WOUND CARE TODAY

MICROWORLD

IN PARTNERSHIP WITH Mölnlycke®

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THE ART OF DRESSING SELECTION: RIGHT WOUND, RIGHT PATIENT, RIGHT DRESSING

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LIVE Q&A

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WELCOME TO MICROWORLD 3.0

- Microworld is an animated platform for wound care education
- Consists of 10 modules covering wound care fundamentals
- Available in 7 languages
- Used by 15,000+ clinicians in 32+ countries
- Now Microworld 3.0 offers even more flexible and inspiring ways to learn.

WELCOME TO MICROWORLD 3.0

Brand new features of MicroWorld 3.0 include:

- Fresh new dashboard
- Full video playback controls
- Wellbeing modules
- Community hub with new monthly content for members
- Four new product and dressing modules.


WELCOME TO
MICROWORLD 3.0

LEARNING OBJECTIVES

The new Microworld dressing and product modules will bridge the gap between theory and practice.

They will deliver education on the art of dressing selection to make sure every patient gets the right product for their wound at the right time.

LEARNING OBJECTIVES

At the end of this session, you will be able to:

- Appreciate the benefits of a structured wound assessment
- Understand the patient and wound-related factors that may prevent wound healing
- Recognise the properties of an ideal wound dressing
- Identify wound healing goals and how to select the best dressing to achieve them
- Understand how to select the correct dressing according to patient needs and preferences, coupled with wound requirements.

WOUND ASSESSMENT

WOUND ASSESSMENT

Accurate wound assessment will guide decision making and assist in...

- **Identifying correct aetiology of the wound**
- **Setting a baseline for progress**
- **Highlighting barriers to healing**
- **Informing wound management choices and overall care plan**
- **Establishing whether a wound is progressing in a satisfactory manner.**

WOUND ASSESSMENT AND MANAGEMENT FRAMEWORKS

- Using a systematic approach to wound assessment and management can help to ensure all factors are considered. It can help address:
  - Concerns over inadequate and/or inconsistent wound assessment
  - Variations in the delivery of wound management (Coleman et al, 2017)
- Frameworks for a comprehensive, holistic patient assessment include HEIDI or CASE
- Tools such as MOIST or TIME can be used to guide wound management decision-making.

FACTORS THAT CAN PREVENT HEALING

Patient factors	Wound factors
• Comorbidities, e.g. uncontrolled diabetes, venous insufficiency, poor vascular supply, anaemia, malignancy • Age • Poor nutrition • Obesity • Medication, e.g. immunosuppressants, steroids • Immobility • Psychosocial factors, e.g. stress, depression, poor mental health, dementia, lack of social support • Lifestyle choices, e.g. smoking, drug and alcohol addiction	• Presence of devitalised tissue within the wound bed • Oedema to surrounding tissue • High volume of exudate • Presence of infection and/or biofilm • Wound dimensions (depth and width) • Wound location

PLANNING CARE

After comprehensive wound assessment, it is possible to plan goals of treatment and choose an appropriate dressing regimen.

Dressings selection will depend on several factors:

- Moisture balance (exudate volume too high or too low)
- Oxygen balance within the wound
- Presence of infection
- Tissue type within the wound bed
- Acceptability to patient
- Supports self management.

PROPERTIES OF AN IDEAL DRESSING

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WHAT DO I WANT THE DRESSING TO DO?

Goals may include one or more of the following:

- Debridement of slough/necrosis through autolytic debridement
- To protect health granulation/epithelial tissue
- To reduce bacterial bioburden
- To manage exudate effectively
- To reduce odour
- To relieve pain
- To assist patient in self-management of their wound (this may not be appropriate for everyone).

PROPERTIES OF AN IDEAL DRESSING

- Absorbs exudate and retains it effectively
- Atraumatic removal
- Maintains a moist wound environment without maceration
- Atraumatic material
- Non-toxic
- Does not leave fibres in the wound bed
- Protects the wound from physical damage
- Provides thermal insulation and maintains an optimum temperature for wound healing
- Permeable to water but not bacteria
- Biodegradables
- Cost effective
- Supports self care where appropriate.

WHAT DO I CONSIDER WHEN SELECTING THE RIGHT WOUND DRESSING?

- Wound size and depth
- Anatomical location of wound
- Tissue types present in the wound
- Exudate volume and viscosity
- Presence or absence of infection
- Pain and trauma at dressing change
- Patient sensitivities or contraindications
- Availability of the product
- Patient choice / lifestyle
- Cost effectiveness.

