Wound Dressings: Wet-to-Dry – Applying

What are Wet-to-Dry Wound Dressings?

› Wet-to-dry (WTD; also known as wet-to-damp and moist-to-dry) dressings are used to provide wound protection, absorb exudate, and promote mechanical debridement (i.e., manual removal of necrotic tissue from the wound bed) (Figure 1). Although they are still widely used, WTD dressings are no longer considered best practice for wound care because the ultimate goal of WTD dressing requires moistened gauze to dry and adhere against tissue so it can be forcibly removed (often along with new viable tissue), because the dry environment restricts epithelialization and development of granulation tissue (see Facts and Figures, below), and because new wound products are available that promote debridement without removing new viable tissue, causing painful removal and rebleeding.

Figure 1: Necrotic tissue in a wound. Copyright© Chaldor, 2008. Licensed under Creative Commons Attribution 2.0 Generic License.

• What: Similar to dry dressings, WTD dressings consist of gauze, which can be woven or nonwoven. (For information on dry wound dressings, see Nursing Practice & Skill ... Wound Dressings: Dry --Applying )

• How: Wound care using WTD dressings involves cleaning or irrigating the wound, patting dry with sterile gauze, covering the wound surface or loosely packing the wound cavity with the moistened gauze (moistened with an isotonic solution such as normal saline [NS] or Ringer’s Lactate), covering with dry, sterile gauze, and applying a secondary dressing (e.g., ABD dressing). When the dressing has dried, it is removed without being remoistened—any dried necrotic tissue that has adhered to the dressing is removed along with the dressing. Wound assessment and/or staging is commonly performed at the time of dressing change using the appropriate staging or classification criteria for the specific type of wound. The use of aseptic non-touch technique (ANTT; i.e., a form of aseptic technique that utilizes measures to prevent the sterile part of the equipment or medication/solution from coming into contact with anything that is not sterile prior to introduction into the patient) is necessary during dressing changes to avoid wound contamination.

• Where: WTD dressings are used in inpatient, outpatient, and homecare settings.
• *Who:* WTD wound dressings can be applied by nurses, physicians, and other licensed healthcare providers who have been trained in their use, and can be applied by a properly trained family member when patients receive care in the home. It is important, however, that the wounds be evaluated regularly by a nurse or physician to identify potential problems in wound healing.

**What is the Desired Outcome of Applying Wet-to-Dry Wound Dressings?**
- The desired outcome of applying WTD wound dressings is physical protection and mechanical debridement of wounds with slough or necrotic tissue.
- WTD dressings are commonly ordered for infected wounds and in combination with other topical products (e.g., antimicrobial ointments).

**Why are Wet-to-Dry Wound Dressings Important?**
- WTD dressing changes are easy to perform and the materials are relatively low-cost and readily available. They are popular for wounds with necrotic material because they offer a form of non-selective mechanical debridement (for more information, see *Nursing Practice & Skill ... Wound Care: Mechanical Debridement*).
- Compared with moisture-retentive dressings, WTD dressings must be changed more frequently, which permits the clinician increased opportunities to evaluate the wound.
- WTD dressings absorb wound drainage, offer physical protection of the wound and, when packed into wounds, they create pressure sufficient to promote hemostasis of minor bleeding.

**Facts and Figures**
- Application of WTD dressings is a type of mechanical debridement and although still in use, WTD dressings are no longer considered best practice because they (Ayello et al., 2014; Joanna Briggs Institute, 2013; Ramundo, 2016):
  - are painful when removed
  - result in removal of new granulation tissue as well as nonviable tissue
  - are not effective in removing biofilms in chronic wounds
  - result in desiccation of viable cells and tissue when dressings become dry
  - can cause bleeding within the wound when the dry dressing is removed
  - can lower the temperature of the tissue within the wound due to the need to change the dressings frequently
- The use of WTD dressings as a method of mechanical debridement should be limited to those wounds with slough or necrotic tissue and absent of granulation tissue (Ayello et al., 2014; Ramundo, 2016).

