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# Better Evidence: Assessing the Utility of an Evidence-Based Clinical Resource in Two African Medical Schools



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## Abstract

**Background:** Evidence-based clinical resources (EBCRs) have the potential to improve diagnostic and therapeutic accuracy at the point of care. The majority of U.S. teaching medical institutions have integrated them into clinical training and practice. Many EBCRs are subscription-based, and their cost is prohibitive for clinicians and trainees in low-income countries (LICs). The current use of EBCRs by medical students in sub-Saharan Africa, as well as their utility and impact on students' educational performance, is not known.

**Methods:** We conducted the first prospective cohort study of African medical students and faculty. Participants were offered free 5-year subscriptions to UpToDate, a leading EBCR. Students completed two surveys on their study habits and gave permission for remote logging of all their activity on UpToDate. Their medical school grades were obtained as well.

**Results:** 1518 students were invited to enroll and 704 did (46%). 88% of eligible Doc4 (6th year) students enrolled at the University of Rwanda (UR). At baseline, 92% of participating UR students and 97% of Muhimbili University of Health and Allied Sciences (MUHAS) students reported ownership of an internet capable device. Students at both institutions used online resources frequently in their education and primarily utilized free resources (Medscape, Wikipedia, Google). When offered free access to UpToDate, senior students used it frequently and continued to use it after graduation. One year after enrollment, self-reported usage of UpToDate increased significantly, while usage of most other resources decreased. Class performance in exams of graduating Rwandan students was better in 2016 and 2017 (after introduction of the EBCR) than in previous years. In a multivariable linear regression, controlling for prior educational performance, viewing of UpToDate topics in pediatrics was significantly associated with higher scores in the clinical pediatrics exam.

**Conclusions:** Removal of the cost barrier was sufficient to generate high uptake of a leading EBCR by senior medical students and habituate them to continued usage after graduation. Among clinical students, access to the EBCR was associated with decreased reported usage of non-validated online resources like Wikipedia. The introduction of an EBCR was temporally associated with an overall improvement in the examination performance of medical students.

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Evidence: Best practice evidence-based guideline development involved extensive evidence synthesis and the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) framework covered evidence quality, feasibility, acceptability, cost, implementation and ultimately recommendation strength. Process: Governance included an international advisory board from six continents, a project board, five guideline development groups with 63 members, consumer and translation committees. and online resources; and ●● delivering an international translation program with in-depth evaluation. International evidence-based guideline for the assessment and management of polycystic ovary syndrome 2018. 7. Evidence-Based Practice (EBP) requires that decisions about health care are based on the best available, current, valid and relevant evidence. These decisions should be made by those receiving care, informed by the tacit and explicit knowledge of those providing care, within the context of available resources. Clinical decision making is the end point of a process that includes clinical reasoning, problem solving, and awareness of patient and health care context [24]. This process is uncertain and frequently no "correct" decision exists. EBP can help with some of the uncertainties in this decision process by using the explicit knowledge obtainable from research information. Evidence-based practitioners need additional skills to supplement traditional knowledge. Evidence-based medicine (EBM) is the term used to describe the approach to clinical decision making that is based on the consensus development, within a specialty, of standards of clinical practice that lead to diagnostic and treatment guidelines that may be used across disciplines. First developed in the 1980s at McMaster University School of Health Sciences in Ontario, Canada, evidence-based medicine is a clinical learning strategy that teaches physicians to turn a clinical problem into a question that can be answered by a systematic review and evaluation of the most current results from pub Objective: Evidence-based clinical resources (EBCRs) have the potential to improve diagnostic and therapeutic accuracy. The majority of US teaching medical institutions have incorporated them into clinical training. Many EBCRs are subscription based, and their cost is prohibitive for most clinicians and trainees in low-income and middle-income countries. We sought to determine the utility of EBCRs in an East African medical school. Setting: The University of Rwanda (UR), a medical school located in East Africa. Students completed two surveys on their study habits and gave us permission to access their activity on UpToDate and their grades. Results: Of the 980 medical students invited to enrol over 2 years, 547 did (56%). Of eligible final year students, 88% enrolled.