

Skin Integrity

*Its maintenance
and support*



**A guide to the principles of prevention
and management of:**

Skin Tears

Leg Oedema

Wounds

Pressure Injury

This booklet has been produced to contribute to the Council of Australian Governments Long Stay Older Persons Project (COAG LSOP). It is funded by the Victorian Department of Human Services.

Skin integrity is just one area in which older people can experience functional decline, and one area which can be further exacerbated by hospital stays.

Assessment and management of skin integrity is part of the larger wholistic process of risk management for all potential areas of functional decline.

Other important areas to consider when caring for older people are mobility, nutrition, continence, depression, dementia, delirium, medications and pain. It is important to make a thorough assessment of risks in all areas in order to make a Person Centred management plan that includes the patient and carers in decision making.

Disclaimer

This booklet is intended to be used in conjunction with your local Health networks policies, procedural guidelines and clinical judgements.

For specific instructions regarding use of dressing products always refer to manufacturers instructions. Some dressings have contraindications for use. The individual needs of the patient and the goals of treatment must always be considered.

This guide has been developed to assist in the appropriate assessment and management of skin integrity. It offers evidence based guidelines for:

- Assessment of skin integrity
- Deliberate prevention of functional decline in skin integrity
- Wound management including wound assessment and product selection
- Management of leg oedema
- Pressure ulcer staging and management
- Skin tear classification and management

The booklet aims to promote a clear and consistently applicable approach to deliberate prevention of functional decline in skin integrity. In simple, easy to read style, it outlines evidence based interventions that will assist in achieving improved patient outcomes.

References and useful links are given throughout the text and at page 28 to facilitate more detailed examination of the evidence base and to encourage individual learning.

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Why is Skin Integrity Management important?

Intact skin and mucous membranes protect all our other body organs and their functions.

Called the integumentary system, skin is the largest organ in the body. It contributes 15% of the body's weight and receives 1/3 of circulating blood.

Functions of Skin:

- Shields the body's vital metabolic functions from harmful temperatures, chemicals, radiation and pathogens
- Assists in maintenance of fluid and electrolyte balance and optimal inner temperature
- Conveys both painful and pleasant sensations

The appearance, textures, colours, and characteristics of the skin communicates people's individuality to others.

Maintenance of its integrity is important to both physical and mental health.

Human Skin

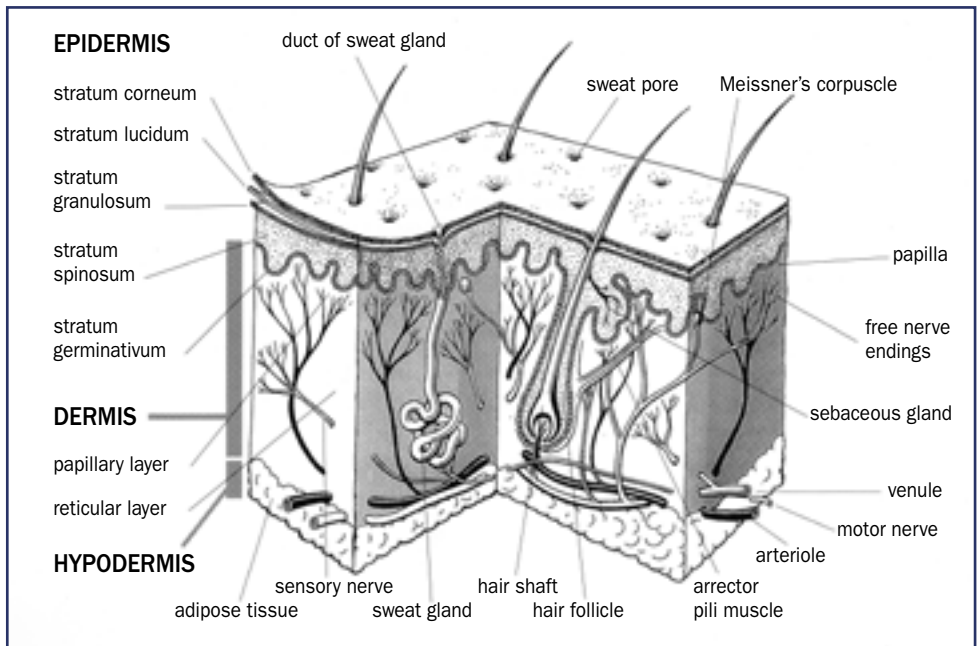


Diagram reproduced with permission K. Carville

Effects of Ageing on Skin

There is thinning of the dermis and epidermis. Subcutaneous fat and tissue atrophies and is lost. The volume and effectiveness of all three skin layers is decreased. Thin, dry skin is at risk of tearing and bruising. Numbers of sweat glands, blood vessels, nerve endings and melanocytes decrease. Sebum production diminishes. Elasticity and moisture are lost resulting in more skin folds.

Aged skin is more vulnerable to damage and stress, and also slower to heal. Ageing changes the ability of the skin to achieve all of the functions on the previous page.

Wound prevalence increases with age.



Factors that affect the normal function and healing of skin and wounds

General Factors

- Age
- Nutritional status
- Vascular abnormalities:
 - Supply (arterial);
 - Return (venous);
 - Oedema
- Diabetes
- Neuropathy
- Smoking
- Blood abnormalities – e.g. anaemia
- Medications
- Pain
- Radiation therapy

Local Factors

- Infection
- Wound hydration
- Pressure, friction, shear and excess moisture
- Pain
- Temperature of the wound or limb
- Foreign bodies

Care of Skin

Maintenance of skin integrity is the responsibility of an interdisciplinary team which includes the patient in a collaborative and respectful partnership. It is important to include the patient and/or carers in health decisions and in education.

