Applying Evidence Analysis to the Creation of Evidence Based Guideline and Toolkits

Steps in the Evidence Analysis Process

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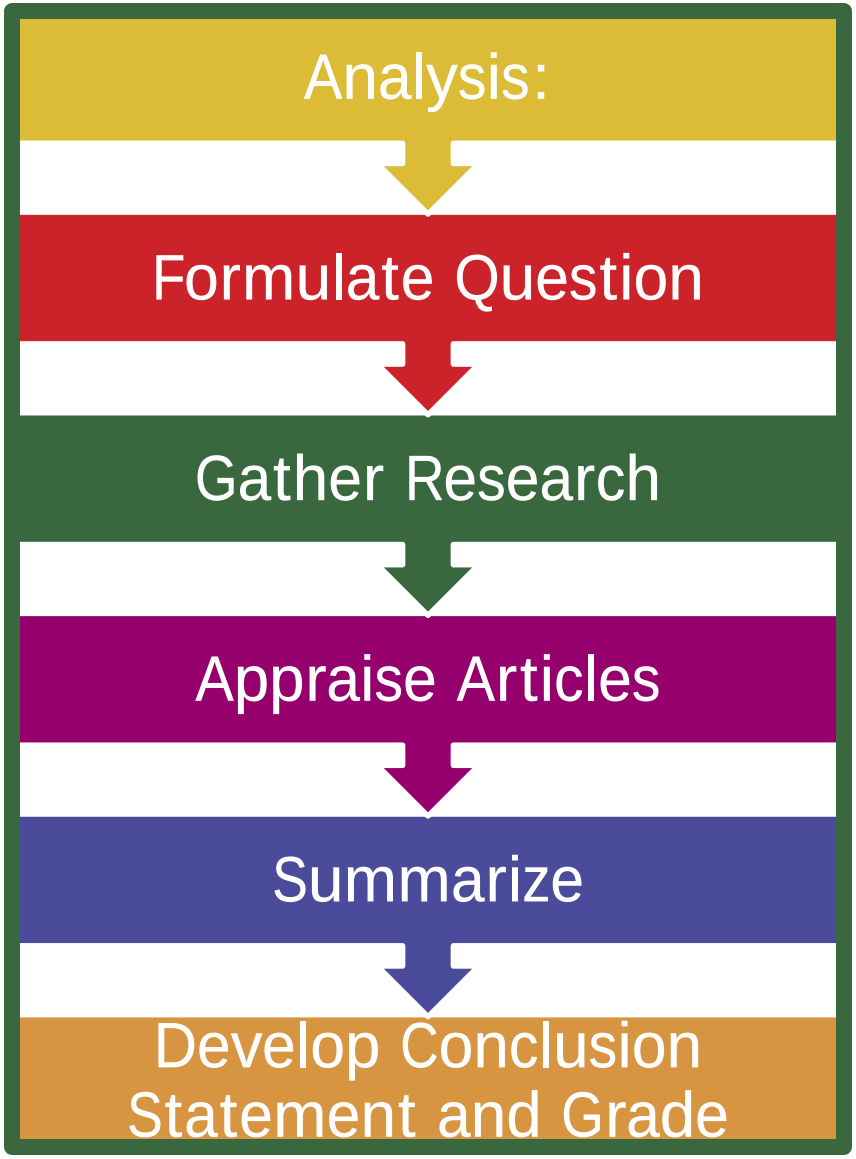

