DEFINING DISSEMINATION AND IMPLEMENTATION RESEARCH QUESTIONS AND SPECIFIC AIMS

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Overview

- Identifying D&I Research Questions
- Writing proposals for D&I research
Types of D&I Research Questions

- Questions about factors influencing adoption, implementation, and sustainability of evidence based programs, policies, practices (or other health care innovations).

  - Testing of models or frameworks; relationships between constructs; predictors of implementation outcomes; measurement studies
Types of D&I Research Questions (cont.)

- Questions related to the development and evaluation of strategies (or groups of strategies) to increase adoption, implementation, and sustainability.
- Questions related to scale-up
- Questions related to sustainability
Key Implementation Research Questions

- What factors influence the implementation of the evidence-based intervention in a particular setting?
- What are the most effective techniques to improve the distribution and receipt of evidence?
- What are the most effective strategies to incorporate new discoveries and evidence-based practices into care delivery?
- How do contextual factors influence implementation success or failure?
- How can contextual factors be modified to increase chances of success?
- What are the most effective techniques to de-implement practices that are no longer effective or were never effective in the first place?
Research questions related to sustainment

- Why do established programs lose effectiveness over time?
- What factors influence sustainability?
- How can sustainability or health maintenance be achieved?
Policy implementation research questions:

- What specific policy or intervention was put into place by the implementers in order to address the NCD issue being tackled?
- To what extent was the policy or intervention implemented as intended?
- To what extent was the policy or intervention adopted by implementers?
- What factors influenced how well a policy or intervention was implemented?
- To what extent did these factors influence how well a policy or intervention is implemented?
- What is the association between the health outcomes (i.e. effectiveness) of a policy or intervention and how well this is implemented?
- Was the implementation approach that was used cost effective?
## Type of implementation research objective, implementation question, and research methods

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
<th>Implementation question</th>
<th>Research methods and data collection approaches</th>
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<tbody>
<tr>
<td>Explore</td>
<td>Explore an idea or phenomenon to make hypotheses or generalisations from specific examples</td>
<td>What are the possible factors and agents responsible for good implementation of a health intervention? For enhancing or expanding a health intervention?</td>
<td>Qualitative methods: grounded theory, ethnography, phenomenology, case studies and narrative approaches; key informant interviews, focus groups, historical reviews</td>
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<tr>
<td>Describe</td>
<td>Identify and describe the phenomenon and its correlates or possible causes</td>
<td>What describes the context in which implementation occurs? What describes the main factors influencing implementation in a given context?</td>
<td>Quantitative: cross sectional (descriptive) surveys, network analysis</td>
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<td>Influence</td>
<td>Test whether an intervention produces an expected outcome</td>
<td>Is coverage of a health intervention changing among beneficiaries of the intervention?</td>
<td>Before-after or time series in intervention recipients only; participatory action research</td>
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<td>With adequacy</td>
<td>With sufficient confidence that the intervention and outcomes are occurring</td>
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<td>With plausibility</td>
<td>With greater confidence that the outcome is due to the intervention</td>
<td>Is a health outcome plausibly due to the implemented intervention rather than other causes?</td>
<td>Concurrent, non-randomised cluster trials: health intervention implemented in some areas and not in others; before-after or cross sectional study in programme recipients and non-recipients; typical quality improvement studies</td>
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<td>With probability</td>
<td>With a high (calculated) probability that the outcome is due to the intervention</td>
<td>Is a health outcome due to implementation of the intervention?</td>
<td>Partially controlled trials: pragmatic and cluster randomised trials; health intervention implemented in some areas and not in others; effectiveness-implementation hybrids</td>
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<td><strong>Explain</strong></td>
<td>Develop or expand a theory to explain the relation between concepts, the reasons for the occurrence of events, and how they occurred</td>
<td>How and why does implementation of the intervention lead to effects on health behavior, services, or status in all its variations?</td>
<td>Mixed methods: both qualitative and quantitative inquiry with convergence of data and analyses</td>
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<td>Quantitative: repeated measures of context, actors, depth and breadth of implementation across subunits; network identification; can use designs for confirmatory inferences; effectiveness-implementation hybrids</td>
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<td>Qualitative methods: case studies, phenomenological and ethnographic approaches with key informant interviews, focus groups, historical reviews</td>
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<td>Participatory action research</td>
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<td><strong>Predict</strong></td>
<td>Use prior knowledge or theories to forecast future events</td>
<td>What is the likely course of future implementation?</td>
<td>Quantitative: agent based modelling; simulation and forecasting modelling; data extrapolation and sensitivity analysis (trend analysis, econometric modelling)</td>
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Locating yourself on the “subway line” of translational research