Undernutrition may be a risk factor for developing pressure areas. Adequate nutrition is essential to enable wound healing.

Care of the skin has an important interrelationship with all other functional domains, especially nutrition, continence and mobility.

Aims of skin care

- Promote and maintain healthy tissue
- Reduce risk of damage and infection

Older people are at greater risk of skin injury

See effects of ageing on skin - page 3.

- Identify their risks
- Deliberately prevent injury
- Avoid aggressive tapes/adhesives
- Look after hydration and nutrition

Five important actions for skin integrity management

1. *Inspect skin daily with attention to skin folds, bony prominences and oral health.*

Identify risks early and make appropriate referrals and evidence based interventions to prevent skin tears,* pressure ulcers* and to manage any existing wounds.

2. **THROW AWAY THE SOAP!**

Soap changes the pH of skin leaving it dry, irritated and more susceptible to infection. Use pH balanced soap substitutes.

3. *Moisturise regularly, and apply barrier cremes to prevent skin excoriation from irritants such as urine, faeces or wound exudate.*

4. *Pay constant attention to optimal nutrition and hydration.*

5. *Involve and educate patients and carers in skin integrity management.*

References & Further Reading

Clinical practice guidelines for the prediction and prevention of pressure ulcers Australian Wound Management Association. www.awma.com.au/publications/2007/cpgpppu_v_full.pdf (accessed March 2008)

Wound and Skin Care Clinical Guidelines April 2007 Vancouver Island Health Authority

Anderson, J Thompson P What you can learn from a comprehensive skin assessment. *Nursing 2007* April Vol 37 no 4. 65-66

* See specific evidence based prevention strategies for: skin tears page 10; pressure ulcers page 6

Nutrition

Nutrition is essential for skin integrity and wound healing

Aim to

- Identify those at risk of undernutrition (See signs indicating under nutrition - page 6)
- Optimise food and fluid intake to improve nutritional status, and correct any nutritional deficiencies
- Provide additional nutrients needed for skin repair. See essential nutrients below. Beware losses in wound exudate. High protein/high energy supplements may be required
- Optimise blood sugar control (in people with diabetes)
- Involve a dietitian to achieve these aims
- Educate patients and carers about nutritional choices



Seven important actions toward achieving nutrition aims

Ensure:

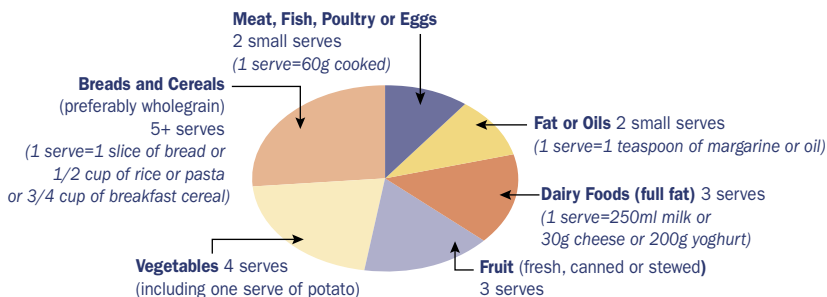
1. **Menus provide choices** that consider special diets, religious beliefs, textures, and can be adapted for personal habits and tastes.
2. **Correct positioning while eating** – seated out of bed, wherever possible, and preferably in communal dining spaces. For patients with limited opportunities for sitting, plan for these to occur at meal times.
3. **The right meal** and any special eating utensils are delivered and **can be reached**.
4. **Help is provided** with filling out menus, cutting up food, opening containers and packaging, and with eating and drinking, to maximise food intake
5. When nutritional supplements are prescribed, these are opened and assistance and encouragement with consumption is provided.
6. Meals are of suitable texture to assist with any oral health or swallowing difficulties. (If required refer to speech pathology)
7. Involve patients and carers in meal choices

Signs that may indicate under nutrition:

- Body Mass Index < 20 kg/m² or appearance of underweight
- Loose fitting clothes, jewellery or dentures
- Significant, unintentional weight loss of over 3 kg (or half a stone) in the last 3 to 6 months
- Recent loss of appetite
- Poor intake and refusal of meals
- Frequent infections
- Constipation or diarrhoea
- Difficulties with chewing/swallowing or with tooth decay

Recommended Food Intake for Older People in Hospital

The following chart provides a guide to the suggested minimum amounts of food required by older patients. If patients are unable to consume this quantity of food, a referral to a dietitian is required.



Nutrients Essential for Wound Healing

- **Protein** – Tissue proteins can be synthesized only by amino acids
- **Arginine** – An amino acid required for collagen deposition and cell proliferation
- **Carbohydrates and Fats** – Provide energy for tissue defence and wound healing and prevent protein being used for energy needs
- **Vitamin A** – Vitamin A for collagen synthesis - assists in the epithelialization and granulation of healing wounds
- **Vitamin C** – the major vitamin involved in wound healing, required for collagen synthesis
- **Zinc** – Promotes wound healing by increasing the rate of epithelialisation and cellular proliferation

Note: While these nutrients are essential, Vitamin A and Zinc can be toxic if given in large amounts. Do not give supplements of these without seeking advice from a Doctor or Dietitian about specific dietary supplementation and appropriate product use.

