

# WOUND CARE MANAGEMENT: WHERE DO YOU BEGIN?



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**S**kin is the largest organ in the body, yet many practitioners fail to recognize the important functions the skin provides. In general, the skin acts as a protective covering for the body. The skin regulates the body temperature with sweat and evaporation processes. This process also aids in the excretion of waste materials. The acid mantle protects the skin from bacteria. The sebaceous glands keep the skin lubricated and the fat cells insulate and protect the inner organs. The nerve endings add sensation in order to protect the body from trauma.<sup>1</sup>

When the skin is compromised special care is imperative. There are many products on the market for caregivers to use. The selection from the vast number of products can be problematic if there is not a clear understanding of the goals of the wound care treatment plan and how this can be facilitated with specific products designed to meet these goals. The wound care treatment process must be embedded in a framework consisting of assessment, establishment of treatment goals, implementation, and evaluation in a holistic inter-professional manner which focuses on treating the wound etiology, the patient-centred concerns, and an appropriate wound healing approach.<sup>2</sup>

This article will attempt to put the puzzle pieces of treating a wound together by briefly reviewing common wound etiologies, defining pressure ulcer staging, describing the paradigm for wound management, and describing wound care products used in the wound healing process.

There are a number of wound etiologies which can be challenging to manage. A systematic approach is necessary to direct the care for any break in the skin integrity including (but not limited to) skin tears, vascular and diabetic ulcers, incontinence dermatitis, surgical dehiscence, malignant wounds, and pressure ulcers. According to an older study by Woodbury and Houghton the prevalence for a pressure ulcer in Canadian acute care centres is 24–26%; and in a more recent study, the USA prevalence is reported at 12.3%.<sup>3,4</sup>

A pressure ulcer is localized 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.<sup>5</sup>

Pressure ulcers can be classified according to the following six stages (Figure 1):

1. A deep tissue injury (DTI) is a purple or maroon localized area of discoloured intact skin or a blood-filled blister due to damage to the underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, or warmer or cooler as compared to adjacent tissue.<sup>5</sup>
2. A stage 1 pressure ulcer is described as intact skin with non-blanchable redness of a localized area usually over a bony prominence. Darkly pigmented skin may not have visible blanching but the skin's colour will differ from the surrounding area.<sup>5</sup> As the severity of tissue damage increases, the number classification of the pressure ulcer also increases.
3. The stage 2 pressure ulcer is described as a partial thickness loss of dermis presenting as a shallow open ulcer with a red-pink wound bed, without slough. This wound may also present as an intact or open/ruptured serum-filled blister.<sup>5</sup>
4. A stage 3 pressure ulcer is described as a full thickness tissue loss. Subcutaneous fat may be visible, but bone tendon or muscles are not exposed. Slough may be present but does not obscure the depth of tissue loss. The wound may include undermining and tunneling.<sup>5</sup>
5. A stage 4 pressure ulcer is the most severe pressure ulcer. This wound is described as a full thickness tissue loss with exposed bone, tendon, or muscle. Slough and eschar may be present on some parts of the wound bed. Often the wound bed has areas of undermining and tunneling.<sup>5</sup>
6. An unstageable ulcer is a full thickness tissue injury in which the base of the ulcer is covered by devitalized tissue such as yellow, gray, or tan slough or eschar. It is described as unstageable as the extent of tissue injury is unknown, and therefore cannot be classified.<sup>5</sup>

