Tissue Viability

By Helen Evans

Objectives

- An understanding of how wounds develop and what can be done to prevent and manage them
- An understanding of every trained nurse’s professional responsibility, and every health care assistant’s responsibility in relation to the prevention and management of pressure ulcers
- Assesses and manage skin breakdown

What types of skin damage might we see at HXH?

What is a pressure ulcer?

A pressure ulcer 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.

NPUAP, 2007

(National Pressure Ulcer Advisory Panel)

What causes a pressure ulcer?

Pressure.

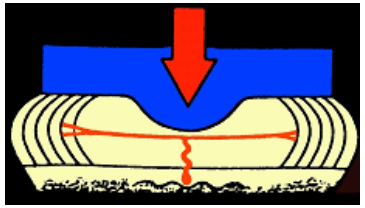
- A perpendicular (at an angle of 90 degrees) load of force exerted on a unit of area (this could be a patients body weight bearing down on a hip or sacrum).
- It causes local capillary occlusion (reduction in blood supply) and compresses the structures between the skin surface and bone. The damage can often be caused under the skin, but not become obvious until the skin above it has broken down.

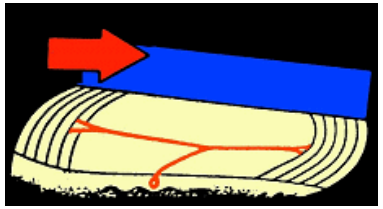
Shearing.

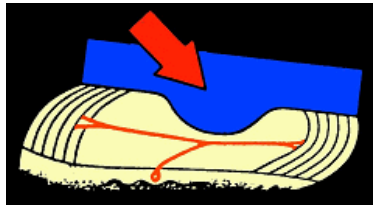
- This is where pushing or pulling the skin means more than one layer of skin slides against each other and this can cause damage to these layers or they may become detached from each other all together.

Friction.

- This is where two surfaces rub together, so this could be the skin and bed sheets, or a chair cushion, etc., or poorly fitting clothing or manual handling aids. Hot, moist skin is likely to experience even more damage from friction than more healthy skin.







POOR MANUAL HANDLING TECHNIQUES CAN RESULT IN PATIENTS EXPERIENCING ALL OF THESE FORMS OF PRESSURE AREA DAMAGE.

The application of NICE guidelines: CG7 and CG29

- Health professionals are expected to take them fully into account when exercising clinical judgment
- NICE guidance does not override individual responsibility of health professionals to make decisions appropriate to the needs of the individual patient

Pressure ulcer etiology

- Pressure exerted by bony prominences on the body that stop capillary flow to the tissues.
- Deprives tissues of oxygen and nutrients causing cell death.
- Pressure greater than *capillary closing pressure* exerted by bony prominences to disrupt blood flow.

Can you name Common sites for pressure damage?

- Sacrum- most common site

  -Semi-fowlers' position - is a position in which a patient, typically in a hospital position on their back with the head and trunk raised to between 15 to 45 degrees, although 30 degrees is the most frequently used bed angle)

  -Slouching in bed or chair

  -higher risk in tube fed and incontinent patients.
- Heels- 2nd most common

  -Immobile or numb legs (SCI)

  -Leg traction

  -Higher risk with Peripheral vascular disease & diabetes neuropathy
- Trochanter (hip bone)

  -Side lying

  -Highest risk in contractured patients

  -Ulcers on lateral foot rather than heel itself
- Ischium (sitting erect bone)

  -highest risk paraplegics

Pressure Ulcers from other sources of pressure

- Boots/boot straps
- Plaster casts
- Heel protectors/protector straps
- Oxygen tubing
- Anti-Embolism Stockings
- Compression bandaging
- Any device that can lead to pressure induced ischemia on the skin

Category / Stage / Grade 1

- Intact Skin
- non-blanchable redness of a localised area usually but not limited to being over a bony prominence
- Darkly pigmented skin may not have visible blanching; its colour may differ from the surrounding area
- May indicate a patient at risk
- The area may be painful, firm, soft, warmer or cooler compared to adjacent tissue

Category / Stage / Grade 2

- Partial thickness, loss of dermis
- Shallow open ulcer with a red pink wound bed, without slough
- May present as an intact or open / ruptured serum filled blister
- This category should not be used to describe skin tears, tape damage, perineal dermatitis, maceration, or excoriation

Category / Stage / Grade 3

- Full thickness loss
- Subcutaneous fat may be visible but bone, tendon, or muscle is not exposed
- Slough (pronounced “Sluff/Sloff”) may be present but does not obscure the depth of the tissue loss May include undermining or tunnelling The depth of damage varies by anatomical location (e.g bridge of nose vs Ischial tuberosity)
- Grade 3s are notifiable and are considered safeguarding concerns

Category / Stage / Grade 4

- Subcutaneous tissue loss with exposed bone, tendon or muscle.
- Slough or eschar may be present on some parts of the wound bed
- Often includes tunnelling or undermining
- Can extend into muscle and supporting structures
- Grade 4s are notifiable and are considered safeguarding concerns

Unstageable

- Full thickness
- Base of ulcer may be covered in slough yellow, brown or grey
- Depth unknown until some sloughy eschar is removed
- Cells have started to die from the outside in.

Suspected deep tissue injury

- Can be blood filled blister due to damage of underlying tissue
- The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler than adjacent tissue
- Purple or maroon localised area odd discoloured intact skin
- These are still a type of pressure injury
- Can occur over any bony prominence but most commonly seen on the heels
- Cell death has occurred under the skin

Moisture lesions – now called Moisture associated Skin damage (MASD).

Incontinence associated dermatitis (IAD)

- Tend to be diffuse with irregular shape
- Usually superficial
- Surrounding skin usually presents with pink / white spots
- Necrosis not likely to be present
- NOT to be confused with a grade 2 pressure sore
- Caused by moisture – usually urine and faeces.
- Enzymes in faecal matter are exacerbated when in contact with urine. Urine left for a long time breaks down to ammonia. This causes the pH of the skin to rise making it more susceptible to breakdown