References & Further Reading

The Hungry to be Heard Campaign, Age Concern England. www.ageconcern.org.uk/AgeConcern/hungry2bheard.asp

Caulfield General Medical Centre, *Interdisciplinary framework for the prevention of nutritional decline*, 2007.

DHS Well for life *Improving Nutrition and Physical Activity for older people at home* (2005)

www.health.vic.gov.au/agedcare/publications/wellforlife_nutrition.htm www.mh1.mh.org.au/library/eds/results6x.htm

Eastern Health Policy *Nutritional Intervention in Wound Management* 2005

Pressure Ulcers

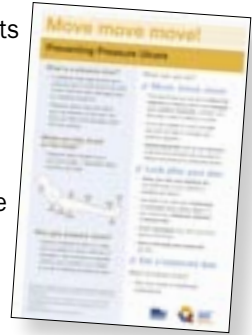
Pressure areas are mostly preventable. They are associated with pain, reduced mobility, social and emotional discomfort, increased dependence and increased health care costs including prolonged length of stay.

Important actions

1. Complete an evidence based risk assessment tool i.e. Braden, Norton or Waterlow scales on admission and at regular intervals AND following significant change in condition.
2. Document risk and report identified ulcers as required by your network.
3. Implement skin care as on page 4.
4. Use a pressure relieving mattress made with high specification advanced foam technology.*
5. Actively promote continence and mobility.
6. Reposition immobile, dependent patients at least every 2 hours or more often as the person needs. Repositioning also helps keep skin temperature stable.
7. Use oral high protein supplements for patients at risk.
8. Document implementation of preventative strategies, e.g. provision of pressure relieving mattresses, devices and equipment, and evaluate your interventions.

Education for patients and carers

Encourage patients to participate in their own pressure area prevention. Use this downloadable brochure to educate your patients/carers



www.health.vic.gov.au/pressureulcers/consumer.htm

Pressure Ulcer Management

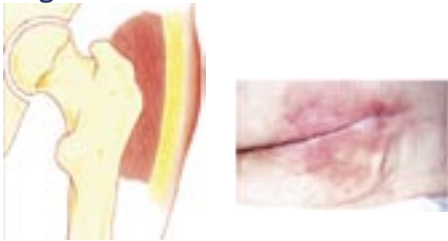
1. Remove the pressure, shear or friction.
2. Protect from pressure, shear and friction.
3. Stage and manage the wound.
4. Document details of measurements, appearance, or photograph.
5. Refer patients at risk or with existing pressure ulcers to appropriate interdisciplinary expertise, e.g. podiatry, nutrition, speech, medical, physiotherapy, nursing.

A pressure ulcer is a wound and needs to be managed according to the assessment and management principles for wounds (see from page 17 onwards).

NO PRESSURE ULCER WILL HEAL UNTIL THE PRESSURE IS REMOVED.

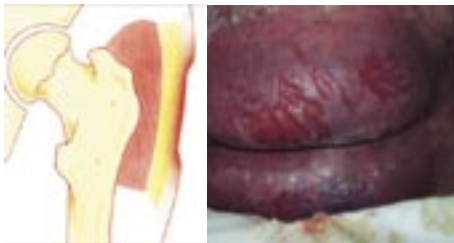
Pressure Ulcer Staging

Stage 1



Visible pressure related alteration of intact skin as compared to the adjacent or opposite area of the body. May include changes in skin temperature (warmth/coolness), tissue consistency (firm or boggy feel), sensation (pain/itching). The ulcer appears as a defined area of persistent redness, sometimes with blue or purple hues.

Stage 2



Partial thickness skin loss involving epidermis and/or dermis. The ulcer is superficial and presents as an abrasion, blister or shallow crater.



heel blister

Stage 3



Full thickness skin loss involving damage or necrosis of subcutaneous tissue that may extend down to but not through underlying fascia. The ulcer presents as a deep crater with or without undermining of adjacent tissue.

Stage 4



Full thickness skin loss with extensive necrosis or damage to muscle, bone or supporting structures (eg tendon or joint capsule). Undermining and sinus tracts may also be associated with Stage 4 pressure ulcers.

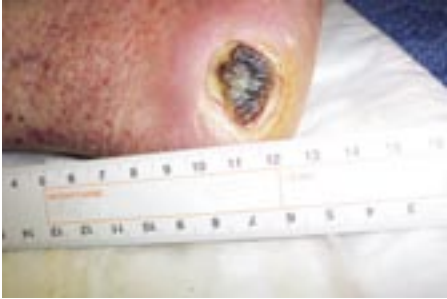


Illustrations and text reproduced with permission AWMA

References & Further Reading

Australian Wound Management Association. *Clinical Practice Guidelines for the Prediction and Prevention of Pressure Ulcers*. West Leederville WA, Cambridge Publishing, 2001 www.awma.com.au

Unstageable ulcers



Full thickness tissue loss in which the base of the ulcer is covered by slough or eschar will mask the true depth of tissue damage. Until enough slough and/or eschar is removed to expose the base of the wound, the true depth, and therefore stage, cannot be determined.

CAUTION: IT IS NOT ALWAYS HELPFUL TO REMOVE THE SLOUGH OR ESCHAR.

In patients where healing and/or arterial flow is compromised, debridement of dry and stable eschar may be contraindicated.

Other challenges of staging

1. Reactive Hyperaemia

Reactive hyperaemia is the body's normal reaction to pressure.

