

Wound Management in General Practice settings


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Facilitated by  **HotDoc**



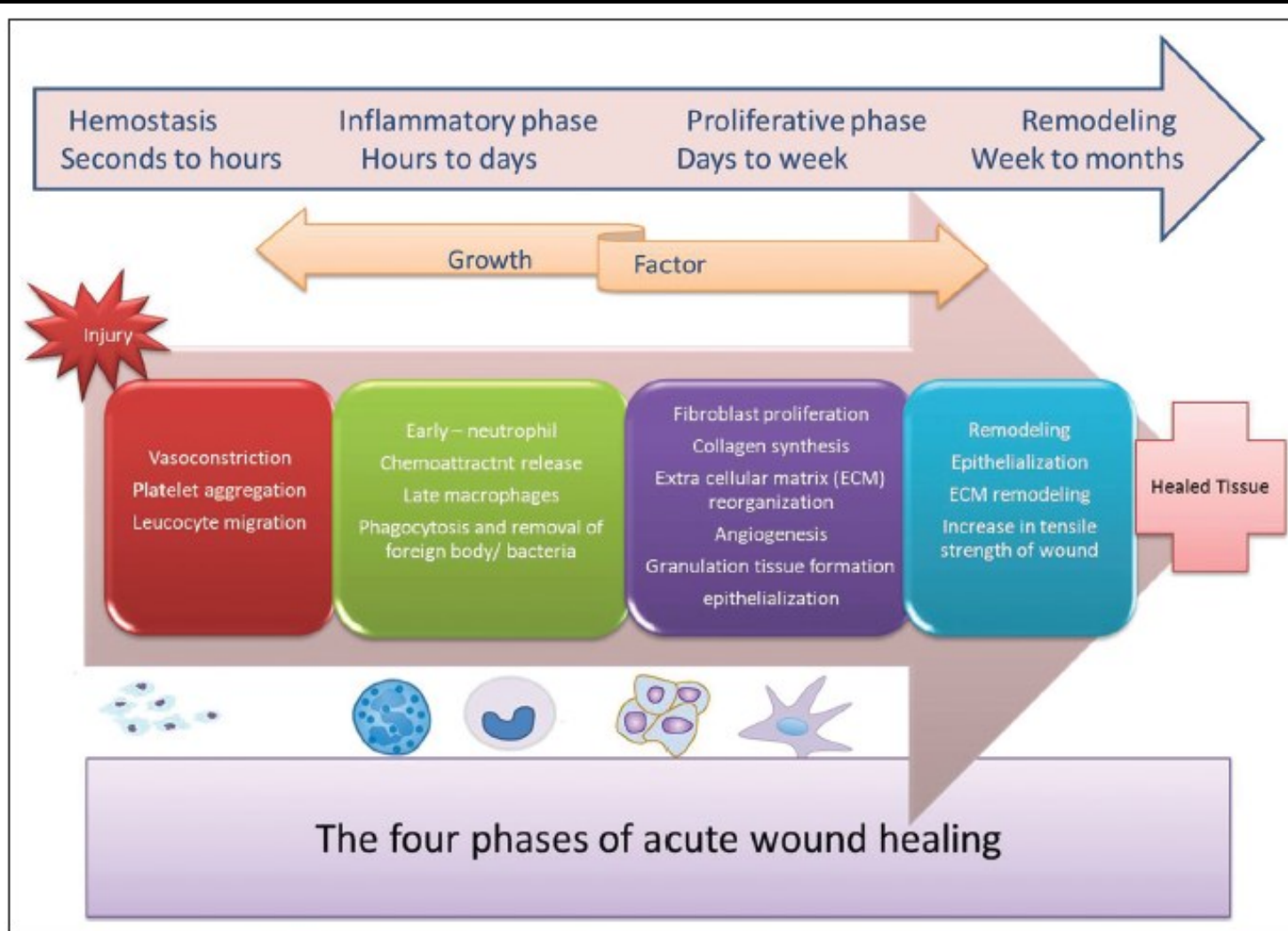
**In the spirit of reconciliation, HotDoc
acknowledges the Traditional Custodians of
country throughout Australia and their
connections to land, sea and community.**

**We pay our respect to their elders past and
present and extend that respect to all Aboriginal
and Torres Strait Islander peoples today.**

In 45-60 minutes
there is no way to
cover all the
complex aspects
of wound
management

Topics to be covered

- How wounds heal
- What can go wrong and why
- Products you should have
- Skin tears
- Ulceration lower legs
- And with any luck a few minutes for questions!!



Acute versus chronic

Researchers believe that the inflammatory phase of healing continues, uncontrolled and so the normal processes that should continue fail to engage and so failure to heal occurs.

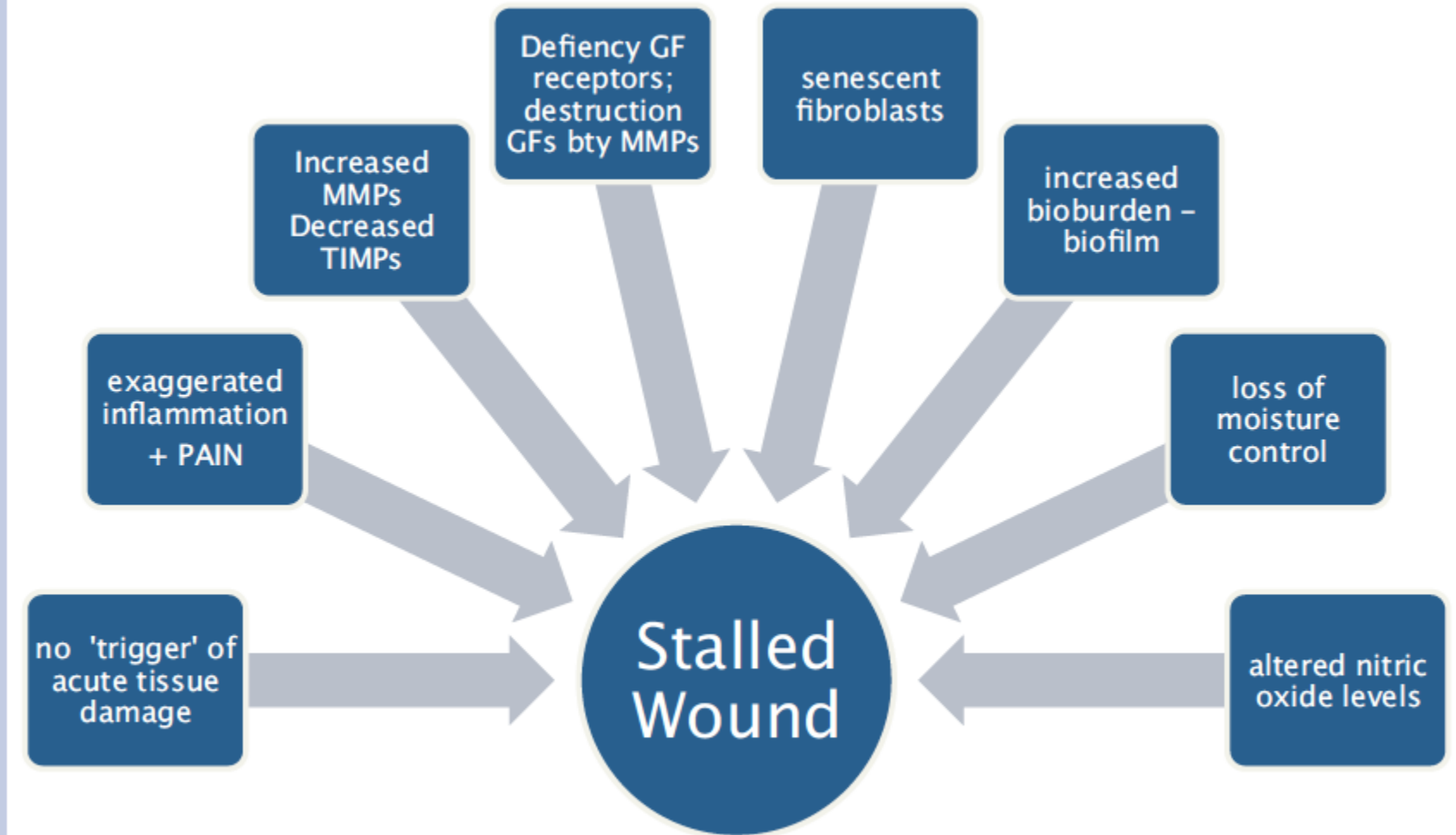


Figure 1. Schematic representation of the physiologic factors contributing to a stalled wound.