Incontinence associated dermatitis categories

- Category 1A – persistent redness without clinical signs of infections
  - A variety of red tones may be present
  - Patients with darker pigmented skin may have areas present as lighter or darker
  - Skin may have a shiny appearance
  - Skin may be macerated
  - May have intact vesicles or bullae
  - Skin may feel tense or swollen when palpated
  - Patient may feel burning, itching, tingling or pain at the affected site
- Category 1B – Persistent redness with clinical signs of infection
  - Persistant redness
  - Signs of infection
    - White scaling of the skin may suggest a fungal infection
    - Pustules
    - Satellite lesions
  - Macerated skin
  - intact vesicles or bullae
  - Skin may feel tense or swollen when palpated
  - Patient may feel burning, itching, tingling or pain at the affected site
- Category 2A – skin loss without clinical signs of infection
  - Presentation of skin loss.
  - Skin loss pattern may be diffuse
  - May also have persistent redness
  - Shiny appearance of the skin
  - Macerated skin
  - intact vesicles or bullae
  - Skin may feel tense or swollen when palpated
  - Patient may feel burning, itching, tingling or pain at the affected site
- Category 2B – Skin Loss with clinical signs of infection
  - Skin loss – may appear as skin erosion
  - Signs of infection
    - White scaling of the skin may suggest a fungal infection
    - Pustules
    - Satellite lesions
    - Green appearance of the wound bed may suggest a bacterial infection
  - persistent redness
  - Shiny appearance of the skin
  - Macerated skin
  - intact vesicles or bullae
  - Skin may feel tense or swollen when palpated
  - Patient may feel burning, itching, tingling or pain at the affected site

Category 1: Persistent redness

1A - Persistent redness without clinical signs of infection

Critical criterion

- Persistent redness
  A variety of tones of redness may be present.
  Patients with darker skin tones, the skin may be paler or darker than normal, or purple in colour.

Additional criteria

- Marked areas or discolouration from a previous (healed) skin defect
- Shiny appearance of the skin
- Macerated skin
- Intact vesicles and/or bullae
- Skin may feel tense or swollen at palpation
- Burning, tingling, itching or pain

1A

1B - Persistent redness with clinical signs of infection

Critical criteria

- Persistent redness
  A variety of tones of redness may be present. Patients with darker skin tones, the skin may be paler or darker than normal, or purple in colour.
- Signs of infection
  Such as white scaling of the skin (suggesting a fungal infection) or satellite lesions (pustules surrounding the lesion, suggesting a Candida albicans fungal infection).

Additional criteria

- Marked areas or discolouration from a previous (healed) skin defect
- Shiny appearance of the skin
- Macerated skin
- Intact vesicles and/or bullae
- The skin may feel tense or swollen at palpation
- Burning, tingling, itching or pain

1B

Category 2: Skin loss

2A - Skin loss without clinical signs of infection

Critical criterion

- Skin loss
  Skin loss may present as skin erosion (may result from damaged/eroded vesicles or bullae), denudation or excoriation.
  The skin damage pattern may be diffuse.

Additional criteria

- Persistent redness
  A variety of tones of redness may be present. Patients with darker skin tones, the skin may be paler or darker than normal, or purple in colour
- Marked areas or discolouration from a previous (healed) skin defect
- Shiny appearance of the skin
- Macerated skin
- Intact vesicles and/or bullae
- Skin may feel tense or swollen at palpation
- Burning, tingling, itching or pain

2A

2B - Skin loss with clinical signs of infection

Critical criteria

- Skin loss
  Skin loss may present as skin erosion (may result from damaged/eroded vesicles or bullae), denudation or excoriation.
  The skin damage pattern may be diffuse.
- Signs of infection
  Such as white scaling of the skin (suggesting a fungal infection) or satellite lesions (pustules surrounding the lesion, suggesting a Candida albicans fungal infection), slough visible in the wound bed (yellow/brown/greyish), green appearance within the wound bed (suggesting a bacterial infection with Pseudomonas aeruginosa), excessive exudate levels, purulent exudate (pus) or a shiny appearance of the wound bed.

Additional criteria

- Persistent redness
  A variety of tones of redness may be present. Patients with darker skin tones, the skin may be paler or darker than normal, or purple in colour
- Marked areas or discolouration from a previous (healed) skin defect
- Shiny appearance of the skin
- Macerated skin
- Intact vesicles and/or bullae
- Skin may feel tense or swollen at palpation
- Burning, tingling, itching or pain

2B

Preventing and managing IAD

2 key aspects:

- Managing incontinence
  - Incontinence assessment (urinalysis, medication review, urine and bowel charting)
- Implement structured skin care regime

Prevention should be aimed at all incontinent patients with the aim of promoting positive outcomes and avoidance of injury and harm

Structured skin care regime

- Cleanse
  - To remove urine and faeces with a pH neutral product to help maintain the skins natural acidic mantel (soap should be avoided on broken down area as it disrupts the skins pH and can dehydrate and further irritate the skin
  - Skin should be patted dry (not rubbed)
- Protect
  - To avoid or minimalise exposure to urine and faeces
  - To form a barrier between the skin and any moisture or irritant
  - Creams, ointments, pastes, lotions, films, elastomeric skin protectant (e.g barrier cream)
- Restore
  - When appropriate support and maintain skins barrier function

MASD: Intertriginous Dermatitis

- Results when moisture; usually perspiration becomes trapped between the skin folds
  - Common sites: legs, groins, buttocks, breasts, arms, toes, neck folds
- Damage present as a mirror image on either side of the skin fold
- Can lead to inflammation of the skin and skin breakdown if not properly treated
- Risk factors: hot and humid conditions
- **Assessed** by how it visually presents

Management of Intertriginous Dermatitis

- Main goals are to control moisture, minimise friction, and treat infection if present.
  - Examine skin folds, including the base
  - Keep area clean and dry
  - Pat skin dry – do not rub
  - Cleanse the area with pH balanced skin cleanser to prevent further irritation from soaps
  - Do **not** use talcon powder, gauze or towels in-between folds – they can trap moisture and bacteria and increase friction to the skin
  - Improve air flow to the area if possible.
  - Protect the affected area from further breakdown or maceration with a barrier film (this will protect the damaged skin from moisture and friction.

MASD Peri wound skin damage

- Occurs when moisture (urine, faeces, wound fluid, exudate) comes in to prolonged contact with a wound (e.g a pressure ulcer)
- Maceration compromises the skins barrier function and puts the epidermis at risk of friction. It can also prevent migration of new cells across the wound surface resulting in delayed healing
- No standardised tool exists for assessing peri wound skin damage
- Management
  - Aimed at directing moisture away from the wound bed and surrounding skin

MASD Peri Stomal Skin Damage

- Damaged skin around a stoma site
- Caused by poor appliance fit, or awkward stoma site.
- Colostomy, ileostomy sites:
  - Faecal matter can get under the bag site and damage the skin. Erosion and inflammation can extend outward from the stoma site. Once damaged it can become harder to gain good appliance adherence resulting in further leakage
- Gastrostomy site:
  - Can leak digestive enzymes which will irritate the skin
- Tracheostomy sites
  - Can have MASD from sweat and secretions
- Be mindful of silver toxicity with prolonged use of silver impregnated dressings (e.g Metalline). Observe for signs and change to a non silver dressings if silver toxicity is suspected.
  - Grey/blue hue to skin in contact with silver dressing

Peri Stomal Skin Damage management

- Aims of peri stomal skin management:
  - Protect the peri wound from further breakdown and maceration with appropriate barrier product- e.g cavalon spray to prevent skin damage from bodily fluids and medical adhesive related skin injury
  - Check the fit of any products and appliances used to ensure they fit correctly and do not cause further skin breakdown
  - If necessary a metaline dressing could be used to help to absorb excessive moisture, help in controlling the bioburden of the peri stoma, and aid in comfort.

