Wound Care:
Don’t Forget to Consult the Dietitian

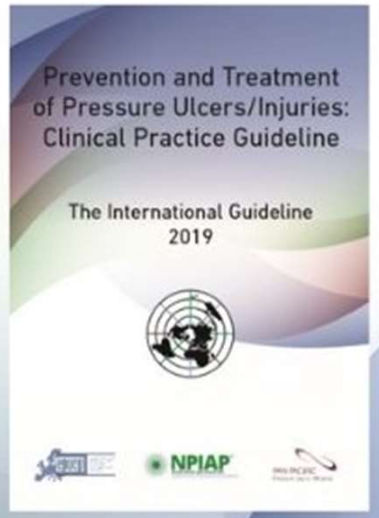
Adriann Pidek, MPH, RDN

The Hidden Challenges of Wound Care in Long-Term Care Facilities

Wound Care Is Essential

Wound Care Is Complex

Make Excellent
Wound Care
Your Business



THE 2019 CLINICAL PRACTICE GUIDELINE IS NOW AVAILABLE!

https://npiap.com/

Free Materials

Resources » Free Materials

NPIAP Free Materials

NEW

Deep Tissue Pressure Injury or an Imposter?

Wheelchair Seating Pocket Guide

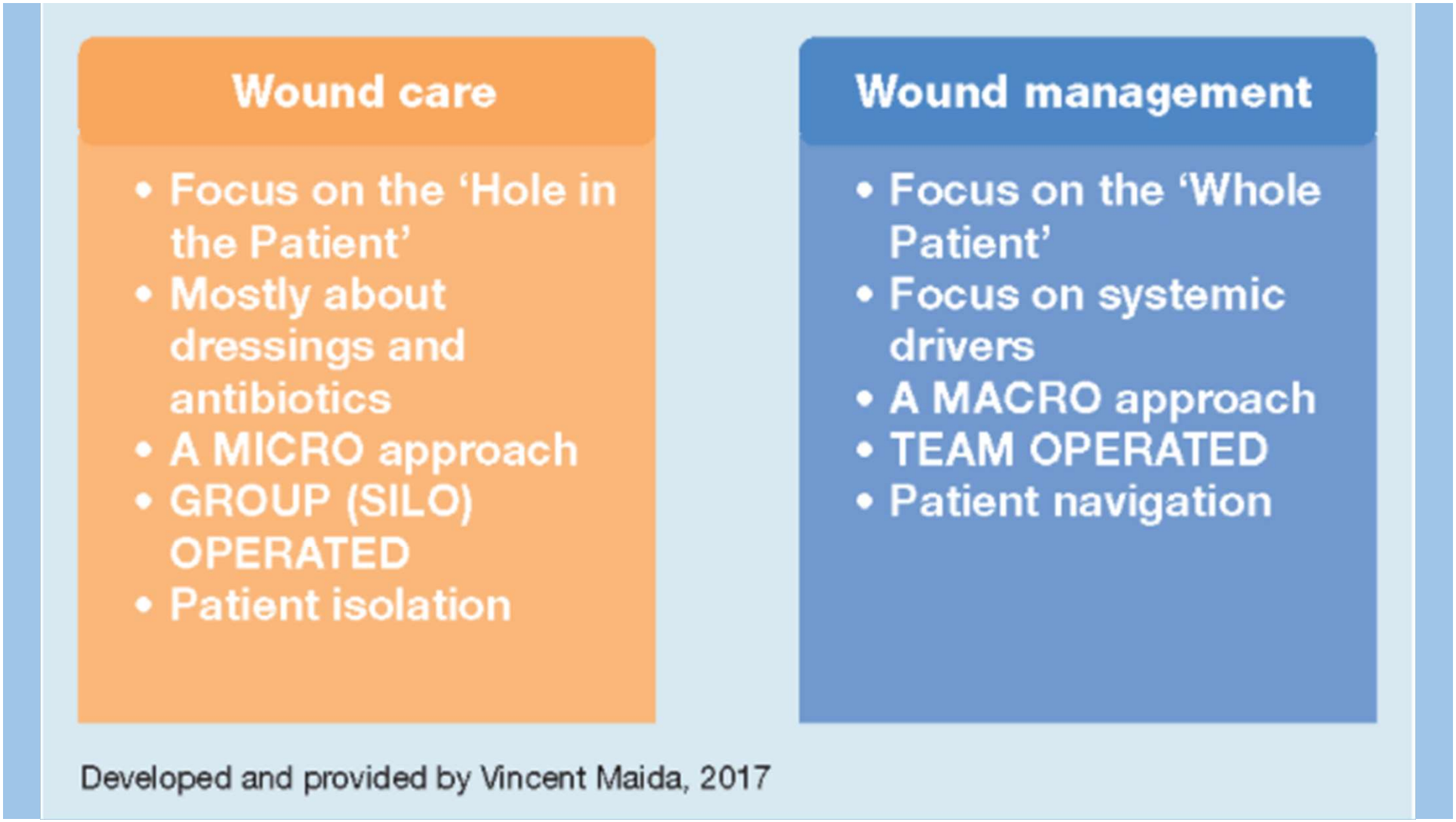
Best Practices for Cleansing, Disinfecting, and Care of Polyurethane Support Surface Covers