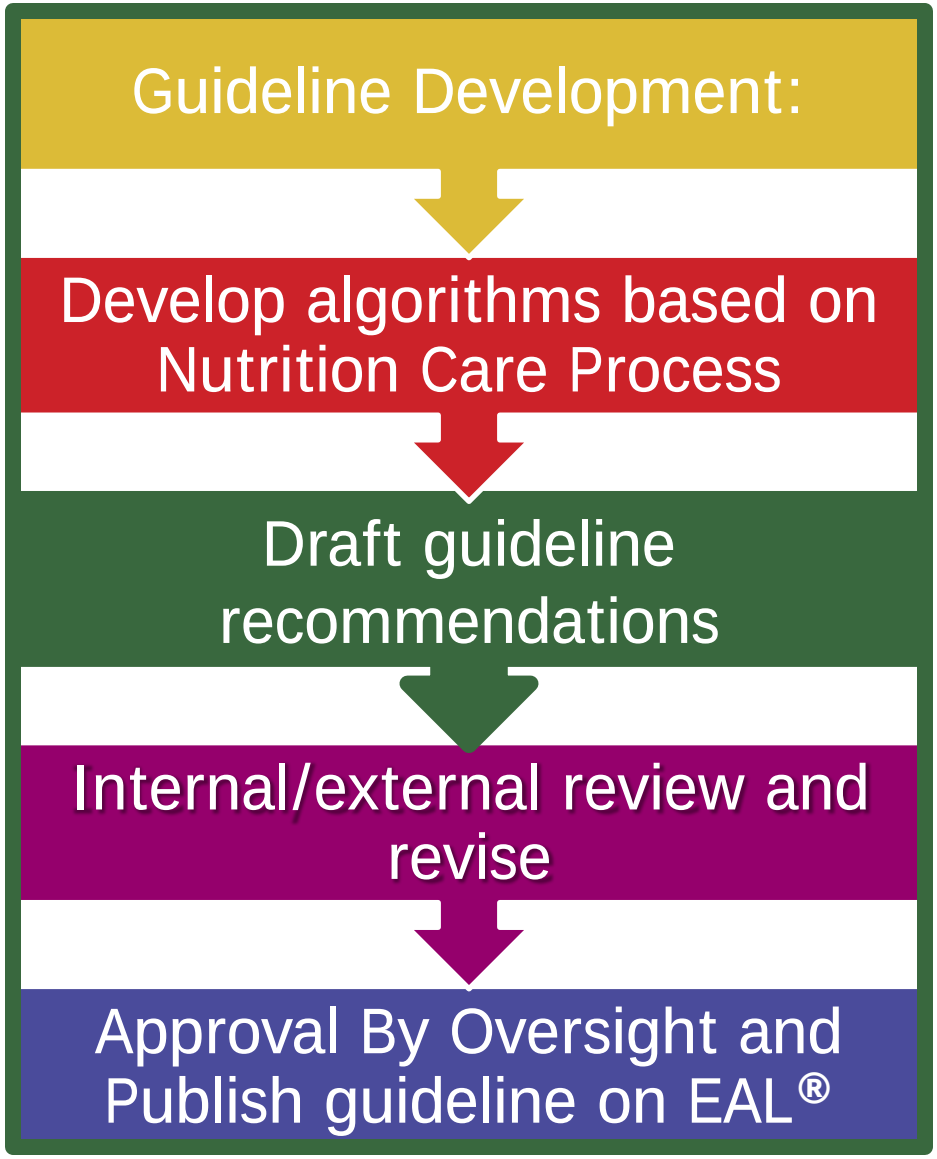

What are Evidence-Based Nutrition Practice Guidelines?

Evidence Summaries & Conclusion Statements = what the evidence says

Guideline = course of action for the practitioner based on the evidence

Evidence-Based Nutrition Practice Guidelines

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- 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 of Recommendations

EVIDENCE ANALYSIS LIBRARY®

Celiac Disease

- Major Recommendations
- Algorithms
  - CELIAC DISEASE NUTRITION ASSESSMENT
  - CELIAC DISEASE NUTRITION DIAGNOSIS
  - CELIAC DISEASE NUTRITION INTERVENTION
  - CELIAC DISEASE NUTRITION MONITORING AND EVALUATION
- Executive Summary
- Introduction
  - SCOPE OF GUIDELINE
  - STATEMENT OF INTENT
  - GUIDELINE METHODS
  - IMPLEMENTATION OF THE GUIDELINE
  - BENEFITS AND RISKS/HARMS OF IMPLEMENTING

