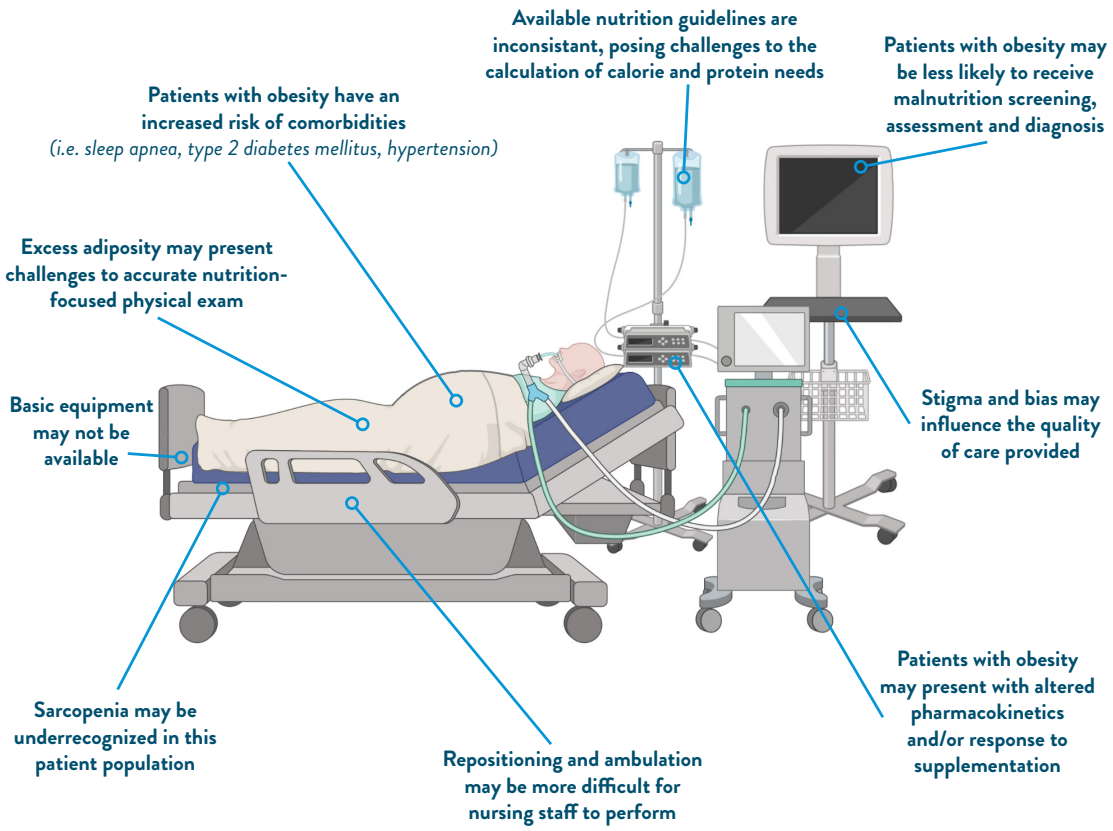
OPTIMAL NUTRITIONAL CARE FOR CRITICALLY ILL PATIENTS WITH OBESITY

Up to 36% of patients admitted to the ICU present with obesity[1]

MALNUTRITION MAY BE UNDERRECOGNIZED IN PATIENTS WITH OBESITY[2]



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RECOGNIZING MALNUTRITION IN ADULTS WITH CRITICAL ILLNESS

Current screening tools (MST, MUST, mNUTRIC, and NRS) were not developed specifically (and may not be appropriate) for critically ill patients with obesity. Global Leadership Initiative on Malnutrition (GLIM) Guidance Statements for recognizing malnutrition in adults with critical illness states to[3]:

1. Evaluate for pre-existing malnutrition within 48 hours of ICU admission when feasible or within 4 days
2. Re-evaluate all patients every 7–10 days to identify the development and progress of malnutrition
3. Evaluate muscle mass as soon as feasible and again after 7–10 days to identify progressive loss of muscle mass
4. Re-evaluate nutrition status before ICU discharge and during follow-up clinical visits to identify the development and progression of malnutrition before and after ICU discharge

