Rethinking the Idea of Evidence in Evidence-based Policy & Practice (EBP)

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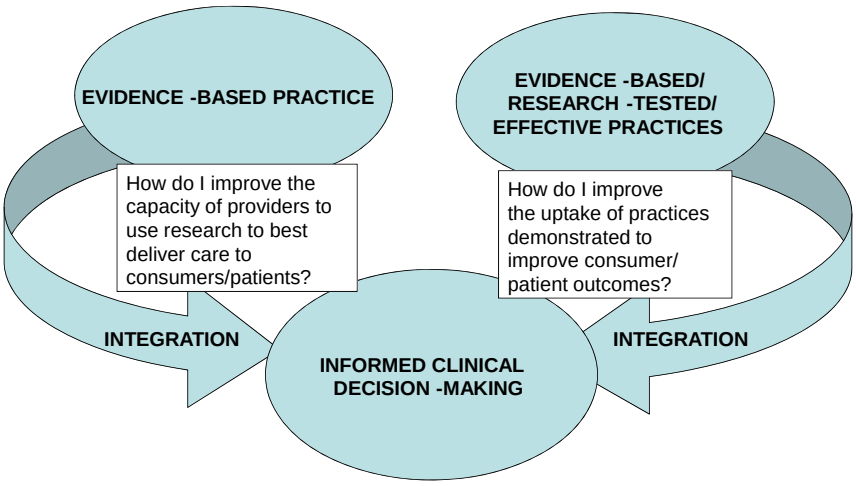
- Why this topic is important & timely
- What is evidence-based policy & practice?
- Ideas about evidence
  - Cross-disciplinary & multi-disciplinary perspectives
- Implications
  - Reformulation of EBP
  - Implications for researchers, reviewers, & guideline developers
  - Issues & challenges

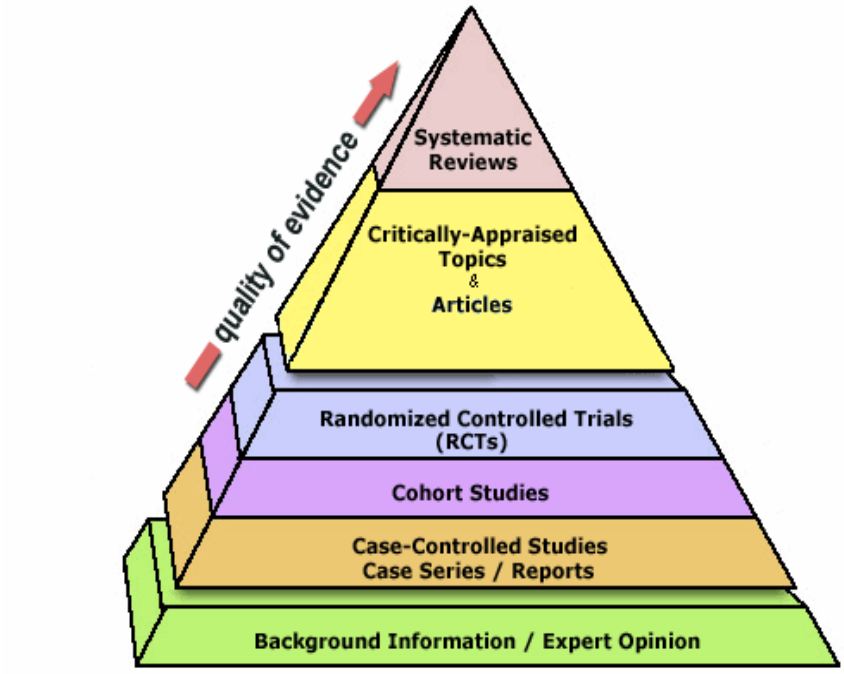
Chambers' Informed Clinical Decision-Making Model



Chambers' Informed Decision-making Model (proposed by David Chambers, Chief, Dissemination Research Program, NIMH, April 17, 2007; reproduced with permission from Institute for the Advancement of Social Work Research, 2007)

Transdisciplinary EBP Model

Satterfield, Spring, Brownson, Mullen, Newhouse, & Whitlock (2000) Toward a transdisciplinary model of evidence-based practice *Milbank Quarterly*, 87(2):368–390.