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.]*

Free on EAL

Published on National Guidelines Clearinghouse

Executive Summary of Recommendations

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Strong
Imperative

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

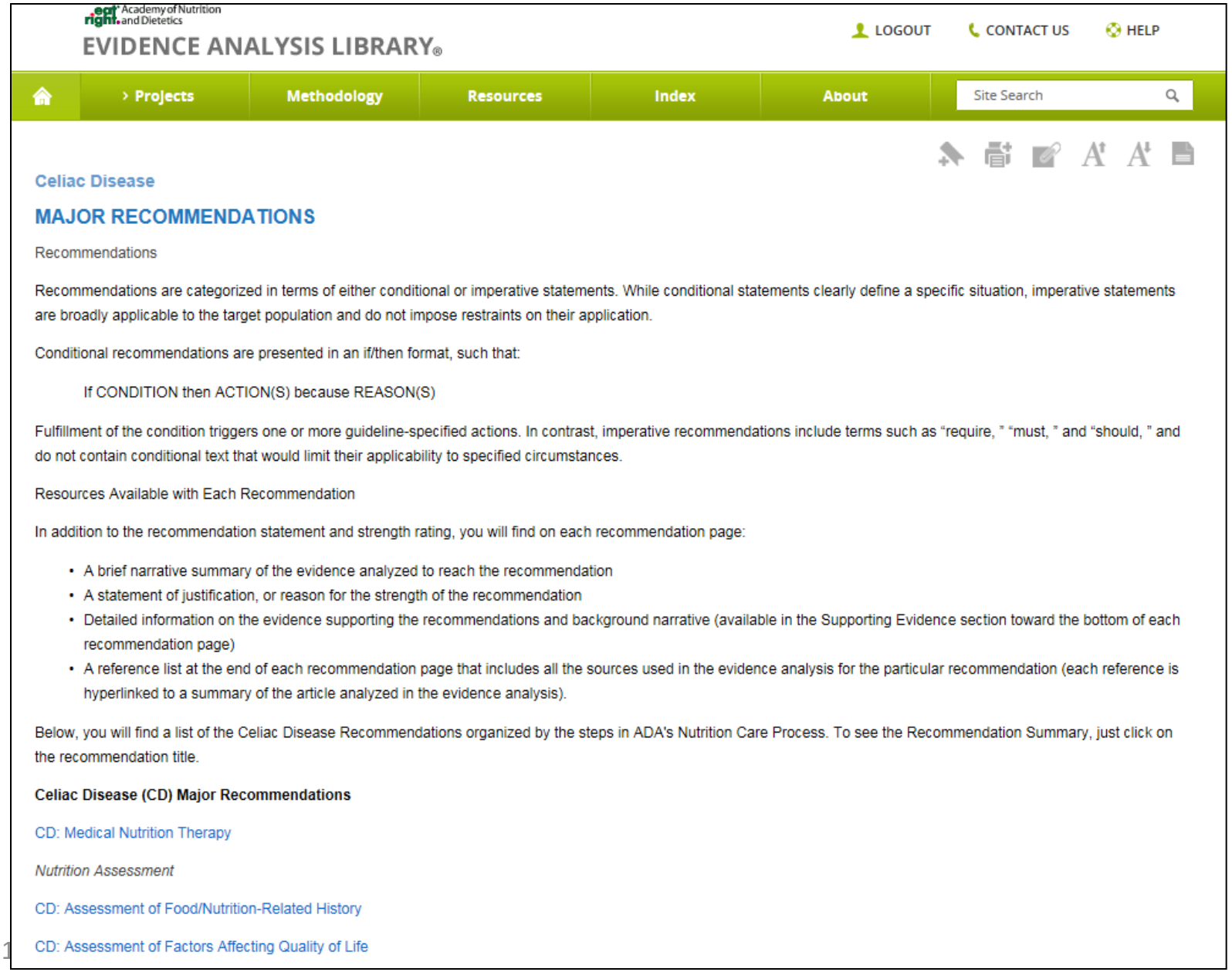
CIU: Enteral Formulas Containing Immune-Modulating Nutrients in Patients Without ARDS or Acute Lung Injury

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

Recommendation Rating Label (conditional or imperative)

Major Recommendations



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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

Nutrition Assessment

CD: Assessment of Food/Nutrition-Related History

CD: Assessment of Factors Affecting Quality of Life

Recommendation Page

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

Recommendation Page:
-Recommendation
-Risks/Harms
-Conditions of Application
-Potential Costs
-Recommendation Narrative
-Strength Rationale
-Link to Supporting Evidence
-References

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

Recommendation Page

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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

Recommendation Narrative:
-brief summary of the evidence
-identification of articles and outcomes

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 ent… infectious complications in adult critically ill patients
  - Evidence is based on the following studies: Conejero et al, 2002; Hall et al, 2003; Houdjik… al, 2007; Schulman et al, 2006; and Spindler-Vesel et al, 2007
- 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; Estívariz 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 Houdjik 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.
  - Evidence is based on the following studies: Cai et al, 2008; Déchelotte et al, 2006; Estívariz et al, 2008; Fuentes-Orozco et al, 2004; Fuentes-Orozco et al, 2008; Goeters et al, 2002; Powell-Tuck et al, 1999; Yang DL and Xu JF, 2007; and Ziegler et al, 2005.

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; Houdjik 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 Page

Strength Rationale -grade of supporting conclusions
Minority Opinion –listed as needed

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.

Recommendation Page

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Link back to conclusion statements, evidence summaries, worksheets

Supporting Evidence

The recommendations were created from the evidence analysi
the blue hyperlinks below (recommendations rated consensus

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 unitl (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

Conejero R, Bonet A, Grau T, Esteban A, Mesejo A, Montejo JC, López J, Acosta JA. Effect of a glutamine-enriched enteral diet on intestinal permeability and infectious morbidity at 28 days in critically-ill patients with systemic inflammatory response syndrome: A randomized, single-blind, prospective, multi-center study. *Nutrition*. 2002 Sep; 18 (9): 716-721.

