PRECEDE-PROCEED & RE-AIM
as Frameworks for
Practice-Based Planning and Evaluation

If We Want More Evidence-Based Practice, We Need More Practice-Based Evidence

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The Need to Expand Upon Guidelines

- Evidence-based public health and medicine highlight gaps between science and practice

- Meta-analyses and systematic reviews that produce practice guidelines typically:
  - concentrate on *strength of evidence*:
    - typically from randomized controlled trials
  - discount *weight of evidence* - indirect evidence from:
    - Quasi or non-experimental studies/data
    - Practitioner experiences and evaluations
    - Cumulative wisdom from systematic analysis of these and understanding situations in which they would be applied
The World View of Practitioners

- Many non-scientists give greater credence to the weight of evidence:
  - Judicial and regulatory agencies
    - No single study of behavior or social change can establish causation
  - Practitioners
    - Learn from each other, build on previous experience, look for similarities in context
    - Oral health: 16 objectives vs 3 TFCPS guidelines
- What fuels these differences in outlook?
Scientists typically emphasize internal validity over external validity; practitioners need both:

- **Internal validity** (the essence of rigor)
  - Are we measuring what we purport to measure?
  - Essential for knowing what is responsible for our results
  - Without internal validity, external validity is irrelevant

- **External validity** (the essence of relevance)
  - **Generalizability** (important to policy-/decision-makers):
    - How applicable is this to the range of real-world settings and situations?
  - **Specificity** (important to practitioners, communities):
    - Will following guidelines based on highly controlled studies, with select populations, work in my situation?

The Challenges…

1. The evidence-based practice movement needs to direct some energy and resources to developing and applying criteria and measures of external validity.

2. “Where did the field get the idea that evidence of an intervention’s efficacy from carefully controlled trials could be generalized as the “best practice” for widely varied populations and settings?”

### “Law of halves”

e.g., ULTIMATE IMPACT OF MAGIC PILL

<table>
<thead>
<tr>
<th>Dissemination Step</th>
<th>Concept</th>
<th>% Impacted</th>
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</thead>
<tbody>
<tr>
<td>50% of Clinics Use</td>
<td>Adoption</td>
<td>50%</td>
</tr>
<tr>
<td>50% of Clinicians Prescribe</td>
<td>Adoption</td>
<td>25%</td>
</tr>
<tr>
<td>50% of Patients Accept Medication</td>
<td>Reach</td>
<td>12.5%</td>
</tr>
<tr>
<td>50% Follow Regimen Correctly</td>
<td>Implementation</td>
<td>6.2%</td>
</tr>
<tr>
<td>50% of Those Taking Correctly Benefit</td>
<td>Effectiveness</td>
<td>3.2%</td>
</tr>
<tr>
<td>50% Continue to Benefit After 6 Months</td>
<td>Maintenance</td>
<td>1.6%</td>
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</tbody>
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Suggested References


Design Issues for Translating Research to Practice & Policy (& vice versa)

- Making practice more evidence-based
- Setting research & evaluation priorities
- Making research findings actionable, usable, relevant (to whom?)
- Disseminating & translating research to local circumstances, cultures, and personnel
- Making evidence more practice-based
The “Pipeline” Conceptualization of Research to Practice*

“It takes 17 years to turn 14 per cent of original research to the benefit of patient care”

Original research

18% Dickersin, 1987

Submission

46% Koren, 1989

Acceptance

0.5 year Kumar, 1992

Publication

0.6 year Kumar, 1992

17:14

Bibliographic databases

0.3 year Poyer, 1982

6.0 - 13.0 years Antman, 1992

Reviews, guidelines, textbook

9.3 years

Implementation

Negative results

Lack of numbers

Inconsistent indexing

Expert opinion

It takes 17 years to turn 14 per cent of original research to the benefit of patient care.
Bridging the Chasm as Conceived by the U.S. Translation Agency*

Practice is here

We want it to be here

Innovation
Implementation
Adoption
Education
Diffusion
TRIP

Reminiscent of the “Fallacy of the Empty Vessel” from early health education

Evidence-Based Public Health

Information of importance to **community choice** that is not even potentially of “evidence-based type.”

Area where there is currently “good evidence-based” information of importance to **communities** in making choices.

- **A** “Good evidence”
- **B** Potential for “good evidence”
- **C** Information of potential importance to communities in making health choices
3 Conceptualizations of the Gap Between Research & Practice

- Practitioners need to receive the lessons of research and put them into practice.
- Research and practice are entirely separate disciplines and each must develop their own answers to their own problems.
- Research and practice have complementary perspectives and skills that need to be used together to address the real need, collaborative knowledge production.
- Add to this the need to include the patient’s perspective. Whose perspective prevails?