Offloading Heels Effectively In Adults To Prevent Pressure Injuries

Factors Affecting Patients with Wounds

Physical	Personal
Pain	Fear/alarm
Odour	Shame
Infection	Uncertainty
Exudate	Inconvenience
Bleeding/itching	Isolation
Clothing often unsuitable	Lack of mobility
Disfigurement/cosmetic aesthetic concerns	Low self-esteem
Loss of function/productivity	Poor wellbeing

https://www.magonlinelibrary.com/doi/epub/10.12968/jowc.2017.26.11.662


Wound care
• Focus on the 'Hole in the Patient'
• Mostly about dressings and antibiotics
• A MICRO approach
• GROUP (SILO) OPERATED
• Patient isolation
Wound management
• Focus on the 'Whole Patient'
• Focus on systemic drivers
• A MACRO approach
• TEAM OPERATED
• Patient navigation
Developed and provided by Vincent Maida, 2017

Clinical assessment should include a proper history and examination, using appropriate assessment tools (Fig 6). We need to gauge if the wound is a healable or non-healable wound. Diagnostics should include all assessments that might be necessary, including: blood work, X-rays, MRIs, wound biopsies, scans, etc. Therapeutics would include antibiotics and wound dressings, but they represent a small part of that pillar, which also includes debridement, offloading, specific consultations, etc (Fig 6). Finally, prevention and prognosis is key. We should be doing everything possible to prevent wounds in the first place, which is the ultimate form of patient advocacy (Fig 6). Further, secondary prevention is also vital, as patients with existing wounds are more likely to develop others. We also need to be able to review and assess the prognostic implications of wounds because our research has demonstrated that wounds are independent prognostic factors for decreased life expectancy.

Nutrition and Wounds

- Decreased acceptance of food/ fluids
- Insufficient nutrient intake and low body weight
- Maximizing nutrition - reduce development of pressure injuries *and* improve healing of existing pressure injuries
- Reduced costs, mortality, length of hospital stay and complications of pressure injuries

Citty S.W. et al. Advances in Wound Care 2018;8(7)309-322.

Nutrition management in long-term care

1. **Prevent** malnutrition.
2. **Screen** for malnutrition and risk of malnutrition early.
3. **Assess** risk factors and severity of malnutrition.
4. **Intervene** with nutrition interventions
5. **Overcome** barriers with strategies specific to long-term care settings.

Prevent malnutrition when treating medical conditions

Prevent malnutrition in LTC

- Routine weight measurement, identify significant changes
- Identify changes in oral intake
- Make sure meals and foods meet individual tastes
- Lift dietary restrictions whenever possible