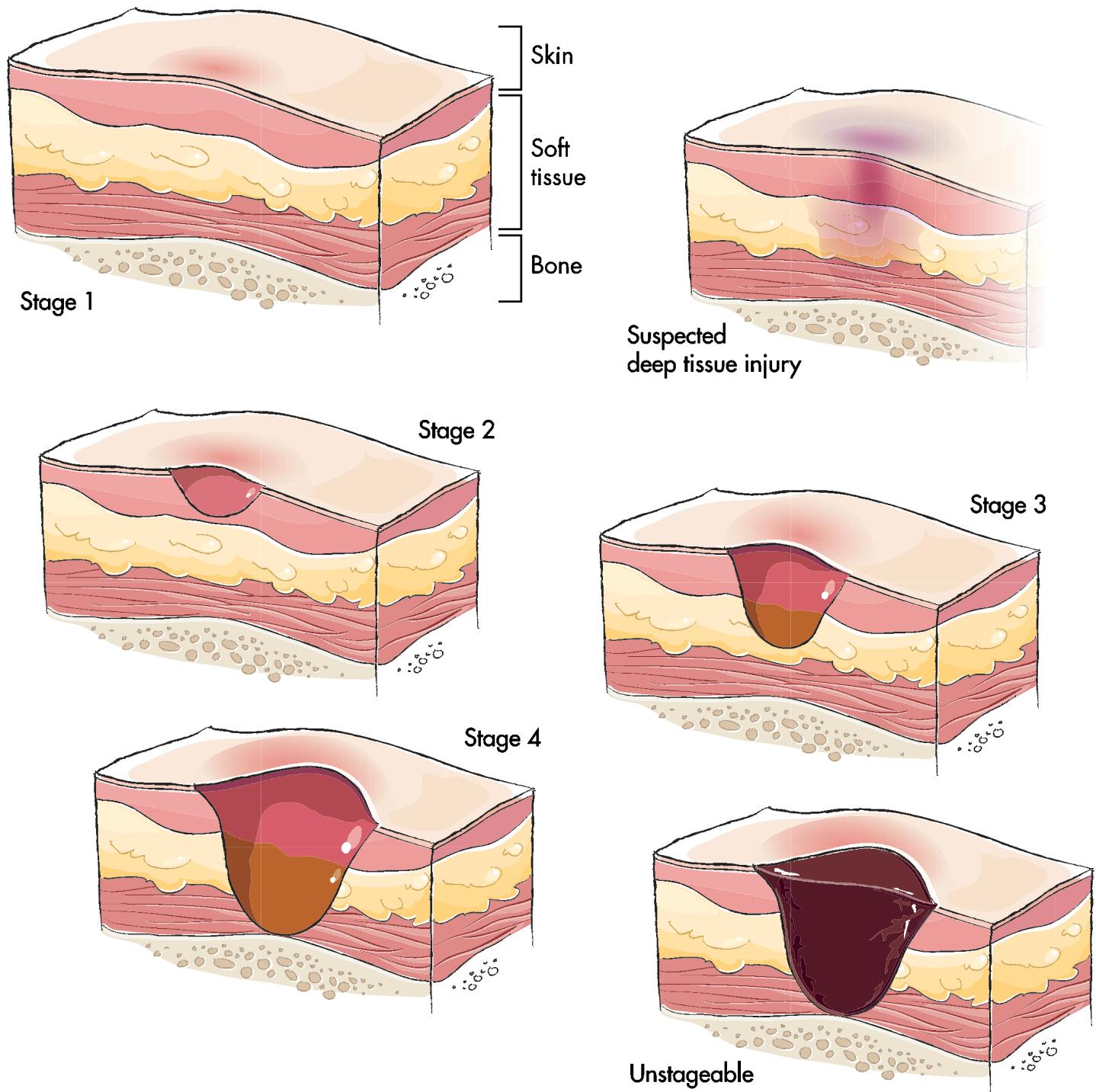


Figure 1. The six stages of pressure ulcers.

Pressure ulcer staging is a well-known assessment skill among caregivers. Documentation of a healing pressure ulcer can often be a difficult initiative. Reverse staging should not be used to describe the healing process of a wound as it does not accurately reflect what has physiologically occurred in the ulcer. For example, a couple of months ago, one of your patients had a stage 4 pressure ulcer which was deep and exposing bone. As this area granulates and closes it is important to classify this wound as a “healing stage 4” pressure ulcer. This will indicate to all care providers the extent of tissue injury incurred.<sup>5,6</sup> “Treat the whole patient, not simply the hole in the patient” is a common saying within the wound care world.<sup>7</sup> It is a reminder to clinicians that the patient’s history, and a thorough assessment of the presenting condition need to be part of the treatment process in order to heal the wound and meet the patient-centred needs. With this in mind, the following hypothetical case will lead the reader through the process of assessment, planning and implementing care, and evaluating the outcome:

*It is a busy Friday afternoon when your pager begins to alarm. It is the emergency department informing you that an 82-year-old woman (Mrs. S) has been admitted with syncope, and needs an urgent wound care consult and treatment recommendations. The emergency nurse reports this patient was found by EMS in her bathtub after collapsing a couple of days prior. Concerned neighbours called EMS after not seeing her for days, and became worried when she did not answer her phone or door. She has sustained a concussion, multiple pressure ulcer injuries, and abrasions. The wound care nurse for your hospital is away today, and the staff is requesting skin and wound care guidance from you. What are you going to do first?*

Regardless of which area of the health care system you are working, acute care, long-term care, home care, rehabilitation, or complex continuing care, wound care demands and proficient management are issues we are all faced with.