Community-based participatory research (CBPR) and D&I

- CBPR is a research approach that emphasizes dialogue between the community and researchers and co-ownership of research.
- CBPR includes stakeholders such as community organizations, community clinics and health centers, social service agencies, faith-based organizations, and lay health workers.
Community-based participatory research (CBPR) and D&I

- CBPR is a natural fit with D&I, as it can:
  - Ensure scientific discoveries and innovations “fit” with the population they were design for (external validity) so that they can get widely use in practice and be sustainable
  - Speed the dissemination of innovations, as community partners can disseminate to their networks, which may include potential adopters and implementers of the innovation
  - Partners who adopt and implement the innovation can serve as role models to others considering adoption of the innovation
CBPR conceptual model

Models of effective CBPR consider similar constructs and determinants of success as D&I research.

Advice for Writing Winning Implementation Research Proposals
Proposal for D&I Research

Does the applicant...

- State the general problem and their unique contribution?
- State realistic aims expressed in a logical order but still independent?
- Use simple language to describe what will be accomplished - not how?
- Describe how they will accomplish your aims (approach)?
- Summarize the importance of the proposed study?
  - Implications
  - How the study will advance knowledge and improve health

Adapted from: Ross C. Brownson, Washington University in St. Louis: Extending the Reach of Epidemiology through Dissemination and Implementation Research: An Introduction to Implementation Science; Epidemiology Congress of the Americas 2016 Conference Workshop; June 22, 2016
10 Key Ingredients for Writing Implementation Research Proposals

1) The gap or need— Does the applicant provide clear evidence that a gap in quality exists? Gaps could be measured at population-, organization-, or provider-level.

2) Evidence based treatment or intervention to be implemented – Does the applicant demonstrate evidence for what you plan to implement? Is your intervention superior to a placebo or other type of treatment?

What do we mean by evidence?

- Evidence-based interventions
  - The objects of dissemination and implementation are interventions with proven efficacy and effectiveness.
  - To some degree “evidence” is in the eye of the beholder

Brownson describes 4 levels of evidence:

- Evidence-based (review of multiple studies)
- Effective (peer reviewed study)
- Promising (written program evaluation)
- Emerging (on-going work or practice-based summary)

3) Conceptual model and theoretical justification — Does the applicant use a theory, system, or framework to inform the design or variables you have chosen?

4) Stakeholder priorities, engagement in change — Does the applicant provide a clear engagement process for stakeholders? Letters of intent are not enough.

5) Setting’s readiness to adopt new services/treatments/programs — Does the applicant provide clear information about the setting’s willingness to change? Preliminary data on organizational or policy context can strengthen an application.

10 Key Ingredients (cont.)

6) Implementation strategy/process — Does the applicant clearly justify the strategies you wish to implement? Strategies should be multifaceted or multilevel, if necessary; robust or adaptable; feasible and acceptable to stakeholders; saleable, trialble, and observable; sustainable; and scalable.

7) Team experience with the setting, treatment, implementation process — Does the applicant provide enough detail about team’s experience? Does your research team bring depth and experience your PI, alone, may not have? Diverse disciplines and skill sets can enhance a project.

8) Feasibility of proposed research design and methods – Does the applicant have a detailed methods section? Do they provide alternatives if your plans do not pan out? One of the most important functions of preliminary work is to demonstrate feasibility of a program.

9) Measurement and analysis section – Do the key constructs align with the theory/model you have chosen? Is there a measurement plan for each construct? – Does the applicant demonstrate how relationships between the constructs will be tested?

10) Policy/funding environment; leverage or support for sustaining change – Does the applicant address how implementation aligns with policy? Policy can be addressed in the narrative, background literature, letters of support, and/or resource and environment sections.
Dissemination and implementation grant application core competencies, derived from card sorting, 2014.

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<td><strong>Human Subjects</strong></td>
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*Statement skill rating: B = beginner; I = intermediate; A = advanced*

Research Questions

- What is the reach, effectiveness, adoption, implementation, impact, and maintenance of the proposed intervention? What is the intervention effect on clinic and county CRCS rates? (RE-AIM)
- What is the level of organizational readiness at the clinics?
- What contextual factors (from CFIR) that influence level of implementation?
- What are the mediators and moderators of adoption and implementation?
- What organizational and contextual factors influence sustainability?
D&I research questions include those related to:

- factors influencing adoption, implementation, and sustainability of evidence based programs, policies, practices (or other health care innovations).

- questions related to models or frameworks; relationships between constructs; predictors of implementation outcomes; measurement studies

- the evaluation of implementation strategies

- questions related to scale-up

- questions related to sustainability
Successful D&I grant applications should include attention to “key ingredients”- some of which are different from other types of grants.

D&I research can help us understand and intervene to accelerate the use of evidence and innovations to increase the impact of research on health and quality of life.