# Thirty years of developments in evidence-based practice:
# Have teaching and assessment methods in the health professions kept up?

Aliki Thomas, Ph.D., OT (c)

Canada Research Chair in Education, Practice and Policy for Evidence-based Healthcare

Associate Professor

School of Physical and Occupational Therapy

Faculty of Medicine and Health Sciences,

McGill University

Montreal, Canada

PRACTICE
?

TEACH
??

EBM

ASSESS ???

Borgerson, 2009
Norman, 1999
Tonelli, 1998
Upshur & Tracy, 2004
Worrall, 2002
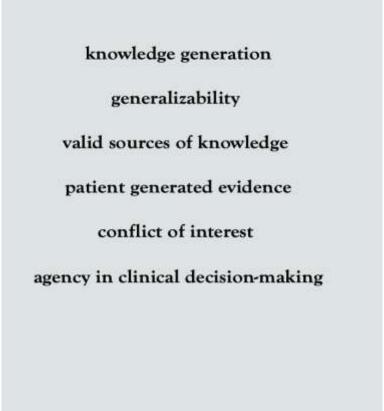Mercuri & Baigrie, 2018
Greenhalgh et al., 2015

# Aims

Why and how should the teaching of EBP change to adapt to developments in clinical practice and education?

Propose 4 avenues to advance the teaching and assessment of EBP

# What has happened over the last 30 years that would warrant changes in teaching and assessment of EBM?

knowledge generation

generalizability

valid sources of knowledge

patient generated evidence

conflict of interest

agency in clinical decision-making

Das et al., 2008
Kalitzkus & Matthiessen, 2009
Neuman & Neuman, 2009

| process | attributes |
|---------|-----------|
| Ask | Knowledge |
| Acquire | Self- Efficacy |
| Appraise | Attitudes |
| Apply | Resources |
| Assess | Organizational |
| | support |

Sackett et al., 1996; Salbach et al., 2013; Shaneyfelt et al., 2006; Shi et al., 2014

- Divergent views on what EBM "is"

- Clinician report lack of agency in CDM

- Top-down /neoliberal systems

- Biopsychosocial nature of healthcare/increasingly complex patients

- Introduction of compassion, social accountability, person-centered care, shared decision-making, indigenous health, culture, justice, power in HPE

- Disconnect between research and practice

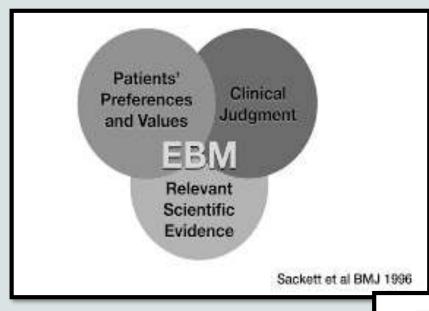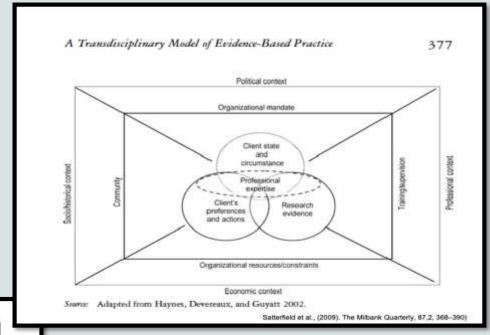- Drive for partnerships between education-practice-policy
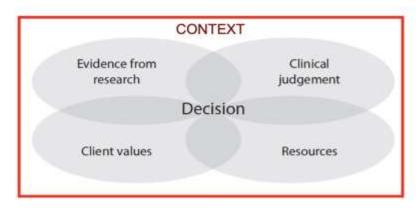
Halle et al., 2018; Halle et al., 2021;

Thomas et al., 2020;

Thomas et al; 2016;

Thomas et al., 2017; Rochette et al., 2020

# CONTEXT, CONTEXT, CONTEXT

# New Focus

—

understanding of appraised evidence
(e.g., guidelines and evidence summaries)