H.E.I.D.I

a mnemonic for holistic wound assessment

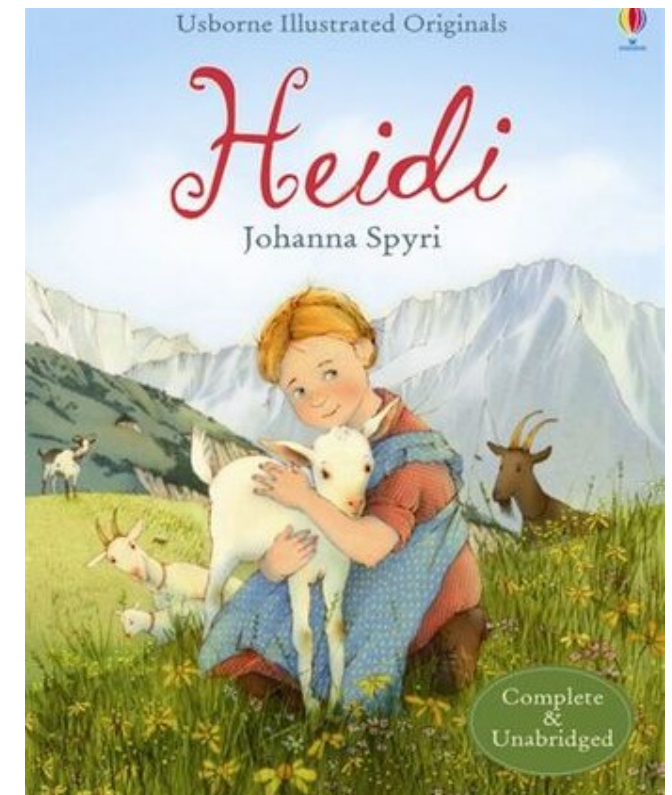
H- history, medical, surgical, pharmacological, social

E- examination- total body and wound

I- investigations, to be attended and reviewed

Dagnosis-then follow an accepted pathway

I- intervention, plan of care



In my opinion 4 key factors in stalled wound healing

Infection

Nutritional status

Oedema

Lack of diagnosis

Pressure

There are many but I have just picked the top 4 in my opinion to at least start with

INTERNATIONAL CONSENSUS UPDATE 2016

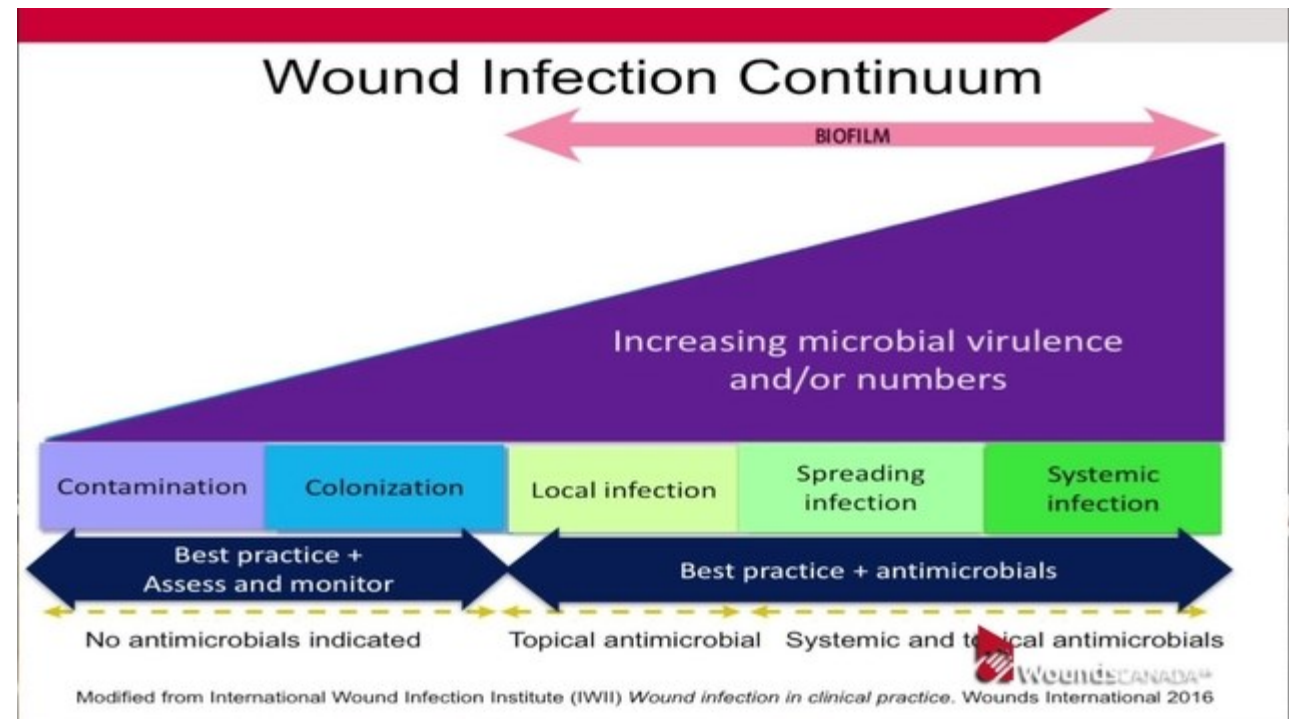


INTERNATIONAL
WOUND
INFECTION
INSTITUTE

WOUND INFECTION IN CLINICAL PRACTICE

Principles of best practice

2016



Contamination ²⁶	Colonisation ²⁶	Local infection		Spreading infection ^{22, 23}	Systemic infection ^{22, 23}
All wounds may acquire micro-organisms. If suitable nutritive and physical conditions are not available for each microbial species, or they are not able to successfully evade host defences, they will not multiply or persist; their presence is therefore only transient and wound healing is not delayed	Microbial species successfully grow and divide, but do not cause damage to the host or initiate wound infection	Covert (subtle) signs of local infection: ^{2, 27-36} <ul style="list-style-type: none"> ■ Hypergranulation (excessive 'vascular' tissue) ■ Bleeding, friable granulation ■ Epithelial bridging and pocketing in granulation tissue ■ Wound breakdown and enlargement ■ Delayed wound healing beyond expectations ■ New or increasing pain ■ Increasing malodour 	Overt (classic) signs of local infection: ^{2, 27, 28, 35, 36} <ul style="list-style-type: none"> ■ Erythema ■ Local warmth ■ Swelling ■ Purulent discharge ■ Delayed wound healing beyond expectations ■ New or increasing pain ■ Increasing malodour 	<ul style="list-style-type: none"> ■ Extending in duration +/- erythema ■ Lymphangitis ■ Crepitus ■ Wound breakdown/dehiscence with or without satellite lesions ■ Malaise/lethargy or non-specific general deterioration ■ Loss of appetite ■ Inflammation, 	<ul style="list-style-type: none"> ■ Severe sepsis ■ Septic shock ■ Organ failure ■ Death

Antimicrobial
dressings to
consider.....

Iodosorb –powder and paste/ointment

Inadine mesh

Flaminal –enzyme alginogel—forte and hydro

Silver wound products –Ag-Aquacel ag, Acticoat, SilverCel

Sorbact –antimicrobial binding dressing

Medicated Honey-some better than others –Berringa BioActive

Hypertonic salt –Mesalt

Sanomed-Melloxy or Sanoskin

Plurogel- surfactant gel

Antimicrobial cleansers
to consider.....

