Evidence Based Medicine – the clinical decision making

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Evidence-based medicine has been described as an approach to practicing medicine in which a clinician is aware of the evidence supporting his or her clinical practice and the quality of that evidence. The most recognized "definition" of EBM names it as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients".

Medical students, physician-trainees, and practicing clinicians are increasingly aware that optimal evidence-based clinical practice requires developing a number of skills:

- Ability to ask clinical questions in a way that allows clear and unambiguous answers
- Familiarity with the language describing magnitudes of health effects and the quality of that information
- Ability to search efficiently for the best information to answer those question
- Appraising the evidence to determine its quality (the extent to which one can trust the evidence)
- Making sense of that information and determining its clinical applicability
- Applying the information in care for individual patients: weighing benefits vs. risks in the context of patient's values and preferences

Course objective
Understanding concepts and familiarity with the language of evidence-based medicine that are necessary to effectively communicate and take part in discussions on the wards in most European and North American health care environments.

Tutors
Clinical Decision Unit, 2nd Department of Internal Medicine

Wiktoria Leśniak, MD, PhD, lesniak@mp.pl (WL)
Filip Mejza, MD, PhD, filipmejza@hotmail.com (FM)
Małgorzata Bała, MD, PhD, (MB)
Magdalena Koperny, MSc (MK)
Miłosz Jankowski (MJ)
Monika Piwowar, PhD, mpiwowar@cm-uj.krakow.pl (MP)

GROUP II

Schedule
Part 1
October 1st 8.15–10.15
FM
Conference room (1st floor)
Skawińska 8

Part 2
October 4th 8–10.15
FM
Conference room (1st floor)
Skawińska 8

Part 3
October 8th 8–10.15
MJ
Conference room (1st floor)
Skawińska 8

Part 4
October 11th, 8–10.15
WL
Conference room (1st floor)
Skawińska 8

Part 5
October 15th 8–10.15
MK

Conference room (1st floor)
Skawińska 8

Part 6
October 22nd 8–10.15
WL
Conference room (1st floor)
Skawińska 8

Part 7
October 29th 8–10.15
FM
Aula
Skawińska 8

Part 8
November 5th 8–10.15
MJ
Aula
Skawińska 8

Part 9
November 12th 8–10.15
MB
Aula
Skawińska 8

GROUP IIA
Part 10
November 19th 8–10.15
Kopernika 7e 1st floor
MP

Part 11
November 26th 8–10.15
Kopernika 7e 1st floor
MP

Part 12
December 3rd 8–10.15
Kopernika 7e 1st floor
MP

Part 13
December 10th 8–10.15
Kopernika 7e 1st floor
MP

GROUP IIB
Part 10
January 7th 8–10.15
Kopernika 7e 1st floor
MP

Part 11
January 14th 8–10.15
Kopernika 7e 1st floor
MP

Part 12
January 21th 8–10.15
MP

Part 13
January 28th 8–10.15
MP

GROUP I

Schedule
Part 1
February 18th 8–10.15
WL
Aula
Skawińska 8

Part 2
February 25th 8–10.15
FM
Aula
Skawińska 8

Part 3
March 4th 8–10.15
MJ
Aula
Skawińska 8

Part 4
March 11th 8–10.15
FM
Aula
Skawińska 8

Part 5
March 18th 8–10.15
MK
Aula
Skawińska 8

Part 6
March 25th 8–10.15
WL
Aula
Skawińska 8

Part 7
April 1st 8–10.15
FM
Aula
Skawińska 8

Part 8
April 8th 8–10.15
MJ
Aula
Skawińska 8

Part 9
April 15th 8–10.15
MB
Aula
Skawińska 8

Group IA
Part 10
May 6th 8–10.15
MP

Part 11
May 8th 8–10.15
MP

Part 12
May 13th 8–10.15
MP

Part 13
May 15th 8–10.15
MP

Group IB

Part 10
May 20th 8–10.15
MP

Part 11
May 22nd 8–10.15
MP

Part 12
May 27th 8–10.15
MP

Part 13
May 29th 8–10.15
MP

Venue

Dress code
casual; no white coat or other special dress required
Student evaluation
Credit requirements:
- attendance of at least 10 of 13 sessions
- active participation in discussions
- passing test

