Orientation Objectives

- Background of the NEL
- Overview of NEL’s systematic review process
  - Highlight the interaction between the DGAC and NEL staff
  - Provide details on systematic review question development

Nutrition Evidence Library (NEL)

- Specializes in conducting systematic reviews to inform Federal nutrition policy and programs
  - Methodology added transparency and credibility to the 2010 DGA process
- Meets Federal mandates requiring that all agencies ensure the quality, objectivity, utility, and integrity of information used to form Federal guidance

NEL Process Improvements since 2010

- After-actions: DGAC, NEL, DGMT
- IOM – "Standards for SRs"
- Evolution in systematic review methodology

USDA Nutrition Evidence Library: Six-Step Process

Step 1: Systematic review question development

- Goal: Develop, refine and prioritize systematic review questions which reflect important decisional dilemmas in public health nutrition guidance
- Information provided by the DGAC during topic identification is used to draft systematic review questions, PICO’s, and analytic frameworks
Step 1: Systematic review question development

- SR questions should reflect important decisional dilemmas in public health nutrition guidance and reflect what decision makers need to know to make evidence-based decisions to enhance public health
- Must be researchable using NEL methodology (i.e., not too broad, but not too specific)
  - Too broad: What is the relationship between nuts and health?
  - Too specific: What is the relationship between intake of 2 oz/day of nuts over a one month period on cholesterol?
  - What is the relationship between nuts and risk of cardiovascular disease?

Step 1: Systematic review question development

- Defining the PICO ensures that key aspects of the systematic review question have been defined and is used to develop the analytic framework
  - Population: Target population of interest, and any relevant subpopulations
  - Intervention: Intervention and/or exposure
  - Comparator: Main comparison (e.g., main alternative to compare with the intervention or exposure)
  - Outcomes: Public health outcomes (e.g., health or diet-related)

Step 1: Systematic review question development

- An analytical framework is developed for each SR question (or family of questions) using the information from the PICO
- Analytic frameworks are a type of evidence model that links and defines clinical concepts, evidence, and populations as they relate to outcomes
  - Alternative and related concepts are:
    - Causal pathway
    - Conceptual framework
    - Influence diagrams
    - Theoretical frameworks
    - Logic models

Step 2: Literature search, screening, and selection

- Librarians from USDA and HHS
- Select inclusion/exclusion criteria
- Literature search
  - Electronic databases and hand search
- Literature screening and selection
  - Dual process using web-based tool
- All searches are documented

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Step 3: Data extraction and quality assessment

• Data Extraction:
  – Extract the key information needed to answer the systematic review question into the NEL “Grid”
    • Information about the study sample
    • Details about the methods used
    • Results
    • Strengths, limitations

Step 3: Data extraction and quality assessment

• Quality Assessment:
  – The quality of each article used in a NEL systematic review is assessed:
    • Primary articles: NEL Quality Assessment Tool (QAT) (currently being validated)
    • Systematic reviews/meta-analyses: AMSTAR

Step 4: Describing the evidence and evidence synthesis

• The description of the evidence is sent to the DGAC, along with a series of questions to solicit input on key trends, themes
  – Patterns of agreement/disagreement?
  – Similarities/differences between the studies that explain any agreement/disagreement?
  – Factors (e.g., sex, race/ethnicity, age) that should be discussed?
  – Limitations, generalizability, magnitude of effect?

• NEL staff compiles the DGAC input and drafts the evidence synthesis, which is reviewed and revised by the DGAC
Step 5: Conclusion statements and grading the evidence

- Development of CSs
  - NEL obtains DGAC input and uses it to facilitate the drafting of a conclusion statement with the DGAC
  - Brief overall summary statement worded as an answer to the systematic review question; additional information provided in “Key Findings”

Step 5: Conclusion statements and grading the evidence

- Grading the evidence
  - Request DGAC members complete a grading rubric, which includes elements related to:
    - Quality
    - Quantity
    - Consistency
    - Impact
    - Generalizability
  - NEL compiles the input and facilitates a grading decision by the DGAC

Step 6: Research recommendations and technical abstracts

- Research recommendations
  - NEL solicits DGAC input and uses it to draft a conclusion statement

- Technical abstract
  - Summary of a NEL systematic review, designed to describe the overall scope, process and findings of a review