Pronotsan

Microdacyn SOS

Octenilin

Microshield PVP-Iodine
surgical handwash

Chlorhexidine skin cleansers-
Avagard surgical scrub

Other agents/devices to help lift the slough and necrotic tissue

Scalpel

Stitch
cutters can
be useful

Curette

Forcep

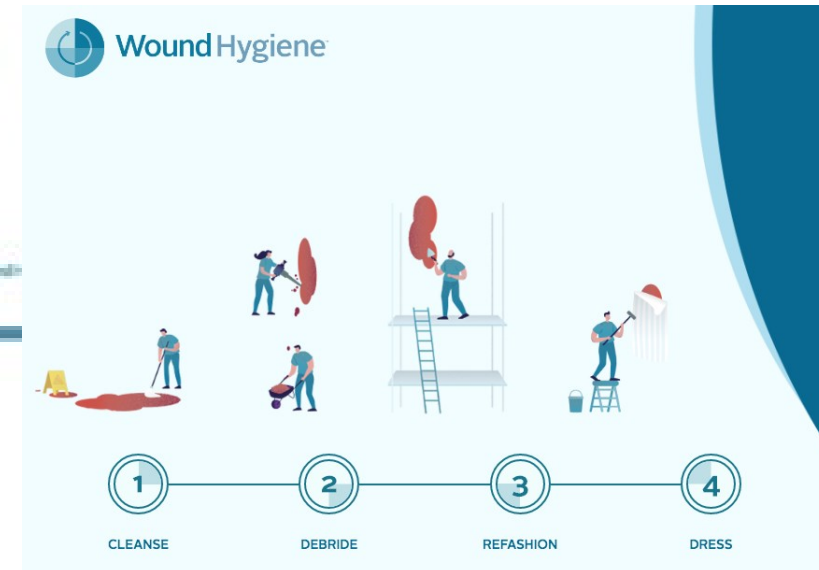
Debrisoft
pad

UCS cloth

Debridement
pad -BBraun

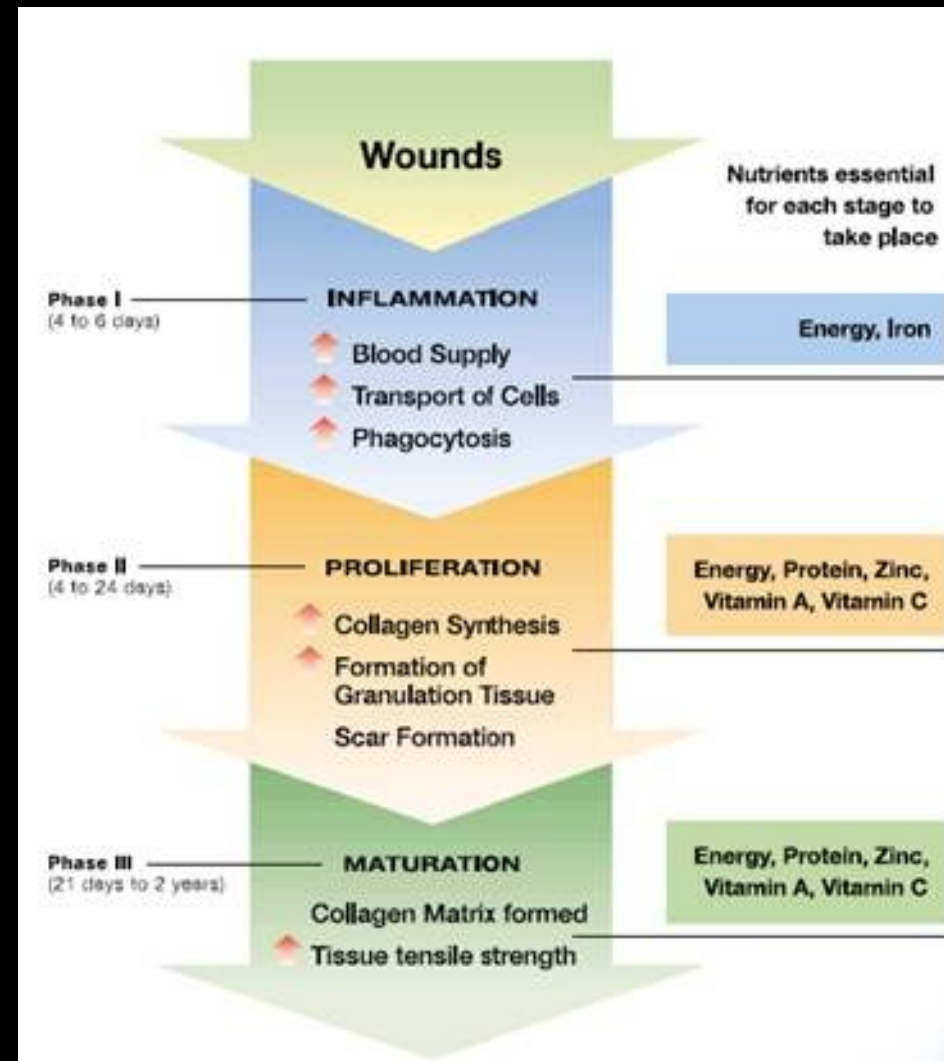
New document to access & read

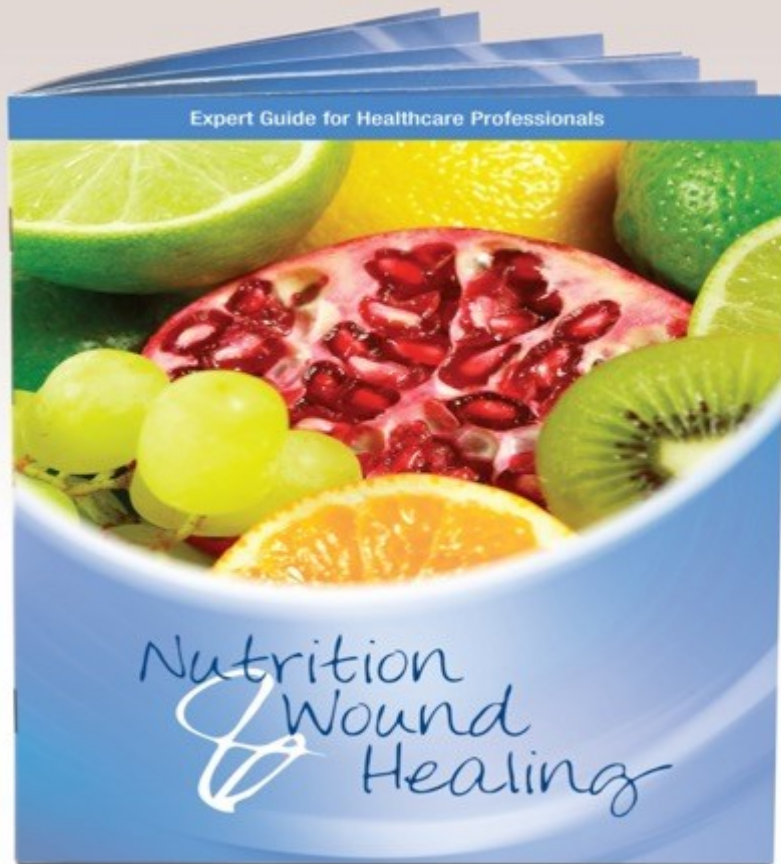
www.woundhygiene.com



After
considering
infection in all
its forms then
I think about
nutrition







For your **free** copy contact 1800 671 628 and also ask for the recipes using Arginaid extra and ask for the **new** patient guide- Support wound healing from the inside out.

Mini-nutritional assessment scale-available from www.mna-elderly.com



Some supplements

TwoCal, Perative, Ensure Plus, all by Abbott 1800225311

Arginaid, Resource by Nestlé 1800 671 628

Enprocal –Precise 07 37185800

Have bloods done to check levels of iron, and albumin



Oedema/ swelling – *the curse of the clinician*



Cardiac

- Acute heart failure
- Constrictive pericarditis
- Restrictive cardiomyopathy

Venous

- Venous insufficiency
- Deep venous thrombosis

Renal

- Nephrotic syndrome
- Renal failure/insufficiency (chronic or acute)

Pulmonary

- Pulmonary hypertension
- Sleep apnea

Liver

- Early hepatic cirrhosis
- Hepatic venous obstruction

Drugs

- Calcium channel blockers — dihydropyridine
- Hormonal medications (i.e., estrogen)
- NSAIDs
- MAO inhibitors