Tikkinen & Guyatt (2021).
Understanding of research results, evidence summaries and their
applicability—not critical appraisal—are core skills of medical curriculum.
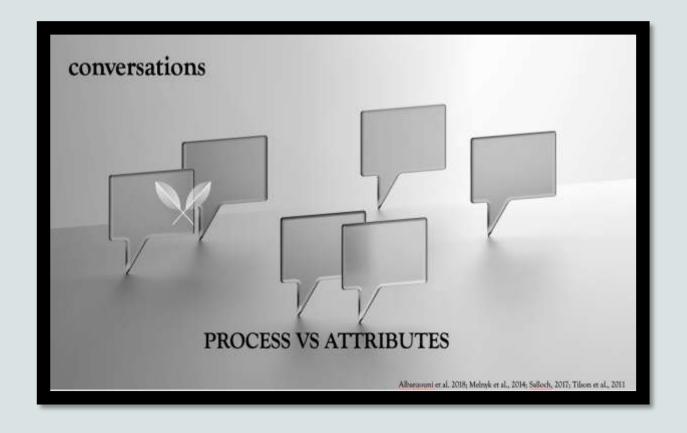BMJ Evidence-Based Medicine

# Results #1
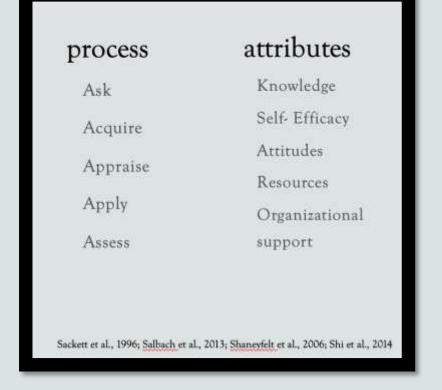## Clarity on what we mean by EBM



- work towards consensus on the core values and purpose of EBM – on what EBM is and what it is not;

- advantages and challenges of adopting a unified definition of EBM;

- benefits of definitions that can be flexibly adapted to a specific context.

# Results #2
## Clear articulation of EBM competencies
## What does it take to practice EBM ?





conversations

PROCESS VS ATTRIBUTES

Albacouni et al. 2018; Melnyk et al., 2014; Salloch, 2017; Tilson et al., 2011



| process | attributes |
|---------|------------|
| Ask | Knowledge |
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| Appraise | Attitudes |
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Sackett et al., 1996; Salbach et al., 2013; Shaneyfelt et al., 2006; Shi et al., 2014

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Consensus Statement | Medical Education

# Core Competencies in Evidence-Based Practice for Health Professionals

## Consensus Statement Based on a Systematic Review and Delphi Survey

Loai Albarqouni, MD, MSc; Tammy Hoffmann, PhD; Sharon Straus, MD, MSc; Nina Rydland Olsen, PhD; Taryn Young, PhD; Dragan Ilic, PhD; Terrence Shaneyfelt, MD, MPH; R. Brian Haynes, MD, PhD; Gordon Guyatt, MD, MSc; Paul Glasziou, MBBS, PhD

