GETTING PUBLISHED IN MEDICAL EDUCATION

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Structure

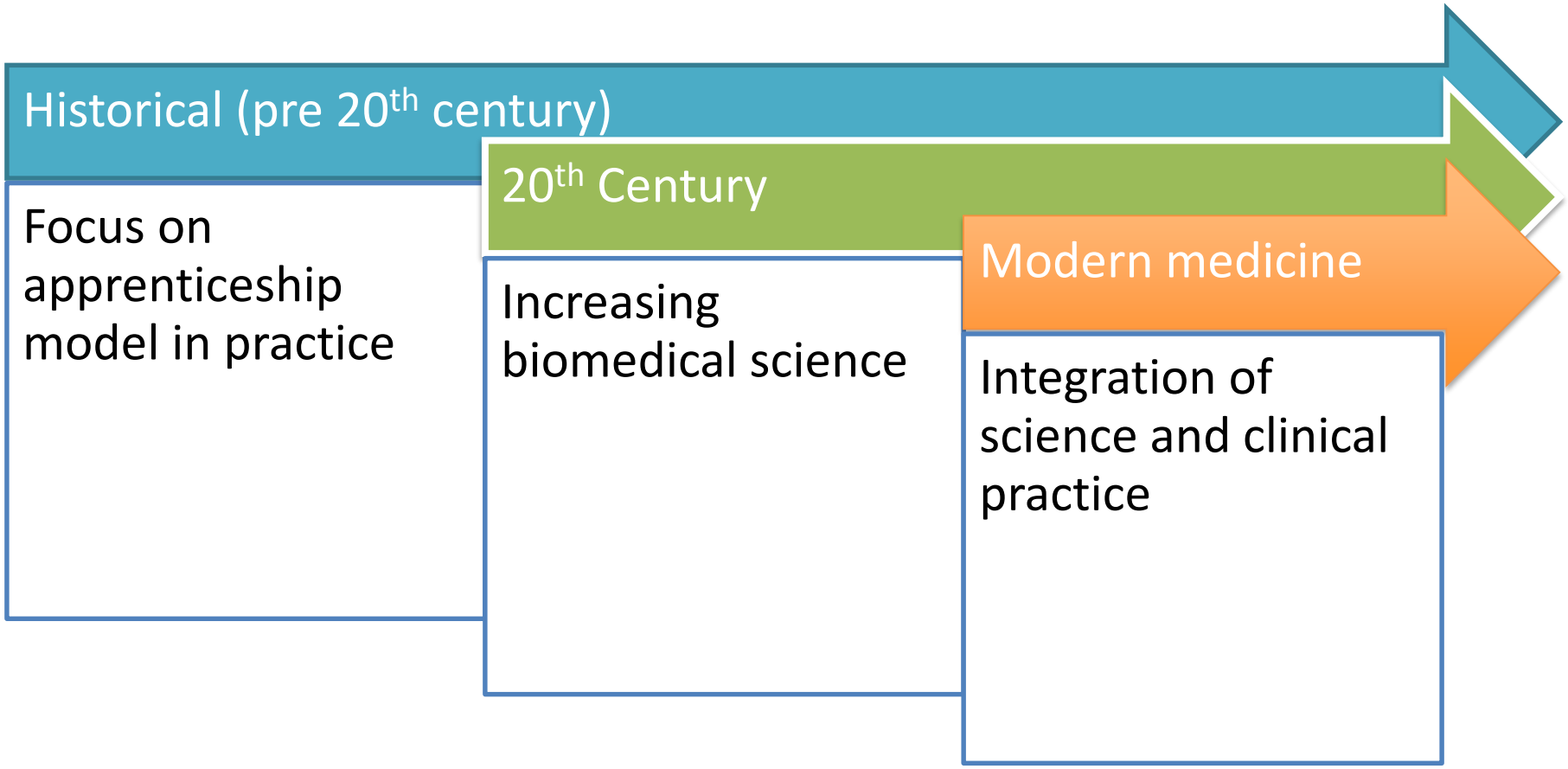
- Research in medical education – the field
- Devising a question
- Key tips
- Systematic reviews




Writings of Hippocrates

A doctor must be able to remember all the drugs and their uses. You must get your medicine ready in good time. You must visit your patients often and be careful when you examine them. When you enter a patient's room, be calm and remember your bedside manners. Sometimes the patient may need telling off, sometimes comforting.

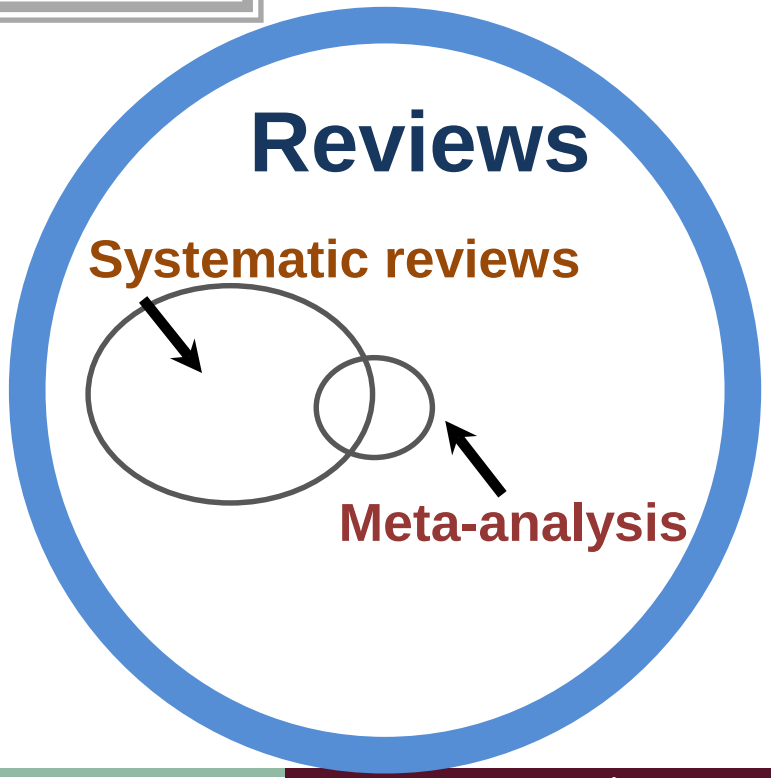
Training and practice of medicine



EMMINENT EXPERTS – 'ART OF MEDICINE'

How was knowledge shared in medicine?