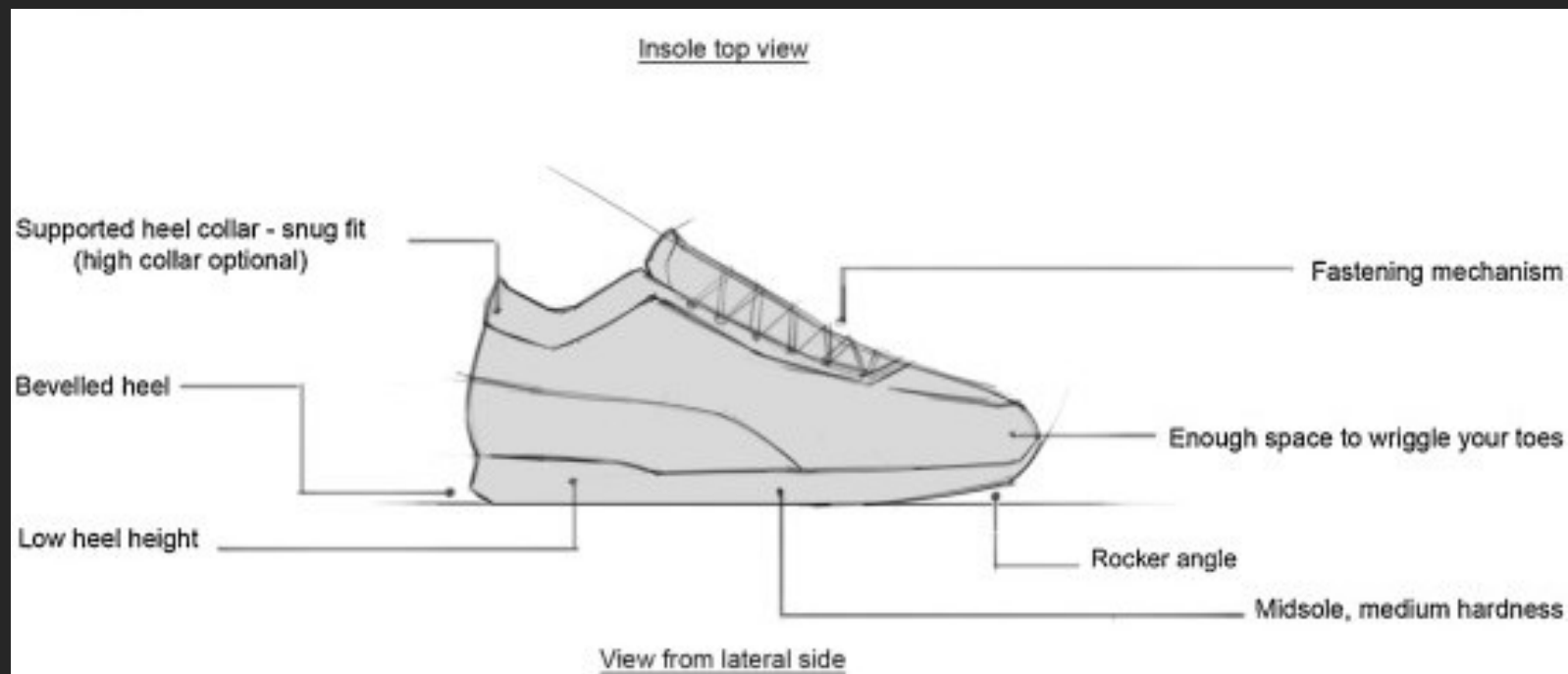
Other

- Hypoproteinemia
- Lymphedema
- Myxedema
- Pregnancy
- Premenstrual symptoms
- Drugs
- Malnutrition
- Burns
- Allergic reactions, anaphylaxis
- Trauma
- Inflammation/sepsis

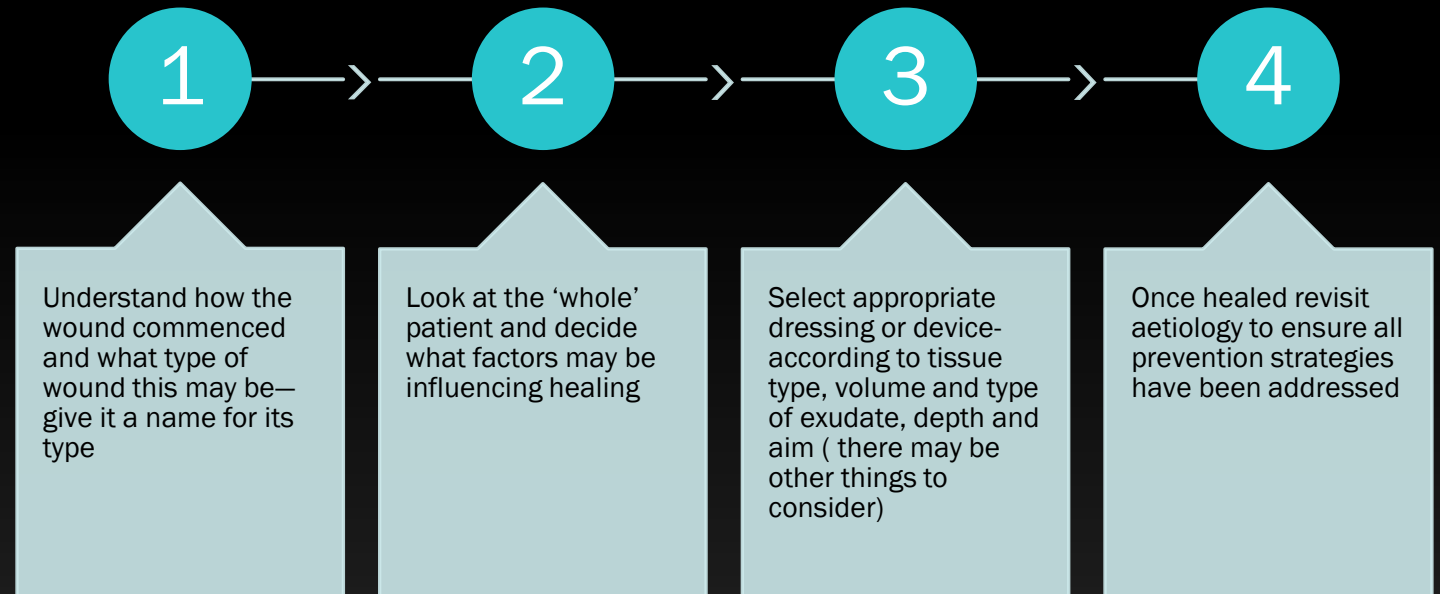


Pressure injuries are not commonly
seen in primary care but

The correct shoe for the elderly



The overarching principles in wound management are:



Products by pharmacology

Impregnated mesh –plain and antimicrobial

Superabsorbent pads

Polyurethane film wipes & dressings

Polyurethane foam and foam like products

Hydrocolloid products

Acrylic absorbent products

Hydrogel products

Calcium Alginate products



The many
more...

HydroFiber products

Cadexomer iodine

Silver products

Hypertonic and isotonic dressings

Enzyme alginogel

Microbial binding dressing

Names are there for marketing and as a clinical you have to work
your way around these

E.g-Hydro-cellular, hydro-active, hydro-responsive

Products by function

Wound protection products

Wound re-hydration/donation products

Moisture retention products

Exudate management products

Wound debridement products

Antimicrobials

Skin care/protection products

Cleansers/surfactants

You could begin with a blank matrix-**Aim**

Product group	Moisture manage	Moisture donate	Moisture retention	Protection	Debridement	Antimicrobial
Impregnated gauze	x	x	x	☑	x	x
Film	x	x	☑	☑	x	x
Foam	☑	x	x	☑	x	☑ Ag
Hydrocolloid	x	x	☑	☑ possibly	☑ Watch for maceration	x
Hydrogel	x	☑	x	☑ possibly	☑	☑ some
Calcium Alginate	☑ Bleeding	x	x	x	x	x
HydroFiber	☑	x	☑	x	☑	☑ Ag

Or you could develop a matrix based on **tissue types**

	Impregnated mesh	Absorbent pads	Films	Foams	Hydrocolloids	Hydrogels
Epithelium	✓	✓	✓	✓	✓	✓
Granulation	✓	x	x	✓	✓ *maceration	✓ *maceration
Hypergranulation	x	x	x	x	x	x
Slough	x	x	x	x	✓	✓
Eschar	x	x	✓ *macera tion	x	✓ *maceration	✓

Or you list the formulary you have in your facility and the various uses

Product type	Function	Wound type	Change
Impregnated meshes	Protect tissue	Healed wounds or very superficial wounds	Change second to third daily
Absorbent pads	Absorbency	Secondary dressing	
Films	Protect, waterproof,	Very superficial wounds or peri wound edge	Weekly or 3 rd daily
Foams	Absorbency	Granulation tissue, or as secondary absorbent dressing	3 rd -4 th daily
Hydrocolloids	Moisture retention	Low exuding sloughy wounds, pink wounds	3 rd - 5 th daily

S

Stop or control bleeding and clean the wound according to protocol.

T

Tissue realignment (if possible) of any skin or flap.

A

Complete holistic health assessment. Inspect surrounding skin. Categorise using STAR classification. Draw arrow on top of dressing indicating skin flap direction

R

If skin or flap colour is pale, dusky or darkened reassess in 24-48 hours or at the first dressing change. Remove dressing in direction of arrow.

A simple tear ... but a complex wound



Skin tears affect our most vulnerable – the very old and the very young. They can lead to chronic ulcers and may require a skin graft. Wound care consultant ELIZABETH MILNER* revisits her presentation to this year's Wound Care Society conference on a STAR approach to skin tears.

Skin tears are a common wound type and a growing problem, especially in New Zealand's ageing population.

The limited research undertaken in New Zealand suggests there are inconsistencies in the use of skin tear wound management and prevention strategies in community and hospital settings.

