin Integrity embark on a journey with the ultimate goal of improving evidence-based wound management and reducing the prevalence and severity of wounds of people under their care. This guide is designed to help you on that journey. It not only provides you with information on how to develop as a CSI but includes a comprehensive range of resources that will help you in that role.

The guide is structured in six sections – each section builds on the knowledge gained from the preceding sections.

Section 1 provides a background to the development of the CSI model of wound care and the seven steps you need to take to become a fully fledged CSI.

Section 2 explains the role of the CSI and the other health professionals and networks that work together to implement an evidence-based culture within your facility or organisation.

Section 3 is where you get to the nuts and bolts of wound management.

Included in this section is a comprehensive range of interactive and printed resource material. This material is aimed at a variety of audiences from the health professional to the carers and families of clients. The resource material can be photocopied directly from the guide or printed from the files stored on the CSI Resource CD at the back of the booklet.

Section 4 gives the new CSI the tools to carry out a skin integrity survey in their facility or organisation. A training package on using the data collection tools is available on the CSI Resource CD.

Section 5 gives you the meeting and education tools that will become necessary as your wound care network develops.

And finally

Section 6 provides a list of references of the background material contained in this guide.

We hope you enjoy your journey and that this guide provides a useful roadmap for you to reach your ultimate goal – to become a **Champion for Skin Integrity**.

*Champions for Skin Integrity*

CSI Guide and Resource Pack

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ISBN 978-1-921897-78-8



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# 1 Introduction and Background

## 1.1 Introduction

Congratulations on wanting to become a Champion for Skin Integrity. As a *Champion for Skin Integrity* (CSI) you will play a valuable role in ensuring the implementation of sustainable evidence-based practice in wound management within your organisation. You will also help others in your organisation to incorporate strategies to preserve skin integrity through the application of evidence-based practice to assessment, prevention and management of common wound types like skin tears, leg ulcers and pressure injuries.

The CSI resource kit has been provided to assist you in this role and to lead implementation of evidence into everyday clinical practice. The resource kit consists of two elements:

- CSI Guide and Resource Pack
- Wound Dressing Guide

We hope that you enjoy participating in this exciting role.

## 1.2 Background

The incidence of skin tears, pressure injuries, chronic leg ulcers and diabetic foot ulcers increases with age<sup>2-5</sup> and this therefore, is a serious issue for older adults. In particular, skin tears are common amongst frail older or disabled persons. Risk factors include visual impairment, impaired mobility or balance, altered mental status, or changes in skin condition due to medications e.g. steroids, anticoagulants.<sup>5</sup>

In Australia, Everett and Powell<sup>6</sup> found skin tears constituted 41% of known wounds amongst residents (with an average age of 80 years) in a 347 bed long-term care facility, and on average, 22 skin tears occurred each month.<sup>6</sup> Similarly in an audit conducted by a community nursing organisation in November 1999 and April 2000 amongst Department of Veterans Affairs' clients who were predominantly aged over 70 years or more, skin tears were found to account for 20% of all known wounds.<sup>5</sup>

**Although a large number of evidence-based guidelines exist for prevention and management of wounds, studies have found a substantial gap exists between the evidence and timely assessment and best practice management of wounds, both in Australia and overseas.<sup>1</sup>**





Pressure injury prevalence has been reported at 16–23% in combined hospital and residential aged care populations<sup>7,8</sup>; and chronic leg ulcers affect 1–3% of population aged over 60 years, with incidence increasing up to 5–10% of the over 80 years age group.<sup>2,4</sup>

Chronic wounds are a significant cause of pain, decreased functional ability and poor quality of life, as well as a burden on carers and health system resources.<sup>2,9,10</sup> Older adults and residents of aged care facilities are at **high risk** of suffering with skin tears, pressure injuries and chronic wounds; and are thus in **urgent need** of appropriate evidence-based assessment, prevention and management strategies.

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### 1.3 The Champions for Skin Integrity Model of wound care

As part of the Department of Health and Ageing's *Encouraging Best Practice in Residential Aged Care Program (EBPRAC)*, in 2009–2010 the Queensland University of Technology (QUT) led a

consortium of seven Residential Aged Care Facilities (RACFs) in a project to promote evidence-based wound management and improved skin integrity for residents in aged care facilities

Research on models of care for chronic wounds indicates that the provision of evidence-based wound care, preventive strategies, chronic disease management and improved communication and educational opportunities among health professionals can significantly improve wound healing and reduce the risk of recurrence of wounds.<sup>11,13,14</sup>

The project found a significant number of aged care residents suffer chronic wounds and/or are susceptible to skin tears. The implementation of the CSI model was successful in achieving increased implementation of evidence-based wound management and decreased prevalence and severity of wounds in residents.

In 2012, the Commonwealth Department of Health and Ageing funded a national dissemination or roll-out of the ***Champions for Skin Integrity*** model of wound care.

**The average duration of chronic leg ulcers is around 12–13 months,<sup>11,12</sup> 60–70% of those with a chronic leg ulcer have recurrent ulcers,<sup>10</sup> 24% are hospitalised because of the ulcers and most people suffer from the condition for an average of 15 or more years.<sup>12</sup>**



## 1.4 The Seven Steps to Becoming a Champion for Skin Integrity

### Step 1

The first and arguably most important step is to identify a champion within your organisation. This person does not need to be an expert in wound management. Rather it would be someone who is committed to best practice wound management in your organisation and has the ability to influence and lead organisational change that results in improved wound management and prevention outcomes. It is anticipated that this clinical leader would train a CSI team in the use of the resource kit. Over time they become a valuable resource on wound management issues and a central knowledge source for staff at all levels, residents, relatives and carers, as well as allied health professionals to access for advice. They would become a *“Champion for Skin Integrity”*.

### Step 2

To gain an understanding of the role of a champion and associated networks, new champions can refer to Section 2 of this booklet on role definitions and explanations.

### Step 3

Potential CSIs can then complete the “Promoting Healthy Skin” self education DVD to update their knowledge of evidence-based wound management.

### Step 4

The next step is to review the resource materials contained in Section 3, in addition to the Wound Dressing Guide, which provides guidance on use of commonly available wound dressings.

### Step 5

After becoming familiar with the content and variety of resources available in the kit they would then go to Section 4 to review the Skin Integrity Survey tool and training package, and their potential use. This tool could be used on a regular basis to determine the prevalence and/or incidence of wounds and their management.

### Step 6

After reviewing the roles and resources, completing the education materials contained within the kit, and potentially undertaking a skin integrity audit or a review of the organisation’s/facility’s needs, the CSIs, in consultation with their team of CSIs and Wound Care Network members, may identify an area of need within their organisation/facility. To address such a need it is suggested to prepare an action plan. In the first instance — start small. For example, introduce one measure such as moisturising skin twice daily.

**It is vital that the action plan receive support from senior management.**

### Step 7

As the model is implemented the Meeting and Education Support tools contained in Section 5 would become useful.







## 2 Role Definitions

### 2.1 Champions for Skin Integrity (CSI)

#### ***What is a Champion for Skin Integrity or CSI?***

A *Champion for Skin Integrity or CSI* can be best described as a health professional with a strong interest in wound management, who is confident in their ability to lead and act as a resource person for other staff members and who is willing to form a direct link with a Wound Care Network within their local organisation and with external Link Clinicians.

#### ***Who can be a CSI?***

Ideally the CSI will:

- Be a registered or enrolled nurse; however care workers, quality assurance officers or other clinical leaders may participate as CSI team members.
- Hold qualifications and/or have a strong interest in maximising opportunities to advance self knowledge and skills in wound management and be willing to support other care staff.
- Have local credibility within their organisation.

The CSI Resource kit has been developed to help CSIs in their role and as new information is developed you

can build on the information already contained in this kit. As a CSI(s) you will be able to provide advice and consultation for other staff and this resource kit will help the future development of new CSIs.

#### ***CSI Role Responsibilities***

- Implement evidence-based strategies and care practices for assessment, prevention and management of wounds and preserving skin integrity as part of daily practice.
- Provide a first point of contact and act as a resource person for advice for other staff members on evidence-based wound management.
- Facilitate or contribute to educational in-services for staff members within your organisation.
- Enhance knowledge, skills and attitudes of care staff towards skin integrity and ultimately improve skin integrity for older adults.
- Form a direct link and leadership role with the Wound Care Network within their local organisation and external Link Clinicians.
- Coordinate or participate in regular CSI team meetings, with set agenda, reporting on progress and planned action steps documented.



## The benefits of having CSIs

- Organisations will be assured they have a staff member(s) who has a sound knowledge of evidence-based practice and skills in wound care.
- Organisations will have a staff member(s) who is willing to be a key point of contact and resource for staff caring for clients with skin integrity issues and who is proactive in disseminating knowledge to others.
- Reduced prevalence of wounds and improved healing outcomes.
- Improved continuity in wound management interventions.
- Improved relationships and communication with the community through liaising with other health care professionals, clients and families.

## CSI Role Descriptions for different categories of care staff

The following CSI role descriptions are included in this booklet. They can be photocopied directly from this booklet or alternatively can be printed from the relevant files included on the CSI resource files CD.



- How to Champion Skin Integrity as a Registered Nurse (RN)
- How to Champion Skin Integrity as an Enrolled Nurse (EN)
- How to Champion Skin Integrity as a Personal Care Worker (PCW)





# Champions for Skin Integrity

How to champion skin integrity as a  
**Registered Nurse (RN)**

**Promoting 'Skin Integrity' means we aim to maintain intact, healthy skin able to perform its normal functions.**

- Act as a resource person and be a key point of contact for staff and management
- Role model best practice
- Implement evidence-based care for assessment and management of wounds and preserving skin integrity
- Advance self knowledge of wound care
- Facilitate or contribute to educational in-services for staff members
- Enhance knowledge, skills and attitudes of staff towards skin integrity
- Form direct links with external link clinicians





# Champions for Skin Integrity

How to champion skin integrity as an  
**Enrolled Nurse (EN)**

**Promoting 'Skin Integrity' means we aim to maintain intact, healthy skin able to perform its normal functions.**

- Act as a resource person or contact person for care workers
- Role model best practice
- Support care staff
- Implement evidence-based care for assessment and management of wounds and preserving skin integrity
- Attend educational opportunities
- Report any issues causing skin problems



This project is funded by the Australian Government Department of Health and Ageing under the Encouraging Better Practice in Aged Care (EBPAC) program



# Champions for Skin Integrity

How to champion skin integrity as a  
**Personal Care Worker (PCW)**

**Promoting 'Skin Integrity' means we aim to maintain intact, healthy skin able to perform its normal functions.**

- Moisturise clients' skin twice daily
- Encourage a healthy diet for clients
- Encourage 6-8 glasses per day of fluids for clients
- Use correct lifting/transferring techniques
- Follow turning schedules as necessary
- Report any skin problems of clients to EN/RN
- Report any issues causing skin problems
- Attend educational opportunities







## 2.2 Multidisciplinary Wound Care Networks

### ***What is a Multidisciplinary Wound Care Network or MWCN?***

A **Multidisciplinary Wound Care Network (MWCN)** can provide a valuable and sustainable resource within your organisation. The aim is to form a network which includes members from all disciplines who have an input to wound management within the broader context and environment of your organisation. Network members may include (but are not limited to) senior managers, finance officers, quality improvement coordinators, nursing representatives, care workers' representatives, medical representatives, clients and/or family representatives, occupational/physiotherapists, dieticians, podiatrists and manual handling instructors. Each network will be unique according to the context of each organisation.

### ***Why is a MWCN important?***

- Coming together as a team combines the specific strengths of each discipline to focus on coordinated wound management strategies. Evidence has shown effective interdisciplinary teams decrease costs, improve client satisfaction and reduce morbidity, while improving overall health care worker satisfaction and professional relationships.

- Standard 1 of the *AWMA Standards for Wound Management* recognises and respects the contribution, knowledge and skills of members of the interdisciplinary team.
- A MWCN encourages identification of issues and actions that need to be taken, thus supporting best practice in wound care.

## 2.3 Link Clinicians

### ***What is a Link Clinician?***

A **Link Clinician** can be best described as a health professional that has an interest and expertise in wound management. The Link Clinician will be a valuable resource person within the community, who is willing to provide support and guidance to the identified Champions for Skin Integrity (CSI) at their local organisation, if required.

### ***Who can be a Link Clinician?***

Link Clinicians can be local health professionals who currently visit or who are external to your organisation. Link Clinicians who are practising within the local community can be identified and invited to be part of this important support network (e.g. from a RACF or local hospital, wound care nurse or stomal therapy nurse, occupational therapists, dieticians, podiatrists, domiciliary nurses, general practitioners, practice nurses, nurse practitioners).



Ideally these *Link Clinicians* should have:

- A special interest and enthusiasm in wound management and a willingness to share their expertise with others.
- Expertise, good knowledge and skills related to wound management.

### ***How will a Link Clinician work?***

It is envisaged the Link Clinicians' role may involve the following:

- A willingness to form a direct link with the Champions for Skin Integrity (CSI) and Wound Care Network within your local organisation.
- Acting as a resource person and be willing to provide skin integrity support and guidance to the CSI staff member and organisation if required.
- Consultation with CSIs on challenging skin integrity issues, so that information can be disseminated back to the clinical area within the organisation.
- Network involvement through periodic attendance at meetings, where ideas and new developments in wound management can be discussed.

### ***What are the benefits of having Link Clinicians?***

- Link Clinicians establish and formalise a broader Wound Care Network within the local community or region.
- Link Clinicians can provide greater access for CSIs to skin integrity expertise.
- Close relationships with Link Clinicians allows for the provision and dissemination of educational information and change management strategies for skin integrity, collaboratively with CSIs.
- A broader network of expertise will improve delivery of evidence-based practice for assessment, management and prevention of wounds.
- Enhanced quality of care provided to older adults.
- Improved skin integrity for clients.
- Use of Link Clinicians demonstrates to other organisations that they can build strength and capacity by using local resources.





## **3** Wound Care Resources

A broad range of wound management resources were developed during the first project and have been updated in 2013 to reflect the latest evidence. These resources, both interactive and print, provide a valuable range of materials that can be used for educational and practice purposes.

Samples of all resources are included in this booklet.

### **3.1 Promoting Healthy Skin Self-education DVD**

An easy to use, computer-based skin care and wound management self-education package, called “Promoting Healthy Skin”, was developed during the first project and has been updated in 2013. This comprehensive package covers the assessment, management and prevention of the commonly encountered wounds. It is targeted to a wide audience of learners who have to deal with wounds. It is written to a DVD for convenient use.

The Promoting Healthy Skin DVD includes 8 separate interactive education modules covering Skin Care, Skin Tears, Venous Leg Ulcers, Arterial Leg Ulcers, Diabetic Foot Ulcers, Pressure Injuries, Wound Care, and Finding Evidence. In addition, the DVD includes the wound care resources included in this booklet as well as demonstration videos and images. Users can track their understanding by completing the quizzes at the end of each module.

A Promoting Healthy Skin DVD has been included in the booklet. The DVD self initiates when loaded onto the computer. Additional DVDs can be created by copying/burning the files from this DVD to a new DVD.



## 3.2 Printed Wound Management Resource Material

CSIs need a large range of printed wound management resource material to effectively carry out their role. This material provides information for health care professionals and staff at all levels, clients, family and carers.

### 3.2.1 Guidelines Summaries

The primary role of a CSI is to foster an evidence-based culture for wound management within the organisation. The following evidence-based guidelines summaries provide a compilation of the latest evidence-related to wound management (as at 2013). CSIs may use the summaries to check recommendations and references on evidence-based wound care. They could also form the basis of educational interventions with other staff within the organisation.

The following print resources can be photocopied directly from this booklet or alternatively can be printed from the relevant files included on the CSI resource files CD. Two different files of each print resource is available on the CD. The ones with LocalPrinter included in the filespec can be printed to the local printer connected to your PC. The ones with CommercialPrinter included in the file spec can be sent to a commercial printer for a professional output.

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- Skin Care
- Skin Tears
- Venous Leg Ulcers
- Arterial Leg Ulcers
- Diabetic Foot Ulcers
- Pressure Injuries
- Wound Care
- Nutrition and Wound Healing







**These guidelines have been developed for health professionals caring for clients with impaired skin integrity or those at risk of loss of skin integrity. Assessment and management of skin integrity should be undertaken by health professionals with expertise in the area.**

For this summary, all recommendations have had their levels of evidence classified using the National Health and Medical Research Council levels of evidence, as follows:

Level I	Evidence from a systematic review or meta-analysis of at least two level II studies
Level II	Evidence from a well designed randomised controlled trial (for interventions), or a prospective cohort study (for prognostic studies)
Level III	Evidence from non-randomised studies with some control or comparison group (pseudo-randomised controlled trial; non-randomised experimental trial, cohort study, case-control study, time series studies with a control group; historical control study, retrospective cohort study)
Level IV	Evidence from studies with no control or comparison group

An additional rating of Expert Opinion (EO) has been added, for guideline recommendations which are consensus statements provided by a National or International Panel of experts in the area.

This is a summary of recommendations from the following sources, which should be accessed for further details as required:

1. *Best Practice Statement: Care of the Older Person's Skin*. 2nd ed. 2012: Wounds UK. [www.woundsinternational.com/pdf/content\\_10608.pdf](http://www.woundsinternational.com/pdf/content_10608.pdf)
2. Gray M et al.: Incontinence-associated dermatitis: A comprehensive review and update. *Journal of Wound, Ostomy, and Continence Nursing* 2012, 39:61-74.
3. The Joanna Briggs Institute: Topical skin care in aged care facilities. *Best Practice: evidence-based information sheets for health professionals* 2007, 11:1-4. <http://connect.jbiconnectplus.org/ViewSourceFile.aspx?0=4346>
4. Australian Wound Management Association (AWMA), *Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury* 2012, Cambridge Media Osborne Park, WA. [www.awma.com.au/publications/2012\\_AWMA\\_Pan\\_Pacific\\_Guidelines.pdf](http://www.awma.com.au/publications/2012_AWMA_Pan_Pacific_Guidelines.pdf)
5. Stechmiller J et al.: Guidelines for the prevention of pressure ulcers. *Wound Repair Regeneration* 2008, 16:151-168. <http://onlinelibrary.wiley.com/doi/10.1111/j.1524-475X.2008.00356.x/pdf>
6. Hodgkinson B, Nay R, Wilson J: A systematic review of topical skin care in aged care facilities. *Journal of Clinical Nursing* 2006, 16:129-136. <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2702.2006.01723.x/pdf>



## Assessment

1. All clients should have skin integrity assessed on admission and at regular intervals <sup>1</sup> (EO)

## Management and Prevention

2. Structured documented protocols for skin care can help maintain skin integrity for those with incontinence <sup>2</sup> (III)
3. Avoid dryness or maceration of skin (i.e. moisturise dry skin, avoid sustained contact of skin with fluids, encourage continence) <sup>2</sup> (EO)
4. An emollient soap substitute should be used for dry or vulnerable skin <sup>1</sup> and is more effective than a non-emollient soap in preventing skin tears <sup>2</sup> (IV)
5. Skin cleansers (e.g. no-rinse cleansers, foam cleansers) are more effective than soap and water for prevention of incontinence-related skin problems <sup>1,3</sup> (III)
6. Dry skin thoroughly after washing. Dry skin by patting, not rubbing <sup>1</sup> (EO)
7. Moisturise dry skin at least twice daily <sup>1</sup> (EO)
8. Gently smooth on the moisturiser or barrier cream in the direction of body hair, don't rub <sup>1</sup> (EO)
9. A no-sting barrier film or hydrogel barrier cream may have improved skin integrity outcomes in comparison to petroleum based ointments or creams in patients with incontinence <sup>2</sup> (IV)
10. Protect skin exposed to friction <sup>4</sup> (EO)
11. Avoid vigorous massage over bony prominences <sup>5</sup> (III)
12. Avoid overheating skin (avoid plastic support surfaces, ensure regular turning schedules do not exceed 2 hourly intervals for those on basic mattresses) <sup>4</sup> (EO)
13. Employ correct lifting and manual handling techniques, including use of lift sheets or devices to transfer clients <sup>4,5</sup> (IV)
14. Disposable incontinence products may be better at preventing skin problems than non-disposable products <sup>6</sup> (III)
15. Maintain optimal nutritional status with adequate calories, protein, carbohydrates, fat and vitamins and minerals <sup>5</sup> (II)

# Skin Tears



**These guidelines have been developed for health professionals caring for clients with impaired skin integrity or those at risk of loss of skin integrity. Assessment, management and prevention of skin tears should be undertaken by health professionals with expertise in the area.**

For this summary, all recommendations have had their levels of evidence classified using the National Health and Medical Research Council levels of evidence, as follows:

Level I	Evidence from a systematic review or meta-analysis of at least two level II studies
Level II	Evidence from a well designed randomised controlled trial (for interventions), or a prospective cohort study (for prognostic studies)
Level III	Evidence from non-randomised studies with some control or comparison group (pseudo-randomised controlled trial; non-randomised experimental trial, cohort study, case-control study, time series studies with a control group; historical control study, retrospective cohort study)
Level IV	Evidence from studies with no control or comparison group

An additional rating of Expert Opinion (EO) has been added, for guideline recommendations which are consensus statements provided by a National or International Panel of experts in the area.

This is a summary of guidelines from the following sources, which should be accessed for further details as required:

1. Ayello E, Sibbald R, *Preventing pressure ulcers and skin tears, in Evidence-based geriatric nursing protocols for best practice*, Capezuti E et al., Editors. 2008, Springer Publishing Company: New York. 403-29.
2. LeBlanc K, Baranoski S: Skin tears: state of the science: consensus statements for the prevention, prediction, assessment, and treatment of skin tears. *Advances in Skin & Wound Care* 2011, 24:2-15.
3. Ratliff C, Fletcher K: Skin Tears: A review of the evidence to support prevention and treatment. *Ostomy Wound Management* 2007, 53. [www.o-wm.com/article/6968](http://www.o-wm.com/article/6968)
4. Carville K, Lewin G, Newall N et al.: STAR: A consensus for skin tear classification. *Primary Intention* 2007, 15:18-28.
5. Joanna Briggs Institute: Topical skin care in aged care facilities. *Best Practice* 2007, 11. <http://connect.jbiconnectplus.org/ViewSourceFile.aspx?0=4346>
6. Best Practice Statement: *Care of the Older Person's Skin Wounds* UK 2012; 2nd Edition: [www.woundsinternational.com/pdf/content\\_10608.pdf](http://www.woundsinternational.com/pdf/content_10608.pdf).