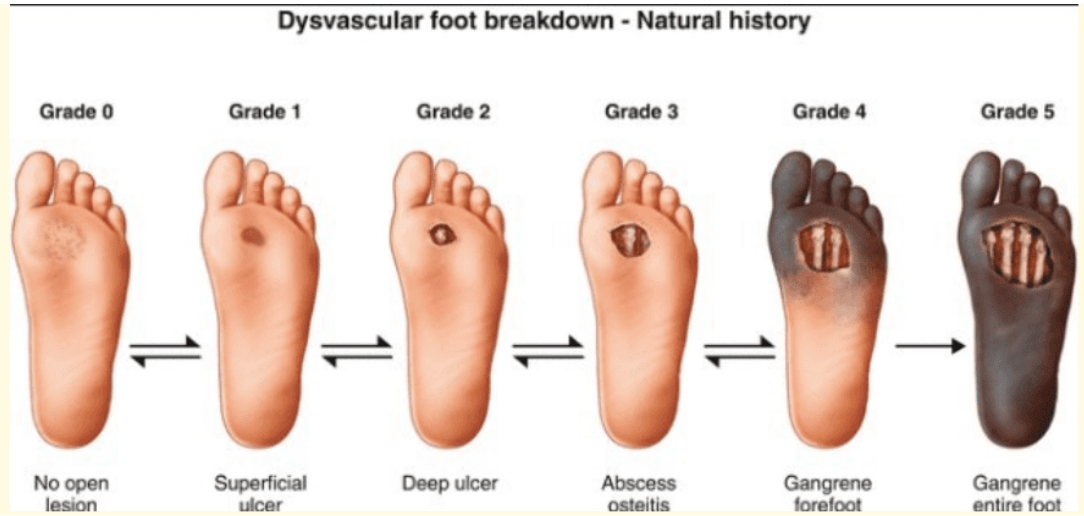
Diabetic foot ulcers

- A diabetic foot ulcer is an open wound or sore on the skin on the foot that's slow to heal. These are common in people with diabetic polyneuropathy.
- An ulcer can also come on if the patient unknowingly develops a blister caused by badly fitting shoes, splints, etc
- If your patient cannot talk, you may continue providing care without protecting the blister adequately. If the cut or blister gets worse, it may develop into an ulcer.
- High blood sugar can damage your blood vessels, causing the blood supply to your feet to become restricted.
- A reduced blood supply to the skin on your feet means it receives a lower number of infection-fighting cells, which can mean wounds take longer to heal and can lead to gangrene.

Diabetic foot ulcers continued

Assessment of diabetic patients feet – should be done daily

- Active disease – e.g ulceration
- Lesions – e.g fungal, skin cracks, fissures, breaks etc
- Deformed nails
- Macerated web spaces between the toes
- Calluses
- Deformities – e.g hammer toes
- Bony prominences – subject to higher risk pf pressure damage
- Foot temperature
  - Redness and warmth may suggest inflammation (infection, cellulitis etc)
  - Cold may suggest vascular disease



Management

- NICE recommend the foot protection team review in the community (ask community Diabetic nurse for details)
  - Offload – remove pressure
  - Metabolic control – better control of Blood glucose levels – liaise with diabetic nurse
  - Infection – hyperglycaemia has an adverse effect on the immune system – higher risk of infection and impaired healing
  - Perfusion/ischemia – if not managed revascularisation should be considered
  - Local wound care – refer to community TVN specialist for debridement if necessary. Consider urgo start dressings.
  - Protect the periwound

If a diabetic foot ulcer is found –**within the 1 working day** liaise with or refer to the local diabetic nurse. Swab the ulcerated area to check for any signs of infection (bacterial and fungal). Inform doctor at next ward visit and at consultant at next ward round. If necessary take bloods too (inclusive of FBC, CRP, HbA1C)

Lets test your understanding of different wounds

Please split into 2 groups.

You have 10 minutes to sort the cards into the respective groups:

Stage 1, stage 2, stage 3, stage 4, unstagable, DTI and MASD

Wound Assessment

Prevention is better than cure!!

- The National Institute for Clinical Excellence (NICE) recommends the following in terms of pressure ulcer prevention:

Assessment of a patient's risk of pressure injury within 6 hours of admission to hospital for each episode of care, and regularly thereafter depending upon the severity of the issues identified.

Assessment of a Wound

Assess and document:

- cause
- site/location
- dimensions
- Stage/grade or type of wound
- necrosis or slough
- exudate amount and type
- local signs of infection
- pain
- wound appearance
- surrounding skin – including erythema, maceration, moisture damage
- undermining/tracking, sinuses, tunnelling or fistulae
- Odour
- grade

- **Support with photography**
- **All pressure ulcers acquired or deteriorated under our care need to be regarded as a clinical incident**
- **Pressure ulcers must not be reverse graded – document as a healing grade….**

Assessment factors

Intrinsic factors:

Intrinsic factors are those that influence the skin's supporting structures and/or the lymphatic system and hence reduce the tissue's tolerance to pressure.

Extrinsic factors

Extrinsic factors influence tissue tolerance by impinging on the skin surface and reflects the degree to which the skin is exposed to.

Assessment factors

Intrinsic factors:

- Reduced mobility
- Sensory impairment
- Neuropathy
- Acute illness.
- Level of consciousness
- Extremes of age.
- Vascular disease.
- Severe chronic or terminal illness.
- Previous history of pressure damage.
- Malnutrition and dehydration.

Extrinsic factors:

- Pressure.
- Shearing.
- Friction.

Other factors:

- Medication.
- Moisture to the skin.

Care Plans

- Use the Wound assessment care plan documentation to record skin damage. (The body map form is for bruises and marks etc. All **skin damage** needs its own wound assessment care plan)
- Use the combined chart to record on a daily basis that every area has been checked and if there is a pressure ulcer grade it accordingly. Also document in MDT notes.
- A patient who is unable to reposition themselves MUST have a repositioning care plan. Plan on 3-4 hourly repositioning day and night as advised by the physio team and registered nurses. Include a minimum of 30° tilt on bed rest.
- Please document at every dressing change
- Stick to the recommended regime – need to allow a dressing time to work – no dressing is a magic cure!! Do NOT keep changing what is being used.
- Any change of dressing being used must be documented and have sound rationale for changing.

