What dressing for what wound

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Accurate wound assessment is a prerequisite to planning appropriate care & should adopt an holistic approach.

Assessment is enhanced by an understanding of:

- Physiology of wound healing
- Factors that affect this process
- Optimal conditions required at the wound site
Wound management

It’s not about the hole in the patient...........

It’s the whole of the patient...of any age!
Dressing Selection
Factors influencing selection

- Bacterial Profile

- Wound Characteristics
  - Dry
  - Moist
  - Heavily Exuding
  - Malodorous
  - Excessively Painful
  - Difficult to Dress
  - Liable to Bleed Easily

- Wound type
  - Depth & location
  - Aetiology/cause

- Stage of healing

- Tissue type
  - Necrotic
  - Sloughy
  - Granulating
  - Epithelialising
Client choice

- Known sensitivities
- Fragile or easily damaged skin
- Hygiene needs / bathe or shower frequently
- Mobility / dexterity
- Compliance / concordance
Wound healing

- **Inflammation**
  - Haemostasis
  - Platelet-derived growth factor (PDGF)
  - Macrophages
  - Phagocytosis

- **Proliferation**
  - Angiogenesis
  - Granulation
  - Collagen build up
  - Re-epithelialisation

- **Maturation**
  - Collagenase
  - Reforming
  - Increase in tensile strength
How do I choose a dressing...???

Ask ‘what do I want the dressing to do...?’

- Rehydrate?
- Absorb exudate?
- Deslough?
- Reduce bacterial contamination?
- Promote granulation?
- Promote a moist / dry wound bed
Optimise the wound bed

Moisture balance

- Maintain

Too wet
- Remove moisture
- Absorption / Retention / Sequestration
- Debridement
- Treat infection

Too dry
- Add moisture
Fill Dead Space

- Dead space must be filled with dressing material to ensure that wound closure is delayed until the space has been replaced with granulation tissue:
  - Cavity
  - Undermined tissue
  - Tracts

Make sure you can get it out in one piece!
If there is no blood supply keep it dry

Unless you are 100% sure there is viable tissue beneath or you have been advised by a tissue viability specialist or responsible physician.
Types

- Hydrogels
- Alginates
- Gelling fibre
- Hydrocolloid
- Foam
- Non adherent wound contact layers
- Island dressings
- Antimicrobial
- Odour controlling
- Other…TNP or NPWT, maggots, cellular matrix & protease modulators
Hydrogel

Properties:
- come in sheets & gel high water content facilitates debridement by rehydration

Wound Types:
- sheets are used for shallow wounds & cavity edges
- gels are suitable for cavities

How to use, when to change:
- change dressing every 1 to 3 days
- apply directly into/onto wound & cover

Contradictions:
- heavily exuding wounds
- Maceration & excoriation of the peri-wound area
- infected wounds
Alginates

Properties:
- absorbent dressings, the main purpose of which is haemostasis
- forms a gel which conforms to shape of the wound
- made from calcium alginate found in seaweed
- Calcium in the dressing exchanges with sodium in the wound to form a gel

Wound types:
- moderate to heavily exuding wounds of all types

How to use, when to change:
- remove by irrigating
- change dressing every 2 to 7 days.
- use secondary dressing

Contradictions:
- dry wounds & necrotic wounds
Hydrocolloids

Properties
  ▪ Composed of cellulose, can contain gelatine

Wound types:
  ▪ clean, granulating or necrotic wounds with low to moderate exudate
  ▪ primary dressing for epithelising wounds

How to use, when to change
  ▪ change every 3 to 7 days (warm to make more pliable & adhesive)
  ▪ requires 1·5 to 2cm margin
  ▪ warn patient about characteristic odour to expect when hydrocolloid mixes with exudates.

Contraindications:
  ▪ heavily exuding wounds & infected wounds
What is an occlusive dressing?

