Developing a ‘Cheat Sheet’ for the Ideal Wound Dressing

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Chronic wounds continue to challenge clinicians from Day 1 as the race to make timely progress begins. As we know, “time is tissue.” Of course, not all wounds heal with time. It’s what we (clinician and patient) do during the time we have that really matters.

Assessment and intervention planning are essential. The longer a wound remains open, the more likely complications will exist. Studies have suggested that diabetic wounds open longer than 30 days have a 4.7 times greater risk of infection.[1] Other studies suggest that wounds that have not shown significant progress within 4 weeks[2], and 1 week[3], respectively, of treatment, have a less than 10% chance of healing within 12 weeks.

Selecting the ideal dressing is not necessarily easy. In most instances, the dressing should not be the only form of treatment performed. However, selecting the appropriate dressing will complement the interdisciplinary plan of care.

A “dressing selection cheat sheet” can provide great guidance:

Step 1—The Patient Assessment

- **Medical and surgical history**
- **Medications**
- **Review of systems**
- **Lab reports/tests**
- **Present intrinsic/extrinsic factors that delay healing**
- **Objective assessment:**
  - *Wound characteristics/assessment:*
    - Location
    - Cause
    - Onset
    - Size
    - Depth
    - Color of tissue
    - Type of tissue
    - Drainage (amount/type)
    - Undermining
    - Tunneling
    - Wound edge
    - Odor
  - *Periwound assessment:*
    - Pain
    - Redness
    - Swelling
    - Temperature
    - Maceration
    - Induration
    - Sensation
    - Scars?
    - Healed areas?
    - Bruising?
  - *Wound etiology*

Once there's a clear picture about the patient and the wound, it is ideal to determine which phase of healing the wound is in based on wound/periwound characteristics and timeframe.

Step 2—The Healing Cascade

- **Inflammatory phase**
- **Proliferative phase**
- **Remodeling or maturation phase**

The healing cascade may consist of up to 4 phases of healing, depending on the source (some sources list hemostasis as a separate phase). Each phase has certain characteristics, and often phases overlap in progression or regression. In normal non-chronic wound healing, the phases follow an estimated timeframe. After assessing the patient and wound, we can determine which phase of healing the wound is in based on objective information—the inflammatory phase or the proliferative phase.

The inflammatory phase begins after wounding, when the vessels vasoconstricts (typically in the hemostasis phase if the source lists 4 phases) then vasodilates, causing localized swelling. During this phase, damaged cells and bacteria will be removed and swelling should eventually subside. The acute inflammatory response may last up to 3 days. When this phase is extended the wound repair will be disturbed. Clinically, within

the wound large amounts of drainage may be found, as well as an absence of granulation tissue and periwound inflammatory changes, such as redness, warmth, swelling, pain and induration. The wound may also have necrotic tissue and a “cytokine storm.”

As the wound healing cascade progresses, there’s a transition from the inflammatory to the proliferative phase. The hallmark of this phase is the actual development of newly formed blood vessels (aka angiogenesis), where granulation tissue is formed and the foundation (collagen and extracellular matrix) is built. During this process, the drainage decreases and the periwound changes noted in the inflammatory phase should also recede back to the wound edge and resolve. The wound bed may also be free of necrotic tissue and the measurements should improve.

Step 3—Perfusion

Do we objectively have adequate arterial perfusion?

Step 4—Infection

Is there a biofilm and soft tissue or bone infection?

With the above information answered, and before we can begin the process of matching a dressing category to the patient’s wound based on objective information, the clinician must also keep the following considerations in mind:

- **Understand how a wound heals**
- **Understand the product:**
  - *Application*
  - *Mechanism of action*
  - *Indications/contraindications*

- **Before applying the ideal dressing**:
  - *Proper cleansing vs. proper irrigating*
  - *Do we have to select a primary dressing and/or a secondary dressing?*
  - *Proper packing of “dead space”*
  - *Determining the appropriate dressing size*
  - *Consideration: inflammation/infection, necrotic tissue, depth, undermining, and/or tunneling*
  - *Type of tissue noted and its viability—muscle? bone? tendon? ligament? etc.*

- **Will the patient have access to the selected dressing?**
- **Frequency of change**
- **If dressing is not adequately addressing the intended purpose, then change frequency vs. change of dressing category**
- **Who will change the dressing?**

- **After applying the ideal dressing:**
  - *Patient/caregiver education*

According to the literature, there are more than 6,000 dressings available.[3] There's absolutely no way someone can have access to all these products and understand every dressing's purpose. But we can have at least one product approved for each category.

Step 5—Consider Wound Bed Preparation and TIME Methodology

Wound bed preparation:

- Debridement
- Bacterial control
- Exudate management

TIME:

- **T**issue
- **I**nfection/**I**nflammation
- **M**oisture balance
- **E**dge of wound

Step 6—Dressing Category Selection

When it comes to dressing selections, we often must consider the purpose and understand the science behind each product. Consider this list of dressing categories as a baseline:

- **Gauze:**
  - *Woven*
  - *Non-woven*
- **Contact layer:**
  - *Impregnated with silicone, petrolatum emulsion, or bismuth tribromophenate*
- **Transparent film**
- **Hydrocolloid:**
  - *Thin*
  - *"Thicker" (bordered/non-bordered)*
- **Foam dressings:**
  - *Non-bordered*
  - *Bordered*
  - *Silicone adhesive*
  - *Non-adhesive*
  - *Specialty (sacrum, heel, elbow)*
  - *Impregnated with methylene blue/gentian violet*
  - *Composites*
- **Hydrogel:**
  - *Gel*
  - *Sheet*
- **Charcoal dressings**

- **Wound fillers:**
  - *Beads, gels, pastes, powders, others*
- **Alginate:**
  - *Sheet*
  - *Rope*
- **Hydrofiber**
- **Hydroconductive**
- **Superabsorbent**
- **Antimicrobial:**
  - *Silver*
  - *Cadexomer iodine*
  - *Polyhexamethylene biguanide (PHMB)*
  - *Hypochlorous acid*
- **Antiseptics:**
  - *Acetic acid*
  - *Chlorohexidine gluconate*
  - *Hydrogen peroxide*
  - *Dakin's*
  - *Betadine*
- **Collagen:**
  - *Derived from bovine, equine, porcine, and/or avian sources*
  - *Found as a sheet, powder, or other forms*
- **Medical grade honey:**
  - *Gel*
  - *Honey alginate*
  - *Honey colloid*
  - *Honey hydrofiber pads*
  - *Honey impregnated gauze*
- **Enzymatic**
- **Compression:**
  - *Long stretch*
  - *Short stretch*
  - *Multilayer*
  - *Velcro alternative devices*
  - *Pumps*
  - *Unna's boot*
  - *Duke boot*
- **Platelet-derived growth factor (PDGF) topical application**
- **Platelet-derived plasma**
- **Negative pressure:**
  - *Foam*
  - *Gauze (antimicrobial)*
  - *Instillation and dwell time*
  - *Mechanical*
  - *Incisional*
- **CTP (cellular- and tissue-based products, formerly known as "skin equivalents")**

Step 7

In conjunction with the above steps, when implementing interventions follow best practice guidelines based on wound etiology obtaining orders as required.

Step 8

If progress is not adequate per guidelines, reassess all steps.



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