It is a redness to the skin that will usually blanch when light digital pressure is applied and may take up to 20 minutes to fade.

Reactive hyperaemia can easily be confused with a Stage 1 pressure ulcer. To be sure there really is a stage one ulcer, reposition the patient and then re-evaluate the skin 30 minutes later, when tissue perfusion has had time to re-establish.

Colour changes due to perfusion deficiencies can be difficult to see in people with dark skin.

2. See also 2007 new staging from NPUAP

Skin Tears

A skin tear is a traumatic wound caused by external friction and/or shearing forces (eg. tape removal). It separates the epidermis from the dermis (partial thickness) or separates the dermis from the underlying structure (full thickness) They most commonly occur on the limbs of older adults.

(Definition Payne & Martin 1993)

Skin tears are a preventable injury

The number of people at risk of skin tears will increase with the ageing of the population. Risk recognition plus intervention can prevent injury.

Risk factors for skin tears

- History of previous skin tear
- Advanced age
- Cognitive or sensory impairment
- Impaired mobility
- Compromised nutrition
- Multiple medications, especially corticosteroids
- Dependency requiring total care for all activities of daily living – greater risk for upper limbs
- Skin tears involving independent patients usually occur on the lower extremities and are commonly associated with ambulation
- Severe contractures in older patients

Deliberate Prevention Strategies you can adopt

1. **Identify risks early.** Screen for risk on admission and regularly as with pressure area prevention.
2. **Care for the skin** as on page 4.
3. **Avoid use of tapes** or any adhesive dressings on skin. Where tapes are used, be very gentle when removing. Choose polyacrylate tape where possible.
4. **Add protection** with long sleeves, trousers, purpose designed limb protection and suitable footwear.
5. **Careful positioning**, turning, lifting and transferring, to avoid shear and friction forces and accidental injury.
 - Use slide sheets
 - Pad bed rails and sharp corners
 - Be especially careful with wheelchairs
 - Keep patients fingernails and toenails short
 - Pay attention to staff fingernails, jewellery and name tags
6. **Ensure good nutritional intake**, including hydration – see pages 5-6.
7. **Ensure a well-lit, uncluttered environment.**
8. **Educate patients about these prevention strategies.**

References & Further Reading

McErlean, B., Sandison, S., Muir, D., Hutchinson, B., and Humphereys, W. (2004) Skin Tear Prevalence and Management at One Hospital, *Primary Intention*, Vol.12 (2), Pgs. 83 - 86, 88.

Payne, R. & Martin, M.(1993) Defining and classifying skin tears: Need for a common Language...a critique and revision of the Payne-Martin Classification system for skin tears *Ostomy Wound Management* 39 (5) 16-20

Sardina, D. (2007) Managing and Preventing Skin Tears *LPN* p 27 - 28.

White MW, Karam S, Cowell B. Skin tears in frail elders: a practical approach to prevention. *Geriatric Nursing* 1994; 15(2):95-9.

Skin Tear Classification and Management

Descriptions, classifications, measurement and photographs will assist to monitor progress and choose appropriate dressings.

The STAR Classification System Chart is reformatted with permission on the following 2 pages.

It is available in its original format at www.silverchain.org.au/Research/Research-Publications/

Skin Tear Management

- Treat the wound as soon as possible to avoid drying out
- Use the STAR Classification System to guide treatment
- Clean with warm saline before treatment
- For Categories 1a or 1b: use wide SteriStrips® to secure realigned skin without tension OR silicone contact layer and Melolin
- For Categories 2a, 2b and 3: control bleeding, gently realign as much as possible. Choose an appropriate dressing as for granulating wound (see page 23)
- When choosing a foam, be aware that some hydroactive foams strongly absorb fluid and may dry the wound
- Mark the direction the dressing is to be removed to prevent dislodgement of the flap
- Consider analgesia, tetanus status and need for antimicrobial cover
- A full thickness tear may require surgical review
- Ensure nutritional support
- Avoid adhesive tapes on frail skin. Remove any tapes with adhesive remover wipes
- Do not try to remove SteriStrips® – allow to wear off naturally
- Prevent further damage to skin – see deliberate prevention strategies on page 10

Baranoski, S. (2003) Skin Tears: Staying on Guard Against the Enemy of Frail Skin, *Nursing: Volume 33 Travel Nursing Supplement* October, Pgs. 14 - 21.

Carville K, Lewin G, Newall N, Haslehurst P, Michael R, Santamaria N & Roberts P (2007) STAR: a consensus for skin tear classification. *Primary Intention* Vol 15 no.1

Bank and Nix. (2006) Preventing Skin tears in a Nursing and Rehabilitation Centre. An interdisciplinary effort *Ostomy Wound Management* 52(9) 38 - 40

STAR Skin Tear 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 the 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.

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.

References & Further Reading

Payne, R., & Martin, M. (1993). Defining and classifying skin tears: Need for a common language ... a critique and revision of the Payne-Martin Classification system for skin tears. *Ostomy Wound Management*, 39(5), 16-20.

Photographs courtesy of the Skin Tear Audit Research (STAR) photographic library, Silver Chain Nursing Association and School of Nursing and Midwifery, Curtin University of Technology.

Carville, K., Lewin, G., Newall, N., Haslehurst, P., Michael, R., Santamaria, N., & Roberts, P. (2007). STAR: A consensus for skin tear classification *Primary Intention*, 15(1), 18-28.

