

Partnering for success

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9

Impact

Evidence-based medicine is a complex set of knowledge, skills, and behaviors necessary for well-informed and patient-centered clinical decision making.^{1,2} Despite being taught and emphasized as critical throughout US medical school curricula, assessment has lagged behind that of other key clinical skills.³⁻⁶ Librarians are key players in teaching EBM, and are activated and ready to fully participate in robust EBM assessment that promotes learning and measures competency.^{7,8} This research is a necessary step in uncovering the gaps and creating effective solutions for assessment of EBM. But, a detailed assessment rubric, willing assessors, and engaged learners are not enough to create the culture change needed to support this work.

This program of research will have direct impacts on stakeholders at multiple stages of medical education. In this section, I describe the potential impact of this research in medical education, the field of librarianship, and society. Then, I outline strategies taken to disseminate this research and provide evidence for real-world implementation.

Impacts on Medical Education

The impact of this project is most direct for EBM researchers, teachers, and practitioners. By building on information-seeking theories to create a novel EBM behavior assessment rubric⁹ this work provides a new window on the observed information-seeking behaviors of EBM learners. Implementation of this assessment rubric contributes to the validation of Optimal Foraging Theory (OFT) as a useful framework for clinical information seeking behavior. Including OFT as a foundation can inform creation and design of new future clinical information sources. By clarifying the process of how clinicians seek to answer questions, design researchers could begin to integrate these concepts into other clinical tools, like the medical record, to improve clinician workflow and streamline information seeking processes. Despite decades of advancement in electronic information sources, they remain predominantly separate silos which clinicians must attempt to navigate at the expense of their own time and energy. Beyond providing improved assessment for learning in EBM, this rubric and OSCE format give medical educators another example of a performance-based assessment that, when considered as part of a program of assessment, will assess competence. Cognitive skills, such as clinical reasoning, differential diagnosis, history-taking, or patient communication, are difficult to reliably assess. Medical educators who struggle with implementing competency assessment for these mental processes that are not immediately observable could consider first breaking down the performance into observable elements.

While there are rubrics and assessment tools for many of these competencies, there are gaps and inconsistencies. Considering breaking down a cognitive competency into observable performance tasks could be another useful tool in the toolbox towards improved assessment for learning.

For medical students, this assessment strategy provides enhanced opportunities to practice and build skills in a world where finding reliable information grows more critical and challenging daily. Despite being born digital, or possibly because of it, most medical students initially rely on the quick and easy information, clickable in the first few results.⁹ This OSCE format provides an opportunity to practice in an authentic clinical simulation and receive feedback on directly observed performance.¹⁰ A key benefit of this research is the novel way performance is practiced and reflected back to medical students to show the impact of their information-seeking behaviors. The impact on medical students will both enhance self-awareness, improve learning and create better long-term EBM practice habits.

For medical school leadership, this research highlights the promise of more fully incorporating librarians and robust EBM assessment into their curricula. This work provides guidance on what librarians need to do and how they need to be supported in this assessment work. Through enhanced incorporation of librarians, medical school leaders should expect improved EBM competence among learners, an enhanced culture of inquiry, and stronger interprofessional education collaborations.

Impacts on Librarianship

For medical librarians, the impacts of this work are wide-ranging. This program of research has the potential to enhance librarian's visibility within their medical schools by enabling development of new professional skill sets and expanding essential roles and responsibilities. Throughout this research process the role of the medical librarian has been at forefront and this work highlights one way medical librarians will continue to evolve along with and contribute to enhancing medical education.

Impacts on Society

Through incorporating librarian-led assessment of EBM, via a theory-based and behaviorally-anchored rubric, there are myriad potential long and short-term impacts to society. When practiced optimally, EBM promises to improve clinical

outcomes, reduce wasteful healthcare costs, and ensure patient safety and quality medical care. An integral step to best practice of EBM, is strong teaching and assessment, allowing medical students the opportunity to practice, get feedback, and progress to competence and mastery. This program of research offers a way to ensure continuous improvement of the EBM skills of our current medical students and future clinicians.

Dissemination and Evidence of Impact

The research outcomes have been shared both through presentations at conferences and publishing in peer-reviewed journals. Studies 1 and 2 were published in open-access journals, Studies 3 and 4 are currently under review. Paper and poster presentations have been delivered at national and international conferences: MLA (Medical Library Association) 2016 and 2023; the Ottawa Conference in 2016; the AAMC (Association of American Medical Colleges) 2016, 2018, and 2023; SHE Academy 2017; AMEE (Association for Medical Education in Europe) 2016, and EAHIL (European Association for Health Information and Libraries) 2022 and 2023.

Beyond conference presentations and publications, this research is incorporated into Night onCall, an immersive readiness-for-residency OSCE, currently deployed as part of a ten school consortium housed at the Robert D. and Patricia E. Kern Institute for the Transformation of Medical Education at the Medical College of Wisconsin and partially funded by the Macy Foundation. Through this consortium, more librarians, medical students, and medical educators are experiencing and incorporating this EBM OSCE into their programs of assessment.

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