As we begin to assess this situation, it is important to appreciate the patient’s history, physical head to toe examination, as well as the intrinsic and extrinsic factors that will affect this patient’s wound healing. The intrinsic factors are: age, body systems, chronic disease, perfusion, confusion and wounds.<sup>8</sup> The extrinsic factors are medications, nutrition, physiological stress, and wound condition.<sup>8</sup> A focused skin assessment and a pressure ulcer risk assessment are important components to identify issues and risk factors and incorporate the findings into the plan of care.<sup>9</sup> Mrs. S is an older patient and her age will slow down the healing process. Since the epidermal layer of the skin thins as the patient ages, Mrs. S is at risk for skin tears due to friction and shear to her skin.<sup>8</sup>

From her history, you note she has uncontrolled type 2 diabetes, atrial fibrillation, a right total hip replacement in 2007, and she lives alone. The patient’s head injury is a priority but you spoke to the neurosurgeon and you are assured that this part of Mrs. S’s care is well taken care of.

You begin to systematically examine the patient and the wounds using the paradigm for wound healing.<sup>2,10,11</sup> At first glance, you notice her skin is frail and thin. Mrs. S appears very thin and to your subjective

assessment she is emaciated. You identify three pressure ulcers: an unstageable ulcer on her left hip; a stage 2 ulcer on her left shoulder; and a stage 2 on her left lateral malleolus. The occurrence of pressure ulcers is not surprising since Mrs. S lay in the bathtub for a significant amount of time. As you continue your assessment, you also discover a necrotic ulcer on her right great toe. You recall she has type 2 diabetes and her blood sugar is 28. Lastly, you note an abrasion on Mrs. S’s right shin surrounded by hemosiderin stained skin.

For each wound identified in your clinical assessment, the clinician should have an understanding of the wound etiology, co-factors that may contribute to the wound, and the patient’s ability to heal. A care plan should be developed to address the cause of the wound, the patient-centred concerns (including pain, activities of daily living, psychological and financial needs), and definitive goals of wound care.<sup>2,10,11</sup>

Pain issues in the realm of wound care incorporate both the traumatic injury, as well as psychological stress related to pain issues. Wound pain can decrease quality of life and slow down the wound healing process. Wound pain should be assessed and managed by accurately assessing the pain using appropriate wound products and when necessary analgesic treatment. Besides the psychosocial issues of pain, the environmental issues that need to be assessed are operational, procedural incidental, and wound background. The operational aspects include the débridement process. The gold standard for wound débridement is using the surgical sharp method; once the dead tissue is removed and the certified clinician or physician débrides to functional tissue the patient will experience pain. Even autolytic débridement can cause some discomfort. Many débriding agents are based in a saline solution and salt in the wound can be painful.<sup>2,12</sup>

As the patient’s caregiver you assume all her wounds are painful and that her pain levels should be identified at each wound care treatment. You remember that acetaminophen is usually enough analgesic to manage wound pain. You also recall that you could add codeine but due to her age this is not first-line care for Mrs. S since it could cause constipation. You also recall that Sibbald et al. reported, “Wound pain is both nociceptive and stimulus dependent (gnawing, aching, tender, throbbing) versus neuropathic or non-stimulus-dependent or spontaneous pain (burning, stinging, shooting, stabbing).”<sup>2</sup> Nociceptive pain can be managed with aspirin and nonsteroidal anti-inflammatory drugs advancing to narcotics as required, whereas neuropathic pain often responds to tricyclic agents or other antiepileptic agents.<sup>2</sup>

The wound care paradigm continues with a method to care for the wounds after the cause and patient-centred care issues are identified and plans are in place to address these issues. The wound care paradigm for direct care of the wound is easily remembered with the acronym DIME. This acronym stands for débride, inflammation/infection, moist wound healing, and edge of the wound.<sup>13</sup>

## “D”

The débridement aspect is used to rid the wound of debris. Wounds are gently cleansed with low toxicity solutions such as water, saline, or acetic acid. Healable wounds are débrided using the sharp (surgical),

biological (enzymes or medical maggots), or autolytic methods. It is very important to note that débridement is not indicated for all types of wounds. Health care providers first need to determine if a wound is healable, maintenance, or non-healing. A wound is considered to be healable when all causes and contributing factors which may interfere with healing have been treated and the wound is progressing in a timely fashion. A maintenance wound is potentially healable, but is not progressing due to factors such as patient coherence. A non-healable wound describes a wound in which the cause of the wound cannot be removed.<sup>2</sup>

### "I"

Once the débridement process is complete wounds can be assessed for colonization of bacteria, infection, or inflammation. The caregiver should assess and monitor for infection at each dressing change. This can be done through clinical assessment, wound culture, antimicrobial dressings, or antibiotics if indicated.