**What You Need to Know Before Applying Wet-to-Dry Wound Dressings**
- Considerations regarding the use of WTD dressings include the following:
  - A moist wound bed environment is optimal for healing because this promotes granulation and increased ability of WBCs to protect the wound from infection (Benjamin, 2010). WTD wound dressings do not permit a moist environment because their function depends on tissue drying against the gauze.
  - WTD dressings must be held in place by tape or a secondary dressing that does not shed fibers; loose fibers can adhere to the wound bed and lead to infection.
  - WTD dressings do not provide an effective barrier to the entry of bacteria or other contaminants into the wound.
  - WTD dressings must be changed daily or more frequently (e.g., every 4–6 hours) if soiled. Because removal of the dried dressing is a form of non-selective debridement, dressing changes can be very painful and can cause bleeding at the wound bed.
- Knowledge of pain assessment and management is important because dressing changes, especially WTD dressing changes, can be painful.
  - Prior to performing a dressing change, assess the patient for pain using a facility-approved pain scale. Administer prescribed analgesia 30 minutes before the procedure to allow the therapeutic level to be reached (*Figure 2*).
If the patient reports anxiety related to a prior painful procedure, teach deep-breathing exercises or other stress reduction techniques as needed; be aware of the concept of anticipatory pain, which can be a factor if the patient has not been adequately medicated for previous dressing changes.

The clinician should have knowledge of wound assessment, stages of healing (e.g., hemostasis, inflammatory, proliferative, tissue remodeling), and basic wound care techniques and be prepared to assess and measure the wound during each dressing change or according to facility protocol.

Wound assessment is performed after loose debris and adhesive residue has been cleaned from the wound and wound perimeter (for more information regarding wound assessment, see Nursing Practice & Skill ... Wound Assessment: Performing)

- Parameters to include when performing wound assessment include (Nix, 2016)
  - anatomic location
  - level of tissue involvement
    - Wound classification systems can be used to classify wounds by wound depth, type of wound, tissue loss, and wound appearance
      - Wound classification systems are developed for use with specific types of wounds such as pressure injuries, diabetic wounds, vascular wounds, and burns
    - type of tissue in the wound base
  - measurement of wound dimensions (e.g., length, width, depth)
  - presence of wound exudate
  - condition of periwound skin
  - any wound odor
  - characteristics of wound edges and shape of wound
  - presence of wound odor
  - wound pain
  - signs/symptoms of infection (e.g., erythema, edema, pain, odor, purulent drainage, and delayed wound healing) and of signs/symptoms of worsening wound infection and/or sepsis, including high fever, restlessness, and disorientation

Preliminary steps that should be performed before applying a WTD dressing include the following:

Review the facility/unit-specific protocol for application of WTD dressings, if one is available.

Review the treating clinician’s order for wound care. Note
  - any prescribed medication (e.g., analgesic)
  - indicated frequency of dressing changes
  - prescribed solution (commonly NS) for wound cleaning/irrigation

Verify completion of facility informed consent documents, if needed
  - The general consent for treatment executed by patients on admission to a healthcare facility commonly includes provisions for wound care.
• Review the patient’s medical history/medical record for any allergies (e.g., to latex, medication, or other substances); use alternative materials, as appropriate

› Gather supplies, which typically include the following: (Figure 3)

![Figure 3: The supplies necessary for applying a wet-to-dry dressing. Copyright ©2015, EBSCO Information Services](image)