A review…*any attempt to provide a synthesis of research on a particular topic at a moment in time.*



When did medical education emerge?

- 1955 first journal of medical education founded[1]
- 1959 wider field started to consider this an important area
- 1970 becomes it own scientific field – founding of centres in medical education
- Split in the nature of work
  - theoretical vs practical
  - Positivist vs constructivist

1) Kuper et al. The origins of the field of medical education research. Acad Med. 2010 Aug;85(8):1347-53. doi:

Why contribute?

- Significant stagnation in field – contributions needed
- Low cost and resource requirement
- Work already substantial and ongoing, but not outputted
- Career development
  - Publications
  - Professorial route
  - Higher studies
- Fun!!!!

Where to publish?

Current medical education literature

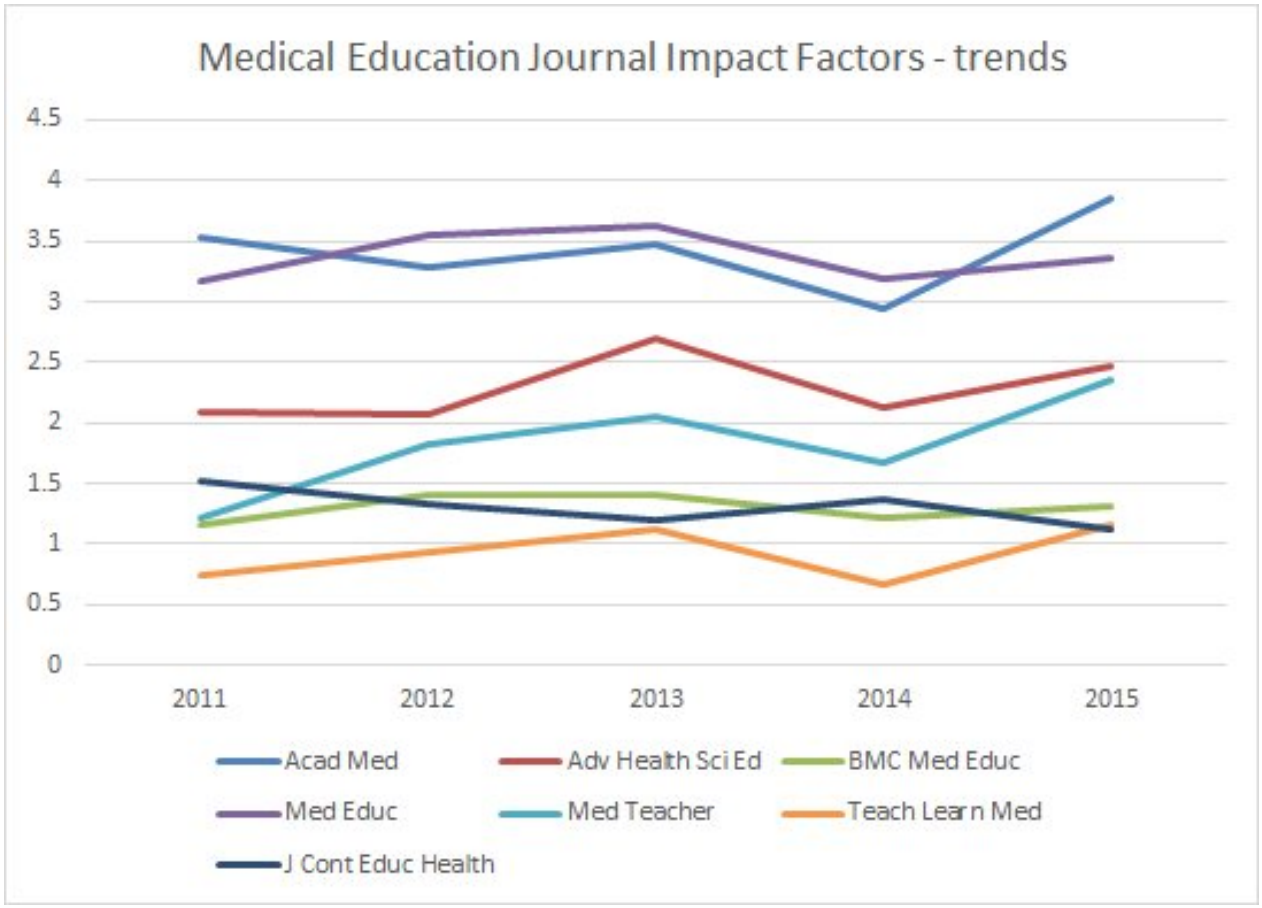
- The impact factor (IF) of an academic journal is a measure reflecting the yearly average number of citations to recent articles published in that journal. It is frequently used as a proxy for the relative importance of a journal within its field

- Top 50 – highlights
  - New England Journal of Medicine (impact factor: 59.558)
  - The Lancet (impact factor: 44.002)
  - JAMA - Journal of the American Medical Association (impact factor: 37.684)
  - Gastroenterology (impact factor: 18.187)
  - Journal of the American College of Cardiology (impact factor: 17.759)
  - PLoS Medicine (impact factor: 13.585)
  - Annual Review of Public Health (impact factor: 10.240)

Current medical education literature

- In medical education, less journals but growing rapidly
- ISI Journal Citation Reports © Ranking: 2015:
  - 40 (Education Scientific Disciplines) Top IF 3.9;
  - 87 (Health Care Sciences & Services)
- However, wider medical journals publish – 3 papers in NEJM last 12 months
- Much higher impact – field specific – a branch of medicine

