Current Critical Care Guideline Updates
Critical Care NP/PA Boot Camp 2016

Billy Cameron, MSN, APRN, ACNP-BC, BA
Assistant Director of Advanced Practice, Surgery Patient Care Center
Assistant in Surgery, Department of Surgery and Trauma
Acute Care Nurse Practitioner, Surgical Intensive Care Unit
Vanderbilt University Medical Center
• Sepsis Guidelines 2016 Update
• Antithrombotic Therapy for VTE Disease
• ATS Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU
• Nutrition Guidelines Update for ICU Patients
Objectives

• Identify background of previous evidence based critical care practice guidelines
• Identify and apply most recent evidence based guidelines for critical care practice
• Be able to identify areas in which critical care practice may be impacted by most recent guidelines
Sepsis 2016 Guideline Updates

Background:

• Sepsis Guidelines previously published in 1991 and 2001; update needed to reflect current evidence and diagnostic criteria

• Previous Sepsis guidelines outline “severe sepsis”, which became unhelpful in diagnosing sepsis based on 2 or more SIRS criteria

• SIRS criteria may be present in patients without infection...leading to inappropriate diagnoses

• Need for defined criteria to identify organ dysfunction with evidence of infection
Sepsis

Sepsis Facts:

• Leading cause of death from infection; incidence on the rise

• Sepsis accounted for more than 20 billion dollars in hospital cost in 2011

• Sepsis mortality rates are higher than heart attack, stroke, or trauma

• Requiring 2 or more SIRS criteria does not identify the sickest patient with a greater risk of death

• Sepsis is labeled as a “syndrome”, not a disease
Sepsis

Guidelines/New Definitions:

1. New definition: *Sepsis is a life-threatening organ dysfunction due to a dysregulated host response to infection*

2. Remove the term “severe sepsis”, as this term is redundant. *Sepsis carries a 10% (or higher) mortality rate, already making it a severe condition*

3. **Septic Shock**: Defined as a subset of sepsis in which profound circulatory, cellular, and metabolic abnormalities substantially increase mortality
Guideline: **New Diagnostic Tool SOFA:**

- Focus on organ dysfunction to determine the threshold that elevates uncomplicated infection to sepsis
- **Sequential (Sepsis-Related) Organ Failure Assessment (SOFA)** created in order to aid in diagnosis of sepsis and the severity of condition
Sepsis

- **New Diagnostic Tool:** The “quick”SOFA or qSOFA
- The qSOFA assessment directs the clinician to assess for the following warning signs in patients:

  **qSOFA:**

  1. An alteration in *mental status*
  2. A decrease in *systolic blood pressure* of < 100 mmHg
  3. A *respiration rate* > 22 breaths/minute

  *Two or three components of qSOFA should lead the clinician to examine the patient for organ dysfunction* (2 or more conditions represent a greater risk for prolonged ICU stay of 3 or more days)
Conclusions and Relevance

Among ICU encounters with suspected infection, the predictive validity for in-hospital mortality of SOFA was not significantly different than the more complex LODS but was statistically greater than SIRS and qSOFA, supporting its use in clinical criteria for sepsis.

Among encounters with suspected infection outside of the ICU, the predictive validity for in-hospital mortality of qSOFA was statistically greater than SOFA and SIRS, supporting its use as a prompt to consider possible sepsis.
Sepsis

**Guideline:**

- **Septic Shock:** Differs from sepsis in that the complications are more severe and the risk of patient death is greater.