Hall JC, Dobb G, Hall J, de Sousa R, Brennan L, McCauley R. A prospective randomized trial of enteral glutamine in critical

Recommendation Page

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References:
-link to worksheets
OR
-link to external guidelines that use a systematic process

References

Conejero R, Bonet A, Grau T, Esteban A, Mesejo A, Montejo JC, López J, Acosta JA. Effect of a glutamine-en
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syndrome: A randomized, single-blind, prospective, multi-center study. *Nutrition*. 2002 Sep; 18 (9): 716-721

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Spindler-Vesel A, Bengmark S, Vovk I, Cerovic O, Kompan L. Synbiotics, prebiotics, glutamine or peptide in early enteral nutrition: A randomized study in trauma patients. *J Parenter Enteral Nutr*. 2007 Mar-Apr; 31 (2): 119-126.

Cai G, Yan J, Zhang Z, Yu Y. Immunomodulatory effects of glutamine enriched nutritional support in elderly patients with severe sepsis: A prospective, randomized, controlled study. *J Organ Dysfunction*. 2008, 4: 31-37.

Déchelotte P, Hasselmann M, Cynober L, Allaouchiche B, Coëffier M, Hecketsweiler B, Merle V, Mazerolles M, Samba D, Guillou YM, Petit J, Mansoor O, Colas G,Cohendy R, Barnoud D, Czernichow P, Bleichner G. L-alanyl-L-glutamine dipeptide-supplemented total parenteral nutrition reduces infectious complications and glucose intolerance in critically ill patients: The French controlled, randomized, double-blind, multicenter study. *Crit Care Med*. 2006 Mar; 34(3): 598-604.

Estívariz CF, Griffith DP, Luo M, Szeszycki EE, Bazargan N, Dave N, Daignault NM,Bergman GF, McNally T, Battey CH, Furr CE, Hao L, Ramsay JG, Accardi CR, CotsonisGA, Jones DP, Galloway JR, Ziegler TR. Efficacy of parenteral nutrition supplemented

Guideline Algorithms

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Nutrition Guidelines List | EBP Toolkits | Print Reports

Topics

Algorithms

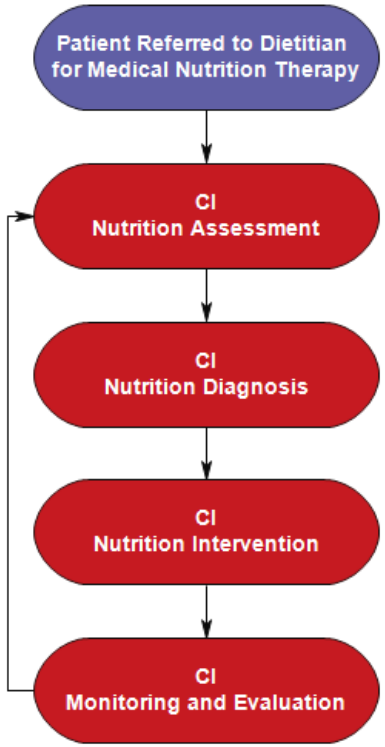
- CI Nutrition Assessment Algorithm
- CI Nutrition Diagnosis Algorithm
- CI Nutrition Intervention Algorithm
- CI Nutrition Monitoring and Evaluation Algorithm