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DIAGNOSIS OF MALNUTRITION AND ESTIMATION OF ENERGY AND PROTEIN NEEDS FOR CRITICALLY ILL PATIENTS WITH OBESITY

MALNUTRITION ASSESSMENT[2]:

Must go beyond BMI and body size to identify muscle wasting, micronutrient deficiencies, and risk for refeeding syndrome

- A good clinical assessment along with an adequate physical examination are required for proper nutritional diagnosis
- Consider preexisting comorbidities and altered metabolism
- Monitor patients for refeeding syndrome, as they may have risk factors unrelated to BMI

MALNUTRITION DIAGNOSIS

GLIM CRITERIA[4]

Phenotypic Criteria

- UNINTENTIONAL WEIGHTLOSS
- MUSCLE LOSS
- LOW BMI

Etiologic Criteria

- INSUFFICIENT ENERGY INTAKE
- DISEASE BURDEN/ INFLAMMATORY CONDITION

Malnutrition if ≥ 1 present from phenotypic and > 1 from etiologic criteria

AAIM CRITERIA[5]

- UNINTENTIONAL WEIGHTLOSS
- INSUFFICIENT ENERGY INTAKE
- SUBCUTANEOUS FAT LOSS
- MUSCLE LOSS
- FLUID ACCUMULATION
- DECLINING FUNCTIONAL STATUS

Malnutrition if ≥ 2 criteria present

AAIM — Academy of Nutrition and Dietetics/American Society for Parenteral and Enteral Nutrition (ASPEN) Indicators to Diagnose Malnutrition
ASPEN — American Society for Parenteral and Enteral Nutrition
BMI — Body Mass Index
GLIM — Global Leadership Initiative on Malnutrition
IBW — Ideal Body Weight
ICU — Intensive Care Until
mNUTRIC — Modified Nutrition Risk in Critically Ill
MST — Malnutrition Screening Tool
MUST — Malnutrition Universal Screening Tool
NRS — Nutrition Risk Screening
SCCM — Society of Critical Care Medicine

ESTIMATING ENERGY AND PROTEIN NEEDS

Patients with higher body weights typically have higher energy needs.[2] While there is limited research and no clinical consensus for feeding patients with obesity and critical illness, experts recommend progressive feeding in the early acute period, using existing equations, and adjusting based on clinical judgment and ongoing re-evaluation.

ENERGY

Indirect calorimetry (IC) is preferred. Predictive equations may be used if IC not available.[6]

Hamwi formula for Ideal Body Weight (IBW)

Men: IBW (lb) = 106 + 6 x (Ht in inches - 60)

Women: IBW (lb) = 100 + 5 x (Ht in inches - 60)

2016 ASPEN/SCCM[4]
BMI 30-50
11-14 kcal/kg actual body weight
BMI>50
22-25kcal/kg IBW

2023 ESPEN
Slowly advance nutrition support in early critical illness
Add 20-25% of excess body weight to the IBW when using weight based equations in patients with obesity

PROTEIN

Meet protein needs without overfeeding total energy[2]

Target 2 to 2.5 g/kg x IBW[7]

2023 ESPEN
Determine protein needs by urinary nitrogen loss or lean body mass
If these are not available, aim for 1.3g/kg adjusted body weight/day

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1. Alexopoulos AS, et al. *BMJ Open Diabetes Res Care*. 2016;4(1):e000200. | 2. Dickerson RN, et al. *Crit Care*. 2022;26(1):283. | 3. Compher CW, et al. *JPEN J Parenter Enteral Nutr*. 2025;49(4):405-413. | 4. Jensen GL, et al. *JPEN J Parenter Enteral Nutr*. 2019;43(1):32-40. | 5. White JV, et al. *JPEN J Parenter Enteral Nutr*. 2012;36(3):275-283. | 6. Singer P, et al. *Clin Nutr*. 2023;42(9):1671-1689. | 7. McClave SA, et al. *JPEN J Parenter Enteral Nutr*. 2016;40(2):159-211.

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