- Repositioning regimes need to:
  - Minimise prolonged pressure on bony prominences.
  - Minimise friction and shear damage – ensure good manual handling with the correct equipment.
  - Specify that repositioning takes place regularly – *even with pressure-relieving devices in situ.*
  - record when repositioning takes place – you must record every instance of repositioning
  - Document any patient refusals

Wound Assessment Care Plan

Name..... Room..... DOB.....

Date and time wound first noticed: .....

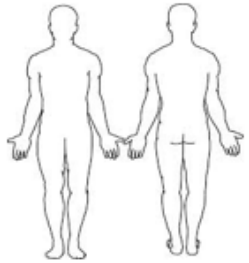
Type of wound (please tick – see overleaf for details if needed)

Pressure ulcer					Deep tissue injury	Moisture associated skin damage							Abrasion/ acute wound	Diabetic foot ulcer
						Incontinence Associated Dermatitis								
Grade 1	Grade 2	Grade 3	Grade 4	Unstagable		IAD Cat 1A	IAD Cat 2A	IAD Cat 1B	IAD Cat 2B	Intertriginous dermatitis	Peri wound skin damage	Peri stoma skin damage		

Location of Wound: .....

Dimensions of wound: .....X.....cm

Please also mark on this body map the location of wound



Please also draw approximate size and shape in the box

Further details of wound (inc exudate: amount & type, signs of infection, pain, surrounding skin inc maceration & moisture damage, depth, necrosis, slough, undermining, odour etc). include Fitzpatrick skin tone type (please see overleaf)

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.....

.....

.....

Cause of wound (if known) .....

Photographs taken (with measurements and patient ID) ☐ Referral to diabetic nurse (if required) ☐

Referral to Dietician ☐ Referral to physio team ☐ Swab taken and sent (if required) ☐

Incident form done (if required) ☐ Duty doctor informed (if required) ☐ NOK informed ☐

Primary dressing applied if required (name and size) .....

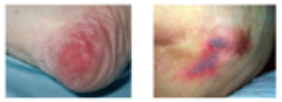
Secondary dressing applied (name and size) .....

*If the wound changes e.g grade 2 Pressure ulcer becomes Grade 3, please complete a new form. After this form, please complete and continue to use the Wound Documentation Chart until fully healed.

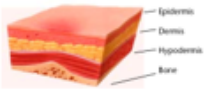
Registered Nurse Name..... Signature ..... Date.....

Pressure ulcer grading tool

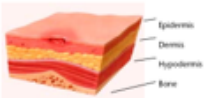
Grade 1
Non-blanchable erythema (redness) of intact skin.
Discolouration of the skin, warmth, oedema, induration or hardness may also be used as indicators, particularly on individuals with darker skin



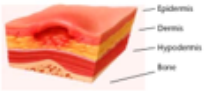
Progression of a pressure ulcer



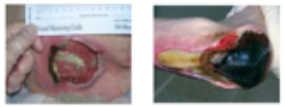
Grade 2
Partial thickness skin loss involving epidermis, dermis, or both. The ulcer is superficial and presents clinically as an abrasion or blister

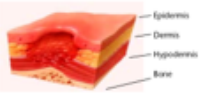


Grade 3
Full thickness skin loss involving damage to or necrosis of subcutaneous tissue that may extend down to, but not through underlying fascia

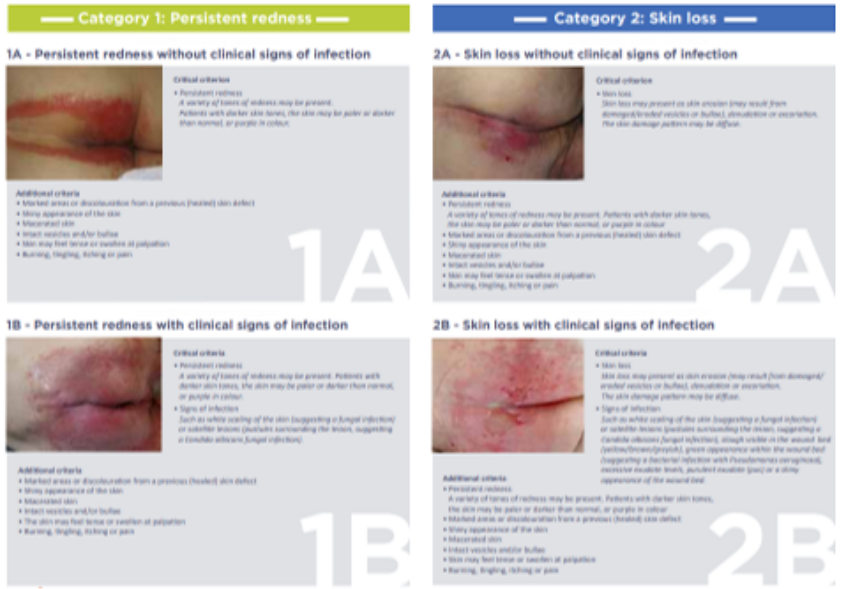


Grade 4
Extensive destruction, tissue necrosis, or damage to muscle, bone, or supporting structures with or without full thickness skin loss





Incontinence Associated Dermatitis (IAD) category chart



Fitzpatrick skin tone chart

Wound Dressing Documentation Chart

Name…… Room…… DOB……

Please document at every dressing change. Please use this chart for any type of wound including pressure sores, excoriation, scratches, stoma sites etc. please use this chart in conjunction with all current documents inc waterlow etc. Please provide as much detail in comments box as possible.

Date and Time	Location, size & type of wound	Primary dressings used (inc. creams)	Secondary dressing used	Comments (please include how the wound bed and surrounding skin looks and detail any signs of infection, if any exudate and how the exudate looks and if changing the type of dressing used please give clinical rationale for changes e.g allergy or peri-wound deterioration etc. Please document reason for renewing the dressing e.g dressing soiled)	Next proposed dressing change	Print & sign name
19.06.19 10.45am	Left Ischial Tuberosity Pressure sore healing grade 2. Approx size: 2cm x 3cm	Not required	Allevyn gentle border 10 x 10 cm	Wound bed clean with signs of granulation. Epithelisation evident at wound edges. Peri-wound intact and healthy looking. No sign of infection, minimal exudate. Dressing changed as been in situ for 7 days.	26/06/2019	Staff Nurse RN

Documentation – responsibility of ALL staff

Wound care plans, particularly chronic wounds and pressure ulcers must detail:

- Where the ulcerated areas are.
- What measures are currently being used to reduce risk, with special reference to nutrition, continence, pain management and mobility as applicable.
- If a regime of turning the patient is in place, there must be a means of documenting each time that this is done. These care plans should set up review dates, and these need to be reviewed when indicated.