As nurses, it is our responsibility to ensure we assess our clients/residents for the potential risk of skin tears, put in place strategies to minimise these risks, and if an injury does occur, then act promptly to assess and manage the skin tear appropriately. If the correct management of these skin tears is not undertaken, then there is the potential for these wound types to become chronic and non-healing.

An international consensus panel defined skin tears as:
A wound caused by shear, friction, and/or blunt force resulting in separation of skin layers. A skin tear can be partial thickness (separation of the epidermis from the dermis) or full thickness (separation of both the epidermis and dermis from underlying structures). (LeBlanc and Baranowski, 2011)

Relevance to the New Zealand population

The overall prevalence of skin tears in New Zealand is unknown. However, ACC 2011 data reports that 63 per cent of ACC nursing services claims were classified as open wounds. More than 40 per cent of these were for people aged over 75 years and 8 per cent for people aged between 60 to 74 years.

In comparison, the Australian data shows that skin tears account for nearly 55 per cent of all wound types in the elderly and in the US, there is an estimated incidence level of 0.92 – 2.5 per patients per year accounting for approximately 1.5 million skin tears a year in adults in health care or aged care facilities. These statistics suggest that the prevalence of skin tears in New Zealand is also high and with

our ageing population we can expect the incident rate of this wound type to grow exponentially.

This claim is supported through research undertaken by research fellow Meg Butler, published in the *New Zealand Medical Journal* in 2004, where she looked at the prevalence of falls in New Zealand aged care facilities. From her data, it was shown that of the 954 falls reported over an 18-month period, a quarter (228) resulted in a skin tear.

Risk factors

Skin tears are associated with falls, blunt trauma, handling, and equipment injuries. A number of risk factors have been reported including:

- » Dependence on others for activities of daily living (highest incidence)
- » Hospital beds are the most common causes of traumatic-induced skin tear followed by the wheelchair (PA-PSRS Patient Safety, 2006)
- » Intravenous catheters are the most likely of all drains and tubes to cause a skin tear (Baranowski, 2003)
- » Radiography procedures were the highest risk procedure when transferring and positioning patients (PA-PSRS Patient Safety, 2006)

- » Independent ambulatory patients (2nd highest incidence)
- » Vision impaired patients (3rd highest incidence)
- » Sensory changes/loss – e.g. hearing, sensation, vision
- » Advanced age
- » Immature skin (premature infants)
- » Ageing females

- » Multiple medications: steroids – systemic or topical, anticoagulants, polypharmacy
- » History of previous skin tears
- » Dry, fragile skin/eczymoses (bruising/discolouration of the skin caused by leakage of blood into the subcutaneous tissue as a result of trauma to the underlying blood vessels)
- » Poor nutrition and hydration
- » Cognitive or sensory impairment/perception

- » Co-morbidities that compromise vascularity and skin status, including chronic heart disease, renal failure, cerebral vascular accident, diabetes, immuno-compromised, hypoparathyroidism, or uremia
- » Impaired mobility/immobility/poor balance/poor locomotion
- » Presence of friction, shearing or pressure
- » Incorrect removal of adhesive dressings.

Location

Skin tears can occur on any part of the body. In the elderly, they are often sustained on the legs if mobile, arms if immobile, as well as the dorsal (back) of the hands.

Skin tears in neonates with immature skin tend to be associated with the use of adhesives or device trauma and often occur on the head, face and extremities.

Diagnosis

The correct diagnosis and grading of a skin tear is vital to aid clinical management decisions.

To guide this assessment, the use of a validated assessment tool is recommended. In New Zealand and Australia, the STAR (Skin Tear Audit Research) classification system – developed by Professor Kerlyn Carville's team in Western Australia – appears to be the system of choice. The use of a tool ensures that clinicians are using the same terminology to describe the degree of skin damage and this in turn will inform others to the correct degree of skin damage/loss (see classification sidebar).

Points to remember:

- » Leave a space between each steri-strip to allow exudate to drain and to accommodate for swelling as part of the normal inflammatory response
- » Gently lay the steri-strips onto the periwound and then over onto the fragile flap; do not stretch the steri-strip, this could cause additional trauma and potentially flap ischemia.

STAR Skin Tear 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), Silver Chain Group Limited, Curtin University. Revised 4 February 2010. Reprinted August 2012.

The STAR tool was developed as a result of the Skin Tear Audit Research (STAR) Project, which was undertaken by Silver Chain Nursing Association and Curtin University of Technology in Western Australia.

Skin tear classification systems



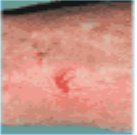
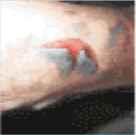

STAR TOOL

 **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 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	Category 1b	Category 2a	Category 2b	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 cannot 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 Adult Research (STAR), Silver-Open Nursing Association and School of Nursing and Midwifery, Curtin University of Technology. Revised 4/2016.

ISTAP TOOL

ISTAP Skin Tear Classification

Type 1: No Skin Loss	Type 2: Partial Flap Loss	Type 3: Total flap loss
		
Linear or Flap Tear which can be repositioned to cover the wound bed	Partial Flap loss which cannot be repositioned to cover the wound bed	Total Flap loss exposing entire wound bed



More information on both these classification systems is available on the web using these terms ==STAR and ISTAP in the search section

Skin tear – 1a



Steri strips –yes or no??????

In reality in aged care evidence indicates they are NOT a good idea—suggested that you use an impregnated mesh to anchor and protect flap

Skin tear 1b

Again the impregnated mesh will aid flap
adhesion



20.09.2

Skin tear - 2a

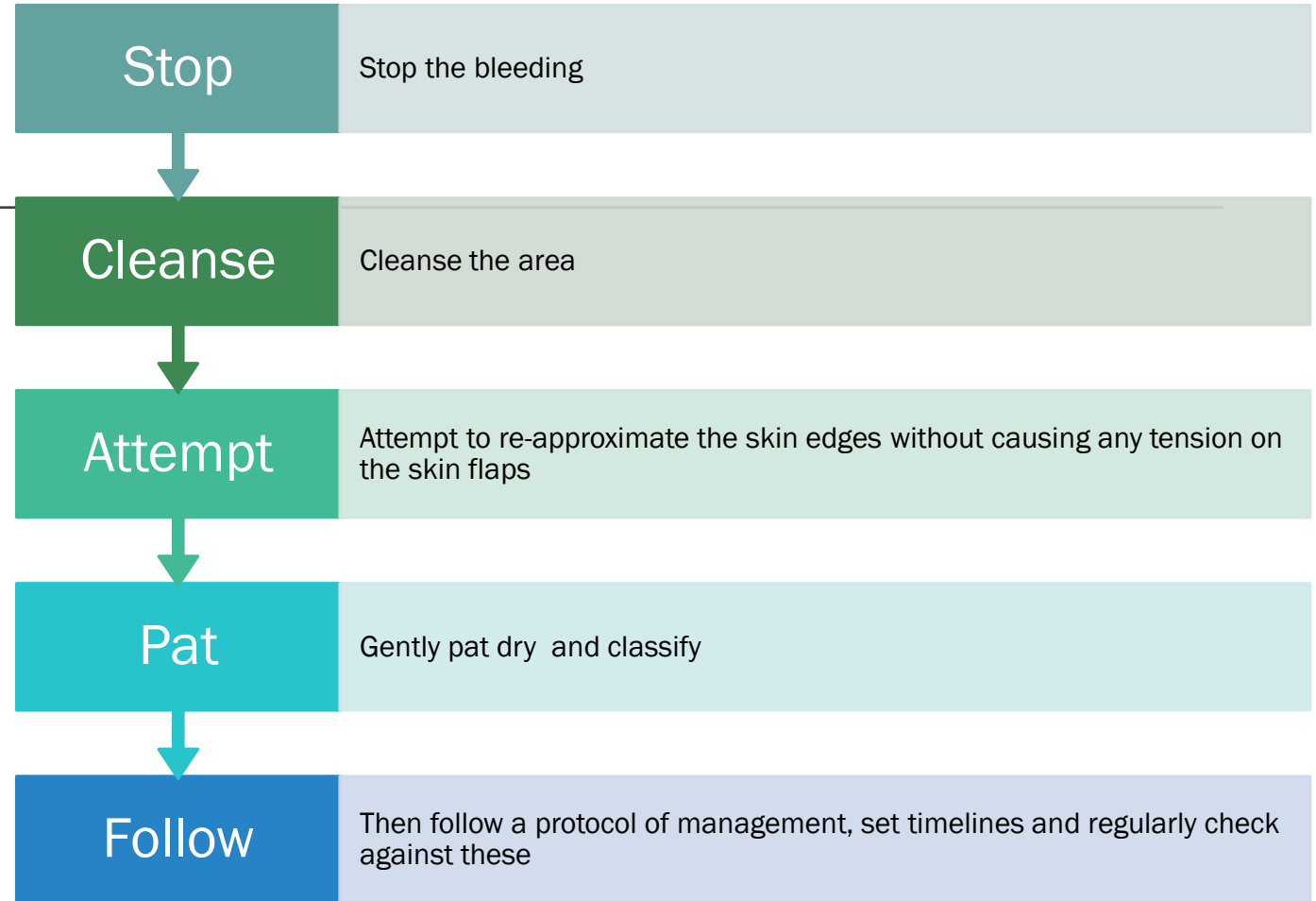
Skin tear – 2b





Skin tear- 3

Principles of care



Timelines for skin tear healing

Category 1---
approximately 1-2 weeks

Category 2---
approximately 2-3 weeks

Category 3--- one month

So what can go wrong with the healing of a skin tear

Further bleeding

Too much exudate and hence the area is too moist

Infection

Wound is too slow to heal and so changes morphologically into a skin cancer

Due to some other underlying disease the skin tear now converts into a venous or arterial leg ulcer or maybe even a vasculitic ulcer

