Assess and Dress: Essential Wound Care Practices at the End of Life

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Disclosure

- I have no relevant financial relationships with manufacturers of any commercial products and/or providers of commercial services discussed in this presentation.
- This discussion will include the use of medications for off-label indications.

Objectives

- Discuss a systematic framework for assessing wounds.
- Review key criteria of dressing selection to manage wound exudate, debride necrotic tissue, and resolve wound infection.
- Identify strategies to manage wound symptoms.

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Wound Assessment

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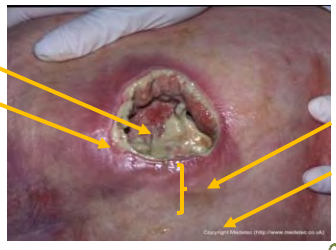
Anatomy of a Wound



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Brinker J, Protus BM, Kimbrell JM. 2018
Nix DP. 2012
Kost DH, Bowering K, Sams AW, et al. 2004
Sibbald RG, Krasner DL, Lutz J. 2012
National Pressure Ulcer Advisory Panel. 2014
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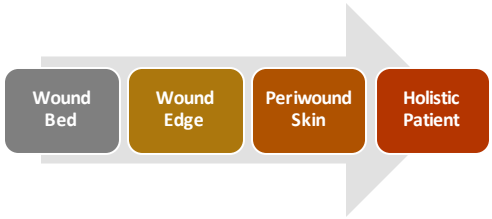
Organizing the Wound Assessment



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Sibbald RG, Krasner DL, Lutz J. 2010
National Pressure Ulcer Advisory Panel. 2014
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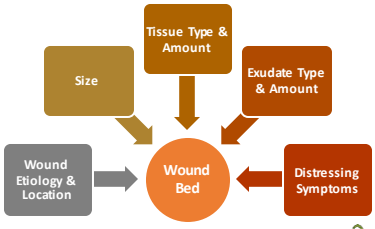
Wound Bed Assessment



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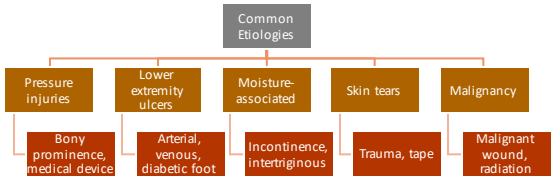
Define Etiology



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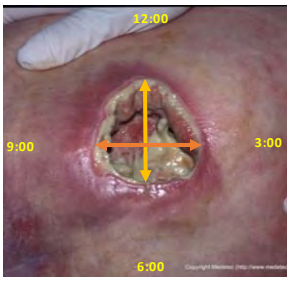
Measuring Wound Size

Length x Width x Depth

- **Length:** longest head to toe, from 12 to 6 o'clock
- **Width:** widest side to side, from 9 to 3 o'clock
- **Depth:** deepest depth

Always document wound measurements in centimeters



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Keast DH, Bowering K, Bans AW, et al. 2006
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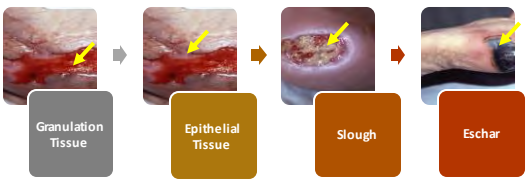
Tissue Type and Amount



Document the amount of each tissue type in percentages.

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NIoDP, 2012
Keast DH, Bowering K, Bans AW, et al. 2006
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Exudate Type

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Exudate Amount

None	• Dry wound bed • No exudate present on dressing
Scant	• Moist wound bed • No exudate present on dressing
Small	• Moist wound bed • <25% of the dressing is soiled
Moderate	• Wet wound bed • 25% - 75% of the dressing is soiled
Large/Copious	• Wet wound bed • ≥75% of the dressing is soiled

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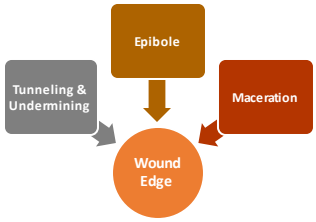
Wound Edge Assessment



