Applying Evidence Analysis to the Creation of Evidence Based Guideline and Toolkits
Steps in the Evidence Analysis Process

**Analysis:**
- Formulate Question
- Gather Research
- Appraise Articles
- Summarize
- Develop Conclusion Statement and Grade

**Guideline Development:**
- Develop algorithms based on Nutrition Care Process
- Draft guideline recommendations
- Internal/external review and revise
- Approval By Oversight and Publish guideline on EAL®
What are Evidence-Based Nutrition Practice Guidelines?

Evidence Summaries & Conclusion Statements = what the evidence says

Guideline = course of action for the practitioner based on the evidence
Evidence-Based Nutrition Practice Guidelines

- State “what to do” and “why” for the RD
- Rated based on benefits vs. harms and grade of supporting evidence
- Linked to supporting analyzed evidence
- Provide treatment algorithms
Features of Guidelines

• **Executive Summary of Recommendations**: list only of recommendations, no supporting evidence
• **Introduction**: scope, intent, methods, benefits/harms
• **Recommendations**: a series of guiding statements that propose a *course of action* for practitioners
• **Algorithms**: step-by-step flowchart for treatment of the specific disease/condition
**EXECUTIVE SUMMARY**

**Executive Summary of Recommendations**

Below are the major recommendations and ratings for the Academy of Nutrition and Dietetics Celiac Disease (CD) Evidence-Based Nutrition Practice Guideline. Click here to view the Guideline Overview. More detail (including the evidence analysis supporting these recommendations) is available on this website to Academy members and EAL subscribers under **Major Recommendations**.

To see a description of the Academy Recommendation Rating Scheme (Strong, Fair, Weak, Consensus, Insufficient Evidence), click here.

The CD Recommendations are listed below. [Note: If you mouse-over underlined acronyms and terms, a definition will pop up.]
Executive Summary of Recommendations

**CIU: Patient Positioning**

The Registered Dietitian (RD) should recommend that critically ill adult patients be positioned in a 30 to 45 degree head of bed elevation, if not contraindicated. Research shows that this practice decreases the incidence of aspiration pneumonia and reflux of gastric contents into the esophagus and pharynx.

**Strong**

**Imperative**

**CIU: Gastric Residual Volume**

When gastric residual volumes (GRVs) are used as one of the indicators for tolerance, the Registered Dietitian (RD) should recommend against holding enteral nutrition (EN) when GRV is less than 500ml in the absence of signs of intolerance (e.g., abdominal distention, nausea, vomiting) in critically ill adult patients. Research indicates that holding EN when GRV is less than 500ml is associated with delivery of less EN. GRV does not correlate with risk for aspiration.

**Fair**

**Conditional**

**CIU: Use of a Promotility Agent**

If the critically ill adult patient has gastroparesis or gastric residual volumes (GRVs) ranging from 200 to 500ml and there are no contraindications, then the Registered Dietitian (RD) should recommend the use of promotility agents. Research indicates that the use of a promotility agent has been associated with increased gastric emptying, improved enteral nutrition (EN) delivery and possibly reduced risk of aspiration.

**Strong**

**Conditional**

**CIU: Enteral Formulas Containing Immune-Modulating Nutrients in Patients Without ARDS or Acute Lung Injury**

For intensive care unit (ICU) patients without acute respiratory distress syndrome (ARDS), acute lung injury or severe sepsis, the Registered Dietitian (RD) should carefully evaluate using immune-modulating enteral formulas containing some combination of arginine, glutamine, nucleotides, antioxidants and fish oil. Some primary studies and meta-analyses with mixed populations have shown benefits in reducing infectious complications and hospital length of stay (LOS). Research is inconclusive regarding reducing cost of medical care, days on mechanical ventilation, or mortality for mixed ICU patients, including surgical and trauma patients. Research on patients with ARDS or acute lung injury was not included in this analysis.

**Fair**

**Conditional**
Celiac Disease

**MAJOR RECOMMENDATIONS**

Recommendations

Recommendations are categorized in terms of either conditional or imperative statements. While conditional statements clearly define a specific situation, imperative statements are broadly applicable to the target population and do not impose restraints on their application.

Conditional recommendations are presented in an if/then format, such that:

    If CONDITION then ACTION(S) because REASON(S)

Fulfillment of the condition triggers one or more guideline-specified actions. In contrast, imperative recommendations include terms such as “require,” “must,” and “should,” and do not contain conditional text that would limit their applicability to specified circumstances.