## Assessment

1. All clients should have a risk assessment for skin tears on admission <sup>1,2</sup> (EO)
2. Risk factors include:
  - limited mobility and use of wheelchairs or other mobility aids <sup>2,3</sup> (IV)
  - cognitive impairment <sup>2,3</sup> (IV)
  - poor nutrition <sup>2,3</sup> (IV)
  - polypharmacy <sup>2,3</sup> (IV)
  - sensory loss <sup>2,3</sup> (IV)
3. A recognised skin tear assessment and classification system should be utilised <sup>1,2,4</sup> (EO)
4. Assess the size of the skin tear and document the assessment <sup>1</sup> (EO)

## Management

5. Gently clean the wound <sup>1,2,4</sup> (EO)
6. Approximate any skin tear flap if possible <sup>1-4</sup> (EO)
7. Air or gently pat the skin dry <sup>1</sup> (EO)
8. Use non-adherent dressings <sup>1,3</sup> (EO)
9. Use tubular non-adhesive wraps, stockinettes or flexible netting to secure dressings rather than tape <sup>1,3</sup> (EO)
10. Place an arrow to indicate the direction of the skin tear on the dressing <sup>1,3</sup> (EO)

## Prevention

11. A prevention protocol should be in place for clients identified as at risk for skin tears, including regular skin assessments <sup>1-3</sup> (EO)
12. An emollient soap substitute should be used for dry or vulnerable skin and is more effective than a non-emollient soap in preventing skin tears <sup>1,3,5,6</sup> (IV)
13. Moisturise skin at least twice daily <sup>1,3,6</sup> (EO)
14. Dry skin thoroughly after washing. Dry skin by patting, not rubbing<sup>6</sup> (EO)
15. Gently smooth on the moisturizer or barrier cream in the direction of body hair, don't rub<sup>6</sup> (EO)
16. Pad wheelchair arms, footrests, bedrails, walking frames <sup>1-3</sup> (EO)
17. Provide adequate lighting to prevent bumping into furniture <sup>1,3</sup> (EO)
18. Long sleeves and pants should be worn to protect extremities <sup>1-3</sup> (EO)
19. Employ correct lifting and manual handling techniques <sup>1-3</sup> (EO)
20. Maintain optimal nutrition and hydration status <sup>1,2</sup> (EO)

# Venous Leg Ulcers



**These guidelines have been developed for health professionals caring for clients with venous leg ulcers. Diagnosis of the aetiology of a leg ulcer as venous should be undertaken by a health professional with expertise in the area.**

For this summary, all recommendations have had their levels of evidence classified using the National Health and Medical Research Council levels of evidence, as follows:

Level I	Evidence from a systematic review or meta-analysis of at least two level II studies
Level II	Evidence from a well designed randomised controlled trial (for interventions), or a prospective cohort study (for prognostic studies)
Level III	Evidence from non-randomised studies with some control or comparison group (pseudo-randomised controlled trial; non-randomised experimental trial, cohort study, case-control study, time series studies with a control group; historical control study, retrospective cohort study)
Level IV	Evidence from studies with no control or comparison group

An additional rating of Expert Opinion (EO) has been added, for guideline recommendations which are consensus statements provided by a National or International Panel of experts in the area.

This is a summary of guidelines and evidence from the following sources, which should be accessed for further details as required:

1. Royal College of Nursing, *Clinical practice guidelines: The management of patients with venous leg ulcers*. 2006, London: RCN Institute, Centre for Evidence based Nursing, University of York.  
[www.rcn.org.uk/development/practice/clinicalguidelines/venous\\_leg\\_ulcers](http://www.rcn.org.uk/development/practice/clinicalguidelines/venous_leg_ulcers)
2. Registered Nurses' Association of Ontario, *Assessment and Management of Venous Leg Ulcers*. March 2004 ed. Registered Nurses' Association of Ontario 2004, Toronto, Ontario: RNAO.  
<http://rnao.ca/bpg/guidelines/assessment-and-management-venous-leg-ulcers>
3. Australian Wound Management Association, *Australian and New Zealand Clinical Practice Guidelines for Prevention and Management of Venous Leg Ulcers*, 2011, AWMA: Barton. ACT.  
[www.awma.com.au/publications/publications.php#vlug](http://www.awma.com.au/publications/publications.php#vlug)
4. Scottish Intercollegiate Guidelines Network, *Management of chronic venous leg ulcers. A national clinical guideline*, 2010, SIGN: Edinburgh.  
[www.sign.ac.uk/guidelines/fulltext/120/index.html](http://www.sign.ac.uk/guidelines/fulltext/120/index.html)
5. Moffatt CJ, Edwards L, Collier M et al., A randomised controlled 8-week crossover clinical evaluation of the 3M Coban 2 Layer Compression System versus Profore to evaluate the product performance in patients with venous leg ulcers. *International Wound Journal* 2008, 5:267-279.






## Assessment

1. Assessment of leg ulcers and Doppler ABPI assessments should be undertaken by health professionals with training in this area <sup>1-4</sup> (IV)
2. Clients with a leg ulcer should be screened for arterial disease, including:
  - examining pedal pulses
  - Doppler examination to check Ankle-Brachial Pressure Index is  $\geq 0.8$
  - compression therapy is contraindicated if ABPI less than 0.7 or higher than 1.2. An ABPI over 1.2 is unreliable and indicates further investigation is necessary. Referral for ultrasound duplex scanning may be helpful if there is uncertainty <sup>1,3,4</sup> (II)
3. A Doppler reassessment should be undertaken:
  - whenever starting compression therapy<sup>1</sup>
  - whenever changing type of compression therapy<sup>1</sup>
  - whenever an ulcer deteriorates<sup>1</sup>
  - for reassessment every 3 months<sup>1</sup> (III)
4. Measure ulcer area to monitor progress regularly, <sup>3,4</sup> every 4 weeks <sup>1</sup> (IV)
5. Referral to a specialist is needed when there is:
  - uncertainty in diagnosis <sup>3</sup>
  - a low or high ABPI <sup>1</sup>
  - complex ulcers e.g. multiple aetiology such as arterial, rheumatoid disease <sup>3</sup>
  - signs of infection <sup>3</sup>
  - deterioration of ulcer <sup>3</sup>
  - failure to improve after 3 months <sup>1,3,4</sup> (EO)

## Management

6. Where there are no contraindications, multilayer high compression bandage systems with adequate padding should be the first line of treatment for uncomplicated venous leg ulcers (ABPI  $\geq 0.8$ )<sup>1,4</sup> (I)
  - Four layer compression bandage systems result in a shorter time to healing than short-stretch bandage systems<sup>4</sup> (I)
  - One study found a two-layer (Coban™ 2 Layer) compression bandage system as effective for healing as a four-layer bandage system<sup>5</sup> (II)
  - Contraindications include ulcers of other or mixed aetiology, peripheral vascular disease, heart disease, peripheral neuropathy and/or an ABPI  $< 0.8$  or  $> 1.2$  <sup>3</sup> (EO)
7. Compression should be applied by a trained practitioner<sup>1-4</sup> (IV)
8. Protective padding should be used over bony prominences when applying compression <sup>2,3</sup> (EO)
9. When using elastic high compression bandages, the ankle circumference should be more than or padded to 18cms<sup>2</sup> (EO)
10. Irrigate the ulcer with a neutral, non-irritating solution, e.g. warm tap water or saline <sup>1-4</sup> (IV)
11. If present, removal of necrotic and devitalised tissue should be undertaken through mechanical, sharp, autolytic or biological debridement<sup>3</sup> (IV)
  - Sharp debridement should only be undertaken by appropriately trained practitioners<sup>4</sup> (EO)

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12. EMLA® cream can reduce the pain associated with debridement when there are no contraindications<sup>3</sup> (I)
13. Dressings should be simple, low adherent, low cost<sup>1-4</sup> and acceptable to the client<sup>1-3</sup> (I)
14. Dressings should maintain a moist wound-healing environment, manage wound exudate and protect the peri-ulcer skin<sup>2,3</sup> (II)
15. There is no evidence that any one dressing type is better than another<sup>3,4</sup> (I)
16. Products that commonly cause skin sensitivity (e.g. lanolin, phenol alcohol, topical antibiotics) should not be used on leg ulcer clients<sup>1,2</sup> (EO)
17. There is insufficient evidence that
- topical negative pressure (II)
  - laser treatment (I)
  - therapeutic ultrasound (as opposed to ultrasound for debridement) (I)
  - electromagnetic therapy (II)
  - hyperbaric oxygen (II)
  - enzymatic debriding agents (II)
  - or skin grafting (II)
- speeds healing of venous leg ulcers<sup>1,3,4</sup>
18. Systemic antibiotics should not be used for ulcers that show no clinical signs of infection<sup>3</sup> (II)
19. Appropriate client education (written and/or verbal) may lead to improvement in knowledge of their condition and concordance with its management<sup>3</sup> (EO)
20. Recommend leg elevation and progressive leg exercises as part of the management plan<sup>3</sup> (EO)
21. Specialist leg ulcer clinics are recommended as the optimal community service<sup>4</sup> (II)
22. There is insufficient evidence to recommend aspirin<sup>4</sup>, micronised purified flavanoid fraction<sup>4</sup> or mesoglycan<sup>4</sup> to increase healing rates. If there are no contraindications, pentoxifylline may promote healing<sup>3,4</sup> (II)

### Prevention

23. After healing, use of compression therapy (for life) reduces ulcer recurrence rates.<sup>1-4</sup> Class 3 compression (40mmHg and higher) is recommended if tolerated, otherwise the highest level of compression tolerated<sup>1,2,4</sup> (II)
24. Compression hosiery should be measured and fitted by a trained practitioner and replaced every six months<sup>2</sup> (EO)
25. Other recommended strategies to prevent recurrence include:
- venous investigation and surgery<sup>3,4</sup> (I)
  - regular follow-up and skin checks<sup>1,2</sup> (EO)
  - skin care, lower limb exercise and elevation of the affected limb<sup>1-4</sup> (EO)



# Arterial Leg Ulcers



**These guidelines have been developed for health professionals caring for clients with arterial leg ulcers. Diagnosis of the aetiology of a leg ulcer should be undertaken by health professionals with expertise in the area.**

For this summary, all recommendations have had their levels of evidence classified using the National Health and Medical Research Council levels of evidence, as follows:

Level I	Evidence from a systematic review or meta-analysis of at least two level II studies
Level II	Evidence from a well designed randomised controlled trial (for interventions), or a prospective cohort study (for prognostic studies)
Level III	Evidence from non-randomised studies with some control or comparison group (pseudo-randomised controlled trial; non-randomised experimental trial, cohort study, case-control study, time series studies with a control group; historical control study, retrospective cohort study)
Level IV	Evidence from studies with no control or comparison group

An additional rating of Expert Opinion (EO) has been added, for guideline recommendations which are consensus statements provided by a National or International Panel of experts in the area.

This is a summary of guidelines from the following sources, which should be accessed for further details as required:

1. Scottish Intercollegiate Guidelines Network, *Diagnosis and management of peripheral arterial disease: A national clinical guideline*. 2006, Edinburgh: SIGN. [www.sign.ac.uk](http://www.sign.ac.uk)
2. Hopf H. et al. Guidelines for the treatment of arterial insufficiency ulcers. *Wound Repair and Regeneration*, 2006. **14**:693-710.
3. National Clinical Guideline Centre, *Lower limb peripheral arterial disease. Diagnosis and management. NICE Clinical Guideline 147*, 2012: London. <http://publications.nice.org.uk>
4. Hopf H. et al. Guidelines for the prevention of lower extremity arterial ulcers. *Wound Repair and Regeneration*, 2008. **16**:175-188.
5. Nelson E., Bradley M. *Dressings and topical agents for arterial leg ulcers*. Cochrane Database of Systematic Reviews, 2007. **1**: CD001836.
6. Registered Nurses' Association of Ontario, *Assessment and management of foot ulcers for people with diabetes*. 2005. <http://rnao.ca/bpg>



## Assessment

1. All clients with a leg ulcer should be screened for arterial disease, including:
  - examining pedal pulses
  - a Doppler Ankle Brachial Pressure Index (ABPI)

An ABPI less than 0.9 is indicative of arterial disease  
An ABPI over 1.2 is unreliable and indicates further investigation is necessary. Referral for ultrasound duplex scanning may be helpful if there is uncertainty<sup>1-3</sup> (EO)
2. Assessment of leg ulcers and Doppler ABPI assessments should be undertaken by health professionals with training in this area<sup>1,3</sup> (EO)
3. Signs of peripheral vascular disease include loss of hair, shiny or dry skin, mummified or dry and black toes, devitalised soft tissue with dry or wet crust, thickened toe nails, purple colour of limb in dependent position, or cool skin<sup>4</sup> (II)
4. Referral to a specialist is needed when:
  - there is uncertainty in diagnosis
  - there is a low or high ABPI
  - patient has symptoms which limit lifestyle and quality of life (e.g. rest pain)
  - complicated ulcers e.g. multiple aetiologies
  - signs of infection
  - the ulcer appears ischemic<sup>1,2</sup> (EO)

## Management


5. Restoration of blood flow by revascularisation is the intervention most likely to heal arterial leg ulcers. However, surgery must be considered in light of a patient's co-morbidities<sup>2,5</sup> (II)
6. Adequate oxygenation of the wound environment will promote wound healing, and should be promoted through avoidance of smoking, dehydration, cold, stress and pain<sup>2</sup> (III)
7. Topical antimicrobial dressings may be beneficial when wounds are chronically or heavily colonized<sup>2</sup> (III)
8. In general, removal of necrotic and devitalised tissue should be undertaken through mechanical, sharp, autolytic or biological debridement<sup>2</sup> (II)
 

If dry gangrene or eschar is present, however, debridement should not be undertaken until arterial flow has been re-established<sup>2</sup> (III)

Sharp debridement should only be undertaken by health professionals with experience and training in the area<sup>6</sup> (EO)
9. Dressings should be cost effective, acceptable to the client and able to be changed daily or less often where possible<sup>2</sup> (II)
10. Dressings should:
  - maintain a moist wound-healing environment<sup>2</sup> (II)
  - however, dry gangrene or eschar is best left dry until revascularisation<sup>2</sup> (II)

There is insufficient evidence to determine whether choice of topical agent/wound dressing material makes any impact on wound healing<sup>5</sup> (EO)



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11. There is inadequate evidence that the application of topical negative pressure, electrostimulation, ultrasound, intermittent pneumatic compression, or topical oxygen therapy speeds healing of arterial leg ulcers<sup>2</sup> (III)  
(II)  
(III)  
(II)  
(III)
12. Hyperbaric oxygen therapy may be helpful in clients who are unable to be revascularised and whose ulcer is not healing<sup>2</sup> (II)
- Prevention**
13. Reducing risk factors may reduce the risk of arterial ulcer development, including:  
- cessation of smoking  
- maintaining control of diabetes mellitus  
- controlling elevated lipids and hypertension  
- taking anti-platelet therapy  
- controlling weight<sup>1-3</sup> (II)
14. Exercise to increase arterial blood flow is helpful to prevent arterial ulcers<sup>2</sup> (I)
15. Lower extremity protection is important for all clients with known or suspected peripheral arterial disease, including:  
- foot protection with soft, conforming, proper fitting shoes, orthotics and offloading as necessary<sup>4</sup> (II)  
- leg protection to avoid injury<sup>4</sup> (II)  
- protection of digits and heels in clients with decreased mobility with effective pressure relief devices e.g. foam or air cushion boots<sup>4</sup> (II)  
- extreme care is needed when cutting toenails, preferably undertaken by a podiatrist<sup>4</sup> (II)
16. Passive warming of the extremity improves perfusion and may be of benefit in preventing arterial ulcers (e.g. warm socks, rugs, warm environment)<sup>4</sup> (III)
17. Poor psychosocial status (i.e. psychiatric illness, living alone, alcohol abuse, malnutrition) is associated with a higher risk of arterial ulcers and should be addressed with a multidisciplinary care team<sup>4</sup> (II)



# Diabetic Foot Ulcers



**These guidelines have been developed for health professionals caring for clients with diabetic foot ulcers. Diagnosis of the aetiology of a leg or foot ulcer should be undertaken by health professionals with expertise in the area.**

For this summary, all recommendations have had their levels of evidence classified using the National Health and Medical Research Council levels of evidence, as follows:

Level I	Evidence from a systematic review or meta-analysis of at least two level II studies
Level II	Evidence from a well designed randomised controlled trial (for interventions), or a prospective cohort study (for prognostic studies)
Level III	Evidence from non-randomised studies with some control or comparison group (pseudo-randomised controlled trial; non-randomised experimental trial, cohort study, case-control study, time series studies with a control group; historical control study, retrospective cohort study)
Level IV	Evidence from studies with no control or comparison group

An additional rating of Expert Opinion (EO) has been added, for guideline recommendations which are consensus statements provided by a National or International Panel of experts in the area.

This is a summary of guidelines from the following sources, which should be accessed for further details as required:

1. Steed DL et al. Guidelines for the treatment of diabetic ulcers. *Wound Repair and Regeneration* 2006;14:680-692.  
[www3.interscience.wiley.com/cgi-bin/fulltext/118605280/PDFSTART](http://www3.interscience.wiley.com/cgi-bin/fulltext/118605280/PDFSTART)
2. Steed DL et al. Guidelines for the prevention of diabetic ulcers. *Wound Repair and Regeneration* 2008; 16:169-174.  
[www3.interscience.wiley.com/cgi-bin/fulltext/119413543/PDFSTART](http://www3.interscience.wiley.com/cgi-bin/fulltext/119413543/PDFSTART)
3. National Evidence-Based Guideline on Prevention, Identification and Management of Foot Complications in Diabetes. Melbourne Australia 2011.  
<http://t2dgr.bakeridi.edu.au/LinkClick.aspx?fileticket=anrL23t3ADw%3d&tabid=172>
4. Scottish Intercollegiate Guidelines Network, *Management of diabetes. A national clinical guideline*. Edinburgh, Scotland: SIGN 2010.  
[www.sign.ac.uk/pdf/sign116.pdf](http://www.sign.ac.uk/pdf/sign116.pdf)
5. Registered Nurses' Association of Ontario, *Assessment and Management of Foot Ulcers for People with Diabetes*. Toronto, Ontario: RNAO 2005.  
<http://rnao.ca/bpg>
6. Botros M et al. Best practice recommendations for the prevention, diagnosis and treatment of diabetic foot ulcers: Update 2010. *Wound Care Canada* 2010; 8:6-70.  
<http://cawc.net/images/uploads/resources/BestPracticeDFU2010E.pdf>
7. McIntosh A et al. *Prevention and Management of Foot Problems in Type 2 Diabetes: Clinical Guidelines and Evidence*. Sheffield: National Institute for Health and Clinical Excellence 2003.  
[www.nice.org.uk/nicemedia/pdf/CG10fullguideline.pdf](http://www.nice.org.uk/nicemedia/pdf/CG10fullguideline.pdf)



## Assessment

1. Assess all clients with diabetes for the risk of developing a foot ulcer, including:
  - screening for peripheral arterial disease (PAD), by identifying strong pedal pulses and measuring an Ankle Brachial Pressure Index (ABPI). An ABPI less than 0.9 indicates arterial disease. An ABPI over 1.2 is unreliable and requires further investigation<sup>1,2</sup> (I)
  - screening for neuropathy, by testing with a 10g Semmes-Weinstein monofilament, in combination with clinical assessment of sensory, autonomic and motor changes<sup>3,4</sup> (II)
2. Assessment of feet and diabetic foot ulcers should be undertaken by health professionals with training in this area<sup>5</sup> (II)
3. Assess for risk factors (neuropathy, PAD, foot deformity) and classify foot ulcer risk as:
  - low-risk: no risk factors and no history of foot ulcer/amputation;
  - intermediate risk: one risk factor and no history of foot ulcer/amputation; or
  - high risk: 2 or more risk factors and/or history of foot ulcer/amputation<sup>3,4</sup> (III)
4. All Aboriginal and Torres Strait Island people with diabetes should be considered to be at high risk of developing foot complications<sup>3</sup> (EO)
5. Consider use of ulcer grading systems (e.g. the University of Texas wound classification system) to predict probability of ulcer healing or complications<sup>3,6</sup> (III)

6. Referral for medical or specialist assistance is needed when:
  - there is uncertainty in diagnosis
  - there is a low or high ABPI
  - the client would benefit from revascularisation
  - there are signs of infection or inflammation
  - there is no progress in epithelialisation from the margin within two weeks of debridement and commencement of offloading therapy
  - the wound can be probed to bone
  - the wound deteriorates or new ulceration occurs<sup>1,7</sup> (II)
7. Document regularly wound characteristics and progress in wound healing;<sup>1</sup> (II)
  - including location, length, width, depth, ulcer bed characteristics, exudate, odour and peri-ulcer skin condition<sup>6</sup> (EO)

## Management

8. Care of a diabetic foot ulcer should be undertaken by a multidisciplinary team, including podiatrist, orthotist, GP, wound care nurse, and endocrinologist<sup>3,4</sup> (III)
9. Consider use of remote expert advice with digital imaging for people living in remote areas who are unable to attend a multidisciplinary foot care service<sup>3</sup> (III)
10. Offloading of pressure points is necessary. Acceptable methods to relieve pressure on the wound include crutches, walkers, wheelchairs, custom-made shoes or inserts, shoe modifications, custom relief orthotic walkers, diabetic boots, forefoot and heel relief shoes, total contact casts<sup>3,4,6</sup> (I)





11. Adequate oxygenation of the wound environment will promote healing, and should be promoted through avoidance of dehydration, smoking, cold, stress and pain<sup>1</sup> (III)
  12. Topical antimicrobial dressings may be beneficial when wounds are chronically or heavily colonised<sup>1</sup> (II)
  13. The ulcer should be irrigated with a neutral, non-irritating solution, e.g. warmed sterile water or saline, and cleansed with minimal chemical or mechanical trauma<sup>1</sup> (IV)
  14. Removal of necrotic and devitalised tissue should be undertaken through mechanical, sharp, autolytic or biological debridement, unless revascularisation is necessary<sup>1,7</sup> (II)  
Sharp debridement should only be undertaken by health professionals with experience and training in the area<sup>5</sup> (EO)
  15. Dressings should:
    - maintain a moist wound-healing environment (except where dry gangrene or eschar is present)<sup>1</sup> (III)
    - manage wound exudate and protect peri-ulcer skin<sup>1</sup> (I)
  16. Treatment should be re-evaluated when there is failure to achieve ulcer size reduction of 40% after 4 weeks of therapy<sup>1</sup> (II)
  17. Optimising glucose control improves wound healing<sup>1</sup> (III)
  18. In some clients, additional therapy may be helpful, as follows:
    - topical negative pressure wound therapy promotes healing of diabetic wounds<sup>3,4</sup> (II)
    - cultured skin equivalents may be of benefit in healing diabetic foot ulcers<sup>3</sup> (I)
    - hyperbaric oxygen therapy reduces risk of amputation in patients with ischemic diabetic foot ulcers<sup>3</sup> (I)
- ## Prevention
19. Offer a foot protection program for people who are assessed as having intermediate or high risk for foot ulceration, including foot care education, podiatry review and appropriate footwear<sup>3</sup> (II)
  20. Protective footwear should be prescribed for all at risk clients, i.e. those with PAD, neuropathy, previous foot ulceration and/or amputation, callus, foot deformity<sup>1</sup> (II)
  21. Acceptable methods of offloading include crutches, walkers, wheelchairs, custom shoes or inserts, shoe modifications, custom relief orthotic walkers, diabetic boots, forefoot and heel relief shoes, total contact casts<sup>1</sup> (I)
  22. Good foot care and daily inspection of the feet will reduce recurrence of foot ulceration<sup>1</sup> (II)
  23. A foot examination should be undertaken by a health professional with skills in the area:
    - annually in people with low risk feet<sup>2,7</sup> (I)
    - at least every 3-6 months in people with intermediate-risk or high risk feet<sup>3</sup> (EO)
  24. Glucose levels should be monitored regularly<sup>1,2</sup> (II)
  25. Potential modifiable risk factors for diabetic foot ulceration include peripheral vascular disease, neuropathy, foot deformities, plantar callus and smoking<sup>7</sup> (IV)





# Pressure Injuries



**These guidelines have been developed for health professionals caring for clients with or at risk of pressure injuries. Assessment, management and prevention of pressure injury should be undertaken by health professionals with expertise in the area.**

For this summary, all recommendations have had their levels of evidence classified using the National Health and Medical Research Council levels of evidence, as follows:

Level I	Evidence from a systematic review or meta-analysis of at least two level II studies
Level II	Evidence from a well designed randomised controlled trial (for interventions), or a prospective cohort study (for prognostic studies)
Level III	Evidence from non-randomised studies with some control or comparison group (pseudo-randomised controlled trial; non-randomised experimental trial, cohort study, case-control study, time series studies with a control group; historical control study, retrospective cohort study)
Level IV	Evidence from studies with no control or comparison group

An additional rating of Expert Opinion (EO) has been added, for guideline recommendations which are consensus statements provided by a National or International Panel of experts in the area.