CHOOSING THE RIGHT DRESSING ACCORDING TO WOUND CHARACTERISTICS

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MOISTURE BALANCE

MOISTURE BALANCE

- A high volume of wound exudate is associated with a wide range of acute and chronic wounds
- Excessive exudate production that is managed inadequately can contribute to wound enlargement and peri-wound skin damage
- Insufficient exudate production may delay wound healing, e.g. by delaying autolytic debridement
- Different types of dressings have different degrees of absorbency and different ways of managing exudate (Davies, 2012).

MOISTURE BALANCE: MODERATE TO HIGH EXUDATE VOLUME

Wound goals: to manage exudate effectively and prevent peri-wound maceration

Examples of dressing types to facilitate correct environment	Practice points
Dressing selection will depend on amount and consistency of exudate. **Moderate exudate:** Foam, alginate, hydrofibre or superabsorbent dressings **High exudate:** Hydrofibre, superabsorbent polymers (SAPs) dressings, Negative Wound Pressure Therapy (NWPT).	Foam dressings: Made from synthetic materials such as polyurethane or silicone. Foams may vary widely in their ability to manage exudate. Gel-forming dressings: Alginates and carboxymethylcellulose (hydrofibre), absorb exudate to form a gel. Certain alginates also promote haemostasis. Hydrofibre dressings lock bacteria and exudate within the dressing reducing lateral spread and preventing skin maceration. Some superabsorbent dressings contain polyacrylate polymers which are highly absorbent. NPWT devices differ in size and design, with some using fluid collection canisters and others being canister free.

MOISTURE BALANCE: LOW EXUDATE VOLUME / DEHYDRATED WOUND BED

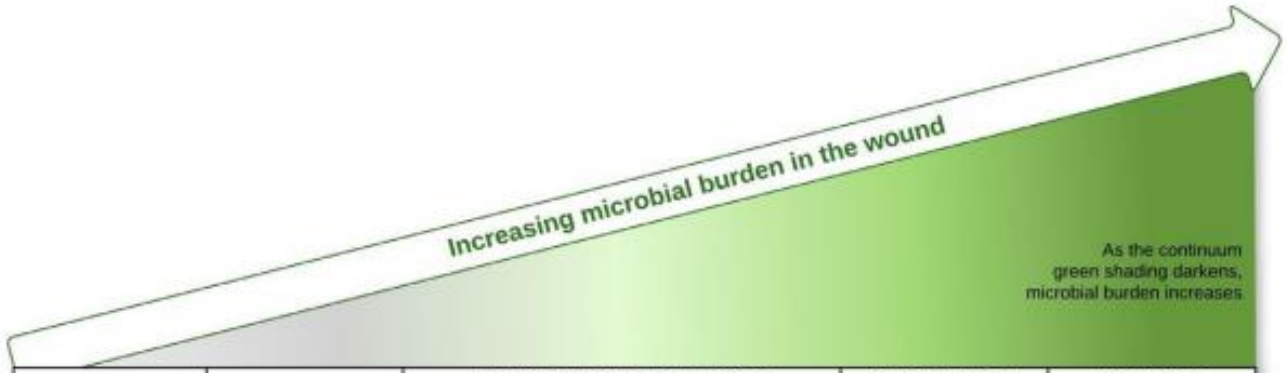
Wound goal: to rehydrate wound bed

Examples of dressing types to facilitate correct environment	Practice points
Hydrogels	Available as a gel or sheet form. Some sheet forms have demonstrated ability to reduce wound pain. Some hydrogel preparations contain antimicrobials such as PHMB.
Hydrocolloids	Occlusive dressing that promotes a moist wound environment and autolytic debridement. Not suitable for wounds that are infected due to potential for bacterial proliferation in the occlusive environment. May cause slight odour.
Semipermeable films	Permeable to water vapour, allows visualisation of the wound. Some available with an island to absorb minimal exudate. Requires careful removal as can cause skin stripping if used on fragile skin.

PRESENCE OF INFECTION OR BIOFILM WITHIN THE WOUND

UNDERSTANDING WOUND MICROBIAL BURDEN

- The International Wound Infection Institute (IWII) wound infection continuum provides a framework to assess the impact microorganisms are having on a host (IWII, 2022)
- Regular assessment can help prevent infection and early intervention may stop problems from escalating (IWII, 2022).



