

Pressure Relief: *Cutting Edge Information & Solutions for Pressure Ulcers*

Becky Dorner, RD, LD

I. Introduction

A. Litigation

B. Prevalence

C. Cost

1. National costs estimated at up to \$15.6 billion
2. Individual stage 4 pressure ulcer up to \$112,609
3. Additional hospital costs due to pressure ulcer care

D. Note: *The National Pressure Ulcer Advisory Panel (NPUAP) is in the process of developing World Guidelines for Pressure Ulcers to include nutrition guidelines for treatment, slated for release in June 2008. The NPUAP nutrition white paper will be published after the World Guidelines release. Please refer to the NPUAP website for more information (www.npuap.org). The information in this presentation is as up to date as possible based on the current research.*

E. Goals for Today's Presentation:

1. understand the revised pressure ulcer staging system,
2. understand the current research available related to MNT interventions for the treatment of pressure ulcers, and
3. provide some solutions for nutrition and hydration challenges using the ADA Nutrition Care Process

II. Etiology of Pressure Ulcers

A. Skin Characteristics

1. Epidermis: Outer protective layer
2. Dermis: Inner vascular layer
3. Subcutaneous layers: Adipose tissue, muscle, bone, tendon, joint capsule

B. Intrinsic Factors related to Pressure Ulcer Development

1. Advanced age
2. Compromised nutrition
3. Immobility
4. Diminished level of consciousness
5. Diabetes, depression, edema, sepsis, PVD, COPD, end stage disease, terminal condition
6. Decreased sensory perception
7. Moisture
8. History of pressure ulcers

C. Extrinsic Factors related to Pressure Ulcer Development

1. Pressure: Intensity plus time
2. Shear: Distortion of tissue, gravitational pull
3. Friction: Resistance to motion in a parallel direction

D. Pressure Ulcer Sites and Tissue tolerance

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II. History of Staging Pressure Ulcers and New NPUAP Definitions

A. 2007 NPUAP Pressure Ulcer and Staging Definitions:

Pressure Ulcer: 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.

B. Pressure Ulcer Stages

(Suspected) Deep Tissue Injury

Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue.

Stage I

Intact skin with non-blanchable redness of a localized area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area.

Stage II

Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. May also present as an intact or open/ruptured serum-filled blister.

Stage III

Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle are *not* exposed. Slough may be present but does not obscure the depth of tissue loss. *May* include undermining and tunneling.

Stage IV

Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed. Often include undermining and tunneling.

Unstageable

Full thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black) in the wound bed.

Slough: Necrotic tissue that is moist, stringy, and yellow or gray (devitalized) is referred to as slough.

Eschar: Devitalized dermis that has become leathery or thick and black

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C. Implications for Practice

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II. Medical Nutrition Therapy (MNT) for Pressure Ulcers

Though there is limited evidence based research available related to MNT and pressure ulcer prevention and treatment, general consensus indicates that nutrition is a vital component of a comprehensive care plan. MNT should be provided for any individual who is at risk or already has a pressure ulcer. Goals: Prevent UWL, undernutrition, PEM and dehydration which are risk factors for pressure ulcer development (Pinchofsky-Devin 1986, Lyder, 1998, Dimant 1999), or promote healing for those who already have pressure ulcers.

A. Comprehensive Nutritional Assessment

1. Screening to identify risk factors for UWL, under-nutrition, PEM and hydration deficits:

2. Additional risk factors:

3. Assess for hypermetabolism/stress response:

4. Biochemical data:

5. Diabetes:

B. Evaluation and Nutrition Diagnosis

1. Weight and percentage of weight loss
2. Physical S/S of nutrient deficiency:

3. Physical S/S of dehydration:
- 4.
5. Dietary Intake:
6. Obesity:

C. Nutrition Interventions: Current Research and Potential Solutions

There is very little EBR available related to MNT for prevention and treatment of pressure ulcers. Recommendations are primarily based on expert opinion, best practice guidelines and smaller studies (ADA NCM 2007).

