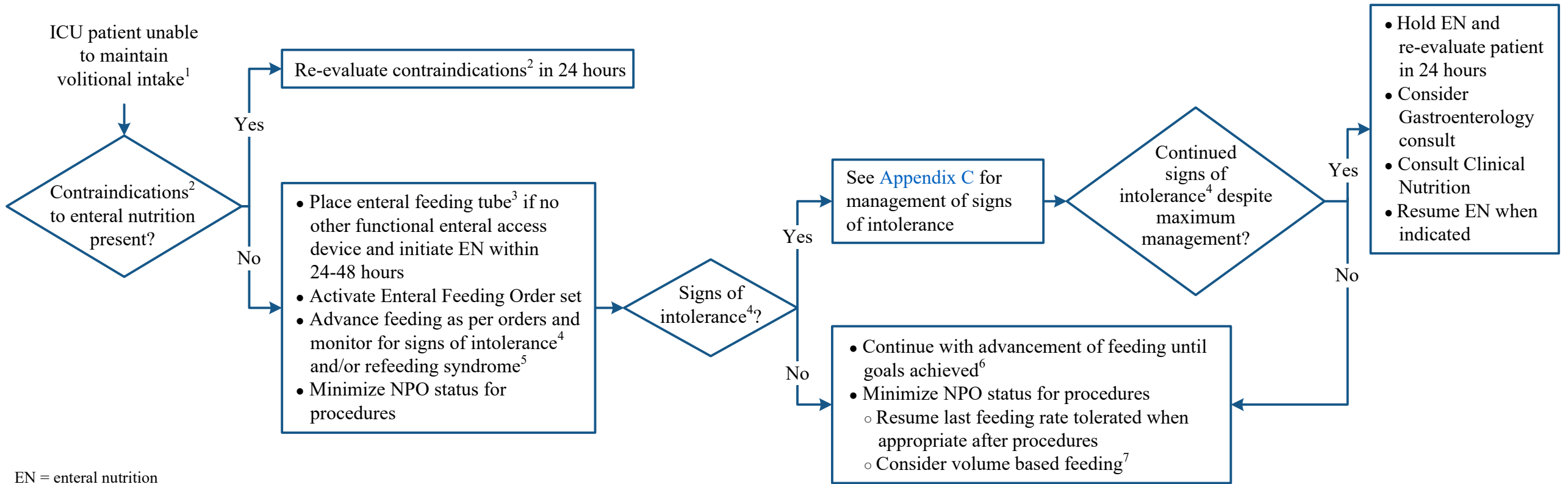


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PRESENTATION/ASSESSMENT

TREATMENT

ASSESSMENT AFTER INITIAL TREATMENT



EN = enteral nutrition

¹ If patient meets criteria for malnutrition, add malnutrition to problem list (see [Appendix A: Malnutrition Criteria](#))

² **Contraindications:** Note: Contraindications do NOT include absence of bowel sounds or flatus, ileus, diarrhea, or increased gastric residual volume

- Bowel ischemia • Bowel obstruction • Gastrointestinal bleeding
- Hemodynamic instability defined as norepinephrine > 15 micrograms/minute or phenylephrine > 150 micrograms/min or vasopressin > 0.02 units/minute or need for > 2 vasoactive infusions

³ Consider post pyloric feeding tube placement for patients at risk for aspiration (see [Appendix B](#)), gastroparesis, and/or major abdominal surgery. If expertise in placement of post pyloric feeding tube is not available, it is acceptable to initiate gastric feeding.

⁴ **Signs of Intolerance:**

- Abdominal distention • Nausea
- Gastric residual volume > 300 mL • Diarrhea: at least 3-5 loose, liquid, or watery bowel movements/day
- Decreased passage of stool • Development of contraindications

⁵ Refer to American Society for Parenteral and Enteral Nutrition (ASPEN) Consensus Recommendations for Refeeding Syndrome (see [Page 7](#))

⁶ Goal is to provide > 80% of estimated energy and protein needs within 72 hours for maximum clinical benefit

⁷ Consult Clinical Nutrition for recommendations

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APPENDIX A: Malnutrition Criteria

This document is a reasonable guideline for the identification of malnutrition in the adult population (medical, surgical, rehabilitation and behavioral health) when used with professional clinical judgment.

