Implementation of evidence-based practice in education

Nina Rydland Olsen
Why heat for my neck pain?

Shared decision making (SDM)


1http://sdm.rightcare.nhs.uk/
Colleagues is a preferred source of evidence


Topics

- What is EBP
- EBP curriculum
- EBP tools
- Faculty development
- EBP role models
Evidence-based Practice

| Context | Current best evidence | Patient values and experience | Clinical expertise |


Evidence-based Practice (EBP)

- Systematic approach
- Caring for patients creates a need for research evidence
- Life long learning
- A shift from fact memorization to critical reasoning


Sicily statement on evidence-based practice

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Published: 05 January 2005

BMC Medical Education 2005, 5:1

This article is available from: http://www.biomedcentral.com/1472-6920/5/1

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Abstract

**Background:** A variety of definitions of evidence-based practice (EBP) exist. However, definitions are in themselves insufficient to explain the underlying processes of EBP and to differentiate between an evidence-based process and evidence-based outcome. There is a need for a clear statement of what Evidence-Based Practice (EBP) means, a description of the skills required to practise in an evidence-based manner and a curriculum that outlines the minimum requirements for training health professionals in EBP. This consensus statement is based on current literature and incorporating the experience of delegates attending the 2003 Conference of Evidence-Based Health Care Teachers and Developers ("Signposting the future of EBP").

**Discussion:** Evidence-Based Practice has evolved in both scope and definition. Evidence-Based Practice (EBP) requires that decisions about health care are made on the best available, current, valid and relevant evidence. These decisions should be made by those receiving care, informed by the tacit and explicit knowledge of those providing care, within the context of available resources.

Health care professionals must be able to gain, assess, apply and integrate new knowledge and have the ability to adapt to changing circumstances throughout their professional life. Curricula to deliver these aptitudes need to be grounded in the five-step model of EBP, and informed by ongoing research. Core assessment tools for each of the steps should continue to be developed, validated and made freely available.

**Summary:** All health care professionals need to understand the principles of EBP, recognize EBP in action, implement evidence-based policies, and have a critical attitude to their own practice and to evidence. Without these skills, professionals and organizations will find it difficult to provide best practice.
Not just a research course…

• EBP teaching: previously emphasised critically appraising research.

• Sicily statement: curricula based on the “5 step model”
  › ASK, FIND, APPRAISE, APPLY/INTEGRATE, EVALUATE
EBP curriculum

- Structure within the larger curriculum vary:
  - Stand-alone courses
  - Clinical courses
  - Mixed approaches


A survey study of evidence-based medicine training in US and Canadian medical schools

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Purpose: The authors conducted a survey examining (1) the current state of evidence-based medicine (EBM) curricula in US and Canadian medical schools and corresponding learning objectives, (2) medical educators’ and librarians’ participation in EBM training, and (3) barriers to EBM training.

Methods: A survey instrument with thirty-four closed and open-ended questions was sent to curricular directors at US and Canadian medical schools. The survey sought information on enrollment and class size; EBM learning objectives, curricular activities, and assessment approaches by year of training; EBM faculty; EBM tools; barriers to implementing EBM curricula and possible ways to overcome them; and innovative approaches to EBM education. Both qualitative and quantitative methods were used for data analysis. Measurable learning objectives were categorized using Bloom's taxonomy.

Results: One hundred fifteen medical schools (77.2%) responded. Over half (53%) of the 900 reported learning objectives were measurable. Knowledge application was the predominant category from Bloom's categories. Most schools integrated EBM into other curricular activities; activities and formal assessment decreased significantly with advanced training. EBM faculty consisted primarily of clinicians, followed by basic scientists and librarians. Various EBM tools were used, with PubMed and the Cochrane database most frequently cited. Lack of time in curricula was rated the most significant barrier. National agreement on required EBM competencies was an extremely helpful factor. Few schools shared innovative approaches.

Conclusions: Schools need help in overcoming barriers related to EBM curriculum development, implementation, and assessment.

Implications: Findings can provide a starting point for discussion to develop a standardized competency framework.

INTRODUCTION

Evidence-based medicine (EBM) has been defined as "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients [which involves] integrating individual clinical expertise with the best available external clinical evidence from systematic research" [1]. It affects both patient outcomes and trainees’ practice-based learning and improvement [2, 3]. Its importance is reflected in an interdisciplinary panel convened by the Institute of Medicine (IOM) that recommended all health care trainers and professionals practice EBM [4].

Although US and Canadian medical school accreditation standards include the acquisition and practice of EBM skills [5], research-based literature on undergraduate medical education training in EBM is sparse. A 2002 study of EBM training in internal medicine clerkships found that 38.5% of the 109 responding US medical schools had a formal EBM curriculum during the third year and/or fourth year [2]. EBM curricular materials and evaluation tools varied among these schools. This study also noted lack of time for student's EBM training in the school curriculum and inadequately trained faculty among the study respondents. The authors concluded that EBM had been integrated into the formal curriculum in relatively few clerkships.

