Monitor Tolerance & Adequacy

- Monitor daily for tolerance to EN.
- Perform ongoing evaluation of adequacy of protein. (See www.ENactNutrition.com)
- Efforts to provide >80% of estimated nutrient needs within 48-72 hours should be made.
- Consider use of supplemental PN after 7-10 days if unable to meet >60% of energy and protein needs by EN alone.

Select Formulas

- Consider initiating very high protein formula to meet protein requirements of 1.2-2.0 gm/kg/day ABW*.
- Avoid routine use of all specialty formulas in the medical ICU and disease-specific formulas in the surgical ICU. E1
- Consider use of small peptide formulation in patients with persistent diarrhea, suspected malabsorption, risk for bowel ischemia. E4b
- Peptide-based diets are part of a "safe-start" top-down protocol strategy. Protocols should be implemented to increase goal calories provided. D3a

Is EN Contraindicated?

- Contraindications to EN: GI obstruction, bowel ischemia, intractable vomiting and/or diarrhea, <100cm small bowel, paralytic ileus: severe GI bleed, inability to gain access to GI tract, hemodynamic instability. B5
- Initiate PN as soon as possible where EN is not feasible in high risk or severely malnourished patients. G2

Initiate EN

- EN is the preferred route of feeding over PN. B2
- Initiate feeding in 24-48 hrs, advancing to goal quickly. B1, C3
- Use top-down protocols D3b such as PEPuP.

Monitor Tolerance & Adequacy

- Monitor daily for tolerance to EN. D1
- Perform ongoing evaluation of adequacy of protein. A4 (See www.ENactNutrition.com)
- Efforts to provide >80% of estimated nutrient needs within 48-72 hours should be made. C3
- Consider use of supplemental PN after 7-10 days if unable to meet >60% of energy and protein needs by EN alone. G3

Evaluate Need for Adjunctive Therapy

- BENEPROTEIN® A4
- NUTRISOURCE® FIBER F1
- ARGINAID® E2

### USE OF PROTOCOLS

Enteral feeding protocols should be designed and implemented to increase overall percentage of calories provided.

- **D3a** Use of volume-based feeding protocol or top-down multi-strategy protocols should be considered.  
- **D3b**

### ROUTE

Nutrition support therapy in the form of early EN should be initiated in 24-48 hours in the patient who is unable to maintain volitional intake.  

- **B1** EN over PN is suggested in critically ill patients who require nutrition support therapy.  
- **B2**

### INITIATE EN

Patients at high nutrition risk or severely malnourished should be advanced to goal feeding as quickly as tolerated over 24-48 hours. Goal is to provide >80% of estimated protein and energy needs.  

- **C3**

### PEPTIDES

Suggest considering use of small peptide formulations in the patient with persistent diarrhea with suspected malabsorption, risk of bowel ischemia or lack of response to fiber.  

- **E4b**

### HOLD PN

In the low nutritional risk patient, PN should be withheld for 7 days following ICU admission for the patient who cannot maintain volitional intake or receive EN.  

- **G1**

### INITIATE PN

On admission in high nutrition risk or severely malnourished patients, when EN is not feasible.  

- **G2, H2**

To supplement EN after 7-10 days of EN if unable to meet >60% of energy and protein needs.  

- **G3**

### CALORIES

Suggest indirect calorimetry (IC) be used to determine energy requirements when available and in the absence of variables that affect accuracy.  

- **A3a** In the absence of IC, use a published predictive equation or a simplistic weigh-based equation (25-30 kcal/kg/d) to determine caloric requirements for BMI < 30.  
- **A3b**

See Obesity for recommendations for patients with BMI ≥ 30.

### PROTEIN

Protein requirements for patients with BMI less than 30 are expected to be in the range of 1.2-2.0 g/kg ABW*/day and may likely be even higher in burn or multi-trauma patients.  

- **C4**

An ongoing evaluation of adequacy of protein provision should be performed.  

- **A4**

### OBESITY

Suggest for all classes of obesity where BMI is >30, the goal of the EN regimen should not exceed 60-70% of target energy requirements as measured by IC. If IC unavailable, suggest 11-14 kcal/kg ABW*/day for BMI 30-50, and 22-25 kcal/kg IBW***/day for BMI >50. Protein is suggested at ≥ 2.0 gm/kg IBW***/day for BMI 30-40, and up to

### FIBER

Avoid both soluble and insoluble fiber in patients at high risk for bowel ischemia or severe dysmotility.  