CONTAMINATION	COLONISATION	LOCAL WOUND INFECTION COVERT (subtle)	LOCAL WOUND INFECTION OVERT (classic)	SPREADING INFECTION	SYSTEMIC INFECTION
• Microorganisms are present within the wound but are not proliferating • No significant host reaction is evoked • No delay in healing is clinically observed	• Microorganisms are present and undergoing limited proliferation • No significant host reaction is evoked • No delay in wound healing is clinically observed	• Hypergranulation • Bleeding, friable granulation • Epithelial bridging and pocketing in granulation tissue • Increasing exudate • Delayed wound healing beyond expectations	• Erythema • Local warmth • Swelling • Purulent discharge • Wound breakdown and enlargement • New or increasing pain • Increasing malodour	• Extending induration • Spreading erythema • Lymphangitis • Crepitus • Wound breakdown/ dehiscence with or without satellite lesions • Inflammation, swelling of lymph glands	• Malaise • Lethargy or nonspecific general deterioration • Loss of appetite • Fever/pyrexia • Severe sepsis • Septic shock • Organ failure • Death

INFECTION PREVENTION AND MANAGEMENT

A wound infection prevention and management plan aims to:

- Optimise the individual host response (e.g. best management of any comorbidities, e.g. diabetes)
- Reduce local microbial burden (e.g. with topical antiseptics or antimicrobial dressings)
- Promote a positive wound healing environment (e.g. psychological support, clean environment) (IWII, 2022).

USE OF ANTIMICROBIAL DRESSINGS

- Indiscriminate use of antimicrobial dressings (AMDs) and antibiotics can lead to increased cost and potential risk of bacterial resistance
- Decision to use an AMD dressing should be based on clinical assessment of the wound and the patient
- AMDs should be reviewed regularly (at least every two weeks) for effectiveness
- AMDs should not be continued indiscriminately if there is no response.

BIOFILM MANAGEMENT

- Biofilms are planktonic bacteria encased in a polymeric substance which adheres to the wound bed
- They have increased resistance to antimicrobials / antibiotics and are protected from the host response, so are not removed by white blood cells such as neutrophils
- A combination of strategies may be needed to reduce the formation of biofilm, such as frequent debridement to disrupt and remove the biofilm from wound bed. Followed by application of topical antimicrobial to eradicate wound bacteria and prevent reformation of biofilm.

DRESSINGS TO ADDRESS INFECTION OR BIOFILM

Wound goal: to reduce bacterial bioburden

Examples of antimicrobial dressings	Practice points
Iodine Variations including ointments, impregnated gauze, paste and ointments containing cadexomer polyethylene glycol have some debridement properties.	Broad spectrum • Due to possible systemic absorption, not recommended for large wounds or long-term use • Contraindicated in renal disease, before or after radio-iodine, pregnancy or breastfeeding babies under six months • Use with caution in thyroid disease • Not to be used if iodine sensitive.
Honey Variations include tulles, ribbons, ointments and alginates.	Broad spectrum • Deodorising properties • Promotes autolytic debridement • Caution in patients with honey or bee venom allergy • May cause pain due to osmotic effect of the dressing

DRESSINGS TO ADDRESS INFECTION OR BIOFILM

Wound goal: to reduce bacterial bioburden

Examples of antimicrobial dressings	Practice points
Silver dressings Variations include alginates, foams, hydrofibres, wound contact layers, charcoal containing dressings,and creams	• Availability of silver and mode of action varies between brands • Ability to absorb exudate varies between brands • Some silvers are contraindicated in pregnancy or in newborns, e.g. Flamazine cream • Should be removed before radiotherapy-ray diathermy or MRI scan • Check for silver sensitivities
Polyhexamethylene biguanide (PHMB) Variations include foams, cleansing solutions and hydrogels	• PHMB cleansing solution and gel contains a surfactant which can assist in the removal of debris and biofilm • Low cellular toxicity

DRESSINGS TO ADDRESS INFECTION OR BIOFILM

Wound goal: to reduce bacterial bioburden

Examples of antimicrobial dressings	Practice points
Octenidine dihydrochloride Variations include cleansing solution and wound gel	Broad spectrum • Surfactant within the cleansing solution contains a surfactant to assist in removal of biofilms • Low cellular toxicity
Dialkylcarbamoyl chloride (DACC) Variations include ribbon, absorbent pad, hydrogel and foam	Hydrophobic fatty acid coating binds bacteria into dressing and are removed on dressing change

DRESSINGS TO ASSIST IN MANAGING THE TISSUE TYPE WITHIN THE WOUND

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TISSUE MANAGEMENT: HEALTHY VS DEVITALISED TISSUE

Healthy Granulation tissue:

- Pink/red in colour
- Moist
- Has a bumpy or cobblestone appearance

Slough:

- Yellow/tan or brown in colour
- Can be soft, wet, dry, stringy or sticky

Necrosis:

- Black/tan/brown in colour
- Dry/leathery
- Can be firm or soft

TISSUE MANAGEMENT

The presence of devitalized tissue can result in:

- Malodour
- Increased volume of exudate
- Increased risk of inflammation and infection
- A physical barrier to healing
- Reduced quality of life (Gray et al, 2010; Strohal et al, 2013).