- If the clinical dietitian/nutritionist identifies evidence from a nutritional assessment that patient meets criteria below, the diagnosis of malnutrition is added to the Problem List. At least two criteria are required to identify Severe or Non Severe malnutrition.
- Criteria may apply at all Body Mass Index calculations
- Criteria noted below may encompass patient data prior to admission as determined from medical record documentation and/or information provided by the patient/reliable caregivers

ICD-10 Code: E43 Severe, Protein-Calorie Malnutrition	Severe Malnutrition in context of Acute Illness/Injury	Severe Malnutrition in context of Chronic Illness	Severe Malnutrition in context of Social/Behavioral/Environmental Circumstances
Weight Loss - Evaluated in light of other clinical findings including hydration. Weight change over time is reported as a percentage of weight lost from baseline.	Weight Loss > 2% in 1 week > 5% in 1 month > 7.5% in 3 months	Weight Loss > 5% in 1 month > 7.5% in 3 months > 10% in 6 months > 20% in 12 months	Weight Loss > 5% in 1 month > 7.5% in 3 months > 10% in 6 months > 20% in 12 months
Intake - RD obtains diet history and estimates energy needs. Suboptimal intake is determined as a percentage of estimated needs over time.	Energy Intake ≤ 50% energy intake compared to estimated energy needs for ≥ 5 days	Energy Intake ≤ 75% energy intake compared to estimated energy needs for ≥ 1 month	Energy Intake ≤ 50% energy intake compared to estimated energy needs for ≥ 1 month
Body Fat - Loss of subcutaneous fat <i>e.g.</i> , orbital, triceps, fat overlying ribcage	Body Fat Moderate depletion	Body Fat Severe depletion	Body Fat Severe depletion
Muscle Mass - Loss of muscle <i>e.g.</i> , temples, clavicles, shoulders, scapula, thigh and calf	Muscle Mass Moderate depletion	Muscle Mass Severe depletion	Muscle Mass Severe depletion
Fluid Accumulation - General or local fluid accumulation <i>e.g.</i> , extremities, ascites or vulvar/scrotal edema	Fluid Accumulation Moderate to Severe	Fluid Accumulation Severe	Fluid Accumulation Severe
Functional Assessment - ECOG Performance Status	ECOG Performance Status Decline from baseline	ECOG Performance Status Decline from baseline	ECOG Performance Status Decline from baseline

RD = registered dietitian

ECOG = European Cooperative Oncology Group

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APPENDIX A: Malnutrition Criteria - continued