Resources Available with Each Recommendation

In addition to the recommendation statement and strength rating, you will find on each recommendation page:

- A brief narrative summary of the evidence analyzed to reach the recommendation
- A statement of justification, or reason for the strength of the recommendation
- Detailed information on the evidence supporting the recommendations and background narrative (available in the Supporting Evidence section toward the bottom of each recommendation page)
- A reference list at the end of each recommendation page that includes all the sources used in the evidence analysis for the particular recommendation (each reference is hyperlinked to a summary of the article analyzed in the evidence analysis).

Below, you will find a list of the Celiac Disease Recommendations organized by the steps in ADA’s Nutrition Care Process. To see the Recommendation Summary, just click on the recommendation title.

**Celiac Disease (CD) Major Recommendations**

- CD: Medical Nutrition Therapy
- CD: Nutrition Assessment
- CD: Assessment of Food/Nutrition-Related History
- CD: Assessment of Factors Affecting Quality of Life
CIU: Supplemental Intravenous Glutamine

If a critically ill adult patient is receiving parenteral nutrition (PN), the Registered Dietitian (RD) should consider use of supplemental intravenous (IV) glutamine to reduce infectious complications. Research indicates that glutamine-supplemented PN reduced infectious complications in adult critically ill patients in four of five positive quality randomized controlled trials (RCTs). However, research shows that glutamine-supplemented PN does not reduce hospital length of stay (LOS) and there is no association between glutamine-supplementated PN and reduced cost of medical care, days on mechanical ventilation or mortality.

**Rating:** Strong

**Conditional**
<table>
<thead>
<tr>
<th>Rating</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>Strong</strong></td>
<td>• benefits clearly exceed the harms (or harms clearly exceed the benefits for a negative recommendation)</td>
</tr>
<tr>
<td></td>
<td>• the quality of the supporting evidence is excellent/good (grade I or II)</td>
</tr>
<tr>
<td><strong>Fair</strong></td>
<td>• benefits exceed the harms (or harms clearly exceed the benefits for a negative recommendation)</td>
</tr>
<tr>
<td></td>
<td>• quality of evidence is not as strong (grade II or III)</td>
</tr>
<tr>
<td><strong>Weak</strong></td>
<td>• quality of evidence that exists is suspect</td>
</tr>
<tr>
<td></td>
<td>• or that well-done studies (grade I, II, or III)* show little clear advantage to one approach versus another</td>
</tr>
<tr>
<td><strong>Consensus</strong></td>
<td>• Expert opinion (grade IV) supports the guideline recommendation</td>
</tr>
<tr>
<td><strong>Insufficient Evidence</strong></td>
<td>• both a lack of pertinent evidence (grade V)* and/or an unclear balance between benefits and harms</td>
</tr>
</tbody>
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Risks/Harms of Implementing This Recommendation

- Use caution in fluid-restricted patients receiving supplemental IV glutamine outside the primary PN solution. A commercially available IV glutamine solution with a concentration of 2.5% is currently available; therefore, an increased volume of fluid is required to provide effective dosing (McClave et al, 2009; Vanek et al, 2011).
- Use caution in patients who are at risk for hyperammonemia (hepatic dysfunction) or azotemia (renal dysfunction) (Sacks, 2003; and Vanek et al, 2011).

Conditions of Application

- Availability and access to supplemental IV glutamine
- Ability to tolerate increased volume of fluid with supplemental IV glutamine.

Potential Costs Associated with Application

- Additional cost of supplemental enteral and IV glutamine.
Recommendation Page

Impact on Infectious Complications in Critically Ill Adult Patients

- EN: Six studies show that the balance of the evidence does not support use of supplemental enteral glutamine (GLN) to reduce infectious complications in adult critically ill patients.

- IV: Six studies provide evidence that GLN-supplemented PN reduced infectious complications in adult critically ill patients in four of five positive quality RCTs.
  - Evidence is based on the following studies: Déchelotte et al, 2006; Estivariz et al, 2008; Fuentes-Orozco et al, 2004; Fuentes-Orozco et al, 2008; Griffiths et al, 2002; and Yang and Xu, 2007.

Impact on ICU LOS and Hospital LOS in Critically Ill Adult Patients

- EN: Three studies show that the evidence does not support the use of supplemental enteral GLN to reduce LOS in adult critically ill patients.
  - Evidence is based on the following studies: Conejero et al, 2002; Hall et al, 2003; and Houdijk et al, 1998.

- IV: Nine studies provide evidence that GLN-supplemented PN does not reduce either ICU or hospital LOS in adult critically ill patients. Nine of 10 RCTs reported no difference in either hospital or ICU LOS with GLN added to PN.

Impact on Mechanical Ventilation Days in Critically Ill Adult Patients

- EN: Three studies show that the evidence does not support the use of supplemental enteral glutamine to reduce days on mechanical ventilation in adult critically ill patients.
  - Evidence is based on the following studies: Conejero et al, 2002; Houdijk et al, 1998; and Spindler-Vesel et al, 2007.