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Nix DP. 2012
Keast DH, Bowering K, Bans AW, et al. 2004

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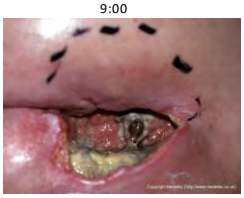
Tunneling and Undermining

- **Tunneling:** narrow tract of tissue destruction
- **Undermining:** large area of tissue destruction along the wound edge
- **If present:**
  - Describe location using clock system
  - Measure depth in centimeters
  - Loosely fill to prevent premature closure and abscess
  - Address shear

9:00



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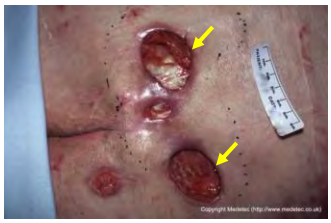
Epibole: Rolled Wound Edge



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Nix DP. 2012
Keast DH, Bowering K, Evans AW, et al. 2004
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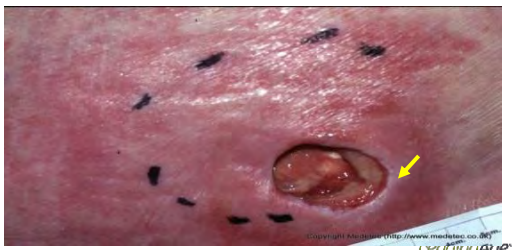
Maceration



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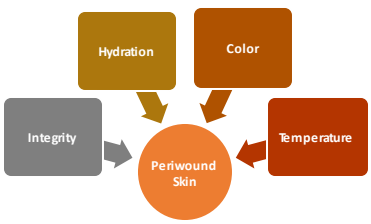
Periwound Skin Assessment



Sinclair J, Protus BM, Kimbrell JM 2018
Nix DP. 2012
Keast DH, Bowering K, Evans AW, et al. 2004

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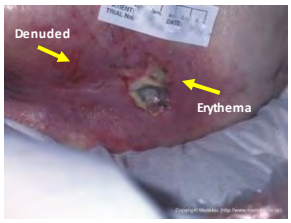
Poor Periwound Skin Condition



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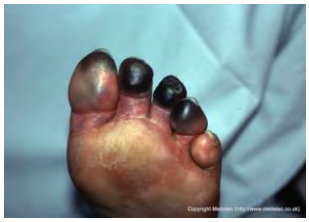
Poor Perfusion



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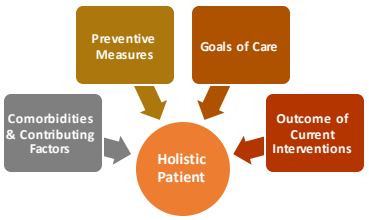
Holistic Patient Assessment



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Nix DP. 2012
Keast DH, Bowering K, Bates AW, et al. 2004

Comorbidities and Contributing Factors

History of Wounds	Comorbidities	Current Health Status
• Previous wounds • Underlying etiology • Length of time present • Prior wound care treatments • Preferences for care	• Chronic renal failure • Muscle weakness • Incompetent valves • Congestive heart failure • Hypertension • Atherosclerosis • Diabetes • Neuropathy • Anemia	• Prognosis • Nutritional status • Mobility status • Ability to provide self care • Smoking • Alcohol use • Medications

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Sinkler J, Protus BM, Kimbrell JM. 2018
NPUAP. 2012
Kent DH, Bowering K, Bates AW, et al. 2018

Goals of Care

Prescription	• Heal the wound
Preservation	• Stabilize wound condition
Palliation	• Wound may deteriorate • Focus on comfort and symptom management

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Sibbald RG, Krasner DL, Lutz J 2009

Outcome of Current Interventions

Key assessment questions:

- Is the treatment appropriate for the wound condition?
- Is the current treatment improving the quality of life?
- What is the goal of wound care, and are we achieving that goal?
- Did we notify physician and family?
- Did we provide education?