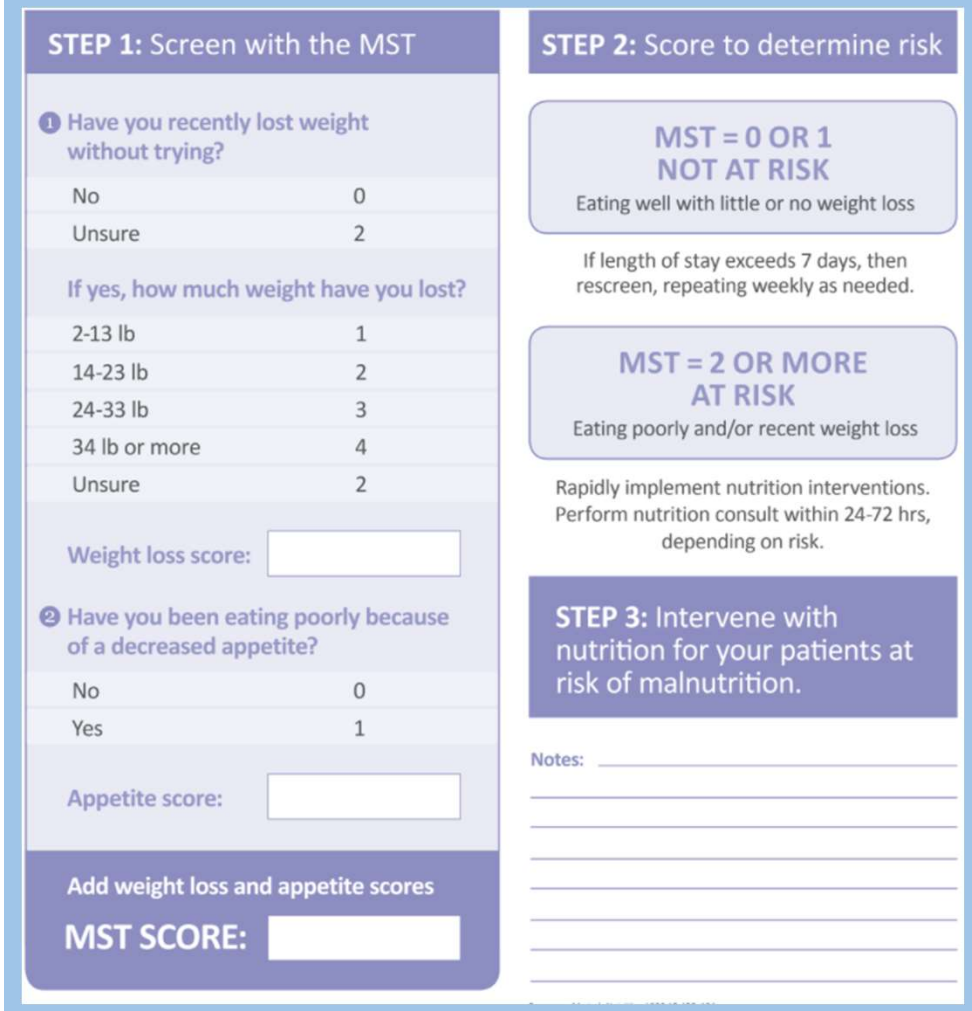
Malnutrition as a Precursor of Pressure Ulcers

Screening Tool

Assess upon admission, at regular intervals, and with change in condition. Use a validated tool, such as MST: Malnutrition Screening Tool

1. Have you recently lost weight without trying?
    a. If yes, how much weight have you lost?
2. Have you been eating poorly because of a decreased appetite?

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3899999/



STEP 1: Screen with the MST

1. Have you recently lost weight without trying?

No	0
Unsure	2

If yes, how much weight have you lost?

2-13 lb	1
14-23 lb	2
24-33 lb	3
34 lb or more	4
Unsure	2

Weight loss score:

2. Have you been eating poorly because of a decreased appetite?

No	0
Yes	1

Appetite score:

Add weight loss and appetite scores

MST SCORE:

STEP 2: Score to determine risk

MST = 0 OR 1
NOT AT RISK
Eating well with little or no weight loss

If length of stay exceeds 7 days, then rescreen, repeating weekly as needed.

MST = 2 OR MORE
AT RISK
Eating poorly and/or recent weight loss

Rapidly implement nutrition interventions. Perform nutrition consult within 24-72 hrs, depending on risk.

STEP 3: Intervene with nutrition for your patients at risk of malnutrition.

Notes:

MST

- Validated across settings and age groups
- 80-90% sensitivity, specificity
- May be carried out by any trained personnel
- A score of 2 or more warrants referral for further nutrition assessment

Academy of Nutrition and Dietetics. J Acad Nutri Diet. 2020; 120(4) 709-713. Witty S. W. Advances in Wound Care 2018;8(7)309-322. Munoz N et al. Adv Skin Wound Care 2020;33:123-36.