Course format & outline
Seminars (40h)
1.
1.1 Philosophy of EBM
1.2. Asking clinical questions
– background and foreground questions
– elements of a specific clinical question (PICO): patients/population, intervention (drug, diagnostic test, exposure), outcomes (how the health consequences of the intervention are measured)
1.3. Studies about therapy and prevention - how to assess their quality
– types of clinical studies used in efficacy assessment
– randomization, concealment of allocation
– intention-to-treat analysis
– completeness of follow-up
– blinding
– clinically important and surrogate outcomes
3 hrs

2. and 3
1. Practical - critical appraisal of the articles about therapy and prevention

2. Presentation of the study results and their interpretation
– EBM glossary: risk, RR, RRR, ARR, RB, RBI, ABI, RRI, ARI, OR, HR, NNT, NNH etc.
– statistical significance and clinical relevance: p-values and confidence intervals
3. Critical appraisal of the articles about therapy and prevention (continued) and their interpretation and use in clinical practice
6 hrs

4.
1. Critical appraisal of the articles about therapy and prevention (continued) and their interpretation and use in clinical practice
2. Systematic reviews and metaanalyses - how to assess their quality and use them in practice
3. Cochrane reviews
4. Network metaanalyses, individual patient
5. Practical - critical appraisal of integrative studies (systematic reviews and meta-analyses)
3 hrs

5.
1. Practical - critical appraisal of integrative studies cont.
2. Sources of evidence
– pre-appraised sources of up-to-date knowledge (UpToDate, Cochrane Library, ACP Journal Club, etc.)
– principles of searching and using medical databases (Medline, Embase, Cochrane Library)
3. Building simple search strategy
4. Software for searching and managing references
3 hrs

6. Clinical practice guidelines and recommendations and how to assess their quality and use them in practice
AGREE Instrument, GRADE
Practical – critical appraisal of practice guidelines
Misleading claims in medical research (most common traps and mistakes and how to avoid them)
3 hrs

7. Diagnostic studies
3 hrs

8. Observational studies – methodology, critical appraisal of studies on prognosis, reporting of observational studies (STROBE)
3 hrs

9. Clinical studies – basic information and examples, phases of clinical studies, good clinical practice
3 hrs

10. Basic statistics
descriptive statistics (measures of central tendency and measures of dispersion), graphs (histogram, box-plot graph), confidence interval, theory of hypothesis testing, normal distribution, testing normality of distribution (Shapiro-Wilk test / Kolomogorov-Smirnoff test)
3 hrs

11. Comparison of two or more populations
t test, paired t-test, one-way analysis of variance (ANOVA)
3 hrs

12. Relationship between two quantitative/ qualitative measures
correlation, simple linear regression, chi-squre test
3 hrs

13. Biostatistics and summary and feedback
TEST
3 hrs

EBM:
15 multiple-choice questions with one correct answer (out of 5: answers A-E), 15 min, 15 points
Biostatistics:

7 multiple-choice questions with one correct answer (out of 5: answers A-E), 10 min, 7 points
2 practical exercises (using software: SAS), 30 min, 8 points

Total score: 30sc
Minimum number of points to pass the course: 16 (minimum 8 in EBM part and minimum 8 in Biostatistics part)

score	grade
16 – 18.5	3.0
19 – 21.5	3.5
22 – 24.5	4.0
25 – 27.5	4.5
28 – 30	5.0

Suggested readings

1. Users' Guides to the Medical Literature: A Manual for Evidence-Based Clinical Practice. Guyatt G, Rennie D, Medea M, Cook D (editors). 3rd Edition, McGraw-Hill Professional, 2015
2. http://ktclearinghouse.ca/cebm/intro