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) Silver Chain Nursing Association and School of Nursing and Midwifery, Curtin University of Technology. Revised 15/1/2007.

Glossary

Skin Tear: “a traumatic wound occurring principally on the extremities of older adults, 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 the dermis from underlying structures (full thickness wound)”.

Ischaemia: inadequate tissue perfusion as evidenced by pale, dusky or darkened tissue.

Haematoma: a collection of blood or clot under the flap or realigned skin.

Realign: to replace the skin or flap into the normal anatomical position without undue stretching.

Linear skin tear: a skin split or the skin splitting in a straight line.

Flap skin tear: a segment of skin or skin and underlying tissue that is separated from the underlying structures.

Leg Oedema

Leg Oedema is an increase in interstitial/extracellular fluid. The fluid can expand by several litres before being clinically evident.

Causes can be acute (e.g. post surgery, thrombosis, infection, allergy or injury), or chronic, (e.g. cardiac, renal or liver failure, hypoalbuminaemia, venous insufficiency or lymphoedema).

Aims early diagnosis and management is needed to minimise risk of associated chronic skin conditions such as leg ulcers and cellulitis.

Diagnosis is dependent on comprehensive clinical examination and relevant diagnostic investigations.

Management needs interdisciplinary assessment and intervention

1. Treat the cause

2. **Monitor**
- Degree of pitting
 - Skin condition
 - Limb circumference
 - Patient weight

3. Skin care

Apply the 4 steps from page 4 plus

- Protect limb from shear/friction forces
- Avoid constrictions – (eg. narrow bands of clothing or bandages)
- Elevate affected limb – be aware of pressure prevention

4. Exercises

- Gentle and slow foot and lower leg muscle movements help improve lymphatic and venous return as well as preventing joint stiffness and improving limb movement
- Encourage regular ambulation and deep abdominal breathing

5. Compression is usually needed to:

- Stimulate lymph drainage and reduces oedema
- Encourage reabsorption of interstitial fluid
- Reduce venous reflux – improve venous return
- Reduce venous stasis and support underlying tissues
- Minimise chronic inflammatory changes in the skin
- Reduce pain and discomfort and improve healing of leg ulcers

(See warning re use of compression page 16)

Complex physical therapy for treatment of lymphoedema requires referral to a lymphoedema practitioner for:

- skin care
- exercises
- manual lymphatic drainage
- compression therapy

The Lymphoedema Association of Victoria provides information and runs support groups for people with lymphoedema

www.lav.org.au

Leg Ulcers

Chronic leg ulcers may be defined as venous or arterial in cause. Listed variables are a guide; some patients will have mixed arterial and venous disease.

Variable	Venous Disease Symptoms	Arterial Disease Symptoms
Associated Changes in Leg	Firm oedema Reddish brown pigmentation Evidence of healed ulcers Torturous superficial veins Limb may be warm May have varicose eczema Pulses present Pain relieved by elevation	Thin shiny dry skin Absence of hair growth Normal or thickened nails Pallor on elevation Rubor flush when leg is lowered Limb may be cool Pulses absent or diminished Pain at rest (relieved by lowering leg) or where neuropathy with sensory deficit – diminished pain sensation
Ulcer Location	Anterior to medial malleolus Pretibial area Lower 2/3 of leg	On the foot Side or sole of foot or toes Above lateral malleolus
Ulcer Characteristics	Uneven edges Usually no necrosis Often 'weepy' Shallow	Well demarcated edges May have black or necrotic tissue Deep, pale base
Doppler Index	> 0.8	< 0.5

Table adapted from Carville 2001



Venous leg ulcer



Arterial leg ulcer

Use of Compression

Warning: Incorrect diagnosis and application of compression can result in foot ulceration/amputation and/or increased loading on the heart.

Appropriate clinical evaluation is essential.

Measurement of Ankle-Brachial Pressure Index (ABPI): with a Doppler ultrasound is preferable to exclude arterial disease prior to application of any compression

(see *manufacturer's notes for use of Doppler ultrasound*).

- If the ABPI* reading is < 0.5 – do not use compression, Refer for vascular surgical assessment
- If the ABPI* reading is < 0.8 – care needed – reduced compression
- ABPI reading >1.3 can indicate arterial calcification. A duplex scan is required to demonstrate adequate flow before compression is used

All the following factors also need to be considered prior to use of compression

- **Peripheral neuropathy/diabetes** – caution must be exercised. These patients need expert consultation but may benefit from light compression
- **Cardiac failure** – compression increases circulating volume
- **Delicate/ frail skin and bony prominences** – consider extra padding or reduced compression
- **Cellulitis** – discontinue compression until acute episode resolves
- **Patient comfort/compliance** – benefit to patient must exceed discomfort of treatment
- **Chronic venous/lymphatic disease** – oedema will return if compression is ceased

Factors patients can check to ensure skin integrity when compression is in use

- Deteriorating colour
- Temperature of toes

Note: The application of compression should be undertaken only by health professionals who have been suitably trained

References & Further Reading

Belch, J., Stansby, G., Shearman, C., Brittenden, J., Dugdill, S., Fowkes, G., Jarvis, S., McCann, T., Mimmagh A., Monkman, D., Morrell, J., The Target PAD Group. Peripheral arterial disease – a cardiovascular time bomb. *The British Journal of Diabetes and Vascular Disease*. Vol 7 (5) Sep/Oct 2007

Position Document 2003. *Understanding compression therapy*. Medical Education Partnership.