This is a summary of guidelines from the following sources, which should be accessed for further details as required:

1. Australian Wound Management Association. *Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury*. Osborne Park, WA: Cambridge Media 2012. [http://www.awma.com.au/publications/2012\\_AWMA\\_Pan\\_Pacific\\_Guidelines.pdf](http://www.awma.com.au/publications/2012_AWMA_Pan_Pacific_Guidelines.pdf)
2. Association for the Advancement of Wound Care. *Association for the Advancement of Wound Care guideline of pressure ulcer guidelines*. Malvern, PA: AAWC 2010. <http://www.guidelines.gov/content.aspx?id=24361>
3. Stechmiller J et al. Guidelines for the prevention of pressure ulcers. *Wound Repair and Regeneration* 2008. 16: 151-168. <http://onlinelibrary.wiley.com/doi/10.1111/j.1524-475X.2008.00356.x/pdf>
4. Wound Ostomy and Continence Nurses Society. *Guideline for prevention and management of pressure ulcers*. Mount Laurel, NJ: WOCN 2010. <http://guideline.gov/content.aspx?id=23868>
5. Registered Nurses' Association of Ontario. *Risk assessment and prevention of pressure ulcers. (Revised)*. Toronto, ON: RNAO 2011. [http://mao.ca/sites/rnao-ca/files/Risk\\_Assessment\\_and\\_Prevention\\_of\\_Pressure\\_Ulcers.pdf](http://mao.ca/sites/rnao-ca/files/Risk_Assessment_and_Prevention_of_Pressure_Ulcers.pdf)
6. National Institute for Clinical Excellence. *The use of pressure-relieving devices (beds, mattresses and overlays) for the prevention of pressure ulcers in primary and secondary care*. London: Royal College of Nursing 2004. <http://www.ncbi.nlm.nih.gov/books/NBK48950/pdf/TOC.pdf>
7. Royal College of Nursing. *The management of pressure ulcers in primary and secondary care: A clinical practice guideline*. London: RCN & NICE 2005. [http://www.rcn.org.uk/\\_data/assets/pdf\\_file/0017/65015/management\\_pressure\\_ulcers.pdf](http://www.rcn.org.uk/_data/assets/pdf_file/0017/65015/management_pressure_ulcers.pdf)
8. Hadwen G. Pressure area care: Prevention. *(JBI) Best Practice*: 2011. <http://connect.jbiconnectplus.org>
9. Whitney J et al. Guidelines for the treatment of pressure ulcers. *Wound Repair and Regeneration* 2006. 14: 663-679. <http://onlinelibrary.wiley.com/doi/10.1111/j.1524-475X.2006.00175.x/pdf>



## Assessment


1. All clients should be assessed for their risk of developing pressure injuries on admission and following any change in health status.<sup>1,2</sup> The resulting risk status and risk factors should be documented regularly.<sup>3</sup>
  - Include a skin assessment<sup>1</sup>; (III)
  - medical/surgical history<sup>1</sup>; (EO)
  - and a pressure injury risk assessment tool.<sup>1,2,4,5</sup> (III)

There is little evidence supporting the effectiveness of any one risk assessment tool over another<sup>1</sup> (II)
2. Assessment should be carried out by staff with training and expertise in the assessment of risk factors and pressure injuries<sup>3,6</sup> (III)
3. Risk factors include:
  - Immobility or reduced physical mobility<sup>3,6,7</sup> (III)
  - Loss of sensation<sup>3,6</sup> (III)
  - Impaired cognitive state or level of consciousness<sup>6</sup> (III)
  - Urinary or faecal incontinence<sup>3</sup> (III)
  - Poor nutrition or recent weight loss<sup>3,6,7</sup> (III)
  - Dry skin<sup>7</sup> (III)
  - Acute or severe illness<sup>3,6</sup> (III)
4. Individuals found to be at risk of developing pressure injuries should have their skin assessed daily for signs of impaired skin integrity<sup>1,8</sup> (III)
5. Regularly assess and monitor wound characteristics (i.e. location, dimensions, stage, exudate characteristics, signs of infection, wound bed characteristics, surrounding skin, undermining or tracking, odour), and progress in healing, including use of a validated pressure injury healing assessment scale<sup>1</sup> (III)

6. All clients with pressure injuries should be regularly assessed for presence of pain<sup>1,5</sup> (IV)
  - using a validated pain assessment tool<sup>1,5</sup> (III)
  - and a pain management plan developed<sup>1</sup> (EO)

## Management

7. The pressure injury stage should be documented using an accepted classification system, e.g. the NPUAP/EPUAP 2009 pressure injury classification system<sup>1</sup> (EO)
8. Pressure-relieving surfaces and strategies (e.g. mobilising, regular repositioning) should be in place 24 hours/day for all individuals with pressure injuries<sup>6,7,9</sup> (IV)
9. A high specification reactive (constant low pressure) or active (alternating pressure) support surface should be used in clients with pressure injuries<sup>1</sup> (I)
10. If there is no progress in healing, or a stage 3 – 4 injury is present (or unstageable or deep tissue injuries), an alternating pressure, low-air-loss, continuous low pressure system or air-fluidised bed should be used<sup>7,9</sup> (I)
11. A static support surface may be appropriate for clients who can move freely and where there is no 'bottoming out'<sup>2,9</sup>; (I)
  - for clients who cannot move freely, or who 'bottom out', a dynamic support surface may be appropriate<sup>9</sup> (I)
12. Avoid positioning individuals directly on pressure injuries or bony prominences<sup>1</sup> (III)

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13. Limit the amount of time with the head of bed elevated<sup>3,9</sup> (III)
14. The injury should be irrigated with a neutral, non-irritating, non-toxic solution, and cleansing undertaken with minimal chemical or mechanical trauma<sup>9</sup> (IV)
15. Removal of necrotic and devitalised tissue should be undertaken through mechanical, sharp, autolytic or biological debridement<sup>9</sup> (II)
16. Dressings should:
- Maintain a moist wound-healing environment<sup>1,9</sup> (I)
  - Manage wound exudate and protect peri-ulcer skin<sup>1,9</sup> (I)
  - Remain in place and minimise shear, friction, skin irritation and pressure<sup>9</sup> (II)
17. There is insufficient evidence to indicate:
- Whether any specific dressing is more effective in healing pressure injuries<sup>1</sup> (I)
  - Whether antimicrobials are effective in treating pressure injuries<sup>7</sup> (I)
- However, hydrocolloid dressings are generally more cost-effective than moist gauze<sup>1</sup> (III)
18. The following interventions may promote healing in pressure injuries when used in combination with regular care:
- Topical negative pressure therapy, in stage 3-4 pressure injuries<sup>1</sup> (III)
  - Electrotherapy, in stage 2-4 injuries<sup>1</sup> (II)
  - Pulsed electromagnetic therapy, in stage 2-4 injuries<sup>1</sup> (III)
  - Ultraviolet light C therapy, in stage 2-4 injuries<sup>1</sup> (IV)
19. There is currently insufficient evidence to recommend:
- Hyperbaric oxygen therapy<sup>1</sup> (I)
  - Infrared therapy<sup>1</sup> (EO)
  - Laser therapy<sup>1</sup> (EO)
  - Therapeutic ultrasound therapy<sup>1</sup> (I)
20. Provide high protein oral nutritional supplements in addition to a regular diet for clients with a pressure injury, including arginine supplements in people with a stage 2 or greater pressure injury<sup>1</sup> (II)
- ### Prevention
21. Formal documented policies and procedures should be in place to guide prevention plans for pressure injuries, including identification of areas and groups at risk<sup>3</sup> (III)
22. Individuals found to be at risk of developing pressure injuries should have a preventative management plan in place<sup>1</sup> (II)
23. A multidisciplinary team of health care professionals should evaluate preventative pressure injury care strategies at least quarterly<sup>3</sup> (III)
24. High specification reactive support foam mattresses should be used rather than standard mattresses in individuals found as being at risk of developing a pressure injury.<sup>1</sup> Active support mattresses could be used as an alternative in these clients<sup>1</sup> (I)
25. Heels should be completely off loaded in all positions for at-risk individuals<sup>5</sup> (IV)
26. Avoid positioning individuals directly on bony prominences<sup>1</sup> (EO)



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|---|---|
| <p>27. Pillows and foam wedges can be used to reduce pressure on bony prominences<sup>3</sup> (II)</p> <p>28. Avoid foam rings, donuts, or fluid filled bags for pressure reduction<sup>1, 3, 9</sup> (II)</p> <p>29. Avoid ordinary sheepskin - medical grade sheepskin is recommended<sup>1</sup> (I)</p> <p>30. Avoid prolonged sitting in a chair or wheelchair;<sup>1, 2</sup> and positioning hips at an angle greater than 90° when seated<sup>1</sup> (II) (EO)</p> <p>31. Reposition the client as frequently as required. Frequency of repositioning should consider their risk, skin response, mobility, medical condition, and the support surface used<sup>1</sup> (II)</p> <p>32. Limit the amount of time with the head of bed elevated<sup>3</sup> and maintain head of bed at/or below 30° or at the lowest degree of elevation<sup>2, 4</sup> (III) (IV)</p> <p>33. Employ correct lifting and manual handling techniques, including use of lift sheets or devices to transfer clients<sup>1, 3</sup> (IV)</p> <p>34. Protect skin exposed to friction<sup>1</sup> (EO)</p> | <p>35. Avoid:</p> <ul style="list-style-type: none"> <li>- Potentially irritating substances on skin or substances that alter skin pH<sup>1, 3</sup> (III)</li> <li>- Dryness or maceration of skin (i.e. moisturise dry skin, avoid sustained contact with body fluids, encourage continence)<sup>1, 5</sup> (IV)</li> <li>- Vigorous massage over bony prominences<sup>2</sup> (III)</li> </ul> <p>36. Maintain optimal nutritional status;<sup>1, 2</sup> nutritional support should be given to those who are undernourished or with an identified nutritional deficiency<sup>7, 9</sup> (II) (IV)</p> <p>37. Educate client/caregiver about the causes and risk factors for pressure injuries development and ways to minimise risk<sup>2, 4</sup> (III)</p> |
|---|---|

# Wound Care



**These guidelines have been developed for health professionals caring for clients with wounds. Assessment and management of wounds should be undertaken by health professionals with expertise in the area.**

For this summary, all recommendations have had their levels of evidence classified using the National Health and Medical Research Council levels of evidence, as follows:

Level I	Evidence from a systematic review or meta-analysis of at least two level II studies
Level II	Evidence from a well designed randomised controlled trial (for interventions), or a prospective cohort study (for prognostic studies)
Level III	Evidence from non-randomised studies with some control or comparison group (pseudo-randomised controlled trial; non-randomised experimental trial, cohort study, case-control study, time series studies with a control group; historical control study, retrospective cohort study)
Level IV	Evidence from studies with no control or comparison group

An additional rating of Expert Opinion (EO) has been added, for guideline recommendations which are consensus statements provided by a National or International Panel of experts in the area.

This is a summary of guidelines from the following sources, which should be accessed for further details as required:

1. World Union of Wound Healing Societies. *Principles of best practice: Minimising pain at wound dressing-related procedures. A consensus document*. London: MEP Ltd 2004. [www.woundsinternational.com/pdf/content\\_39.pdf](http://www.woundsinternational.com/pdf/content_39.pdf)
2. Australian Wound Management Association. *Standards for wound management*. 2nd ed. Osborne Park, WA: Cambridge Media 2010. [www.awma.com.au/publications/2011\\_standards\\_for\\_wound\\_management\\_v2.pdf](http://www.awma.com.au/publications/2011_standards_for_wound_management_v2.pdf)
3. The Wound Healing and Management Node Group. *Chronic wound management. (JBI) Best Practice*: 2011. <http://connect.jbiconnectplus.org>
4. Australian Wound Management Association. *Position Document: Bacterial impact on wound healing: From contamination to infection*. AWMA 2011. [www.awma.com.au/publications/2011\\_bacterial\\_impact\\_position\\_1.5.pdf](http://www.awma.com.au/publications/2011_bacterial_impact_position_1.5.pdf)
5. Hopf H et al. Guidelines for the treatment of arterial insufficiency ulcers. *Wound Repair and Regeneration* 2006. 14(6): 693-710. <http://onlinelibrary.wiley.com/doi/10.1111/j.1524-475X.2006.00177.x/pdf>
6. World Union of Wound Healing Societies. *Principles of best practice: Wound exudate and the role of dressings. A consensus document*. London: MEP Ltd 2007. [www.woundsinternational.com/pdf/content\\_42.pdf](http://www.woundsinternational.com/pdf/content_42.pdf)
7. Medical Advisory Secretariat. *Community-based care for chronic wound management: An evidence-based analysis*. Ontario Health Technology Assessment Series 2009. 9(18). [www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev\\_smcc\\_wound\\_20091019.pdf](http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev_smcc_wound_20091019.pdf)
8. Fernandez R, Griffiths R. *Water for wound cleansing*. Cochrane Database of Systematic Reviews 2012(2). <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003861.pub3/pdf>
9. Whitney J et al. Guidelines for the treatment of pressure ulcers. *Wound Repair and Regeneration* 2006. 14(6): 663-679. <http://onlinelibrary.wiley.com/doi/10.1111/j.1524-475X.2006.00175.x/pdf>
10. *Best Practice Statement: The use of topical antiseptic/antimicrobial agents in wound management*. 2nd ed. Wounds UK 2011. [www.wounds-uk.com/best-practice-statements](http://www.wounds-uk.com/best-practice-statements)




## Assessment

1. Assessment and wound management should be carried out by staff with training, skills and experience in wound care<sup>1</sup> (EO)
2. Assess and document: physical examination, medical history, social history, psychological well-being, nutritional status, pain (include a pain scale), history of previous wounds, current wound duration, site, current and previous wound treatments<sup>2</sup> (EO)
3. Assess, classify and document wound size, shape, depth, tissue type, colour, odour, exudate, wound margin, surrounding skin and tissue condition<sup>2</sup> (EO)
4. Assess and document signs of infection: cellulitis, erythema, malodour, increased pain, delayed healing, deterioration of the wound, purulent exudate<sup>2</sup> (IV)
5. Reassess and document progress in healing regularly<sup>3</sup>, including evaluation of the response of the client and wound to any treatment for wound infection<sup>4</sup>
6. Ongoing assessment of pain should be performed before, during, and after each dressing procedure;<sup>1</sup> (EO)  
using a standardized assessment tool<sup>1</sup> (IV)
7. Referral for specialist treatment may be necessary if there is:
  - failure to progress to heal
  - unexpected change in level or type of exudate
  - unexpected change in level or type of pain
  - there is uncertainty in diagnosis
  - signs of infection
  - the ulcer appears ischemic<sup>1,5,6</sup> (EO)

## Management

8. Managing chronic wounds with a multidisciplinary team promotes wound healing and reduces severity of wound-associated pain and frequency of wound treatments<sup>7</sup> (III)
9. Strategies for minimising infection risk should be embedded in a wound management plan<sup>4</sup> (EO)
10. Acute and chronic wounds may be cleansed using potable tap water if normal saline is unavailable<sup>8</sup> (I)
11. The ulcer should be irrigated with a neutral, non-irritating, non-toxic solution, and cleansing undertaken with minimal chemical or mechanical trauma<sup>9</sup> (IV)
12. Removal of necrotic and devitalised tissue should be undertaken through mechanical, sharp, autolytic or biological debridement<sup>9</sup> (II)
  - \* If dry gangrene or eschar is present, however, debridement should not be undertaken until arterial flow has been re-established<sup>5</sup> (III)
13. A moist wound environment should be maintained for optimal healing<sup>2</sup> (IV)  
A moist wound environment promotes healing by enabling migration of tissue-repairing cells and spread of immune and growth factors. Extreme wetness or dryness may delay healing<sup>6</sup> (IV)



- 
14. Dressings should:
    - maintain a moist wound-healing environment<sup>2,3</sup> (IV)
    - manage wound exudate and protect peri-ulcer skin<sup>6</sup> (I)
    - remain in place and minimise shear, friction, skin irritation and pressure<sup>9</sup> (II)
    - be non-adherent to reduce trauma on removal<sup>1,6</sup> (EO)
    - however, dry gangrene or eschar is best left dry until revascularisation<sup>5</sup> (III)
  15. Dressings should be cost effective, acceptable to the client and able to be changed once per day or less often when possible<sup>1,6</sup> (II)
  16. A topical antimicrobial agent should be used in clients with critically colonised, localised or spreading wound infection;<sup>4</sup>(III) the length of treatment should be determined by the response of the wound and the client<sup>4</sup> (EO)
  17. Adequate oxygenation of the wound environment will promote healing, and should be promoted through avoidance of dehydration, cold, stress and pain<sup>5</sup> (III)
  18. Effective pain management strategies should be implemented to minimise pain during wound dressing procedures<sup>1</sup> (EO)
  19. Maintain optimal levels of nutrition<sup>3</sup> (II)
  20. Provide client education on all aspects of wound management<sup>6</sup> (EO)
  21. Promote psychosocial support<sup>6</sup> (EO)



# Nutrition and Wound Healing



**This summary has been developed for health professionals caring for clients with impaired skin integrity or those at risk of loss of skin integrity. Assessment and management of skin integrity should be undertaken by health professionals with expertise in the area.**

For this summary, all recommendations have had their levels of evidence classified using the National Health and Medical Research Council levels of evidence, as follows:

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1. Australian Wound Management Association, *Standards for wound management*. 2nd ed 2010, Osborne Park, WA: Cambridge Media. [www.awma.com.au/publications/2011\\_standards\\_for\\_wound\\_management\\_v2.pdf](http://www.awma.com.au/publications/2011_standards_for_wound_management_v2.pdf)
2. Trans Tasman Dietetic Wound Care Group, *Evidence based practice guidelines for the dietetic management of adults with pressure injuries*. Review 1: 2011. [http://daa.asn.au/wp-content/uploads/2011/09/Trans-Tasman\\_Dietetic-Wound-Care-Group-Pressure-Injury-Guidelines-2011.pdf](http://daa.asn.au/wp-content/uploads/2011/09/Trans-Tasman_Dietetic-Wound-Care-Group-Pressure-Injury-Guidelines-2011.pdf)
3. Dörner B, Posthauer M, Thomas D, National Pressure Ulcer Advisory Panel, *The role of nutrition in pressure ulcer prevention and treatment: National Pressure Ulcer Advisory Panel White Paper* 2009. [www.ncbi.nlm.nih.gov/pubmed/19521288](http://www.ncbi.nlm.nih.gov/pubmed/19521288)
4. Australian Wound Management Association, *Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury* 2012, Osborne Park, WA: Cambridge Media [www.awma.com.au/publications/2012\\_AWMA\\_Pan\\_Pacific\\_Guidelines.pdf](http://www.awma.com.au/publications/2012_AWMA_Pan_Pacific_Guidelines.pdf)
5. Wilkinson E: *Oral zinc for arterial and venous leg ulcers*. Cochrane Database of Systematic Reviews 2012. Issue 8, CD001273.



## Assessment

1. Nutritional screening and assessment should be conducted in people with or at risk of developing a wound in all health care settings,<sup>1,2</sup> (EO)  
using a validated tool, such as the Mini Nutritional Assessment (MNA)<sup>2</sup> (III)
2. Nutritional assessment is a continual monitoring and review process which lasts as long as the wound healing process, with each condition change and/or delayed healing<sup>2,3</sup> (EO)
3. Document nutritional status of people with, or at risk of, developing a wound<sup>1</sup> (EO)

## Management

4. Address nutritional deficits to optimise the wound healing potential of the individual<sup>1</sup> (EO)
5. Nutritional interventions should be implemented to assist healing of pressure injuries<sup>2</sup> (III)  
Start with modification of current dietary intake, and progress to the use of oral nutritional supplements when adequate intake of nutrients is not provided from dietary sources<sup>2</sup> (III)
6. Consider the following oral nutritional supplements for wound healing
  - A high protein supplement in people with a pressure injury<sup>4</sup> (II)
  - Arginine containing supplements in people with a stage 2 or greater pressure injuries and without infection or sepsis<sup>2,4</sup> (II)
  - Multivitamin supplements in people with a pressure injury who are identified as having nutritional deficits<sup>4</sup> (II)
7. Oral zinc supplements do not improve healing of arterial and venous leg ulcers<sup>5</sup> (II)

## Prevention

8. Maintain optimal nutritional status with adequate calories, protein, carbohydrates, fat and vitamins and minerals<sup>2,3</sup> (II)
9. A high protein oral nutritional supplement together with a regular diet may help prevent development of pressure injuries in people at a high risk of pressure injury<sup>4</sup> (II)
10. Refer people with nutritional risks or deficits to a dietician<sup>2</sup> (EO)







### 3.2.2 Tip sheets

It has been found that clients, family and carers appreciate a simple list of dos and don'ts to manage and prevent wounds. The tipsheets provide wound sufferers and their carers with such a list. Tip sheets in conjunction with the relevant brochures are a valuable resource for CSIs to distribute to clients, family and carers.



- Skin Care
- Skin Tears
- Venous Leg Ulcers
- Arterial Leg Ulcers
- Diabetic Foot Ulcers
- Pressure Injuries
- Wound Care
- Compression Stockings
- Nutrition and Hydration

The following print resources can be photocopied directly from this booklet or alternatively can be printed from the relevant files included on the CSI resource files CD. Two different files of each print resource is available on the CD. The ones with LocalPrinter included in the filespec can be printed to the local printer connected to your PC. The ones with CommercialPrinter included in the filespec can be sent to a commercial printer for a professional output.