Nutrition assessment

- Nutrition assessment includes food/ nutrition-related history, labs, tests, procedures, patient history, nutrition-focused physical exam
- Nutrition-focused physical exam is not necessary for every assessment of malnutrition, but may include the following:
  - Loss of muscle mass or subcutaneous fat
  - Fluid accumulation
  - Diminished functional status (hand grip strength)

Criteria for Malnutrition

- Important for monitoring, also facility documentation
- Mild, Moderate, Severe
- Criteria for **Severe** Protein Calorie Malnutrition in the presence of chronic illness:
  - Unintended Wt Loss: Over 5% x 1 month
  - Nutrient Intake: Consuming <75% of estimated nutrient needs ≥1 month

Delaney, C et al. Nutritional Considerations for Peripheral Arterial Disease: A Narrative Review. Nutrients. 2019;11(6):1219.

Albumin and Prealbumin Levels

May correlate with prognosis but are not considered sensitive indicators of nutrition status

Serum protein levels can be affected by inflammation, renal function, hydration, and other factors

Munoz N, et al. Adv Skin Wound Care 2020;33:123-36

Nutrition for wound prevention and healing

- Individualize the optimal intake of: calories, protein, fluids, micronutrients
- Improve oral intake with:
  - Nutritional counseling
  - Modifying food, such as with fortified foods
  - Liberalize diet restrictions if possible
  - Honor cultural/ religious preferences
  - Provide a pleasant eating environment

Adv Skin Wound Care 2020;33:123-36. Advances in Wound Care 2018;8(7)309-322. Delaney, C et al. Nutritional Considerations for Peripheral Arterial Disease: A Narrative Review. Nutrients. 2019;11(6):1219. Adv Skin Wound Care 2020;33:123-36

Table 3. NUTRIENTS AND THEIR THERAPEUTIC PROPERTIES

Nutrient	Functions	Notes	Sources	Related CPG Recommendation
Calories	Supply energy, prevent weight loss, preserve lean body mass		Carbohydrate, protein, and fat; carbohydrate and fat are preferred	4.6, 4.8, 4.9, 4.10
Carbohydrates	Glucose supports cell growth, fibroblasts, and leukocytes	Delivers energy; energy needs must be met to spare protein from being used for energy	Grains, fruits, and vegetables; complex carbohydrates are preferred	
Protein	Immune support; binding of skin, cartilage, and muscle	Contains nitrogen, which is essential for wound healing. Arginine becomes a conditionally indispensable amino acid during times of physiologic stress	Meats, fish, poultry, eggs, legumes, milk, and dairy products; favor lean meat and reduced- or low-fat dairy products	4.5-4.10
Fat	Carries fat-soluble vitamins, provides insulation under the skin and padding of bony prominences, helps modulate inflammation and the immune response	Most concentrated energy source	Meats, eggs, dairy products, and vegetable oils	
Fluids/water	Solvent for minerals and vitamins, amino acids, and glucose; helps maintain body temperature; transports materials to cells and waste products from cells; maintains skin integrity		Water, juices, beverages; fruits and vegetables contain approximately 95% water. Most supplements are 75% water	4.13

Munoz N, et al .ADV SKIN WOUND CARE 2020;33:123–36..

Vitamin A	Protein synthesis, collagen formation, maintenance of epithelium, immune function	May delay healing in older adults on corticosteroids UL is 3,000 µg; DRI females aged >70 y is 700 µg, males aged >70 y is 900 µg	Beef liver, milk, dark green and yellow vegetables (carrots, sweet potatoes, broccoli, spinach, apricots)
Vitamin C	Collagen formation, enhances activation of leukocytes and macrophages to wounds, improves tensile strength, aids in iron absorption	Water-soluble, noncaloric organic nutrient	Citrus fruits and juices, tomatoes, potatoes, broccoli
Vitamin E	Fat metabolism, collagen synthesis, cell membrane stabilization	Antioxidant	Vegetable oils, sweet potatoes
Copper	Red blood cell formation, responsible for collagen cross-linking and erythropoiesis	Inorganic, noncaloric nutrient UL is 10,000 µg. DRI females and males aged ≥70 y is 900 µg.	Nuts, dried fruit, organ meats, dried beans, whole-grain cereal
Iron	Transports oxygen to the cells as a component of hemoglobin, important in collagen formation, creates energy from cells		Heme iron: meats, poultry, and fish Nonheme iron: vegetables, grains, eggs, meat, fish
Zinc	Cofactor for collagen formation, metabolizes protein, assists in immune function, liberates vitamin A from the liver, interacts with platelets in blood clotting	Inorganic, noncaloric nutrient Mega doses of zinc may inhibit healing and cause copper deficiency UL is 40 mg DRI females aged ≥70 y is 8 mg, males aged ≥70 y is 11 mg.	Meats, liver, eggs, and seafood

Munoz N, et al .ADV SKIN WOUND CARE 2020;33:123–36..