Definition:
A type of wound dressing that totally covers the wound bed, sealing it off from the environment. It is impermeable or semi-impermeable to moisture (HCD or Film)

(The Wound Programme, 1993)

- Promote a moist wound environment
- Stimulate angiogenesis through providing a hypoxic environment
- Reduction in frequency of dressing changes
- Facilitation of fibrinolysis
- Promotion of autolysis
- Promotion of angiogenesis
- Protection
Foams

Properties:
- absorbent dressings, primary & secondary

Wound types:
- light to heavily exuding wounds

How to use, when to change:
- exudate is absorbed into the foam & becomes visible at the dressing edges, once saturated
- use secondary dressing such as tape or appropriate bandage if product does not have an adhesive border do not cover with occlusive film, this may effect the vapour permeability of the dressing

Contraindications:
- very dry sloughy or necrotic wounds May cause peri wound maceration in highly exuding wounds
Gelling fibre

Properties

- composed of hydrocolloid fibres. Sodium carboxymethylcellulose spun into a fibre that forms a gel in contact with wound exudate
- allows for the absorption & retention of exudates

Wound types:

- indicated as primary dressing for management of medium to highly exuding wounds, May be useful for infected wounds as “holds” bacteria

How to use, when to change:

- apply directly to the wound requires at least 1cm margin overlapping surrounding skin to ensure adhesion/reduce leakage/seal wound borders
- requires a secondary dressing – some are built in

Contraindications:

- lightly exuding wounds
Films

Properties:
- High moisture vapour transmission
- Polyurethane coated with adhesive

Wound type:
- low exuding wounds, as they do not absorb exudate
- only suitable for relatively shallow wounds, e.g. dermabrasion, burns and donor sites retention dressings, e.g. for cannulas.

How to use, when to change:
- frequency of change depends on nature of wound
- skin surrounding wound must be clean and dry

Contraindications:
- excessive exudate may accumulate under dressing
- may cause adhesive trauma on removal
Wound contact layers

Properties:
- primary dressing on dry or lightly exuding wounds
- secondary dressing required
- most are low adherent

Wound types:
- Especially suited to epithelising wounds

How to use, when to change:
- Apply directly to wound bed

Contraindications:
- Moderate to highly exudating wounds
Island dressings

Properties:
primary dressing on dry or lightly exuding wounds
Barrier and non barrier available

Wound types:
Postop, low exudate

How to use, when to change:
PRN – depends on wound and protocols postop

Contraindications:
Moderate to highly exudating wounds
Odour reducing charcoals

Properties:
utilise charcoal to absorb odour particles
usually require to stay dry

Wound types:
Malodourous

How to use, when to change:
All very different – pay attention

Contraindications & considerations:
Put high up your dressing layers & consider client changing it themselves
## Antimicrobials

<table>
<thead>
<tr>
<th>Agent</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iodine</td>
<td>10% in dressings or as solution</td>
</tr>
<tr>
<td>Cadexomer Iodine</td>
<td>starch microbeads, iodine trapped in 3D lattice</td>
</tr>
<tr>
<td>Silver</td>
<td>cell membrane interaction – structural and receptor function damage</td>
</tr>
<tr>
<td>Honey</td>
<td>low concentrations of hydrogen peroxide</td>
</tr>
<tr>
<td></td>
<td>high sugar content draws lymph fluid from beneath the wounds surface</td>
</tr>
<tr>
<td>PHMB</td>
<td>adheres to bacterial cell membranes, causing them to leak potassium ions &amp; other components which results in cell death</td>
</tr>
<tr>
<td>Bacteriostatic</td>
<td>fatty acid impregnated that binds to bacteria cells walls &amp; prevents growth</td>
</tr>
<tr>
<td>Surfactants</td>
<td>works directly to break the chemical bonds that cement slough to the wound bed</td>
</tr>
</tbody>
</table>
**Necrotic**

