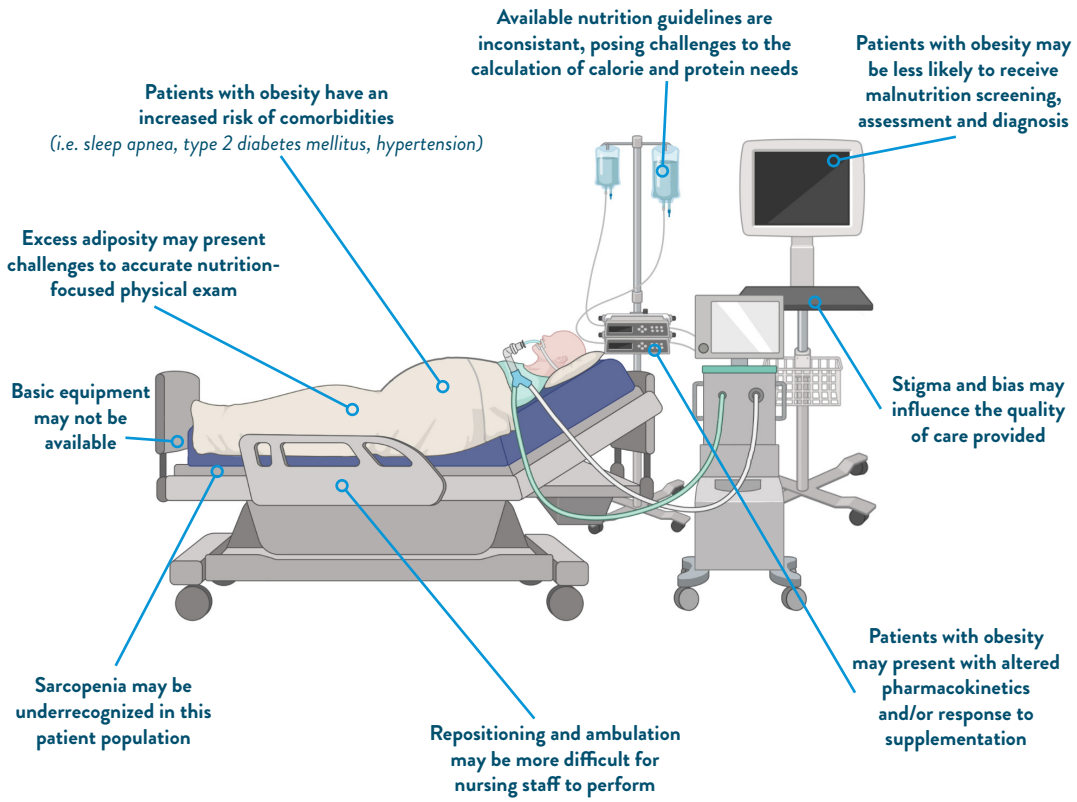
OPTIMAL NUTRITIONAL CARE FOR CRITICALLY ILL PATIENTS WITH OBESITY

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

FACTORS COMPLICATING THE NUTRITIONAL CARE OF CRITICALLY ILL PATIENTS WITH OBESITY[2]



MALNUTRITION SCREENING

CHALLENGES:

Current screening tools (MST, MUST, mNUTRIC, and NRS) were **not developed specifically and may not be appropriate for critically ill patients with obesity because they:[2]**

- Use imprecise measures, such as BMI[3,4]
- Do not account for body composition changes [5]
- Require self-reported data which may not be feasible for those who are critically ill

THEREFORE, MALNUTRITION MAY BE UNDERRECOGNIZED IN PATIENTS WITH OBESITY[2]

2019 European Society for Clinical Nutrition and Metabolism (ESPEN) guidelines on clinical nutrition in the intensive care unit do not recommend a specific tool, instead stating:

"EVERY CRITICALLY ILL PATIENT STAYING FOR MORE THAN 48 H IN THE ICU SHOULD BE CONSIDERED AT RISK FOR MALNUTRITION." [6]

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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

NUTRITION FOCUSED PHYSICAL ASSESSMENT (NFPA)[7]

NFPA STEP 1
Conduct general survey of patient's appearance and compare findings with other available patient data from medical records and other sources

NFPA STEP 2
Evaluate patient's body habitus and compare body mass index and weight changes to findings

NFPA STEP 3
Perform hands-on physical assessment, focusing on evaluation of body systems, skin, hair, nails and oral cavity, noting signs of nutrient dificienceies or excesses

Identify muscle wasting

Identify signs / symptoms of micronutrient deficiencies

Identify signs of poorly managed chronic disease associated with obesity
(pedal adema, shortness of breath, acanthosis nigricans)

ESTIMATING ENERGY AND PROTEIN NEEDS FOR CRITICALLY ILL PATIENTS WITH OBESITY

There is no clinical consensus or definitive research for feeding patients with obesity and critical illness however, expert recommendations suggest utilizing existing equations and adjusting based on continued evaluation

ENERGY

Patients with higher body weights do typically have higher energy needs than patients with lower body weights [2]

Ideally, use indirect calorimetry [2]
If not available, predictive equations (all with low quality of evidence and no guidance for ideal body weight)

2013 ASPEN= Penn State University 2010, modified Penn State over 60 years[8]

2016 ASPEN/SCCM = 11-14 kcal/kg actual body weight with BMI 30-50; 22-25kcal/kg ideal body weight with BMI>50[9]

2019 ESPEN-add 20-25% additional weight to ideal body weight [6]

PROTEIN

Meet protein needs without overfeeding total energy [2]

Targeting 2 to 2.5 g/kg ideal body weight using Hamwi formula is a reasonable place to start [2]

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ICU- Intensive Care Until; MST- Malnutrition Screening Tool; MUST- Malnutrition Universal Screening Tool; mNUTRIC- Modified Nutrition Risk in Critically Ill; NRS- Nutrition Risk Screening; BMI- Body Mass Index; ASPEN- American Society for Parenteral and Enteral Nutrition; SCCM- Society of Critical Care Medicine

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. Agarwal E, et al. *Clin Nutr*. 2019;38(2):759-766; 4. van Vliet IMY, et al. *Eur J Clin Nutr*. 2021;75(9):1398-1406; 5. Gonzalez MC, et al. *Curr Opin Clin Nutr Metab Care*. 2017;20(5):314-321; 6. Singer P, et al. *Clin Nutr*. 2019;38(1):48-79; 7. Litchford M. *Annals of Long-Term Care: Clinical Care and Aging*. 2013;21(11):38-41; 8. Choban P, et al. *JPEN J Parenter Enteral Nutr*. 2013;37(6):714-744; 9. McClave SA, et al. *JPEN J Parenter Enteral Nutr*. 2016;40(2):159-211.

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