Samples of all the tip sheets are included at the back of this booklet





# Skin Care



promoting  
**healthy skin**

*Champions for Skin Integrity*

TIP SHEET



Use unscented, **soap-free** body wash

**Moisturise** skin twice daily – apply in the direction of hair growth

**Pat** skin dry, do not rub

**Protect** skin exposed to friction

Eat a **healthy** balanced diet and drink 6-8 glasses of **fluid** every day



Avoid **overheating** skin – change position regularly

Avoid leaving skin in contact with **moisture** – barrier creams may help

Avoid **tapes** and adhesives on the skin





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CRICOS No. 00213J

**References:**

- Best Practice Statement: *Care of the Older Person's Skin*. 2nd ed. 2012: Wounds UK.
- The Joanna Briggs Institute: *Topical skin care in aged care facilities*. *Best Practice*: 2007, 11:1-4
- AWMA, *Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury* 2012, Cambridge Media Osborne Park, WA.
- Stechmiller J et al.: Guidelines for the prevention of pressure ulcers. *Wound Rep Regen* 2008, 16:151-68

This project is funded by the Australian Government Department of Health and Ageing under the Encouraging Better Practice in Aged Care (EBPAC) program

# Skin Tears



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TIP SHEET



**Moisturise** skin twice daily

Pad or **cushion** equipment and furniture (e.g. walkers, wheelchairs)

Drink 6-8 glasses of **fluid** every day

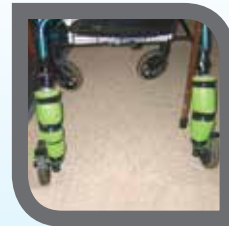
Wear long sleeves and pants, or limb **protectors** to protect the skin

Ensure adequate **lighting** to avoid bumping into furniture



Do not use soap – use an unscented, **soap-free** body wash to avoid drying the skin

Avoid **tapes** and adhesives on the skin





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CRICOS No. 00213J

**References:**

Ayello E, Sibbald R, *Preventing pressure ulcers and skin tears, in Evidence-based geriatric nursing protocols*, Capezuti et al. Eds. 2008, Springer: New York. 403-29

Ratliff C, Fletcher K, *Skin Tears: A review of the evidence to support prevention and treatment*. *Ostomy Wound Management*, 2007.53(3)

*Best Practice Statement: Care of the Older Person's Skin*. Wounds UK, 2012, 2nd ed

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# Venous Leg Ulcers



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TIP SHEET



Wear compression **stockings** or socks. A stocking applicator can help put them on

Have your compression stockings **fitted** professionally

**Replace** stockings every six months or if damaged

Put your **feet up** (higher than your heart) 3-4 times each day for at least 15 minutes

**Exercise** regularly e.g. walking or ankle exercises

**Moisturise** your skin twice daily

**Check** your legs daily for any broken areas, swelling or redness, and see your health professional for regular check-ups





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**References:**

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AWMA, *Australian and New Zealand Clinical Practice Guidelines for Prevention and Management of Venous Leg Ulcers*, 2011, AWMA: Barton.ACT

SIGN, *Management of chronic venous leg ulcers*, 2010, SIGN: Edinburgh

**This project is funded by the Australian Government Department of Health and Ageing under the Encouraging Better Practice in Aged Care (EBPAC) program**



# Arterial Leg Ulcers



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TIP SHEET



**Exercise** legs gently and often – try walking or ankle exercises (flexing, circling)

Have a **podiatrist** care for your feet

**Protect** your legs and feet – wear shoes that fit well and orthotics if needed

Keep legs **warm** – e.g. rugs, clothes – do not use a heat source near/on them

Keep yourself at a healthy **weight**

**Control** diabetes, lipids and blood pressure



Do not **smoke**

Never put **compression** bandages or stockings on a leg with poor arterial supply





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**References:**

Scottish Intercollegiate Guidelines Network, *Diagnosis and management of peripheral arterial disease*. 2006, Edinburgh: SIGN

Hopf H et al. Guidelines for the treatment of arterial insufficiency ulcers.  
*Wound Rep Regen* 2006. 14:693

National Clinical Guideline Centre, *Lower limb peripheral arterial disease*.  
*NICE Guideline 147*, 2012: London

Hopf H et al. Guidelines for prevention of lower extremity arterial ulcers.  
*Wound Rep Regen* 2008. 16:175

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# Diabetic Foot Ulcers



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TIP SHEET



Have a **podiatrist** care for and check your feet at least once a year

**Inspect**, wash and dry feet daily, especially between toes

**Monitor** blood sugar levels regularly

**Check** shoes and socks for sharp or rough edges or seams before putting them on

Check the **temperature** of the water before putting your feet in



Do not walk indoors or outdoors without well-fitting **shoes**

Do not **smoke**





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**References:**

Steed DL et al. Guidelines for the treatment of diabetic ulcers. *Wound Repair and Regeneration* 2006. 14(6):680-692

Steed DL et al. Guidelines for the prevention of diabetic ulcers. *Wound Repair and Regeneration* 2008. 16(2):169-174

*National Evidence-Based Guideline on Prevention, Identification and Management of Foot Complications in Diabetes*. Melbourne Australia 2011

McIntosh A et al. *Prevention and Management of Foot Problems in Type 2 Diabetes*. Sheffield: NICE 2003

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# Pressure Injuries



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TIP SHEET



Change **position** frequently

Use a high specification  
**mattress** if at risk of pressure  
injuries

Use pillows and foam wedges  
to **protect** bony areas

Use an unscented, **soap-free**  
body wash

Eat a **healthy** nutritious diet



Do not use foam **rings** or donuts

Avoid rubbing or **massaging**  
over bony areas

Avoid any contact of heels or  
sacrum with hard surfaces





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CRICOS No. 00213J

**References:**

AWMA. *Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury*. Osborne Park, WA: Cambridge Media 2012

AAWC. *Association for the Advancement of Wound Care guideline of pressure ulcer guidelines*. Malvern, PA: AAWC 2010

Stechmiller J et al. *Guidelines for the prevention of pressure ulcers*. *Wound Rep Regen* 2008. 16:151-168

RNAO. *Risk assessment and prevention of pressure ulcers. (Revised)*. Toronto, ON: RNAO 2011

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# Wound Care



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**healthy skin**

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TIP SHEET



Clean wounds gently with clean tap water or saline – avoid strong chemicals

Keep wounds moist by covering them with a dressing

Reduce frequency of dressing changes to once per day or less often when possible

Avoid getting any non-waterproof wound dressings wet

Use a non-adherent wound dressing - if it sticks, soak off with tap water or saline

See your health professional if increased heat, redness, swelling or purulent discharge occurs



Do not leave a wound open to the air or sun – dry wounds heal more slowly

Do not use tape or adhesives on your skin





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WUWHS. Principles of best practice: *Wound exudate and the role of dressings*. London: MEP Ltd 2007

Fernandez R and Griffiths R. *Water for wound cleansing*. Cochrane Database of Systematic Reviews 2012(2)

Whitney J et al. Guidelines for the treatment of pressure ulcers. *Wound Rep Regen* 2006;14:663-79

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# Compression Stockings

TIP SHEET



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Replace compression stockings every 6 months or if they have a ladder or hole

Remove compression stockings immediately and seek advice if toes go purple or blue, the leg swells above or below the stockings, or you develop severe pain

If you remove compression stockings at night, reapply them first thing in the morning

Use a stocking applicator

Gently hand wash stockings, squeeze moisture out in a towel and dry in the shade

Wear rubber dishwashing gloves to help put your stockings on and to remove your stockings more easily



Do not wear rings, watches and jewellery when applying compression stockings

Do not leave any wrinkles in compression stockings



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# Nutrition & Hydration



## promoting healthy skin

*Champions for Skin Integrity*



Drink plenty of **fluids** (fluids can include water, jelly, soup, juice, ice-cream)

Have a variety of **healthy** snacks handy

Eat a balanced, healthy **diet** with adequate calories and protein

Sit **upright** when eating or drinking

Ensure good **dental** hygiene

**Nutrients** important for wound healing include:

- **Protein** (1–2 serves per day, e.g. meat, dairy products, legumes, nuts)
- **Vitamin C** (2–5 serves per day, e.g. citrus fruits, berries, capsicum, kiwi fruit, broccoli)
- **Vitamin A** (1-2 serves per day, e.g. sweet potato, carrots, broccoli, spinach, rockmelon)

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**References:**

Trans Tasman Dietetic Wound Care Group, *Evidence based practice guideline for the dietetic management of adults with pressure injuries. Review 1: 2011*

Dorner B et al, *The role of nutrition in pressure ulcer prevention and treatment*, 2009, NPUAP

AWMA, *Pan Pacific Clinical Practice Guideline for Prevention and Management of Pressure Injury* 2012, Osborne Park, WA: Cambridge Media

Australian Government NHMRC, *Dietary Guidelines for Australian Adults*, [www.nhmrc.gov.au/\\_files\\_nhmrc/publications/attachments/n29.pdf](http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/n29.pdf)

**This project is funded by the Australian Government Department of Health and Ageing under the Encouraging Better Practice in Aged Care (EBPAC) program**







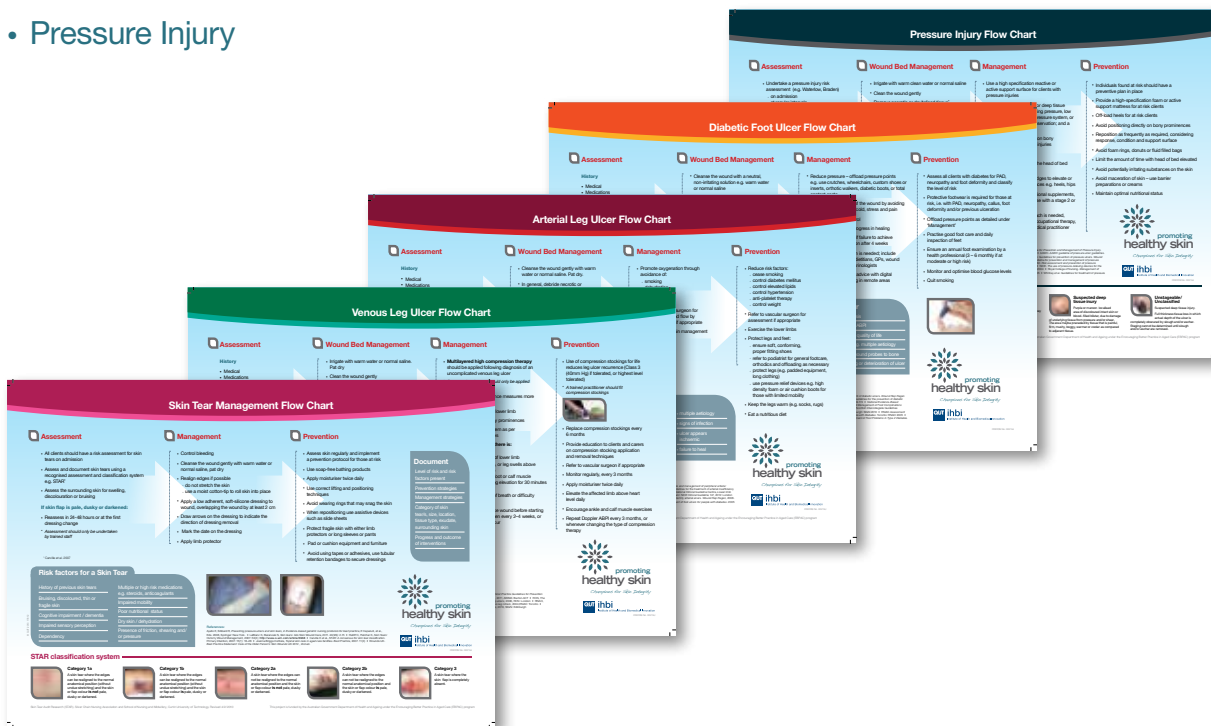
### 3.2.3 Flow Charts

Flow charts have been designed to be mounted on notice boards in areas where wounds are managed. They provide the health professional caring for wounds with an easy to follow ready reference for the assessment, management and prevention of each of the major wound categories. It has been found that flow charts printed at A3 size and laminated provide an excellent wall mounted wound management tool.



- Skin Tear Management
- Venous Leg Ulcer
- Arterial Leg Ulcer
- Diabetic Foot Ulcer
- Pressure Injury

The following print resources can be photocopied directly from this booklet or alternatively can be printed from the relevant files included on the CSI resource files CD. Two different files of each print resource is available on the CD. The ones with LocalPrinter included in the filespec can be printed to the local printer connected to your PC. The ones with CommercialPrinter included in the filespec can be sent to a commercial printer for a professional output.



# Skin Tear Management Flow Chart

## Assessment

- All clients should have a risk assessment for skin tears on admission
- Assess and document skin tears using a recognised assessment and classification system e.g. STAR<sup>1</sup>
- Assess the surrounding skin for swelling, discolouration or bruising

### If skin flap is pale, dusky or darkened:

- Reassess in 24-48 hours or at the first dressing change
- \* *Assessment should only be undertaken by trained staff*

<sup>1</sup> Carville et al. 2007

## Management

- Control bleeding
- Cleanse the wound gently with warm water or normal saline, pat dry
- Realign edges if possible
  - do not stretch the skin
  - use a moist cotton-tip to roll skin into place
- Apply a low adherent, soft-silicone dressing to wound, overlapping the wound by at least 2 cm
- Draw arrows on the dressing to indicate the direction of dressing removal
- Mark the date on the dressing
- Apply limb protector

## Prevention

- Assess skin regularly and implement a prevention protocol for those at risk
- Use soap-free bathing products
- Apply moisturiser twice daily
- Use correct lifting and positioning techniques
- Avoid wearing rings that may snag the skin
- When repositioning use assistive devices such as slide sheets
- Protect fragile skin with either limb protectors or long sleeves or pants
- Pad or cushion equipment and furniture
- Avoid using tapes or adhesives, use tubular retention bandages to secure dressings

## Risk factors for a Skin Tear

History of previous skin tears	Multiple or high risk medications e.g. steroids, anticoagulants
Bruising, discoloured, thin or fragile skin	Impaired mobility
Cognitive impairment / dementia	Poor nutritional status
Impaired sensory perception	Dry skin / dehydration
Dependency	Presence of friction, shearing and/or pressure



References:  
 Ayello E, Sibbald R. Preventing pressure ulcers and skin tears. In: Evidence-based geriatric nursing protocols for best practice. E Caposutti, et al. Eds. 2008. Springer, New York. • LeBlanc K, Baranowski S. Skin tears. Adv Skin Wound Care. 2011; 24(9S): 2-15 • Ratliff C, Fletcher K. Skin Tears: Ostomy Wound Management. 2007; 53(3). <http://www.e-wm.com/article/6968> • Carville K et al. STAR<sup>1</sup>: A consensus for skin tear classification. Primary Intention. 2007; 15(1): 18-26 • Joanna Briggs Institute. Topical skin care in aged care facilities. Best Practice. 2007; 11(3) • Wounds UK. Best Practice Statement: Care of the Older Person's Skin Wounds UK 2012, 2nd ed.

## Document

- Level of risk and risk factors present
- Prevention strategies
- Management strategies
- Category of skin tear/s, size, location, tissue type, exudate, surrounding skin
- Progress and outcome of interventions



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## STAR classification system



### Category 1a

A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour is **not** pale, dusky or darkened.



### Category 1b

A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour is pale, dusky or darkened.



### Category 2a

A skin tear where the edges can not be realigned to the normal anatomical position and the skin or flap colour is **not** pale, dusky or darkened.



### Category 2b

A skin tear where the edges can not be realigned to the normal anatomical position and the skin or flap colour is pale, dusky or darkened.



### Category 3

A skin tear where the skin flap is completely absent.



# Venous Leg Ulcer Flow Chart

## Assessment

### History

- Medical
- Medications
- Wound
- Psychosocial / activities of daily living

### Characteristics of the wound (see table below)

### Diagnostic investigations:

- All patients with a leg ulcer should be screened for arterial disease, including an Ankle Brachial Pressure Index (ABPI)\*
- Reassess the ABPI every 3 months or if clinically indicated

\* Compression therapy is contraindicated if the ABPI is <0.8 or >1.2

\* Assessment should only be undertaken by a trained health practitioner

## Wound Bed Management

- Irrigate with warm water or normal saline. Pat dry

- Clean the wound gently (avoid mechanical trauma)

- Remove necrotic or devitalised tissue (e.g. autolytic debridement)\*

- EMLA® cream can reduce pain associated with debridement

\* Mechanical or sharp debridement should only be done by a trained practitioner

### Select a dressing that will:

- maintain a moist wound bed
- manage wound exudate
- protect the surrounding skin

## Management

- **Multilayered high compression therapy** should be applied following diagnosis of an uncomplicated venous leg ulcer

\* Compression therapy should only be applied by a trained practitioner

- Check ankle circumference measures more than 18cm

- Apply moisturiser to the lower limb

- Apply padding over bony prominences

- Apply compression system as per manufacturers' guidelines

### Remove bandaging if there is:

- slippage of bandage
- decreased sensation of lower limb
- toes go blue or purple, or leg swells above or below the bandage
- increased pain in the foot or calf muscle that is unrelieved by leg elevation for 30 minutes above heart level
- increased shortness of breath or difficulty breathing

- **Monitor Progress:** Trace wound before starting compression therapy, then every 2–4 weeks, or when rapid changes occur



## Prevention

- Use of compression stockings for life reduces leg ulcer recurrence (Class 3 (40mm Hg) if tolerated, or highest level tolerated)

\* A trained practitioner should fit compression stockings



- Replace compression stockings every 6 months

- Provide education to clients and carers on compression stocking application and removal techniques

- Refer to vascular surgeon if appropriate

- Monitor regularly, every 3 months

- Apply moisturiser twice daily

- Elevate the affected limb above heart level daily

- Encourage ankle and calf muscle exercises

- Repeat Doppler ABPI every 3 months, or whenever changing the type of compression therapy

## Characteristics of a Venous Leg Ulcer



### Venous leg ulcers typically

Occur on the lower third of the leg

Have pain usually relieved by elevation of the legs above heart level

Are shallow and have irregular, sloping wound margins

Produce moderate to heavy exudate

### The surrounding skin often has:

Haemosiderin (brown) staining

Hyperkeratosis (dry, flaky skin)

Venous stasis eczema

Inverted champagne bottle leg appearance

## When to Refer

Uncertainty in diagnosis

Complex ulcers (multiple aetiology)

ABPI <0.8 or >1.2

No reduction in wound size within 4 weeks after starting compression

Deterioration of ulcer

Signs of infection

Failure to improve after 3 months

### References:

AWMA. Australian and New Zealand Clinical Practice Guidelines for Prevention and Management of Venous Leg Ulcers, 2011. AWMA: Barton, ACT. • RCN. The management of patients with venous leg ulcers, 2006. RCN: London. • RNAO. Assessment and Management of Venous Leg Ulcers, 2004. RNAO: Toronto. • SIGN. Management of chronic leg ulcers, 2010. SIGN: Edinburgh



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# Arterial Leg Ulcer Flow Chart

## Assessment

### History

- Medical
- Medications
- Wound
- Psychosocial / activities of daily living

### Characteristics of the wound (see table below)

### Diagnostic investigations

All patients with a leg ulcer should be screened for arterial disease, including an Ankle Brachial Pressure Index (ABPI)

- \* *Assessment should only be undertaken by a trained health professional*

## Wound Bed Management

- Cleanse the wound gently with warm water or normal saline. Pat dry.

- In general, debride necrotic or devitalised tissue: *however, do not debride dry gangrene or eschar*

\* *Debridement should be undertaken only by a trained health professional*

- Maintain a moist wound environment, *however, if dry gangrene or eschar is present, it is best left dry*

- Topical antimicrobial dressings may be beneficial when wounds are chronically or heavily colonised

## Management

- Promote oxygenation through avoidance of:
  - smoking
  - dehydration
  - cold
  - stress and pain

- Refer to vascular surgeon for restoration of blood flow by revascularisation, if appropriate

- Ensure optimal pain management strategies

## Prevention

- Reduce risk factors:
  - cease smoking
  - control diabetes mellitus
  - control elevated lipids
  - control hypertension
  - anti-platelet therapy
  - control weight

- Refer to vascular surgeon for assessment if appropriate

- Exercise the lower limbs

- Protect legs and feet:
  - ensure soft, conforming, proper fitting shoes
  - refer to podiatrist for general footwear, orthotics and offloading as necessary
  - protect legs (e.g. padded equipment, long clothing)

- use pressure relief devices e.g. high density foam or air cushion boots for those with limited mobility

- Keep the legs warm (e.g. socks, rugs)

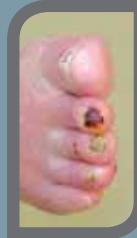
- Eat a nutritious diet

## Characteristics of an Arterial Leg Ulcer



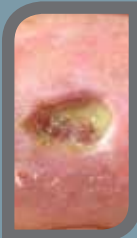
### Arterial leg ulcers typically:

- Occur on the anterior shin, ankle bones, heels or toes
- Have pain which is relieved when legs are lowered below the level of the heart
- Have 'punched out' wound edges
- May have mummified or dry and black toes



### The surrounding skin or tissue often has:

- Shiny or dry skin
- Devitalised soft tissue with dry or wet crust
- Thickened toe nails
- A purplish colour when the leg is lowered to the ground
- Loss of hair
- Cool skin



## When to Refer

- uncertainty of diagnosis
- a low ABPI < 0.8 or a high ABPI > 1.2
- symptoms impact on quality of life
- multiple aetiology
- signs of infection
- ulcer appears ischaemic
- failure to heal

### References:

Scottish Intercollegiate Guidelines Network, *Diagnosis and management of peripheral arterial disease*, 2006, Edinburgh, SIGN • Hopf H et al, Guidelines for the treatment of arterial insufficiency ulcers, *Wound Rep Regen*, 2006, 14(6):693-710 • National Clinical Guideline Centre, *Lower limb peripheral arterial disease. Diagnosis and management*, NICE Clinical Guideline 147, 2012; London • Hopf H et al, Guidelines for prevention of lower extremity arterial ulcers, *Wound Rep Regen*, 2008, 16(2):175-188 • RINAO, *Assessment and management of foot ulcers for people with diabetes*, 2005



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# Diabetic Foot Ulcer Flow Chart

## Assessment

### History

- Medical
- Medications
- Wound
- Psychosocial / activities of daily living

### Characteristics of the wound

- Use a validated classification tool

### Inspect for foot deformities

### Diagnostic investigations\*

- Screen all clients for peripheral arterial disease (PAD), including an ankle brachial pressure (ABPI)
- An ABPI less than 0.9 indicates arterial disease
- ABPI greater than 1.2 indicates a need for further investigation
- Use monofilament testing to assess for loss of sensation and neuropathy

\* *Assessment should only be undertaken by a trained health professional*

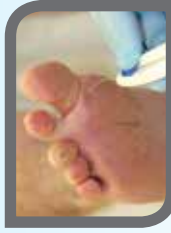
## Wound Bed Management

- Cleanse the wound with a neutral, non-irritating solution e.g. warm water or normal saline
- Cleanse wound bed gently to avoid trauma
- Remove necrotic or devitalised tissue, unless revascularisation is needed\*

\* *Mechanical or sharp debridement should only be done by a trained health professional*

### Select a dressing which will:

- maintain a moist wound environment (except where dry gangrene or eschar is present)
- protect the surrounding skin
- manage wound exudate
- topical antimicrobial dressings will help chronically or heavily colonised wounds



Mono-filament testing to check sensation

## Characteristics of a Diabetic Foot Ulcer



### Diabetic ulcers typically:

- Occur on the sole of the foot or over pressure points e.g. toes
- The wound bed can be shallow or deep, producing low to moderate amounts of exudate
- The surrounding skin is usually dry, thin and frequently has callous formation



## Management

- Reduce pressure – offload pressure points e.g. use crutches, wheelchairs, custom shoes or inserts, orthotic walkers, diabetic boots, or total contact casts
- Promote oxygenation of the wound by avoiding dehydration, smoking, cold, stress and pain
- Optimise glucose control
- Regularly document progress in healing
- Re-evaluate treatment if failure to achieve 40% ulcer size reduction after 4 weeks
- A multidisciplinary team is needed; include podiatrists, orthotists, dietitians, GPs, wound care nurses and endocrinologists
- Consult remote expert advice with digital imaging for clients living in remote areas

## When to Refer

- Uncertainty of diagnosis
- There is a low or high ABPI
- Symptoms impact on quality of life
- Complicated ulcers e.g. multiple aetiology
- Signs of infection or wound probes to bone
- No progress in healing or deterioration of ulcer

### References:

Sleed DL et al. Guidelines for the treatment of diabetic ulcers. *Wound Rep Regen* 2006. 14(6):690-692 • Sleed DL et al. Guidelines for the prevention of diabetic ulcers. *Wound Rep Regen* 2008. 16(2):169-174 • *National Evidence-Based Guidelines on Prevention, Identification and Management of Foot Complications in Diabetes*. Melbourne Australia 2011 • *Scottish Intercollegiate Guidelines Network. Management of diabetes*. Edinburgh: SIGN 2010 • *RNAO Assessment and Management of Foot Ulcers for People with Diabetes*. Toronto: RNAO 2006 • *Macintosh A et al. Prevention and Management of Foot Problems in Type 2 Diabetes*. Sheffield: NICE 2009

## Prevention

- Assess all clients with diabetes for PAD, neuropathy and foot deformity and classify the level of risk
- Protective footwear is required for those at risk, i.e. with PAD, neuropathy, callus, foot deformity and/or previous ulceration
- Offload pressure points as detailed under 'Management'
- Practise good foot care and daily inspection of feet
- Ensure an annual foot examination by a health professional (3 – 6 monthly if at moderate or high risk)
- Monitor and optimise blood glucose levels
- Quit smoking





# Pressure Injury Flow Chart

## Assessment

- Undertake a pressure injury risk assessment (e.g. Waterlow, Braden)
  - on admission
  - at regular intervals
  - upon a change in health status
- If a client is found to be 'at risk', assess skin at least daily
- Suspected stage 1 pressure injuries should be reassessed 20 minutes after pressure is relieved
- Regularly assess for pain and develop a pain management plan if appropriate

## Wound Bed Management

- Irrigate with warm clean water or normal saline
- Clean the wound gently
- Remove necrotic or devitalised tissue\*
  - \**Mechanical or sharp debridement should only be done by trained clinicians*
- **Select a dressing which will:**
  - maintain a moist wound bed
  - manage wound exudate
  - protect the surrounding skin
  - minimise shear, friction & pressure
  - topical negative pressure may benefit stage III & IV ulcers

## Management

- Use a high specification reactive or active support surface for clients with pressure injuries
- Stage III, IV, unstageable or deep tissue injuries require an alternating pressure, low air-loss, continuous low pressure system, or air-fluidized bed; close observation; and a repositioning regime
- Avoid positioning directly on bony prominences or pressure injuries
- Avoid shear and friction
- Limit the amount of time the head of bed is elevated
- Use pillows and foam wedges to elevate or reposition bony prominences e.g. heels, hips
- Provide high protein nutritional supplements, including arginine, for those with a stage 2 or greater pressure injury
- A multidisciplinary approach is needed, include physiotherapy, occupational therapy, nursing, dietitian and medical practitioner

## Prevention

- Individuals found at risk should have a preventive plan in place
- Provide a high-specification foam or active support mattress for at risk clients
- Off-load heels for at risk clients
- Avoid positioning directly on bony prominences
- Reposition as frequently as required, considering response, condition and support surface
- Avoid foam rings, donuts or fluid filled bags
- Limit the amount of time with head of bed elevated
- Avoid potentially irritating substances on the skin
- Avoid maceration of skin – use barrier preparations or creams
- Maintain optimal nutritional status

## Risk factors for a Pressure Injury

Reduced physical mobility
Loss of sensation
Impaired cognition or level of consciousness
Incontinence
Poor nutrition or recent weight loss
Dry skin or skin in constant contact with moisture
Acute or severe illness

### Symptoms of pressure damage

Localised heat, oedema, redness  
 Skin feels firm or boggy to touch  
 Darkly pigmented skin may be maroon or purple rather than red

## Document

Level of risk and risk factors present  
 Prevention strategies  
 Wound assessment and management (size, stage, location, tissue, exudate, surrounding skin, interventions)  
 Progress and outcome of interventions, including use of a validated healing scale

## Pressure ulcer classification system\*



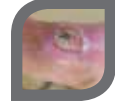
**Stage I**  
 Intact skin with non-blanchable redness of a localized area, usually over a bony prominence.  
 The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue.