A review by Maggio et al. of 2006 to 2011 publications characterizing worldwide EBM educational initiatives with medical students also suggested that educational setting, learner level, instructors in general, and teaching methods varied greatly across educational interventions [6]. Seven of the twenty articles identified by the authors were from the United States, and three articles focused on preclinical settings, another three on clinical settings, and one on both preclinical and clinical settings. Maggio et al. called for authors to provide more detailed descriptions of their interventions and employ more rigorous research methods. They also recommended that educators consider trends in medical education, such as interprofessional education and online training, when designing EBM curricular interventions.

In 2006-2007, Meats et al. surveyed UK medical schools to determine the extent to which EBM training played a role in the overall curriculum. Considerable variation was found in curricular methods and content among the 62% of responding schools. The survey findings also showed few opportunities for students to practice or assess their EBM skills, pressing curriculum time constraints, few trained...
Different ways:
Lectures
Workshops (e.g. CASP)
Journal clubs
Patient reports
Assignments
Group work
Exams
Bed-side teaching
Etc.
EBP in clinical education

• Role modelling
• Use research evidence when teaching
• Teach specific EBP skills

Evidence-based delivery format?

- Face-to-face vs online
- Active learning vs traditional lecturing
- Learning in groups (e.g. problem based learning, team-based)

- The Best Evidence Medical Education (BEME) Collaboration:
  › The development of evidence informed education in the medical and health professions: [http://www.bemecollaboration.org/](http://www.bemecollaboration.org/)

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Effectiveness of EBP teaching

- Multifaceted teaching strategies
- Clinically integrated
- Involve assessment
- Interactive


How to describe educational interventions

EBP learning outcomes

- Reaction
- Self-efficacy
- Attitudes/beliefs
- Knowledge
- Skills
- Behaviour


EBP across the curriculum

- When? (timing)
- What? (content)
- How? (delivery format)
- Where? (setting)
- How much? (amount, hours)

EBP tools

- EBP steps
- Clinical questions
- PICO
- EBP resources (databases, pre-appraised evidence)
- EBP learning tools (e.g. portfolios, CATs)
- etc.
EBP steps

1. Ask
2. Search
3. Appraise
4. Integrate
5. Evaluate
Clinical questions

• Effects of intervention
• Patient experiences
• The course of the condition (prognosis)
• The accuracy of diagnostic tests (diagnosis)
• What is the cause of this problem (aetiology)

Guide the literature search
EBP tool
Please write the answers in a concise and precise manner.

1 Information need
Describe your clinical scenario: (e.g. What do you need more information about?)

What is usual practice today?

2 Question formulation
Fill in relevant PICO elements:

<table>
<thead>
<tr>
<th>(P)</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>(I)</td>
<td>Intervention</td>
</tr>
<tr>
<td>(C)</td>
<td>Control</td>
</tr>
<tr>
<td>(O)</td>
<td>Outcome</td>
</tr>
</tbody>
</table>

Formulate your PICO question: (e.g. In patients with...does ...?)

What kind of clinical question is this?

Which study design is most appropriate for answering this question?

3 Literature search
Please tick off the source(s) you used in your search:

<table>
<thead>
<tr>
<th>Preappraised evidence (e.g. summaries, synopses, syntheses)</th>
<th>Primary studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Evidence</td>
<td>Pubmed/Medline Clinical Queries</td>
</tr>
<tr>
<td>Synopses of syntheses</td>
<td>Others (specify)</td>
</tr>
<tr>
<td>Syntheses</td>
<td></td>
</tr>
<tr>
<td>Synopses of single studies</td>
<td></td>
</tr>
<tr>
<td>Single studies</td>
<td></td>
</tr>
</tbody>
</table>

Explain your choice of source(s):

Explain the reasons for your choice of article. Attach the article (and/or summary), and please copy and paste the internet link: (so the article can easily be identified.)

Which search terms did you use? Describe the search terms and how you combined them:
(You may include or copy and paste the search strategy.)
4 Critical appraisal (You may use a checklist.)

What question did the study ask?

What kind of clinical question is this?

What type of study design is used?

Are the results valid? (Please state at least 4 keywords about validity.)

What were the results? (If relevant: How large was the treatment effect and how precise was the estimate of the treatment effect?)

Can you apply the results to your clinical practice? (Please state relevant points related to applicability.)

5 Implementation

What conclusions can you draw, and what suggestions do you have for integrating the evidence with your clinical experience, patient preferences, and values in making a clinical decision?

If you changed your practice, please describe the changes that you made:

6 Evaluation

If you changed your practice, how will you evaluate this?

Supervision

Did you need supervision? Please describe the supervision you received: (e.g. What kind of problems did you experience, who did you contact, how often did you contact a supervisor/librarian, how did you experience the supervision, how long did it take for the supervisor to respond?)

Time

How long did it take you to work through the steps?
Need for expert teachers in EBP

- Insufficient education on EBP: a potential barrier
- Teachers need:
  › EBP skills and knowledge
  › Skills and courage(?) to teach EBP
Lack of role models

- Lack role models with strong skills in EBP
- CIs need training in EBP
- Lack of support

Florin et al. 2012
Why do students struggle to apply EBP?

EBP in education

- National and local agreement
- EBP across curriculum
- Defined learning outcomes
- Motivated students
- Assessment
- Expert teachers
- EBP role models
- Current best evidence on teaching