A brief orientation to Implementation Science at the National Cancer Institute

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Division of Cancer Control and Population Sciences

Society for Integrative Oncology 15th International Conference
Integrative Oncology: From Research to Practical Application
Overview

• Why implementation science?

• What is implementation science?
  • Define key terminology
  • Describe study components

• Funding opportunities and resources
Some interventions in integrative oncology
It takes 17 years to turn 14 percent of original research to the benefit of patient care.

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**Publication Pathway**

1. **Original Research**
   - 18% negative results
   - Variable variable

2. **Submission**
   - 46% acceptance

3. **Reviews, guidelines, textbook**
   - 50% consistent indexing
   - 6 - 13 years (Antman, 1992)

4. **Implementation**
   - 9.3 years

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**Inconsistent indexing**

**Negative results**

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**PUBLICATION PATHWAY**

Balas & Boren, 2000
Beyond effectiveness...

An intervention is only as good as how and whether...

- It is adopted?
- Practitioners are trained to use it?
- Trained practitioners choose to use it?
- Eligible populations/patients benefit from it?

If we assume 50% threshold for each step...
(even w/perfect access/adherence/dosage/maintenance)

Impact: \[0.5 \times 0.5 \times 0.5 \times 0.5 = 6\% \text{ benefit}\]
Beyond effectiveness

**Figure 1. Elements of the RE-AIM Framework**

- **Adoption**
  - How do I incorporate the intervention so it is delivered over the long-term?
  - How do I ensure the intervention is delivered properly?
  - How do I develop organizational support to deliver my intervention?

- **Reach**
  - How do I know my intervention is effective?
  - How do I reach the targeted population?

- **Maintenance**

Glasgow, RE-AIM
Terminology
**Key Terms**

*Implementation Science* is the study of methods to promote the integration of research findings and evidence into policy and practice.

- *Dissemination research* is the study of targeted distribution of information and intervention materials to a specific public health or clinical practice audience, with the intent to understand how best to spread and sustain knowledge.

- *Implementation research* is the scientific study of the use of strategies to adopt and integrate evidence-based health interventions into clinical and community settings in order to improve patient outcomes and benefit population health.
Implementation Research

What? Evidence-based Interventions

How? Implementation Strategies

Implementation Outcomes
- Feasibility
- Sustainability
- Uptake
- Costs

Service Outcomes*
- Efficiency
- Effectiveness
- Safety
- Patient-centeredness
- Timeliness

Health Outcomes
- Satisfaction
- Function
- Health status/symptoms

Implementation Research Methods

*IOM Standards of Care

Proctor et al 2009 Admin. & Pol. in Mental Health & Mental Health Services Research
As you scale up decision-making from practice to program to policy, does evidence exist to guide implementation?
Roger’s Diffusion of Innovations

Characteristics of the intervention

Organizational characteristics

Adoption decision

Effective implementation

Outcomes

Environmental context

CIPRS: Stetler & Damschroder Theoretical Frameworks

Study designs

Variety of designs including experimental, quasi-experimental, observational, and mixed methods…

Three examples:

- Pragmatic trials
- Hybrid designs
- Designing for implementation
Pragmatic trials

- A trial whose purpose is to inform decisions about practice
- Pragmatic—explanatory continuum

<table>
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<tr>
<th>Explanatory trials</th>
<th>Pragmatic trials</th>
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<td>Does my intervention work in <strong>ideal conditions</strong>?</td>
<td>Does my intervention work in <strong>practice</strong>?</td>
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<td>Measure <strong>efficacy</strong></td>
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</tr>
<tr>
<td>Maximize <strong>internal</strong> validity</td>
<td>Maximize internal and <strong>external</strong> validity</td>
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1 = Very explanatory, 5 = Very pragmatic; Loudon et al., 2015.
PRECIS-2 wheels for trials in the NIH Collaboratory
Dashed line indicates planning phase (UH2)
Solid line indicates implementation phase (UH3)


PRECIS-2 toolkit available at: [https://crs.dundee.ac.uk/precis](https://crs.dundee.ac.uk/precis)
Effectiveness-Implementation Hybrid Designs

- Dual focus on assessing intervention effectiveness and implementation
- Goal: to accelerate transition from effectiveness trials to implementation trials