- **2 new clinical criteria clinicians should use to determine septic shock:**
  1. Persisting hypotension requiring vasopressors to maintain MAP $\geq 65$ mmHg
  2. Blood lactate $>2$ mmol/L *despite adequate volume resuscitation*

*Data suggests patients with these 2 conditions represent a 40% mortality rate (4x greater than sepsis)*
Sepsis

• A note about billing/coding:

  – Remember to document the severity of illness regarding sequelae of sepsis.
  – ICD-10 codes “severe sepsis”. The new guidelines suggest just “sepsis”. **But, coding/billing needs specifics to justify “severe sepsis”**

    • Ex: *Refractory hypotension to fluid resuscitation requiring vasopressors secondary to severe sepsis*
Sepsis

On the research horizon:

• Multicenter study to analyze the effect of Interleukin-7 (IL-7) to increase absolute lymphocyte count in patients with sepsis due to immunocompromise

• VUMC, Washington University, France (Loges, Lyon)

• Need to test LFTs, renal function, splenic US, ECG, immunophenotyping
Sepsis

IL-7 Continued:

• **Hypothesis:**
  - Late mortality in sepsis is due, in part, to a weakened immune system
  - Two key factors in the weakened immune system are low numbers (ALC), and poor function of T lymphocytes
  - IL-7 will safely increase both the number and function of T lymphocytes in patients with sepsis
  - IL-7 has been shown to be safe in over 300 patients with cancer, bone marrow transplant, and HIV

Sepsis induces loss of splenic CD4 and CD8 cells

Non-septic          Septic

Sepsis

References:

Seymour, CW, et al. 2016. Assessment of clinical criteria for sepsis: for the third international consensus definitions for sepsis and septic shock (Sepsis-3)


Sherwood, E, 2016. IL-7 Clinical trial presentation to Multidisciplinary Surgical Critical Care Committee, Vanderbilt Medical Center, on 2/13/20-16 (used by permission)


Antithrombotic Therapy for VTE Disease

Background:

• CHEST has been developing/publishing guidelines for DVT/PE (collectively referred to as VTE) therapy for 30 years
• Last (9th edition) guidelines published in February 2012
• Substantial evidence relating to the treatment of VTE needed updated, particularly related to non-vitamin K oral anticoagulants (NOACs)

• Updates provided for topics with most evidentiary support
Antithrombotic Therapy for VTE Disease

This presentation is too brief to explain rationale for each updated decision; therefore, the NEW guideline updates are listed and will allow for individual study at the attendees’ discretion. Please refer to the reference (CHEST) article provided at the end of this section for further study and rationale to guide practice.
### Antithrombotic Therapy for VTE Disease

#### Choice of Long-Term (1\textsuperscript{st} 3 months) and Extended (no scheduled stop date) Anticoagulation: #1-4 Recommendations

<table>
<thead>
<tr>
<th>Condition</th>
<th>Salient point</th>
<th>Treatment</th>
<th>Caveat</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVT of leg or PE</td>
<td>No Cancer</td>
<td>Dabigatran, Rivaroxaban, Apixaban, Edoxaban (these Rx recommended over VKA)</td>
<td>If not treated with anticoagulants; then VKA therapy recommended over LMWH</td>
</tr>
<tr>
<td>DVT of leg or PE</td>
<td>With Cancer</td>
<td>LMWH over VKA, Dabigatran, Rivaroxaban, Apixaban or edoxaban</td>
<td></td>
</tr>
<tr>
<td>DVT of leg or PE</td>
<td>Extended therapy</td>
<td>No need to change choice of anticoagulation after 3 months</td>
<td></td>
</tr>
<tr>
<td>Unprovoked proximal DVT or PE</td>
<td>Stopping anticoagulant therapy with no contraindication to ASA</td>
<td>Aspirin over NO aspirin</td>
<td>Prevent recurrent VTE</td>
</tr>
</tbody>
</table>
# Antithrombotic Therapy for VTE Disease

## Compression Stockings to Prevent Post-thrombotic Syndrome (PTS): #5 Recommendation

<table>
<thead>
<tr>
<th>Condition</th>
<th>Salient point</th>
<th>Treatment</th>
<th>Caveat</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVT of leg</td>
<td>Prevention of PTS</td>
<td>No compression stockings</td>
<td>Compression stockings can treat acute/chronic symptoms; just not PTS</td>
</tr>
</tbody>
</table>
# Antithrombotic Therapy for VTE Disease

