



Evidence Summary

Questions Remain about Whether EBM Competencies Learned in Medical School are Retained in Residency

A review of:

Dorsch, Josephine L., Meenakshy K. Aiyer, Krishna Gumidyala and Lynne E. Myer. "Retention of EBM Competencies." Medical Reference Services Quarterly 25.3 (Fall 2006): 45-57.

Reviewed by:

Suzanne Lewis

Library Manager, Central Coast Sector, Northern Sydney Central Coast Health
Gosford, New South Wales, Australia

E-mail: slewis@nscchahs.health.nsw.gov.au

Received: 29 May 2007

Accepted: 12 July 2007

© 2007 Lewis. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Objective – To assess medical graduates' use of evidence based medicine (EBM) in residency, self-perception of EBM skills, attitudes toward EBM, and the impact of a formal EBM curriculum in their third undergraduate year.

Design – A longitudinal follow-up study by self-administered questionnaire.

Setting – Internal medicine residency programs in US hospitals.

Subjects – A convenience sample of 2001 and 2002 graduates of the University of Illinois College of Medicine at Peoria

(UICOM-P) (n=78), and their respective residency program directors (n=72).

Methods – A student graduate questionnaire (SGQ) was sent to all members of UICOM-P's 2001 and 2002 graduating classes who had completed the EBM course during their M-3 Internal Medicine clerkship. A program director questionnaire (PDQ), similar to the SGQ, was sent to the graduates' residency program directors. The research instrument was tested with a pilot group prior to use, but not validated. The questionnaires consisted of 4 main sections. The first section examined formal and informal EBM programs in the graduates' residency curriculum. The second section consisted of a self-assessment of EBM skills by the

residents and an assessment of those skills by their program directors. The third section asked graduates to compare their EBM skills to those of their fellow residents who had not been students at UICOM-P. Similarly, in the third section of the PDQ, program directors were asked to compare the EBM skills of UICOM-P graduates and non-UICOM-P graduates participating in the residency program. The last section concerned professional and demographic characteristics. Copies of the surveys were mailed out to non-responders after 6 weeks. Results were collated but statistical analysis was not applied.

Main results – The response rate was 32% for residents and 35% for program directors. The number of incomplete surveys was not reported. Forty-four percent of all respondents reported having a formal EBM curriculum for residents, and 76% reported an informal curriculum. For both formal and informal programs, the most common teaching formats were journal clubs, followed by lectures, teaching rounds, morning reports, bedside consultations, ambulatory clinics and seminars. In section two of the questionnaires, both residents and program directors rated the residents' EBM skills similarly. However, the residents rated their skills in searching the literature and application of findings to clinical practice higher than the program directors. Program directors also rated the residents' skills in understanding statistics and tests higher than the residents themselves. Twenty-four percent of both residents and program directors rated the UICOM-P graduates as "very competent" or "extremely competent" in EBM skills (50). Only 35% of program directors and 27% of residents rated the UICOM-P graduates' EBM skills as "usually better" or "always better" than their peers who were not UICOM-P graduates (50).

Conclusion - The authors of this study conclude that, for UICOM-P graduates, "it might be implied from these results that the EBM skills gained during medical school were retained through their medical school graduation and into their residency training" (51). However, this study has methodological weaknesses which make it difficult to draw any definite conclusions from the results.

Commentary

The authors themselves identify 3 serious limitations of the study. The first limitation is that, due to ethical considerations, the anonymity of the respondents had to be preserved. Returned surveys could not be matched to the individual students who had undertaken the EBM course in their M-3 Internal Medicine clerkship. As a result, a direct relationship between student performance in the undergraduate EBM course and retaining EBM competencies in postgraduate years could not be established. Therefore the authors were unable to answer the central question of their study: "whether the incorporation of a formal EBM curriculum in a third-year IM clerkship has a long-term impact on evidence-based practice in residency" (46). In effect, all they were measuring was the residents' perceptions of their current EBM competencies.

The second limitation of the study is that the method used to measure EBM competency was a subjective questionnaire eliciting the subjects' perceptions of their skills, rather than an objective measure such as a test administered by a third party. The authors identify a third limitation of the study - that it did not determine whether the non-UICOM-P graduates had had any formal EBM instruction in their undergraduate medical program. This makes it difficult to draw any meaningful conclusions from section three of the questionnaire, which

attempted to identify differences between the EBM skills of UICOM-P graduates and graduates of other medical schools.

A limitation of the study that the authors do not address is that the source of the residents' EBM skills is not identified. Did they learn these skills in their M-3 Internal Medicine clerkship, in their formal or informal residency programs, or from some other source? The low response rate to the surveys compounds the methodological flaws discussed above. One reason for the low response rate may have been the messy layout of sections II and III of the questionnaire.

Finally, the reporting of this study could have been improved. More contextual detail, particularly regarding the US medical education and residency system, would have been helpful for an international audience. In addition, only the Student Graduate Questionnaire was supplied in the appendix. The Program Director Questionnaire should have also been included.

If the Institutional Review Board had allowed it, the study would have been strengthened by being reframed as a cohort study tracking a group of medical students who received EBM training in their third undergraduate year at UICOM-P, with EBM skills objectively measured immediately before and after the undergraduate training and then in their residency. A control group of medical students who did not receive EBM training as part of their undergraduate curriculum, but underwent identical testing of EBM competency, would have further increased the validity of the study. However, in practice it would be extremely difficult to identify such a control group. It would be unethical to exclude half of the undergraduate students at UICOM-P from the EBM training, and obtaining details of a control group of matched students from

another medical school that did not include EBM skills in its curriculum would be difficult.

The authors are correct in stating that "Methods for follow-up studies that can draw a more direct cause and effect relationship between the undergraduate EBM curriculum and later practice are needed" (52). Their literature review highlights the lack of methodologically sound studies in this area. A Cochrane systematic review attempted to assess the effects of teaching critical appraisal skills to health professionals on the process of care, patient outcomes and knowledge of health professionals, and concluded that "the evidence supporting all outcomes is weakened by the generally poorly designed, executed and reported studies that we found" (Parkes 1).

This study is of particular interest to health librarians involved in teaching evidence based medicine skills, and of more general interest to all librarians who have ever been involved in information skills training and wondered if the material they teach is retained over time. However, there are significant flaws in the design of this study which limit its usefulness.

Work Cited

Parkes, J. C. Hyde, J. Deeks, and R. Milne. "Teaching Critical Appraisal Skills in Health Care Settings." Cochrane Database of Systematic Reviews 3 (2001). 29 May 2007. <<http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD001270/frame.html>>.