**Whether these competencies are useful and operationalizable in medical education will depend upon:**

**1) a systematic stakeholder driven implementation into existing curricula and**

**2) longitudinal evaluation of EBM outcomes as clinicians transition to practice and beyond**

**Table 2. Final Set of EBP Core Competencies Grouped Into the Main EBP Domains**

| EBP Core Competencies | Rating |
|---|---|
| **0. Introductory** | |
| 0.1 Understand EBP defined as the integration of the best research evidence with clinical expertise and patient's unique values and circumstances[a] | E |
| 0.2 Recognize the rationale for EBP | M |
| This competency includes the need to recognize | |
| The daily clinical need for valid information to inform decision making, and the inadequacy of traditional sources for this information | M |
| The disparity between diagnostic skills and clinical judgment, which increase with experience, and up-to-date knowledge and clinical performance, which decline with age and experience | M |
| Lack of time to find and assimilate evidence as a clinician | M |
| The gaps between evidence and practice can lead to suboptimal practice and quality of care | M |
| The potential discordance between a pathophysiological and empirical approach to thinking about whether something is effective[a] | M |
| 0.3 For each type of clinical question, identify the preferred order of study designs, including the pros and cons of the major study designs[a] | E |
| This competency includes | |
| Classify the major study designs for each type of clinical question | E |
| 0.4 Practice the 5 steps of EBP: ask, acquire, appraise and interpret, apply, and ... | P |
| 0.5 Understand the distinction between using research ... | M |
| **1. Ask** | |
| 1.1 ... | E |
| ... | P |
| ... | P |
| ... | M |
| ... | P |
| ... | P |
| ... Boolean operators; truncation; and search filters for more efficient ... | E |
| ... ed by the major research databases | M |
| ... s to obtain the full text of articles and other evidence resources[a] | E |
| **3. Appraise and Interpret** | |
| 3.1 Identify key competencies relevant to the critical evaluation of the integrity, reliability, and applicability of health-related research | E |
| This competency includes | |
| Understand the difference between random error and systematic error (bias)[a] | E |
| Identify the major categories of bias and the impact of these biases on the results[a] | E |
| Interpret commonly used measures of uncertainty, in particular, confidence intervals[a] | P |
| Recognize that association does not imply causation and explain why[a] | E |
| Recognize the importance of considering conflict of interest and funding sources | M |
| Recognize the uses and limitations of subgroup analysis and how to interpret its results[a] | M |
| 3.2 Interpret different types of measures of association and effect, including key graphical presentations[a] | P |
| This competency includes | |
| Identify the basic types of data such as categorical and continuous[a] | E |
| Recognize the meaning of some basic frequency measures | M |
| Identify the difference between "statistical significance" and "importance," and between a lack of evidence of an effect and "evidence of no effect"[a] | E |

(continued)

# Results #3
## Robust methods for promoting EBM competencies



- +++ SRs on teaching effectiveness

- conceptual and methodological flaws

- few have delved into theoretical and epistemological challenges in EBP

- philosophy, social science, epidemiology, health sciences, clinicians

- relatively little impact on how EBM is presented in clinical environments

Ashcroft, 2004; Dizon, 2012; Djulbegovic et al., 2009;
Greenhalgh et al., 2014; Hutchison & Rogers, 2012; Larsen et al., 2019;
Rengerink et al., 2013; Sestini, 2010; Thomas et al., 2011; Wong et al., 2013;
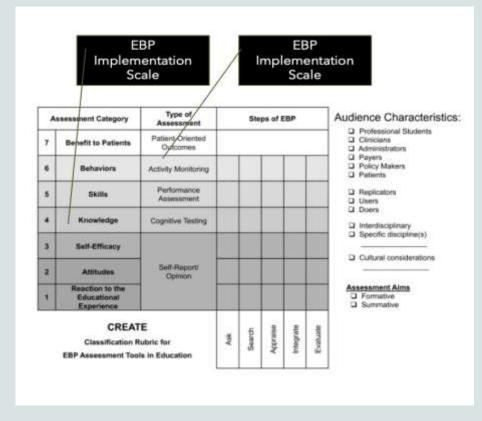Young et al., 2014.

# Results #4
## Using contemporary conceptualizations of assessment



Classification Rubric for EBM Assessment Tools in Education (CREATE)

Tilson et al., 2011

Rengerink et al. 2013

Norcini et al., 2018

St-Onge et al., 2018

Roberge-Dao et al., 2022

**System of Assessment**

coherent
continuous
comprehensive
feasible
purpose driven
transparent and free from bias
acceptable

LONGITUDINAL

Norcini et al., 2018
St-Onge et al., 2018

# Limits

Areas for consideration are not meant to be prescriptive or exhaustive

# Conclusion

Ways forward, so that as educators in HPE, we can continue to reflect on how we can be ensure that our future health care professionals embody and enact the core principles, vision and ethos of EBP.

Teachers and curriculum designers are invited to consider the need for, and the nature of a renewed agenda for teaching EBP such that if teaching and assessment methods in HPE have not kept up, we may begin to find ways to catch up.

# Thank you