**Description:**
Devitalised ischaemic tissue
Black / brown eschar / slough

**Aim of Treatment:**
Debride & remove
(*NB Ischaemic wound*)

**Rationale:**
Host for infection
Impairs healing
**Description:**
Mixture of fibrin, protein, serous exudate, Leucocytes & bacteria yellow/grey
Glutinous covering

**Aim of Treatment:**
Remove slough & provide clean base for granulation

**Rationale:**
Host for infection
Impairs healing
Granulating

Description:
Composed of capillary loops, collagen, proteins & polysaccharides.
Red, granular appearance

Aim of Treatment:
Protect & promote granulation

Rationale:
Base for epithelialisation
Fills wound bed
Description:
Epithelial cells migrate across the wound bed to complete the repair process.

Pink Colour

Aim of Treatment:
Protect & promote epithelial tissue

Rationale:
Complete Repair Process & promote maturation
**Infected**

**Description:**
Mixture of fibrin, protein, serous exudate, Leucocytes & bacteria
Coloured exudate
Pain
Inflammation

**Aim of Treatment:**
Isolate & identify pathogen commence appropriate antimicrobial treatment systemically & topically

**Rationale:**
Impairs healing
Causes inflammation & wound breakdown
Exudate management avoid the “splat factor”
Optimise the wound bed

Moisture balance

- Maintain

Too wet
- Remove moisture
- Absorption / Retention / Sequestration
- Debridement
- Treat infection

Too dry
- Add moisture
<table>
<thead>
<tr>
<th>Wound bed Description</th>
<th>Treatment aim</th>
<th>Exudate level</th>
<th>Consider using:</th>
<th>Secondary Dressing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Primary Dressing</td>
<td></td>
</tr>
<tr>
<td>NECROTIC</td>
<td>Debride and remove slough and promote moisture balance</td>
<td>Dry</td>
<td>Gel</td>
<td>Island dressing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hydrocolloid</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gelling fibre or alginate</td>
<td>Foam</td>
</tr>
<tr>
<td>SLOUGHY</td>
<td>De-slough &amp; provide healthy bed for granulation; promote moisture balance</td>
<td>Dry</td>
<td>Gel</td>
<td>Island dressing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hydrocolloid, Gelling fibre or alginate</td>
<td>Foam</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moist</td>
<td>Hydrocolloid, Gelling fibre or alginate</td>
<td>Foam</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet</td>
<td>Gelling fibre or alginate or foam</td>
<td>Foam</td>
</tr>
<tr>
<td>GRANULATING</td>
<td>Provide healthy bed for epithelisation &amp; promote moisture balance</td>
<td>Moist</td>
<td>Non adherent contact layer</td>
<td>Island dressing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet</td>
<td>Non adherent contact layer</td>
<td>Island dressing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leaking/saturated</td>
<td>Gelling fibre or alginate or foam</td>
<td>Foam, absorbant pad</td>
</tr>
<tr>
<td>EPITHELISING</td>
<td>Promote epithelisation and wound maturation</td>
<td>Dry</td>
<td>Non adherent contact layer</td>
<td>Foam</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moist</td>
<td>Hydrocolloid</td>
<td>Foam</td>
</tr>
<tr>
<td>OVER-GRANULATING</td>
<td>Promote healthy granulation</td>
<td>Moist</td>
<td>Topical steroid and/or antimicrobial for 5 days</td>
<td>Foam with downward pressure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet</td>
<td>Topical steroid and/or antimicrobial for 5 days</td>
<td>Foam with downward pressure</td>
</tr>
<tr>
<td>POST OPERATIVE</td>
<td>Promote healing by primary intention</td>
<td>Dry</td>
<td>Island dressing</td>
<td>Foam</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moist</td>
<td>Foam</td>
<td>Foam</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet/leaking</td>
<td>Gelling fibre or alginate or foam</td>
<td>Foam/absorbant pad</td>
</tr>
<tr>
<td>CRITICAL COLONISATION/INFECTION</td>
<td>Reduce bacterial burden</td>
<td>Moist</td>
<td>Iodine or silver wound contact layer</td>
<td>Island dressing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet/leaking</td>
<td>Silver gelling fibre or alginate</td>
<td>Foam</td>
</tr>
<tr>
<td>CAVITY/SINUS</td>
<td>Provide healthy wound bed for granulation; promote moisture balance</td>
<td>Moist</td>
<td>Alginate or gelling fibre in a ribbon or rope</td>
<td>Foam</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet</td>
<td>Alginate or gelling fibre in a ribbon or rope</td>
<td>Foam</td>
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<tr>
<td></td>
<td></td>
<td>Leaking</td>
<td>Alginate or gelling fibre in a ribbon or rope</td>
<td>Super absorbant</td>
</tr>
<tr>
<td>FUNGATING</td>
<td>Manage symptoms, malodour, infection, exudate, bleeding, pain</td>
<td>Consider charcoals or metronidazole for odour, alginate for bleeding, non adherence for pain and comfort</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Large Skin Tear

