A Website and Online Quizzes Adapted to Medical Student Teaching of Evidence Based Medicine.

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Taught during 2nd clinical year

- 140 medical students
- Plenary sessions
- Small group

Course Content

- Introduction to the principles and process of EBM
- Formulating the clinical problem
- Information resources and search techniques for EBM literature
- An overview of systematic reviews and meta-analysis
- Critical appraisal of original studies for questions of therapy; diagnosis; prognosis; harm
- Internet resources for EBM
- PDA technology in EBM

Course Evaluation

- Evaluation was in the form of quizzes, attendance and participation in small group sessions

Web Site Access

- **Course Information**

- **Introduction, Evaluation & Instructors**
- **Schedule & Course Readings**
- **Tutorials, Assignments & Quizzes**

Lecture slides

- Evidence Based Medicine (Martin Dawes)
- Framing Clinical Questions (Roland Grad)

- Finding Evidence Relevant to Clinical Practice (Jim Henderson)
- Systematic Reviews & Meta-Analyses (Raghu Rajan)
- Clinical Practice Guidelines (Jeremy Grimshaw)

Information sources

- **Library Information**

- **Selected EBM Resources**
- **Cochrane Library**
- **EBM Reviews databases: ACP Journal Club; CDSR; DARE etc**
- **Medline (Ovid Online)**
- **PUBMED with LinkOut - NLM**
- **Information Literacy Course (Units 7 & 8)**
  - **Review Principles of online searching**
  - **Review Medline Tutorial (Ovid)**
  - **Review PubMed Tutorial**

Teaching Sessions

- **What is Evidence Based Medicine**
- **Framing Clinical Questions**
- **EBM Literature Resources and Search Strategies**
- **Students meet with tutors**
- **Tutorial I: Therapy-- Critical Appraisal and Search Techniques**
- **Systematic Reviews/ Meta-analysis**
- **Clinical Practical Guidelines/ Canadian Task Force**
- **Tutorial II: Diagnosis-- Critical Appraisal and Search Techniques**
- **Tutorial III: Prognosis-- Critical Appraisal and Search Techniques**
- **Tutorial IV: Harm-- Critical Appraisal and Search Techniques**
- **EBM Resources: On the web, hand-held and beyond**

Student Task

- Discuss the textbook chapters concerning the analysis of studies concerning therapy
- Review the clinical practice guideline presented as one of the readings
- Conduct a critical appraisal of an RCT of therapy
- Continue to develop the online search skills acquired in Units 7 & 8
- Continue to examine and learn how to search primary databases such as Medline
- Begin to investigate and learn how to search secondary EBM databases

Instructions

- **Clinical Scenario:**
- **Readings:**
  - Textbook chapters 1B; 1B1, 1F pages 287 (Practice Guidelines) to 295 (Grades of Recommendations) ONLY
- **Articles for critical appraisal:**
  - Garbutt JM, et al. A randomized, placebo-controlled trial of antimicrobial treatment for children with clinically diagnosed acute sinusitis. Pediatrics. 2001;107(4):619-625.
  - Wald ER,: Comparative Effectiveness of Amoxicilling and Amoxicillin-Clavulanate Potassium in Acute Paranasal Sinus Infections in Children: A Double -Blind, Placebo-Controlled Trial. Pediatrics. 1986;77(6):795-800
- **Use Table 1B-1 on page 86 in the textbook to critically appraise the articles above. Bring your appraisal to the small group session.**
- **Additional Readings:**
  - American Academy of Pediatrics. Clinical Practice Guideline. Management of sinusitis. Pediatrics 2001;108(3):798-808

Online Search Assignment

- Formulate your clinical question. Retrieve additional articles on this topic, including those pertinent to adults, by searching MEDLINE via Ovid Online. Apply each of the following LIMITS individually to your retrieval and compare results:
  - review
  - randomised controlled trial
  - topic reviews [cochrane]
- locate full text systematic reviews on this topic by searching the Cochrane Database of Systematic Reviews (CDSR).
  - There are two methods of access for the CDSR:
- via Ovid Online (EBM Reviews--Cochrane Database...)
- via the Cochrane Library
- are there any practice guidelines on this topic?
- **Please bring your search strategies and retrieval to your tutorial.**

On Line Quiz

- The NNT represents
- The number of patients required to treat to prevent one year of life lost
- The number of patients one must treat to justify the cost of treatment
- The number of patients one must treat to reduce the risk of defined outcome by a specific amount
- Non of the above

Confidence intervals are narrower when

- Study sample sizes are smaller
- The variability of the outcome is large
- Study sample sizes are larger
- When the difference between the groups are large

The principal of intention to treat means

- Patients are analyzed in the group to which they were randomized
- Only those in whom the physician wishes to offer a specific treatment are analyzed
- The physicians intentions form part of the analytic strategy
- None of the above

Results

- Quasi ceiling effect with most students scoring 9,10 or 11 out of 11.
- One or two outliers –
- Difficult to identify teaching issues

Modifications

- Make the questions more challenging
- At the moment they just get a score out of 11. Provide immediate feedback to the students as to which answers they got right and wrong and the preferred answers.
- The questions were lifted directly out of the relevant textbook chapter and in the first instance were intended to motivate the students to read the book
- Required material before the tutorials or class. The deadline for completion was 9 am the day of the session and after that they could not log on.

Summary

- All students used web site
- All students completed on-line quiz
- All students completed appraisals
- Different levels of knowledge was a problem
- Searching workshops before every session were boring