## Anticoagulation of Subsegmental PE and Acute PE: #6-9

**Recommendations:**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Salient point</th>
<th>Treatment</th>
<th>Caveat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsegmental PE</td>
<td>• No proximal PA involvement</td>
<td>1) If low risk for recurrent VTE: clinical surveillance</td>
<td>Determine low risk vs high risk</td>
</tr>
<tr>
<td></td>
<td>• No proximal leg DVT</td>
<td>2) If high risk for recurrent VTE: anticoagulation</td>
<td></td>
</tr>
<tr>
<td>Acute PE Outside of Hospital</td>
<td>If low risk PE with adequate home support</td>
<td>Treatment at home or early discharge over standard discharge (after 1st 5 days of treatment)</td>
<td>Assess home condition and support</td>
</tr>
<tr>
<td>Acute PE</td>
<td>Not associated with hypotension</td>
<td>Systemic thrombotic therapy</td>
<td></td>
</tr>
<tr>
<td>Acute PE</td>
<td>Deterioration after starting anticoagulation therapy; but have not developed hypotension and low risk for bleeding</td>
<td>Systemic thrombolytic therapy over NO therapy</td>
<td>Careful assessment of hemodynamic and coagulation status</td>
</tr>
</tbody>
</table>
### Antithrombotic Therapy for VTE Disease

#### Catheter-Based Thrombus Removal for the Initial Treatment of PE: #10-11 Recommendations

<table>
<thead>
<tr>
<th>Condition</th>
<th>Salient point</th>
<th>Treatment</th>
<th>Caveat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute PE</td>
<td>Treated with thrombolytic therapy</td>
<td>Systemic thrombolytic therapy using peripheral vein over CDT (catheter-directed thrombolysis)</td>
<td>Appropriate expertise and resources must be available at the medical facility</td>
</tr>
<tr>
<td>Acute PE</td>
<td>With Hypotension and have the following:</td>
<td>Catheter-assisted thrombus removal over NO intervention</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• High bleeding risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Failed systemic thrombolysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Shock likely to cause death before systemic thrombolysis can take effect (hours)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** CDT refers to Catheter-directed thrombolysis. NO intervention implies no specific treatment beyond initial assessment and monitoring.
Antithrombotic Therapy for VTE Disease

Pulmonary Thromboendarterectomy for the Treatment of Chronic Thromboembolic Pulmonary Hypertension: #12 Recommendation

<table>
<thead>
<tr>
<th>Condition</th>
<th>Salient point</th>
<th>Treatment</th>
<th>Caveat</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTEPH</td>
<td>Under care of CTEPH team</td>
<td>Pulmonary thromboendarterectomy</td>
<td></td>
</tr>
</tbody>
</table>
# Antithrombotic Therapy for VTE Disease

Management of Recurrent VTE on Anticoagulant Therapy: #13-14 Recommendations

<table>
<thead>
<tr>
<th>Condition</th>
<th>Salient point</th>
<th>Treatment</th>
<th>Caveat</th>
</tr>
</thead>
</table>
| Recurrent VTE on VKA in therapeutic range or on dabigatran, rivaroxaban, apixaban, or edoxaban | Therapeutic range | Switch treatment to LMWH, at least temporarily (1 mth) | Believed to be compliant. 
This is rare and should warrant investigation into condition, compliance, and/or underlying malignancy |
| Recurrent VTE on long-term LMWH | On long-term LMWH | Increase dosing of LMWH by about one-quarter to one-third the current dose | Believed to be compliant |
References:

American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

Background:

• One of the most ethically controversial issues in ICU...to provide life-prolonging measures in the face of objective data that proves otherwise

• Patients should receive care consistent with their values and preferences

• Clinicians should not be compelled to act against their best understanding of their professional obligations

• Communicating to families/patients regarding end-of-life issues can be tethered with controversy
American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

4 Primary Recommendations

1) Institutions should implement strategies to prevent intractable treatment conflicts, including proactive communication and early involvement of expert consultants
American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

Institutions should implement strategies to prevent intractable treatment conflicts, including proactive communication and early involvement of expert consultants

Justification:

1) Collaborative decision making is a fundamental valuable ethical goal to foster

2) Once conflicts become intractable, there are only “second best” resolution strategies.