The wound assessment steps for superficial infection can be followed using the acronym NERDS. The acronym stands for deciding that the wound is Nonhealable, Exudative, Red and bleeding, has Debris (yellow or black necrotic tissue) on the wound surface, and has a Smell or unpleasant odour coming from the wound. The assessment for deep wound infection is remembered with an acronym. The wound assessment steps for the deep assessment are represented by STONEES. This acronym stands for deciding the Size of the wound has increased, the Temperature has increased, the wound opening (OS) probes to or exposes bone, New or satellite areas of breakdown have occurred, there is Exudate, Erythema, and edema, and the wound has a Smell. If any three NERDS assessment aspects are evident, the care plan should include topical treatment; if any three STONEES aspects are positive, the treatment plan should include systemic antibiotic therapy as well as local wound care.<sup>2,18</sup>

### "M"

The next step in the DIME process is moist wound healing. This process decreases dehydration and cell death, increases angiogenesis, enhances autolytic débridement, increases re-epithelialization, and decreases pain. The cells necessary for angiogenesis and wound healing need moisture to function and will die in a dry environment. As well the moisture insulates the nerve endings and this decreases pain. Even though moisture is required in the wound healing process wound exudate must be balanced and absorbed as necessary. A slight amount of moisture is required to keep the wound base viable. Care plans for wound care need to plan to absorb excess exudate within the dressing while avoiding seepage onto the surrounding skin.<sup>2</sup> Products need to contain existing bacteria and manage odour. Product choice will avoid leakage and minimize dressing frequency. Moisture-retentive products are usually a good choice since they provide enough moisture to allow cells to communicate and remove excess exudate.<sup>2</sup> Some of the generic dressings that can be used to provide moist wound healing are gels, hydrocolloids, salt impregnated gauze, foam, acrylics, alginates, and hydrofibres.<sup>1,2</sup>

### "E"

The next step in the DIME process is to maintain the intact peri-wound skin (edges) and an assessment step in the preparing the wound bed algorithm to determine if epidermal cell migration has begun.<sup>1,2</sup>

The healthy wound edges will promote epithelial migration and wound closure.<sup>2</sup> If the excess exudate is allowed to macerate the wound edges the skin will become fragile, painful, and easily damaged. Wet skin also increases the risk of fungal infection. Often liquid film forming acrylates, ointments, solid window dressings, external collection devices, tapes, hydrocolloids, films, and barriers can be used to manage moisture.<sup>1,2</sup>

**Table 1. Wound Categories**

| Wound Categories | Definition   | Considerations  |
|------------------|--|---|
| Healable         | Capable of closure<br>Underlying cause corrected; related conditions are optimized; wound has adequate perfusion                                   | Proceed with moist wound healing  |
| Maintenance      | Potentially healable<br>Cause of wound is not addressed thereby preventing closure<br>(factors related to patient coherence or health care system) | Situation may change, and needs re-evaluation<br>If etiology and other wound co-factors are corrected wound may be healable<br>Conservative approach which addresses pain and quality of life as goals of care<br>Advanced active wound therapies not indicated<br>May use Dakin's solution or povidone-iodine to control bioburden and odour<br>Goal is moisture and bacterial reduction |
| Non-healable     | Incapable of healing due to inability to treat the underlying cause or related conditions<br>May not have adequate perfusion                       | Conservative approach which addresses pain and quality of life as overall goals of care<br>Moist interactive dressings are contraindicated<br>Débridement on a conservation basis only<br>Advanced active wound therapies not indicated<br>May use Dakin's solution or povidone-iodine to control bioburden and odour<br>Goal is moisture and bacterial reduction                         |

