Information literacy in the context of Evidence-Based Medicine

Teaching and learning assessment of a course intended for 4th year students in medicine at the University of Liège (Belgium)

Nancy Durieux, Frédéric de Lemos Esteves, & Françoise Pasleau (Life Sciences Library)
Introduction

Objectives

Methods

Results

Discussion
Evidence-Based Medicine course

- Held in the context of a workshop in pharmacology

- Intended for 4th year students in medicine
  - (7-year curriculum)
  - 154 students in 2011-2012

- Focused on search, selection and evaluation of scientific information
  - Librarian-Clinician collaboration
Objectives of the course

• At the end of the course, students should be able to
  ▫ describe the basic principles of EBM
  ▫ formulate an answerable clinical question
  ▫ search and select relevant literature on Medline
  ▫ summarize a clinical trial
  ▫ argue for or against a particular therapy for the patient, based on evidence from the literature
# Course framework (for 38 students)

<table>
<thead>
<tr>
<th>1&lt;sup&gt;st&lt;/sup&gt; session</th>
<th>Group work</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; session</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; session</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Theoretical introduction to EBM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Reminder about PubMed searching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Instructions (OvidSP – Oral presentation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Written help</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Find, summarize and comment on an RCT comparing the efficacy of different drug classes for the treatment of respiratory diseases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Oral presentation (15 mins / group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Discussion with librarian &amp; clinician (10 mins)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Consolidation session: individual exercises on OvidSP (1h 45 mins)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Formative assessment (15 mins)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Introduction

Objectives

Methods

Results

Discussion
Questions

• Do EBM sessions improve students’ information literacy?

• Are the teaching methods appropriate?
Introduction
Objectives
Methods
Results
Discussion
Learning and teaching assessment (2011-2012)

- Fresno Test (Ramos et al., 2003)
  - Translated into French
- Satisfaction survey

<table>
<thead>
<tr>
<th>1st class</th>
<th>Group work</th>
<th>2nd class</th>
<th>3rd class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresno pre-test</td>
<td>3 months</td>
<td>Fresno post-test + survey</td>
<td></td>
</tr>
</tbody>
</table>

- 1st class
- Group work
- 2nd class
- 3rd class
- Fresno pre-test
- Fresno post-test
- + survey
- 3 months
Fresno Test (Ramos et al.\textsuperscript{[1]})

- Two clinical scenarios
- 12 questions
  - Clinical question for each scenario
  - Information sources
  - Best research design
  - Strategy to be used on Medline
  - Critical appraisal of an article
  - Mathematical calculations
  - Best evidence for diagnostic and prognostic issues

- Scoring criteria

\[ \text{Score: } \frac{7}{12} \]

\[ \text{Score: } \frac{5}{12} \]
Introduction
Objectives
Methods
Results
Discussion
Student participation

• 109 out of 154 students responded to both the pre-test and post-test
  ▫ A sample of 25 students was considered
Evolution of students’ scores

Maximum score: 168 for 7 questions

- 18/25 students
- 3/25 students
- 4/25 students
Average scores for each question

<table>
<thead>
<tr>
<th>Question</th>
<th>Max</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 (clinical question)</td>
<td>/24</td>
<td>9.6</td>
<td>10.64</td>
<td>n.s.</td>
</tr>
<tr>
<td>Q2 (resources)</td>
<td>/24</td>
<td>10.32</td>
<td>7.44</td>
<td>p&lt;.05</td>
</tr>
<tr>
<td>Q3 (design)</td>
<td>/24</td>
<td>3.24</td>
<td>8.76</td>
<td>p&lt;.005</td>
</tr>
<tr>
<td>Q4 (Medline)</td>
<td>/24</td>
<td>10.04</td>
<td>12.48</td>
<td>p&lt;.05</td>
</tr>
<tr>
<td>Q5 (relevance)</td>
<td>/24</td>
<td>1.36</td>
<td>1.20</td>
<td>ns</td>
</tr>
<tr>
<td>Q6 (validity)</td>
<td>/24</td>
<td>4.52</td>
<td>8.08</td>
<td>p&lt;.05</td>
</tr>
<tr>
<td>Q7 (effect size)</td>
<td>/24</td>
<td>1.96</td>
<td>0.96</td>
<td>ns</td>
</tr>
<tr>
<td>TOTAL</td>
<td>/168</td>
<td>41</td>
<td>50</td>
<td>p&lt;.05</td>
</tr>
</tbody>
</table>
Student satisfaction (n=23)
Work in groups

<table>
<thead>
<tr>
<th>Feature</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear objectives</td>
<td>9 (39%)</td>
<td>14 (61%)</td>
</tr>
<tr>
<td>Clear instructions</td>
<td>5 (22%)</td>
<td>18 (78%)</td>
</tr>
<tr>
<td>Helpful guide</td>
<td>4 (17%)</td>
<td>19 (83%)</td>
</tr>
<tr>
<td>Timing of consolidation session</td>
<td>23 (100%)</td>
<td></td>
</tr>
</tbody>
</table>
# Student satisfaction (n=23): Whole training

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivation</strong></td>
<td>17 (74%)</td>
<td>6 (26%)</td>
</tr>
<tr>
<td><strong>Attractive sessions</strong></td>
<td>15 (65%)</td>
<td>8 (35%)</td>
</tr>
<tr>
<td><strong>Teachers ready to help</strong></td>
<td>2 (9%)</td>
<td>21 (91%)</td>
</tr>
<tr>
<td><strong>Usefulness of the sessions</strong></td>
<td>10 (43%)</td>
<td>13 (57%)</td>
</tr>
<tr>
<td><strong>Usefulness for professional life</strong></td>
<td>3 (13%)</td>
<td>20 (87%)</td>
</tr>
</tbody>
</table>
Introduction
Objectives
Methods
Results
Discussion
Do EBM sessions improve students' information literacy?

- 2/3 of the students managed to improve their score in the Fresno Test
- Overall performance remained barely satisfactory
Factors influencing the scores

- **Test organization**
  - Post-test conducted 3 months after the course
  - Non certificated scoring (no "reward")

- **Students' background**
  - Previous introductory course in information literacy (15h Theory + 25h Practice)

- **Teachers' attitudes**
  - Little success in making the sessions attractive
  - Severity of scoring
Scoring: general remarks

- Not easy to score the Fresno Test
- Blind scoring by two raters independently
- Previous agreement about evaluation criteria
- Time and expertise required (Lewis et al.\cite{2}; Shaneyfelt et al.\cite{3})
Implications for the future

• Organizational change
  ▫ Medline training session before group working

• Adjustment of the evaluation grid
  ▫ Individual participation in the different tasks

• Much more time required
  ▫ Transversal integration of EBM activities into other courses
Take-home messages

• 20 out of the 25 surveyed students thought that the EBM course would be useful for professional life

• Librarians can help medical students to gain the proper tools for EBM practice and lifelong learning
Thank you for your attention
References

