Practicing Evidence Based Medicine (EBM): A descriptive analysis of medical student whole-task EBM assignments

Lauren Maggio MS(LIS), PhD
Uniformed Services University

Nicole Capdarest-Arest MA(LIS)
Stanford University

Keith Posley MD
Palo Alto Veteran’s Administration
Disclaimer

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Teaching EBM: A whole-task approach

- Challenges learners to practices all of the requisite skills of a task as a cohesive activity
- Provides learners a holistic model for how to practice a task
- Linked with increased transfer of knowledge and skills
Whole-task assignment

- Embedded in a 6 week pediatrics clerkship
- Identify knowledge gap based on real patient encounter
- Carry out EBM steps and document via web form
- Reflection on experience
Assignment support

- Three 75 minute preclinical training sessions
- Assignment web form structured to the EBM steps - Web form included worked examples
- Supportive website with resources for each EBM step
Between January 2013-June 2015:

• 123 students completed the EBM whole-task assignment

• Assignments were analyzed using qualitative description and descriptive statistics
Acknowledging uncertainty

Personal uncertainty
“I did not know if there was an association between the flu vaccination and decreased incidence of ear infections”.

Team uncertainty
“There was debate on the team…”.

Patient or family uncertainty:
“He and his mother wanted to know if weight loss would help”. 
Students formulated:

76 Therapy
18 Diagnosis
15 Prognosis
9 Harm
2 Etiology
3 Other
## Resources used by students using a single resource (n=57)

<table>
<thead>
<tr>
<th>Resource</th>
<th>No. of students</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://lane.stanford.edu/portals/clinical.html">Lane Medical Library</a></td>
<td>24</td>
</tr>
<tr>
<td><a href="http://clinical.portal">Clinical Portal</a></td>
<td>15</td>
</tr>
<tr>
<td>Direct reference to article</td>
<td>9</td>
</tr>
<tr>
<td>2 resources: n=31</td>
<td></td>
</tr>
<tr>
<td>3+ resources: n=26</td>
<td></td>
</tr>
</tbody>
</table>
Critical appraisal sheet types used
How you would apply what you have learned through this process to the care of the patient? What about patients in the future?

<table>
<thead>
<tr>
<th>Stated application of evidence</th>
<th>No. students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inform future practice</td>
<td>95</td>
</tr>
<tr>
<td>Skeptical about the conclusivity of evidence</td>
<td>16</td>
</tr>
<tr>
<td>Desire to share with colleagues</td>
<td>65</td>
</tr>
<tr>
<td>Desire to use for shared decision-making and educating patients and families</td>
<td>33</td>
</tr>
</tbody>
</table>
Students wanted to share information with their team.

- Legitimate peripheral participation
- Faculty awareness
- Efficiency

“I can share my findings by incorporating them in my plan, or offering my colleagues articles that I find that are appropriate for the student/intern following that particular patient.”

Photo: Stanford EdTech
Title: Pediatric Clerkship Standardized Patient Activity
Source: https://www.flickr.com/photos/stanfordedtech/8034120482/
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“As we move toward an age of patient-centered informed decision making, it is important to empower patients with good, reliable clinical evidence.”

Students wanted to **share** information with patients and their families

- Ensure EBM is patient-centered
- Teach skills for sharing information

Photo: Stanford EdTech
Title: Pediatric Clerkship Standardized Patient Activity
Source: [https://www.flickr.com/photos/stanfordedtech/8034104233](https://www.flickr.com/photos/stanfordedtech/8034104233)
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Limitations

Single institution
Learner stage
Unable to measure efficacy
Take-aways

★ Consider whole-task EBM training
★ Provide learners multiple opportunities to recognize and act on uncertainty
★ Introduce a variety of information resources and help learners understand their strengths
★ Raise faculty awareness of student assignment
★ Train learners to appropriately share evidence with patients and their families
Questions

Lauren Maggio
lauren.maggio@usuhs.edu
@laurenmaggio

Nicole Capdarest-Arest
nicoleca@stanford.edu
@infocybrarian
Teaching EBM
Whole-task assignment

● Embedded in a 6 week pediatrics clerkship

● Identify knowledge gap based on real patient encounter

● Carry out EBM steps and document via web form
● Normalization
● Whole-task approach
● Self-efficacy
Methods

- Between January 2013-June 2015, Stanford University School of Medicine (SOM) students enrolled in the required six-week pediatrics clerkship completed a whole-task EBM assignment.
Discussion skepticism about information

“Skepticism: the mark and even the pose of the educated mind.”

-- John Dewey
Results: Acknowledging Uncertainty

To describe the scenario that prompted their clinical question:

65 students used objective descriptions (no personal pronouns):

   Ex: “3 day old AGA male neonate...presented with fever”

58 students used “my”/”our” or a combination thereof

   Ex: “Our patient is a 3-year-old boy”
Students are able to execute whole-task training

Should be considered for future training

Should be compared with other methods to determine its effectiveness
Whole-task approach

- **Learning Task**
  - authentic patient scenario

- **Procedural Info**
  - templates

- **Supportive Info**
  - Web-based resources
  - Worked examples

- **Part-task practice**
  - chunked components
  - earlier practice
Assignment details

- Required assignment
- Individual feedback given by instructors
- Reflection and discussion as a group near end of clerkship rotation
Assess practice

Intent to capture future clinical questions and plan for sharing with colleagues/patients
(N=123) (each student comment may contain multiple answer themes)