- IV: Five studies provide evidence that IV GLN is unlikely to reduce days on mechanical ventilation in adult critically ill patients. Four of five RCTs reported no difference in mechanical ventilation days with GLN added to PN.
Recommendation Strength Rationale

Subjects were critically ill, trauma patients. Studies for IV glutamine were of primarily middle-aged and predominantly male subjects.

Grade I evidence is available for the conclusion statements regarding the impact of supplemental IV glutamine in adult critically ill patients on infectious complications and ICU LOS and hospital LOS.

Grade II evidence is available for the conclusion statement regarding the impact of supplemental IV glutamine in critically ill adult patients on mechanical ventilation days.

Grade II evidence is available for conclusion statements regarding the impact of supplemental enteral glutamine in adult critically ill patients on:

- Mortality
- Infectious complications
- ICU LOS and hospital LOS
- Mechanical ventilation days

Grade V evidence is available for the conclusion statement regarding the impact of supplemental IV glutamine on mortality and cost of care in adult critically ill patients.

Minority Opinions

None.
In adult patients who are critically ill, does supplemental enteral glutamine impact mortality?

In adult patients who are critically ill, does supplemental enteral glutamine impact infectious complications?

In adult patients who are critically ill, does supplemental enteral glutamine impact ICU length of stay (LOS) and hospital LOS?

In adult patients who are critically ill, does supplemental enteral glutamine impact ventilator days?

In adult patients who are critically ill, does supplemental enteral glutamine impact cost of care?

In adult patients who are critically ill, does intravenous (IV) glutamine impact mortality?

In adult patients who are critically ill, does intravenous (IV) glutamine impact infectious complications?

In adult patients who are critically ill, does intravenous (IV) glutamine impact intensive care unit (ICU) and hospital length of stay (LOS)?

In adult patients who are critically ill, does intravenous (IV) glutamine impact ventilator days?

In adult patients who are critically ill, does intravenous (IV) glutamine impact cost of care?


References


References:
- link to worksheets
OR
- link to external guidelines that use a systematic process
Critical Illness Nutrition Guideline Algorithm

Key:
- red shading indicates link to a sub-flowchart
- light red shading indicates a link outside the guideline (e.g., to another Academy guideline)
- blue shading indicates step in the Nutrition Care Process
- gold shading indicates a link to a recommendation

Patient Referred to Dietitian for Medical Nutrition Therapy

↓

CI Nutrition Assessment

↓

CI Nutrition Diagnosis

↓

CI Nutrition Intervention

↓

CI Monitoring and Evaluation
Toolkit Development
Toolkit Development

- Develop toolkits to apply guidelines
- Conduct 60-day usability test of toolkit and revise
- EBPC Review and Approval
- Make toolkits available for purchase
Features of Evidence-Based Toolkits

Set of companion documents for application of the practice guideline

- Disease/condition specific

- Include:
  - MNT protocol for treatment of disease/condition
  - Documentation forms (progress notes, summary notes)
  - Outcomes monitoring sheets
  - Client education resources
  - Case studies

- Electronic downloadable purchase item
Objectives of Toolkits

To assist RD in:

• Implementing evidence-based practice
• Implementing NCP/SL
• Promoting consistency
• Promoting quality care
• Achievement of expected outcomes
A means to apply the NCP in a standard way using common language.

- Nutrition Assessment
- Nutrition Diagnosis
- Nutrition Intervention
- Monitoring and Evaluation
Evidence-Based Practice Toolkits

- Disorders of Lipid Metabolism
- Adult Weight Management
- Oncology
- Critical Illness
- Celiac Disease
- Heart Failure
- Diabetes
- Pediatric Weight Management
Utilize Academy Evidence-based Practice Resources

• Evidence-based Toolkits - application tools
• Educator modules - teaching tools for students
• EAL project presentations
• Academy Position Papers
• Journal of Academy of Nutrition and Dietetics – look for the EAL icon and journal website of EAL-related articles
Utilize Academy Evidence-based Practice Resources

• One-week trial subscription or non-members = $28 for non-members

• NutriGuides App- NEW!!
  • Provides 300+ recommendations
  • Categorized by:
    – Disease/condition
    • Topic
    • Nutrition Care Process
  • Able to see the strength of the recommendation
I can’t find my topic...

- Utilize other evidence-based practice resources (e.g. guidelines.gov, Cochrane reports, Guidelines International Network, evidence-based guidelines from other organizations)

- Align with other medical fields basing their practice on evidence

- Make suggestions to topics@adaevidencelibrary.com or proposal to evidence-based practice committee
Thank you

Questions? eal@andevidencelibrary.com