TTISSUE MANAGEMENT: DEVITALISED TISSUE

Wound goal: to facilitate autolytic debridement

Examples of dressing types to facilitate autolytic wound debridement	Practice points
Hydrogels, hydrocolloids, hydro-response and honey-based dressings **Caution:** Not all wounds will be suitable for autolytic debridement. Dry necrotic wounds on feet, heels or toes where vascular status has not been confirmed should not be conducted without expert advice.	• Uses the body's own enzymes and moisture, making it gentle and selective for devitalized tissue • Painless and non-invasive compared to other methods • Helps maintain a moist environment that supports healing • Easy to perform and can be managed in various care settings • Slower process compared to surgical or enzymatic debridement • Not suitable for infected or heavily exuding wounds • May increase risk of infection if necrotic tissue remains too long • Requires frequent monitoring to assess wound progress.

TISSUE MANAGEMENT: DEVITALISED TISSUE

Wound goal; to facilitate bio-surgical debridement

Examples of dressing types to facilitate bio-surgical debridement	Practice points
Larval debridement	• Effectively removes necrotic tissue through selective enzymatic debridement • Helps reduce bacterial load, including antibiotic-resistant strains • Can stimulate granulation tissue formation and promote healing • Some patients find the idea or sensation of maggots unpleasant or distressing • May cause mild discomfort, itching, or increased exudate • Requires containment and careful dressing application to prevent larvae escape • May be less effective in dry wounds or wounds with poor oxygenation

TISSUE MANAGEMENT: EPITHELIAL AND GRANULATION TISSUE

Wound goal: protect healthy granulation and epithelial tissue

Examples of dressing types to protect epithelial and granulation tissue	Practice points
Non-adherent wound contact layer	• Conforms to shape of wound • Porous to allow exudate to pass through to secondary dressing • Consider silicone coated product if the wound bed and surrounding skin is fragile

TISSUE MANAGEMENT: WOUND ODOUR

Wound goal: effective management of odour

Examples of dressing types to manage odour
Activated carbon dressings
Metronidazole gel
Cinnamon dressings

DRESSINGS THAT SUPPORT THE WOUND ENVIRONMENT

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SUPPORT

- Strategies that support the wound bed
- The most common reasons for the wound environment to become unbalanced are:
  - Excessive matrix metalloproteinases (MMPs)
  - An altered pH
  - Out of control pro-inflammatory mediators
  - A lack of growth factors or collagen
- Hard-to-heal or chronic wounds can either fail to go through the normal chain of events or get stuck in the inflammatory phase.

SUPPORTING THE WOUND ENVIRONMENT

Wound goal: create a supportive wound environment to stimulate healing

Examples of dressing types to reduce Matric metalloproteinases (MMPs) within the wound	Practice points
Hydrofibres / alginates / superabsorbent polymers	These dressings absorb exudate and bind MMPs into the dressing matrix locking them away from the wound bed
Cellulose and collagen dressings	Gels on contact with exudate, inactivates proteases and protects growth factors
Lipidocolloid dressing (TLC-NOSF)	Reduces excessive MMPs
Negative Wound Pressure Therapy (NPWT)	NWPT removes exudate and bacteria from wound and has been found to reduce wound oedema and stimulate angiogenesis

ADDRESSING OXYGEN BALANCE WITHIN THE WOUND BED

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OXYGEN BALANCE

- Hypoxia is a common cause of poor wound healing (Hu et al, 2020)
- Oxygen is needed during wound healing because of the increased demand for reparative processes (Schreml et al, 2010)
- Conditions, such as small and large blood vessel disease, hypoxia and ischaemia, can all impact on the delivery of oxygen (Gottrup et al, 2017; Atkin et al, 2019).

DRESSINGS TO SUPPORT OXYGEN BALANCE

Wound goal: enhance local oxygen delivery within the wound environment

Examples of dressing types to facilitate correct environment	Practice points
Oxygen delivered via oxygen delivery system Oxygen transfer via haemoglobin	Not all wounds will require dressing to support oxygen balance. Wounds with a poor vascular supply should be referred to vascular team for revascularization where feasible.

