EAL Orientation Tutorial

## *Module 2: The Evidence Analysis Library Evidence Analysis Process*

| Slide Number | Title | Script |
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| **1** | Module 2: The Evidence Analysis Systematic Review Process | Welcome to Module 2 of the Evidence Analysis Library Orientation Tutorial. In this module you will learn about the EAL's evidence analysis process. |
| **2** | Objectives | The information in the Evidence Analysis Library has been determined through a systematic process for reviewing nutrition research. In the 1st module, you learned how to locate the summarized evidence available on the EAL.<br><br>This module will cover the roles of the Evidence Analysis Library team and the Academy's rigorous 5-step systematic review process. |
| **3** | Definition | Evidence-based dietetics practice is the use of systematically reviewed scientific evidence in making food and nutrition practice decisions by integrating best available evidence with professional expertise and client values to improve outcomes.<br><br>The main objective of the Evidence Analysis Library is to provide a resource that Academy members can use to implement evidence-based recommendations in practice. Implementing evidence-based recommendations improves the quality of care and enhances the credibility of the profession. |
| **4** | EAL Process | The Academy adopted a rigorous and systematic method for searching, analyzing and summarizing nutrition research so that a conclusion can be formed based on the *collective* body of evidence on a particular topic, while also taking the quality of the evidence into consideration. |

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| | | The evidence analysis process is conducted by a team of experts in the topic and analysts trained in evidence analysis. Meticulous methods are used to ensure objectivity, transparency and reproducibility of the process. |
| **5** | Why Evidence-Based | Why use Evidence-based? In order for dietitians to remain competitive in the healthcare, education and business arenas, they must incorporate evidence-based practice into their day-to-day activities and decisions. Evidence-based practice enhances credibility with other healthcare team members and will help dietitians be more effective and efficient in their practice.<br><br>Evidence-based practice can improve the quality of healthcare; decrease wide variations in practice; reduce the gap between what is known from research and what happens in real life; and takes advantage of biomedical knowledge. |
| **6** | Members of the Evidence Analysis Team | The evidence analysis process includes creating a team comprised of the project manager, lead analyst, analysts, workgroup chair, expert workgroup members and medical librarian. The Academy's Evidence-Based Practice Committee oversees the Evidence Analysis Library. |
| **7** | Expert Workgroup Responsibilities | Expert workgroup members are appointed by the Evidence-Based Practice Committee Workgroup Selection Subcommittee. The sub-committee aims for an equal balance of clinicians and researchers on the workgroups. Requirements to become an expert workgroup member include a minimum of 5 years of practice and/or research experience, 3 years of work related to the focus of the project, and either an advanced degree or at least 8 years of experience in the topic area. Visit the Get Involved link on the EAL homepage to learn more.<br><br>Responsibilities of the workgroup members include developing the evidence analysis questions and search plan, reviewing work of the analysts and lead analysts, finalizing and grading content, developing guideline |

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| | | recommendations, and providing final approval on all materials. They meet via teleconference calls and/or webinars – usually twice a month. |
| **8** | Evidence Analysts | Evidence Analysts are experts in critically analyzing articles. They have advanced degrees and experience with research study designs, methods and statistics. They undergo a thorough training on the EAL process and risk of bias tool. Their main responsibility is to read and appraise the research articles. They complete a data extraction (DET) worksheet and quality criteria checklist for each article. |
| **9** | Project Leaders | Project Managers and Lead Analysts facilitate and manage the workgroup and evidence analysis. Communication is key at every step in the Evidence Analysis Process. The medical librarian, experienced with systematic reviews, conducts the extensive literature search and documents the results. |
| **10** | Academy staff | Academy staff provide guidance and training on the EALL methodology, oversee the process, publish the content on the EAL and support the project team. |
| **11** | Systematic Review – the process | The process that we are about to review is available on the EAL from the Policy and Process tab. |
| **12** | Steps in the Evidence Analysis Process | Here, at a glance, are the 5 steps – 1. Formulate the Question; 2. Gather the Research; 3. Appraise the articles; 4. Summarize the Evidence; and 5. Develop Conclusion Statement and Grade the strength of the supporting evidence. |
| **13** | Step 1: Formulate the Questions | Step 1: Formulate the Question |
| **14** | What questions? | How does the workgroup decide which questions to ask? When developing their questions, they consider- will it impact patients/clients well being? Is the user likely to encounter it in their practice? Will they find research evidence for practice? Can it be answered within the project time and |