Cross-disciplinary Ideas about Evidence

- *Evidence, inference and enquiry: Towards an integrated science of evidence* - University College London
- "Notwithstanding differences --- all of our projects involve, as part of the enterprise, drawing inferences from evidence to test hypotheses and justify conclusions and that the logic of this kind of inquiry is governed by the same principles." (Twining, 2012)
- Substance blind science of evidence which has at its core a scheme for classifying evidence in terms of inferential properties. (Schum, 2012)
  - Relevance
  - Credibility
  - Recurrent combinations
    - data: "… only become evidence when their relevance to hypotheses being considered is established by defensible arguments or chains of reasoning."

Evidence in Anglo-American Common Law

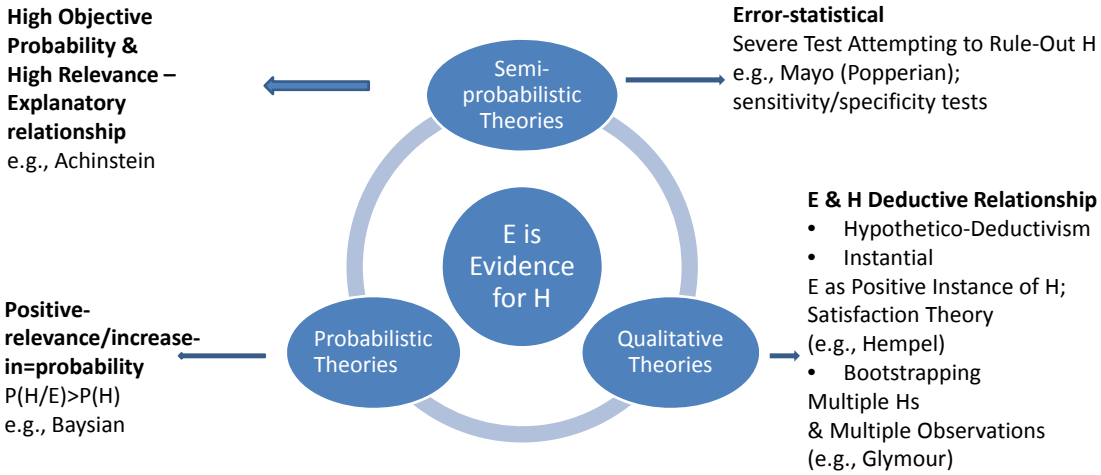
- 'Evidence' is a word of relation used in the context of argumentation. --- information has a potential role as relevant evidence if it tends to support or tends to negate, directly or indirectly, a hypothesis ---. One draws inferences from evidence in order to prove or disprove a hypothesis ---. **The framework is argument, the process is proof, and the engine is inferential reasoning from information**. (Twining, 2003)
- Principles in a rationalist tradition:
  - Nothing is to be received which is not logically probative of some matter requiring to be proved [relevance]
  - Everything which is thus probative should come in, unless a clear ground of policy of law excludes it. (Thayer, 1898)

Evidence in Philosophy

•Little attention has been given to underlying sociological, epistemological & philosophical questions underpinning logic of scientific methods in EBM & health technology assessment, yet whole business gives rise to interesting & important issues. (Kelly & Moore, 2012)