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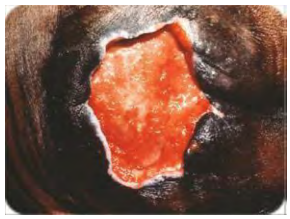
Sinkler J, Protus BM, Kimbrell JM. 2018

Case Study

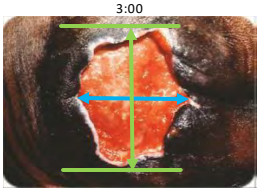


Question 1

What is the primary wound bed tissue type?

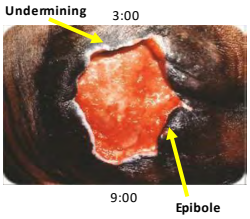
A. Epithelial tissue
B. Granulation tissue
C. Slough
D. Eschar

Wound Bed Assessment



- **Etiology:** stage 3 pressure injury of the sacrum
- **Size:** 4.5 x 6.3 x 0.3 cm
- **Tissue type and amount:** 80% granulation tissue, 20% slough
- **Exudate type and amount:** scant, serous exudate
- **Distressing symptoms:** none at this time

Wound Edge Assessment



- Defined
- Shape: irregularly shaped
- Detached: 0.5 cm of undermining from 1 to 4 o'clock
- Epibole: 6 to 8 o'clock
- Epithelial tissue: 8 to 12 o'clock, 1 to 4 o'clock, 6 o'clock

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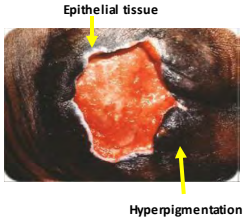
Periwound Skin Assessment



- Hyperpigmentation: 360 degrees around wound
- Epithelial tissue: documented as part of the wound edge assessment
- Clean, dry, and intact

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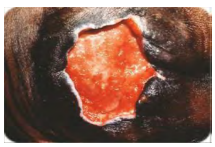
Holistic Patient

- Hospice diagnosis: Alzheimer's disease, FAST score of 7f
- Comorbidities: anemia, hypertension
- Nutritional status:
  - Eats 25% of pureed meals
  - Thickened liquids
  - Slow hand feedings
  - Weight stable at 114 pounds
- Goal of wound care
  - Palliation
  - Currently applying abdominal pad daily and PRN, frequently soiled



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Dressing Selection

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End of Life Wound Care

1. What is the level of wound bed contamination?
2. What is the level of exudate?
3. What is the patient's preference?

Appropriate Dressing

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Shultz GS, Sibbald RG, Falanga V, et al. 2003
Kerstein DH, Browning CK, Baes AW, Madsen GL, et al. 2004

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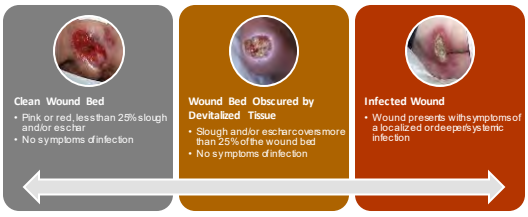
Levels of Wound Bed Contamination



Clean Wound Bed
- Pink or red, less than 25% slough and/or eschar
- No symptoms of infection

Wound Bed Obscured by Devitalized Tissue
- Slough and/or eschar covers more than 25% of the wound bed
- No symptoms of infection

Infected Wound
- Wound presents with symptoms of a localized or deeper/systemic infection

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Shultz GS, Sibbald RG, Falanga V, et al. 2003
Kerstein DH, Browning CK, Baes AW, Madsen GL, et al. 2004
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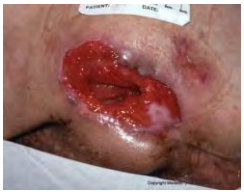
Is the wound bed clean?