New impact factors



Journals

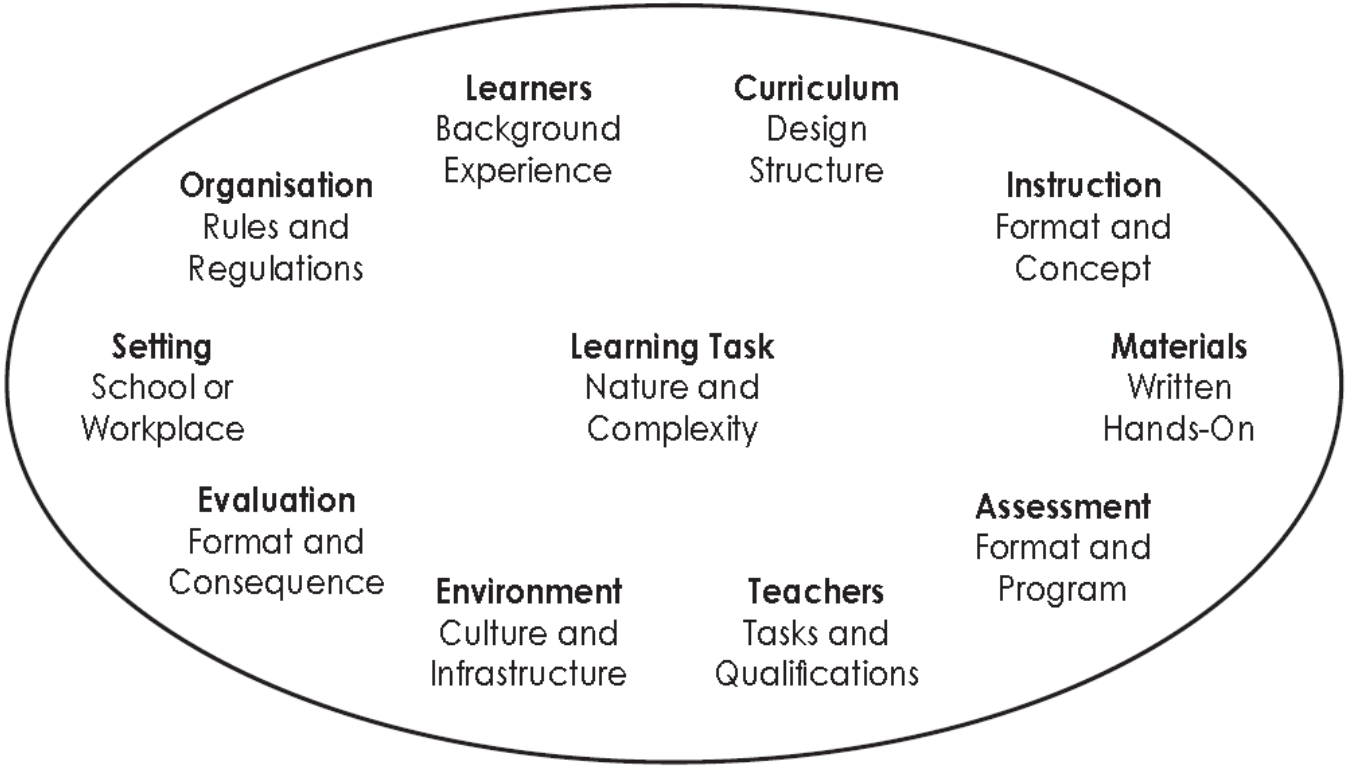
- Free to publish
  - Academic medicine – Very USA focused – policy, procedure, multi-faculty, multi site
  - Medical Education – conceptual, theory generating
  - Medical Teacher – reports on ongoing work, interventions, international viewpoint
  - Clinical Teacher – very practical
  - Teaching and learning in medicine – very academic in focus

- Open access / fee paying
  - Medical Education online – cheap, rising IF, rapid review
  - BMC medical education – slow, ok IF, costly
  - International journal medical education – rapidly growing

What to do / what to ask?

We can’t investigate 250mg of education

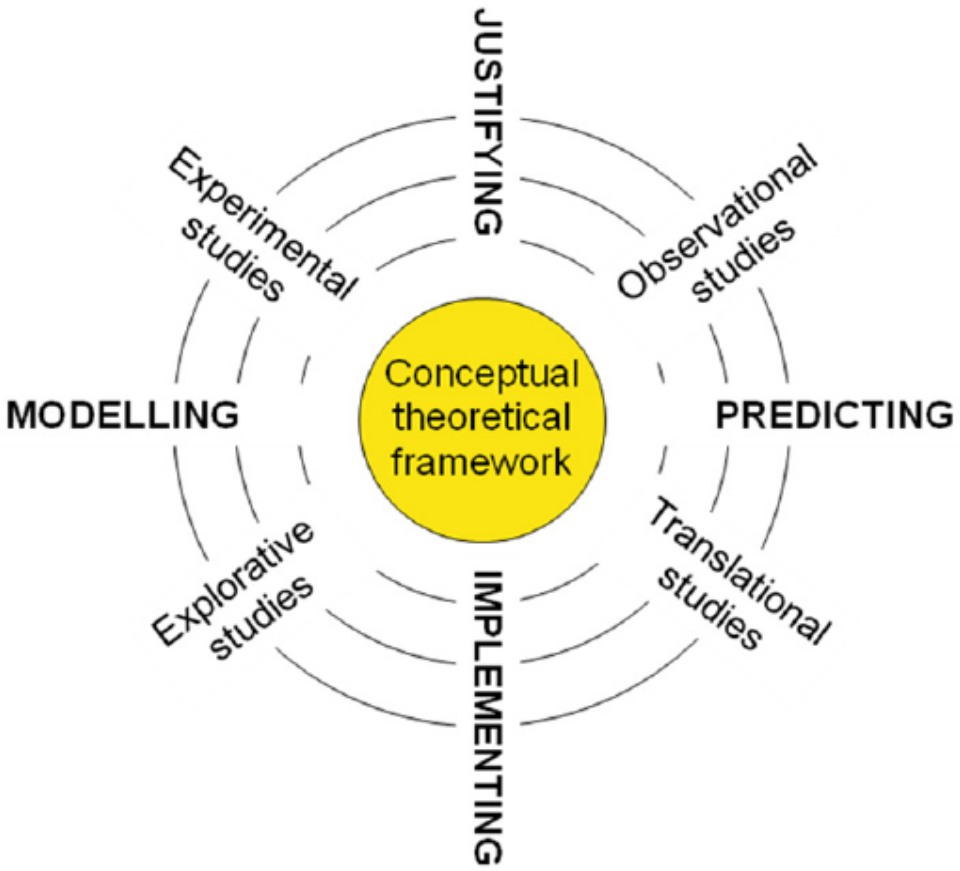
The learning ecology. Numerous aspects interact and contribute to the learning