Adapted from Sibbald et al.<sup>2</sup>

**Table 2. Common Dressing Categories and Indications for Use**

| <b>Class/DIME Indication</b>   | <b>Description</b>   | <b>Indications</b>  | <b>Considerations</b>   |
|--|--|---|---|
| Skin sealants<br><i>(edge)</i>   | Liquid transparent film which acts as a protective layer on the skin   | Protect skin from friction, moisture, exudate, tape/adhesive stripping  | Build-up of layers can cause flaking<br>Dries quickly<br>Use alcohol-free products with fragile or broken skin<br>Apply with each dressing change   |
| Films<br><i>(débridement)</i>  | Semi-permeable adhesive sheet<br>Impermeable to water molecules and bacteria<br>Moisture vapour transmission rates varies between manufacturer       | Peri-wound protection, anti-friction<br>For flat partial thickness non-draining wounds as a primary dressing<br>Can be used to stimulate autolytic débridement of dry non-viable tissue   | Should not be used on infected or draining wounds or necrotic heels unless arterial flow has been assessed and débridement is desired<br>Allow 4–5 cm of overlap from the wound margins onto the surrounding skin<br>Wear time up to 7 days   |
| Non-adherent mesh dressings<br><i>(moisture balance)</i>   | Medicated or non-medicated sheets of low adherence mesh<br>Allows drainage to pass through pores into a secondary dressing                           | Use on a wound bed that should not be disturbed, friable, or is extremely sensitive to pain<br>Can also be used on donor sites and partial thickness skin grafts  | Placed in contact with the wound base, and allows drainage to pass through to secondary dressing<br>Wear type varies between manufacturers; however, secondary dressing can be changed prn<br>Not recommended for dry wound bases or in the presence of viscous exudate   |
| Tegaderm<br>Absorbent clear acrylic dressing<br><i>(supports autolytic débridement/moisture balance)</i> | Maintains a moist wound environment<br>Conformable acrylic pad enclosed between two layers of transparent adhesive film                              | Ideal for partial thickness skin injuries, clean, closed approximated surgical wounds, and laparoscopic incisions<br>This dressing can also be used as a secondary (cover) dressing over wound fillers (such as alginate dressings)                               | Extended wear time<br>May be used in combination with different products<br>Do not cut product<br>Transparency allows visualization of small to moderately exuding wounds<br>Use cautiously on fragile skin<br>Should not be used on heavily draining wounds  |
| Hydrogels<br><i>(débridement and moisture balance)</i>   | Polymers with high H <sub>2</sub> O content<br>Available in gels, solid sheets, or impregnated gauze   | Indicated for dry wounds<br>Donates moisture to promote moist wound healing   | Protect peri-wound from maceration<br>Not indicated for use in heavily draining wounds<br>Requires a secondary dressing<br>Do not use solid sheets on infected wounds<br>Applied daily to q2d   |
| Hydrocolloids<br><i>(débridement, moisture balance, edge)</i>  | Occlusive dressings with a polyurethane outer layer to prevent contamination<br>Available in a variety of thicknesses, sizes and shapes<br>Occlusive | Protection from friction, shear, and mechanical trauma from peri-wound tape stripping<br>Absorbs minimal drainage<br>Moisture retentive, supports autolytic débridement<br>Promotes moist wound healing on partial thickness low exuding partial thickness wounds | Odour from product should not be confused with infection<br>Monitor for peri-wound maceration<br>Use cautiously on fragile skin<br>May be used in combination with other products<br>Allow 2–3 cm of overlap from the wound margins onto the surrounding skin<br>May be cut to conform to difficult areas<br>Should not be used on heavily draining or infected wounds<br>Wear time varies based on amount of exudate |
| Calcium alginate<br><i>(débridement, infection control, moisture balance)</i>                            | Sheets or fibrous ropes of calcium sodium alginate (seaweed derivative)<br>Have hemostatic capabilities  | For moderate to heavily exuding wounds<br>Wounds with light bleeding areas  | Should not be used as a packing into tunnelling or undermining where base of wound cannot be visualized<br>Bioreabsorbable<br>Loosely fill wound base; may be layered to fill a deeper wound<br>Requires a secondary dressing<br>Wear time varies based on amount of exudate<br>Not indicated for dry wounds  |
| Foams<br><i>(débridement and moisture balance)</i>   | Non-adhesive or adhesive polyurethane foam<br>May have an occlusive backing<br>May have fluid lock   | Absorbent for moderating draining wounds  | Occlusive foams should not be used on infected wounds<br>Wear time varies<br>Can be used in combination with other dressing materials<br>Can be used as a primary or secondary dressing   |