3) Most conflicts that arise in ICUs are due to breakdowns in communication that are amenable to communication interventions
American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

Institutions should implement strategies to prevent intractable treatment conflicts, including proactive communication and early involvement of expert consultants.

Proactive Communication Strategies:

• Clinicians should listen closely to surrogates, developing trust
• Discuss the patient’s condition in clear, *jargon-free language*
• Elicit patient’s values and preferences
• Discuss options of care based on patient’s values and wishes, *not outside the bounds of accepted medical practice*
American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

Institutions should implement strategies to prevent intractable treatment conflicts, including proactive communication and early involvement of expert consultants

Clinician Education:

- **The committee recommends the following:**
  - Increased efforts to teach clinicians end-of-life communication skills
    - strategies to achieve *shared decision making*
    - *conflict resolution* skills
    - skills to *emotionally support* surrogates facing difficult decisions
American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

*Institutions should implement strategies to prevent intractable treatment conflicts, including proactive communication and early involvement of expert consultants.*

**Early Involvement of Expert Consultants:**
- Individuals skilled in conflict resolution
- Negotiation skills
- Helps opposing parties gain perspective

**Who are the Experts?:**
- Ethics team
- Palliative Care team
American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

4 Primary Recommendations:

2) The term “potentially inappropriate” should be used, rather than “futile”, to describe treatments that have at least some chance of accomplishing the effect sought by the patients, but clinicians believe that competing ethical considerations justify not providing them.

• Clinicians should communicate/advocate for treatment plan they believe is appropriate
• Requests for potentially inappropriate treatments that remain intractable despite intensive communication/negotiation should be managed by a fair process of conflict resolutions (experts)
The term “potentially inappropriate” should be used, rather than “futile”.

Justification:

- “Inappropriate” *conveys more clearly* than the word “futile” or “ineffective” that the assertion being made by the clinician depends both on technical medical expertise and value-laden claim, rather than just technical judgment.

- “Potentially” signals that *judgments are preliminary*, rather than final, and require review before action is taken.
The term “potentially inappropriate” should be used, rather than “futile”.

• Unilateral decision making can lead to distrust, stand stills, and wasted time.

**The committee recommends:**

• Enlist the help of a *proven* conflict-resolution process
American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

*The term “potentially inappropriate” should be used, rather than “futile”.*

**Recommended Conflict-Resolution Process:**

1) Enlist *expert consultation* to aid in achieving a negotiated agreement
2) Give *notice of the process* to surrogates (verbal and written) with an invitation to join in the process
3) Obtain a *second medical opinion* (builds further trust and objectivity)
4) Provide review by an *interdisciplinary* hospital committee (timely...on call)
5) Offer surrogates the opportunity for *transfer* to an alternate institution
6) Inform surrogates of their opportunity to *pursue extramural appeal* (seek judicial review)
7) *Implement the decision* of the resolution process (if hospital committee agrees with surrogates request, clinician should abide or transfer to a facility willing to proceed)
American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

**Examples of Potential Conflicts Needing Resolution**

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>A clinician believes ICU admission for a person with end-stage dementia and multisystem organ failure is inappropriate</td>
<td></td>
</tr>
<tr>
<td>A clinician believes it is inappropriate to continue mechanical ventilation in a patient with widely metastatic cancer</td>
<td></td>
</tr>
<tr>
<td>A surgeon refuses to perform a laparotomy on a patient with end-stage cirrhosis, on 3 vasopressors, and a bowel perforation</td>
<td></td>
</tr>
<tr>
<td>A clinician believes it is inappropriate to initiate dialysis in a patient in a persistent vegetative state</td>
<td></td>
</tr>
</tbody>
</table>
American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

4 Primary Recommendations:

3) There are 2 less common situations for which the committee recommends different management strategies:

a) Requests for “strictly futile” interventions
   - Treatments which have no chance, based on factual evidence, of achieving the intended physiologic goals

b) Requests for “legally proscribed” or “legally discretionary” treatments:
   - Treatments strictly prohibited by law, judicial precedent, or widely accepted public policies (ie; organ allocation strategies)
American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

Be careful that time-pressured decisions are not made

Questions to ask before making a decision:

1) Am I certain that this requested treatment is outside of the boundaries of accepted practice?