1. Calories

2. Protein

3. Amino Acids

4. Fluids

5. Vitamins and minerals

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6. Determination of nutritional needs requires clinical judgment for each individual based on number of wounds, comorbidities, overall nutritional status and tolerance to nutritional interventions in consideration of other medical conditions
7. Obese individuals
8. Assure that nutritional deficits are corrected and assure that total calorie and protein needs are met before trying other methods of nutrition interventions
 - a. Focus on improving overall nutritional status through accepted nutrition interventions and positive outcomes
 - b. Food first (favorite foods), liberalize diet, dining interventions
 - c. Nutritional supplements, enhanced foods, food fortifiers as appropriate to meet caloric, protein and hydration goals
 - d. Medication adjustments
 - e. Nutrition support
 - f. Appetite stimulants

D. Monitoring and Evaluation

1. Review weekly skin reports
2. Evaluate food/fluid intake
3. Evaluate current laboratory values
4. Document progress or condition change
5. Notify physician, as appropriate, of condition changes
6. Monitor individual's response to plan
7. Document refusal of nutritional interventions
8. Revise intervention consistent with needs and update care plan
9. Implement palliative care when appropriate

E. Case Study: Using ADA's Nutrition Care Process

1. Nutrition Assessment:

- Review chart to determine nutritional adequacy for diagnosis RT pressure ulcer prevention or treatment
- Evaluate the individual's dietary pattern to identify source of calories
- Assess degree of weight loss or malnutrition based on assessment factors RT wound healing
- Determine the adequacy of calories, protein, minerals and micronutrients intake in the diet

2. Nutrition Diagnosis:

- P (Problem): Inadequate intake of calories, fluid and protein per assessed requirements
- As related to:
 - **E.** (Etiology), chronic stage IV pressure ulcer
 - Loss of 5% weight in 30 days
 - As evidenced by: Frequent complaints of type and amount of foods served, and reported intake of <50% since admission 60 days ago
 - **S:** Signs/Symptoms: Loss of 3# in 7 days.

Nutrition Diagnosis Statement: *Inadequate intake of calories & protein & poor oral intake RT continued weight loss resulting in delayed wound healing*

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3. Intervention: Nutrition Prescription

- Based on the assessment and nutrition diagnosis statement (PES), data available, individual's preferences and treatment goals.
- Regular diet with fortified foods at breakfast, small portions at lunch /supper plus choice of high calorie, high protein supplement at HS
- 8 oz beverage of choice, 8 oz of water with meals plus 4 oz with medication pass

Intervention	Goal
1: Provide 6 oz fortified cereal with half & half plus 8 oz whole milk & 4 oz OJ at breakfast	Increase calories, pro, fluid & vitamin C to meet needs for healing based on assessed needs
2: Provide choice of high calorie supplement at HS	Increase weight to target determined by individual and care team & heal PU
3: Provide favorite foods & small portions per pt request	Increase caloric intake and expand menu variety
4: Request physician consider a daily multivitamin with minerals	Increase vitamin and mineral intake to meet RDIs
5: Provide 8 oz favorite beverage, 8 oz water with meals; 4 oz liquid w/med pass	Meet additional hydration requirements RT draining stage IV pressure ulcer

4. Monitor and Evaluation

- Monitor & evaluate overall acceptance of diet, decrease in wound size, increase in intake of high calorie/protein foods, & increase weight to target range.

References for Case Study:

1. Lacey K, Pritchett E., Nutrition Care Process and Model: ADA adapts road map to quality care and outcomes management, J. Am Diet Assoc. 2003;103(8): 1061-1072
2. ADA Scientific Affairs and Research. Nutrition Diagnosis and Intervention Standardized language for the Nutrition Care Process. Chicago: American Dietetic Association; 2006

Summary:

I. Intervene early and aggressively

A. Clinicians need evidence based research to develop appropriate clinical guidelines for nutrition assessment and intervention

1. Nutrition & hydration can have a positive impact on the quality of life: Poor health outcomes may be associated with even small amounts of UWL
2. Early nutrition interventions can help to prevent &/or delay undernutrition, PEM & hydration deficits & their impact on risk of PU development

B. Follow best practice guidelines (based on EBR)

1. Implement aggressive nutrition interventions to prevent or correct nutrition deficits
2. Care plan should focus on improving or maintaining overall nutritional status, acceptance of interventions & patient outcomes

The information in these handouts was excerpted from Becky Dorner & Associates, Inc. 2008 Diet Manual (extended version): <http://www.beckydorner.com/publications-details.html?id=19>.

Watch for World Guidelines in June and NPUAP Nutrition White Paper to follow: www.npuap.org.

References available upon request to Becky@BeckyDorner.com