Lymphoedema Association Of Victoria. *The Lymphoedema Handbook*. McPherson's Printing Group. Victoria.

Marston, W., Vowden, K. *Compression therapy: a guide to safe practice*. EWMA Position Document. MEP 2003.

Partsch, H. (2003). Understanding the pathophysiological effects of compression. Understanding Compression Therapy - Position Document European Wound Management Association. U.K. www.ewma.org

Twycroft, R., Jones, K. and Todd, J. (eds) 2003. *Lymphoedema*. Ausmed Publications, Melbourne.

http://cks.library.nhs.uk/cellulitis/in_depth/background_information

Wound Management

Step 1. Assessment

Includes establishing the following 3 steps before clinical assessment.

1. Patient history, including risk factors, comorbidities

2. Wound history

- a. Is the wound acute or chronic?
- b. How did it happen?
 - Surgical?
 - Traumatic? See skin tear staging page 12
 - Pressure? See pressure ulcer staging page 8
- c. Has it been improving or regressing?
- d. Previous wound management

3. Diagnostic tests

Pathology

- Wound swabs/biopsy

Vascular assessment

- Imaging, Pathology and ABPI

4. Wound assessment

Clinical appearance – what am I looking at?

- Black/necrotic
- Yellow/sloughy
- Red/granulating
- Pink/epithelialising
- Green/infected

Measure and describe the wound using a comprehensive wound assessment tool which must include:

- Location and dimensions – length, width, surface area and depth (including undermining and tunnelling)
- Exudate (amount, colour and consistency)
- Surrounding skin (dry, macerated)
- Presence of infection, odour or foreign bodies
- Pain (type, duration and location)

Step 2. Plan

Define and manage aetiology

For example:

- optimise vascular function
- treat infection
- optimise nutrition and hydration
- offload pressure
- minimise risk eg. Cover limbs to prevent tears

Consult the interdisciplinary team

Ask what is achievable

- Is healing possible? OR
- Is symptom management required?

Involve the patient and carer in planning

- Inform the patient and carer of factors which affect healing
- Think about discharge from hospital and where that fits into the plan
- Think about practicality and affordability of dressings

Then select an appropriate dressing regime.

Step 3: Select an Appropriate Dressing Regime

A wound dressing is a therapeutic agent, the choice of which will aid in optimising wound management. Each patient and each wound is unique.

The ideal dressing should:

- Protect the wound
- Maintain a moist environment
- Absorb excess exudate
- Allow gaseous exchange
- Provide thermal insulation
- Provide a barrier to bacteria
- Remain intact on removal
- Not disturb healthy tissue on removal
- Be comfortable and conformable
- Be cost effective

Remember – if the underlying aetiology and factors which affect healing are not addressed then product selection alone is unlikely to improve healing.

See list of dressing products on page 26.

Dressing selection

The dressing suggestions on the following pages are intended to be used as a guide to product selection. Always read the manufacturer's instructions and consider what you want both primary and secondary dressings to achieve.

Levels of Dressings

Primary Dressings

A primary dressing is a dressing applied directly to the wound surface.

Secondary Dressings

Secondary dressings are a means of protecting and/or securing the wound and the primary dressing. They may also add extra absorbency for exuding wounds, for example using foam dressings or non adherent pad.

Secondary dressings can sometimes be changed while leaving the primary dressing intact.

Hints

- Hand washing is the single most important factor for minimising transfer of infection
- Warm the saline before irrigating a wound
- Do not leave wounds uncovered
- Tubular support bandages – straight or shaped, can be a good choice to support wounds on the lower leg but must be applied toe-knee to prevent problems with oedema displacement
- If the wound is not progressing as planned (i.e. No change for 2 weeks) reassess as per page 15
- Choose tapes carefully. See skin tears page 9
- Barrier wipes and adhesive removers can be employed for dressing changes

Black/Necrotic Wound



Appearance:

Dehydrated tissue (eschar) which may present in a range of colours from grey or brown, to black. Necrotic areas may completely cover a wound or may present as small patches at the base or margins. Necrotic areas may be superficial or deep depending on the severity of the injury.

Management Aims:

Support the natural autolytic debridement process with the use of:

- autolytic debridement using hydrogels or hydrocolloids OR
- sharp debridement (either on the ward/in clinics, or in theatre under anaesthesia). Sharp debridement must only be undertaken by trained practitioners. Refer to WMAV guidelines at www.awma.com.au/state/vic.php

To protect dry intact eschar

Primary Dressing	Secondary Dressing
Non-adherent	} *Tape or bandage

To remove hard eschar

Primary Dressing	Secondary Dressing
Hydrogel	} Film Non-adherent
Hydrogel sheet	

To remove soft eschar

Primary Dressing	Secondary Dressing
Hydrogel	} Film Non-adherent *Tape or bandage
Hydrogel sheet	
Hydrocolloid paste	
Hydrocolloid sheet	

Note: Dressing suggestions are intended to be used as a guide only. Always read the manufacturer's instructions and consider what YOU want both primary and secondary dressings to achieve.

**Tape or bandage use must not compromise circulation or cause skin tears.*

Note: Rehydration is contraindicated in some cases:

- insufficient blood supply to support healing and infection control
- in palliative care, the healing of the wound may not be a priority

Infected Wound



Possible signs

- Red - erythema
- Painful
- Swollen
- Febrile patient

With increased

- Exudate
- Odour
- Wound size
- Local temperature

Management Aims:

- To identify and resolve the infection
- To contain the exudate and reduce odour
- To manage pain

The clinical appearance of the wound and the amount of exudate will determine the dressing choice and treatment. Infected wounds often require frequent dressing changes due to the amount of exudate.