2) Would I be willing to have the rationale for my decision publicly reviewed in an appeals board or court?

3) What are the consequences to the patient, surrogate, team, or institution as a result of implementing this decision?

4) Am I sure that sex, race, socioeconomic status, ability to pay, or other psychosocial factors are not entering into my decision?
4 Primary Recommendations:

4) The medical profession should engage in efforts to influence opinion and develop policies and legislation about when life-prolonging technologies should not be used

- Better informed patients/surrogates lead to better decision capabilities
- Puts clinicians in a more facile environment to discuss end-of-life issues when the moment arises
American Thoracic Society Guidelines for Responding to Requests for Potentially Inappropriate Treatments in the ICU

References:

Nutrition Guidelines Update for Intensive Care Patients

Background

• SCCM and ASPEN last provided collaborative nutritional guidelines for ICU patients in 2009

• Guidelines are to be reviewed and updated every 3-5 years

• The 2016 Guidelines are from literature compiled through 12/31/13
Nutrition Guidelines Update for Intensive Care Patients

Guideline Intentions:

• Provide *resources* for critical care clinicians for nutritional support for their patients based on best practice

• Provide *assistance to the judgment* of the clinician based on individual circumstances of the patient

• ICU patients are not *homogenous*...*critical thinking* must accompany decisions based on these guidelines
Nutrition Guidelines Update for Intensive Care Patients

Presentation Limitations:

• The data presented in this SCCM and ASPEN guideline update is extensive.

• This presentation will present the *highlights* based on conversations with a registered dietitian working exclusively with critically ill patients.

• The journal article is provided in the “references” for this presentation for further independent study.
Nutrition Guidelines Update for Intensive Care Patients

Target Patient Population with Updates:

• MICU
• SICU

Updates:

• Organ failure
• Acute pancreatitis
• Trauma, TBI, Open abdomen
• Sepsis
• Burns
• Critically ill obese

• LOS > 2-3 Days
• >/= 18 yrs of age

• Burns
### Nutrition Guidelines Update for Intensive Care Patients

#### Best Practice Bundle Statements

<table>
<thead>
<tr>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assess patients on admission to the ICU for nutrition risk</strong>, and calculate both energy and protein requirements to determine goals of nutrition therapy</td>
</tr>
<tr>
<td><strong>Initiate Enteral Nutrition (EN) within 24-48H</strong> following onset of critical illness and admission to ICU; increase goals over 1st week of ICU stay</td>
</tr>
<tr>
<td>Take steps to <strong>reduce risk for aspiration or improve gastric intake tolerance</strong> (prokinetic agent, elevate HOB, etc)</td>
</tr>
<tr>
<td><strong>Do not use gastric residual volumes</strong> as part of routine care to monitor ICU patients on EN</td>
</tr>
<tr>
<td>Start <strong>parenteral nutrition early when EN is not feasible</strong> or sufficient in high-risk/poorly nourished patients</td>
</tr>
</tbody>
</table>
Nutrition Guidelines Update for Intensive Care Patients

Nutritional assessment tools:

• Serum protein markers (prealbumin, albumin, CRP) *should not be used exclusively*; differs per patient based on many factors

• **USE** indirect calorimetry, if available

• **USE** predictive equation: 25-30 kcal/kg to determine energy needs
Nutrition Guidelines Update for Intensive Care Patients

Initiating Enteral Nutrition:

