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## Wound Dressings

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### Introduction

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Wounds can be present over different anatomical parts of the body. However, the basic principles of choosing a wound dressing remain the same. In the United States, chronic wounds affect more than six million people, and this will grow in numbers due to our elderly and diabetic populations. Choosing the correct dressing will lessen the time of healing, provide cost-effective care, and improve the patient's quality of life.

The goal is to help the wound heal as soon as possible by using an appropriate dressing material to maintain the right amount of moisture. When the wound bed is dry, use a dressing to increase moisture and if too wet and the surrounding skin is macerated, use material which will absorb excess fluid and protect the surrounding healthy skin.

Important criteria to consider before choosing a specific wound dressing are cleaning, absorbing, regulating, and the need to add medication.

It is important to choose a dressing guided by the cost, ease of application, and clinician's preference.[1][2][3][4]

### Function

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#### Management

After following the principles of wound debridement (discussed in another article), the wound should be profusely irrigated with a neutral solution like normal saline to wash off any debris. Never use toxic or irritating solutions like hydrogen peroxide which are detrimental to wound healing.[5][6][7][8]

Next chose a dressing material which is easy to replace, stays in place with appropriate anchoring, and does not cause harm to the wound bed or normal surrounding skin by shearing force or sticking to the skin. Patients can develop complications like contact or allergic reactions.

The ideal dressing should keep the wound moist but not macerated, limit bacterial overgrowth, keep odor to a minimum, and be comfortable to wear. Frequent inspection of the wound is necessary to optimize wound dressing selection.

Today there are many types of dressings and even techniques to manage wounds. For the most part, the majority of wounds that require special dressings are chronic wounds or surgical wounds. The overall objective of wound dressing include the following:

- Decrease the pain
- Apply compression for hemostasis
- Protect the wound from the environment
- Protect the wound from soiling with body fluids or waste
- Immobilize the injured body part
- Promote wound healing

Before applying any type of wound dressing, it is important to assess the following:

- Mechanism of injury
- Risk of contamination
- Injury to deeper structures
- Underlying nerve or tissue damage
- Any perfusion deficits
- Tetanus status
- Disability
- Amount of tissue loss

When there is a nonhealing or chronic wound or a wound caused by trauma, it is important to get an x-ray to ensure that there is no fracture or a foreign body left in the tissues. If the x-rays do not reveal a foreign body, then ultrasound is a useful technique to identify radiolucent foreign bodies like splinters or thorns.

## Issues of Concern

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### Currently Available Dressing Options[9]

- The semipermeable dressing allows for moisture to evaporate and also reduce pain. This dressing also acts as a barrier to prevent environmental contamination. The semipermeable dressing does not absorb moisture and requires regular inspection. It also requires a secondary dressing to hold the semipermeable dressing in place.
- Tulle is a non-adherent dressing impregnated with paraffin. It aids healing but doesn't absorb exudate. It also requires a secondary dressing to hold it in place. It is ideal for burns as one can add topical antibiotics to the dressing. It is known to cause allergies, and this limits its wider use.
- Plastic film dressings are known to absorb exudate and can be used for wounds with a moderate amount of exudate. They should not be used on dry wounds. They often require a secondary dressing to hold the plastic in place.
- Fixation sheets can conform to body contour and provide pain relief and also allow exudate to escape. These sheet dressings do need oil application before removal and can be used to manage low-intensity wounds that do not require regular check-ups. They should not be applied to infected wounds.
- Calcium alginate dressings keep the wound moist, reduce pain, and can be used to pack cavities. They also provide hemostasis and can absorb excess exudate. They should not be used in the presence of an infection or on dry wounds. Often another dressing is required to hold the alginate in place.
- Foam dressings keep the wound moist, can absorb fluid and can also protect the wound. They can be used on wounds with a moderate amount of exudate and should be avoided dry wounds. They can be painful to remove if they dry out.
- Hydrocolloid dressings retain moisture and are painless to remove. They are ideal for small abrasions and not to be used on dry or infected wounds.
- Paper adhesive tape is useful for just approximating wound edges and ideal for small wounds. The tape is not useful on wounds with large exudates.

## Clinical Significance

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### Wound Types and Appropriate Treatment[10][11][12]

1. If too dry, use a hydrogel to hydrate. Dry eschar may also benefit from enzymatic debridement ointments such as collagenase.
2. If the wound has minimal drainage, a hydrocolloid will keep it just right.
3. If there is heavy drainage, absorb excess fluid using material like alginate, hydrofibers, cellulose, foam, ceramic fiber or negative pressure wound therapy.
4. If the surrounding skin shows maceration, use zinc oxide, protective films, or a negative pressure wound therapy.
5. If the wound is infected and there is a lot of sloughs, which cannot be mechanically debrided, then a chemical debridement can be done with collagenase-based products.
6. If the bioburden needs to be controlled, a silver-based or iodine-based product should be used.
7. If the wound has an excessive odor, topical metronidazole or activated-charcoal dressing material will help.
8. If the wound has healthy granulation tissue and needs to have faster healing and epithelialization, hydrocolloid, foams, collagen, or silver collagen will help.
9. If the wound is superficial, occlusive semiocclusive dressings help to heal. Polymeric membrane dressings also are good to treat superficial abrasions.

## Other Issues

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Certain special wounds will need more specialized wound dressings, for example, skin substitute, biological skin products, and other complex wound dressing products. Compression therapy is needed for venous leg ulcers.[13][14][15]

### Decision Tree: Types of Wounds and Dressing Options

- Abrasions clean: Use film or fixation sheets dressings
- Abrasions soiled: Dry or tulle dressings, avoid occlusive dressings
- Chronic ulcers: Alginate, hydrocolloid, or foam
- Dry wounds: Moisture retaining dressing like a semi-permeable colloid
- Infected wounds: Avoid occlusive dressings, consider alginate
- Laceration-sutured: Open or dry dressing
- Puncture wound: Dry dressing or leave it open
- Second-degree burn (minor): Film or fixated sheet dressing, avoid dry dressings
- Second-degree burn (major): Medicated tulle or plastic wrap
- Sloughing wound: Moisture returning wound like a hydrocolloid, alginate.

## Enhancing Healthcare Team Outcomes

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There are dozens of wound dressings and it is important to know the key differences between them. The key to wound healing is to ensure that there is adequate blood supply and the wound is clean. A wound care nurse and a surgeon should regularly inspect the wound to ensure that it is healing. The dietitian should be involved in the care of the patient and ensure that the calorie intake is adequate. The floor nurses should change the dressings as scheduled and consult with the wound care nurse if there is any sign of infection or inflammation. [16][17]

## Questions

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To access free multiple choice questions on this topic, [click here](#).

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