- Characteristics
  - Pink or red, granulation tissue if full thickness
  - Less than 25% devitalized tissue
  - No symptoms of infection

Appropriate intervention:

- Manage exudate: select dressing to maintain moist wound bed
- Maximize dressing wear time



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Keast DH, Bowering CK, Bans AW, Madeian GL, et al. 2004
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Dressing Selection: Clean Wound Bed

No Exudate/Dry Wound	Minimal Exudate	Moderate/Heavy Exudate
• **Add moisture:** •Hydrogel •Honey •Impregnated gauze • **Retain moisture:** •Transparent film •Hydrocolloid	• **Maintain exudate level:** •Hydrogel •Honey •Impregnated gauze •Transparent film •Hydrocolloid •Thin foam •Composites •Polymeric membrane	• **Rule out infection** • **Absorb exudate:** •Hydrocolloid •Honey alginate •Composites •Alginate •Foam •Gelling fiber •Polymeric membrane •Specialty absorptives •Wound pouches

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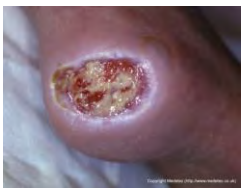
Halim AS, Khoo TL, Mat Saad AZ. 2012

Is the wound bed obscured by devitalized tissue?

- Necrotic or devitalized tissue
  - **Slough:** devitalized tissue, yellow, brown, grey, tan
  - **Eschar:** necrotic tissue, black, leathery, stable or unstable
- Appropriate management of *slough*:
  - Manage exudate
  - Debridement



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Keast DH, Bowering CK, Bans AW, Madeian GL, et al. 2004
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Methods of Debridement

Biosurgical	• Medical maggots to debride the wound
Enzymatic	• Collagenase (Santyl®)
Autolytic	• Body removes devitalized tissue
Mechanical	• Irrigation, wet-to-dry dressings, pulsed lavage
Sharp/Surgical	• Use of surgical instruments to remove devitalized tissue

Ayello EA, Cuddigan JE. 2004
Shultz GS, Sibbald RG, Falanga V, et al. 2003
European Wound Management Association 2004
Smith & Nephew, Inc. 2014
Optum Hospice Pharmacy Services. 2016
Dowsett C, Newton H. 2017
Gottrup F, Jorgensen B. 2011

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Dressing Selection: Debridement

No Exudate/Dry Wound	Minimal Exudate	Moderate/Heavy Exudate
• **Add moisture:** •Hydrogel •Honey • **Retain moisture:** •Transparent film •Hydrocolloid	• **Maintain exudate level:** •Honey •Hydrogel •Thin foam •Transparent film •Hydrocolloid •Polymeric membrane	• **Rule out infection** • **Absorb exudate:** •Honey alginate •Hydrocolloid •Alginate •Foam •Gelling fiber •Specialty absorptives •Polymeric membrane •Sodium chloride impregnated gauze

Kratt DH, Bowering CK, Bates AW, Madeian GL, et al. 2004

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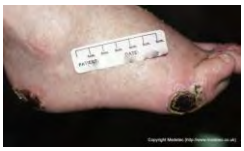
Exception to Debridement

Stable eschar
- Dry, firmly attached; without exudate or fluctuance
- Serves as protection
- Paint with povidone-iodine

Unstable eschar
- Exudate; loosely attached, moist, or softening; fluctuance
- Can indicate infection
- Debridement versus drying

NEVER debride a lower extremity ulcer unless the perfusion status is known!



Ayello EA, Cuddigan JE. 2004
Shultz GS, Sibbald RG, Falanga V, et al. 2003
Dowsett C, Newton H. 2017
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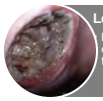
Is the wound infected?