80 year old man
Traumatic flap laceration
Transferred from nursing home for A & E treatment

What is the immediate treatment for the patient?
What referrals/investigations are required?
How will you re-dress the wound?
## 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, discoloration 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.

### Category 1a
A Skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap 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 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 is pale, dusky or darkened.

### Category 3
A skin tear where the skin flap is completely absent.

*Source: Skin Tear Audit Research (STAR), Silver Chain Nursing Association and School of Nursing and Midwifery, Curtin University of Technology. Revised 4/2/2010*
76 year old lady

68 Kg

2 day history of Cerebral Vascular Accident

Lives alone, with no supports
Found at home on the floor by Meals on Wheels, unsure how long she had been there

Presented with Left sided weakness, dysphagia, Hypothermia.

PMHx Hypertension, Incontinent of Urine

Stage the pressure ulcer.
What are the priorities for your care plan?
How would you manage this wound with products?
<table>
<thead>
<tr>
<th>Location</th>
<th>Necrosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture Lesions</td>
<td>There is no necrosis in a moisture lesion.</td>
</tr>
<tr>
<td>Pressure Ulcers</td>
<td>A black necrotic scab on a bony prominence is a pressure ulcer classification 3 or 4.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shape</th>
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<tbody>
<tr>
<td>Moisture Lesions</td>
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<tr>
<td>Pressure Ulcers</td>
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</table>

<table>
<thead>
<tr>
<th>Edges</th>
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<td>Moisture Lesions</td>
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<th>Depth</th>
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<td>Moisture Lesions</td>
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<tr>
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<table>
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<th>Colour</th>
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<td>Moisture Lesions</td>
</tr>
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</table>
Fasciotomy

37 year old woman

Non healing fasciotomy wound post compartment syndrome 2 weeks ago

What maybe causing this wound to be non healing?

How do you assess the bacterial burden on the wound?

What dressing selection will be made?

What referrals or investigations are needed?
35 year old man
ORIF (open reduction and internal fixation) due to traumatic fracture
What investigations/referrals are needed?
What is the management aim?
What is the dressing plan?
What advice will you give the patient regarding footwear in relation to the procedure & wound?
## Take home messages

<table>
<thead>
<tr>
<th>There are many dressings &amp; treatment choices available to clinicians</th>
<th>Keep it simple its about moisture balance use the scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work within your formulary/availability as 1st line treatment-they are cost effective &amp; evidence based</td>
<td>If you don’t have one adopt one or develop one</td>
</tr>
</tbody>
</table>
| As the clinician you must be clear what desired outcomes are required for each client before commencing dressing selection | Assessment is key  
Set a goal  
Communicate and get agreement from your colleagues |
| Treatment choice should be based on the clear understanding of the benefits & limitations of each product | Know the products, talk to the companies otherwise its clinical risk |