**Table 2. Common Dressing Categories and Indications for Use (continued)**

| Class/DIME Indication  | Description   | Indications   | Considerations  |
|--|---|---|---|
| Foams ( <i>cont'd</i> )  |   |   | Select a dressing 2–3 cm larger than the wound<br>Wear time varies based on amount of exudate   |
| Charcoal dressings ( <i>moisture balance</i> )                             | Contains odour-absorbent charcoal within the product  | Malodour from infected or malignant wounds  | Decreases odour, but does not treat the cause<br>Seal dressing edges to control odour<br>Some charcoal products can be used in contact with the wound base, and others must be used as a secondary dressing<br>Some products are inactivated by moisture  |
| Hypertonic ( <i>débridement, infection control, moisture balance</i> )     | Sheet, ribbon, or gel impregnated with 18–20% sodium concentrate  | Accelerates autolytic débridement<br>High sodium content will clean wound base<br>Use gel formation on dry necrotic eschar<br>Use solid sheets or ribbon on moist wound bases | May cause a stinging/burning sensation if used on a granular wound base<br>Solid sheets and ribbon are applied dry to wound base<br>Do not moisten with saline or sterile water prior to application<br>Requires a secondary dressing<br>Monitor wound edges for maceration<br>Applied bid to q1–2d   |
| Hydrophilic fibres ( <i>débridement and moisture balance</i> )             | Sheet or packing strip of sodium carboxymethyl-cellulose<br>Converts to a solid gel when activated by moisture (fluid lock)   | Wounds with moderate to large amounts of drainage   | Do not use solid sheet as a packing into tunnelling or undermining where base of wound cannot be visualized<br>Use quilted ribbon in areas of tunnelling<br>Requires a secondary dressing<br>Wear time varies based on amount of exudate<br>Not indicated for dry wounds  |
| Antimicrobials ( <i>débridement, infection control, moisture balance</i> ) | Silver, Inadine, Manuka honey, polyhexamethylene biguanide or cadexomer iodine<br>Many vehicles for delivery through sheets, gels, alginates, foams, paste, mesh, or powder | Critically colonized or infected wounds   | Broad spectrum topical dressings reduce the bacterial load of a variety of pathogens<br>Deeper tissue infections require systemic antibiotics<br>Extended wear time<br>Do not use with known hypersensitivities<br>Use of these dressings should be reviewed q1–2wk and discontinued if critical colonization has been corrected or if they do not demonstrate a beneficial effect after 2–4 wk |

Adapted from Sibbald et al.<sup>2</sup> and Bryant and Nix.<sup>1</sup>

## Next Steps

Remember, topical dressing selection is always considered after a holistic patient history and assessment, with the understanding of the etiology of the wound, and acknowledging the patient-centred concerns. The next fundamental step in the topical wound management is to determine the goals of care. This is accomplished by understanding if the wound is healable, maintenance, or non-healable, and assessing if the co-factors can be addressed. For example, if an individual does not have the ability to heal a wound, the treatment approach will be more conservative. Health care providers need to remember that wound closure may not be the key end result with each wound encountered. Instead, with maintenance and non-healable wounds the treatment goals may include reducing pain, reducing bacterial load, decreased dressing change frequency, and an improving quality of life.<sup>2</sup>

A non-healable wound can be defined as a wound incapable of healing due to poor vascular supply or an inability to treat the underlying cause or related conditions. A maintenance wound can be described

as a potentially healable wound; however, the etiology of the wound is not being addressed thereby preventing closure, such as when a patient with a pressure ulcer refuses to reposition off of the ulceration, or does not have access to pressure management surfaces. If the clinician is unable to determine the healability of the wound, the dressing selection should be based on a maintenance wound program until further evaluations are completed (Table 1).<sup>2</sup>

With so many dressing products available, how does one know which type of dressing to apply? There are many products on the market to help caregivers implement the DIME process. Twelve of the most common dressing categories are: skin sealants, films, non-adherent, hydrogels, acrylics, hydrocolloids, calcium alginates, foams, charcoal, hypertonic, hydrofibres, and antimicrobials. Table 2 describes each product category along with “DIME” model, indication for use and considerations. It is important to note this table contains a summary of general product category information, and it is crucial to refer to each manufacturer’s product information before using specific products. This is not an exhaustive list of wound care categories.

Unique qualities and attributes of specific manufacturers' products, as well specialized dressings to stimulate and advance with wound bed and "edge effect," are not discussed in this article.