Dr Morris Gordon

Types of study – one approach

An overview model of approaches to research in medical education



Types of study

classifying the purposes of research

Description, justification and clarification: a framework for classifying the purposes of research in medical education

David A Cook,[1] Georges Bordage[2] & Henk G Schmidt[3]

CONTEXT Authors have questioned the degree to which medical education research informs practice and advances the science of medical education.

OBJECTIVE This study aims to propose a framework for classifying the purposes of education research and to quantify the frequencies of purposes among medical education experiments.

METHODS We looked at articles published in 2003 and 2004 in *Academic Medicine, Advances in Health Sciences Education, American Journal of Surgery, Journal of General Internal Medicine, Medical Education* and *Teaching and Learning in Medicine* (1459 articles). From the 185 articles describing education experiments, a random sample of 110 was selected. The purpose of each study was classified as description ('What was done?'), justification ('Did it work?') or clarification ('Why or how did it work?'). Educational topics were identified inductively and each study was classified accordingly.

RESULTS Of the 105 articles suitable for review, 75 (72%) were justification studies, 17 (16%) were description studies, and 13 (12%) were clarification studies. Experimental studies of assessment methods (5/6, 83%) and interventions aimed at knowledge clarification studies than were studies addressing other educational topics (< 8%).

CONCLUSIONS Clarification studies are uncommon in experimental studies in medical education. Studies with this purpose (i.e. studies asking: 'How and why does it work?') are needed to deepen our understanding and advance the art and science of medical education. We hope that this framework stimulates education scholars to reflect on the purpose of their inquiry and the research questions they ask, and to strive to ask more clarification questions.

KEYWORDS *education, medical; *research, biomedical; health knowledge, attitudes, practice; clinical competence; evidence based medicine; teaching/methods; review [publication type].

Medical Education 2008: 42: 128–133
doi:10.1111/j.1365-2923.2007.02974.x

INTRODUCTION

Medical education research has witnessed substantial growth in recent years,[1,2] yet there are indications that such research may not be informing educational practice. For example, a recent best evidence medical education (BEME) review found weak evidence

Types of study

Description
Describes what was done or presents a new conceptual model. Asks: ‘What was done?’ May be a description without assessment of outcomes, or a single-shot case study

Justification
Makes comparison with another intervention with intent of showing that 1 intervention is better than (or as good as) another. Asks: ‘Did it work?’ (Did the intervention achieve the intended outcome?). Any experimental study design with a control can do this. Generally lacks a conceptual framework or model that can be confirmed or refuted based on results of the study

Clarification
Clarifies the processes that underlie observed effects. Asks: ‘Why or how did it work?’ Often a controlled experiment, but could also use a case–control, cohort or cross-sectional research design. Much qualitative research also falls into this category. Its hallmark is the presence of a conceptual framework that can be confirmed or refuted by the results of the study

Whether

- Consider a verification or falsification paradigm - routed in positivits quantitative alignment.
- Ontological lens of realism
- As such, educational truth is seen as something that is observable, measurable and therefore hopefully can be ‘prescribed’ by others where there is a need, achieving impact for the education.

How and why

- Clarification reviews
- Aligned with an interaction methodology
- Explore the nature of knowledge and view the educational truth that is being explored through this evidence base, accepting that the understanding of the researchers allows a contextual interpretation of this truth.

1) What

Sounds simple, but terribly done!!!!

Example - We set out to assess if these features had been fulfilled by poster presentations at a major international medical education conference.

170 suitable for analysis –

41% described their methods of instruction or innovation design.

33% percent gave details of equipment,

29% of studies described resources that may be required for delivering such an intervention.

Further resources to support dissemination of their innovation were offered by 36%.

23% described the theoretical underpinning or conceptual frameworks

- Citation: Limitations of poster presentations reporting educational innovations at a major international medical education conference. Med Educ Online 2013, 18: 20498 - http://dx.doi.org/10.3402/meo.v18i0.20498