**Stage II**  
 Partial thickness loss of dermis presenting as a shallow open ulcer with a red or pink wound bed. May also present as an intact or open/ruptured serum-filled blister  
 The blister is shiny or a dry shallow ulcer without slough or bruising (if bruising is present in the blister it indicates deep tissue injury).



**Stage III**  
 Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunnelling. Depth varies according to anatomical location.



**Stage IV**  
 Full thickness loss with exposed bone, tendon or muscle. Slough or eschar may be present. Often includes undermining and tunnelling. Depth varies by anatomical location.



**Suspected deep tissue injury**  
 Purple or maroon localised area of discoloured intact skin or blood-filled blister, due to damage of underlying 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.



**Unstageable/Unclassified**  
 Suspected deep tissue injury. Full thickness tissue loss in which actual depth of the ulcer is completely obscured by slough and/or eschar. Slough cannot be determined until slough and/or eschar are removed.



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**References:**  
 AMMA. *Pan Pacific Clinical Practice Guideline for Prevention and Management of Pressure Injury*. Osborne Park, WA: Cambridge Media 2012. • AAWC. *AAWC guideline of pressure ulcer guidelines*. Malvern, PA: AAWC 2010. • Stechmiller et al. *Guidelines for prevention of pressure ulcers*. *Wound Rep Regen* 2008; 16:151-168. • WOCN. *Guideline for prevention and management of pressure ulcers*. Mount Laurel NJ: WOCN 2010. • RNAO. *Risk assessment and management of pressure ulcers* (Revised). Toronto, ON: RNAO 2011. • NICE. *The use of pressure-relieving devices for the prevention of pressure ulcers*. London: RCN 2004. • Royal College of Nursing. *Management of pressure ulcers*. London: RCN and NICE 2005. • Whitney et al. *Guidelines for treatment of pressure ulcers*. *Wound Rep Regen*. 2006; 14:668-79



### 3.2.4 Brochures for Health Professionals

The resource package includes a wide range of brochures for health professionals as well as clients, family and carers. The brochures are framed to match the audience. For example the brochures for the health professionals can be used as a clinical reference tool whereas the brochures for clients, family and carers use simplified language to provide wound sufferers and their carers with information about their wounds and management of the wounds.



3

- Skin Tears
- Venous Leg Ulcers
- Arterial Leg Ulcers
- Diabetic Foot Ulcers
- Pressure Injuries
- Wound care
- Wound Assessment
- Nutrition and Wound Healing

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Samples of all brochures are included at the back of this booklet



# Skin Tears

Information for health professionals



## This is a guide only and does not replace clinical judgment

Products listed or pictured are examples only and do not represent an endorsement of any company or particular product

### References:

- Ayello E, Sibbald R, *Preventing pressure ulcers and skin tears, in Evidence-based geriatric nursing protocols for best practice*, Capezuti E, et al., Editors, 2008, Springer, New York, p.403-29
- LeBlanc K, Baranoski S, *Skin tears: state of the science: consensus statements for the prevention, prediction, assessment, and treatment of skin tears*. *Advances in Skin and Wound Care*, 2011, 24(9 Suppl): 2-15
- Ratliff C, Fletcher K, *Skin Tears: A review of the evidence to support prevention and treatment*. *Ostomy Wound Management*, 2007 53(3) [www.o-wm.com/article/6968](http://www.o-wm.com/article/6968)
- Carville K et al., STAR: A consensus for skin tear classification. *Primary Intention*, 2007. 15(1):18-28
- Joanna Briggs Institute, *Topical skin care in aged care facilities*. *Best Practice* 2007, 11.
- Best Practice Statement: Care of the Older Person's Skin Wounds* UK 2012, 2nd ed [www.woundsinternational.com/pdf/content\\_10608.pdf](http://www.woundsinternational.com/pdf/content_10608.pdf)



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# Skin Tears

## What is a skin tear?

A skin tear is “a traumatic wound ... as a result of friction alone or shearing and friction forces which separate the epidermis from the dermis (partial thickness wound), or which separate both the epidermis and dermis from underlying structures (full-thickness wound)” (Payne & Martin 1993).

## Risk factors for skin tears

- History of previous skin tears
- Bruising, discoloured, thin or fragile skin
- Advanced age
- Poor nutritional status
- Cognitive impairment or dementia
- Dependency
- Many or certain medications e.g. steroids
- Impaired mobility
- Dry skin / dehydration
- Presence of friction, shearing, pressure
- Impaired sensory perception
- Comorbidities e.g. renal, cardiovascular disease



## Skin tear management

- Control bleeding
- Gently irrigate the wound with warm clean water or saline. Clean under the flap to remove debris or clots. Pat dry surrounding skin
- Realign any skin or flap by rolling skin with moist cotton bud. Do not stretch to 'make it fit'
- Classify the wound using a skin tear classification system
- If bruised, broken or discoloured skin is present, reassess within 48 hours
- Apply a low-adherent dressing to avoid trauma e.g. soft silicones. Avoid using tape
- Extend dressing over wound edge by at least 2cm. Draw an arrow on top of the dressing to indicate direction for removal
- Leave in place for 5–7 days, or change if there is 75% strikethrough leakage visible
- Apply limb protector or tubular retention bandage to hold dressing in place
- Document skin tear category, location, treatment and prevention strategies



## Skin tear prevention strategies

- Assess skin regularly and implement a prevention protocol for those at risk
- Use an emollient soap substitute
- Apply moisturiser to the skin twice daily
- Use proper lifting and transfer techniques
- Use caution when bathing and dressing
- Avoid direct contact that will pull the skin, e.g. use slide sheets
- Protect fragile skin—use limb protectors and/or long sleeves or pants
- Pad or cushion equipment and furniture (e.g. bed rails, wheelchairs)
- Use pillows (satin or silk covers reduce friction and shear) to position people who are less mobile
- Avoid tapes or adhesives, use tubular retention bandages and soft silicone dressings to avoid tearing the skin
- Provide a safe environment



# Venous Leg Ulcers

Information for health professionals



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replace clinical judgment**

**References:**

- Royal College of Nursing (RCN), *Clinical practice guidelines: The management of patients with venous leg ulcers* 2006, London: RCN Institute, Centre for Evidence based Nursing, University of York.
- Registered Nurses' Association of Ontario (RNAO), *Assessment and Management of Venous Leg Ulcers*. March 2004 ed. RNAO 2004, Toronto, Ontario: RNAO.
- Australian Wound Management Association (AWMA), *Australian and New Zealand Clinical Practice Guidelines for Prevention and Management of Venous Leg Ulcers*, 2011, AWMA: Barton, ACT.
- Scottish Intercollegiate Guidelines Network (SIGN), *Management of chronic venous leg ulcers. A national clinical guideline* 2010, SIGN: Edinburgh.



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# Venous Leg Ulcers

## Assessment

- Measure an Ankle Brachial Pressure Index (ABPI) on all clients with a leg ulcer
- An ABPI should only be undertaken by health practitioners with training
- ABPIs should be repeated:
  - whenever starting compression therapy
  - whenever changing type of compression
  - if an ulcer deteriorates or fails to progress
  - every 3 months
- Regularly measure the ulcer, every 4 weeks or as clinically indicated to monitor progress
- Refer to a specialist if:
  - there is uncertainty in diagnosis
  - there is a low or high ABPI (<0.9 or >1.2)
  - ulcers of complex aetiology
  - signs of infection or deterioration
  - failure to improve after three months



## Management

- Multilayer compression bandaging is the first line of treatment for uncomplicated venous ulcers
- Compression therapy should be applied by a trained practitioner
- Protective padding should be used over bony prominences when applying compression
- Dressings should be simple, low-adherent, cost effective and acceptable to the individual
- Avoid products that commonly cause skin sensitivity (e.g. lanolin, phenol alcohol)
- Specialist leg ulcer clinics are recommended as the optimal community health service

## Venous leg ulcers typically:

- occur on the lower third of the leg
- are usually shallow
- have irregular, sloping wound margins
- produce moderate to heavy exudate
- pain is relieved by elevation of the legs



## Prevention

- Use of compression stockings for life reduces leg ulcer recurrence
- Compression stockings should be measured and fitted by a trained practitioner
- Replace compression stockings every six months
- Teaching people how to apply their stockings is essential
- A variety of stocking applicators are available
- Strategies to prevent recurrence also include:
  - venous investigation and surgery
  - regular follow-up and skin checks
  - lower limb exercises
  - elevation of lower limbs above heart level
  - ensuring optimal nutrition and hydration

**Venous ulcers are the most common type of leg ulcer and account for 60-70% of all leg ulcers**

# Arterial Leg Ulcers

Information for health professionals



**This is a guide only and does not  
replace clinical judgment**



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Department of Health and Ageing under the Encouraging  
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## References:

- Scottish Intercollegiate Guidelines Network. *Diagnosis and management of peripheral arterial disease*. 2006. Edinburgh: SIGN
- Hopf H et al. Guidelines for the treatment of arterial insufficiency ulcers. *Wound Repair and Regeneration*, 2006. 14(6):693-710
- National Clinical Guideline Centre. *Lower limb peripheral arterial disease*. 2012. London: NICE
- Hopf H et al. Guidelines for prevention of lower extremity arterial ulcers. *Wound Repair and Regeneration*, 2008. 16(2):175-188
- RNAO. *Assessment and management of foot ulcers for people with diabetes*. 2005. Ontario: RNAO



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# Arterial Leg Ulcers

## Assessment

- All clients should be screened for arterial disease, including pedal pulses and Ankle Brachial Pressure Index (ABPI)
- Assessment of leg ulcers and ABPI should only be undertaken by trained practitioners
- An ABPI  $<0.9$  is indicative of arterial disease and an ABPI  $>1.2$  requires investigation
- Other signs of peripheral vascular disease:
  - loss of hair, shiny, dry or cool skin
  - mummified or black toes
  - devitalised soft tissue with dry or wet crust
  - thickened toe nails
  - purple colour of limb in dependent position
- Refer to a specialist when there is:
  - uncertainty in diagnosis or abnormal ABPI
  - symptoms limit lifestyle and quality of life
  - signs of infection, deterioration or ischaemia



## Management

- Revascularisation is the method most likely to heal and prevent arterial leg ulcers, if surgery is appropriate for the client
- Promote oxygenation of wound environment – avoid cold, dehydration, stress and pain
- Dressings should maintain a moist environment, however, dry gangrene or eschar is best left dry until revascularisation
- If dry gangrene or eschar is present, do not debride until re-establishment of arterial flow
- Debridement should be undertaken by health professionals with training or expertise
- Topical antimicrobial dressings may help if wounds are chronically or heavily colonised
- Hyperbaric oxygen therapy may be helpful for clients unable to be revascularised and whose ulcer is not healing
- Lifestyle modifications, education and medications as necessary are important

## Arterial leg ulcers typically:

- occur over toes or bony prominences
- are pale grey or yellow in colour
- have a 'punched out' appearance
- have minimal exudate
- are very painful, particularly when legs are elevated

## Prevention

- Reduce risk factors:
  - cease smoking
  - optimise blood glucose levels
  - control lipid levels and hypertension
  - anti-platelet therapy
  - control weight
- Exercise lower limbs to increase arterial flow
- Protect lower extremities, including:
  - soft, conforming, well fitting shoes, orthotics and pressure off-loading as needed
  - leg protection to avoid injury
  - protection of digits and heels
  - use of effective pressure relieving devices
  - take extreme care when cutting nails, preferably undertaken by a podiatrist
- Passive warming of legs improves perfusion and may prevent arterial ulcers (e.g. warm socks, rugs, environment)
- Address psychosocial concerns with a multi-disciplinary care team



# Diabetic Foot Ulcers

Information for health professionals



**This is a guide only and does not  
replace clinical judgment**

**References:**

- Steed DL et al. Guidelines for the treatment of diabetic ulcers. *Wound Repair and Regeneration* 2006. 14(6):680-692
- Steed DL et al. Guidelines for the prevention of diabetic ulcers. *Wound Repair and Regeneration* 2008. 16(2):169-174
- National Evidence-Based Guideline on Prevention, Identification and Management of Foot Complications in Diabetes. Melbourne Australia: NHMRC 2011
- Scottish Intercollegiate Guidelines Network (SIGN) *Management of diabetes*. A national clinical guideline. Edinburgh, Scotland: SIGN 2010
- Registered Nurses' Association of Ontario (RNAO) *Assessment and Management of Foot Ulcers for People with Diabetes*. Toronto: RNAO 2005
- McIntosh A et al. *Prevention and Management of Foot Problems in Type 2 Diabetes*. Sheffield: University of Sheffield: NICE 2003



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# Diabetic Foot Ulcers

## Assessment

- Assessment should be undertaken by trained health practitioners
- Measurement of Ankle Brachial Pressure Index (ABPI) is essential. An ABPI of <0.9 indicates arterial disease and an ABPI >1.2 requires further investigation
- Neuropathy and loss of sensation can be determined by monofilament testing in combination with clinical assessment
- Assess risk factors (neuropathy, PAD, foot deformity) and classify foot ulcer risk as:
  - low: no risk factors or history of foot ulcer/amputation;
  - intermediate: one risk factor and no history of foot ulcer/amputation; or
  - high: 2 or more risk factors and/or history of foot ulcer/amputation

- Refer to a specialist when there is:
  - uncertainty in diagnosis
  - a low or high ABPI
  - need for revascularisation
  - no progress in epithelialisation within 2 weeks of debridement and commencing off-loading
  - signs of infection or inflammation
  - the wound can be probed to bone
  - wound deterioration or new ulceration
- Regularly document wound characteristics and progress in healing

## Management

- Involve a multi-disciplinary team with GP, nurse, podiatrist, orthotist, endocrinologist. Consider remote expert advice with digital imaging for people living in remote areas
- Offloading of pressure points is necessary e.g.
  - crutches, walkers or wheelchairs
  - custom shoes, modifications or inserts
  - custom relief orthotic walkers
  - forefoot and heel relief shoes
  - total contact casts
- Facilitate oxygenation of wound environment - avoid dehydration, smoking, cold, stress, pain
- Optimise glucose control
- Irrigate ulcer with a neutral, non-toxic solution, and cleanse with minimal trauma

- Remove necrotic and devitalised tissue, unless revascularisation is necessary
- Debridement should only be undertaken by trained health professionals
- Maintain a moist environment, except when dry gangrene or eschar is present
- Topical antimicrobial dressings may benefit chronically or heavily colonised wounds
- Re-evaluate treatment if the ulcer size fails to reduce by 40% after 4 weeks of therapy
- Additional therapy may help clients, e.g.:
  - topical negative pressure therapy
  - cultured skin equivalents
  - hyperbaric oxygen therapy

## Prevention

- All individuals at risk (i.e. PAD, neuropathy, callus, foot deformity, previous ulceration, amputation) need protective footwear
- Ensure correct foot care is practised, including daily inspection of feet
- A trained health professional should undertake a foot examination:
  - annually in those at low risk
  - 3-6 monthly in those at intermediate or high risk
- Optimise glucose control
- Discourage individuals from smoking
- Encourage maintenance of a healthy weight
- Provide a foot protection program for those at intermediate or high risk for foot ulceration

**Diabetic foot ulcers are usually on the sole of the foot or over pressure points. They are frequently surrounded by dry, thin and/or calloused skin.**





# Pressure Injuries

Information for health professionals



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replace clinical judgment**

#### References:

- Australian Wound Management Association. *Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury*. Osborne Park, WA: Cambridge Media 2012
- AAWC. *Association for the Advancement of Wound Care guideline of pressure ulcer guidelines*. Malvern, PA: AAWC 2010
- Stechmiller et al. Guidelines for the prevention of pressure ulcers. *Wound Rep Regeneration* 2008. 16:151-68
- RNAO. *Risk assessment and prevention of pressure ulcers*. (Revised), Toronto: RNAO 2011
- NICE. *The use of pressure-relieving devices for the prevention of pressure ulcers in primary and secondary care*. London: Royal College of Nursing 2004
- Royal College of Nursing. *The management of pressure ulcers in primary and secondary care: A clinical practice guideline*. London: RCN & NICE 2005
- Whitney et al. Guidelines for the treatment of pressure ulcers. *Wound Rep Regeneration* 2006. 14:663-79



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# Pressure Injuries

## Assessment

- All clients should have a risk assessment using a validated tool, performed and documented:
  - on admission
  - at regular intervals thereafter
  - following any change in health status
- Assessment should be done by staff with training and expertise in the area
- Assess the skin of at risk clients daily
- Regularly assess and document wound characteristics, including: location, size, stage, signs of infection, wound bed, undermining
- Regularly assess clients with pressure injuries for pain with a validated pain assessment tool

**A pressure injury is a localised injury to the skin and/or underlying tissue, usually over a bony prominence, as a result of pressure, or pressure in combination with shear and/or friction**



## Risk Factors

- Immobility or reduced physical mobility
- Loss of sensation
- Impaired cognition
- Presence of constant moisture on skin
- Poor nutrition and hydration
- Dry skin
- Acute or severe illness

## Management

- Pressure-relieving surfaces and strategies should be in place 24 hours per day for all individuals with pressure injuries
- Avoid positioning individuals directly on pressure injuries or bony prominences
- A high specification reactive (constant low pressure) or active (alternating pressure) support surface should be used for clients with pressure injuries
- If there is no progress in healing, or a stage 3–4 injury (or unstageable or deep tissue injury) is present use an alternating pressure, low-air-loss, continuous low pressure system or air-fluidised bed
- Limit the amount of time in bed with the head of bed elevated

- Irrigate the wound with a neutral, non-toxic solution, and cleanse with minimal trauma
- Debride necrotic and devitalised tissue. Debridement should only be performed by staff with training and expertise.
- The following interventions may promote healing in combination with regular care:
  - topical negative pressure therapy
  - electrotherapy
  - pulsed electromagnetic therapy
- Provide high protein nutritional supplements, including arginine supplements

## Prevention

- All clients at risk should have a preventive management plan
- Provide a high specification reactive support foam, or active support mattress, for clients found at risk
- Avoid irritating substances on the skin and moisturise dry skin
- Off-load pressure on heels for clients at risk
- Avoid vigorous massage over bony prominences
- Use pillows and foam wedges to reduce pressure on bony prominences
- Avoid prolonged sitting in a bed or chair
- Avoid foam rings, donuts, non-medical grade sheepskin, or fluid filled bags
- Reposition the client as frequently as required, considering their risk
- Maintain optimal nutritional status
- Educate clients and carers on ways to minimise risk

# Wound Care

Information for health professionals



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### References:

- WUWHS. *Principles of best practice: Minimising pain at wound dressing-related procedures*. London: MEP Ltd 2004
- Australian Wound Management Assoc. *Standards for wound management*. 2nd ed. Osborne Park, WA: Cambridge Media 2010
- JBW Wound Healing and Management Node Group. *Chronic wound management. (JBI) Best Practice: evidence-based information sheets for health professionals* 2011
- Australian Wound Management Assoc. *Position Document: Bacterial impact on wound healing: from contamination to infection*. AWMA 2011
- Hopf H et al. Guidelines for the treatment of arterial insufficiency ulcers. *Wound Repair and Regeneration* 2006. 14(6): 693-710
- WUWHS. *Principles of best practice: Wound exudate and the role of dressings*. London: MEP Ltd 2007.
- Medical Advisory Secretariat. *Community-based care for chronic wound management: An evidence-based analysis. Ontario Health Technology Assessment Series* 2009.9(18)
- Whitney J et al. Guidelines for the treatment of pressure ulcers. *Wound Repair and Regeneration* 2006.14(6):663-679



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**A moist wound environment enables migration of tissue repairing cells. Extreme wetness or dryness may delay healing.**



## Wound Care

### Assessment

- Wound assessment should be undertaken by trained, experienced health practitioners
- Assess and document:
  - physical examination
  - psychological well-being
  - nutritional status
  - pain (including use of a pain scale)
  - history of previous wounds
  - current wound duration, site, treatments
  - wound characteristics: size, shape, depth, tissue type, exudate, margin, surrounding skin, signs of infection
- Reassess and document progress in healing regularly
- Reassess pain at each wound dressing using a standardized assessment tool



- Refer to a specialist if there is:

- uncertainty in diagnosis
- deterioration or failure to progress to heal
- unexpected change in level or type of pain or exudate
- signs of infection or ischaemia

### Management

- Wound management should be undertaken by trained, experienced health practitioners
- Multidisciplinary management promotes healing and improved outcomes
- Cleanse wounds with a neutral, non-toxic solution (e.g. potable tap water or normal saline), with minimal trauma
- Remove necrotic and devitalised tissue through mechanical, sharp, autolytic or biological debridement
- If dry gangrene or eschar is present, do not debride until arterial flow is re-established

- Use a topical antimicrobial agent in clients with critically colonised, localised or spreading wound infection; the length of treatment determined by the response
- A moist wound environment should be maintained for optimal healing
- Dressings should:
  - maintain a moist wound environment
  - manage wound exudate and protect the peri-ulcer skin
  - minimise friction, shear, skin irritation and pressure
  - be non-adherent to reduce trauma
  - be cost effective and able to be changed once/day or less often where possible
- Promote oxygenation of wound environment - avoid cold, dehydration, smoking, stress, pain
- Implement effective pain management during wound dressings
- Encourage optimal levels of nutrition
- Provide education on wound care

# Wound Assessment

Information for health professionals

## Documentation should provide enough information to:

- monitor progress in wound healing
- evaluate the effectiveness of management
- guide management and prevention plans



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### References:

- WUWHS. Principles of best practice: *Minimising pain at wound dressing-related procedures*. London: MEP Ltd 2004
- Australian Wound Management Association. *Standards for wound management*. 2nd ed. Osborne Park, WA: Cambridge Media 2010
- JBI Wound Healing and Management Node Group. *Chronic wound management*. (JBI) Best Practice: evidence-based information sheets for health professionals 2011
- Australian Wound Management Association. *Position Document: Bacterial impact on wound healing: from contamination to infection*. AWMMA 2011
- Hopf H et al. Guidelines for the treatment of arterial insufficiency ulcers. *Wound Repair and Regeneration* 2006. 14(6):693-710
- WUWHS. Principles of best practice: *Wound exudate and the role of dressings*. A consensus document. London: MEP Ltd 2007.



