

## Mythbusters

Mythbusters is a way to teach information mastery – the application of EBM – by showing how common ideas can be evaluated and understood. It serves as a way for learners to determine how they know what they know by evaluating the evidence supporting these ideas. It allows them to determine whether, for a particular practice (which perhaps may be a “myth”), whether there is good evidence supporting the practice, good evidence contradicting the practice, or an incomplete evidence base for the practice. The last category is the most important to know so that one may more easily change his or her own practice once better information comes along. It is not a time to teach basic EBM skills, but, instead, is an opportunity to put these skills into practice.

Mythbusters is taught as a series of exercises over time. The steps in Mythbusters are as follows:

- 1) Identify a list of common medical practices generally thought to be true. The group should do this together, simply listing common assumptions in medicine. In this way the list will be relevant to the learners. For example, a partial list of topics might be:
  - a. Men over age 50 should be screened for prostate cancer.
  - b. Vitamin B12 (cyanocobalamin) must be given intramuscularly.
  - c. SSRI antidepressants are better than tricyclic antidepressants
  - d. Infectious conjunctivitis in children should be treated with antibiotic eyedrops.
- 2) One of these topics will be the focus of each subsequent session. Each should be identified ahead of time so that the leader can assemble evidence for evaluation.
- 3) When the group meets, the first task is to convert the topic into a question that can be answered, using the PICO format.
- 4) The next task is to evaluate the information on the topic already pre-assembled by the leader. This information should be from different sources and of different types. The goal is to find “pre-digested” information that can be quickly evaluated for relevance and validity. Rather than asking learners to perform typical EBM clinical appraisals, the goal is to have them apply the concepts of EBM to these sources of information on the spot. Later, as the group gets better and resources are available, the group can be assigned to find the information.
- 5) The group is divided into smaller groups, and each of these groups is given one of the sources of information to evaluate. They should also be given the worksheet for evaluation of the type of information they have.
- 6) The groups will work on their own for 20-30 minutes, working to understand the information they have and evaluating it using the EBM techniques on the worksheets. During this step they may come up with additional questions to be answered in addition to the one already identified.
- 7) The smaller groups then come back together. Each group reports their findings. Then, all members of the group weigh the information and try to come to a conclusion about the question. If possible, they should develop an answer to the question and assign a strength of recommendation.
- 8) The last step, if time, is to determine how the group will implement the recommendation they just developed. Will it require them to change what they are doing? If so, what are the barriers to making this change? Can their system of practice be changed in some way to make the change easier?

## Mythbuster Exercise

The goal of the group exercise is to gain some practice with the Mythbuster style of teaching. I have already chosen a topic and provided the evidence to be evaluated.

**Issue:** Should subclinical hypothyroidism be treated?

**Step 1** (10 minutes): Discuss the issues surrounding subclinical hypothyroidism and convert the question into the PICO format

**Step 2** (20 minutes): Divide into subgroups, each group evaluating one of the pieces of evidence. Evaluate the information for applicability to the question at hand (relevance) and for its validity, using the worksheets as needed. Prepare to report your conclusions to the group.

**Step 3** (15 minutes): Each subgroup reports their findings to the group. Try to come to consensus on a recommendation regarding the question. Using the information mastery traffic light, is the treatment of subclinical hypothyroidism rarely useful (red light), usually useful (green light), or of unknown benefit (yellow light)?

## Tutor Notes Mythbuster Exercise

The goal of the group exercise is to gain some practice with the Mythbuster style of teaching. I have already chosen a topic and provided the evidence to be evaluated.

**Issue:** Should subclinical hypothyroidism be treated?

*Subclinical hypothyroidism is a laboratory diagnosis that refers to a patient with an elevated TSH level and a normal free thyroxine (FT<sub>4</sub>) level. About 2 to 5 percent of these patients each year will develop overt hypothyroidism, but the benefits of detecting and treating the subclinical disease are not well established. Theoretically, treatment might affect cardiac dysfunction and neuropsychiatric symptoms.*

**Step 1** (10 minutes): Discuss the issues surrounding subclinical hypothyroidism and convert the question into the PICO format.

After a few minutes of discussion among group members (do not lead this discussion, but simply allow it to happen), move the group to the task of identifying the population and outcomes of interest. Decide on a question in the PICO format, something similar to:

*“In (older) patients with an elevated TSH level, normal free thyroxine levels, and no specific symptoms of thyroid disease, does thyroid replacement decrease the risk of coronary disease (try to stay away from elevated lipid levels).”*

**Step 2** (20 minutes): Divide into subgroups, each group evaluating one of the pieces of evidence. Evaluate the information for applicability to the question at hand (relevance) and for its validity, using the worksheets as needed. Prepare to report your conclusions to the group.

*Where the evidence came from: I searched various EBM sources using TRIP database and InfoRetriever.*

*The Database of Abstracts of Reviews of Effectiveness (DARE) is part of the Cochrane Library. The group assembles evidence-based reviews and presents them in a structured format.*

*FPIN Clinical Inquiries is a project by family physicians in the U.S. Starting with about 1100 clinical questions from family physicians in practice, the group is systematically answering them.*

*InfoPOEMs is a component of InfoRetriever. Articles selected for inclusion in the InfoPOEMs database are carefully screened for relevance and validity and then summarized and presented in a way that clinicians can understand and evaluate the information themselves.*

**Step 3** (15 minutes): Each subgroup reports their findings to the group. Try to come to consensus on a recommendation regarding the question. Using the information mastery traffic light, is the treatment of subclinical hypothyroidism rarely useful (red light), usually useful (green light), or of unknown benefit (yellow light)?

*There is not a specific correct answer, just the answer arrived at by the group. The goal is empower them to look at evidence on their own and make their own decisions. Try not to direct the group in any way, but just listen to what they report. Be sure to keep the reports from the subgroups short and focused. Try to get the group to come to a consensus on what to do and the “light” assigned to our current level of information. If you have time (and you probably won’t), the group could discuss whether, based on their conclusion, patients should have further workup if TSH is only mildly elevated.*