The Internal Validity Drift of Health Sciences Evidence “Lost in Translation”

- Evidence-based medicine movement taken to scale in community health
- The peer review preferences for experimental control and certainty of causation
- The publishing preferences for RCTs and positive results
- The limitations of print space driving out richer description of interventions, protocols, procedural lessons, subgroup variations
- But a more “natural” type of public health evidence has greater influence on multi-level program planning, practice & policy...
Issues for Evidence-Based Practice and Translating Research to Practice

- Making practice more evidence-based
- Setting research priorities
- Making research findings actionable, usable, relevant within settings
- Translating research from outside to local circumstances, cultures, personnel
- Making evidence more practice-based
Some Benefits of Participatory Research in Practice-Based Evidence

- Results are relevant to interests, circumstances, and needs of those who would apply them
- Results are more immediately actionable in local situations for people and/or practitioners
- Generalizable findings more credible to people, practitioners and policy makers elsewhere because they were generated in partnership with people like themselves
- Helps to reframe issues from health behavior of individuals to encompass system and structural issues.

Definition and Standards of Participatory Research for Health*

Systematic investigation…
Actively involving people in a co-learning process…
For the purpose of action conducive to health**

--not just involving people more intensively as *subjects* of research or evaluation

Layers of Collaboration in Participatory Research

- Basic & applied
- Action research
- PAR in practice
- PAR on health needs of patients, families
- PAR on other needs

Traditionally defined researchers
Practitioners, Service providers
Patients, Families, Community


Reconciling Perceived Needs, “Actual Needs,” & Resources

People’s perceived needs, priorities

“Actual needs”

Action

Health Education

Participatory Research

Community organization & capacity development (e.g., Chris Economos & Boyd Swinburn trials)

Resources, feasibilities, policy
Issues for Evidence-Based Practice and Translating Research to Practice

- Making practice more evidence-based
- Setting research priorities
- Making research findings actionable, usable, relevant: participatory research
- Translating research to local circumstances: External validity & “fidelity” vs adaptation
- Making evidence more practice-based
Not starting with theory and looking for problems on which to test them, but starting with problems and looking for theories to help us solve them*

Evidence on solutions generalizes to other circumstances, settings, & populations in the form of either replication or theory

Replication is limited by the infinite number of context-population combinations

"In theory, theory and practice are the same thing. In practice they're not..“ - Jan L.A. van de Snepscheut

“All models are wrong. Some are useful” -- Box

“Fidelity” vs Adaptation

- Researchers test an intervention for its efficacy
- Rigorous test qualifies the study for official lists of “evidence-based practices” and guidelines
- Practitioners try to incorporate it into their programs
- Poor fit produces failure of program
- Practitioners are blamed for not implementing with “fidelity”
- Now buy the producers’ training program
Issues for Evidence-Based Practice and Translating Research to Practice

- Making practice more evidence-based
- Setting research priorities
- Making research findings actionable, usable, relevant: participatory research
- Translating outside research to local circumstances
- Making evidence more practice-based
Efficacy vs. Effectiveness:

- **Efficacy.** The tested impact of an intervention under highly controlled circumstances.

- **Effectiveness.** The tested impact of an intervention under more normal circumstances (relatively less controlled, real-time, “typical” setting, population, and conditions).

- **Broad Program Evaluation.** The tested impact of a blended set of interventions on larger systems and populations. “Natural Experiments” with minimal control, maximum variability.
The Trade-offs

- **Efficacy.** Maximizes *internal validity*, i.e., the degree to which one can conclude with confidence that the intervention caused the result.

- **Effectiveness.** Maximizes *external validity*, i.e., the degree to which one can generalize from the test to other times, places, or populations.

- **Program Evaluation.** Maximizes reality testing in particular settings, & with the combination of interventions at multiple levels required for public health effect.

Practice-Based Research Networks (PBRNs)

36 new PBRN grants awarded in 2002
19 PBRN grants awarded in 2000
Aligning Evidence with (and deriving it from) Practice: Matching, Mapping, Pooling and Patching

- **Matching** ecological levels of a system or community with evidence of *efficacy* for interventions at those levels
- **Mapping** theory to the causal chain to fill gaps in the evidence for *effectiveness* of interventions
- **Pooling** experience to blend interventions to fill gaps in evidence for the effectiveness of programs in similar situations
- **Patching** pooled interventions with indigenous wisdom and professional judgment about plausible interventions to fill gaps in the *program* for the specific population

From the All-Time Transdisciplinary Scientist and Innovator:

- “I have been impressed with the urgency of doing. Knowing is not enough, we must apply.”
  --Leonardo da Vinci

- To generate usable knowledge for multi-component behavioral change interventions, we can either build it component-by-component with RCTs.

- Or we can draw it from the natural experiments offered by practice and policy innovations.

- Or both
The Bridge (not the Pipeline) from Research to Practice and Back

- If we want more evidence-based practice, we need more practice-based evidence.
- The importance of practitioners and policymakers in shaping the research questions.
- Practitioners and their organizations represent the structural links (and barriers) to addressing the important determinants at each level. Engage them.