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| | | resource constraints; and might it provide proof of effectiveness for current practices? |
| **15** | Nutrition Care Process | As the workgroup develops evidence analysis questions, they categorize them by steps of the Nutrition Care Process. Steps of the Nutrition Care Process include Nutrition Assessment, Nutrition Diagnosis, Nutrition Intervention, and Nutrition Monitoring and Evaluation. |
| **15** | Question Development | Evidence analysis questions are developed in the PICO format. PICO stands for Population, Intervention (procedure, or approach), Comparison Intervention, and Outcome. Utilizing the PICO format helps the workgroup to develop questions that are neither too broad nor too specific. |
| **17** | PICO Chart to Develop Questions | When developing questions in the PICO format, it's helpful to plug them into a PICO table to ensure each component of PICO is included. You can see by this example that the question *How does daily caffeine intake affect the blood pressure of patients with chronic heart failure?* follows the PICO format.<br>Patients with chronic heart failure is the population; daily caffeine intake is the intervention; the comparison is no caffeine intake; and the outcome is – affect blood pressure |
| **18** | Example: Poor Questions | Here are 2 examples of poorly written questions. For example, the question *Is a one-shot motivational interviewing session effective for reducing after-school soda consumption among teens?* is too specific. There likely is not ample evidence available on this specific of a question to conduct a systematic review. On the other hand, the question *Is Medical Nutrition Therapy effective?* is too broad of a question. This question requires more specifics like the population and specific disease state or condition. |

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| **19** | Example: Good Questions | Here are examples of well-written questions. These questions satisfy the PICO format and are neither too broad nor too specific.<br><br>How effective is the consumption of low glycemic index foods for reducing energy intake and promoting weight loss in adults? In healthy adults, does intake of non-nutritive sweeteners (saccharin, aspartame, acesulfame-k, sucralose, neotame) affect energy density? |
| **20** | How Do We Identify Key Factors? | When developing evidence analysis questions, it's best to begin with the outcomes in mind and work backward through the Nutrition Care Process. |
| **21** | Two Types of Outcomes | There are 2 types of outcomes: Nutrition Care Outcomes and Health Care Outcomes. Nutrition Care Outcomes are often intermediate to Health Care Outcomes and include outcomes related to food/nutrition-related history, anthropometric measurements, biochemical data, medical tests, and procedures, and nutrition-focused physical findings. Health Care Outcomes include health and disease outcomes as well as cost and patient outcomes. |
| **22** | Intervention Factors | When thinking of nutrition interventions that lead to specific outcomes, there are a variety of factors to keep in mind, including the content, context, and delivery method of the intervention. |
| **23** | Step 2: Gather and Classify the Research | Step 2 is – gather and classify the research |
| **24** | Search Process—A Rigorous Progress | The workgroup – experts on the topic - are the final decision makers. They determine the inclusion/exclusion criteria; work with the librarian to ensure a thorough search of multiple databases; review the abstracts & articles, provide rationale for excluding articles; and ensure the document of the search following the PRISMA format. |

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| **25** | The Search Strategy | Before beginning a literature search, the workgroup must develop a detailed search plan - the inclusion and exclusion criteria.<br><br>A medical librarian conducts the actual search using appropriate search and meSH terms and multiple data bases. The workgroup then reviews the search plan results. They decide which articles to include and which to exclude. Any article that is excluded must have a valid reason—all of which is documented and published on the EAL. The final list of included articles is called the sort list. The entire search process is thoroughly documented. |
| **26** | Steps in Identifying Research | Conducting a thorough search of multiple databases is critical. This diagram shows that the initial search is wide. Duplicate articles and articles that don't match the search plan are excluded in the title screening. All of this is documented. |
| **27** | Search Plan & Results for Each Question | As previously indicated, the search is thoroughly documented and available on the EAL. Expand the section titled search plan and results. Listed is the date of the search as well as inclusion and exclusion criteria specifying age of study participants, setting, sample size, acceptable dropout rate, age of the study. The workgroup may decide to specify additional criteria by which articles are appraised. Also included are the total number of hits; databases searched; number of included articles and number of excluded articles. |
| **28** | Example Inclusion Criteria | Here you can see the list of inclusion criteria for the oncology project. |
| **29** | Search Plan & Results | The EAL lists articles that are included AND excluded. Articles that are excluded will have a reason documented. |
| **30** | Step 3: Critically Appraise Each Article | Step 3: critically appraise each article |
| **31** | Critical Appraisal of Each Article | Evidence Analysts critically appraise each article using a data extraction worksheet |