Nutrition Guidelines List > Critical Illness Guideline 2012 > Algorithms

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



Guideline Algorithms

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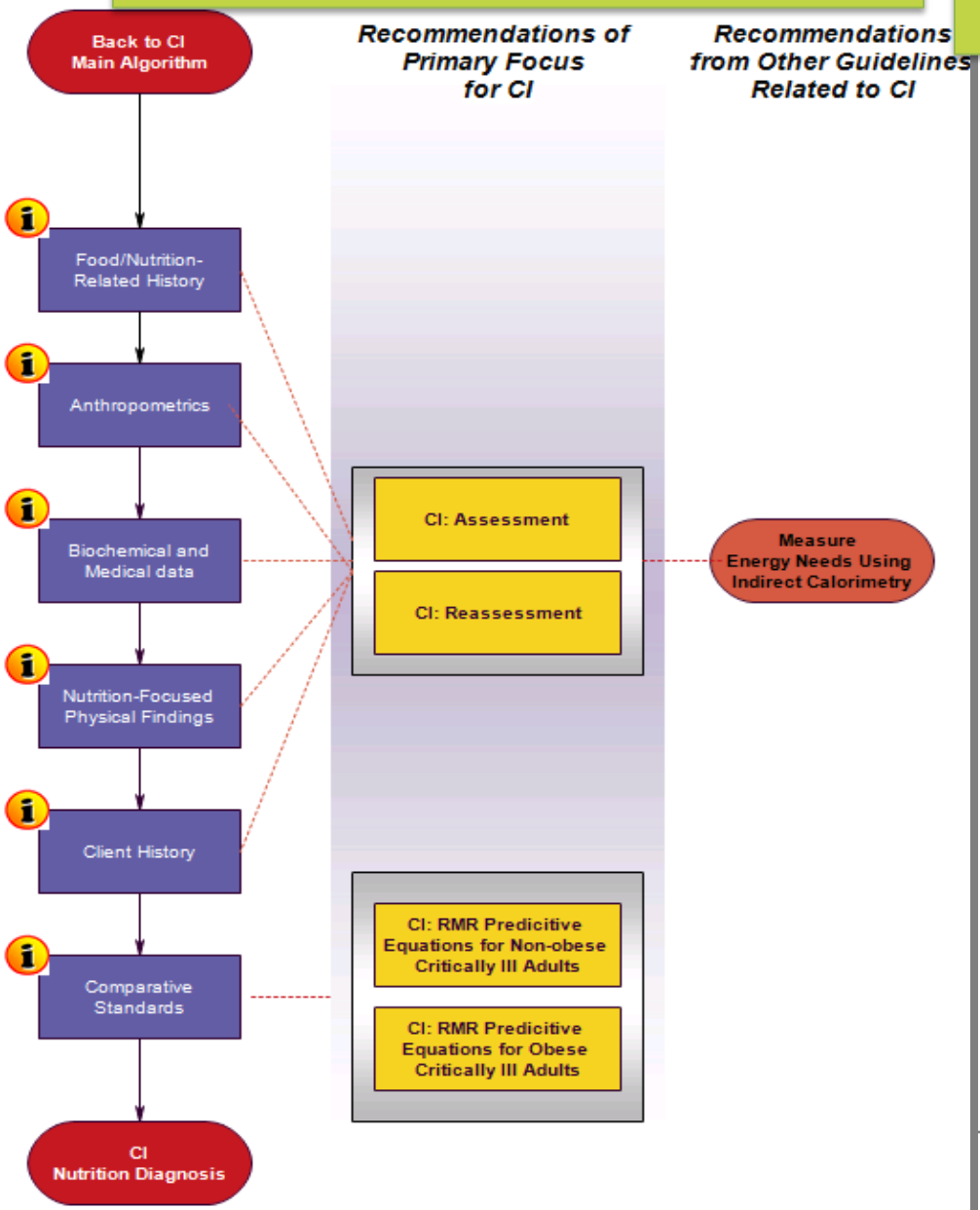
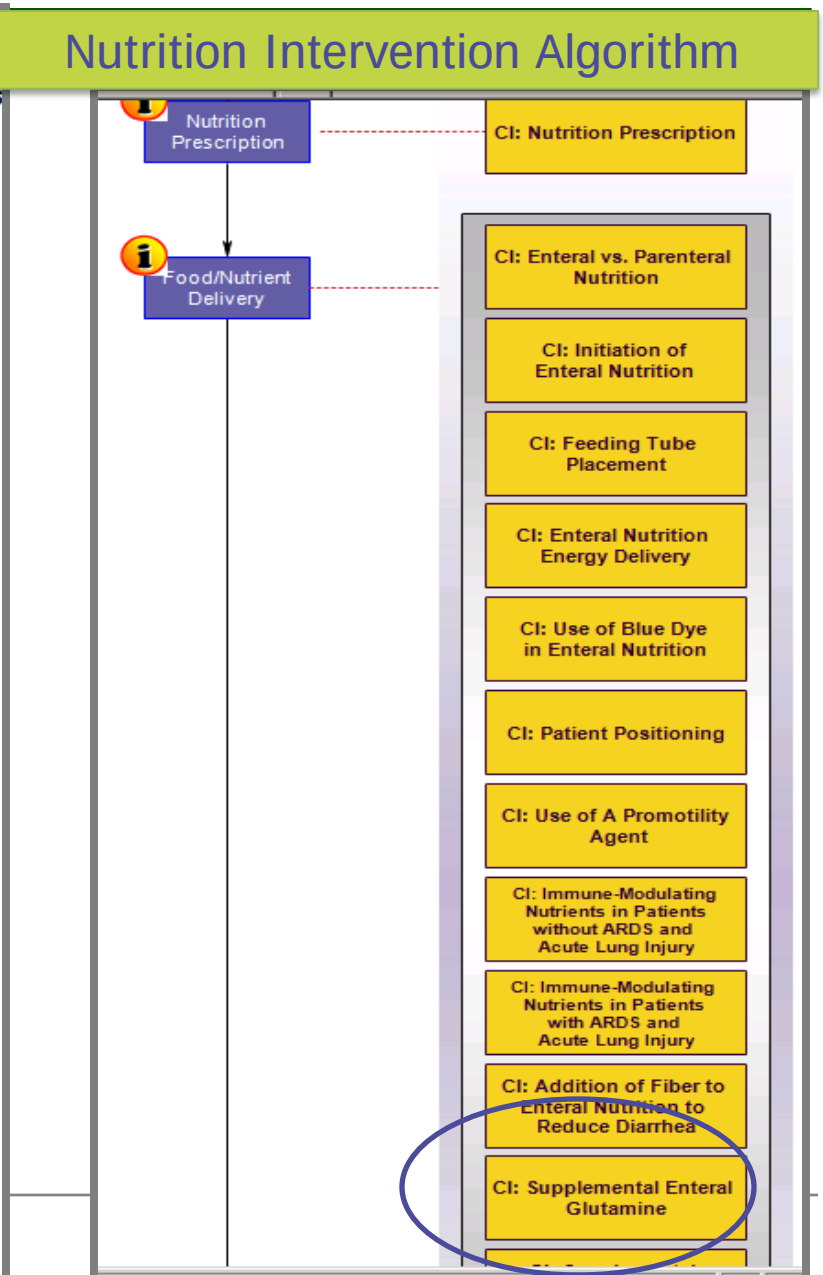
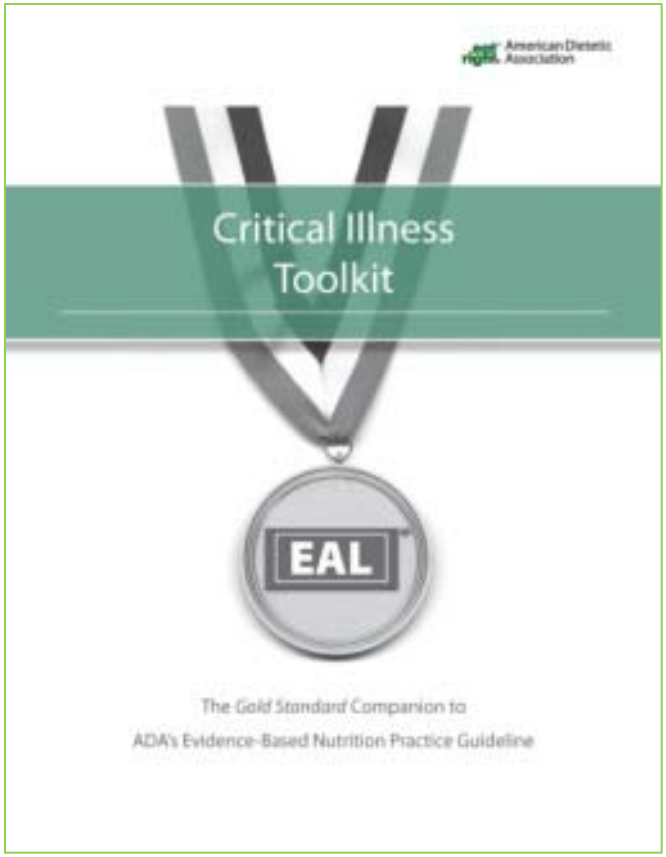
Nutrition Assessment Algorithm



