2016 & 2021 Critical Care Nutrition Guidelines[1,2]

A summary for Adult Critically Ill Patients

CALCULATION OF NUTRITIONAL REQUIREMENTS

CALORIES	Suggest indirect calorimetry (IC) be used to determine energy requirements when available and in the absence of variables that affect accuracy. In the absence of IC, use a published predictive equation or a simplistic weight-based equation (12–25 kcal/kg/d) to determine caloric requirements during the first 7-10 days of ICU stay.[2] See *Obesity* for recommendations for patients with BMI ≥ 30.[1]
PROTEIN	Suggest sufficient (high-dose) protein should be provided in the range of 1.2-2.0g/kg ABW*/day in the patient with BMI less than 30 and may likely be even higher in burn or multi-trauma patients.[2] An ongoing evaluation of adequacy of protein provision is suggested. See *Obesity* for recommendations for patients with BMI ≥ 30.[1]
OBESITY	For all classes of obesity where BMI is > 30, it is suggested the goal of the EN regimen not exceed 65–70% 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 2.5 gm/kg IBW**/day for BMI ≥ 40.[1]

MANAGEMENT OF FEEDING

PRIMARY ROUTE	Recommend EN or PN as acceptable to provide similar calories to patients requiring nutrition support during the first week of ICU stay.[2]
INITIATE EN	Recommend 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.[1]
USE OF PROTOCOLS	Recommend enteral feeding protocols be designed and implemented to increase the overall percentage of goal calories provided. Use of volume-based feeding protocol or top-down multi-strategy protocol is suggested.[1]
INITIATE PN	Recommend not supplementing with PN prior to day 7 of ICU stay.[2]
GASTRIC RESIDUALS	Suggest patients be monitored for tolerance of EN and inappropriate cessation of EN be avoided. Suggest avoiding holds on EN for gastric residual volumes < 500mL in the absence of other signs of intolerance.[1]
RISK OF ASPIRATION	Patients should be assessed for risk of aspiration and the following steps proactively employed:[1] • Recommend diverting to postpyloric access in those at high risk for aspiration or those not tolerating gastric EN. • Elevating head of bed 30°– 45° is suggested.[1] • Suggest switching delivery to continuous infusion in high risk patients or those intolerant to bolus gastric EN. • Use of chlorhexidine mouthwash twice daily is suggested. • Suggest prokinetic agents be initiated in patients at high risk of aspiration and where clinically feasible.

SELECTION OF APPROPRIATE FORMULA

GUT DYSFUNCTION	**Diarrhea:** EN should not be automatically interrupted for diarrhea; evaluating etiology of diarrhea to determine appropriate therapy is also suggested. If there is evidence of diarrhea and fiber is not contraindicated, 10–20 gm of fermentable soluble fiber is suggested, given in divided doses over 24 hours as adjunctive therapy.[1] **Peptides:** Use of small peptide formulations in the patient with persistent diarrhea, suspected malabsorption, or lack of response to fiber is suggested.[1] **Fiber:** 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 placed on standard enteral formulations.[1]
PERIOPERATIVE SICU	Suggest immune-modulating formulations [arginine with other agents including EPA, DHA, glutamine, nucleic acid] be considered perioperatively for SICU patients.[1]
POSTOPERATIVE SICU	Suggest routine use of an immune-modulating formula [containing both arginine and fish oils] in the SICU for the post-operative patient who requires EN therapy.[1]
SEVERE TRAUMA	Suggest immune-modulating formulations containing arginine and fish oil be considered in patients with severe trauma.[1]
TRAUMATIC BRAIN INJURY (TBI)	Immune-modulating formulations [arginine with other agents including EPA, DHA, glutamine, nucleic acid] are suggested for consideration in patients with TBI.[1]
IV LIPIDS	Suggest mixed oil or 100% soy oil IV lipids may be provided to PN patients, including the first week of ICU stay. Suggest fish oil containing or non-fish oil containing IV lipids may be provided to PN patients, including the first week of ICU stay.[2]

Guidelines summarized from: 1. McClave SA, et al. Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (ASPEN). *JPEN* 2016;40(2):159–211. 2. Compher C et al. Guidelines for the provision of nutrition support therapy in the adult critically ill patient: American Society for Parenteral and Enteral Nutrition. *JPEN* 2021; published on-line ahead of print

*ABW is Actual Body Weight **IBW is Ideal Body Weight

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