1) What

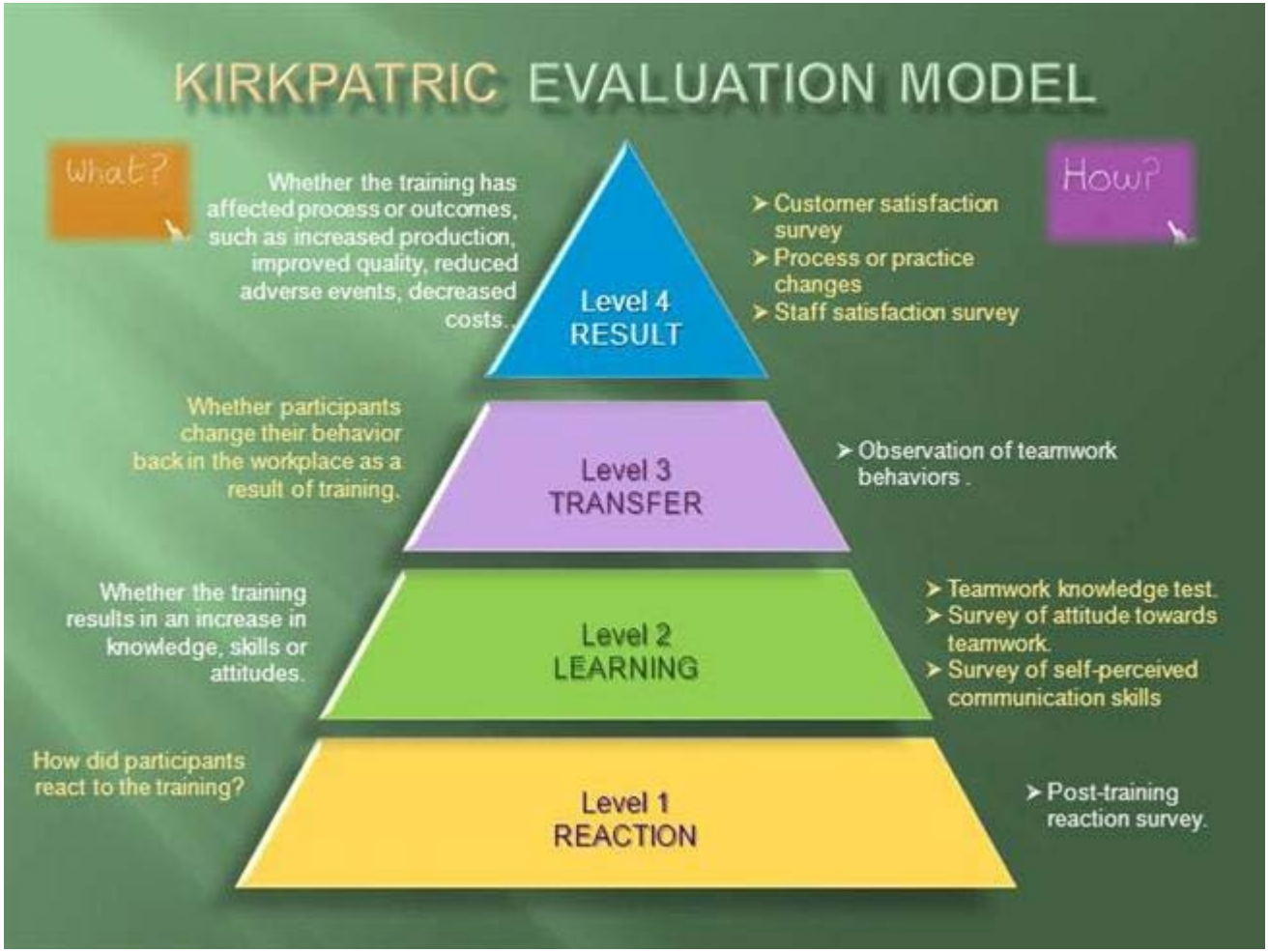
- Learning outcomes – local, national or international mapping
- Underpinning – possible, if clear
- Pedagogy – teaching methods, deployment method
- Content – share, links, appendices, examples
- Resources – map, staff, cost
- Lessons learnt –what worked, what you changed, why

NONE OF THESE NEED ANY FORM OF INTERVENTIONAL EVALUATION

2) Whether

- Most difficult to none social scientist
- Qualitative alignment to generate new theory and verify existing models
- As editor of Medical Education puts it, ‘ I am very happy your local intervention was produced and you think it was good, but….

2) Whether


KIRKPATRIC EVALUATION MODEL
What?
Whether the training has affected process or outcomes, such as increased production, improved quality, reduced adverse events, decreased costs..
How?
Level 4
RESULT
Customer satisfaction survey
Process or practice changes
Staff satisfaction survey
Whether participants change their behavior back in the workplace as a result of training.
Level 3
TRANSFER
Observation of teamwork behaviors .
Whether the training results in an increase in knowledge, skills or attitudes.
Level 2
LEARNING
Teamwork knowledge test.
Survey of attitude towards teamwork.
Survey of self-perceived communication skills
How did participants react to the training?
Level 1
REACTION
Post-training reaction survey.

3) How and why

- Most implicit and instinctual
- Can be considered in the context of hierarchy of evidence, although contentious issue – does an RCT offer much in context of medical education?
- Interestingly, seem to influence policy makers and be more publishable
- Even if methodology decided, question of outcome measures remains…..

So what?....Conceptual frameworks addressing clarification questions

The conceptual, theoretical framework relevant to a study is a composite of three parts:

1) Selecting theories of learning and education that can clarify the underlying mechanisms pertaining to the idea or problem;
2) A critical synthesis of information from the empirical literature identifying what is already known and what is not known about the idea to inform the development of a concrete research topic; and
3) the researcher's individual thoughts and ideas.

Key tips

- Always consider evidence base as it stands and clarify area of interest – local experience and problems are best
- Devise a question for each of the three areas and then select which is most interesting and likely to add to field
  - 60% of papers published in 2010 had no question or mismatch between question and conclusions
  - 95% of papers in the key JAMA e-learning review of 2008 had no content or underpinning theory
- THE QUESTION IS KEY – ASK YOURSELF NOW – **SO WHAT?**