Please remember to inform Helen (TVN SIG lead) of any and all episodes of skin breakdown

All episodes of skin breakdown, no matter how small need to be assessed and documented

Potential Assessment Issues

Pressure ulcer or moisture lesion???

Pressure ulcer

- *Causation:* Usually pressure and/or shear are present
- *Location:* More likely over bony prominences
- *Shape and edge:* Usually distinct edging and shape
- *Depth:* Pressure ulcers can be superficial or deep
- *Necrosis:* Necrosis may be present

Moisture lesion

Causation: Usually moisture is present.

Location: Less likely over bony prominences

Shape and edge: Usually diffuse edging and shape

Depth: Moisture lesions are rarely more than superficial

Necrosis: Necrosis is highly unlikely to be present

Grading and staging of pressure damage issues

- Necrosis/Slough – any pressure ulcer which has necrosis or slough where you cannot assess depth has to be **graded as grade 4.**
- Blisters – blisters obscure the base of the wound. De-roof, treat as a wound, and grade according to the state of the wound bed.
- If in doubt, peer review and get two nurses to countersign.
- Also, verbal descriptors in documentation and photography are necessary, and part of NICE guidance regarding pressure ulceration.
- More darkly pigmented skin may be much harder to assess grade 1 and suspected deep tissue injuries and will need more vigilant assessment

Assessing pressure damage on darkly pigmented skin

- identifying the early stages of pressure damage in patients with darkly pigmented skin can be difficult
- Skin pigmentation can mask the visual indication of erythema and category 1 pressure ulcers are more likely to go undetected and deteriorate to full thickness pressure ulcers in darkly pigmented skin
- erythema has been identified as the main indicator of pressure damage, this is not always possible in darkly pigmented skin. However, there are other signs and symptoms that can be observed

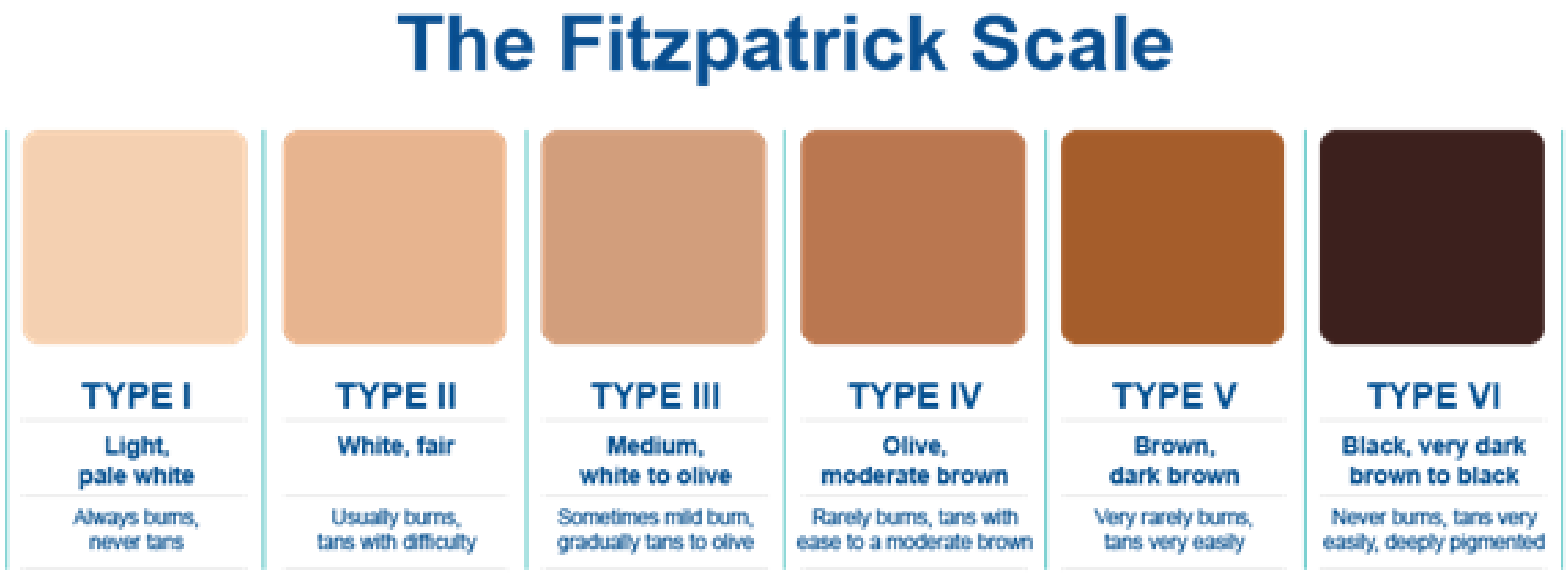
Top Tips for assessing darkly pigmented skin

1. **Have a high index of suspicion for pressure injury in patients with darkly pigmented skin** - The development of visible signs of pressure and shear in all skin is delayed - in patients with darkly pigmented skin, the early signs of skin colour change are blunted thus delayed further by the pigment in the skin. Be particularly vigilant in frequently checking high risk areas e.g sacrum, ischial tuberosities, trochanters, heels etc
2. **Use good lighting to see the skin -** Place the patient in a position so that natural light is shining on the skin where possible
3. **Compare the colour of skin subjected to pressure to the skin around the area - i**n more darkly pigmented skin, erythema is inapparent and is replaced by patches of darkened skin colour. Examine all the skin and note the usual degree of skin pigmentation for comparison. Pressure injury leads to red, maroon or purple skin in the area of damage
4. **Describe variations in skin colour using an objective system if required (referring to skin tone not ethnic label)** There are two methods to do this: one is the Munsell skin tone chart and the other is the 6 Fitzpatrick skin types
5. **Enhance your visual assessment by moistening the skin –** darker pigmented skin is often drier and thicker making objective visual assessment harder. Moistening the skin with tap water will rehydrate the epidermis to improve inspection
6. **Palpate the skin in areas that may have been exposed to pressure or shear** – pressure creates oedema from the inflammatory response. The oedema is palpable as hardness or coolness in the tissues. To get the best assessment, use the back of your hand and remove your gloves to feel a change in skin temperature
7. **Appreciate variation in presentation of deep tissue pressure injury -** does not always appear purple or maroon in patients with darkly pigmented skin – sometimes it may not be visible at all.
8. **Consider enhancing your assessment of darkly pigmented to assess perfusion or subepidermal moisture changes -** when assessing darkly pigmented skin, skin temperature and sub-epidermal moisture are important adjunct assessment strategies. Impaired perfusion causes tissue to feel cool. Any form of tissue injury creates inflammation, which increases both temperature and fluid in interstitial spaces
9. **Superficial wounds are more easily identified and open blisters often retain the epidermis -** Darkly pigmented skin is thicker because it has more corneocyte layers. Therefore, while open areas are easily seen due to the sharp contrast in the bed dermis and dark skin, the thicker epidermis also remains present on the wound edge
10. **Healing wounds can lead to changes in pigmentation-** Darker skinned individuals are more prone to hyperpigmentation in general, and when healing wounds, changes in colour of the skin are seen. As healing commences though, hypopigmented skin is often present. The lighter areas correlate with the distribution and configuration of the original wound. Keloids can also form.

