Key Literature in Medical Education Podcast Review

Reviewer: Linda Snell
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1. Educational Epidemiology: Applying Population-Based Design and Analytic Approaches to Study Medical Education

2. Getting Off the “Gold Standard”: Randomized Controlled Trials and Education Research

References:
1. Carney PA, Nierenberg DW, Pipas CF, Brooks WB, Stukel TA, Keller AM. Educational Epidemiology: Applying Population-Based Design and Analytic Approaches to Study Medical Education. JAMA, September 1, 2004. 292(9):1044


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PubMed URL (1)
Link to article (2)

Tags

Clinical domain
Scholar

Educational domain
Educational research

Background

Medical education is considered by some clinicians not to be rooted in evidence, at least when ‘evidence’ is defined by clinical standards. However, designing medical education research is challenging in the highly complex educational environment, where there are multiple variables, the external control may be high (e.g. accreditation standards) and flexibility may be limited. Using the clinical research model of the blinded multisite randomized controlled trial (RCT) may not be the best way to create educational ‘evidence’, or approach the evaluation of innovations in curriculum, pedagogy or assessment. Over the past decade a number of individuals and groups have proposed ways to address this issue.
Purpose

Sullivan’s editorial looks at the pros and cons of RCTs in education research, and suggests alternatives. Carney’s ‘special communication’ explores the concept of ‘educational epidemiology’ to apply known concepts in epidemiology to medical education research.

Type of paper

Consensus paper
Editorial
Commentary

Key Points on the Methods

Sullivan presents a table comparing sources of error in RCTs as applied to clinical and med ed studies, and offers some solutions for each. Carney and colleagues also describe the challenges of doing rigorous educational research and describe the concept of ‘educational epidemiology’ – applying existing epidemiologic methods to educational contexts.

Key Outcomes

Sullivan proposes alternatives (non-RCT) designs for educational research, as well as some suggestions to strengthen quantitative methods. Carney proposes using the model of educational epidemiology as a potential solution to conducting educational research. Both provide similar examples of various designs that could be used (observational, longitudinal, cohort, experimental – RCT, crossover), to increase the ‘rigor’ of educational evidence.

Key Conclusions

The authors conclude... Randomization is not the “gold standard” for medical education research. Alternatives to a blinded multisite RCT may be a more appropriate design; however whatever model is chosen, it should include measures to ensure strength, such as adequate sample size, a comparison group, and measures to reduce bias. Carney proposes developing a cross-institutional network of educational epidemiologists.
Spare Keys – other take home points for clinician educators

Both authors provide practical and understandable examples that a clinician educator researcher could use when considering the design of an educational study. Both remind us of the importance of creating evidence to support what we do. I might also recommend these papers to those of us who review submissions for journals.

Of interest, these two papers have the potential to be influential – Carney’s is in the annual education issue of JAMA, and Sullivan’s is an editorial in a new med ed journal, so both are prominent.