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# Wound Assessment

## What is a wound?

A wound is an injury to the skin or underlying tissue that may or may not involve a loss of skin integrity. Physiological function of the tissue is impaired. Common types include leg ulcers, traumatic wounds, pressure injuries, surgical, and burns.

## Phases of wound healing

1. Haemostasis (bleeding stops): 10 minutes
2. Inflammation (redness, swelling): 3 days
3. Proliferation (new tissue growth): 28 days
4. Maturation (regaining normal function):
  - a year or more

## Factors promoting wound healing

- A moist healing environment
- Adequate blood supply and oxygenation
- Stable temperature
- Good nutrition and hydration
- Treatment of underlying medical conditions
- Avoiding pressure, shear, friction, maceration
- Avoiding smoking



## Wound Assessment

- Evaluate and document the following:
  - **Cause**, site, type and classification of wound
  - **Depth**: superficial, partial or full thickness
  - **Size**: trace and calculate area on first presentation, then once/month
  - **Wound edge**: sloping, punched out, raised, rolled, undermining, purple, calloused
  - **Wound bed**: necrotic, sloughy, infected, granulating, epithelialisation
  - **Exudate**: serous, haemoserous, purulent
  - **Surrounding skin**: oedema, cellulitis, colour, eczema, maceration, capillary refill time
  - **Any signs of infection**: heat, redness, swelling, pain, odour, delayed healing
  - **Pain**: associated with disease, trauma, infection, wound care practices, products
  - **Quality of life**



## Is the wound healing?

### ✓ Yes, signs of a healing wound:

- pink or ruddy red in colour
- small to moderate amounts of clear or serous exudate
- wound is decreasing in size
- surrounding skin is warm, pink and healthy

### ✗ No, signs of an unhealthy wound:

- malodour
- green, yellow slough or necrotic tissue
- large amounts of exudate
- increased size or no decrease in size
- surrounding skin is red, hot, swollen
- increased pain
- systemic symptoms of infection

**An acute wound that has not healed after 28 days needs investigation**



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### References:

- AWMA, *Standards for Wound Management*. 2nd ed 2010, Osborne Park, WA: Cambridge Media
- Trans Tasman Dietetic Wound Care Group, *Evidence based practice guideline for the dietetic management of adults with pressure injuries*. Review 1: 2011
- Dorner B et al., the National Pressure Ulcer Advisory Panel, *The role of nutrition in pressure ulcer prevention and treatment*, 2009, NPUAP
- AWMA, *Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury* 2012, Osborne Park, WA: Cambridge Media
- LeBlanc K, Baranoski S, Skin tears: state of the science: consensus statements for the prevention, prediction, assessment, and treatment of skin tears. *Adv Skin Wound Care*, 2011, 24(9S):2-15
- NHMRC, *Dietary Guidelines for Australian Adults*. 2003 Canberra: Commonwealth of Australia
- Woodward et al. (Eds) *Nutrition and Wound Healing*. 2008 Nestle Healthcare Nutrition
- Woodward M. *Guidelines to effective hydration in aged care facilities*. 2007. [www.hydralite.com/pdf/aged\\_care\\_brochure.pdf](http://www.hydralite.com/pdf/aged_care_brochure.pdf)



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# Nutrition and Wound Healing

Information for health professionals



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# Nutrition and Wound Healing

## Good nutrition and hydration is essential for wound healing

- Older adults are more likely to be malnourished
- A wound increases energy and nutrient needs
- Dehydrated skin is less elastic, more fragile and more likely to breakdown

## Assessment

- Use a validated nutritional screen for all clients with, or at risk for, a wound
- Risk factors for poor nutrition include:
  - poor dentition or difficulty swallowing
  - poor mobility
  - reduced appetite and taste changes
  - confusion, pain and/or anxiety
  - environment not conducive to eating



Signs of poor nutritional and/or hydration status:

- Unintentional weight loss
- Poor appetite
- Nausea or vomiting for three days or more
- Dry, fragile skin
- Loss of skin integrity or a new wound
- Deterioration of an existing wound

## Management

- Address any nutritional deficits
- Provide nutritional interventions to assist healing of pressure injuries, which include:
  - adequate caloric intake
  - a high protein supplement, including arginine
  - multivitamin supplements in those with deficits



## Ways to promote good nutrition and hydration

- Encourage a healthy, balanced diet including the 5 food groups: bread/grains; vegetables; fruit; dairy products and protein
- Encourage 6 —8 glasses of fluid/day
- Provide assistance with meals if needed and allow sufficient time
- Ensure good oral and dental care
- Position upright for eating/ drinking
- Provide a pleasant mealtime environment



## Which nutrients are important for wound healing?

**Protein:** Good sources include meat, fish, dairy products, legumes, nuts, seeds and grains

**Vitamin C:** Good sources include citrus fruits, berries, capsicum, kiwifruit, parsley, broccoli, rockmelon, cauliflower, spinach and cabbage

**Vitamin A:** Good sources include liver, sweet potato, carrots, broccoli, leafy vegetables, eggs

**Zinc:** Good sources include meat, seafood, poultry, dairy products, seeds, wholegrains

## Prevention

- Promote optimal nutritional status
- High protein supplements may help prevent pressure injuries in those at high risk
- Refer those at nutritional risk to a dietitian





### 3.2.5 Brochures for Clients, Family and Carers

The resource package includes a wide range of brochures for health professionals as well as clients, family and carers. The brochures are framed to match the audience. For example the brochures for the health professionals can be used as a clinical reference tool whereas the brochures for clients, family and carers use simplified language to provide wound sufferers and their carers with information about their wounds and management of the wounds.

The following print resources can be photocopied directly from this booklet or alternatively can be printed from the relevant files included on the CSI resource files CD. Two different files of each print resource is available on the CD. The ones with LocalPrinter included in the filespec can be printed to the local printer connected to your PC. The ones with CommercialPrinter included in the filespec can be sent to a commercial printer for a professional output.

Samples of all brochures are included at the back of this booklet

3



- Skin Care
- Skin Tears
- Venous Leg Ulcers
- Arterial Leg Ulcers
- Diabetic Foot Ulcers
- Pressure Injuries
- Wound Care
- Nutrition and Wound Healing



## How does skin change with age?

- decreased sensation
- increased dryness
- thinning of the skin
- decreased Vitamin D synthesis
- reduced ability to fight infection
- decreased control of temperature
- it takes longer for the skin to heal
- reduced elasticity and strength



## This is a guide only and does not replace clinical judgment

### References:

- Care of the Older Person's Skin, 2nd ed. 2012: Wounds UK.
- Gray M et al.: Incontinence-associated dermatitis: *Wound, Ostomy, Continence Nursing* 2012, 39:61-74.
- The Joanna Briggs Institute: Topical skin care in aged care facilities. *Best Practice*: 2007, 11:1-4.
- AWMA, *Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury* 2012, Cambridge Media Osborne Park, WA.
- Stechmiller J et al.: Guidelines for the prevention of pressure ulcers. *Wound Repair Regeneration* 2008, 16:151-68.
- Hodgkinson B, et al. A systematic review of topical skin care in aged care facilities. *J Clinical Nursing* 2006, 16:129-136.

# Skin Care

Information for clients, family and carers



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# Skin Care

## Functions of the skin include:

- Protection
- Providing a barrier to infection
- Sensation or feeling
- Temperature control
- Metabolism of Vitamin D
- Elimination of waste

## Risk factors for skin problems

- Poor general health
- Reduced ability to move around
- Poor nutritional status
- Smoking and alcohol usage
- Advanced age
- Incontinence
- Some medications



**The skin is the largest organ of the body**

## Check your skin daily for:

- Wounds
- Rashes
- Bruising
- Skin changes

**Regular assessment of the skin is important**

**It is estimated that 70% of older adults have skin problems**

## Tips on caring for your skin



- Eat a nutritious diet
- Drink 6—8 glasses of fluid every day
- Change position frequently
- Wear loose cotton clothing
- Moisturise skin twice daily
- Pat skin dry. Do not rub
- Use absorbent, disposable incontinence products if needed
- Barrier creams and films can prevent damage to the skin



- Do not use products that irritate skin e.g. perfumed lotions
- Do not use soap. Try soap-free cleansers
- Do not wash excessively – water dries the skin
- Do not rub the skin over bony areas
- Do not use tapes or adhesives prevent damage to the skin

## What to do for a skin tear

- Wash your hands
- Gently clean the wound with warm clean water
- Pat dry with a clean towel
- If a skin flap is still attached, try to replace it by gently rolling the skin back over the wound, do not cut the skin flap off
- Cover the wound with a clean, non-stick pad
- Use a stockinette instead of adhesive dressings or tapes
- Contact your health professional



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### References:

- Ratliff C, Flecher K, Skin Tears: A review of the evidence to support prevention and treatment. *Ostomy Wound Management*, 2007,53(3)
- Carville K et al., STAR: A consensus for skin tear classification. *Primary Intention*, 2007. 15(1): 18–28
- Joanna Briggs Institute, *Topical skin care in aged care facilities*. Best Practice, 2007. 11(3)
- Best Practice Statement: *Care of the Older Person's Skin Wounds* UK 2012, 2nd ed. [http://www.woundsinternational.com/pdf/content\\_10608.pdf](http://www.woundsinternational.com/pdf/content_10608.pdf)

# Skin Tears

Information for clients, family and carers



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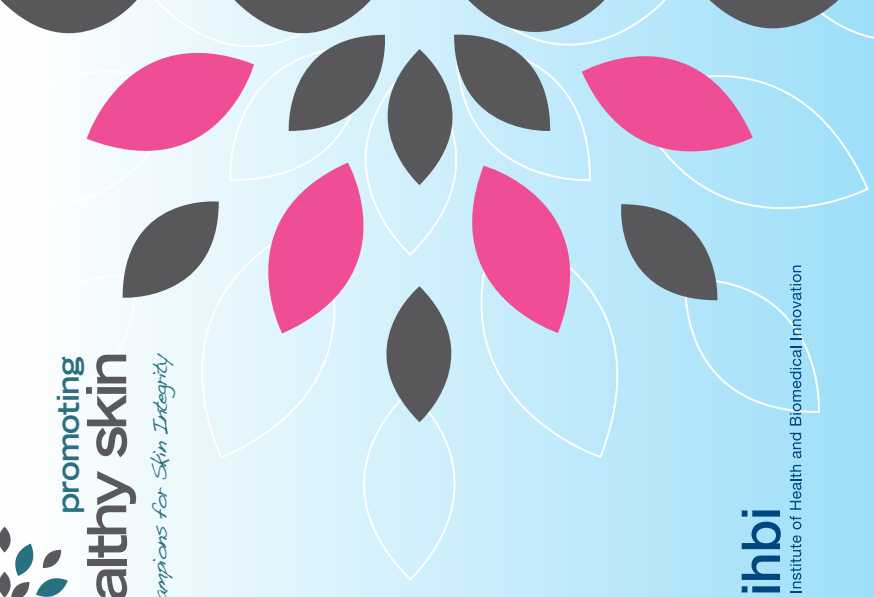
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# Skin Tears

## What is a skin tear?

- A skin tear is a break in the outer layers of the skin
- It can result in the 'peeling back' of the skin, or partial or total loss of the skin



## How do skin tears occur?

Most skin tears occur because of:

- Falls, accidents, knocks and bumps
- Removal of tapes and adhesives

**Skin tears are a common problem affecting older people**

## Risk factors for skin tears

You are at risk for a skin tear if you:

- have dry, fragile skin
- have memory or sensory impairment
- have poor mobility
- have poor nutrition and hydration
- are taking multiple medications

## How to prevent skin tears



- Drink 6 to 8 glasses of fluid daily
- Eat a balanced, nutritious diet
- Keep fingernails and toenails trimmed
- Apply moisturiser twice daily
- Wear long sleeves, long pants or knee-high socks to protect skin
- Ensure adequate lighting



- Do not use tapes or adhesives
- Do not use soap for bathing—try soap free products for cleansing

## How carers can help prevent skin tears



- Use correct lifting, positioning and transfer techniques
- Use caution when bathing and dressing
- Keep fingernails trimmed
- Protect fragile skin e.g. use limb protectors or long sleeves or pants
- Pad or cushion equipment and furniture e.g. wheelchairs
- Use pillows (satin or silk covers help reduce friction and shear) to position people who are less mobile
- Provide a well-lit, safe environment



- Do not wear rings that may snag skin
- Do not pull the skin during contact. Use assistive devices e.g. slide sheets
- Do not use tapes or adhesives





## Caring for venous leg ulcers

- Compression bandaging is the best way to treat venous ulcers
- Your doctor or nurse needs to check the circulation in your leg before starting compression
- 60% of ulcers will heal in 12 weeks with adequate compression



## This is a guide only and does not replace clinical judgment

### References:

- Royal College of Nursing (RCN), *Clinical practice guidelines: The management of patients with venous leg ulcers*. 2006. London: RCN Institute, Centre for Evidence based Nursing, University of York.
- Registered Nurses' Association of Ontario (RNAO), *Assessment and Management of Venous Leg Ulcers*. March 2004 ed. RNAO 2004, Toronto, Ontario: RNAO.
- Australian Wound Management Association (AWMA), *Australian and New Zealand Clinical Practice Guidelines for Prevention and Management of Venous Leg Ulcers*. 2011, AWMA: Barton. ACT.

# Venous Leg Ulcers

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## Compression stockings /socks

- Compression stockings should be measured and fitted by a health professional
- Stockings usually may be taken off at night but reapply first thing in the morning
- Stockings should feel firm but not tight
- There is a wide range of equipment available to help put on stockings
- Remove compression stockings immediately if toes become purple or blue, if swelling of your leg occurs above or below the stockings, or you develop severe pain. Seek advice from your health professional



# Venous Leg Ulcers

## What is a venous leg ulcer?

- Venous ulcers are the most common type of leg ulcer. They are caused as the result of damaged veins
- Veins drain blood from the feet and lower legs back to the heart. Damage to these veins results in swollen, tender legs which may feel dry and itchy and have mottled brown staining. They usually occur on the lower third of the leg. Pain is usually relieved by elevating the legs above the heart

## Risk Factors

- Varicose veins
- Blood clots
- Fractures or injuries
- Obesity
- Sitting or standing for long periods

## How to prevent venous leg ulcers

### ✓ Do

- Wear compression stockings for life to reduce the risk of new leg ulcers
- Replace your compression stockings every six months
- Remove all wrinkles from stockings. Wearing rubber gloves may help
- Walk or exercise your ankles and calf muscles regularly
- Elevate legs above heart level for 30 minutes at least once a day
- Apply moisturiser to keep skin in good condition
- Check your feet and legs daily

### ✗ Don't

- Do not cross your legs
- Do not wear watches or jewellery that can damage the stocking
- Do not fold over stockings at the top

# Arterial Leg Ulcers

Information for clients, family and carers



**This is a guide only and does not  
replace clinical judgment**

**References:**

- Hopf, H., et al., Guidelines for the treatment of arterial insufficiency ulcers. *Wound Repair and Regeneration*, 2006. 14(6):693-710
- National Clinical Guideline Centre. *Lower limb peripheral arterial disease. Diagnosis and management*. NICE Clinical Guideline 147 Methods, evidence and recommendations, 2012: London
- Hopf H., et al., Guidelines for prevention of lower extremity arterial ulcers. *Wound Repair and Regeneration*, 2008. 16(2):175-188
- RNAO. *Assessment and management of foot ulcers for people with diabetes*. 2005. Toronto:RNAO



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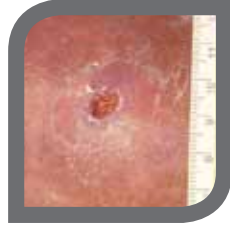




# Arterial Leg Ulcer

## What is an arterial leg ulcer?

- An arterial leg ulcer is a sore or break in the skin as a result of blocked or hardened arteries
- Arteries supply blood which carry oxygen and nutrients to the muscles and skin of the legs and feet
- If circulation is poor the leg is starved of oxygen and nutrients and the skin is more likely to break down
- They usually occur over the toes, shin or pressure areas of the feet and legs
- They may cause severe pain at rest, which often increases with leg elevation or walking



## Risk Factors

- Smoking
- High blood pressure
- A history of heart disease
- Obesity
- Rheumatoid arthritis
- Diabetes
- A high cholesterol level

## How are they managed?

- Consult a health professional with skills in wound management
- Blood supply and healing may be improved by:
  - keeping your feet and legs warm
  - gentle leg and ankle exercises
- Follow your health professional's advice on how to manage pain

## How can you help prevent an arterial leg ulcer?



- Gently exercise to increase blood flow
- Eat a healthy diet
- Inspect feet and legs daily – a mirror may help
- Quit smoking
- Control diabetes
- Control your cholesterol and blood pressure levels
- Maintain an ideal weight

- Wear well fitting shoes and orthotics as necessary

- Avoid injury. Take care to avoid bumps and sharp corners

- Extreme care is needed when cutting toe nails—preferably ask a podiatrist



- Do not sit or stand in one position for a long time or cross your legs





## Helpful Contacts

Diabetes Australia  
Phone (Infoline): 1300 136 588  
[www.diabetesaustralia.com.au](http://www.diabetesaustralia.com.au)

The Australasian Podiatry Council  
Phone: 03 94163111  
[www.apodc.com.au](http://www.apodc.com.au)



**This is a guide only and does not  
replace clinical judgment**

### References:

- Steed DL et al. Guidelines for the treatment of diabetic ulcers. *Wound Repair and Regeneration* 2006. 14(6):680-692
- Steed DL et al. Guidelines for the prevention of diabetic ulcers. *Wound Repair and Regeneration* 2008. 16(2):169-174
- National Evidence-Based Guideline on Prevention, Identification and Management of Foot Complications in Diabetes. Melbourne Australia 2011
- Registered Nurses' Association of Ontario (RNAO) *Assessment and Management of Foot Ulcers for People with Diabetes*. Toronto: RNAO 2005
- McIntosh A et al. *Prevention and Management of Foot Problems in Type 2 Diabetes*. Sheffield: University of Sheffield; NICE 2003

# Diabetic Foot Ulcers

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# Diabetic Foot Ulcers

## What is a diabetic foot ulcer?

- A diabetic foot ulcer is a sore or broken skin area, often on the bottom of the foot or over bony areas
- They can occur from injury, pressure, or rubbing of skin (e.g. from shoes)
- They may worsen because of lack of feeling (neuropathy) in your feet
- Most diabetic foot ulcers can be prevented or healed quickly if they are picked up in the early stages

**Poorly fitting shoes are the most frequent cause of diabetic foot ulcers**

## ✓ Do

- See a skilled health professional to inspect feet at least once a year
- Inspect your feet and toes daily
- Cut nails straight across
- Check there are no sharp or rough edges in shoes before putting them on
- Tell your health professional as soon as possible if you notice red areas, a blister, cut, scratch or sore
- Wash and dry your feet carefully, especially between the toes
- Check the temperature of the water before putting your feet in!
- Change your socks daily
- Use a moisturiser for dry skin but avoid moisturising between the toes
- Monitor blood sugar levels regularly. Healthy blood sugar levels promote healing
- Eat a healthy diet
- Stop smoking



## ✗ Don't

- Do not walk indoors or outdoors without socks and shoes
- Do not use plasters to remove calluses—see a health professional
- Do not use a heater or hot water bottle to warm your feet
- Do not wear shoes and socks that are too tight or too loose
- Do not wear socks with seams





**This is a guide only and does not  
replace clinical judgment**

**References:**

- AWMA. *Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury*. Osborne Park, WA: Cambridge Media 2012
- AAWC. *Association for the Advancement of Wound Care guideline of pressure ulcer guidelines*. Malvern, PA: AAWC 2010
- Stechmiller J et al. Guidelines for the prevention of pressure ulcers. *Wound Repair and Regeneration* 2008. 16(2): p. 151-168
- RNAO. *Risk assessment and prevention of pressure ulcers. (Revised)*. Toronto, ON: RNAO 2011
- Whitney J et al. Guidelines for the treatment of pressure ulcers. *Wound Repair and Regeneration* 2006. 14(6): p. 663-679



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# Pressure Injuries

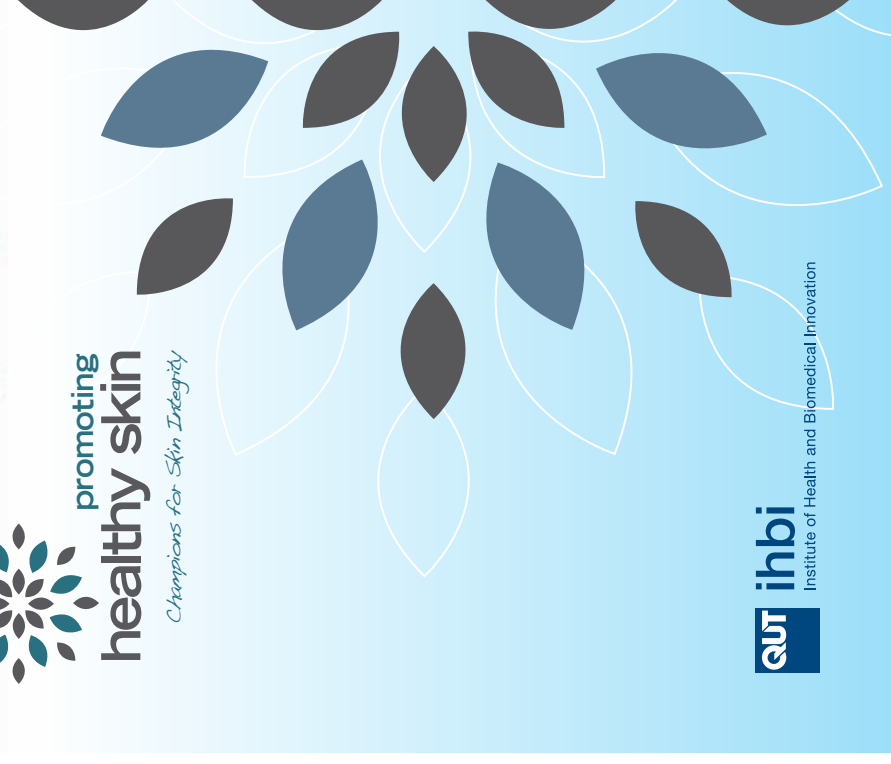
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# Pressure Injuries

## What is a pressure injury?

- A pressure injury is an area of skin that has been damaged because of:
  - unrelieved pressure
  - friction or shear (e.g. poorly fitting shoes)
  - presence of constant moisture
- They commonly occur on the heels, toes or buttocks

## Risk Factors

- Reduced mobility
- Loss of sensation or feeling
- Impaired mental state
- Incontinence
- Poor nutrition
- Dry skin
- Acute or severe illness



## Pressure injuries are also called:

- Pressure ulcers or areas
- Pressure sores or bed sores
- Decubitus ulcers (decubiti)
- Pressure necrosis
- Ischaemic ulcers

## How you can help care for a pressure injury

Many of the actions listed (next page) to prevent pressure injuries will also help heal an ulcer if present, i.e.