Localized Infection

NERDS: non-healing wound with increasing exudate levels, red and bleeding granulation tissue (friable), devitalized tissue, and malodor

Deeper Infection

STONES: increasing wound size; periwound skin with warmth, redness, and swelling; bone visible or palpable; malodor; increasing exudate levels; malodor; new areas of breakdown

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Sibbald RG, Woo K, AyelloE 2006
Woo K, Sibbald RG 2003

Dressing Selection: Infection

No Exudate/Minimal Exudate	Moderate/Heavy Exudate
• **Add or maintain moisture:** • Silver hydrogel • Sodium hypochlorite soaked gauze • Polymeric membrane with silver (moisten prior to application)	• **Absorb exudate:** • Silver alginate/foam/gelling fiber/polymeric membrane • Polyhexamethylene biguanide (PHMB) • Gentian violet/methylene blue • Sodium chloride impregnated gauze • Sodium hypochlorite soaked gauze • Cadexomer iodine

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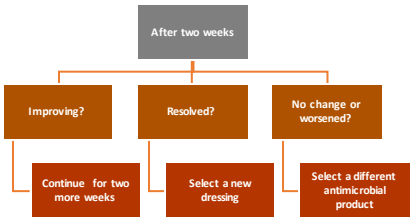
Halm AS, Khoo TL, Mid Sad AZ 2012
Cambell T, Woodard Q, WoS 2013

Two Week Trial



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Halm AS, Khoo TL, Mid Sad AZ 2012
Cambell T, Woodard Q, WoS 2013

Management of Wound Infection

- Systemic antibiotics
  - Appropriate for deeper or systemic wound infections
  - Wound culture may guide selection
    - Use Levine technique
    - Do not culture necrotic tissue
  - Goals of care, patient preference, and prognosis guide appropriateness at end of life
- Topical antibiotics
  - Avoid use
  - Due to the potential for adverse effects and antimicrobial resistance, use of topical antibiotics in wound care should be avoided

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Sibbald RG, Woo K, Ayello EA. 2006
National Pressure Ulcer Advisory Panel. 2014

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Wound Symptoms

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Wound Pain

Infection as Cause of Pain

- Rule out infection for any wound with new or increasing pain

Wound Care Related Causes of Pain

- Adherent dressings, dry or exposed wound bed, maceration, scrubbing the wound bed with gauze, use of strong adhesives that damage skin

Anxiety as Cause of Pain

- Cyclical: pain causes anxiety, anxiety increases perception of pain

Underlying Pathology as Cause of Pain

- Unrelieved pressure, ischemia, venous congestion, neuropathy

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Keast DH, Bowering CK, Evans AW, Mackean GL, et al. 2004
Hopf HW, Shapshak D, Jenkins S. 2012
Ten QNH, Reuther T. 2007
Popescu A, Sá Sálcido R. 2008
Jo-Ann Mak S, Lee MY, Cheung KL, et al. 2015

Wound Pain

- New or increasing pain is a symptom of wound infection
  - Manage with a topical antimicrobial product and debridement
  - Add systemic antibiotic if in alignment with patient's goals of care, prognosis, and current level of infection
- Nonpharmacological management strategies:
  - Apply non-adherent, long-wear dressings to minimize pain associated with dressing changes
  - Always use gentle irrigation with warm solution
  - Soak dressings with saline to facilitate atraumatic removal
  - Consider applying a polymeric membrane dressing
- Pharmacological management strategies:
  - Systemic analgesics
  - Topical analgesics
  - Adjuvants

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Krasner DH, Bowering CK, Bates AW, Madsen GL, et al. 2004
Hopf HW, Wagstaff D, Junkins S. 2012
Yarkony GM, Reicher T. 2007
Popescu A, Saldadze K. 2016
Sin-Yin Mak S, Lee MY, Cheung JS, et al. 2015

Wound Odor

Assess wound characteristics	• Devitalized tissue, symptoms of infection
Recommend environmental strategies	• Air fresheners, essential oils, dryer sheets, coffee grounds, kitty litter, odor-neutralizers. Address poor hygiene or dirty linens. Increase room ventilation.
Observe for ineffective wound care practices	• Debridement? Cleansing? Dressing changed when soiled? Exudate level increasing?
Manage bacterial burden	• Recognize and resolve infection
Add odor-controlling dressings	• Charcoal, hydrocolloid with cyclodextrin, pouching systems

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Krasner DH, Bowering CK, Bates AW, Madsen GL, et al. 2004