My experience

Steristrips are ok for Category 1 if **everyone follows** the plan of not removing unnecessarily, but you will probably be using a mesh

Category 2 and 3 however require either an impregnated mesh and/or foam

Meshes –Urgotul, Silnet, Adaptic Touch, Hydrotul,

Foams- Aquacel Foam, Biatain silicone

And if infection is an issue then Iodosorb powder or Flaminal Forte will be your choice

Directional arrow on top dressing so everyone knows which way to remove the dressing



Supporting the limb

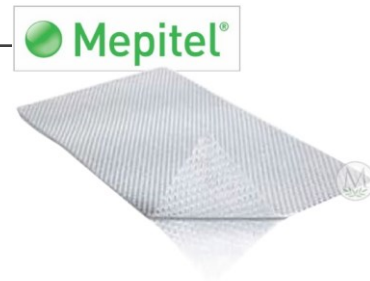
When possible consideration for padding and supporting the affected limb needs to be given

This will help reduce oedema and provide comfort

The cost of the extra products is not wasted as these can continue to be used when the wound is healed to provide ongoing protection until the wound is fully mature



Products used to manage skin tears



Risk factors and the elderly

Intrinsic risk factors

- Gender—female
- Race—white
- Dehydration, poor nutrition
- Cognitive impairment—aggressive behavior
- Altered mobility/balance—unsteady gait, falls
- Sensory impairment
- Aging skin—dry, thin, fragile
- History of skin tears
- Disease processes—presence of edema

Extrinsic risk factors

- Assistance needed with activities of daily living
- Dependence/assistance needed for transfer
- Dependence on assistive devices
- Dependence on prosthetic devices
- Dry skin
- Long-term corticosteroid use (oral or topical)
- Other factors: blood draws, dressing changes, tape, improper use of skin sealants

Combination factors—When aging skin is combined with extrinsic factors, the risk of skin tears increases

- Aging skin is drier, thinner, and more fragile because of decreased sebum and sweat gland function, decreases in collagen and vascularity, and decreases in inflammatory and immune responses. It's more susceptible to friction and shearing.
- Avoid factors that increase drying of the skin; for example:
 - soaps that aren't pH neutral (can disrupt the skin's acid mantle and reduce natural lubrication)
 - frequent bathing
 - heat set at level that reduces skin moisture.



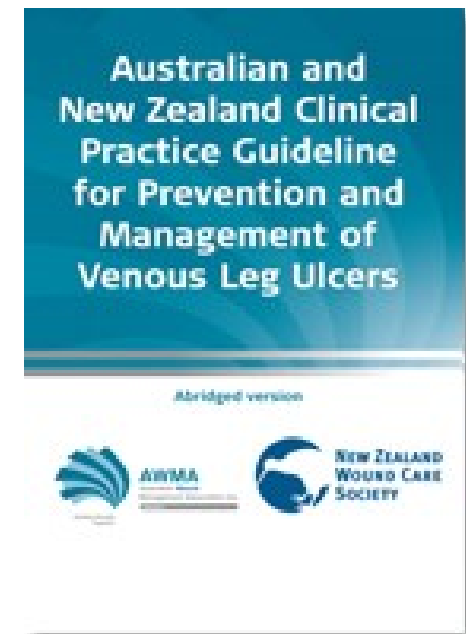
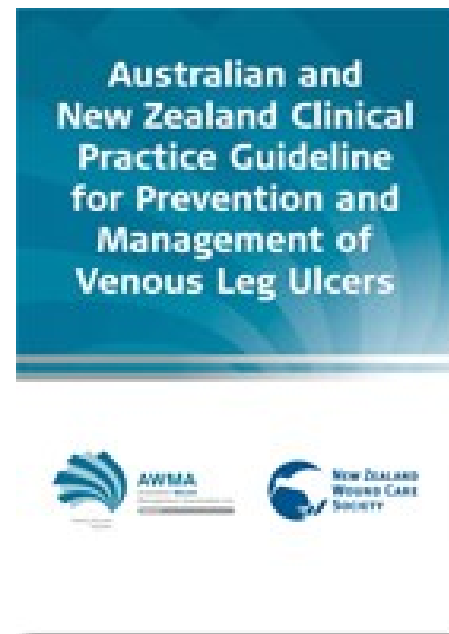
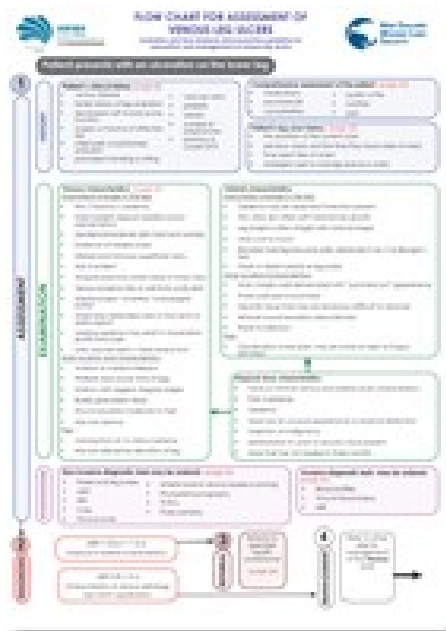
Prevention of skin tears

Ulceration to lower legs



16.11.200

www.woundsaustralia.com.au --- Download



Getting the aetiology right



Enquire about initiating factors



Determine if there is any family history of leg ulcers



Ask Pharmacist/LMO to review medications – particularly any that may precipitate lower leg oedema or delay healing



Palpate foot and leg pulses if able



Note the site, size & characteristics of the ulceration



Enquire about previous treatments or any history of past ulcerations

Perform some laboratory tests

Baseline blood
levels

Serum albumin

Serum glucose

ESR +/- CRP and
other
inflammatory
markers

ABPI (ankle
brachial pressure
index)

Duplex scan

Biopsy –for
histopathology
and micro
pathology

Statistics

Venous
70%

Arterial
10%

Mixed
10%

Skin cancers
2%

Others
8%



Venous ulcer characteristics

Presence of firm 'brawny' oedema

Leg takes on an inverted "champagne" bottle shape

Ulcer has irregular edges/shape

Ulcer begins on medial or lateral aspect lower third of lower leg

Ulcer is wet, shallow with minimal necrotic tissue

There may be atrophie blanche

There may be venous eczema, staining and lipodermatosclerosis(LPD)

Pulses are palpable, there is generally minimal pain especially when the leg is elevated



Visible evidence of venous hypertension



Lower gaiter region,
medial or lateral

Arterial ulcer characteristics

Usually located between ankles and toes or high up on leg or posterior leg

Deep, punched out regular shape, often dry

Thin, shiny, non hair bearing skin

Thickened toenails

Diminished or absent foot pulses

Elevation pallor, dependant rubor-(+ve Buerger's test)

Necrotic tissue, infection

Pain, especially at night or when elevated

Arterial- deep, site of trauma, well defined edges, higher up on leg or posterior leg





Treatment of arterial ulcers

Usually require antimicrobial coverage while waiting for Vascular surgeon

If necrotic and aiming to heal, **may** require debriding agent

If no possibility of healing then inert dressings—keep area dry and free of infection if possible—topical antimicrobials=e.g. Betadine lotion

Standard venous leg ulcer treatment

Zinc paste bandages

Undercast padding or similar

Tubifast™ or retention bandages

Compression therapy –as tolerated by patient

Leave insitu for one week if possible

Aim to heal within 3-4 months, if not achieving good healing
re-assess aetiology and factors influencing healing