• Sterile/nonsterile gloves; additional personal protective equipment (PPE; e.g., gown, eye protection, mask) can be necessary depending on the need for special precautions or if exposure to body fluids is anticipated
• Facility-approved pain assessment tool
• Prescribed analgesic and means for its delivery
• Absorbent “linen saver” pad
• Camera, if the facility requires photographs of wound(s) be placed in the patient’s medical record
• Tape measure or other wound measurement device
• A sterile procedure pack or other materials to maintain a sterile field, if needed
• Supplies for wound irrigation, if appropriate, which typically include
  – sterile NS
  – sterile basin
  – 30–35 mL syringe with 18- or 19 gauge needle
  – sterile 4 x 4 gauze pads for blotting dry the wound
  – emesis basin
• Supplies for specimen collection of wound drainage, if necessary (e.g., specimen container and label, laboratory requisition form, and biohazard bag for transport)
• Supplies for wound dressing, as follows:
  – Sterile gauze dressings appropriate for the size of the wound (e.g., sterile 4x4 gauze pads and packing material, if the wound is deep or has tunnels, fistulae, or sinus tracts)
  – Sterile swabs for packing deep wounds
  – Woven gauze secondary dressing (e.g., abdominal pad), if necessary
  – Tape to secure the secondary dressing, if needed
• Antimicrobial ointment or other topical medication, if ordered
• Biohazard bag for disposal of soiled dressing materials
• Written information, if available, to reinforce verbal education

How to Apply Wet-to-Dry Wound Dressings

› Perform hand hygiene and don PPE
› Identify the patient using at least 2 unique identifiers or according to facility protocol
› Establish privacy by closing the door to the patient’s room and/or drawing the curtain surrounding the patient’s bed
› Introduce yourself to the patient and family member(s), if present, and explain your clinical role in performing a WTD dressing change
› Assess the patient/family for knowledge deficits and anxiety regarding wound care
• Determine if the patient/family requires special considerations regarding communication (e.g., due to illiteracy, language barriers, hearing impairment); make arrangements to meet these needs if they are present
  – Use a professional certified medical interpreter when a communication barrier exists
• Explain the wound care procedure, its purpose, and what outcome to expect from the procedure; answer any questions and provide emotional support as needed
• As appropriate, ask family members and other visitors to leave the room during the procedure to promote privacy
  › Assess the patient's general health status, including his/her level of pain using a facility-approved pain assessment tool
• Administer prescribed preprocedure medication (e.g., analgesic) 30 minutes before starting the procedure to allow for therapeutic level to be reached; adhere to the six "rights" of medication administration-- right patient, right drug, right dose, right time, right route, and right documentation-- to avoid medication administration errors
• Position the patient for comfort, privacy and easy access to the wound
  › Uncover the area of the wound but keep the rest of the patient covered for warmth and privacy
• Protect the work area with an absorbent linen-saver pad to collect any discharge or drainage
• Use ANTT to position the supplies for wound cleaning onto a sterile flat surface
  › For wound irrigation, pour the irrigation fluid (e.g., sterile NS) into the sterile basin and attach the needle to the syringe
  › Remove the existing dressing by gently loosening its edges and removing it slowly, one layer at a time. Verify that all material used for packing the wound is removed
• Assess wound drainage on dressing, noting type and amount of drainage. Assess for signs of infection
• Remove gloves and perform hand hygiene
• Clean the wound bed as prescribed or per facility protocol or perform wound irrigation
  • Take the following steps to perform wound irrigation:
    – Don clean gloves after performing hand hygiene
    – Position the emesis basin below the wound such that the irrigation fluid will flow into the basin
    – Irrigate the wound using a NS-filled 30–35 mL syringe and 18-to 19-gauge needle or angiocatheter. Direct the flow of the irrigant away from the wound
      - Use gentle, continuous pressure, keeping the syringe 1 inch/2.5 cm above the wound so that all areas of the wound are irrigated from the least to the most contaminated areas
      – Use sterile gauze to blot excess moisture from the wound surface and to dry the intact skin surrounding the wound
      – For more information on wound cleaning and irrigation, see *Nursing Practice & Skill … Wound Cleaning and Irrigation: Performing*
  › Inspect and assess the wound for location, level of tissue involvement, exudate, wound, characteristics of wound edges, wound shape, type of tissue at wound base, signs/symptoms of infection, and odor. Measure wound dimensions. Note: Many facilities require photographs of the wound be placed in the patient’s medical record
  If the wound appearance suggests the presence of infection, use sterile technique to collect a sample of wound drainage for laboratory testing (e.g., culture and sensitivity analysis). For technique, see *Nursing Practice & Skill … Specimen Collection: Performing -- Wound Drainage*
• Remove gloves and perform hand hygiene
• Using ANTT, position dressing supplies including sterile NS solution, gauze 4 x 4 dressings, and topical medication (if prescribed) within a sterile field
• Apply sterile gloves
• Apply antimicrobial ointment or other prescribed topical medication to the wound area, if ordered
• Moisten gauze in sterile NS solution; squeeze out any excess NS
• Apply moistened gauze to wound area, avoiding contact with the surrounding skin. Gently pack gauze into open-space areas, such as tunnels, fistulae, and sinus tracts
• Apply dry sterile gauze on top of the moist gauze, again taking care to avoid contact with the surrounding skin
• Apply a thicker woven gauze pad (e.g., an abdominal dressing) to cover and secure the sterile gauze
• Secure the edges of the secondary dressing with tape, as appropriate
• Discard gloves and other used materials into the appropriate receptacles—dressings soiled with blood/body fluids should be discarded into a biohazard bag
Reposition the patient for comfort and reassess for pain
Discard PPE and perform hand hygiene at the conclusion of patient care
Update the patient’s plan of care, make the appropriate notation in the medication administration record (MAR) if medication was administered, and document the following information in the patient’s medical record:
  • Date and time of dressing change
  • Description of the procedure, including the type of dressing applied, any medication administered, whether irrigation was performed, and, if so, the type of irrigant used
  • Wound assessment findings, including
    – Types of tissue at wound base
    – Dimensions of the wound and anatomic location
    – Extent of tissue damage
    – Type of wound drainage
    – Presence/absence of signs and symptoms of local infection
  • Patient’s response to the procedure (including pain/discomfort during and immediately following the procedure)
  • Laboratory specimens collected and sent for analysis
  • Any unexpected patient events or outcomes, interventions performed, and if the treating clinician was notified
  • All patient/family member education, including topics presented, response to education provided/discussed, plan for follow-up education, and details regarding any barriers to communication and/or techniques that promoted successful communication