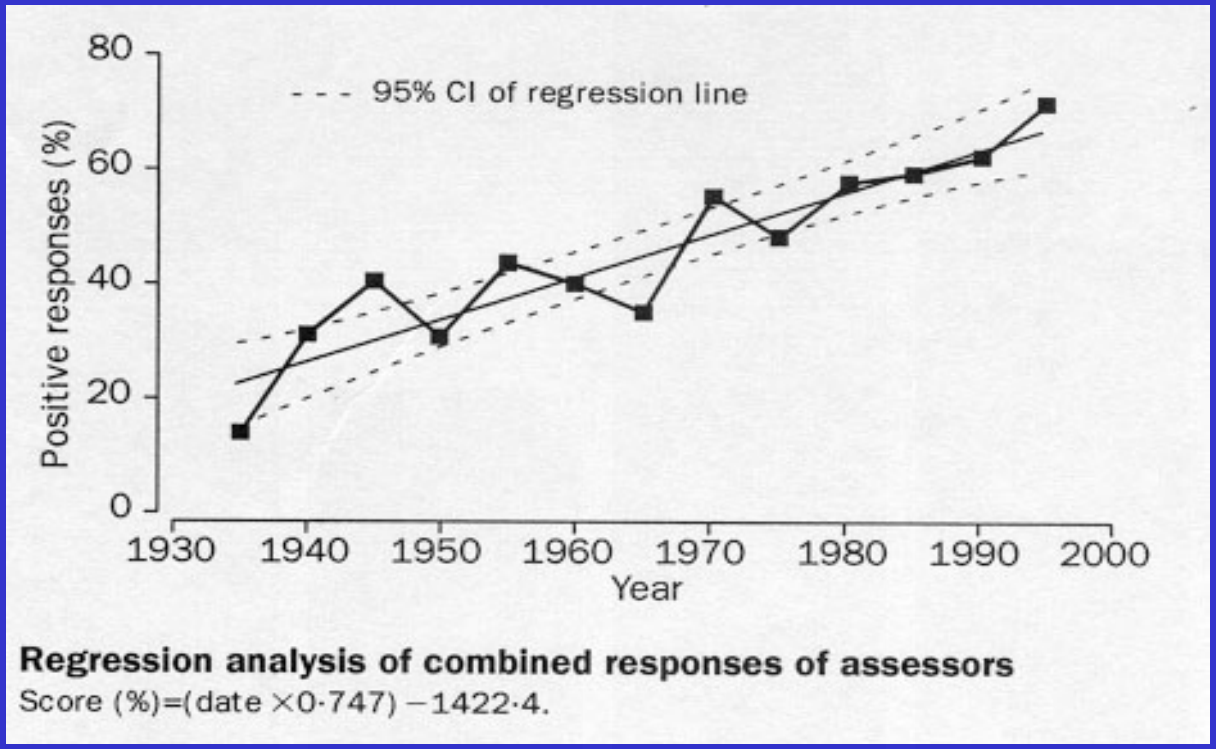
Key tips

- If descriptive, decide which elements to focus on – any / all
- If justification, consider design and maximise value – if being completed, why not an RCT?
- If Clarification, consult someone with expertise – education school? Consider existing theory or where to generate new knowledge.

Systematic reviews in medical education

Half Life of Truth in Literature

Hall JC, Platell C. Half life of truth in surgical literature. Lancet 1997;350:1752.



Regression analysis of combined responses of assessors

Score (%)=(date ×0·747) −1422·4.

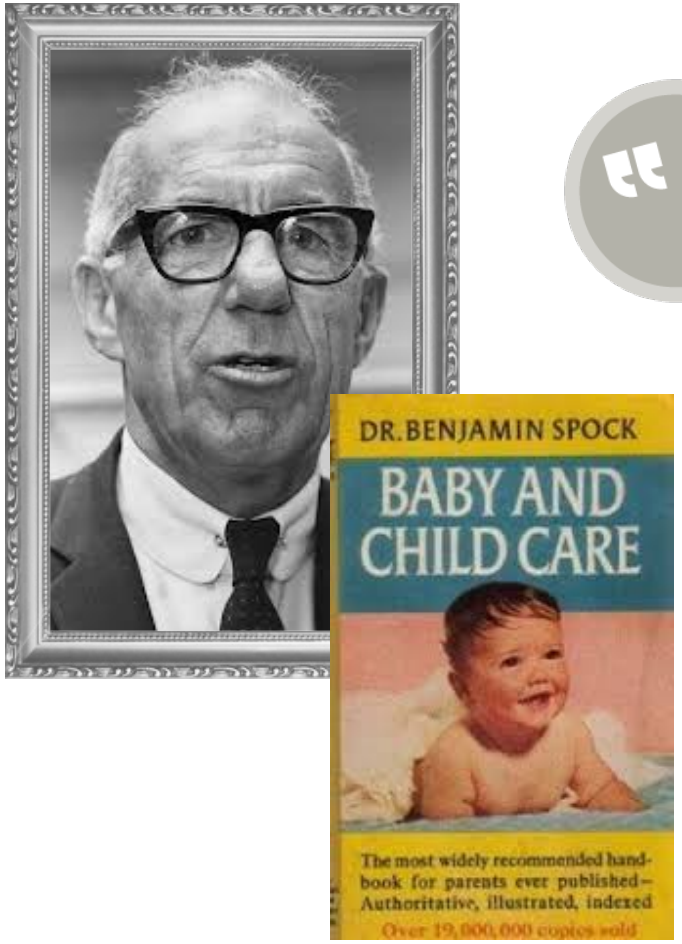
General Surgery 1935-1994

The lost of truth is 0.75% per year

Half life of truth is 45 years.

