Dissemination and Implementation Models

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Overview

• D&I Models defined
• Small group exercise
• Review of existing D&I Models
• Resource demo: D&I Models for Research & Practice website
• Take home points
Theories present a systematic way of understanding events or behaviors by providing inter-related concepts, definitions, and propositions that explain or predict events by specifying relationships among variables. They are abstract, broadly applicable and not content- or topic-specific.

Frameworks are strategic or action-planning models that provide a systematic way to develop, manage, and evaluate interventions.

Models is used to describe theories and frameworks collectively.

Small group exercise

Work in groups of 3 or 4 using quick brainstorming approach to generate a list of responses to the following questions. Think about the full spectrum of the research process. (10 minutes)

- How and why use of D&I models can be helpful/important?

- What are some challenges that one might encounter when trying to use D&I models?

Be prepared to share these ideas with the larger group (5 minutes).
Characteristics of strong D&I studies

1. **Significance:** The proposal meets the goal of D&I PAR to improve practice through research.

2. **Use of mixed methods:** The proposal utilizes mixed methods (quantitative and qualitative), as encouraged by the PAR.

3. **Sampling strategy and selection criteria:** Regardless of the method, sampling strategies and selection criteria are well-articulated and justified.

4. **Sustainability:** The proposal addresses the sustainability of the project or innovation.

5. **Feasibility and Generalizability:** D&I is concerned with real-world applicability of interventions and innovation. Strong proposals promote interventions that are feasible and practical for real-world settings.

6. **Targeting diverse, underserved and understudied populations and settings.**

7. **Potential for advancing the methods for dissemination and implementation.**

8. **Community Collaboration:** To be relevant to real-world settings, D&I research must foster collaboration with communities and community-based organizations.

9. **Strong Study Teams:** Proposals feature strong, experienced, inter-disciplinary study teams.

10. **Conceptual frameworks:** proposals present relevant and specific frameworks, theories or models to guide their work.

**+2 weaknesses:**

1. The proposal fails to clearly articulate its overall significance, aims, relevance to the field of D&I, or generalizability to broader settings and populations.

2. The proposal fails to adequately articulate its framework, theoretical background and conceptual models.

Content analysis of funded NCI IS grants: [http://cancercontrol.cancer.gov/IS/pdfs/DandIPAR-Grant-FundedContentAnalysis.pdf](http://cancercontrol.cancer.gov/IS/pdfs/DandIPAR-Grant-FundedContentAnalysis.pdf)
### Ten key ingredients of D&I research proposals #1-6

<table>
<thead>
<tr>
<th>Proposal Ingredient</th>
<th>Key Question</th>
<th>Review Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The care gap or quality gap</td>
<td>The proposal has clear evidence that a gap in quality exists?</td>
<td>Significant impact</td>
</tr>
<tr>
<td>2. The <strong>evidence based</strong> treatment to be implemented</td>
<td>Is the evidence for the program, treatment, or set of services to be implemented demonstrated?</td>
<td>Significance innovation</td>
</tr>
<tr>
<td>3. Conceptual model and theoretical justification</td>
<td>The proposal delineates a <strong>clear conceptual framework/theory/model</strong> that informed the design and variables being tested?</td>
<td>Approach innovation</td>
</tr>
<tr>
<td>4. Stakeholder priorities, engagement in change</td>
<td>Is there a clear engagement process of the stakeholders in place?</td>
<td>Significance impact Approach Environment</td>
</tr>
<tr>
<td>5. Setting’s readiness to adopt new services/treatments/programs</td>
<td>Is there clear information that reflects the settings readiness, capacity, or appetite for change, specifically around adoption of the proposed evidence-based treatment?</td>
<td>Impact Approach Environment</td>
</tr>
<tr>
<td>6. Implementation and strategy/process</td>
<td>Are the <strong>strategies to implement</strong> the intervention clearly defined, and justified conceptually?</td>
<td>Significance impact innovation</td>
</tr>
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What can they do:

- Ensure inclusion of essential D&I strategies
- Enhance the interpretability of study findings
- Provide systematic structure for the development, management, and evaluation of interventions/D&I efforts
- Models suggest what is important to measure
- Provide explanation why an intervention works (or doesn’t work)

Bridging Research and Practice:
Models for Dissemination and Implementation Research
Rachel G. Tabak, PhD, Elaine C. Khoong, BS, David Chambers, DPhil, and Ross C. Brownson, PhD
Prevention Research Center in St. Louis, Brown School, (Tabak, Khoong, Brownson), Division of Public Health Sciences and Alvin J. Siteman Cancer Center, School of Medicine, (Brownson), Washington University in St. Louis, St. Louis, Missouri; National Institute of Mental Health (Chambers), NIH, Bethesda, Maryland

Abstract

Context—Theories and frameworks (hereafter called models) enhance dissemination and implementation (D&I) research by making the spread of evidence-based interventions more likely. This work organizes and synthesizes these models by: (1) developing an inventory of models used in D&I research; (2) synthesizing this information; and (3) providing guidance on how to select a model to inform study design and execution.