General advice

Venous

Regular ambulation

Calf and foot muscle exercises

Elevation of foot of bed

Elevate feet when sitting, above level of hip

Compression: bandages,
stockings, sequential pumping

Avoid constipation

Medication review

Arterial

Prevent thermal trauma from heating or cooling appliances or sudden temperature changes

Protect from pressure or restrictive clothing

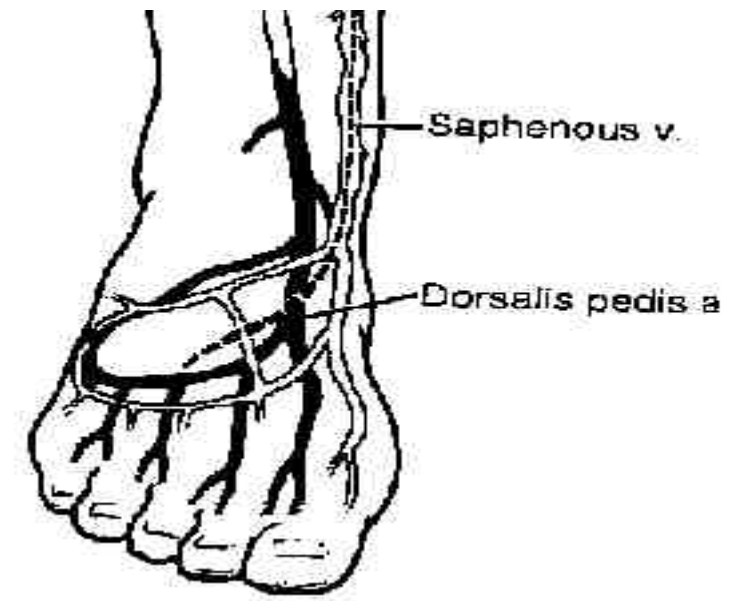
Regular podiatry care

Sit with legs in neutral or dependent position

Elevate head of bed

Wear natural fibre clothing (absorbs perspiration)

Feel for the pulses



Straight elasticated tubular bandages

Tubigrip Size Guide

CORRECT SIZE	WRIST	ELBOW	ANKLE	KNEE	THIGH	TORSO
A 10-12cm	CHILD LIMB					
B 12.5-14.5cm	SMALL	SMALL				
C 15-24cm	MEDIUM	MEDIUM	SMALL			
D 25-35cm	LARGE	LARGE	MEDIUM	SMALL		
E 36-44.5cm			LARGE	MEDIUM	SMALL	
F 45-50cm				LARGE	MEDIUM	
G 51-60cm					LARGE	
J small torso						SMALL
K medium torso						MEDIUM
L large torso						LARGE



6mmHg pressure at ankle

-
- Sub-bandage pressure difference of tubular form and short-stretch compression bandages: in-vivo randomised controlled trial Weller CD, Jolley D & McNeil J



Multi-layered compression bandages

These deliver continuous sustained pressure over the week that they remains insitu.



These bandages are very well tolerated

Evidence

Multilayer bandages are more effective than one layer

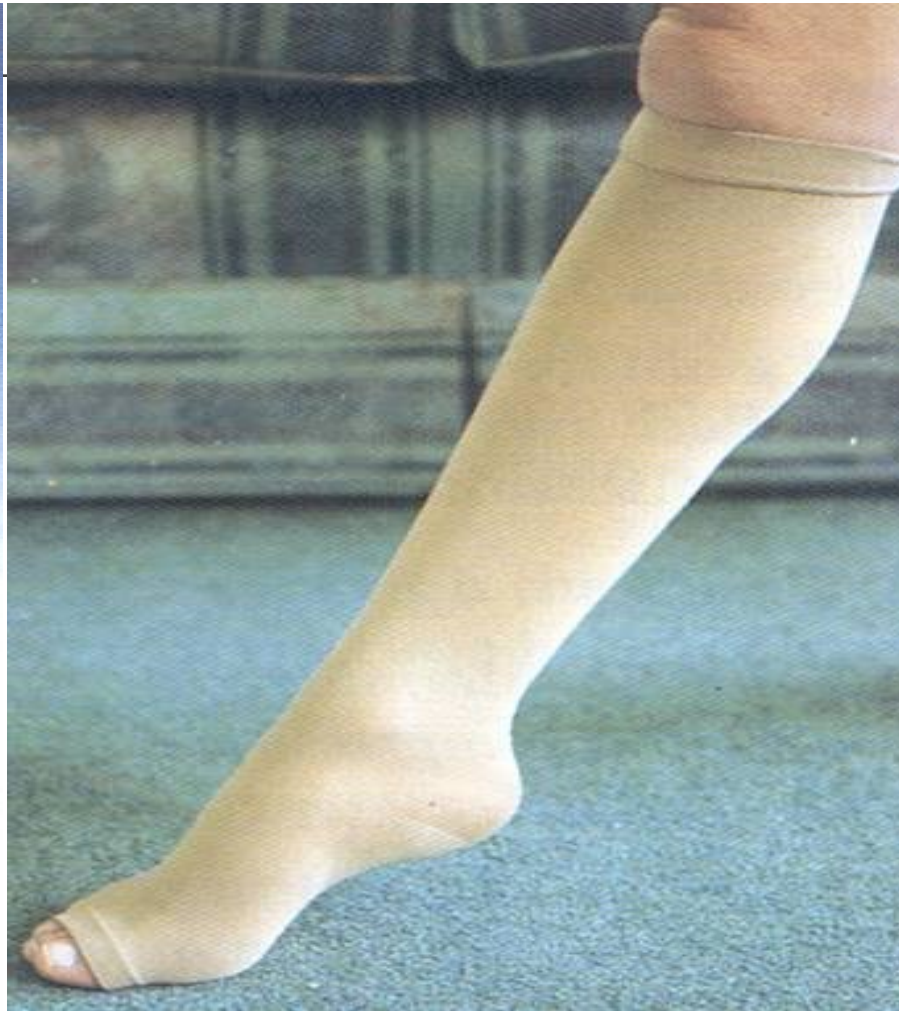
Elastic bandages have high working pressure and high resting pressure- so often not tolerated by the end of the day and so patients cut them off

Inelastic bandages have a high working pressure and a low resting pressure and so often more tolerated- BUT may need constant reapplication

Bandages versus hosiery to help heal

1. Bandages are often used to heal the ulcer due to the exudate and bulkiness of dressings and padding. When ulcer is healed, continue bandaging for a further one month to allow epithelium to mature then fit hosiery
2. If you go into hosiery too soon-because they are often elastic there is some give and thus oedema and so young skin may breakdown again

Thigh high or knee high



2nd problem---not being fitted correctly
and not elevating!