- While GI contractility should be acutely evaluated, *overt signs of contractility are not required to initiate EN*
- *Gastric EN is okay*, usually easier to access and more timely
- Small Bowel EN diversion is recommended to avoid aspiration risks
- In the presence of HD instability, *withhold EN until HDS/full resuscitation*
- *Use caution with vasopressors*; if actively weaning and no symptoms of intolerance of EN, proceed. Actively assess for gut ischemia
Nutrition Guidelines Update for Intensive Care Patients

Assessing EN Toleration:

• Keep HOB >30 deg for ventilated patients
• If high risk for aspiration, use prokinetics and/or divert to post pylorus
• Do NOT use food coloring as aspiration markers...can interfere with other colorimetrics (bleeding)
• Evaluate etiology of diarrhea before stopping EN (osmotic vs infectious)
Nutrition Guidelines Update for Intensive Care Patients

Choosing EN Formulations:

- Choose standard *polymeric* (intact nutrition) formula in the ICU setting
- Avoid routinely choosing *specialty* formulations
- Use of near *isotonic* formulations are acceptable for the majority of ICU patients (1 kcal to 1.5 kcal/mL)

No endorsement for specific brand
Initiating Parenteral Nutrition:

- **PN may be considered after 7 to 10 days** if unable to meet >60% of nutritional needs on EN alone.

  ➡️ *No meaningful positive outcomes have been shown to benefit patients by starting PN in addition to EN before this time, even if EN nutritional status is hypocaloric.*
## Nutrition Guidelines Update for Intensive Care Patients

### Organ Failure Recommendations

<table>
<thead>
<tr>
<th>Organ Failure</th>
<th>Recommendations</th>
</tr>
</thead>
</table>
| **Respiratory Failure:** | - No ↑ Fat/↓ Carb (no strong evidence that this lowers CO₂)  
- **Use fluid restricted**, energy-dense EN formulations; especially with hypervolemia  
- Monitor Phos closely to aid in ATP production |
| **Hepatic Failure:** | - Do not restrict protein  
- Use dry weight when determining nutrition needs  
- **Use EN rather than PN** (EN enhances survival rates with liver disease) |
| **Acute Pancreatitis:** | - #1 priority to *differentiate between moderate and severe* (organ failure) disease  
- No specialized nutrition for mild pancreatitis  
- EN via naso/oroenteric feeding tube (G or J) for moderate-severe at trophic rate; advance to goal as fluid volume resuscitation is met  
- Use standard polymeric formula |
| **Renal Failure:** | - Increase protein in HD/CRRT to 2.5g/kg/day  
- Decrease in Na, K, Phos may be appropriate with AKI |
### Surgical Subsets

**Trauma:**
- *Early EN high in protein polymeric formula;* nonhydrolized; not Peptamen. Initiate w/in 24-48H of injury once HDS
- This includes TBI

**Open Abdomen:**
- *IN THE ABSENCE OF BOWEL INJURY,* begin EN w/in 24-48H of injury, if HDS. High protein with prostat max
- Provide 15-30 grams protein per liter of exudate lost

**Burns:**
- Provide EN to patients *whose GI tracts are intact;* PN to those who have GI tract injury
- *Assess calorie needs based on severity of burn %*
- Initiate EN w/in 4-6 hours of injury
Nutrition Guidelines Update for Intensive Care Patients

**Patient Subsets**

**Sepsis:**
- Initiate EN w/in 24-48H of making diagnosis of severe sepsis *as resuscitation is completed and patient is HDS*
- Do not combine PN for supplement
- Provide trophic feeding (10-20kcal/hr up to 500 kcal/day) for initial phase of sepsis, advance as tolerated to >80% target energy goal over first week. **THIS IS A NEW TARGET**

**SICU:**
- Consider immune modulated formulas in the immediate postoperative period (arginine/fish oil)
- CLD should not always be first meal (aspiration risk higher)

**Critically Ill Obese:**
- Use high protein; *hypocaloric EN* to preserve lean body mass, mobilize adipose tissue; do not over feed
- Goal EN should be *65-70% of target* energy requirements
- Focus on quality nutrition
Nutrition Guidelines Update for Intensive Care Patients

Reference:


Thank You!