ICD-10 Code: E440 Malnutrition of Moderate Degree	Non-Severe Malnutrition in context of Acute Illness/Injury	Non-Severe Malnutrition in context of Chronic Illness	Non-Severe Malnutrition in the context of Social/Environmental Circumstances
Weight Loss - Evaluated in light of other clinical findings including hydration. Weight change over time is reported as a percentage of weight lost from baseline.	Weight Loss 1-2% in 1 week 5% in 1 month 7.5% in 3 months	Weight Loss 5% in 1 month 7.5% in 3 months 10% in 6 months 20% in 12 months	Weight Loss 5% in 1 month 7.5% in 3 months 10% in 6 months 20% in 12 months
Intake - RD obtains diet history and estimates energy needs. Suboptimal intake is determined as a percentage of estimated needs over time.	Energy Intake < 75% energy intake compared to estimated energy needs for > 7 days	Energy Intake < 75% energy intake compared to estimated energy needs for ≥ 1 month	Energy Intake < 75% energy intake compared to estimated energy needs for ≥ 3 months
Body Fat - Loss of subcutaneous fat <i>e.g.</i> , orbital, triceps, fat overlying ribcage	Body Fat Mild depletion	Body Fat Mild depletion	Body Fat Mild depletion
Muscle Mass - Loss of muscle <i>e.g.</i> , temples, clavicles, shoulders, scapula, thigh and calf	Muscle Mass Mild depletion	Muscle Mass Mild depletion	Muscle Mass Mild depletion
Fluid Accumulation - General or local fluid accumulation <i>e.g.</i> , extremities, ascites or vulvar/scrotal edema	Fluid Accumulation Mild	Fluid Accumulation Mild	Fluid Accumulation Mild
Functional Assessment - ECOG Performance Status	ECOG Performance Status Decline from baseline	ECOG Performance Status Decline from baseline	ECOG Performance Status Decline from baseline
ICD-10 Code: E441 Malnutrition of Mild Degree	Applicable for Pediatric only		
ICD-10 Code: E440 Moderate Protein Malnutrition	Malnutrition of Moderate Degree (Protein)		
ICD-10 Code: E440 E43 Severe Protein-Calorie Malnutrition	Malnutrition of Severe Degree (Protein-Calorie)		

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APPENDIX B: Risk Factors and Prevention for Aspiration

Risk Factors	Interventions for Prevention in Patients with Risk Factors (including in those not tolerating gastric enteral nutrition)
<ul style="list-style-type: none"> • Inability to protect airway • Presence of naso/oro-gastric enteral access • Mechanical ventilation • Age > 70 years • Reduced level of consciousness • Poor oral care • Inadequate nurse:patient ratio • Neurologic deficits • Gastroesophageal reflux • Use of bolus intermittent enteral feeding 	<ul style="list-style-type: none"> • Post-pyloric feeding • Elevate head of bed 30-45° • Switch delivery to continuous infusion • Chlorhexidine mouthwash twice daily • Prokinetic agents (see Appendix C)

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APPENDIX C: Management of Signs of Intolerance

<p>Gastric Residual Volume (GRV) > 300 mL</p>	<ul style="list-style-type: none"> • For initial GRV > 300 mL: <ul style="list-style-type: none"> ◦ Do not hold EN in the absence of other signs of intolerance ◦ Replace up to 500 mL of aspirate and discard remaining ◦ Review stooling pattern ◦ Consider pro-kinetics¹ and continue GRV measurements every 4 hours <ul style="list-style-type: none"> - Metoclopramide 10 mg IV every 6 hours - Erythromycin 250 mg IV every 6-8 hours for 48 hours ◦ If GRV > 500 mL, consider reducing EN rate by half while evaluating causes of increased residuals 	<ul style="list-style-type: none"> • For GRV > 300 mL for two consecutive measurements: <ul style="list-style-type: none"> ◦ Do not hold EN in the absence of other signs of intolerance ◦ Replace up to 500 mL of aspirate and discard remaining ◦ Review stooling pattern ◦ Initiate pro-kinetics^{1,2} and continue GRV measurements every 4 hours <ul style="list-style-type: none"> - Metoclopramide 10 mg IV every 6 hours - Erythromycin 250 mg IV every 6-8 hours for 48 hours ◦ If continued GRV > 300 mL on pro-kinetics, consider switch to post-pyloric and discontinue pro-kinetics ◦ If GRV > 500 mL, hold EN while evaluating causes of increased residuals
<p>Diarrhea: At least 3-5 loose, liquid, or watery bowel movements/day</p>	<ul style="list-style-type: none"> • EN should not be automatically interrupted for diarrhea; evaluate etiology of diarrhea to determine appropriate therapy • Evaluate patient history to determine pre-existing conditions which could cause diarrhea (<i>e.g.</i>, ulcerative colitis) • Assess the abdomen and consider imaging if indicated • Consider evaluating for Clostridium difficile • Evaluate medications which may be contributing to diarrhea including but not limited to those containing sorbitol, chemotherapy, antibiotics, scheduled bowel management medications, and metoclopramide • Rule out stool impaction • Consider fecal incontinence management system • If fiber is not contraindicated, 10-20 grams of fermentable soluble fiber is suggested, given in divided doses over 24 hours as adjunctive therapy • Use of small peptide formulations in the patient with persistent diarrhea, suspected malabsorption, or lack of response to fiber is suggested • Avoiding both soluble and insoluble fiber in patients at high risk for bowel ischemia or severe dysmotility is suggested. A fermentable soluble fiber should be considered for routine use in all hemodynamically stable medical and surgical patients. • Consider the use of anti-diarrheal medications if indicated such as loperamide hydrochloride¹ (Immodium A-D) or diphenoxylate and atropine (Lomotil). Probiotics, such as lactobacillus acidophilus/bulgarius (Lactinex) may be considered for antibiotic-associated diarrhea in the absence of neutropenia. 	