Other Tests, Treatments, or Procedures that Can be Necessary Before or After Application of Wet-to-Dry Wound Dressings
  • Continually monitor the condition of the wound/dressing; change the dressing daily or more frequently (e.g., every 4–6 hours), as ordered
  • If you suspect wound infection, contact the treating clinician for further orders (e.g., culture and sensitivity testing of wound drainage, antibiotic therapy)
  • Perform pain assessments and administer analgesics, as needed, on a continual basis; pain may be increased immediately following a dressing change

What to Expect After Application of Wet-to-Dry Wound Dressings
  • The wound will be assessed and measured, and the WTD dressing applied according to the treating clinician’s order
  • The patient will report a tolerable level of discomfort during wound care; he/she will continue to receive appropriate analgesics to manage post-procedural pain

Red Flags
  • Signs and symptoms of infection (e.g., fever, increasing wound pain, and changes in wound drainage) should be reported promptly to the treating clinician
  • WTD dressing changes can increase wound bleeding, especially in patients with coagulopathy or who are on anticoagulants, and can result in delayed wound healing as a result of tissue cooling
  • WTD dressing removal may result in removal of healthy tissue as well as necrotic tissue and cause pain when removed

What Do I Need to Tell the Patient/Patient’s Family?
  • Reinforce patient/family/caregiver education about the purpose of wound care and what to expect before, during, and after the dressing change procedure
  • Instruct the patient/family about signs and symptoms of wound infection and explain that these changes as well as any other unexpected conditions (e.g., increased bleeding or discomfort) should be reported immediately to their nurse or treating clinician

References