Self adjustable wraps

Medirent-- www.medirent.com.au

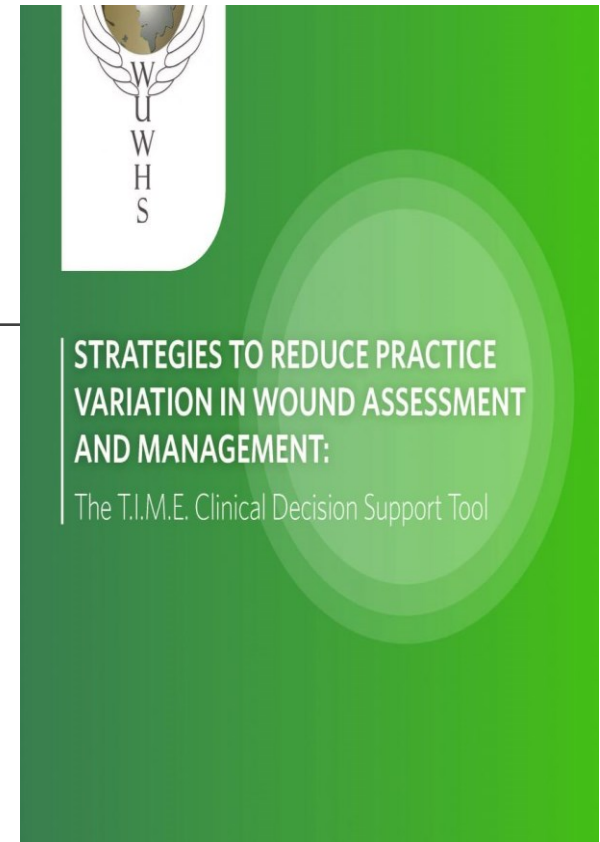
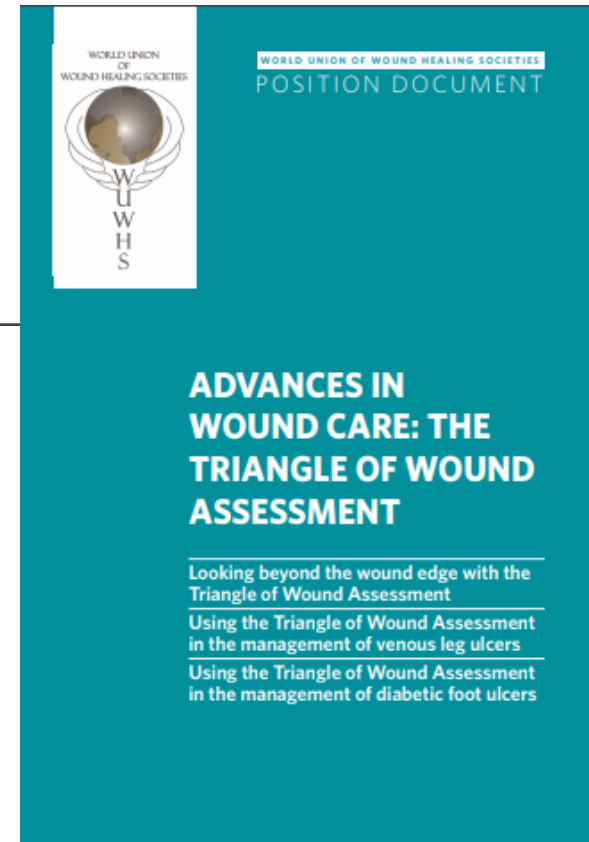
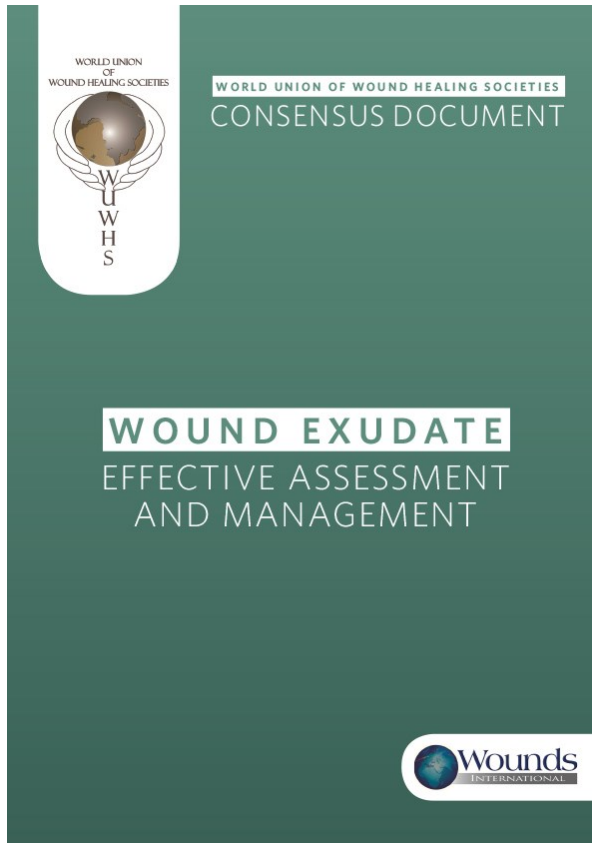


Foot wounds in General Practice

Most foot wounds require an antimicrobial, check sensation using a monofilament and check for PAD

If the patient has diabetes the referral to a specific clinic managing foot wounds –such as www.iwgdf.com

Also a pathway and access to other high risk foot services/advice is available at www.savefeetsavelives.com



www.woundsinternational.com

ATYPICAL WOUNDS

BEST CLINICAL PRACTICES AND CHALLENGES



10. Other types of atypical wounds

In addition to the atypical wounds covered in other chapters, there are a number of atypical wounds which challenge the clinician in terms of recognition, diagnosis, management and treatment.¹ In this chapter we describe atypical wounds associated with inflammatory, medication-related and infectious processes.

Inflammatory wounds

Ulcerative lichen planus

Lichen planus is an inflammatory skin disease. The classical forms of lichen planus (purple, pruritic, polygonal, and papules/plaques) are easily recognised, but there are subtypes that are more uncommon.^{2,3} These subtypes include ulcerative lichen planus (ULP), which affects typically adult women. Typical features include hypertrophic, hyperkeratotic, bullous and scaly lesions on the plantar surface of the feet. Also mucosal involvement may occur.⁴ Along with skin manifestations there can be absence of toe nails and scarring.^{5,6} Diagnosis is confirmed by biopsy, also direct immunofluorescence specimen is recommended in order to exclude LP pemphigoids. Serologic testing for hepatitis C is also recommended, as hepatitis C has been associated with ULP.⁷ Treatment results can be unsatisfactory. Systemic treatments include retinoids and cyclosporine and local therapy options include (UVA-1), corticosteroids and tacrolimus.^{7,8,9,10} In severe cases surgical excision and grafting can be considered.¹¹ It is also important to know that this chronic inflammatory disease may predispose to SCC, and therefore serial biopsies are recommended on ulcers resistant to treatment.^{12,13}

Ulcerative necrobiosis lipoidica

Necrobiosis lipoidica is an inflammatory disorder of the subcutaneous tissue. Traditionally it has been linked with diabetes and approximately 50-80 % of patients with necrobiosis lipoidica have diabetes.¹⁴ However, it is important to keep in mind that not all of necrobiosis lipoidica patients have diabetes or will have it during follow-up.¹⁵ Necrobiosis lipoidica typically appears as yellowish-brown, shiny annular lesions in the pretibial region of the legs in young to middle-aged women. In approximately 35% of the cases, these lesions ulcerate¹⁶ (Fig 35) and the ulcers are in most cases hard-to-heal. Treatment options include topical, intralesional and systemic corticosteroids; tacrolimus, cyclosporine, hydroxychloroquine, clofazimine, phototherapy, pentoxifylline as well as biologic agents as etanercept and infliximab.^{17,18} In resistant cases skin grafting is an option.¹⁹ Even if there is no evidence about



Fig 35. Ulcerative necrobiosis lipoidica. Picture by Kiri Isenhardt.









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USE OF OXYGEN THERAPIES IN WOUND HEALING

FOCUS ON TOPICAL AND HYPERBARIC OXYGEN TREATMENT






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ADVANCED THERAPIES IN WOUND MANAGEMENT

CELLS AND TISSUE-BASED THERAPIES, PHYSICAL AND BIO-PHYSICAL THERAPIES, SMART AND IT-BASED TECHNOLOGIES



HEALTH ECONOMICS AND REGULATORY ISSUES

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WORLD UNION OF WOUND HEALING SOCIETIES
POSITION DOCUMENT

INTERNATIONAL BEST PRACTICE

BEST PRACTICE STATEMENT OPTIMISING PATIENT INVOLVEMENT IN WOUND MANAGEMENT



BEST PRACTICE DOCUMENT 2018

WUHS BEST PRACTICE RECOMMENDATIONS

BEST PRACTICE RECOMMENDATIONS FOR
THE PREVENTION AND MANAGEMENT
OF SKIN TEARS IN AGED SKIN

Recommendations from an expert working group

SKIN GRAFT DONOR SITE
MANAGEMENT IN THE
TREATMENT OF BURNS AND
HARD-TO-HEAL WOUNDS

www.ewma.org

www.woundsinternational.com



New documents

An illustration featuring several diverse characters representing healthcare and community. On the left, a Black female nurse in a green uniform with a stethoscope stands behind a young man with orange hair in a white t-shirt, who is pointing towards the center. Below them, a young woman with blonde hair in a green sweater waves. On the right, an elderly woman with white hair and glasses in a pink shirt stands behind a woman with dark hair in a green nursing uniform, who is also waving. Below her, an elderly man in an orange sweater waves. In the center, there is a logo with two hands holding a green heart, followed by the text 'for the love of Healthcare' in a mix of script and bold sans-serif fonts.

JOIN THE CONVERSATION



Magali will be available to answer any further questions via the **Hot Topic** post in our communities feed.

Join here <https://www.facebook.com/groups/fortheloveofhealthcare>



5 Key Takeaways From HotDoc's Patient Survey 2020

LIVE DISCUSSION PANEL *via GotoWebinar*

Wednesday 11th November 7:00pm - 8:00pm AEDT

Meet the Panel



Magali De Castro
Clinical Director at HotDoc



Dr Jagdeesh Singh Dhaliwal
Medical Adviser



Dr Jaspreet Saini
GP & Practice Principal