- Relieve the pressure from the injury area e.g. do not lie on that area, do not rub the area
- Obtain advice from your doctor or nurse on special equipment which can relieve the pressure

## How to prevent a pressure injury



- Apply moisturiser twice daily
- Use mild, pH neutral, non-irritant skin cleansers and body products
- Protect skin exposed to friction
- Check your skin regularly and seek help if you have any sore, red, blistered or broken skin
- Eat a nutritious diet
- Use pillows and foam wedges to protect bony prominences
- Avoid heel or sacral contact with hard surfaces



- Do not massage or rub the skin over bony areas (e.g. hip bones)
- Do not sit in a chair for long periods of time—change position regularly
- Do not use foam rings, donuts, or fluid filled bags
- Do not leave the skin in contact with moisture for long periods of time







## This is a guide only and does not replace clinical judgment

### References:

- WUWHS. *Principles of best practice: Minimising pain at wound dressing-related procedures*. London: MEP Ltd 2004
- AWMA. *Standards for wound management*. 2<sup>nd</sup> ed. Osborne Park, WA: Cambridge Media 2010
- JBI Wound Healing and Management Node Group. *Chronic wound management. (JBI) Best Practice*: 2011
- AWMA. *Bacterial impact on wound healing: from contamination to infection*. AWMA 2011
- Hopf H et al. Guidelines for the treatment of arterial insufficiency ulcers. *Wound Repair and Regeneration* 2006. 14(6): 693-710
- WUWHS. *Principles of best practice: Wound exudate and the role of dressings*. London: MEP Ltd 2007.



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# Wound Care

Information for clients, family and carers



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# Wound Care

## What is a wound?

- A wound is an injury to the skin or underlying tissue. The normal function of the tissue is damaged
- Wounds can be accidental, surgical, or occur because of underlying disease (e.g. diabetes)
- A wound will normally take four weeks to heal in older adults
- The cells and molecules which repair wounds need moisture to grow over the wound and form new tissue
- Research has found keeping the wound covered with a dressing reduces pain and lowers the risk of infection

**Wounds which are covered and kept moist heal more rapidly than those exposed to air**



## Contact your health professional for advice on treatment, particularly if:

- You have diabetes or arterial disease
- The wound is not healing within four weeks
- There is a change or increase in pain
- The area around the wound is red, hot to touch, swollen and painful. Some redness and swelling is normal initially, however, this should resolve within a week
- The wound looks yellow, pale or black, has an offensive smell, or is discharging green fluid or pus

## Healing a wound

### ✓ Do

- Eat a nutritious diet high in protein
- If you suffer from cold feet or legs, keep your legs warm
- Seek advice on pain management—pain can restrict blood flow to the wound
- Keep dressings dry (do not wet in the shower, unless instructed)
- Use a dressing type which does not stick to the wound
- Consult your health professional about how often to change the dressings. Most modern dressings require changing once/day or less to promote rapid healing

### ✗ Don't

- Do not expose the wound to air or the sun to 'dry out'
- Do not smoke—this reduces the supply of oxygen to heal the wound
- Do not use tapes and adhesives
- Do not wash wounds in sea water

## Ways to help ensure good nutrition and hydration

- Eat a healthy, balanced diet including all the five food groups each day
- Vary your meals and eat small meals or snacks frequently
- Drink 6 to 8 glasses of fluid a day, e.g. water, juice, yoghurt, soup
- Keep fluids handy and accessible
- Sit upright when eating or drinking
- Ensure good dental hygiene
- Talk to a health professional if you have any concerns



## This is a guide only and does not replace clinical judgment

### References:

- AWMA, *Standards for wound management*. 2nd ed 2010, Osborne Park, WA: Cambridge Media
- Trans Tasman Dietetic Wound Care Group, *Evidence based practice guideline for the dietetic management of adults with pressure injuries*. Review 1: 2011
- AWMA, *Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury* 2012, Osborne Park, WA: Cambridge Media



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# Nutrition and Wound Healing

Information for clients, family and carers



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# Nutrition and Wound Healing

## What is a wound?

- A wound is an injury to the skin

## How do wounds occur?

- Falls, accidents, knocks and bumps
- Surgery
- Underlying diseases (e.g. diabetes, poor circulation)

## Why is good nutrition and hydration important?

- Good nutrition and hydration is essential for prompt healing of wounds
- Older people take longer to heal and are more likely to be malnourished
- A wound increases the body's needs for energy and nutrients
- Dehydrated skin is less elastic, more fragile and more likely to break down



## Which nutrients are important for wound healing?

Some nutrients are important in helping wounds to heal, including:

- Protein
- Vitamin A
- Vitamin C
- Zinc

## Protein

Wounds need protein, including arginine, to heal. You may need extra servings if you:

- Have not been eating well
  - Have lost weight recently
  - Are underweight
  - Have a large or long-lasting wound
- Good sources of protein are red meat, poultry, fish, dairy products, legumes, nuts, seeds and grains.

Vegetarians should take special care to combine a variety of food sources to obtain all essential dietary needs.

## Vitamin C

A lack of Vitamin C may result in wound breakdown or delayed healing.

Good sources of Vitamin C include citrus fruits, berries, capsicum, parsley, broccoli, rockmelon, spinach.

## Vitamin A

Vitamin A is needed for tissue growth.

Good sources are liver, sweet potato, carrots, broccoli, leafy vegetables, rockmelon, eggs, and apricots.

## Zinc

Zinc is necessary for normal skin development. A lack of zinc is associated with slow wound healing.

Good sources are red meat, seafood, poultry, dairy products, sesame seeds and wholegrain cereals.

**Good nutrition and hydration is essential for wound healing**



## 3.3 Information links

### 3.3.1 Wound Care Organisations

Australian Wound Management Association and the AWMA State and Territory Associations

[www.awma.com.au](http://www.awma.com.au)

Australasian Wound and Tissue Repair Society (AWTRS)

[www.awtrs.org](http://www.awtrs.org)

World Wide Wounds - The Electronic Journal of Wound Management Practice.

[www.worldwidewounds.com](http://www.worldwidewounds.com)

Wounds International

[www.woundsinternational.com](http://www.woundsinternational.com)

European Wound Management Association

[www.ewma.org](http://www.ewma.org)

National Pressure Ulcer Advisory Panel (U.S.)

[www.npuap.org](http://www.npuap.org)

### 3.3.2 Evidence-based Guidelines

Australian Wound Management Association

[www.awma.com.au](http://www.awma.com.au)

European Wound Management Association

[www.ewma.org](http://www.ewma.org)

Royal College of Nursing: UK

[www.rcn.org.uk](http://www.rcn.org.uk)

National Guideline Clearinghouse

[www.guideline.gov](http://www.guideline.gov)

National Institute for Health and Clinical Excellence (NICE)

[www.nice.org.uk](http://www.nice.org.uk)

Scottish Intercollegiate Guidelines Network (SIGN)

[www.sign.ac.uk](http://www.sign.ac.uk)

The Cochrane Collaboration / Library

[www.cochrane.org](http://www.cochrane.org)

Australasian Cochrane Centre - The Cochrane Library

[www.cochrane.org.au/library](http://www.cochrane.org.au/library)

National Health Medical Research Council: (NHMRC)

[www.nhmrc.gov.au/guidelines/health\\_guidelines.htm](http://www.nhmrc.gov.au/guidelines/health_guidelines.htm)

The Joanna Briggs Institute

<http://www.joannabriggs.edu.au>

JBI Connect: (Clinical Online Network of Evidence for Care and Therapeutics)

[www.jbiconnect.org](http://www.jbiconnect.org)

Registered Nurses Association of Ontario (RNAO)

[www.rnao.ca/bpg](http://www.rnao.ca/bpg)

### 3.3.3 Scholarships

Australian College of Nursing (ACN) offers several Australia Government sponsored programs, focused predominately on registered nursing staff in order to further education within aged care or the potential to attend conferences.

[www.acn.edu.au](http://www.acn.edu.au)



### 3.4 CSI Discussion Group Packages

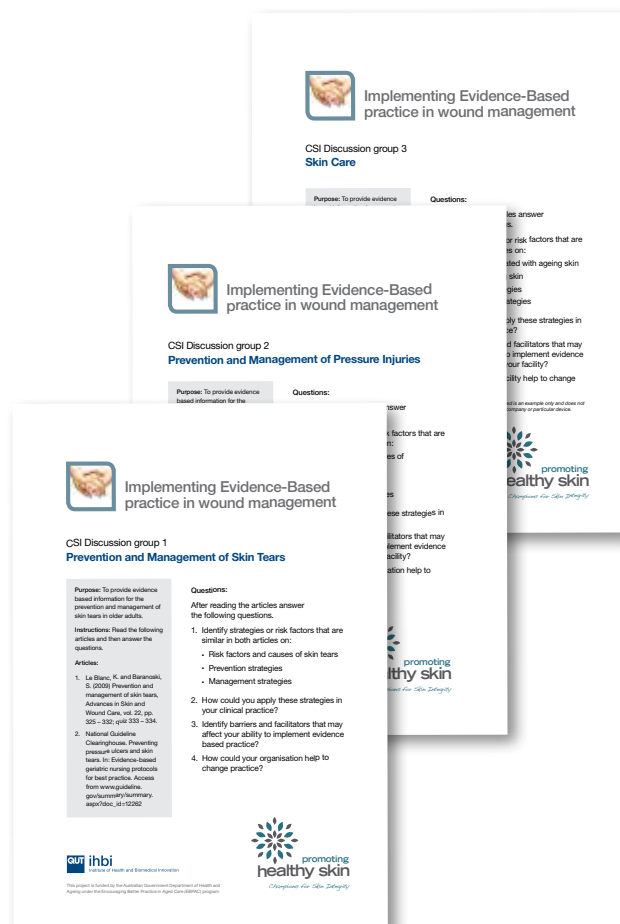
Case studies provide trainees with a valuable tool to consolidate their knowledge gained through education sessions. A practical way of reviewing case studies is through the use of discussion groups.

Discussion group packages listed below are included in this booklet. They can be photocopied directly from this booklet or alternatively can be printed from the relevant files included on the CSI resource files CD.



- Discussion Group 1 – Implementing Evidence-Based Practice in Wound Management (Prevention and Management of Skin Tears)
- Discussion Group 2 – Implementing Evidence-Based Practice in Wound Management (Prevention and Management of Pressure Injuries)
- Discussion Group 3 - Implementing Evidence-Based Practice in Wound Management (Skin Care)

3







# Implementing Evidence-Based practice in wound management

## CSI Discussion group 1

### Prevention and Management of Skin Tears

**Purpose:** To provide evidence based information for the prevention and management of skin tears in older adults.

**Instructions:** Read the following articles and then answer the questions.

**Articles:**

1. Le Blanc, K. and Baranoski, S. (2009) Prevention and management of skin tears, *Advances in Skin and Wound Care*, vol. 22, pp. 325 – 332; quiz 333 – 334.
2. National Guideline Clearinghouse. Preventing pressure ulcers and skin tears. In: Evidence-based geriatric nursing protocols for best practice. Access from [www.guideline.gov/summary/summary.aspx?doc\\_id=12262](http://www.guideline.gov/summary/summary.aspx?doc_id=12262)

**Questions:**

After reading the articles answer the following questions.

1. Identify strategies or risk factors that are similar in both articles on:
  - Risk factors and causes of skin tears
  - Prevention strategies
  - Management strategies
2. How could you apply these strategies in your clinical practice?
3. Identify barriers and facilitators that may affect your ability to implement evidence based practice?
4. How could your organisation help to change practice?



# Implementing Evidence-Based practice in wound management

## CSI Discussion group 2

### Prevention and Management of Pressure Injuries

**Purpose:** To provide evidence based information for the prevention and management of pressure injuries in older adults.

**Instructions:** Read the following articles and then answer the questions.

**Articles:**

1. Kayser-Jones, J., Bear, R. and Sharpp, T. (2009) Dying with a Stage IV pressure ulcers, *AJN*, vol. 109, no. 1, pp. 40 – 48, 49.
2. Stechmiller, J., Cowan, L., Whitney, J., Phillips, M., Aslam, R., Barbul, A., Gottrup, F. et al (2008) Guidelines for the prevention of pressure ulcers, *Wound Repair and Regeneration*, vol. 16, pp. 151 – 168

**Questions:**

After reading the articles answer the following questions.

1. Identify strategies or risk factors that are similar in both articles on:
  - Risk factors and causes of pressure injuries
  - Prevention strategies
  - Management strategies
2. How could you apply these strategies in your clinical practice?
3. Identify barriers and facilitators that may affect your ability to implement evidence based practice in your facility?
4. How could your organisation help to change practice?



# Implementing Evidence-Based practice in wound management

## CSI Discussion group 3 Skin Care

**Purpose:** To provide evidence based information for promoting healthy skin in older adults.

**Instructions:** Read the following articles and then answer the questions.

**Articles:**

1. Hodgkinson, B. and Nay, R. (2005) Effectiveness of topical skin care provided in aged care facilities, *International Journal Evidence Based Healthcare*, vol. 3, pp. 65 – 101.
2. Joanna Briggs Institute (JBI) (2007) Topical Skin Care in Aged Care Facilities, *Best Practice evidence based information sheet for health professionals*, vol. 11, no. 3.
3. Lawton, S. (2007) Addressing the skin-care needs of the older person, *British Journal of Community Nursing*, vol. 12, no. 5, pp. 203 – 210.
4. Smith, J. (2007) To shower or not to shower – that is the question? *ACQ Wire*, August – September 2007, pp. 24 – 25.

**Questions:**

After reading the articles answer the following questions.

1. Identify strategies or risk factors that are similar in the articles on:
  - Changes associated with ageing skin
  - Factors affecting skin
  - Prevention strategies
  - Management strategies
2. How could you apply these strategies in your clinical practice?
3. Identify barriers and facilitators that may affect your ability to implement evidence based practice in your facility?
4. How could your facility help to change practice?

\* Note: Product information included is an example only and does not represent an endorsement of any company or particular device.



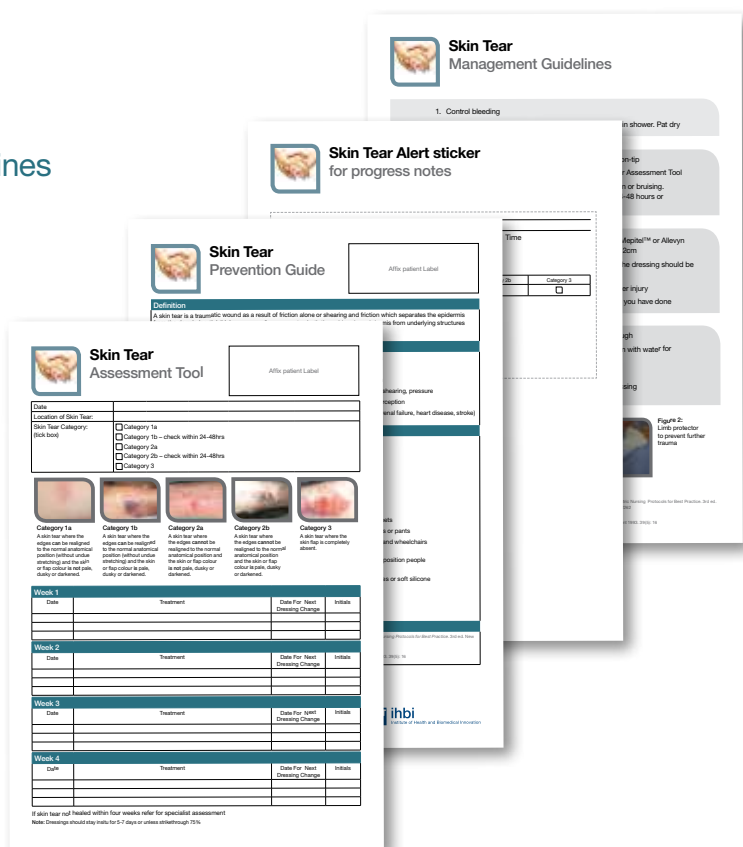
### 3.5 Skin Tear Management Package

Evidence suggests that older people are susceptible to skin tears<sup>10</sup>. As a result, the management of skin tears is an important function of the CSIs caring for older adults. To assist CSIs, a Skin Tear Management Package consisting of five tools was developed and is included in this booklet.

The package can be photocopied directly from this booklet or alternatively can be printed from the relevant files included on the CSI resource files CD.



- Skin Tear – Assessment Tool
- Skin Tear – Prevention Guide
- Skin Tear – Alert Sticker for Progress Notes
- Skin Tear – Management Guidelines
- Skin Tear – Flow Chart (refer section 3.2.3)





# Skin Tear Assessment Tool

Affix patient Label

Date	
Location of Skin Tear:	
Skin Tear Category: (tick box)	<input type="checkbox"/> Category 1a <input type="checkbox"/> Category 1b – check within 24-48hrs <input type="checkbox"/> Category 2a <input type="checkbox"/> Category 2b – check within 24-48hrs <input type="checkbox"/> Category 3



### Category 1a

A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour is not pale, dusky or darkened.



### Category 1b

A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour is pale, dusky or darkened.



### Category 2a

A skin tear where the edges cannot be realigned to the normal anatomical position and the skin or flap colour is not pale, dusky or darkened.



### Category 2b

A skin tear where the edges cannot be realigned to the normal anatomical position and the skin or flap colour is pale, dusky or darkened.



### Category 3

A skin tear where the skin flap is completely absent.

## Week 1

Date	Treatment	Date For Next Dressing Change	Initials

## Week 2

Date	Treatment	Date For Next Dressing Change	Initials

## Week 3

Date	Treatment	Date For Next Dressing Change	Initials

## Week 4

Date	Treatment	Date For Next Dressing Change	Initials

If skin tear not healed within four weeks refer for specialist assessment

Note: Dressings should stay insitu for 5-7 days or unless strikethrough 75%





# Skin Tear Prevention Guide

Affix patient Label

## Definition

A skin tear is a traumatic wound as a result of friction alone or shearing and friction which separates the epidermis from the dermis (partial-thickness wound), or separates both the epidermis and dermis from underlying structures (full-thickness wound).

## Risk factors for skin tears:

- |   |   |
|---|---|
| <input type="checkbox"/> History of previous skin tears           | <input type="checkbox"/> Multiple medications                                     |
| <input type="checkbox"/> Presence of bruising or discoloured skin | <input type="checkbox"/> Impaired mobility  |
| <input type="checkbox"/> Advanced age                             | <input type="checkbox"/> Dry skin/dehydration                                     |
| <input type="checkbox"/> Poor nutritional status                  | <input type="checkbox"/> Presence of friction, shearing, pressure                 |
| <input type="checkbox"/> Cognitive impairment/dementia            | <input type="checkbox"/> Impaired sensory perception                              |
| <input type="checkbox"/> Dependency                               | <input type="checkbox"/> Disease processes (renal failure, heart disease, stroke) |

## Prevention Strategies:

- Assess/recognize fragile, thin, vulnerable skin
- Use soap-free bathing products to avoid drying the skin
- Apply moisturiser to the skin twice daily
- Use proper lifting, positioning and transfer techniques
- Use caution when bathing and dressing
- Avoid wearing rings that may snag the skin
- Keep fingernails trimmed
- Avoid direct contact that will pull the skin. Use assistive devices such as slide sheets
- Protect fragile skin – use limb protectors and/or use clothing that has long sleeves or pants
- Consider padding or cushioning equipment and furniture. For example, bed rails and wheelchairs to reduce risk of injury
- Use pillows (satin or silk covers help to reduce to the risk of friction and shear) to position people who are less mobile or restricted to bed or chairs
- Avoid using tapes or adhesives. If dressings or tapes are required, use paper tapes or soft silicone dressings to avoid tearing the skin upon removal
- Provide a safe environment
- Optimise nutrition and hydration

## References:

Ayello E, Sibbald G. Preventing pressure ulcers and skin tears. In: Capezuti E. et al. (eds) *Evidence-based Geriatric Nursing Protocols for Best Practice*. 3rd ed. New York: Springer Publishing Company 2008. [www.guideline.gov/summary/summary.aspx?doc\\_id=12262](http://www.guideline.gov/summary/summary.aspx?doc_id=12262)

Carville K. et al. STAR: A Consensus for skin tear classification. *Primary Intention* 2007. 15(1): 18–28

Payne R. Martin M. Defining and classifying skin tears: need for common language. *Ostomy Wound Management* 1993. 39(5): 16



# Skin Tear Alert sticker

for progress notes

## SKIN TEAR ALERT

Resident name:

Date

Time

Location of skin tear:

Skin Tear Category: (tick box)

Category 1a	Category 1b	Category 2a	Category 2b	Category 3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Treatment:

Incident report Completed: (tick box)

Yes

No

Date of review

Signature:



# Skin Tear Management Guidelines

1. Control bleeding
2. Clean wound with warm normal saline, warm water or in shower. Pat dry



3. Realign (if possible) any skin or flap using a moist cotton-tip
4. Assess and document the skin tear using the Skin Tear Assessment Tool
5. Assess the surrounding skin for swelling, discolouration or bruising. If flap colour is pale, dusky or darkened reassess in 24-48 hours or at first dressing change



6. Apply a soft-silicone dressing (e.g. Mepilex Border™, Mepitel™ or Allevyn Gentle™) to wound overlapping the wound by at least 2cm
7. Draw arrows on the dressing to indicate the direction the dressing should be removed and date that dressing was applied
8. Apply a limb protector (e.g. Tubifast™) to prevent further injury
9. If you are not the RN notify the RN and document what you have done



10. Leave dressing on for 5 to 7 days or if 75% strike through
11. Remove dressing slowly in direction of arrows, moisten with water for easy release
12. If wound is healed leave open and moisturise
13. If wound has not healed apply a new soft silicone dressing and leave on for 5 to 7 days



**Figure 1:**  
Remove dressing in direction of arrow 5 to 7 days after application or if 75% strikethrough



**Figure 2:**  
Limb protector to prevent further trauma

## References:

- Ayello E, Sibbald G. Preventing pressure ulcers and skin tears. In: Capezuti E. et al. (eds) Evidence-based Geriatric Nursing Protocols for Best Practice. 3rd ed. New York: Springer Publishing Company 2008. [http://www.guideline.gov/summary/summary.aspx?doc\\_id=12262](http://www.guideline.gov/summary/summary.aspx?doc_id=12262)
- Carville K. et al. STAR: A Consensus for skin tear classification. Primary Intention 2007. 15(1): 18–28
- Payne R, Martin M. Defining and classifying skin tears: need for common language. Ostomy Wound Management 1993. 39(5): 16



# 4 Data Collection Tool

## 4.1 Skin Integrity Survey

### What is the purpose of a Skin Integrity Survey?

Clinical surveys and feedback is one way in which we can continually review practices in order to improve services, so that clients receive the best possible care.

Following is an example of a skin integrity survey form that may be useful within your organisation.

It is important to relay results obtained from doing a skin integrity survey back to other staff within the organisation.

The following skin integrity data collection tool are included in the booklet. They can be photocopied directly from this booklet or alternatively can be printed from the relevant files included on the CSI resource files CD. The CD also includes a PowerPoint Survey Data Collection Training Guide.