Nutrition Intervention Algorithm



Toolkit Development



Toolkit Development

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- 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

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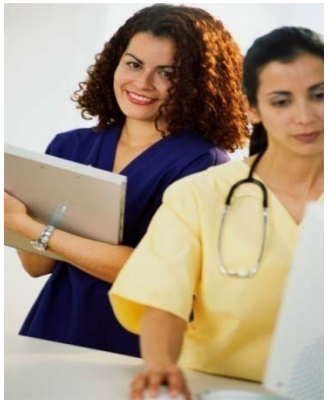
Set of companion documents for application of the practice guideline

- **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

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To assist RD in:

- **Implementing evidence-based practice**
- **Implementing NCP/SL**
- **Promoting consistency**
- **Promoting quality care**
- **Achievement of expected outcomes**

Nutrition Care Process & Standardized Language

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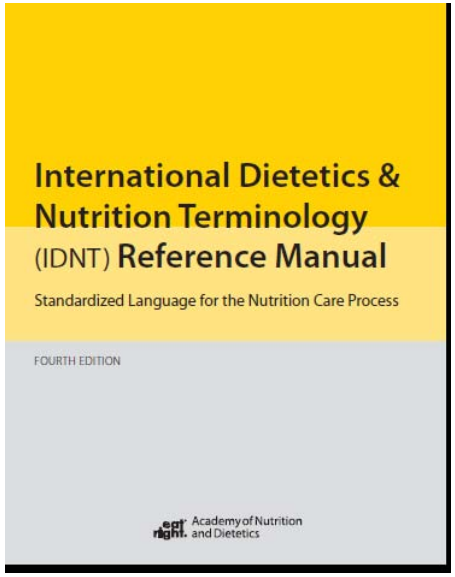
A means to apply the NCP in a standard way using common language.