Wound Bleeding

Slow, Oozing

- **Identify cause:** infection, adherent dressing, swabbing wound bed with gauze, medications
- **Achieve hemostasis:** apply pressure, as tolerated; calcium alginate

Heavy

- **Identify cause:** tumor eroding significant vessel, adherent dressing, swabbing wound bed with gauze, medications
- **Achieve hemostasis:** apply pressure, as tolerated; use gelatin sponges, epinephrine-soaked gauze, or combat gauze
- **Comfort measures:** dark towels/sheets; medicate for pain and anxiety

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Brinker J, Protus BM, Kimbrell JM. 2018

Preventing Wound Bleeding

Gentle cleansing rather than swabbing
- Irrigation, pour cleanser

Apply non-adherent dressings
- Prevents trauma to the wound bed during dressing removal
- Select a dressing that matches current level of exudate
- Use a contact layer or impregnated gauze as the primary dressing
- Avoid wet to dry dressings

Remove adherent dressings by gentle irrigation with normal saline

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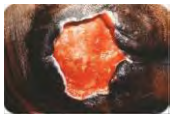
Brinker J, Protsko BM, Kimbrell JM. 2018

Case Study: Dressing Selection

- Goal of wound care
  - Palliation
  - Decrease frequency of wound care
- Currently applying abdominal pad daily and PRN
- Dressing is frequently soiled



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Wound Care Education Institute. 2019

Question 2

What is the level of wound bed contamination for Paul's wound?

A. Clean wound bed

B. Obscured by devitalized tissue

C. Infected

D. I am not sure

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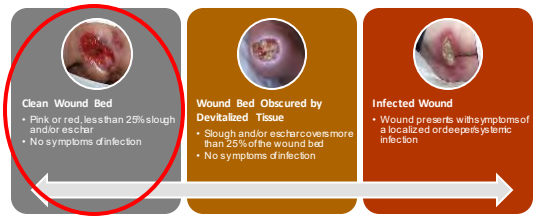
Case Study: Identify Level of Wound Bed Contamination



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Shultz GS, Sibbald RG, Falanga V, et al. 2003
Kost DH, Browning CK, Bens AW, Madsen GL, et al. 2004
Modetec Medical Images

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Case Study: Identify Level of Exudate

None	• Dry wound bed • No exudate present on dressing
Scant	• Moist wound bed • No exudate present on dressing
Small	• Moist wound bed • <25% of the dressing is soiled
Moderate	• Wet wound bed • 25% - 75% of the dressing is soiled
Large/Copious	• Wet wound bed • ≥75% of the dressing is soiled

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Wound Care Education Institute. 2009

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Case Study: Dressing Selection for a Clean Wound Bed

No Exudate/Dry Wound	Minimal Exudate	Moderate/Heavy Exudate
• **Add moisture:** •Hydrogel •Honey •Impregnated gauze • **Retain moisture:** •Transparent film •Hydrocolloid	• **Maintain exudate level:** •Hydrogel •Honey •Impregnated gauze •Transparent film •Hydrocolloid •Thin foam •Composites •Polymeric membrane	• **Rule out infection** • **Absorb exudate:** •Hydrocolloid •Honey alginate •Composites •Alginate •Foam •Gelling fiber •Polymeric membrane •Specialty absorptives •Wound pouches

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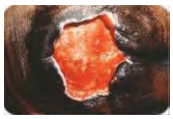
Mir MA, Khan T. Mol Med AZ 2012

Case Study: Recommendations

Current wound care
- Abdominal pad daily and PRN
- Dressing is frequently soiled by incontinence



New wound care orders
- Fill dead space with honey gel, hydrogel, or impregnated gauze
- Secure with bordered gauze, bordered foam, hydrocolloid
- Change every 3-7 days and as needed if soiled

Key Points

- Use the anatomy of a wound to organize assessment – assess and document wound bed, wound edge, periwound tissue, and holistic patient.
- To select an appropriate dressing, determine level of wound bed contamination, amount of exudate, and patient preference.
- When addressing wound symptoms at the end of life, always try to identify and address the cause.

Thank you

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