Evidence acquisition—This review began with commonly cited models and model developers and used snowball sampling to collect models developed in any year from journal articles, presentations, and books. All models were analyzed and categorized in 2011 based on three author-defined variables: construct flexibility, focus on dissemination and/or implementation activities (D/I), and the socio-ecological framework (SEF) level. Five-point scales were used to rate construct flexibility from broad to operational and D/I activities from dissemination-focused to implementation-focused. All SEF levels (system, community, organization, and individual) applicable to a model were also extracted. Models that addressed policy activities were noted.

Evidence synthesis—Sixty-one models were included in this review. Each of the five categories in the construct flexibility and D/I scales had/contained at least four models. Models were distributed across all levels of the SEF; the fewest models (n=8) addressed policy activities. To assist researchers in selecting and utilizing a model throughout the research process, the authors present and explain examples of how models have been used.

Conclusions—These findings may enable researchers to better identify and select models to inform their D&I work.

A Thematic Analysis of Theoretical Models for Translational Science in Nursing: Mapping the Field
Sandra A. Mitchell, CRNP, PhD, AOCN®1, Cheryl A. Fisher, RN-BC, EdD1, Clare E. Hastings, RN, PhD, FAAN1, Leanne B. Silverman, BA1, and Gwyneth R. Wallen, RN, PhD1
1Clinical Center, National Institutes of Health, Bethesda, MD

Abstract

Background—The quantity and diversity of conceptual models in translational science may complicate rather than advance the use of theory.

Purpose—This paper offers a comparative thematic analysis of the models available to inform knowledge development, transfer, and utilization.

Method—Literature searches identified 47 models for knowledge translation. Four thematic areas emerged: (1) evidence-based practice and knowledge transformation processes; (2) strategic change to promote adoption of new knowledge; (3) knowledge exchange and synthesis for application and inquiry; (4) designing and interpreting dissemination research.

Discussion—This analysis distinguishes the contributions made by leaders and researchers at each phase in the process of discovery, development, and service delivery. It also informs the selection of models to guide activities in knowledge translation.

Conclusions—A flexible theoretical stance is essential to simultaneously develop new knowledge and accelerate the translation of that knowledge into practice behaviors and programs of care that support optimal patient outcomes.

Keywords
Translational science; evidence-based practice; knowledge translation; dissemination research; theory
Disseminating research findings: what should researchers do? A systematic scoping review of conceptual frameworks

Paul M Wilson¹, Mark Petticrew², Mike W Calnan³, Irwin Nazareth⁴

Abstract

Background: Addressing deficiencies in the dissemination and transfer of research-based knowledge into routine clinical practice is high on the policy agenda both in the UK and internationally. However, there is lack of clarity between funding agencies as to what represents dissemination. Moreover, the expectations and guidance provided to researchers vary from one agency to another. Against this background, we performed a systematic scoping to identify and describe any conceptual/organising frameworks that could be used by researchers to guide their dissemination activity.

Methods: We searched twelve electronic databases (including MEDLINE, EMBASE, CINAHL, and PsycINFO), the reference lists of included studies and of individual funding agency websites to identify potential studies for inclusion. To be included, papers had to present an explicit framework or plan either designed for use by researchers or that could be used to guide dissemination activity. Papers which mentioned dissemination (but did not provide any detail) in the context of a wider knowledge translation framework were excluded. References were screened independently by at least two reviewers; disagreements were resolved by discussion. For each included paper, the source, the date of publication, a description of the main elements of the framework, and whether there was any implicit/explicit reference to theory were extracted. A narrative synthesis was undertaken.

Results: Thirty-three frameworks met our inclusion criteria, 20 of which were designed to be used by researchers to guide their dissemination activities. Twenty-eight included frameworks were underpinned at least in part by one or more of three different theoretical approaches, namely persuasive communication, diffusion of innovations theory, and social marketing.

Conclusions: There are currently a number of theoretically-informed frameworks available to researchers that can be used to help guide their dissemination planning and activity. Given the current emphasis on enhancing the uptake of knowledge about the effects of interventions into routine practice, funders could consider encouraging researchers to adopt a theoretically-informed approach to their research dissemination.
Wealth of existing models for D&I:
- 61 with research focus (Tabak et al., 2012)
- additional 20 with practitioner/clinician focus (Mitchell et al., 2010)
- 33 frameworks from UK perspective (Wilson et al. 2010)
## Models utilized in D&I R01s