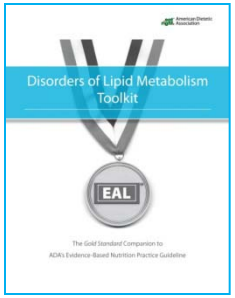
- Nutrition Assessment
- Nutrition Diagnosis
- Nutrition Intervention
- Monitoring and Evaluation

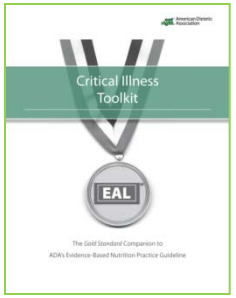


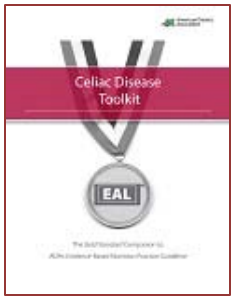
Evidence-Based Practice Toolkits

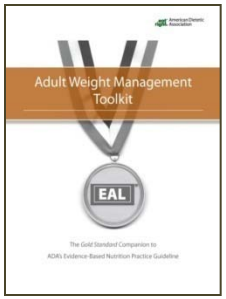
Academy of Nutrition and Dietetics

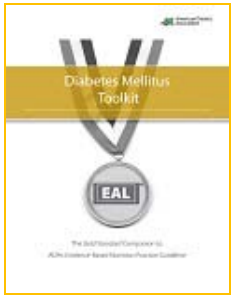
- Disorders of Lipid Metabolism
- Adult Weight Management
- Oncology
- Critical Illness
- Celiac Disease
- Heart Failure
- Diabetes
- Pediatric Weight Management