- **E4b**

A fermentable soluble fiber should be considered for routine care in all hemodynamically stable medical and surgical patients placed on standard enteral formulations.  

- **F1**

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*ABW is Actual Body Weight; **IBW is Ideal Body Weight*
MANAGING INTOLERANCE based on Critical Care Nutrition Guidelines

Are TF Gastric Residuals Volumes (GRVs) ≥ 500 mL? (D2b)

- YES: It is suggested that GRVs not be used as part of routine care to monitor patients on EN. Holding EN for GRVs <500 mL in absence of other signs of intolerance should be avoided. If GRVs monitored, levels of 200-500mL should raise concern and lead to implementation of measures to reduce risk of aspiration. 
  - See RISK OF ASPIRATION in SUMMARY OF SELECT GUIDELINES
  - If feasible, return residuals < 250 mL

- NO

Is patient complaining of pain and/or distension or do physical exam or x-rays indicate intolerance? (D1)

- YES: Withhold EN until patient is fully resuscitated and/or stable. For stable patients on EN and receiving vasopressor therapy, any signs of intolerance should be closely scrutinized as possible signs of gut ischemia (abdominal distension, high GRV, decreased passage of stool and flatus, hypoactive bowel sounds, increasing metabolic acidosis and/or base deficit). Use EN protocols to direct therapy.
  - Volume-based feeding
  - Top-down multi-strategy

- NO

Is Patient Having Diarrhea? (E4a, E4b, F1)

- YES: Consider use of small peptide formulations in patients with persistent diarrhea, suspected malabsorption, risk for bowel ischemia or lack of response to fiber.
  - Address the following:
    - Hyperosmolar medications
    - Infectious etiology, i.e., C. difficile
    - Sensitivity to specific components of the formula
    - Aseptic formula technique
    - Utilize Malabsorption Index

- NO

In patients who are high nutrition risk or severely malnourished, EN should be advanced towards goal as quickly as tolerated over 24-48 hours. Efforts to provide >80% of goal protein and energy within 48-72 hours, should be made to achieve clinical benefit of EN over first week of hospitalization. (C3)
<table>
<thead>
<tr>
<th>MANAGING INTOLERANCE and Summary of Select 2016 Critical Care Nutrition Guidelines¹</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USE OF PROTOCOLS</strong></td>
</tr>
<tr>
<td>• Enteral feeding protocols should be designed and implemented to increase the overall percentage of goal calories provided. <strong>D3a</strong></td>
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<tr>
<td>• Use of volume-based feeding protocol or top-down multi-strategy protocol should be considered. <strong>D3b</strong></td>
</tr>
<tr>
<td><strong>GASTRIC RESIDUALS</strong></td>
</tr>
<tr>
<td>• Patients should be monitored for tolerance of EN and inappropriate cessation of EN should be avoided. <strong>D1</strong></td>
</tr>
<tr>
<td>• Holding EN for gastric residual volumes &lt; 500mL in the absence of other signs of intolerance should be avoided. <strong>D2b</strong></td>
</tr>
<tr>
<td><strong>RISK OF ASPIRATION</strong></td>
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<tr>
<td>• Patients should be assessed for risk of aspiration and the following steps proactively employed:</td>
</tr>
<tr>
<td>‣ Consider post-pyloric tube placement. <strong>D4a</strong></td>
</tr>
<tr>
<td>‣ Elevate head of bed 30°-45°. <strong>D4d</strong></td>
</tr>
<tr>
<td>‣ In high risk patients or those intolerant to bolus gastric EN, switch delivery to continuous infusion. <strong>D4b</strong></td>
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<tr>
<td>‣ Use chlorhexidine mouthwash twice daily. <strong>D4d</strong></td>
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<tr>
<td>‣ Prokinetic agents should be initiated where clinically feasible. <strong>D4c</strong></td>
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<tr>
<td><strong>DIARRHEA</strong></td>
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<tr>
<td>• EN should not be automatically interrupted for diarrhea; evaluate etiology of diarrhea to determine appropriate therapy. <strong>D6</strong></td>
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<td>• Consider use of small peptide formulations in patients with persistent diarrhea, suspected malabsorption, risk for bowel ischemia or lack of response to fiber. <strong>E4b</strong></td>
</tr>
<tr>
<td>• If there is evidence of diarrhea and fiber is not contraindicated, then 10-20 gm of fermentable soluble fiber should be given in divided doses over 24 hours as adjunctive therapy. <strong>F1</strong></td>
</tr>
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</table>