Note: Occlusive or semi-occlusive dressings (ie. film dressings and hydrocolloids) are contraindicated.

Infected Wound

Primary Dressing

Secondary Dressing

Daily change:

Tenderwet® or Hypertonic Saline	}	As per manufacturer's instructions
------------------------------------	---	--

Not daily – change as per manufacturer instructions:

Cadexomer Iodine Silver dressings Medicated honey Antimicrobial	}	As per manufacturer's instructions
--	---	--

Copious pus

Primary Dressing

Secondary Dressing

Gauze/Saline Pack TDS	}	Thick absorbent
--------------------------	---	--------------------

Or

Stomy product or collection pouch

Note: Dressing suggestions are intended to be used as a guide only. Always read the manufacturer's instructions and consider what YOU want both primary and secondary dressings to achieve.

Taking a wound swab

- Clean wound well with normal saline and remove superficial debris
- Take the swab from the good tissue in the wound bed
- Carefully follow the instructions on your swab kit
- Give as much detail as possible on your request forms and labelling

Cavity Wound



Appearance:

A cavity wound may be acute (eg dehisced surgical wound), or chronic (eg pressure ulcer). It may be present with a wound bed of differing type (i.e. clean, infected, sloughy, granulating or combination) and undermining may be present.

Management Aims:

- Remove devitalized tissue
- Promote granulation from the wound bed to fill the cavity without leaving pockets
- Manage exudate and pain
- Protect surrounding skin
- Prevent infection
- Optimise nutritional status

Do not allow bone, tendon or ligaments to dry out. NB. Particular attention needs to be paid to undermining or sinus tracking.

Caution is required to ensure that ALL of previous dressing has been removed. Some wound products may leave residue/fibres behind.

Dry Wounds

Primary Dressing

Gauze with
Hydrogel
Tenderwet®

Secondary Dressing

Non adherent as
per manufacturer's
instructions

Wet Wounds

Primary Dressing

Cavity Filler
Hypertonic Saline
Hydrofibre
Alginate

Secondary Dressing

Absorbent

Note: Dressing suggestions are intended to be used as a guide only. Always read the manufacturer's instructions and consider what YOU want both primary and secondary dressings to achieve.

Use of negative pressure therapy (also known as vacuum therapy) could be considered for cavity wounds.

Negative pressure therapy

Contraindications

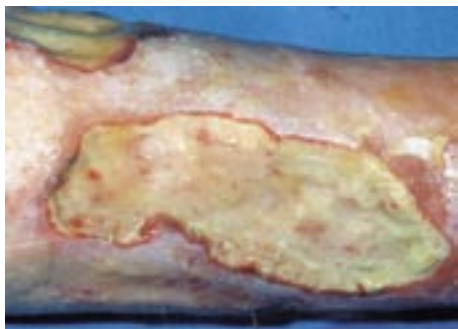
- Necrotic tissue/eschar
- Exposed blood vessels and/or organs
- Untreated osteomyelitis
- Unexplored fistula
- Malignancy in wound

Precautions

- Active bleeding
- Patients on anti-coagulants

KCI V.A.C.® Therapy™ Guidelines

Yellow/Sloughy Wound



Appearance:

The creamy yellow colour of a sloughy wound is due to the presence of devitalised tissue. A yellow wound bed can be either firm or soft.

Note: Some dressing products (eg. hydrocolloids) will leave a yellow/slough like residue in the wound bed, which is removed by wound cleansing.

Management Aims:

- To remove slough and promote granulation

Bandaging - Tips

- Use wide crepes on 'at risk' feet (eg. people with diabetes)
- Use padding under bandaging for fragile skin
- Bandage from distal to proximal
- Avoid bandaging mid limb – may cause distal oedema
- Check fingers, toes and patient comfort after bandaging
- Do not use metal clips

Minimal Exudate

Primary Dressing	Secondary Dressing
Hydrogel	} Absorbent Non-adherent
Hydrogel sheet	
Hydrocolloid paste	
Hydrocolloid sheet	

Moderate Exudate

Primary Dressing	Secondary Dressing
Calcium alginate	} Absorbent Non-adherent
Hydrocolloid paste	

Heavy Exudate

Primary Dressing	Secondary Dressing
Hydrofibre	} Absorbent
Hypertonic Saline	

Note: Dressing suggestions are intended to be used as a guide only. Always read the manufacturer's instructions and consider what YOU want both primary and secondary dressings to achieve.

Red/Granulating Wound



Appearance:

Healthy granulating wounds are firm, granular in appearance and glossy red. They are moist and don't bleed easily.

Management Aims:

- To promote and protect granulation, blood vessel formation and ultimately epithelialisation

Dressings on granulating wounds may be left intact for up to 7 days unless otherwise indicated.

Hypergranulation

Also known as over granulation, proud flesh or exuberant granulation. This is granulation tissue that projects above the skin surface. If overgranulation is present, the wound is fragile and tends to bleed easily. Malignancy should be excluded.

