

How to...

Top tips for wound dressing selection



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There are a myriad of dressings available to manage chronic wounds and, as a result, it can be quite daunting for the clinician to make a decision as to the 'best' dressing for a given wound at a given time. Understanding the basic principles of wound management and coupling that with knowledge of the dressing characteristics can help to make the decision-making process easier. From a dressing perspective, the overarching goal is the filling of wound space if needed, and providing the optimal balance of moisture at the wound surface, thereby protecting the surrounding skin. From a patient's perspective, there are a number of considerations to ensure that the selected dressing enhances wellbeing and concordance^[1].

There are numerous specialty dressings available that combine various attributes to enhance wound healing. For the purposes of this paper, dressings are described as primary where materials are placed into the wound and interact with the actual wound surface, while those described as secondary refer to dressings that cover and secure the primary dressing in place.

The commonly used dressing categories, excluding gauze and other cotton packing materials, include transparent film dressings, hydrocolloids, hydrogels (amorphous and sheet), calcium alginates and foams.

Transparent film dressings

These are usually clear polyurethane membranes with a semipermeable adhesive surface that adhere well to dry skin. While they can be used as primary or secondary dressings, it is important to remember that they have no ability to absorb and wound exudate will accumulate under them. While this may be desired to some extent for autolytic debridement and maintenance of a moist wound environment, there is risk of maceration (over-wetting of the skin) and leakage.

Film dressings have the characteristic of being moisture/vapour permeable, allowing some moisture and gas evaporation through the dressing, as well as being impermeable to moisture and contamination from the environment or patient.

Films are often used as a secondary protective dressing, which creates a waterproof protection from incontinence, as well as allowing the patient to shower. The frequency of dressing change can be as long as seven days, as fluid begins to accumulate, or at the frequency required by a primary dressing^[2].

Hydrocolloid dressings

These are self-adhering, 'wafer'-type dressings composed of pectin, carboxymethylcellulose and adhesives. When the 'body side' of the dressing interacts with the fluid exuding from the wound bed, a gel is formed at the wound interface, creating a moist environment. The part of the dressing adherent to the intact skin will remain intact until the exudate level overwhelms the dressing, at which time it will begin to migrate over intact skin towards the dressing edge. This is visible from top of the dressing as it hydrates and indicates that the dressing should be changed.

Hydrocolloid dressings are indicated for wounds that are low-to-moderately exuding, and due to their rather occlusive nature are not recommended for use on infected wounds. The dressing can be left in place up to 7 days depending on the wound type, but the average dressing frequency is three times per week^[3].

Hydrogels

Hydrogels are moisture-donating materials composed of polymers that can, depending on the formulation of the cross-linking, be manufactured as amorphous or 'flowing', or sheet applications. They generally have additional water or glycerin for moisture, and may have other ingredients to add viscosity and minor absorptive capabilities, hypertonic sodium for enhanced fluid shift to aid in autolytic debridement, or the gel may be used as a carrier for antimicrobial agents or growth factors. The high moisture content has the ability to hydrate a dry wound surface fairly rapidly. Hydrogels are indicated for wounds that are dry. Amorphous gels are generally reapplied daily while sheet hydrogels are usually changed 2–3 times a week^[4].

Calcium alginates

Calcium alginates are absorbent dressings comprising non-woven fibres derived from brown seaweed, composed primarily of calcium salts of alginic acid. In their dry state, they are pad or ribbon dressings that feel soft and fluffy, almost felt like. When they come into contact with sodium-rich fluid, such as wound exudate, there is an exchange of sodium and calcium ions creating sodium alginate gel, which will conform intimately with the wound bed, maintaining a moist environment. Calcium alginates are generally changed according to the level of exudate.

Hydrofiber®

Hydrofiber® (ConvaTec) dressings are made of sodium carboxymethylcellulose fibres. These dressings have the ability to absorb moderate to large amounts of wound exudate, making them ideal for draining wounds of all sizes. They are available as rope/ribbon dressings that can be packed into undermined areas or tracts of wounds. Wound exudate levels should be monitored on a regular basis, as a decrease in fluid can cause the dressings to dry out and become painfully adherent to the wound bed. Hydrofiber dressings are also changed according to the level of exudate^[5].