Examples of grade 1 pressure sores on darkly pigmented skin – be aware these are photos of visible ones. Most WILL NOT be so easily visible

Assessing darkly pigmented skin charts

6 Fitzpatrick skin types



Assessing darkly pigmented skin
Conclusion

The identification of early changes in skin colour, which may represent stage/category 1 pressure ulcers/injury, can be made easier and more reliable in patients with darkly pigmented skin. Simple changes in bedside assessment can enhance inspection allow a more definitive diagnosis of subclinical alterations in skin perfusion

Wound Management

Aseptic Non Touch Technique

- Defines the infection prevention method and precautions taken during clinical procedures to prevent the transfer of microorganisms from the healthcare worker, procedure equipment or the immediate environment to the patient

- An aseptic technique is used to carry out a procedure in a way that minimises the risk of contaminating an invasive device, e.g. urinary catheter, or a susceptible body site such as the bladder or a wound.

The principles of A.N.T.T.

- The principles of asepsis/aseptic technique are:
  - Reducing activity in the immediate vicinity of the area in which the procedure is to be performed
  - Keeping the exposure of a susceptible site to a minimum
  - Checking all sterile packs/ dressings to be used are in date and there is no evidence of damaged packaging or moisture penetration
  - Ensuring all fluids and materials to be used are in date
  - Not re-using single use items
  - Ensuring contaminated/non-sterile items are not placed in the sterile field
  - Ensuring appropriate hand decontamination prior to and after the procedure
  - Protecting uniform/clothing with a disposable apron
  - Using sterile gloves

Clean technique

this we will mostly be using when dealing with wound care at HXH

- This is a **modified aseptic technique**, the principles being, in essence, the same as that for performing an aseptic non touch technique. The main difference is the wound can be irrigated with or immersed in non-sterile fluids, e.g. tap water of drinkable quality, and non-sterile gloves can be worn. A clean technique is used for dressing most wounds healing by secondary intention such as:
  - Pressure ulcers
  - Leg ulcers
  - Dehisced wounds
  - Dry wounds, simple grazes
  - Removing sutures

- A clean technique should **not** be used to dress significant wounds that are less than 48 hours old, **diabetic foot wounds**, cavity wounds, e.g. with a sinus, or wounds of patients who are immunosuppressed. Aseptic non touch technique must be used for these

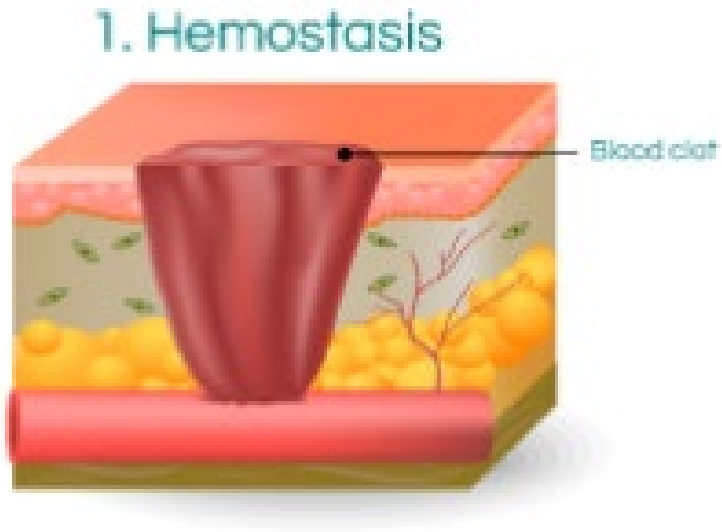
Dressings!

A dressing does NOT actively heal a wound! It helps **control the environment** of a wound making healing more conducive!

- Understanding what is happening to the wound and the wound environment will help you choose the right dressings.

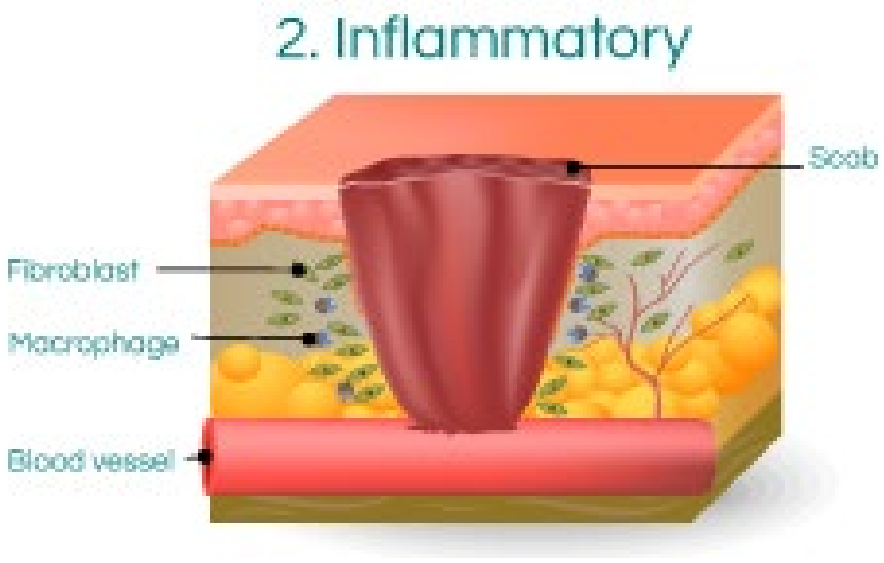
- We will now revise some basic anatomy and physiology of the skin – looking at the 4 stages of wound healing

4 stages of wound healing – brief overview.
Phase 1: Haemostasis Phase



Haemostasis, the first phase of healing, begins at the onset of injury, and the objective is to stop the bleeding. In this phase, the body activates its emergency repair system, the blood clotting system, and forms a dam to block the drainage.

Phase 2: Inflammatory Phase



Phase 2: Inflammatory Phase: During Phase 2, a type of white blood cells called neutrophils enter the wound to destroy bacteria and remove debris, preparing the wound bed for the growth of new tissue.