Treatment choices

1. Dry dressing and pressure
2. Hypertonic saline
3. Silver nitrate
4. Sharp wound debridement
See caution page 19

Minimal Exudate

Primary Dressing	Secondary Dressing
Hydrocolloid paste	} Non-adherent
Hydrocolloid sheet	

Moderate Exudate

Primary Dressing	Secondary Dressing
Hydrofibre	} Absorbent
Silicone contact layer	
Foam	
	} *Tape or bandage

Heavy Exudate

Primary Dressing	Secondary Dressing
Hydrofibre	} Absorbent
Foam	
	} *Tape or bandage

Note: Dressing suggestions are intended to be used as a guide only. Always read the manufacturer's instructions and consider what YOU want both primary and secondary dressings to achieve.

**Tape or bandage use must not compromise circulation or cause skin tears.*

Hypergranulation on the lower leg



Pink/Epithelialising Wound



Appearance:

Epithelialisation cells appear white/pink or pink/purple at the wound margins or as islands on the wound surface.

Management Aims:

- To protect and promote epithelialisation
- Keep epithelialising wounds minimally moist

Primary Dressing

Silicone
contact layer

Silicone foam

Hydrocolloid Sheet

Secondary Dressing

} Non-adherent

} *Tape or bandage

Note: Dressing suggestions are intended to be used as a guide only. Always read the manufacturer's instructions and consider what YOU want both primary and secondary dressings to achieve.

*Tape or bandage use must not compromise circulation or cause skin tears.

Some foams can dry wounds.
See skin tears page 11.

Step 4. Develop an ongoing management plan

Wounds require ongoing assessment.

The effectiveness of treatment should be evaluated at each dressing change. (Refer to page 17 assessment and planning).

- Ensure accurate documentation of all findings and dressing choices
- Measure/trace and/or photograph the wound on a regular basis

The management plan must be given time to work and should only be changed with:

- Obvious deterioration of the wound
- Obvious contraindication, eg. allergy or infection

Step 5. Plan for discharge

Ongoing wound care must be comprehensively planned for successful patient discharge from hospital.

- Ensure patient and carer understand the management plan
- Provide written information to take home if needed
- Link in with outpatient/ community services as appropriate, such as hospital in the home, district nursing services, or other local services
- Liaise with the services above regarding discharge dressing regimes
- Inform patient and carer about the availability and cost of ongoing supplies – this may affect your choice of dressing
- Communicate your plan well
- Provide the follow up carers with your clearly documented plan along with any advice you have given to the patient and carer

Names of products available from different companies

Dressing type	3M	Coloplast	Convatec	J&J Medical
Absorbent/Foam		Biatain		
Cadexomer iodine				
Calcium Alginate			Kaltostat	
Cavity Filler			Aquacel	
Film	Tegaderm			
Honey				
Hydrogel Sheet				Nugel
Hydrogel			Duoderm	Solugel
Hydrocolloid		Comfeel	Duoderm	
Hydrofibre			Aquacel	
Hypertonic Saline				
Interactive Wet				
Non-adherent				Release
Odour Absorbent			Carboflex	Actisorb
Silicone/primary contact layer				Adaptic
Silver		Contreet	Aquacel Ag	

This table is from the Victorian Government Wound Product Contract List www.hpv.org.au. It is not a representation of all commercially available products.

These dressings are currently available for use in public hospitals in Victoria. Please use the table to add your locally available products.

<i>MediGroup</i>	<i>Medihoney</i>	<i>MöInlycke</i>	<i>Paul Hartman</i>	<i>Smith & Nephew</i>	<i>Tyco</i>	<i>Other</i>
Eclipse		Mesorb Mepilex	Zetuvit Perma Foam	Exudry Alleyn	Curafoam	Combine
				Iodasorb		
				Algisite M Alleyn	Curasorb	
		Mepore		Opsite		
Actilite Activion	Wound gel Medihoney					
				Intrasite	Curagel	
			Hydrosorb	Intrasite	Curafil	
			Hydrocoll			
		Mesalt			Curasalt	
			Tenderwet			
				Melolin	Telfa	
		Mepitel	Atrauman			
			Atrauman Ag	Acticoat		

Further References and Useful Links

Carville, K. (2005). *Wound care manual*, (5th ed.). Osborne Park, WA: Silver Chain Foundation

Best practice approaches to minimise functional decline in the older person across the acute, sub-acute and residential aged care settings. 2004 and 2007 update

www.health.vic.gov.au/acute-agedcare

Australian Wound Management Association www.awma.com.au

www.rdns.org.au/research_unit/Newsletters

www.health.wa.gov.au/woundswest

World Union of Wound Healing Societies www.wuwhs.org

European Wound Management Association www.ewma.org

www.worldwidewounds.com

www.silverchain.org.au for STAR Skin Tear Classification System

www.medicaledu.com/phases.htm for phases of wound healing

www.wound.smith-nephew.com/uk/node.asp?Nodeld=3104 for wound bed preparation

www.australianprescriber.com/

Registered Nurses' Association of Ontario 2007 (Revised), *Nursing best practice guideline. Assessment and Management of Stage I - IV Pressure Ulcers* Viewed 2 August 2007

[www.rnao.org/Storage/29/2371 BPG Pressure Ulcers I to IV.pdf](http://www.rnao.org/Storage/29/2371_BPG_Pressure_Ulcers_I_to_IV.pdf)

Queensland Health, Queensland Government 2004, *Pressure ulcer prevention and management resource guidelines*. Viewed 2 August 2007

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Eastern Health is accredited by the independent Australian Council on Healthcare Standards in recognition of the achievement of acknowledged standards, and the commitment to continuous improvement in the provision of healthcare services.



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