- Skin Integrity Survey form
- Skin Integrity Survey Data Collection Training Guide (refer to the Powerpoint presentation included on the CSI resource files CD)

**Skin Integrity Survey Form**

**List all wounds detected on examination:**

Wound type	Wound present	Left	Right
Head	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hand/wrist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forearm/dorsal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Back	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foot/heel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**There is evidence of:**

<input type="checkbox"/> Skin cancers	<input type="checkbox"/> Previous pressure injuries
<input type="checkbox"/> Chronic venous insufficiency	<input type="checkbox"/> Lower limb amputation
<input type="checkbox"/> Peripheral vascular disease	<input type="checkbox"/> Previous skin tears
<input type="checkbox"/> Pressure leg ulcers	

**The following pressure reducing/preventing device(s) are present:**

<input type="checkbox"/> None	<input type="checkbox"/> Replacement mattresses (static, dynamic)
<input type="checkbox"/> Specialty bed or chair	<input type="checkbox"/> Cushion/overlays (static/dynamic)
<input type="checkbox"/> Combination device	<input type="checkbox"/> Other (specify)

**The following preventative interventions or prophylaxis are in place:**

<input type="checkbox"/> None	<input type="checkbox"/> Moisturising
<input type="checkbox"/> Compression hosiery	<input type="checkbox"/> Compression hosiery applicator device
<input type="checkbox"/> Protective clothing	<input type="checkbox"/> Lifting
<input type="checkbox"/> Specialised orthotic footwear	<input type="checkbox"/> Turning schedule
<input type="checkbox"/> Foot and ankle exercises	<input type="checkbox"/> Padded wheelchair foot plates, leg rests, bed rails
<input type="checkbox"/> Devices into areas least at risk	<input type="checkbox"/> Other (specify)

**Documentation within the last 6 days related to the management of any CURRENT wound(s):**

<input type="checkbox"/> None	<input type="checkbox"/> Compression bandaging (specify)
<input type="checkbox"/> Wound tracing	<input type="checkbox"/> Pressure of banding (specify)
<input type="checkbox"/> Wound assessment	<input type="checkbox"/> Dressing (specify)
<input type="checkbox"/> Wound photography	<input type="checkbox"/> Organisation protocol (specify)
<input type="checkbox"/> Risk assessment	<input type="checkbox"/> Investigation (specify)
<input type="checkbox"/> Changeage	<input type="checkbox"/> Other (specify)
<input type="checkbox"/> Turning regime	

**Skin Integrity Classification System**

**STAR Skin Tear Classification System Guidelines**

- Control bleeding and clean the wound according to protocol.
- Realign (if possible) any skin or flap.
- Assess degree of tissue loss and skin or flap colour using the STAR Classification System.
- Assess the surrounding skin condition for fragility, swelling, discoloration or bruising.
- Assess the person, their mood and their healing environment as per protocol.
- If skin or flap colour is pale, dusky or darkened reassess in 24-48 hours or at the first dressing change.

**STAR classification System**

Category 1a	Category 1b	Category 2a	Category 2b	Category 3
A skin tear where the edges can be realigned to the normal anatomical position without the need for suturing or staples.	A skin tear where the edges can be realigned to the normal anatomical position with the use of suturing or staples.	A skin tear where the edges cannot be realigned to the normal anatomical position.	A skin tear where the edges cannot be realigned to the normal anatomical position.	A skin tear where the skin has completely avulsed.

**Pressure Injury or Ulcer Staging**

Stage 1	Stage 2	Stage 3	Stage 4	Suspected Deep Tissue Injury	Unstageable
Non-blanchable redness of the skin that appears with pressure or after removal of the pressure.	Partial thickness loss of dermis with a red wound bed that may extend down to, but not through, the underlying fascia.	Full thickness loss of dermis and subcutaneous tissue that may extend down to, but not through, the underlying fascia.	Full thickness loss of dermis and subcutaneous tissue that may extend down to, but not through, the underlying fascia.	Full thickness loss of dermis and subcutaneous tissue that may extend down to, but not through, the underlying fascia.	Full thickness loss of dermis and subcutaneous tissue that may extend down to, but not through, the underlying fascia.







# Skin Integrity Survey Form



Date / /  MRN

List all wounds detected on examination				Wound type
	Wound present	Left	Right	List wound type (e.g. venous or arterial leg ulcer, diabetic foot ulcer, pressure injury, skin tear), category/stage of wound and location of wound e.g. Category 2a skin tear outer aspect of R calf
Head	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Arm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hip/iliac crest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sacrum/buttocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Back	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Leg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Foot/toes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	Specify other		
Total wounds present at examination:				

## 1. There is evidence of:

- |   |   |
|---|---|
| <input type="checkbox"/> Skin cancers                 | <input type="checkbox"/> Previous pressure injuries |
| <input type="checkbox"/> Chronic venous insufficiency | <input type="checkbox"/> Lower limb amputation      |
| <input type="checkbox"/> Peripheral vascular disease  | <input type="checkbox"/> Previous skin tears        |
| <input type="checkbox"/> Previous leg ulcers          |   |

## 2. The following pressure reducing/relieving device(s) are present:

- |  |   |
|--|---|
| <input type="checkbox"/> None                    | <input type="checkbox"/> Replacement mattresses (static, dynamic) |
| <input type="checkbox"/> Speciality bed or chair | <input type="checkbox"/> Cushions/overlays (static/dynamic)       |
| <input type="checkbox"/> Comfort/adjunct devices | <input type="checkbox"/> Other (specify) .....                    |

## 3. The following preventative interventions or strategies are in place:

- |   |  |
|---|--|
| <input type="checkbox"/> None                             | <input type="checkbox"/> Moisturising  |
| <input type="checkbox"/> Compression hosiery              | <input type="checkbox"/> Compression hosiery applicator device               |
| <input type="checkbox"/> Protective clothing              | <input type="checkbox"/> Lighting  |
| <input type="checkbox"/> Specialised orthotic footwear    | <input type="checkbox"/> Turning schedule                                    |
| <input type="checkbox"/> Foot and ankle exercises         | <input type="checkbox"/> Padded wheelchair foot plates, leg rests, bed rails |
| <input type="checkbox"/> Elevates limbs above heart level | <input type="checkbox"/> Other (specify) .....                               |

## 4. Documentation within the last 5 days related to the management of any CURRENT wound(s):

- |  |  |
|--|--|
| <input type="checkbox"/> None              | <input type="checkbox"/> Compression bandaging (specify) ..... |
| <input type="checkbox"/> Wound tracing     | <input type="checkbox"/> Pressure off-loading (specify) .....  |
| <input type="checkbox"/> Wound assessment  | <input type="checkbox"/> Referral (specify) .....              |
| <input type="checkbox"/> Wound photography | <input type="checkbox"/> Organisation protocol (specify) ..... |
| <input type="checkbox"/> Risk assessment   | <input type="checkbox"/> Investigations (specify) .....        |
| <input type="checkbox"/> Dressings         | <input type="checkbox"/> Other (specify) .....                 |
| <input type="checkbox"/> Turning regimes   |  |



# Skin Integrity Classification System

## STAR - Skin Tear Classification System Guidelines

1. Control bleeding and clean the wound according to protocol.
2. Realign (if possible) any skin or flap.
3. Assess degree of tissue loss and skin or flap colour using the STAR Classification System.
4. Assess the surrounding skin condition for fragility, swelling, discolouration or bruising.
5. Assess the person, their wound and their healing environment as per protocol.
6. If skin or flap colour is pale, dusky or darkened reassess in 24-48 hours or at the first dressing change.

### STAR classification System



#### Category 1a

A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour is not pale, dusky or darkened.



#### Category 1b

A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour is pale, dusky or darkened.



#### Category 2a

A skin tear where the edges cannot be realigned to the normal anatomical position and the skin or flap colour is not pale, dusky or darkened.



#### Category 2b

A skin tear where the edges cannot be realigned to the normal anatomical position and the skin or flap colour is pale, dusky or darkened.



#### Category 3

A skin tear where the skin flap is completely absent.

*Skin Tear Audit Research (STAR). Sliver Chain Nursing Association and School of Nursing and Midwifery, Curtin University of Technology. Revised 4/2/2010*

### Pressure Injury or Ulcer Staging



#### Stage 1

Persistent redness in lightly pigmented skin. In darker skin the ulcer may appear with persistent red, blue or purple hues.



#### Stage 2

Skin loss involving epidermis and/or dermis. The ulcer is superficial in appearance.



#### Stage 3

Involves damage or necrosis of subcutaneous tissue that may extend down to but not through the underlying fascia.



#### Stage 4

Full thickness loss with exposed bone, tendon or muscle. Slough or eschar may be present. Often undermining or tunnelling.



#### Suspected Deep Tissue Injury

Purple or maroon localised area of discoloured or intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear.



#### Unstageable

Full thickness tissue loss in which the actual depth of the ulcer is completely obscured by slough and/or eschar in the bed.

*EPUAP & NPUAP (2009)*

### GLOSSARY

**Chronic venous insufficiency** is a medical condition where, due to damaged or "incompetent" valves the veins cannot pump blood effectively back to the heart resulting in elevated ambulatory venous pressure (venous hypertension). Characteristics of chronic venous insufficiency may include oedema, skin staining, varicose veins, itchy legs and ulceration.

**Peripheral Vascular Disease** is caused by obstruction of the large arteries, especially in the extremities most commonly due to atherosclerosis. Characteristics of peripheral vascular disease include: claudication, rest pain, trophic changes, e.g. hair loss on the lower limb, thin shiny skin on the calves or feet, thickened toenails, purple colour of the limb in the dependent position, cool skin on palpation, mummified or dry and black toes, devitalized soft tissue with a wet or dry crust.

### References

Carville, K. et al. (2007). STAR: A consensus for skin tear classification. *Primary Intention*, 15(1), 18-28. • Dardik, A. et al. (2008) Guidelines for the prevention of lower extremity arterial ulcers, *Wound Repair and Regeneration*, 16, 175-188. • European Pressure Ulcer Advisory Panel and NPUAP. (2009) Prevention and treatment of pressure ulcers. Washington DC: NPUAP. • Robson, M. et al. (2006) Guidelines for the treatment of venous leg ulcers, *Wound Rep Regen*, 14, 649-662



## 5 Meeting and Education Support Tools

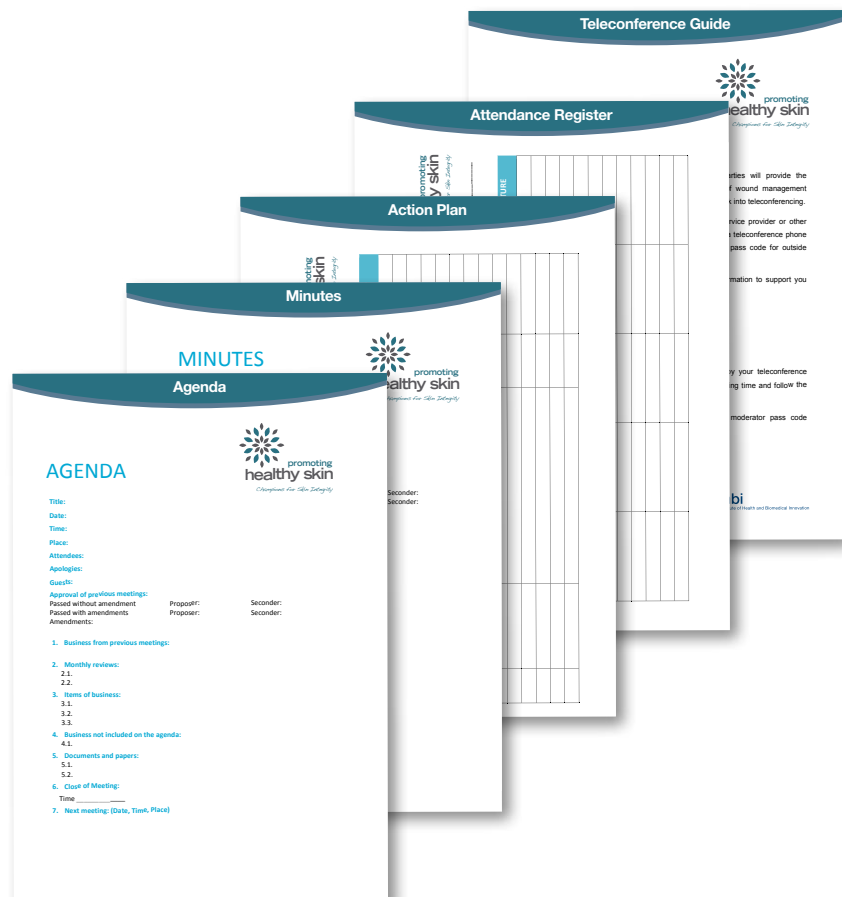
### 5.1 Meeting Support Tools

As the multidisciplinary wound care networks and clinical linkages develop, it is likely that formal meetings will start to take place. It is important that such meetings are documented officially through the use of agendas, minutes and action lists. Meeting support tools have been included in this folder to assist all CSIs in the organisation and facilitation of meetings throughout their organisation. They can be adapted or modified to suit your organisation's requirements.

The following meeting support tools are included in the booklet. They can be photocopied directly from this booklet or alternatively can be printed from the relevant files included on the CSI resource files CD. MS Word versions of the first four files are also available on the CD and can be adapted to suit your organisation's requirements.



- Agenda
- Minutes
- Action List
- Attendance Register
- Teleconference Guide



## AGENDA



**Title:**

**Date:**

**Time:**

**Place:**

**Attendees:**

**Apologies:**

**Guests:**

**Approval of previous meetings:**

Passed without amendment

Proposer:

Seconder:

Passed with amendments

Proposer:

Seconder:

Amendments:

**1. Business from previous meetings:**

**2. Monthly reviews:**

2.1.

2.2.

**3. Items of business:**

3.1.

3.2.

3.3.

**4. Business not included on the agenda:**

4.1.

**5. Documents and papers:**

5.1.

5.2.

**6. Close of Meeting:**

Time \_\_\_\_\_

**7. Next meeting: (Date, Time, Place)**

## MINUTES



**Title:**

**Date:**

**Time:**

**Place:**

**Attendees:**

**Apologies:**

**Guests:**

**Approval of previous meetings:**

Passed without amendment

Proposer:

Second:

Passed with amendments

Proposer:

Second:

**Amendments:**

### 1. Business from previous meetings:

### 2. Monthly reviews:

2.1.

**Discussion:**

**Action:**

**Actioned by:**

**Deadline:**

2.2.

**Discussion:**

**Action:**

**Actioned by:**

**Deadline:**

### 3. Items of business:

3.1.

**Discussion:**

**Action:**

**Actioned by:**

**Deadline:**

3.2.

**Discussion:**

**Action:**

**Actioned by:**

**Deadline:**



# Minutes (cont)



3.3.

**Discussion:**

**Action:**

**Actioned by:**

**Deadline:**

## 4. Business not included on the agenda:

4.1.

**Discussion:**

**Action:**

**Actioned by:**

**Deadline:**

## 5. Documents and papers: (e.g. Minutes from previous meeting)

5.1.

5.2.

## 6. Meeting closed: (Time)

## 7. Next meeting: (Date, Time, Place)



Meeting Action List

Table with 5 columns: Date, Activity, Task, Actioner, Status. The table contains 15 empty rows for recording meeting actions.





## Teleconference Guide

Open communication channels between all interested parties will provide the necessary support and momentum for the development of wound management practices. If distance is a problem it may be worthwhile to look into teleconferencing.

Teleconferencing can be set up through your telephone service provider or other teleconference service providers. You will be provided with a teleconference phone number, a moderator pass code for you and a participant pass code for outside callers.

This teleconferencing guide will provide the necessary information to support you through the procedures of participating in a teleconference.

## How to set up a teleconference?

**Step 1:** Dial the teleconference phone number provided by your teleconference service provider several minutes before the scheduled meeting time and follow the prompts.

**Step 2:** You will be prompted to enter the appropriate moderator pass code provided.



## How to Participate? (A few suggested Do's and Don'ts)

- ❁ The audio quality of the teleconference is greatly improved if participants use landlines instead of mobile telephones. Mobile phones are also much more likely to be dropped than landlines.
- ❁ If there is a lot of background noise in your location mute your line when not speaking. Optus mute code is \*6. Your teleconference service provider may use a different code. This will mute your line and block out background noise. When you are ready to speak press \*6 to un-mute your line.
- ❁ Please preface your comments during calls with your name so that those listening know who is speaking.
- ❁ Please remember to ask for the floor before speaking, and ensure not to speak over any other person as this will make it difficult for others to understand you.
- ❁ Please remember when speaking to sit in a close proximity to the speaker phone and to speak clearly and at a moderate pace.





## 5.2 Education Support Tools

One of the key roles of the CSI is to enhance knowledge, skills and attitudes of staff towards skin integrity by contributing or facilitating educational in-services for staff.

The resource kit includes a range of education support tools designed to assist CSIs in the organisation and facilitation of education workshops throughout their organisation. They can be adapted or modified to suit your organisation's requirements for future skin integrity and evidence-based practice training.



- Fact sheet – Evidence-based Practice
- Power point presentation slide (only available on the CD)
- Education session – Evaluation Form
- Education Session - Attendance Register

The following education support tools are included in the booklet. They can be photocopied directly from this booklet or alternatively can be printed from the relevant files included on the CSI resource files CD. MS Word versions of the education session files are also available on the CD and can be adapted to suit your organisation's requirements.



<sup>1</sup>Seawell et al. 1995. Evidence based medicine: What it is and what it isn't. BMJ 312:7-12.  
<sup>2</sup>Commonwealth of Australia NH&MRC. 2000. How to use the evidence. NH&MRC, Australia: Canberra.



## Fact Sheet - Evidence Based Practice

### What is 'Evidence Based Practice'?

Evidence based practice has been described as “the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients” (Sackett et al. 1996<sup>1</sup>).

Evidence based practice encompasses consideration of the **best available research evidence, clinical expertise, context** and **patient preferences** when making decisions on the provision of care.

The need for evidence to support patient care is not new. Florence Nightingale used evidence from patient morbidity statistics to make decisions about the care provided to injured soldiers. Today many factors have pushed the need for evidence based practice to the fore, including rising costs of health care and the need to improve the quality of health care outcomes for patients and communities.

### What is 'Best Evidence'?

Best Evidence refers to a synthesis of results obtained from rigorous evaluation of research studies related to treatments, interventions, care practices or clinical problems.

Evidence may include results from different types of research studies, e.g. randomised controlled trials, case control studies, descriptive studies or qualitative studies.

When evaluating the evidence, consideration is given to:

- The strength of the evidence (i.e. the quality of the study and how well the study design reduces bias in results)
- The size of the effect (e.g. if a study finds one treatment is better than other, was there a large or small difference in the clinical outcomes?)
- Relevance of the results (i.e. are the results relevant to your patient population, context or the particular intervention of interest?)<sup>2</sup>

### Where is the evidence?

The Champions for Skin Integrity project aims to provide pathways to assist all staff gain awareness of evidence, evidence based guidelines and how to implement evidence into practice. For assisting in finding evidence in wound management, access Module 8 '*Finding Evidence*' in the Self Education DVD provided in this resource folder.

<sup>1</sup>Sackett et al. 1996. Evidence based medicine: What it is and what it isn't. *BMJ* 312:71-72.

<sup>2</sup>Commonwealth of Australia NHMRC. 2000. *How to use the evidence*. NHMRC, AusInfo: Canberra.

# Education session - Evaluation Form

## EDUCATION SESSION EVALUATION FORM



Participant Name: \_\_\_\_\_ (Optional)

Organisation: \_\_\_\_\_

Job Title: \_\_\_\_\_

Date: \_\_\_\_\_

Venue: \_\_\_\_\_

Name of Workshop: \_\_\_\_\_

Using the rating scale below, please indicate the level of your agreement with the following statements about the workshop you have completed.

1 = Strongly disagree      2 = Disagree      3 = Neutral      4 = Agree      5 = Strongly Agree

	1	2	3	4	5	na	Additional Comments:
The workshop met my expectations							
The workshop was relevant to my current position and duties							
The facilitator communicated the course content effectively							
The facilitator provided assistance at my level of need							
The workshop materials were well organised, well written, and easy to follow							
The workshop was well structured							
The amount of information was sufficient							
The pace of the program was appropriate for the workshop							
There was sufficient opportunities provided for interaction and participation							
The catering was sufficient							

# Education session - Evaluation Form



1. What knowledge and/or skills did you gain from the workshop?

---

---

---

---

---

---

2. How would you apply what you have learnt in your workplace?

---

---

---

---

---

---

3. What part(s) of the workshop did you find most useful?

---

---

---

---

---

---

4. Were any topics still unclear? Which ones, and why? How could the workshop be improved?

---

---

---

---

---

---

# Education session - Evaluation Form



5. Were you happy with the registration process, and the information provided to you prior to the workshop? What could we have done better?

---

---

---

---

---

6. Would you recommend this workshop to others? Please give reasons.

---

---

---

---

7. Additional comments:

---

---

---

---

---

---

Thank you







## 6 References

1. Coyer F, Edwards H, Courtney M, *Best Practice Community Care for Clients with Chronic Venous Leg Ulcers: National Institute for Clinical Studies (NICS) Report for Phase I Evidence Uptake Network*, 2005, Queensland University of Technology: Brisbane.
2. Baker SR, Stacey MC: Epidemiology of chronic leg ulcers in Australia. *Australian and New Zealand Journal of Surgery* 1994, 64:258-61.
3. International Diabetic Foot Federation, *International Consensus on the Diabetic Foot and Practical Guidelines on the Management and Prevention of the Diabetic Foot 2007*. 2007, Amsterdam: International Working Group on the Diabetic Foot.
4. Briggs M, Closs SJ: The prevalence of leg ulceration: a review of the literature. *EWMA Journal* 2003, 3:14-20.
5. Carville K, Lewin G, Newall Net al.: STAR: A consensus for skin tear classification. *Primary Intention* 2007, 15:18-28.
6. Everett S, Powell T: Skin Tears - The underestimated wound. *Primary Intention* 1994, 2:11.
7. Bours G, Halfens R, Abu-Saad H, Grol R: Prevalence, prevention, and treatment of pressure ulcers: Descriptive study in 89 institutions in The Netherlands. *Research in Nursing and Health* 2002, 25:99-110.
8. Young J, Nikoletti S, McCaul K et al.: Risk factors associated with pressure ulcer development at a major Western Australian teaching hospital from 1998 to 2000: Secondary data analysis. *WOUND CARE: Journal of Wound, Ostomy & Continence Nursing* 2002, 29:234-241.
9. Anand S, Dean C, Nettleton R, Praburaj D: Health-related quality of life tools for venous-ulcerated patients. *British Journal of Nursing* 2003, 12:48-59.
10. Nelson EA, Bell-Syer SEM, Cullum NA: Compression for preventing recurrence of venous ulcers. *Cochrane Database of Systematic Reviews* 2000, 4:CD002303.
11. Edwards H, Courtney M, Finlayson K et al.: Chronic venous leg ulcers: effect of a community nursing intervention on pain and healing. *Nursing Standard* 2005, 19:47-54.
12. Walker N, Rodgers A, Birchall N, Norton R, MacMahon S: Leg ulcers in New Zealand: age at onset, recurrence and provision of care in an urban population. *New Zealand Medical Journal* 2002, 115:286-289.
13. McGuckin M, Waterman R, Brooks Jet al.: Validation of venous leg ulcer guidelines in the United States and United Kingdom. *American Journal of Surgery* 2002, 183:132-7.
14. Finlayson K, Edwards H, Courtney M: Factors associated with recurrence of venous leg ulcers. *International Journal of Nursing Studies* 2009, 46:1071-1078.