Foams

Foam dressings are generally made from polyurethane with or without a film outer layer to prevent 'strike-through' of exudate. There are many other differences between the various foam dressings, including thickness and the ability to donate rather than absorb moisture. They are available with or without adhesive borders, as well as with standard adhesive or silicone as the adhesion material, which aids in painless and atraumatic removal.

Foam dressings may be used in all wound types, and the frequency of change will be dependent upon the primary dressing if the foam is being used as the secondary dressing, or the amount of wound exudate if the foam is used as a primary dressing^[6].

Tips for practice

There are many other dressings available that combine two or more of the attributes of the core primary dressing types. Clinicians need to understand the mode of action of the materials involved and recognise that wound healing is a continuum requiring frequent reassessment of the wound and the need to change the dressing regimen as required in order to meet the changing goals of wound management. To make dressing

choice easier, the following tips for practice, based on experience and a number of key references (see further reading panel at the end of the article), can be used to assist in the process.

1 Dressing choice must begin with a thorough patient and wound assessment:

wound dressings are not 'one size fits all'. Trying to make the wound fit the dressing will frequently end with less than optimal results. Assessment of the patient with a chronic wound involves an holistic approach and there are many facets of evaluation that go beyond purely the physical make-up of the wound, for instance, the appropriate diagnosis of the wound aetiology, patient co-morbidities, nutrition, oxygenation, etc, must be considered. However, for the purpose of wound dressing selection it is the wound and the patient's needs that count.

2 Location:

the location of the wound on the patient's body will inevitably impact on the choice of primary dressing. The method selected for securing the dressing so that it will remain in place for the desired length of time, as well as protect the periwound skin, will be determined by the location.

There are a number of simple measures that can be used to secure the primary dressing. If the wound is on a lower extremity it is simple enough to secure the primary dressing. Wounds in other areas such as on the trunk or close to a joint, present greater challenges and it is important to assess how the patient moves as this will affect the ability of the dressing to stay in position.

3 Size:

the size of the wound will determine the size of the dressing required to adequately fill and cover the wound surface. The size of the wound can also contribute to the decision-making and goal setting from a cost effectiveness standpoint. For the most part, dressings come in a variety of sizes to meet most wound needs, but there are additional costs and challenges to consider when faced with a wound that is very large.

Negative pressure wound therapy (NPWT) may be warranted until the wound becomes a more manageable size or perhaps surgical intervention becomes an option. Another key determinant is the presence of undermining or sinus tracts that must be loosely packed or filled.

4 Exudate:

The amount and type of exudate is a fundamental consideration in dressing selection. Choosing a dressing material that will adequately handle the wound drainage in a way that it is managed and then becomes wicked into a

Further reading

Ovington L. Dressings and Skin Substitutes. In: McCulloch J, Kloth L. Eds. *Wound Healing, Evidence-Based Management* 4th Edition. Philadelphia, PA FA Davis Company; 2010: 180.

Krasner DL, Sibbald RG, Woo KY. Wound dressing product selection: a holistic, interprofessional, patient-centered approach. In: Krasner DL, Rodeheaver GT, Sibbald RG, Woo KY. *Chronic Wound Care, A Clinical Source Book For Healthcare Professionals* 5th Edition. Malvern, PA HMP Communications, 2012: 223.

Sussman, G. Management of the wound environment with dressings and topical agents. In: Sussman C, Bates-Jensen B. *Wound Care, A Collaborative Practice Manual for Health Professional*, 4th Edition. Philadelphia, PA Lippincott Williams & Wilkins 2012: 502.

Hess CT. Skin and Wound Care Products in *Clinical Guide to Skin & Wound Care, 7th Edition*. Philadelphia, PA, Lippincott Williams & Wilkins, 2013: 137.

Baranoski, S, Ayello EA, McIntosh A, Montoya L, Scarborough, P. Wound treatment options. In: Baranoski S, Ayello EA. *Wound Care Essentials, Practice Principles* 3rd Edition. Philadelphia, PA Lippincott Williams & Wilkins 2012: 181.