EN = enteral nutrition

¹ Monitor QTc. QTc prolongation resulting in torsades de pointes is a risk but only under certain conditions such as excessive dose, hypokalemia, congenital long QT, or drug-drug interaction.

² Consider adding second pro-kinetic if initial pro-kinetic not effective

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APPENDIX C: Management of Signs of Intolerance - continued

<p>Decreased passage of stool: No stool for > 48 hours</p>	<ul style="list-style-type: none"> • Initiate stools softeners and/or laxatives as indicated: <ul style="list-style-type: none"> ◦ Docusate 100 mg enteral feeding tube every 12 hours scheduled ◦ Sennosides 17.6 mg enteral feeding tube every 12 hours scheduled ◦ Lactulose 20 grams enteral feeding tube every 12 hours PRN no bowel movement > 48 hours ◦ Bisacodyl suppository 10 mg rectal daily PRN no bowel movement > 48 hours • Consider methylnaltrexone for patients experiencing opioid-induced constipation with inadequate respond to other laxative therapy and no known or suspected mechanical gastrointestinal obstruction
<p>Abdominal pain</p>	<ul style="list-style-type: none"> • Hold EN while evaluating causes • Evaluate for bowel ileus or obstruction • Resume EN at prior rate if clinically indicated
<p>Nausea</p>	<ul style="list-style-type: none"> • Consider addition of anti-emetics(s) as indicated <ul style="list-style-type: none"> ◦ Ondansetron 4 mg IV every 6 hours or 8 mg IV every 8 hours PRN ◦ Prochlorperazine 2.5-10 mg IV every 6-8 hours PRN ◦ Promethazine 12.5-25 mg IV every 6 hours PRN ◦ Metoclopramide 5-10 mg IV every 6 hours PRN • Evaluate for other causes of nausea and treat as indicated <ul style="list-style-type: none"> ◦ Refer to Adult Antiemetic Management of Chemotherapy-Induced Nausea and Vomiting (CINV) algorithm ◦ Refer to Nausea/Vomiting Associated with Surgery-Adult algorithm
<p>Development of contraindications</p>	<p>Hold EN</p>

EN = enteral nutrition

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DEVELOPMENT CREDITS

This practice consensus statement is based on majority expert opinion of the ICU Early Nutrition experts at the University of Texas MD Anderson Cancer Center for the patient population. These experts included:

Core Development Team Leads

Anam Khan, MBBS (Gastroenterology, Hepatology and Nutrition)
S. Egbert Pravinkumar, MD, FRCP (Critical Care Medicine)

Workgroup Members

Todd Canada, PharmD (Pharmacy Clinical Programs)
Heather Davis, MS, RD, LD, CNSC (Clinical Nutrition)
Olga N. Fleckenstein, BS[♦]
Jacob Hall, PharmD (Pharmacy Clinical Programs)
Mary Lou Warren, DNP, APRN, CNS-CC[♦]

[♦] Clinical Effectiveness Development Team