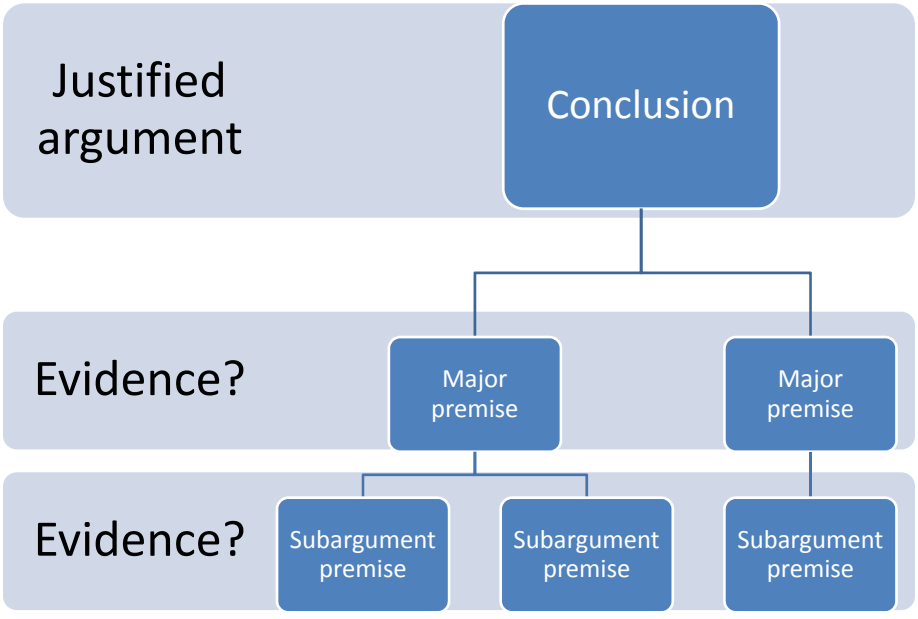
•Obviously medicine should be evidence-based. The issues lie in the details: what exactly counts as evidence? Do certain kinds of evidence carry more weight than others? (And if so why?) How exactly should medicine be based on evidence? When it comes to these details, EBM has got itself into a mess ---. In order to start to resolve this mess, we need to go 'back to basics'; & that means turning to philosophy of science. (Worrall, 2010)

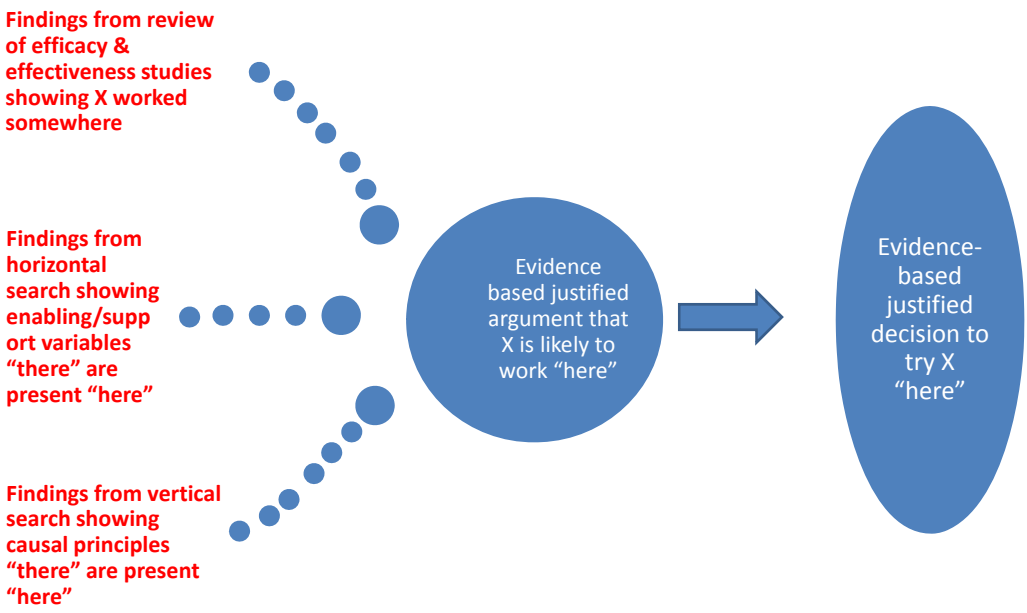
Theories of Evidential Relationship Providing Necessary & Sufficient Conditions for Truth Claims



Philosophy: Nancy Cartwright & Jeremy Hardie

- Questions policy makers need to address for policies to be warranted & evidence-based:
  - Did policy work there (somewhere with some specific setting, population, time - efficacy)?
  - Will policy work here (effectiveness)?
  - Is there a causal relationship between policy & outcomes (theory, logic model, program theory)?
  - What support factors must be in place for policy to work here?
  - Are all above assumptions warranted (evidence-based)?
  - Can answers be quantified into probabilities or at least into qualitative categories?