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| | | designed to capture specific outcomes. The worksheet includes a quality criteria checklist. This information is all published on the EAL. |
| **32** | Example DET Worksheet | Worksheets detail characteristics of the study including but not limited to the study design, research purpose, inclusion and exclusion criteria, blinding efforts, funding, population characteristics, interventions, and results. Lead evidence analysts have the ability to specify which outcomes they are interested in documenting—which the evidence analysts will then capture in the worksheet. All of this information is published on the EAL. Due to copyright regulations, the actual articles are not available on the EAL. A link to PubMed is provided so the user can read the abstract and order the article. |
| **33** | Quality Criteria Checklist | The Academy Risk of Bias tool – the Quality Criteria Checklist (QCC) – is designed to determine the quality of the research. There are 4 relevance questions that address applicability to practice and 10 validity question that help address specific study designs. The QCC guides the analyst to recognize various threats that may undermine sound research and that could lead to invalid conclusions. |
| **34** | Quality Criteria Checklist | Each article included in the systematic review is critically appraised via double blind assessment. The analyst completes the QCC then a second reviewer completes a second review – blinded to each other's answers. Disagreements are identified and consensus is reached. |
| **35** | Example Quality Criteria Checklist | This is an example of a completed quality criteria checklist. Note that each article is assigned a rating of Positive Quality, Negative Quality and Neutral Quality |
| **36** | Step 4: Summarize the Evidence a Summary table | Step 4: Summarize the evidence |

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| **37** | Evidence Summary | The Lead Analyst reviews the worksheets and quality criteria checklists completed by the evidence analysts and drafts evidence summaries for each evidence analysis question. Evidence summaries are a synthesis of the evidence into a narrative format. Additionally, a summary table is created to provide information on the studies and outcomes at a glance. |
| **38** | Narrative Evidence Summary | Here is an example evidence summary. Expand and collapse this section for more detail. Tables can be exported to Excel for better viewing |
| **39** | Summary Table | Here is an example of a table. These tables typically include the citation, study design, quality rating, sample size, interventions, and outcomes for each study. This format allows users to easily compare studies side by side. The user can also click to view the table in a new window for easier viewing. |
| **40** | Evidence Summary--Bibliography | Expand the Worksheets section, to see a bibliography for each question and to access more detailed information on each study. |
| **41** | Step 5: Develop Conclusion Statement and Grade the Strength of the Evidence | Step 5: develop conclusion statement and grade the strength of the supporting evidence |
| **42** | Conclusion Statement | The Conclusion Statement is the answer to the evidence analysis question. This is why following the PICO format during the question develop process is so important—we need to be able to provide a concise answer for each question. Conclusion Statements are drafted by the Lead Analyst and reviewed, approved, and graded by the workgroup. |
| **43** | Conclusion Statement | Here is an example conclusion statement on the EAL. You can see the grade for the conclusion statement below. |
| **44** | Explanation of Grades | Conclusion Statements are graded by the workgroup to help the user interpret the strength of the evidence. Conclusion Statement grades range from 1-5. The lower |

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| | | the value of the grade, the stronger the evidence.<br><br>You can download a copy of the grading table from the home page/quick links section of the EAL. |
| **45** | Conclusion Grading Table | The workgroup uses this Conclusion Grading Table during the grading process. The workgroup considers the quality, consistency, and quantity of studies as well as clinical impact and generalizability when discussing and deciding upon a grade for a conclusion statement. |
| **46** | Publish on the EAL | The final step is to publish all of the content on the Evidence Analysis Library website. All EAL content is free to Academy members. Non-Academy members may subscribe to the EAL. |
| **47** | After Evidence Analysis: Next Steps | Once the systematic review is finalized, it may be used to develop Evidence-Based Nutrition Practice Guideline recommendations. Some Evidence Analysis Projects are incorporated in an Academy Position Paper. The results are presented at meetings and submitted for publication. |
| **48** | Thank You | You have completed Module 2: The Evidence Analysis Library Evidence Analysis Process. Please proceed to Module 3, to learn about the development of Evidence-Based Nutrition Practice Guidelines. |