References

1. International consensus. *Optimising wellbeing in people living with a wound*. Wounds International, 2012. Available at: <http://www.woundsinternational.com>
2. Sussman G. Technology update: Understanding film dressings. *Wounds International* 2010; 1(4). Available at: <http://www.woundsinternational.com>
3. Queen D (2009) Technology update: understanding Hydrocolloid dressings. *Wounds International* 1(1). Available at: <http://www.woundsinternational.com>
4. Cowan T (ed). *Wound Care Handbook*. Mark Allen Healthcare, London; 2012
5. Queen D. Technology update: Understanding Hydrofiber® Technology. *Wounds International* 2010; 1(5). Available at: <http://www.woundsinternational.com>
6. Sussman G. Technology Update: Understanding foam dressings. *Wounds International* 2010; 1(2). Available at: <http://www.woundsinternational.com>

secondary dressing is key. This prevents pooling of exudate on the wound surface, which can become a nidus for bacterial growth, as well as a source of leakage and maceration of the surrounding skin.

5 Tissue type: The predominant tissue type on the wound surface will determine the intervention to either improve or maintain the overall tissue health. If there is a predominance of necrotic tissue and the goal is debridement, then a dressing that either creates or improves the moist environment needed for autolytic debridement would be required. On the other hand, if there is clean and granulating wound then a dressing that maintains the current ambient moisture level would suffice. The topography of the wound surface should also be considered in choosing a dressing that will adequately conform and maintain intimate contact with the entire wound.

6 Surrounding skin: The condition of the surrounding skin should be considered when choosing a method of adherence for the wound dressing. An important consideration is the risk of soiling the dressing if, for example, the patient is incontinent. In this case, it will be critical to choose a protective secondary dressing and make provisions to manage the patient's incontinence. When using tapes to secure a dressing, it is important to ensure that these will adequately adhere, be waterproof if necessary, and slide easily under clothing or against bed linen.

Additionally, the use of secondary dressings with integrated borders or transparent film products can add additional security in the areas that are anatomically awkward. Lastly, the use of spray- or wipe-on barrier products can enhance adherence and may protect the periwound skin from trauma and stripping of skin. For particularly sensitive or fragile skin, the use of silicone dressings may protect from trauma on removal.

7 Compatibility with support needs: The wound dressing is only one part of a comprehensive plan for wound management. Addressing the underlying causative factor of the particular wound may involve the use of therapeutic modalities, such as compression or contact casting. The choice of dressing must take into consideration the mode of action, as well as the frequency of dressing change so that the chosen dressing works effectively with the accompanying therapy.

8 Addressing wound bioburden: The presence or potential threat of bacterial contamination should be considered at every dressing change.

Cleansing with isotonic saline, with adequate pressure to disrupt surface debris, can be performed at each dressing change. The use of an antiseptic or antimicrobial cleanser may be warranted, particularly in contaminated wounds. If the wound odour, exudate amount or colour, tissue appearance or pain level of the patient changes, it may indicate an increasing level of bacteria on the surface of the wound.

Intervention with an antimicrobial dressing may be necessary to reduce bacterial burden. There are a number of antimicrobial dressings available — silver being the most prevalent — and they are available in many dressing categories. Intervention with these dressings at the correct time may avert potential wound infection and the need for higher levels of care and antibiotics.

9 Avoidance of pain and trauma at dressing changes:

Consideration of patient comfort when changing dressings must be paramount in dressing selection. Patients present with their own perceptions of pain and caregivers must make every effort to use dressings that will not exacerbate this. The use of contact layers or non-adherent materials, such as silicone-based dressings, can ensure that the least amount of pain is inflicted during something as routine and regular as a wound dressing change. Moisture-retentive dressings tend to be less painful and the development of a plan of care using moist wound healing has been shown to mitigate pain during care.

10 Quality of life: Consideration of the skill set of the person who will be performing dressing changes must be considered when selecting a treatment protocol for the patient with a wound. The patient at home who may be cared for by a spouse or family member will need a treatment plan that is realistic in this setting and that will not overtax an already potentially stressed loved one. Support from community nurses is crucial to successful outcomes.

Healthcare providers should ensure that routine assessment of the treatment plan is timely and comprehensive. Additionally, the availability of dressings must be assessed in the context of the resources of the patient and site of care.

Conclusion

Care of the patient with a chronic wound demands a team approach, including the healthcare team and the family, with the patient at the centre of any decision-making. The development of a comprehensive plan utilising these 10 tips as a guide will help to make dressing changes as tolerable and acceptable to the patient as possible.