Oral Nutritional Supplements

Offer oral nutritional supplements when current dietary intake does meet nutritional needs

Studies on role of oral nutritional supplements and wound healing show mixed findings:

- Studies often include ulcers of multifactorial origin
- Nutrition is only one part of overall patient's care
- Heterogeneity in study designs, risk of bias

Many oral supplements and fortified foods contain additional micronutrients and should be considered before recommending additional supplementation

Munoz N, et al .ADV SKIN WOUND CARE 2020;33:123–36.

High-calorie/ High-protein Supplements

- May prevent pressure injuries (25% lower incidence, meta-analysis)
- Increase rate of healing if supplemented for at least 4 weeks (substantiated by different trials)

Adv Skin Wound Care 2020;33:123-36. Citty S.W. et al. Advances in Wound Care 2018;8(7)309-322.

Micronutrient Supplements

Lack of evidence-based research for routinely providing megadoses of supplements such as ascorbic acid and zinc

Studies since 2010 have shown positive effect of high-calorie/ high-protein nutritional supplements enriched with arginine, zinc, and antioxidants in malnourished adults with Stages 2-4 pressure injuries

- Compared to isocaloric, isonitrogenous control group
- Greater reduction in wound surface area in intervention groups after 8 weeks
- Cost effective compared to usual care, with reduced hospital stays, reduced intensity of care

Advances in Wound Care 2018;8(7)309-322.

Supplement	Contains:	Recommended Serving	Cost to purchase in the community	Flavor	Meet NPIAP guidelines?	Arginine	Glutamine	Kcal / unit	Pro g	Cho g	HMB	Zinc	B12	Vit C	Vit E	Potassium	Gluten free	Lactose free
Powder Packets																		
Arginaid (Nestle)	Arginine, Antioxidants: C, E	2 packets / day	$1.25 / packet $70 (box of 56) Amazon	Cherry Orange	**No - missing zinc**	4.5 g	-	25	-	2 g	-	-	-	156 mg	60mg		Yes	Yes
Argiment (Meditrition)	Arginine, Glutamine	2 packets / day	$3.48 / packet $209 (box of 60) on Amazon	Orange	**No - missing zinc and antioxidants**	7.5 g	10 g	90	0	4 g	-	-				14 mg	Yes	Yes
Argiment AT (Medtrition)	Arginine, Glutamine, Vit C, Zinc	2 packets / day	$3.62 / packet $217 (box of 60) Amazon	Orange	**Yes**	7 g	7 g	120	10 g	6 g		12.5 mg		250 mg		87 mg	Yes	low in lactose
Juven (Abbott)	HMB, Arginine, Glutamine, Collagen protein, Antioxidants: C, E, also contains B12 and Zinc	2 packets / day	$2.80 / packet $168 total for 2x $84 (box of 30) Amazon	Cherry Fruit Punch Orange Unflavored	**Yes**	7 g	7 g	80	2.5 g	4.2 g	Yes	9.5 mg	1.2 mcg	300 mg	15 mg		Yes	Yes
	2019 NPAIP Nutrition Guidelines: In addition to high calorie & high protein ONS, include: arginine, zinc, and anti-oxidants for stage II or greater pressure injury who are malnourished or at risk of malnutrition. This is a change to the previous guidelines for stage III or greater pressure injury. Monitor for s/s of other nutrient deficiencies																	

Artificial Nutrition and Hydration

- Consider enteral or parenteral nutrition if patient desires and tolerates. However, nutrition goals should not take priority over patient-centered goals.
- Limited evidence supporting benefits in pressure ulcer prevention and treatment
- Some evidence of harm in LTC residents receiving enteral nutrition for pressure injuries: More pneumonia, weight loss, death compared to those on oral diet (61% vs 34%, P <.01)

Adv Skin Wound Care 2020;33:123-36. Citty S.W. et al. Advances in Wound Care 2018;8(7)309-322.