Moist wound healing is the cornerstone of the healable wound bed treatment.<sup>14</sup> For wounds that need to maintain a moist environment, a moisture retentive wound care product may be required. Moisture retentive dressings include film dressings, hydrocolloids, acrylic dressings, and hydrogel products. Conversely, for wounds which do not have enough moisture, a product which donates moisture to the wound base, such as isotonic and amorphous gels, is appropriate. At times, the wound bed may need to be protected from trauma (such as with dressing removal), and non-adherent contact dressings will help to minimize pain and protect the wound surface.

For deeper wounds with moderate to heavy exudating conditions the wounds are loosely packed to fill the space to promote tissue granulation from the base upwards as well as preventing against sinus tracts forming. Appropriate dressing selections would include alginate or hydrophilic rope forms and ribbon gauze. Caution is required when packing some rope dressing forms as not all ropes/ribbon have adequate tensile strength to prevent breakage when attempting to remove. For a secondary dressing for a wound with depth, or a more superficial wound, which requires a product with absorption, products such as alginates, foams, hydrofibres, and absorbent pads are most suitable to maintain the correct moisture balance and prevent peri-wound maceration.<sup>1,2</sup>

Finally, controlling bacteria in a critically colonized wound or infected wound can be achieved with products containing antiseptic or antimicrobial properties. The odour associated with an infected or malignant wound can be devastating to patients and families. Odour control can be achieved using an activated charcoal-based dressing product (see Table 2).

By putting the puzzle pieces together, the plan to care for Mrs. S began. The cause of her wounds was put down to the extended time she lay in her bath tub and her poor nutritional status. Her general care plan began with implementing a plan that encouraged mobility while she was in the hospital and after discharge. Her thin skin needed to be protected from trauma and skin tears. A skin barrier cream was implemented as well as some environmental plans such as padding bed rails and using sleeves to protect her arms. The dietitian was notified to help the team to assess Mrs. S's nutritional needs. At this time all the wounds were assessed as healable, and the plan was to débride and close the wounds using a moist wound care plan. The unstaged left hip wound plan implemented an autolytic débridement using a hydrogel and a moisture retentive dressing to moisten and lift the slough from the wound. The stage 2 pressure ulcers were treated using a moist wound care plan to promote granulation tissue as well as protecting Mrs. S's frail skin. Since the wound on the shoulder did have a moderate amount of exudates, a foam dressing was planned. This dressing used a non-adhesive border with an occlusive backing to manage moisture. The left malleolus stage 2 pressure ulcer had no exudate and this enabled a wound care plan to utilize a film dressing. This dressing would promote healing and protect the peri-wound skin from friction injuries. The toe ulcer indicated that a total assessment of Mrs. S's diabetes status was

### Key Points

- There are a number of wound etiologies, which can be challenging to manage. A systematic approach is necessary to direct the care for any break in the skin integrity.
- Pressure ulcer staging is a well-known assessment skill among caregivers.
- For each wound identified in the clinical assessment, the clinician should have an understanding of the wound etiology, co-factors that may contribute to the wound, and the patient's ability to heal.
- There are many different products available to help manage wound care, and it is important to refer to each manufacturer's product information before using specific products.

necessary. The shin ulcer on physical exam appeared to be a peripheral vascular ulcer with venous insufficiency. The hemosiderin staining was the clinician's clue to this diagnosis. These ulcers needed to be treated in a maintenance mode until a vascular assessment was completed. If Mrs. S's arterial blood flow was poor, healing would not occur. A maintenance dressing was put into place with iodine until the etiology was discovered.<sup>15,16</sup> Mrs. S's family was contacted and they were included in all care planning initiatives. By the time Mrs. S was discharged she and her family had all their concerns addressed and understood the plan of care that Mrs. S required during and after the hospital stay.

### Conclusion

In conclusion, it should be understood that wound care management has a set of standard recommendations indicated in the model of care. Treat the cause; treat the patient-centred concerns and the wound care using the DIME approach. The plethora of dressings helps clinicians to implement the model while addressing each patient's individualized needs by understanding wound care principles and etiologies, the goals of care, and functionality of each dressing category. Furthermore, a wound is not static, and clinicians must be attentive to the evolving wound characteristics and make adjustments to the wound treatment plans accordingly. The goal is to treat patients with the right dressing, at the right time, in a cost- and clinically effective manner.<sup>2</sup>

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