$r^2 = 0.86$

Infant Sleeping Position



"I think it is preferable to accustom a baby to sleeping on his stomach from the start if he is willing. He may change later when he learns to turn over"

Infant Sleeping Position

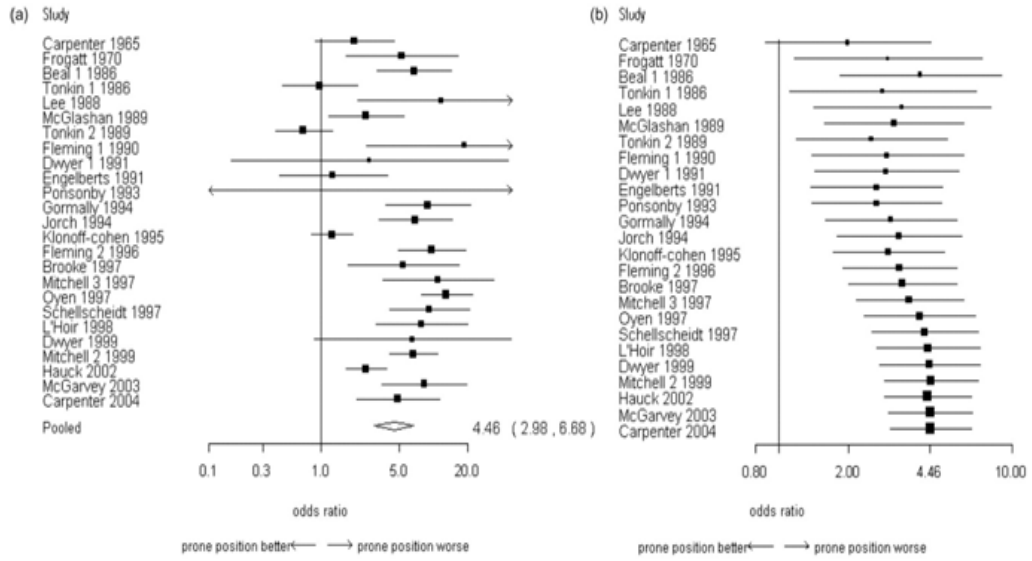
Int. J. Epidemiol. Advance Access published April 20, 2005

Published by Oxford University Press on behalf of the International Epidemiological Association

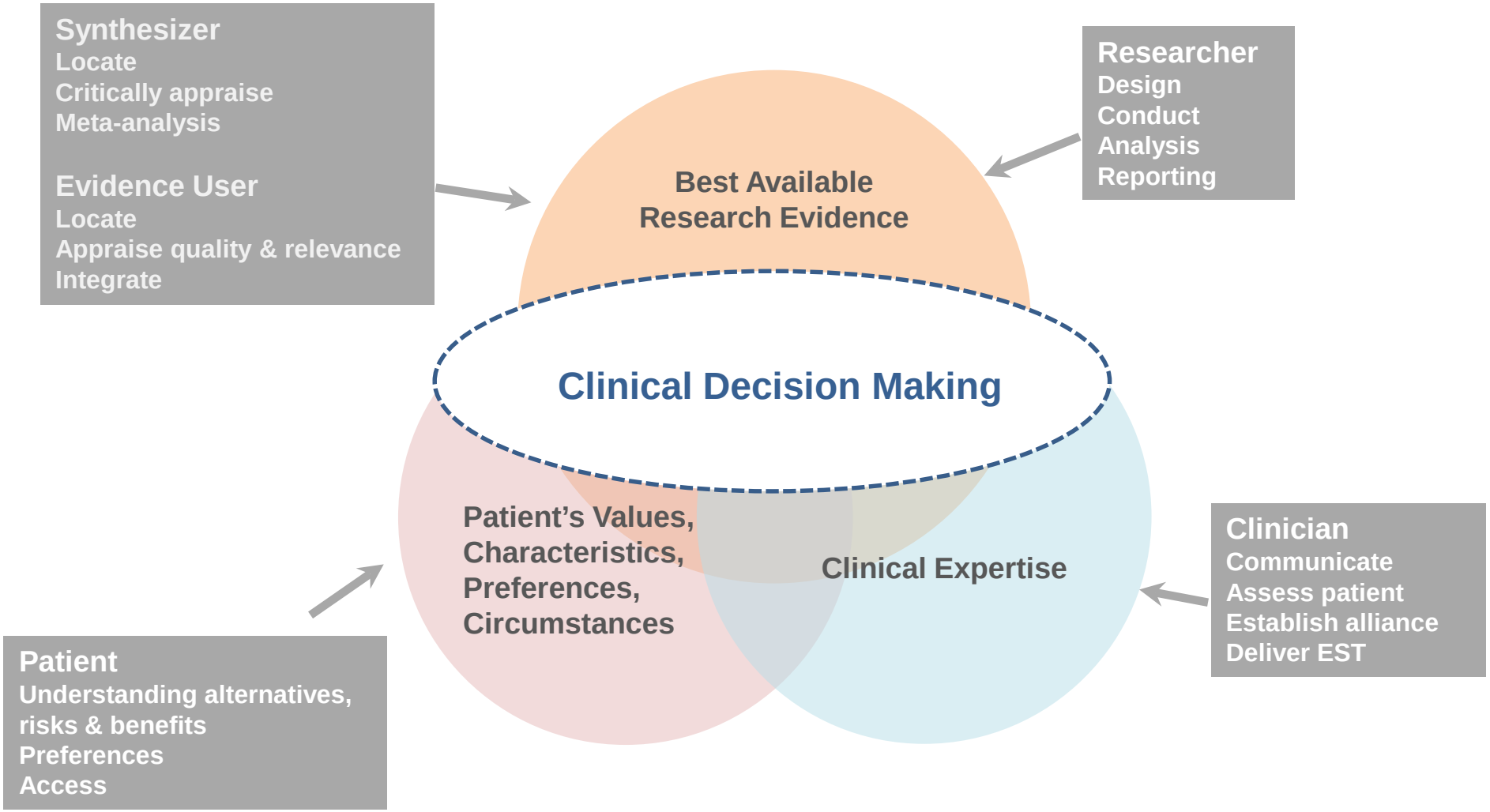
International Journal of Epidemiology
doi:10.1093/ije/dyi088

Infant sleeping position and the sudden infant death syndrome: systematic review of observational studies and historical review of recommendations from 1940 to 2002

Ruth Gilbert,[1]* Georgia Salanti,[2] Melissa Harden[1] and Sarah See[1,3]



