Application and retention of evidence based practice skills among students in an Australian School of Pharmacy

THREE: TRAINING THE NEXT GENERATION OF LEADERS IN APPLIED EVIDENCE

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Background
Wide variation exists in the requirement of teaching evidence based practice (EBP) knowledge, skills and information mastery techniques across health disciplines. The ability to ‘appraise and use scientific evidence’ is included as part of the National Competency Standards Frameworks for practicing pharmacists in Australia. Recent publications in Australia and elsewhere have found that healthcare professionals are less than optimally equipped with the behaviours, knowledge and skills required for EBP in the workplace. With the ever changing demands of healthcare workplace in which the students are transitioning, EBP teaching has a challenging task to meet student and employer needs and provide better patient care.

Results & Discussion
Eighty-nine undergraduate pharmacy students completed the first phase (T1) of the survey. The same cohort completed phase 2 (T2) as postgraduate students (n=53). Of the nine items assessed (table 1), students reported higher level of confidence in two items related to searching skills (PICO and PubMed), and three items assessing their ability to calculate key epidemiological measures (P<0.05).

Table 1: Comparison of level of confidence before and 6-month after the EBP course.

<table>
<thead>
<tr>
<th>Elements of EBP</th>
<th>Time 1 N=89 Mean Rank Score</th>
<th>Time 2 N=53 Mean Rank Score</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formulate a patient-focused clinical question using PICO framework</td>
<td>78.7</td>
<td>59.8</td>
<td>.004</td>
</tr>
<tr>
<td>Quickly find a relevant article that addresses a clinical question through PubMed</td>
<td>78.3</td>
<td>60.1</td>
<td>.007</td>
</tr>
<tr>
<td>Critically assess a journal article for possible sources of bias</td>
<td>76.0</td>
<td>63.9</td>
<td>.070</td>
</tr>
<tr>
<td>Assess the results of a therapy article</td>
<td>74.5</td>
<td>65.0</td>
<td>.157</td>
</tr>
<tr>
<td>Absolute risk</td>
<td>86.1</td>
<td>47.0</td>
<td>≤.001</td>
</tr>
<tr>
<td>Relative risk</td>
<td>85.7</td>
<td>46.6</td>
<td>≤.001</td>
</tr>
<tr>
<td>Number needed to treat/harm</td>
<td>85.4</td>
<td>48.2</td>
<td>≤.001</td>
</tr>
<tr>
<td>Interpret p-values and confidence intervals</td>
<td>76.6</td>
<td>63.0</td>
<td>.050</td>
</tr>
<tr>
<td>Apply the results of studies to my patient or practice</td>
<td>74.5</td>
<td>66.4</td>
<td>.238</td>
</tr>
</tbody>
</table>

Application of EBP skills (placement and workplace) 6 months after the course:
- Difficult to calculate and interpret epidemiological measures in practice: 35 (67.30%)
- Haven’t applied the EBP skills to my patient or practice: 28 (53.84%)

The understanding, application and complexities of EBP skills were well received during T1 phase. However, with time (T2) the application of EBP skills in clinical practice and placements remain questionable. There was lack of consolidation of EBP learning and teaching in the existing pharmacy curriculum with one-off delivery. It also posed risk of overestimation of EBP skills that students learned through one off/one semester delivery.

Need for a concise, pre-appraised/synthesised source of evidence with easy accessibility at workplace was felt.

Aims
Present study aimed to identify and assess specific knowledge gaps, attitudes and retention of EBP skills among pharmacy student cohort and to comment on their relationship to current education practices.

Method
The survey was administered at two time points to same cohort of pharmacy students in the third year (T1 - undergraduate) and fourth year (T2 - post graduate) accredited university course (Figure 1). The survey assessed student self-reported confidence and experience in core evidence-based skills (critical appraisal skills and knowledge of clinical epidemiology principles) and retention of such skills with application during placements.

What next?
- The existing gaps in application of EBP skills with traditional curriculum has informed us to redesign curriculum. The EBP components are embedded across semesters with reinforcement of clinical relevance for workplace readiness (Figure 2).
- Existing evidence tools/critical appraisal methods are not easily transferable in demanding workplace. Current strategies need to focus on application of pre-appraised evidence relevant to the specialty in workplace.
- Staying abreast of the rapid changes in EBP is an important life-long learning. There is a greater need to incorporate this aspect in competency standards in specialties wherein a resident/intern require to demonstrate they have a mechanism to keep up with new information that may change practice.
- Integration of multifaceted integrated evidence based skills through consolidation, application of mobile apps, incorporation of synthesised evidence may help address the retention gap and encourage uptake of EBP skills among the students as future applied evidence practitioners.

References

Figure 1: EBP focused course in semester 2 (year 3) as one-off delivery in Pharmaceutical Sciences curriculum.

Figure 2: Embedded EBP curriculum across the new undergraduate Pharmacy program.