WHAT TO CONSIDER IF A PATIENT WISHES TO UNDERTAKE SUPPORTED SELF MANAGEMENT

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SUPPORTED SELF MANAGEMENT

- **Assess suitability:** Only promote self-care for wounds that are suitable. Wounds that are hard to access or at risk of rapid deterioration may require closer professional oversight
- **Check capability:** Assess the patient's understanding and ability to carry out safe dressing changes, recognise warning signs, and know when to seek help, bearing in mind that the patient's capacity may change over time
- **Educate and support:** Provide clear training, written guidance, and ongoing access to advice
- Ensure that the patient/carer is able to undertake dressing regimen safely and avoid complex dressing regimens
- **Collaborate:** Create a care plan that fits the patient's goals and daily routine
- **Monitor progress:** Arrange regular reviews to assess healing and adapt care if needed.

REASSESSMENT

Regular reassessment is essential within an appropriate timeframe.

The review frequency depends on the wound type and expected outcomes. For example, infected wounds treated with antimicrobial dressings require more frequent assessment than granulating wounds progressing to healing.

- Reassessment is also required if there are changes in the wound environment, such as:
  - Development of infection or devitalised tissue
  - Resolution of infection, making the current dressing unnecessary
- Wounds can change over time, and dressing choices should be adjusted based on improvement or deterioration.

CONCLUSIONS

- A **holistic patient assessment** will assist in diagnosis and identify possible barriers to healing
- Use a structured decision tool to plan care and guide appropriate dressing selection such as **MOIST**
- Ensure the **dressing properties matches the healing goals** (e.g. moisture balance, infection debridement, protection)
- Take into account the patient's **comfort**, **allergies**, and **lifestyle** (e.g., mobility, adherence)
- **Review and reassess** dressing effectiveness regularly as the wound condition changes.

INTRODUCING THE NEW PRODUCT AND DRESSING MODULES

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NEW MODULES

The modules present product and dressing selection guidance in a fun, animated way.

Four new modules covering:

- Absorbent foam dressings
- Negative pressure wound therapy
- Gelling fibre dressings
- Silicone foam dressings


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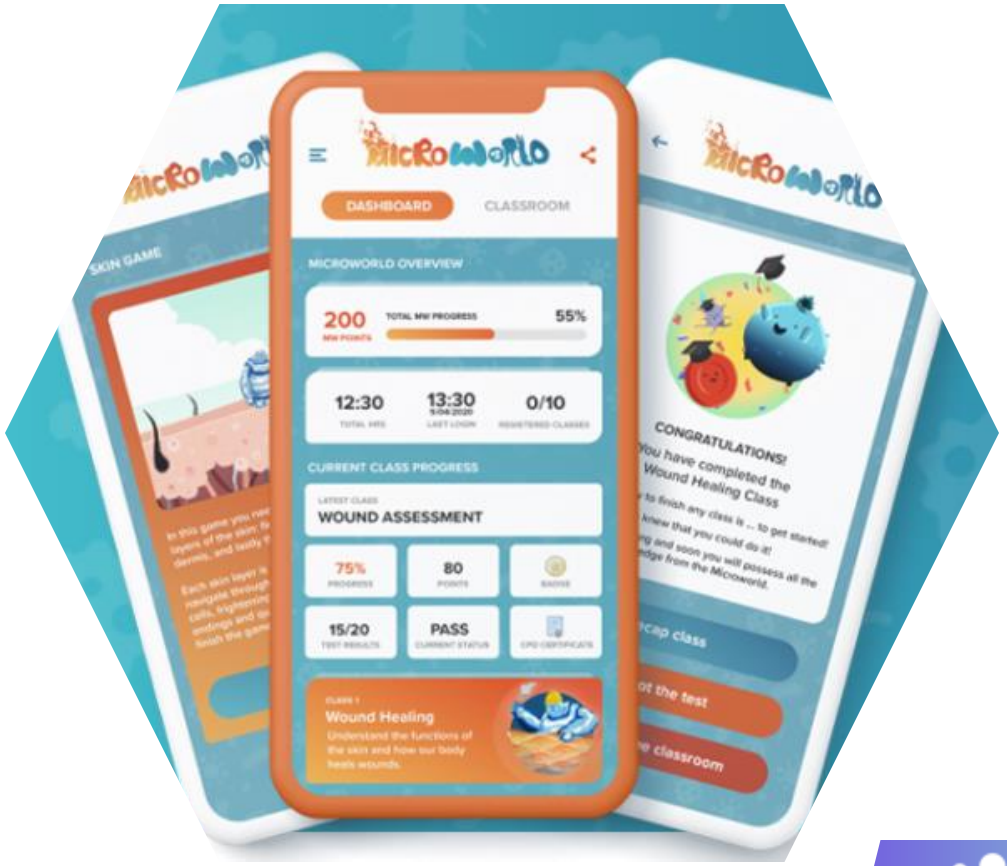

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