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency (%)</th>
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</thead>
<tbody>
<tr>
<td>Rogers’ Diffusion of Innovations + RE-AIM</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Nonspecific reference</td>
<td>2 (4%)</td>
</tr>
<tr>
<td>Rogers’ DOI alone or in combination with other</td>
<td>5 (11%)</td>
</tr>
<tr>
<td>RE-AIM alone or in combination</td>
<td>7 (15%)</td>
</tr>
<tr>
<td>Specific theory/framework:</td>
<td>9 (20%)</td>
</tr>
<tr>
<td>- Cooperation Extension System</td>
<td></td>
</tr>
<tr>
<td>- Community Readiness Model</td>
<td></td>
</tr>
<tr>
<td>- Quality Assurance Model (2)</td>
<td></td>
</tr>
<tr>
<td>- Self-regulation Theory of Health Behavior</td>
<td></td>
</tr>
<tr>
<td>- Collaborative Depression Care Model</td>
<td></td>
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<tr>
<td>- Cognitive Behavioral Theory</td>
<td></td>
</tr>
<tr>
<td>- Advanced Recovery Theory</td>
<td></td>
</tr>
<tr>
<td>- Program Change Model</td>
<td></td>
</tr>
<tr>
<td>No theory/framework</td>
<td>22 (48%)</td>
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Tinkle et al. Nursing Res and Practice, 2013
To learn more (temporary address):
http://dissemination-implementation.org/
Model Categories

Construct Flexibility (CF)

1: Broad
Loosely outlined and defined constructs; allows researchers greater flexibility

2

3

4

5: Operational
Detailed, step-by-step actions for D&I research

Dissemination and / or Implementation (D/I)

D only
Focus on active approach of spreading EBIs to target audience via determined channels using planned strategies

D > I
Equal focus on dissemination and implementation

D = I

I > D

I only
Focus on process of putting to use or integrating evidence-based interventions within a setting

Socio-ecological Framework (SEF)

System: Hospital system, government

Community: Local government, neighborhood

Organization: Hospitals, service organizations, factory

Individual: Personal characteristics
Select

- **Construct flexibility:**
  
  *Broad*
  
  1: 7
  2: 44
  3: 78
  4: 68

  *Operational*
  
  5: 70

- **D and/or I:**
  
  D only: 12
  D>I: 28
  D=I: 22
  I>D: 7
  I only: 17
<table>
<thead>
<tr>
<th>Model</th>
<th># of citation for main reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffusion of Innovation</td>
<td>39,364</td>
</tr>
<tr>
<td>Streams of Policy Process</td>
<td>8,091</td>
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<tr>
<td>Sticky Knowledge</td>
<td>4,377</td>
</tr>
<tr>
<td>Community Based Participatory Research (CBPR)</td>
<td>2333</td>
</tr>
<tr>
<td>Conceptual Model for the Diffusion of Innovations in Service</td>
<td>1,190</td>
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<tr>
<td>Organizations</td>
<td></td>
</tr>
<tr>
<td>Canadian Institutes of Health Research Knowledge</td>
<td></td>
</tr>
<tr>
<td>Translation within the Research Cycle Model or Knowledge Action Model</td>
<td>1,050</td>
</tr>
<tr>
<td>Active Implementation Framework</td>
<td>904</td>
</tr>
<tr>
<td>Implementation Effectiveness Model</td>
<td>830</td>
</tr>
<tr>
<td>RE-AIM Framework</td>
<td>728</td>
</tr>
<tr>
<td>Real-World Dissemination</td>
<td>690</td>
</tr>
</tbody>
</table>
Adapt

• Many benefits of using an existing versus new model
• Existing model commonly need to be adapted to current context (intervention, population, setting)
• Different kind of modifications are possible:
  – Green light: wording, timeline, cultural preferences
  – Yellow light: substituting elements, changing order of steps
  – Red light: changing/deleting core elements, adding elements that might detract from core elements
Integrate

• The selected model should be used throughout the study.
  – Study aims, design, activities, methods, measures

• More detailed guidance of use of models can be found:
  – VA QUERI Implementation Guide
    http://www.queri.research.va.gov/implementation/default.cfm
  – NCI Implementation Science Team website
    http://cancercontrol.cancer.gov/is/
  – Canadian KT Clearinghouse
    http://ktclearinghouse.ca/
Measure

• Availability of appropriate measures for D&I constructs can be challenging
  – Relatively new, emerging field
  – Shared terminology is still under development
  – Small sample size makes the development of standard measures difficult
  – Criteria for D&I measures might be different than traditional criteria

• A few resources for D&I measures:
  – Grid-enabled Measures D&I workspace
    http://www.gem-beta.org/GEM-DI
  – Seattle Implementation Research Collaborative
    http://www.seattleimplementation.org/sirc-projects/sirc-instrument-project/
Take home points

• The integrated use of D&I models increase the likelihood of success for your D&I grant applications and projects
• There are a large number of existing D&I models to choose from.
• There is no one ‘right’ model and ‘all models are wrong’
• Selection of models should be guided by your research question
• Adaptation of models (with caution) to local context might be necessary
• D&I models need to be fully integrated throughout the research/practice process
• Measures are often not available for D&I constructs
Recommended resources

**Peer reviewed manuscripts:**


**Books:**

**Online resources:**

Dissemination and Implementation Models in Research and Practice: http://dissemination-implementation.org/