

## **SYSTEMATIC REVIEW UNIT**

### **Internal Medicine, Chiropractic, and Other**

#### **Goal:**

At the completion of this unit, participants will be able to critically appraise a Systematic Review, using the “Users’ Guides”

#### **Instructional Objectives:**

At the completion of this unit 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.
5. Be aware of the issues with subgroup analyses.

#### **Reference (Further Reading):**

In: Users’ Guides to the Medical Literature: A Manual for Evidence Based Clinical Practice, 3<sup>rd</sup> Edition, Editors: Guyatt GH, Rennie D, Meade M, Cook DJ. New York, NY: The McGraw-Hill 2015.

Summarizing the Evidence

1. Chapter 22, p.459 The Process of a Systematic Review and Meta-Analysis
2. Chapter 23, p.471 Understanding and Applying the Results of a Systematic Review and Meta-analysis
3. Chapter 25, p.507 Advanced Topics in Systematic Reviews
  - 25.1 Fixed-Effects and Random Effects Models p.507
  - 25.2 How to Use a Subgroup Analysis p.515

#### **Educational Strategy:**

1. Read the Users Guides chapter on Summarizing the Evidenc, page 459.
2. Advanced learners could review the chapters on subgroup analyses and heterogeneity.
3. Read the scenario below.
4. Read the enclosed reference “The effectiveness of thoracic spine manipulation for the management of musculoskeletal conditions: a systematic review and meta-analysis of randomized clinical trials”.
5. Complete the critical appraisal form.
6. Return to the scenario and formulate a recommendation.

7. 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 they would make such a recommendation.

**Scenario:**

A 39-year-old male presents with a primary complaint of neck pain of 1 month duration. The pain is described as a dull ache that involves the back of the neck. Onset was insidious; there is no radiation of pain nor other neurological findings. Screening for 'red flags' is unremarkable (e.g. no fever, night pain, unexplained weight loss, etc.). Aggravating factors are sustained desk work, and pain is temporarily relieved by rest, massage, or use of a hot pack.

The patient has been active on the Internet in a search for treatment options and this exercise has left him more confused than informed. He comes to you seeking some clarification on what treatment options may be worth pursuing; specifically, a colleague of his has suggested that spinal manipulation may be helpful (but also advised him to avoid manipulation of his neck due to safety concerns).

Using PubMed and Clinical Queries you use the search terms "neck pain" and "thoracic spine manipulation" and restrict your search to "therapy". You identify the following systematic review which you decide to explore further:

The effectiveness of thoracic spine manipulation for the management of musculoskeletal conditions: a systematic review and meta-analysis of randomized clinical trials. *J Man Manip Ther.* 2009; 17(4): 237-46. Walser et al.

The abstract indicates it is relevant to your patient and you decide to critically appraise this paper using the "Users' Guides" for a Systematic Review.

After critically appraising this paper, will you recommend thoracic spine manipulation?

**Enclosed Materials:**

The Effectiveness of Thoracic Spine Manipulation for the Management of Musculoskeletal Conditions: A Systematic Review and Meta-Analysis of Randomized Clinical Trials. *The Journal of Manual and Manipulative Therapy* 2009;17(4):237-46