Barriers and Strategies for optimal nutrition care in LTC

Impaired swallow function

Mealtime interruptions

Social isolation

Need for assistance with eating

- Identify food/ beverages that may be safely swallowed
- Establish regular consistent mealtimes, Schedule routine care before or after meals
- Encourage visitors to eat with resident if no COVID restriction
- Assess staffing patterns, Use mealtime assistants at meals

Citty S.W. et al. Advances in Wound Care 2018;8(7)309-322

Barriers and Strategies for optimal nutrition care in LTC

Inconsistent screening, assessment

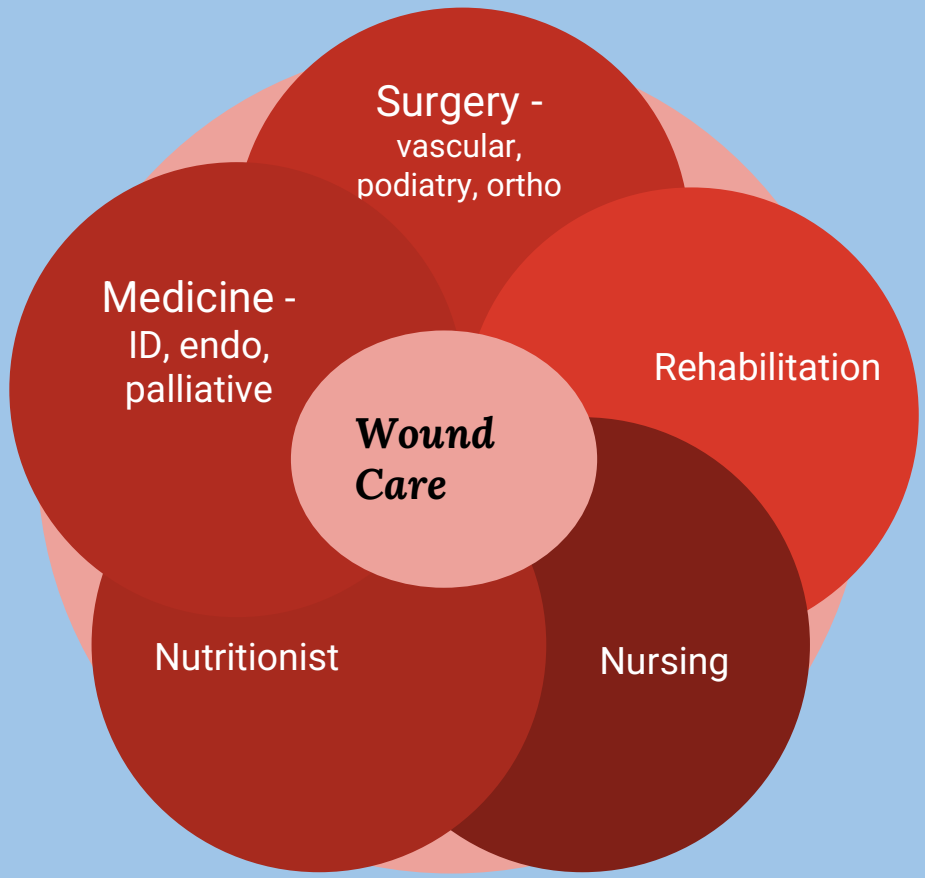
Fragmented ordering, documentation

Financial limitations, cost

Provider education and knowledge

- Use reliable tools, Assess upon admission, Automate nutrition protocols
- Utilize EHR for standard orders, Utilize standard protocols for supplements
- Identify resources for reduced cost supplements, Request coupons
- Educate front-line providers, Educate on benefits of early initiation of nutrition interventions

Multidisciplinary Care



Malnutrition Resources

- Criteria for Protein Calorie Malnutrition from the Academy of Nutrition and Dietetics https://www.andeal.org/vault/2440/web/files/ONC/Table_Clinical%20Characteristics%20to%20Document%20Malnutrition-White%20JV%20et%20al%202012.pdf
- Consensus Statement from AND and ASPEN https://dietitiansondemand.com/wp-content/uploads/2017/09/ASPEN-AND-2012-Consensus-Statement-Regarding-Malnutrition-Diagnosis-1.pdf\
- Academy of Nutrition and Dietetics https://www.eatrightpro.org/practice/practice-resources/clinical-malnutrition

Training Opportunities

- https://anhi.org/education/nutrition-training-certificates
- https://nutritionandaging.org/certificate-of-training-in-adult-malnutrition-abbott-nutrition-health-institute/#wbounce-modal Reviewed by

The National Resource Center on Nutrition & Aging

aspen LEADING THE SCIENCE AND PRACTICE OF CLINICAL NUTRITION
American Society for Parenteral and Enteral Nutrition