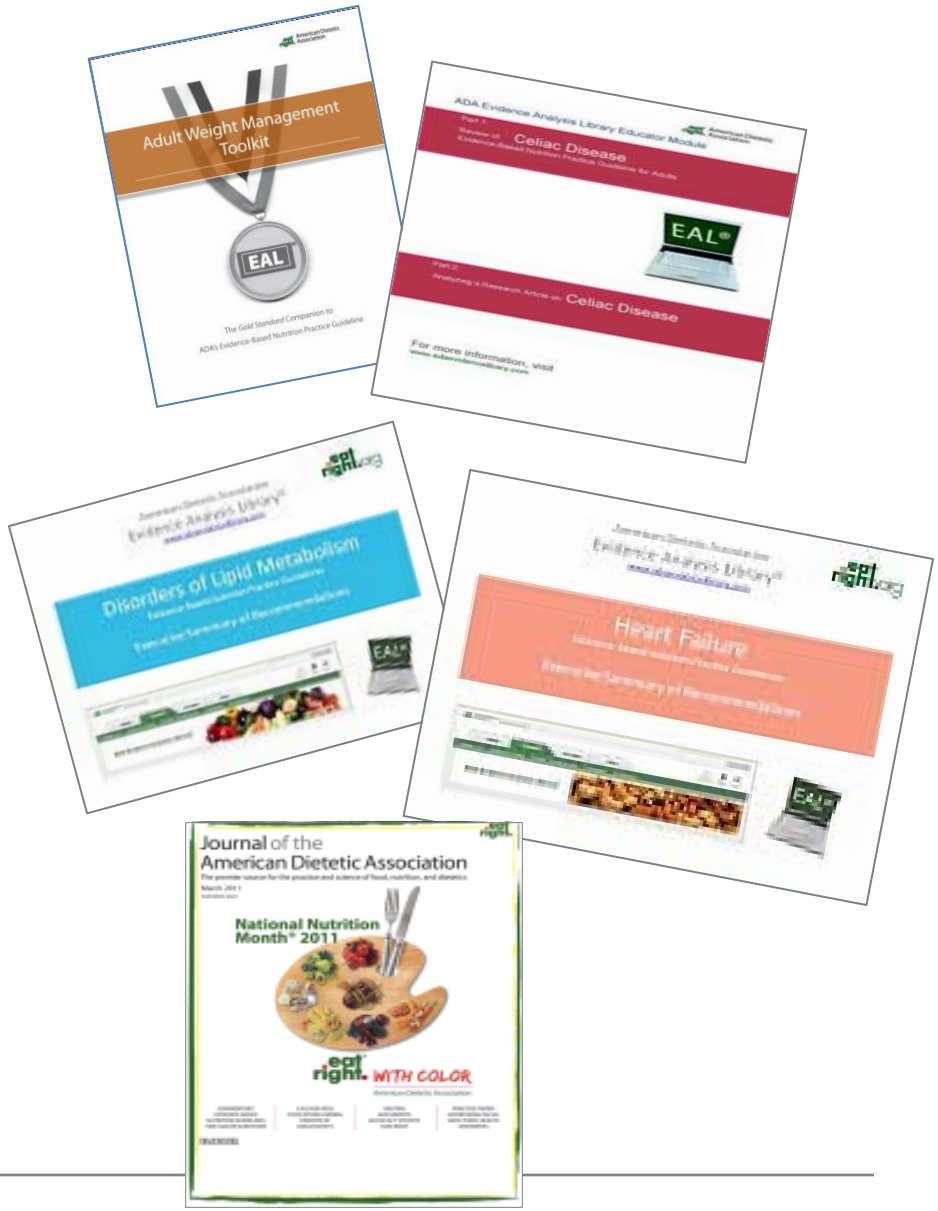






Utilize Academy Evidence-based Practice Resources

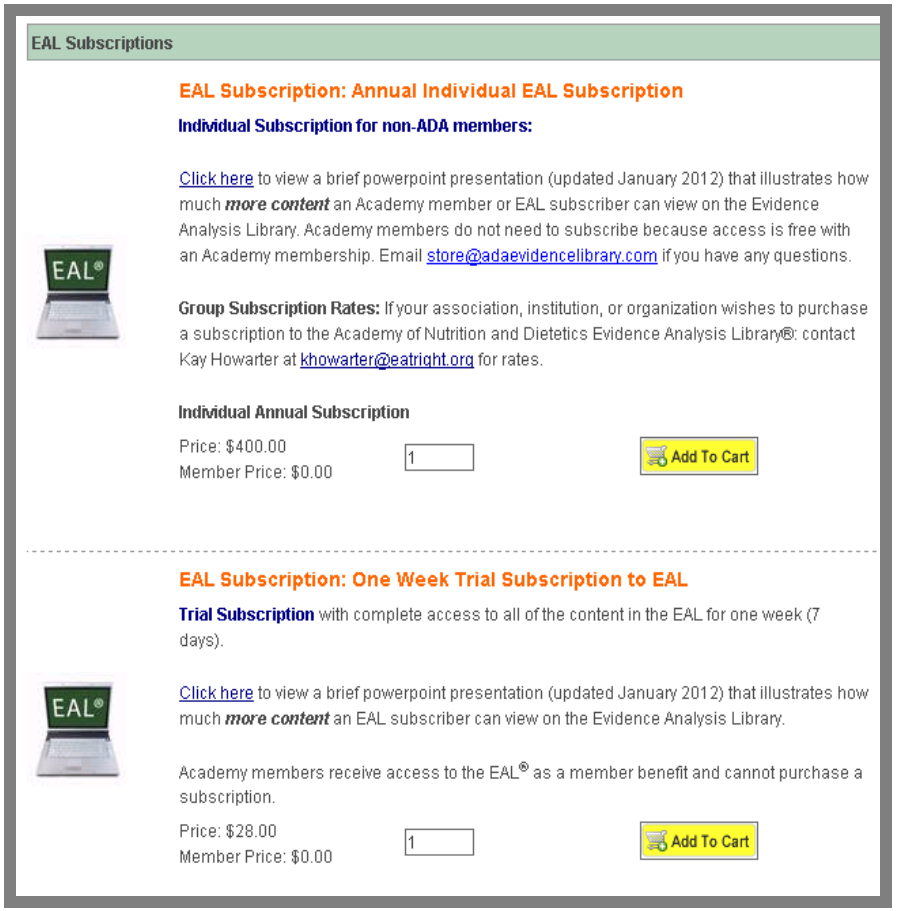
- Evidence-based Toolkits - application tools
- Educator modules- teaching tools for students
- EAL project presentations
- Academy Position Papers
- Journal of Academy of Nutrition and Dietetics – look for the EAL icon and journal website of EAL-related articles



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

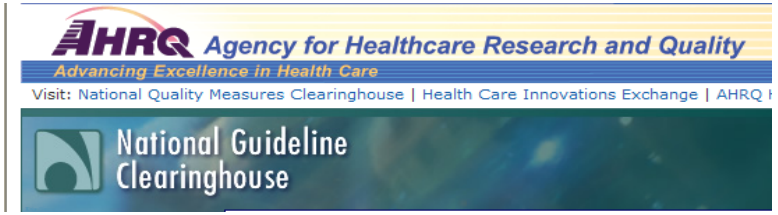


I can't find my topic…

-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



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