Phase 2: Inflammatory Phase – stagnant wounds

Patient related:

- Malnutrition (protein, carbohydrates, fatty acids and trace elements are essential for wound-healing)
- Reduced peripheral blood supply (due to cardiovascular disorders, ischaemia)
- Obesity (decreases tissue perfusion) Underlying systemic condition (e.g. diabetes, autoimmune disorders)
- Impaired mobility/immobility
- Psychological stress,
- lack of sleep (Patient – not staff!)
- non-compliance

Other treatments

- Medication (e.g. non-steroidal anti-inflammatory drugs, corticosteroids)
- Chemotherapy
- Radiotherapy

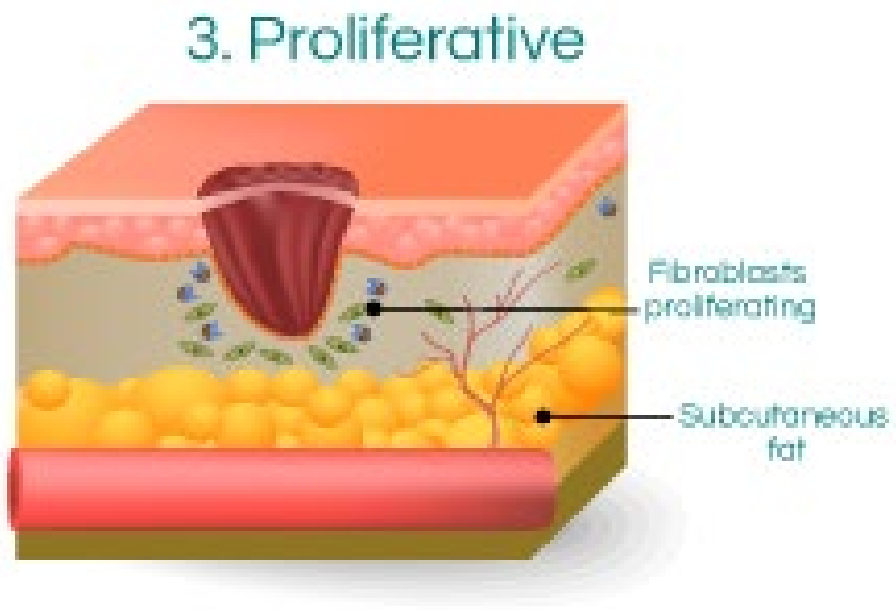
Wound-related

- Microbial colonisation/infection
- Maceration (e.g. due to high exudate volumes or contact with other moisture)
- Unrelieved pressure

Service delivery

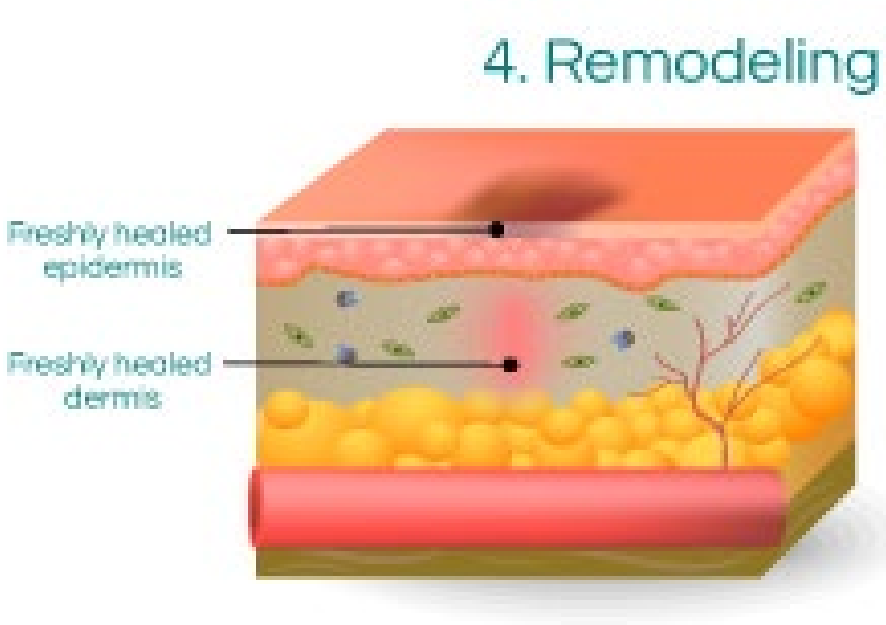
- Inappropriate wound management
- Reduced wound temperature (e.g. due to prolonged dressing changes or use of cold cleansing products)

Phase 3: Proliferative Phase



Phase 3: Proliferative Phase: Once the wound is cleaned out, the wound enters Phase 3, the Proliferative Phase, where the focus is to fill and cover the wound. The Proliferative phase features three distinct stages: 1) filling the wound; 2) contraction of the wound margins; and 3) covering the wound (epithelialisation).

Phase 4: Maturation Phase



Phase 4: Maturation Phase: During the Maturation phase, the new tissue slowly gains strength and flexibility. Here, collagen fibres reorganise, the tissue remodels and matures and there is an overall increase in tensile strength (though maximum strength is limited to 80%. The Maturation phase can last anywhere from 21 days to two years.

Dressings!

Mepilex Border
Safetac
Mepilex Border
Safetac

LET'S HEAL
Let's Protect
INADINE
PVP-I NON ADHERENT DRESSING
25 / 9.5cm x 9.5cm
Systagenix

PROMOGRAN
Let's Promote
PROMOGRAN
MATRIX WOUND DRESSING

Metalline
8 x 9 cm
Ch 31-50
50
REF 23 094
LOHMANN & RAUSCHER

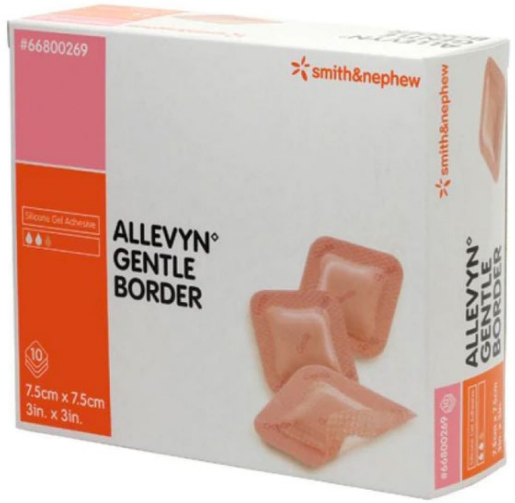
3M
Cavilon
3M
Cavilon
3M
Cavilon

MEDIHONEY
Calcium Alginate Dressing
with Active Leptospermum Honey
WOUND & BURN DRESSING
MEDIHONEY
4" x 5"
3¼" x 12"
#31012
2" x 2"
10 dressings

Dressing choices

Bordered Silicone foam

(all in one type dressing)



- For any exuding wound – for example: can use on open pressure ulcers, (but if there is a cavity however, consider packing the wound so it can heal from the inside out)
- Do NOT cut.
- Can put inadine / cream/ treatments etc underneath.
- This is an all in one type dressing – can apply directly to the wound.
- Do NOT cover the back as this effects the vapour transfer rate.
- Does NOT need to be changed daily – can peel back and view the wound and replace back down – observe exudate levels on outside of the dressing. Can stay in place up to 7 days.
- Available in an array of sizes and shapes including heel and sacral shaped.

