

SYSTEMATIC REVIEW MODULE

Objectives:

At the completion of this module, participants will be able to critically appraise a systematic review and gain an understanding of the role of systematic reviews in guiding practice.

Instructional Objectives:

At the completion of this module, you will be able to:

1. Assess the validity of a systematic review;
2. Understand the concept of heterogeneity, and how this is measured;
3. Interpret a meta-analysis plot;
4. Appreciate the role of a sensitivity analysis; and
5. Be aware of the issues with subgroup analyses.

References (Further Reading)

Guyatt G, Roman Jaeschke, Mark Wilson, Victor Montori, and Scott Richardson. What is evidence-based medicine. In Guyatt G, Rennie D, Meade MO, Cook DJ. *Users' Guides to the Medical Literature: A Manual for Evidence-based Clinical Practice*. 3rd ed. New York, NY: McGraw-Hill; 2015.

Specifically: Summarizing the Evidence Ch 22 – 25.2; P 457-527.

Problem-Based Educational Strategy

1. Read the enclosed Clinical Scenario
2. Compose a well-built PICO-format clinical question about the problem posed
3. Conduct a thorough literature review using the information from your PICO question and narrow your results to systematic reviews/meta-analyses
4. Read the Users Guides Introductory chapter on Summarizing the Evidence Part F, page 523
5. Advanced learners could review the chapters on subgroup analyses and heterogeneity
6. Read the reference: Thompson J, Biggs BA and Pasricha SR. Effects of daily iron supplementation in 2- to 5-year-old children: Systematic review and meta-analysis. *Pediatrics*. 2013; 131:739-753.
7. Complete the critical appraisal form.
8. Return to the scenario and formulate a recommendation.
9. Advanced learners could use this module in tandem with the practice guideline module and grade the evidence, discuss whether they would recommend the intervention or not, and decide with what strength would they make such a recommendation.

Clinical Scenario:

You are in your office seeing Andrew, a 3-year-old child who is with his adopted mother for a routine well-child evaluation. Andrew was recently adopted from Africa where he was living in

an orphanage. He is in your office for a physical examination, basic laboratory studies, and immunizations. His physical exam is only notable for pale conjunctiva. He is otherwise well-nourished and with no physical exam findings suggestive of infection or other pathophysiology.

He is administered the necessary vaccinations and is sent to the lab for routine blood work. Upon review of his laboratory values, you find that he is anemic (Hgb = 8.6g/dL [86g/L]) with evidence of iron-deficiency (i.e., elevated red cell distribution width [RDW], low mean corpuscular volume [MCV], and low serum iron level). You prepare to call his family and inform them of the laboratory results. As you pick up the phone, you realize that you have not recently searched the literature to determine the latest evidence regarding iron supplementation in young children with iron-deficiency anemia.

You frame your PICO question and put the relevant search terms into PUBMED, Clinical Queries. You find a systematic review in a recent article in Pediatrics: “Effects of daily iron supplementation in 2- to 5- year-old children: systematic review and meta-analysis” by Thompson et al. and you decide to critically appraise this review using the skills you have recently acquired at the McMaster EBCP Workshop.