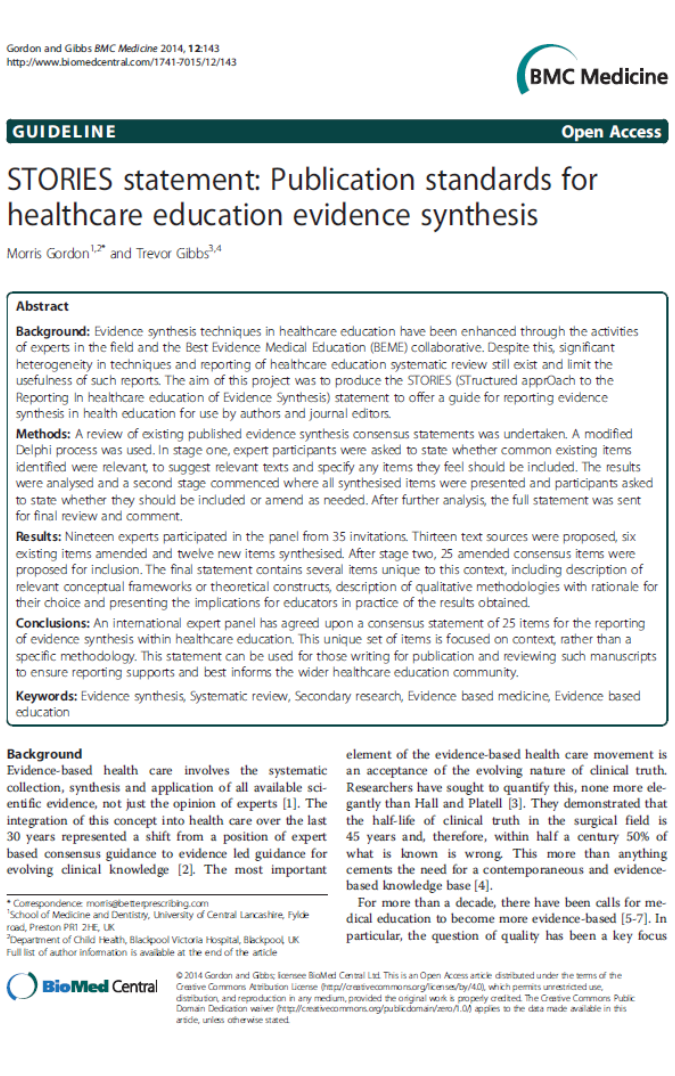
The 3 Circles of EBM



Different approaches – example of BEME

- Purpose of research?
- Presenting of intervention?
- Difficulties in quality assessment when methodology is grounded in social science
- Lack of implicit research philosophy alignment
- Developing qualitative synthesis methodologies!

Reporting guidance



Gordon and Gibbs *BMC Medicine* 2014, **12**:143
http://www.biomedcentral.com/1741-7015/12/143

BMC Medicine

GUIDELINE Open Access

STORIES statement: Publication standards for healthcare education evidence synthesis

Morris Gordon[1,2*] and Trevor Gibbs[3,4]

Abstract

Background: Evidence synthesis techniques in healthcare education have been enhanced through the activities of experts in the field and the Best Evidence Medical Education (BEME) collaborative. Despite this, significant heterogeneity in techniques and reporting of healthcare education systematic review still exist and limit the usefulness of such reports. The aim of this project was to produce the STORIES (STructured apprOach to the Reporting In healthcare education of Evidence Synthesis) statement to offer a guide for reporting evidence synthesis in health education for use by authors and journal editors.

Methods: A review of existing published evidence synthesis consensus statements was undertaken. A modified Delphi process was used. In stage one, expert participants were asked to state whether common existing items identified were relevant, to suggest relevant texts and specify any items they feel should be included. The results were analysed and a second stage commenced where all synthesised items were presented and participants asked to state whether they should be included or amend as needed. After further analysis, the full statement was sent for final review and comment.

Results: Nineteen experts participated in the panel from 35 invitations. Thirteen text sources were proposed, six existing items amended and twelve new items synthesised. After stage two, 25 amended consensus items were proposed for inclusion. The final statement contains several items unique to this context, including description of relevant conceptual frameworks or theoretical constructs, description of qualitative methodologies with rationale for their choice and presenting the implications for educators in practice of the results obtained.

Conclusions: An international expert panel has agreed upon a consensus statement of 25 items for the reporting of evidence synthesis within healthcare education. This unique set of items is focused on context, rather than a specific methodology. This statement can be used for those writing for publication and reviewing such manuscripts to ensure reporting supports and best informs the wider healthcare education community.

Keywords: Evidence synthesis, Systematic review, Secondary research, Evidence based medicine, Evidence based education

Background

Evidence-based health care involves the systematic collection, synthesis and application of all available scientific evidence, not just the opinion of experts [1]. The integration of this concept into health care over the last 30 years represented a shift from a position of expert based consensus guidance to evidence led guidance for evolving clinical knowledge [2]. The most important element of the evidence-based health care movement is an acceptance of the evolving nature of clinical truth. Researchers have sought to quantify this, none more elegantly than Hall and Platell [3]. They demonstrated that the half-life of clinical truth in the surgical field is 45 years and, therefore, within half a century 50% of what is known is wrong. This more than anything cements the need for a contemporaneous and evidence-based knowledge base [4].

For more than a decade, there have been calls for medical education to become more evidence-based [5-7]. In particular, the question of quality has been a key focus

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Overarching research paradigm	Positivism	Positivism / Constructivism	Constructivism
Ontological alignment	Realism	Contextual realism	Relativism
Methodological alignment	Verification		Interaction
Review purpose	Description Justification	Description and clarification	Clarification
Outcomes	What works Whether it works	What works, in which context, with what outcome	Why it works How it works
Implications for educations	Define content or pedagogy widely used Confirm effectiveness	Define mechanisms which link context and intervention	Define underpinning theory and conceptual frameworks
Methods	Content analysis Meta-analysis	Realist reviews	Thematic analysis Meta-ethnography

Questions?

Questions?