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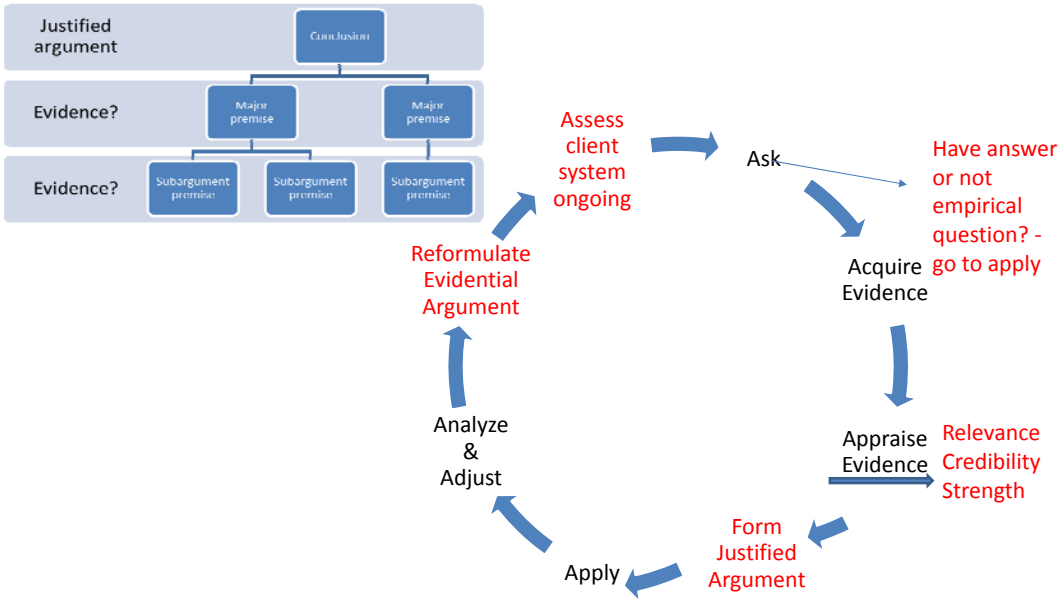
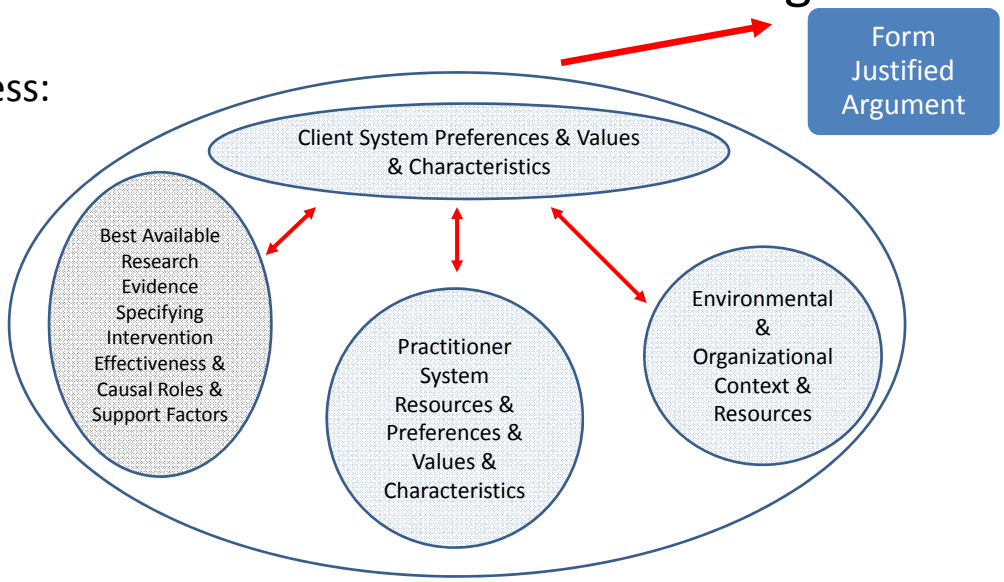
EBP Process Modified with Argument as 4th & 7th Step



Information Sources for Justified Argument

- Assess:



Comparative Effectiveness Research (CER) Options

Experimental Study Type

- Pragmatic Trial (PCT)
- Cluster RCT
- Crossover
- Delayed Start
- N=1 RCT

Observational Study Type

- Case-control
- Cohort
- Qualitative

Methods

- Adaptive Designs & Bayesian Methods
- New User Design
- Restriction
- Subgroup Analysis
- Instrumental Variable Methods
- Propensity Scores
- Sensitivity Analysis
- External Information
- Qualitative Analytic Methods