Dressing choices

Anti-microbial layers

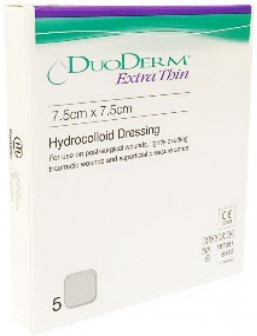
Anti-microbial

- Anti-microbial do NOT heal wounds – instead they HELP change the bioburden within the wound to make healing by the body more condusive.
- Not for long term use.
- Only for use when a wound is critically colonised or infected.
- Re-assess use at every dressing change. Check wound every 3 days.

Example products:

- Inadine (Do NOT use on patients with known iodine sensitivity)
- Medihoney (honey)
- Silvercell (silver infused – available in many different forms – good for overgranulation – but remember to treat underlying cause of over granulation – usually excessive moisture).
  - Be mindful of silver toxicity with prolonged use of silver impregnated dressings

Dressings choices



Others:

- Promogram
  - Matrix Wound dressing – comprising of a dried composite of oxidised regenerated cellulose and collagen.
  - Good for chronic stagnant wounds.
  - Helps to maintain a physiologically moist micro-environment at the wound surface. Helps oxygen to reach the wound bed. This is conducive to granulation tissue formation and rapid wound healing. Not for long term use. Only for use when a wound is critically colonised or infected. Re-assess use at every dressing change. Check wound every 3 days.
- Wound contact layer – e.g urgo-tul
  - good for landing sites to prevent blistering, skin tears or acute wounds with a skin flap. Can be used under a non-silicone dressing. Can be cut to shape. Can put inodine / cream/ treatments etc underneath OR over the top. Can apply a secondary dressing if needed – e.g cheap and cheerful gauze or absorbent pad. (do not use any dressing with a silicone based WCL over the top – silicone boarded foams are not to be used) – Apply directly to the wound. Over granulation can occur through the holes if exudate is not correctly managed. Can leave in place 7 days
- Duoderm extra thin – hydrocolloid
  - For use as a landing site and to secure NG tube. Cut 2 strips approx. 1.5/2cm by approximately 6-8cm long. One strip will be a landing site on the cheek. Place the tube over the landing site. Then place the second duoderm strip directly over the top of the first strip over the NG tube so the NG tube is secured (sandwiched) in-between the two pieces of duoderm

Cavilon Cream and No Sting Spray

Dressings choices

Creams and sprays

- <u>Cavalon</u>
  - Barrier cream and spray – can be used on intact and broken skin to protect skin from <u>*bodily fluids*</u>. Use twice a day or after every 3rd wash. Can use around stoma sites to protect the peri stoma skin. Spray is good for intertriginous dermatitis.

- <u>Proshield</u>
  - Barrier cream - can be used on intact and broken skin to protect skin. Intact skin Re-apply pea sized amount after every wash.
  - For broken skin – moisture associated skin damage and grade 1 & 2 *pressure ulcers*. Use a visible layer and replenish when no longer visible or at pad/dressing changes.

Holy Cross Hospital Wound Care and Management Formulary (updated Feb 2023)

Company name
Dressing name

Molnlycke
Mepilex border

Comvita
Medihoney

Acelite
Inadine

Acelity
Silvercel

KCI
Promogran

Urgo Medical
UrgoTul

Convatec
Duoderm extra thin

Smith & Nephew
Opsite Flexigrid

L&R Medical
Metalline

Molnlycke
Lyofoam Max T

3M
Cavalon Cream & Spra

Cavilon Cream and No Sting Spray

Smith & Nephew **Proshield Cream** 	Cream	1	£10.71 per tube	Barrier cream – can be used on intact and broken skin to protect skin. Intact skin Re-apply pea sized amount after every wash. For broken skin / *moisture associated skin damage* and grade 1 & 2 *pressure ulcers*. Use a visible layer and replenish when no longer visible or at pad/dressing changes. Order via ashtons

- **If any other dressings are required for any reason, please liaise with TVN SIG and Debbie is stores.**
- **Please only take 2-3 dressings at a time – only what you need for up to 3 days – NOT the whole box**
- **Please inform Helen of any and all wounds via email**

Tissue Viability SIG group members

Helen Evans – SIG Lead	SSN SMF Days
Carolyn Sombillo	SSN Nights
Bogdan Matai	RN SMF Days
Victor Vatra	RN SAF Days
Nanette Vargas	RN Nights
Chrissy Pound	CTL SAF Days
Lacey Kelland-Hall	SHCA SAF Days

Remember :

- **A dressing does NOT actively heal a wound! It helps control the environment of a wound making healing more conducive.**
- **Do not keep changing what you are using. You need to give it time to work**
- **Use Aseptic Non Touch Technique for significant acute wounds less than 48 hours old, Diabetic foot ulcers, cavity wounds, sinus wounds.**

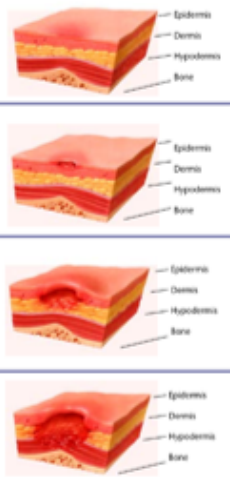
Grade 1
Non-blanchable erythema (redness) of intact skin.
Discolouration of the skin, warmth, oedema, induration or hardness may also be used as indicators, particularly on individuals with darker skin

Grade 2
Partial thickness skin loss involving epidermis, dermis, or both. The ulcer is superficial and presents clinically as an abrasion or blister

Grade 3
Full thickness skin loss involving damage to or necrosis of subcutaneous tissue that may extend down to, but not through underlying fascia

Grade 4
Extensive destruction, tissue necrosis, or damage to muscle, bone, or supporting structures with or without full thickness skin loss

Progression of a pressure ulcer



Barrier creams

- **Cavilon Durable Barrier Cream** - Can be used on broken skin - to protect skin from body fluids - use a pea sized amount twice a day or repeat after every third wash.

- **Proshield Plus Skin Protective** - Intact skin, use a pea sized amount and repeat after every wash. Broken skin, Grade 1 & 2 pressure ulcers and moisture lesions use a visible layer and replenish when it is no longer visible or at dressing change.

Any Questions?

Thank you for Listening ☺

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