**Evidence-Based Medicine (EBM)**

# Aims, objectives, and curriculum details

The goal of this course is to introduce the key concepts of EBM to medical students. Specific educational objectives are:

1. Describe the place of evidence-based medicine (EBM) in clinical practice.
2. Explain the basic principles of evidence-based medicine.
3. Formulate well-constructed clinical questions.
4. Critically appraise the most common types of articles in the medical literature.
5. Demonstrate competence in applying EBM to their clinical practice.

# Theory instructions

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| **Week Title** | **Methods** |
| 1. Course objective and learning needs
 | The course program and objectives will be presented and students will be asked for their learning needs |
| 1. Introduction to EBM
 | Presentation |
| 1. Introduction to epidemiological terminology
 | Presentation |
| 1. Asking answerable clinical questions
 | Presentation |
| 1. Acquiring the evidence
 | Presentation |
| 1. Tour of EBM article types
 | Presentation |
| 1. Acquiring the evidence: PubMed
 | Presentation |
| 1. Acquiring the evidence: Guidelines
 | Presentation |
| 1. Appraising the evidence
 | Presentation |
| 1. Evidence of therapy
 | Presentation |
| 1. Evidence of diagnosis and screening
 | Presentation |
| 1. Evidence of prognosis
 | Presentation |
| 1. Evidence of harm
 | Presentation |
| 1. Bias and confounding
 | Presentation |
| 1. Evaluation
 | Presentation |
| 1. Reinforcement
 | Questions and answers. |

# Practical sessions

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| **Week Title** | **Objectives** |
| 1. Own learning needs assessment test
 | Students will self-administer an MCQ test on EBM. Areas of weaknesses will be discussed. |
| 1. Assignment: What is EBM
 | Each student will write a one-page essay with the title “What is EBM?” |
| 1. Large group work: Find and discuss articles mentioning epidemiological terminology
 | In small groups students will search for scientific articles using epidemiological terminology mentioned during the instruction (20 minutes). Some of the articles will be discussed in the large group (20 min). |
| 1. Large group work: Formulate answerable clinical questions for clinical practice
 | Each student will formulate at least two answerable clinical question (20 min.). Students will submit their questions to the large group. A group discussion will be held (20 min) |
| 1. Large group work: Find and discuss different evidence types
 | Students will work in small groups and find different evidence types (20 min). Large group discussion will be conducted (20 min). |
| 1. Large group work: Find examples for article types and discuss with peers
 | Students will work in small groups and find article types (20 min). Large group discussion will be conducted (20 min). |
| 1. Assignment: Search the PubMed
 | The facilitator will give instructions to make advanced PubMed search (20 min.). Students will demonstrate their search to the large group (20 min). |
| 1. Assignment: Find local clinical practice guidelines and discuss with peers
 | Individual students will find clinical practice guidelines for their countries of origin (20 min) and discuss them in the large group (20 min). |
| 1. Small group work: Use the GATE tools to appraising evidence
 | Students will work in small groups and discuss the GATE tools to appraise evidence.  |
| 1. Group work: Find and discuss an article on therapy
 | Students will work in small groups and find articles on therapy (20 min). Large group discussion will be conducted (20 min). |
| 1. Group work: Find and discuss an article on diagnosis and screening
 | Students will work in small groups and find articles on diagnosis (20 min). Large group discussion will be conducted (20 min). |
| 1. Group work: Find and discuss an article on prognosis
 | Students will work in small groups and find articles on prognosis (20 min). Large group discussion will be conducted (20 min). |
| 1. Group work: Find and discuss an article on harm
 | Students will work in small groups and find articles on harm (20 min). Large group discussion will be conducted (20 min). |
| 1. Biostatistics as source of evidenceBias, validity, and confounding
 | Students will work in small groups and find articles mentioning bias, validity, and confounding (20 min). Large group discussion will be conducted (20 min). |
| 1. Self-Evaluation.
 | Students will prepare their own learning evaluation method. |
| 1. Group work: Solve the EBM test and discuss individual weaknesses and strengths
 | The EBM test from the previous session will be solved and discussed in the large group. |

# Assessment

Student assessment will be done by 3 interim exams and a final exam. Theory exams will be in the form of MCQs. Practical part of the learning will be assessed via assignments, formative evaluation and participation in the class.

A student feedback form (<https://docs.google.com/forms/d/e/1FAIpQLSd6g6Ar_pp_3kAEQ-s776qd3AkwIY55XRq6adVkC0JpWTbOxw/viewform>) will be used as a part of the program evaluation.

# Further reading and reference

Straus, Sharon E., et al. Evidence-Based Medicine E-Book: How to Practice and Teach EBM. Elsevier Health Sciences, 2018.