Evidence-based teaching of palliative and end-of-life topics in medical students: a systematic review

Jeremy Woleff & Russell Leong
Michigan State University College of Osteopathic Medicine, East Lansing, Michigan

Introduction

Evidence-based teaching (EBT) is the use of systematically-developed and appropriately-integrated research as the foundation of curriculum design, selection of teaching/learning strategies, and other elements of the educational enterprise [1]. To date, no previous study has evaluated EBT practices regarding palliative and end-of-life (EOL) care in medical students. Understanding how medical students best learn and retain these skills is essential to producing future physicians that are adequately and compassionately care to the dying patient. Effective doctor-patient communication at the end of life is associated with a better quality of life, earlier hospice referral, and care that is more consistent with patient preferences [2]. And importantly, the families of dying patients have improved bereavement outcomes.

Medical students that are provided a formal EOL curriculum are more likely to be prepared to address psychosocial issues and cultural/spiritual issues, and treat common symptoms of the dying patient [3]. Additionally, students with more clinical experiences in EOL care are more likely to feel prepared to discuss EOL concerns with patients. Both the formal and informal curricular are positively correlated with positive attitudes towards providing EOL care; whereas, the hidden curriculum is negatively associated with both a positive attitude toward EOL care, and students’ perceived readiness to provide EOL care [4]. Therefore, it is important that formalized aspects of the medical curriculum be best capable of thwarting the effects of the hidden curriculum. Unfortunately, a 2008 survey of American medical schools revealed that only 30% of medical schools had a required course and only 15% had a required rotation in palliative or EOL care [5].

EBT practices addressing palliative and EOL care range from the use of passive, lecture-based presentations to active, hospice-based student involvement. Studies that have quantitatively assessed how well medical students attain and retain useful EOL skills or attitudes have used Objective Structured Clinical Exams (OSCE), self-reported Likert items, and standardized measures of death anxiety (Coller-Lester Fear of Death scale, Hayduk Communication Apprehension Regarding the Dying Scale, etc.). This systematic review accesses which teaching interventions are shown to quantitatively influence medical students skills or attitudes regarding palliative and EOL care with these measures.

Project:
The primary aim of this study is to systematically review the EBT practices regarding palliative and end-of-life (EOL) care in medical students. The secondary aim is to provide examples/frameworks of EBT practices for medical educators that are looking to integrate EBT practices into their respective medical curricula.

Methods

Search terms: Medical students, death, and teaching

Inclusion criteria: articles with teaching intervention, quantitatively assess palliative or EOL learning outcomes, carried out within North America, in English, and medical students in first 4 years of medical education.

2185 studies were initially identified; 17 studies were included for final review. Followed PRISMA guidelines for systematic reviews.

Results

Figure 1. Included studies (17) were categorized into five EOL teaching goals by each studies primary objective. Majority of studies focused on ‘Self-knowledge and Self-reflection’, and ‘Interviewing and Communication skills’. Few to none studies had the primary objective of ‘Ethical Issues’, or ‘Management of Symptoms’. Some teaching interventions may overlap with multiple domains of palliative and EOL care topics.

Figure 2. Analysis of intervention length. 58.8% of teaching interventions were >1 month. 7 studies (41.1%) were <1 month. Only 2 studies (11.7%) were less than 1 day.

Figure 3. Analysis of number of participants in the included studies. Majority of studies had over 100 participants. No study included more than one medical school.

Figure 4. Analysis of year of training of medical students. Most students were in clerkship-years.

Figure 5. Type of teaching interventions used across all studies. The most common interventions reported were passive lecture (in-class [47%]) and shadowing experiences (41%). One study used an online component to teach medical students. Other methods included relaying with peers, discussions with family of a recently deceased patient, and group exercises with peers/faculty. Total exceeds 17 because many studies had multifaceted teaching interventions and were counted twice.

Discussion

The quality of included studies varied greatly. Only one studied followed medical students through time to examine if skills were retained, only showing that lectured-based intervention effects decreased fear of “treating the dying patient” were retained over time. Although many studies involved over 100 medical students in their respective interventions, practically all studies were convenience samples of medical students and no study included students from more than one medical school at a time. Only one study used the OSCE to evaluate students on palliative and EOL skills. The majority of studies relied on self-reported Likert items to measure changes in students’ skills or attitudes. Having medical students immediately self-report on their own skills/attitudes after a teaching intervention is a potentially confounded way of accurately measuring changes in these domains.

Some notable and suggestive findings of the studies are:
- Death anxiety can be influenced by the use of lecture-based material and hospice involvement
- The use of online virtual patients/cases increased self-reported preparedness to provide EOL care, and provided reasonable levels of realism and educational benefit
- Interventions regarding spirituality can increase the self-reported likelihood of students visiting, talking, and praying with dying patients
- One study exemplifies that exposure to unexpected simulated death may be detrimental to the attainment of these skills and increase the cognitive load placed on medical students

This study is limited by the fact that many institutions have most likely not published on their teaching interventions, and is therefore not generalizable to the quality of palliative and EOL education in North America. The nature of this analysis does not take into account the heavily nuanced context of teaching medical students, and leaves out important subjective components of teaching by not including or analyzing qualitative studies.

Future Directions:
- Engage in statistical analysis of specific teaching interventions and types of measurements to determine what interventions are most effective; carry out more studies investigating how medical students learn

References


Table 1: Evidence for interventions that influence death anxiety in medical students

<table>
<thead>
<tr>
<th>Study</th>
<th>Method</th>
<th>Sample Size</th>
<th>Intervention</th>
<th>Effect Size</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td>OSCE</td>
<td>100</td>
<td>Self-reflection</td>
<td>Decrease in anxiety about death and dying (p=0.04)</td>
<td></td>
</tr>
<tr>
<td>Study 2</td>
<td>Lecture</td>
<td>50</td>
<td>Interviewing and Communication skills</td>
<td>Decrease in anxiety (p=0.001)</td>
<td></td>
</tr>
<tr>
<td>Study 3</td>
<td>Reflection</td>
<td>20</td>
<td>Communication</td>
<td>Increase in anxiety (p=0.001)</td>
<td></td>
</tr>
</tbody>
</table>

Figure 6. Analysis types used to measure skill attainment in medical students. Most common measurement involved the use of Likert items (71%). Objective Structured Clinical Exam (OSCE) was only used to assess medical students in one study. Many studies used standardized questionnaires like the Coeller-Lester Fear of Death (CLF-D), the Hayduk Communication Apprehension Regarding the Dying Scale (HCRAD) and the Semantic differential technique to measure student attitudes towards the dying patient and/or their family.