What dressing for what wound

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Wound assessment

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
Assessment tools

Your Eyes...

Knowledge

Your Nose...

Your Ears...

Your Mouth...
Wound care

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

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

- Bacterial Profile

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

- Wound type
  - Depth
  - 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
- Platelet-derived growth factor (PDGF)
- Macrophages
- Phagocytosis

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

Maturation
- Collagenase
- Reforming
- Increase in tensile strength

Haemostasis

0.1 0.3 1 3 10 30 100 300
Your responsibility is to learn

SKIN FUNCTION AND WOUND HEALING PHYSIOLOGY

Regular evaluation and the setting of goals are essential to monitor the progress of the patient and their wound. To do this, it is important to understand the physiology of the skin and the way normal wound healing progresses in order to plan and provide effective wound management. This article describes the structure and function of the skin and outlines the four normal phases of healing.

Wound healing is an exciting and continually developing field, with new technologies and research playing a large part in improving the quality of patient care. The role of the nurse in wound care is all encompassing, starting from the initial assessment of the wound and the patient, to making the correct decisions about treatment and beyond. Regular evaluation, and the setting of goals is essential to monitor the progress of the patient and the wound. To do this, a baseline knowledge of the functions and anatomy of the skin and wound healing physiology is required.

Functions of the skin

The skin, often referred to as the largest body organ, has six main functions:

- Protection: the skin serves as the main protective barrier, preventing damage to internal tissues from physical trauma, ultraviolet (UV) light, temperature changes, toxins and bacteria (Butcher and White, 2005).

- As well as presenting harmful substances from entering the body, it also controls the loss of vital substances (Graham-Brown and Burns, 1996).

- Sensation: the nerve-endings present in the skin allow the body to detect pain, and changes in temperature, touch and pressure.

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- Thermoregulation: the skin allows the body to respond to changes in temperature by sweating or dilating the blood vessels within it. The sweat glands produce sweat which stays on the skin allowing the body to cool down. When the body is cold, the hair erector pili contract, raising the hair and trapping warm air next to the skin.

- Excretion function: the skin excretes waste products in sweat which contains water, urea and albumin. Sebum is an oily substance which is secreted by the sebaceous glands, helping to lubricate and protect the skin.

- Metabolism: when UV light is present, the skin produces vitamin D which is required for calcium absorption.

- Non-verbal communication: the skin can convey changes in mood through colour changes such as blushing. The skin also gives clues as to our physical wellbeing (Flanagan and Rafter, 2005).

The skin needs to remain intact to allow the body to perform these
Product Related Factors…

- Conformability
- Mass or volume
- Fluid handling properties
- Sensitisation
- Odour absorbing properties
- Ease of application & removal

- Antibacterial activity
- Haemostatic properties
- Ease of use
- Permeability
- Microclimate impact
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!
Remember….

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
Properties:
- absorbent dressings, the main purpose of which is haemostasis
- forms a gel which conforms to shape of the wound
- made from seaweed

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
- occlusive moist environment, waterproof, can adhere to wet sites

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
- used as both primary & secondary dressings

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
Cadexomer iodine

Properties:
cadexomer iodine paste, red-brown in colour
starch microbeads, iodine trapped in 3D lattice

Wound types:
exuding wounds, infected, sloughy wounds

How to use, when to change:
apply directly to skin allowing a small margin of overlap onto surrounding skin
changing is indicated by loss of colour in the product

Contraindications & considerations:
there are maximum doses/application per week
each single course of treatment should not last for more than 3 months.
Contraindicated in people with thyroid problems, lithium, pregnancy
Honey

Properties:
low concentrations of hydrogen peroxide
high sugar content draws lymph fluid from beneath the wounds surface. debrides slough, rehydrates necrosis

Wound types:
infected or critically colonised indolent/non-healing wounds

How to use, when to change:
apply directly to wound should be changed when saturated with exudate dressings can be cut

Contraindications & considerations:
Monitor glucose levels of patients with diabetes, pain
Silver

Properties:
Antibacterial properties through silver ions
interference with bacterial electron transport
binding to DNA of bacteria and their spores, so impairing cell replication
cell membrane interaction – structural and receptor function damage

Wound Types:
Infected or critically colonised indolent/non-healing wounds

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

Contraindications & considerations:
may give skin a general grey discolouration (argyria) – largely a cosmetic problem. Only occurs with long-term use
PHMB – Polyhexamethylene Biguanide

Properties:
Antibacterial properties through silver ions
Binds to cell membrane causing holes to form, the cells leak, collapse and die
Often impregnated into foam or gauze or as a liquid or gel

Wound Types:
Infected or critically colonised indolent/non-healing wounds

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

Contraindications & considerations:
Different for each product
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
**Necrotic**

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

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

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

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
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”
## 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>
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<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>
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<tr>
<td>As the clinician you must be clear what desired outcomes are required for each client before commencing dressing selection</td>
<td>Assessment is key</td>
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<td>Treatment choice should be based on the clear understanding of the benefits &amp; limitations of each product</td>
<td>Know the products, talk to the companies otherwise its clinical risk</td>
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