Adapted with permission from Velengtas, P., et al., Eds. (2012). Making informed decisions: assessing the strengths and weaknesses of study designs and analytic methods for comparative effectiveness research. Washington: DC, National Pharmaceutical Council

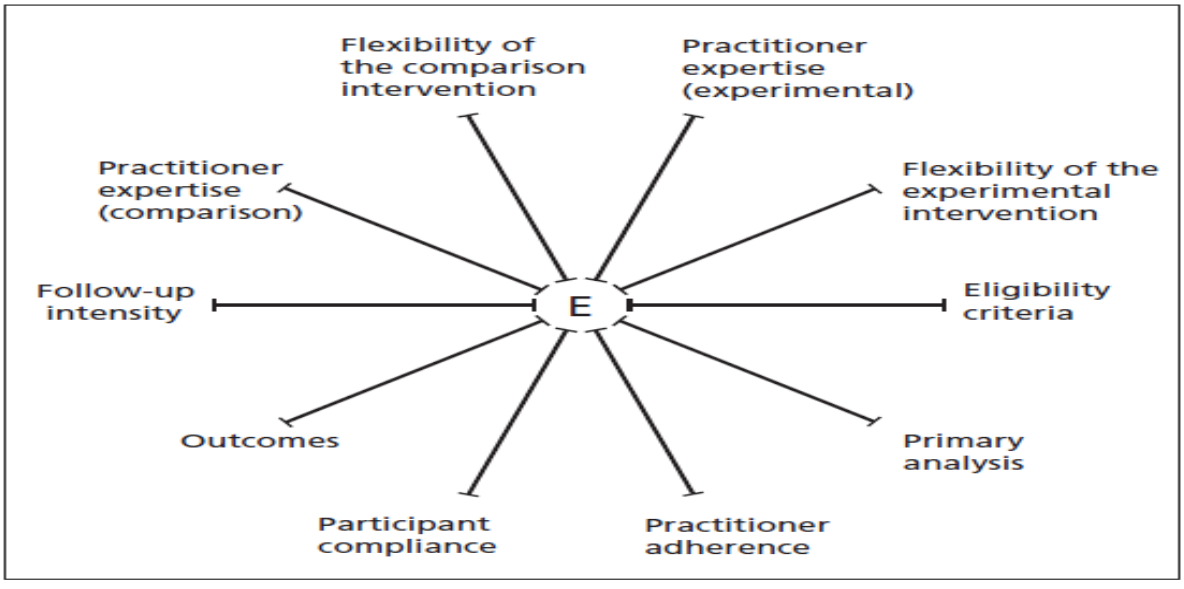
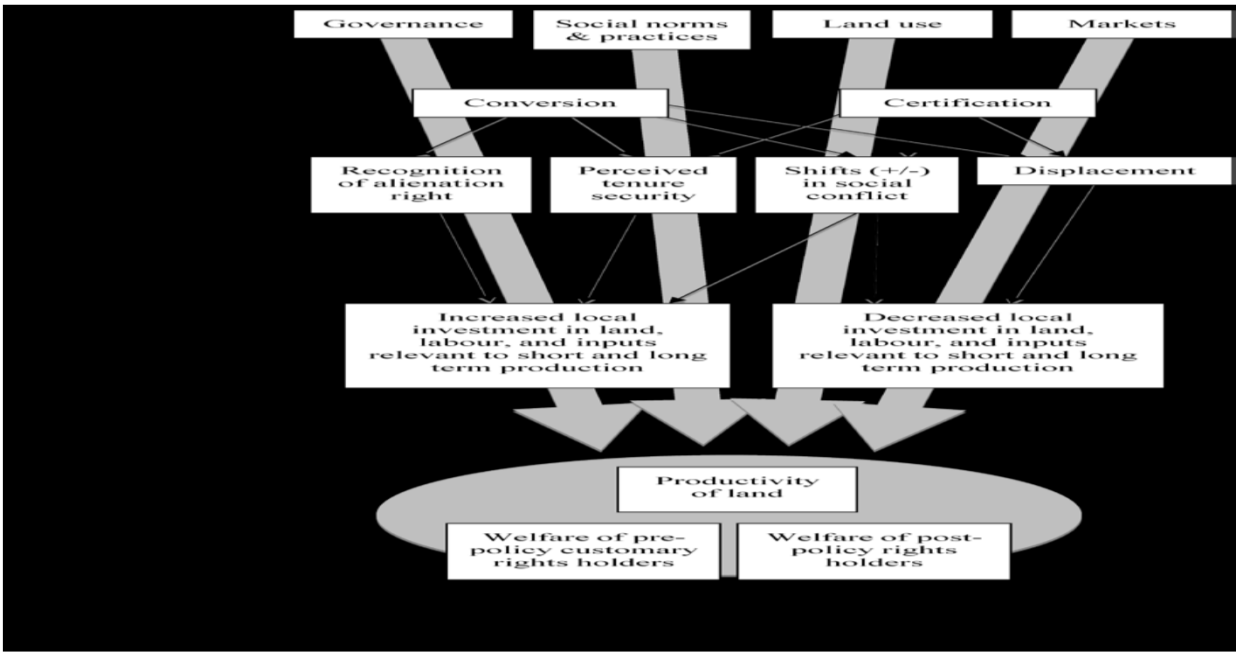
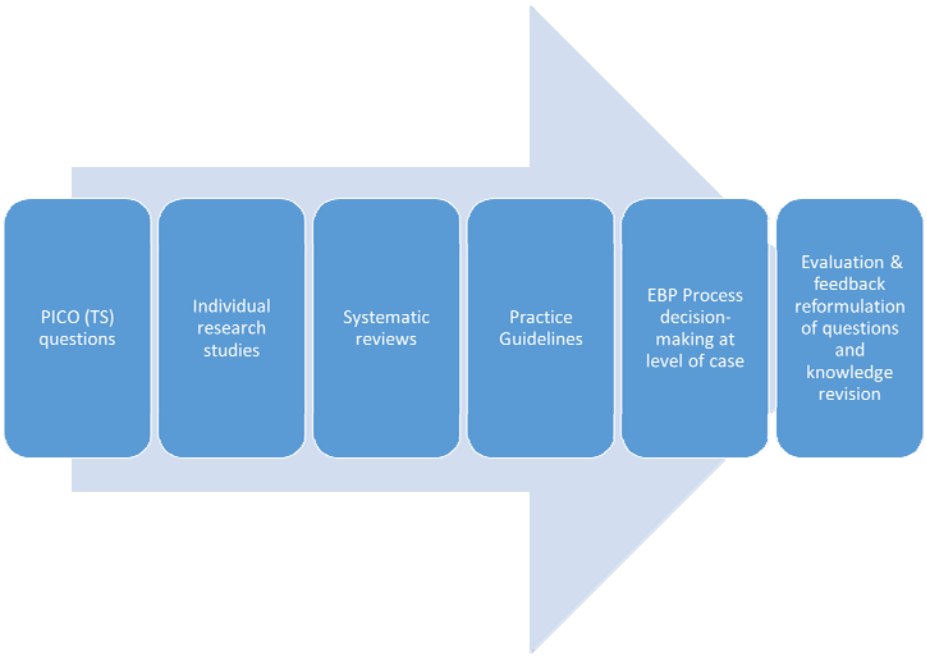


Figure 1: The blank "wheel" of the pragmatic–explanatory continuum indicator summary (PRECIS) tool. "E" represents the "explanatory" end of the pragmatic–explanatory continuum.



Lawry, S., Samii, C., Hall, R., Leopold, A., Hornby, D., & Mtero, F. (2014).

The Impact of Land Property Rights Interventions on Investment and Agricultural Productivity in Developing Countries: a Systematic Review.



Issues and Challenges

1. How to break loose from rigid hierarchical views of evidence & move toward more nuanced views?
2. How to replace such hierarchical views with broader, more inclusive views which retain adherence to evidentiary principles of relevance, credibility, & strength of evidence, placing test of relevance as prior to test of evidence quality?
3. How to move away from a view of evidence which treats isolated findings from outcome studies as "evidence" even though these finding have not been embedded into evidential arguments?
4. How to develop science & art of forming evidentiary arguments?
5. How to gather information about causal variables as well as support variables needed to form evidentiary arguments & to facilitate implementation of what works "there" to what might work "here?"
6. How to move from an exclusive focus on RCTs to CER strategies, designs, & methods?