Credit: Dalena Nguyen
Considering implementation science earlier

Designing for Implementation
- Who’s going to deliver it?
- Fit with ultimate patient population
- Building in tests of training, support, adherence, mediators and moderators to high quality delivery
- Hybrid designs

https://nccih.nih.gov/grants/mindbody/framework
## Program Announcements

### Dissemination and Implementation Research in Health

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<th>R01, Dissemination and Implementation Research in Health (PAR-18-007, Clinical Trial Optional)</th>
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<td>This funding opportunity provides research project grants to support discrete, specified research projects led by an investigator in a topic area representing his or her specific interests and competencies. Because the nature and scope of the proposed research will vary from application to application, it is anticipated that the size and duration of each award will also vary. Applications may not exceed 5 years.</td>
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<th>R21, Dissemination and Implementation Research in Health (PAR-18-017, Clinical Trial Optional)</th>
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<td>This funding opportunity provides grants that are intended to encourage exploratory or developmental research projects by supporting the development of pilot projects or feasibility studies to support creative, novel, and high-risk/high-payoff research. Applicants may request a project period of up to 2 years and the combined budget for direct costs may not exceed $275,000.</td>
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<th>R03, Dissemination and Implementation Research in Health (PAR-16-237)</th>
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<td>This funding opportunity provides small research grants to support the initiation of studies that are generally for preliminary short-term projects. Applicants for an R03 award may request a project period of up to 2 years and a budget for direct costs of up to $50,000 per year. While the grant is nonrenewable, there is less competition for these start-up research project funds.</td>
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### Successful Grant Applications

Reference excerpts from successfully funded research grant applications to help prepare applications for NCI funding.

**SAMPLE GRANT APPLICATIONS**

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### Funding Inquiry Staff Contact

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<th>Gila Neta, PhD, MPP</th>
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<td><a href="mailto:netagil@mail.nih.gov">netagil@mail.nih.gov</a></td>
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https://cancercontrol.cancer.gov/IS/funding.html
Selected Research Questions

• What factors influence the creation, packaging, transmission and reception of valid health research knowledge?

• How can an evidence-based practice be adapted to fit within specific contexts or settings?

• Which strategies best support uptake and sustainability, and how do these strategies work?

• How do you scale up and sustain effective interventions across systems, states and communities?
Other Funding Announcements

- Oral Anticancer Agents: Utilization, Adherence, and Health Care Delivery
- Innovative Approaches to Studying Cancer Communication in the New Media Environment
- Cancer Moonshot: Improving Management of Symptoms During and Following Cancer Treatment
Improving the impact of cancer control and population science on the health and health care of the population, and fostering the rapid integration of research, practice, and policy.
11th Annual Conference on the Science of Dissemination and Implementation in Health

Scaling up Effective Health and Healthcare: Advancing the Research Agenda and Necessary Infrastructure

The Annual Conference on the Science of Dissemination and Implementation in Health (D&I), co-hosted by the National Institutes of Health (NIH) and AcademyHealth, helps realize the full potential of evidence to optimize health and health care by bridging the gap between research, practice, and policy. By outlining the priorities in the field, the Science of D&I Conference aims to ensure that evidence is used to inform decisions that will improve the health of individuals and communities.

Guided by the theme, Scaling up Effective Health and Healthcare: Advancing the Research Agenda and Necessary Infrastructure, this year’s event will focus on strategies for scaling up effective interventions across communities, health systems, networks and countries, and efforts to build capacity for D&I science, with an emphasis on low-resource settings.

2018 Featured Speakers

Amy Abernethy, M.D., Ph.D.
Chief Medical Officer, Chief Scientific Officer & Senior Vice President, Oncology - Flatiron Health
Amy Abernethy serves as chief medical officer, chief scientific officer and senior vice president, oncology, w... Read Bio

Alyce Adams, Ph.D.
Associate Director of Health Care Delivery and Policy - Kaiser Permanente Division of Research
Alyce S. Adams is a Research Scientist III and Associate Director, Health Care Delivery and Policy at the Kais... Read Bio

11th Annual Conference on the Science of Dissemination and Implementation in Health

Registration
Agenda
What to Expect
Technical Assistance Workshop
Hotel and Travel
Sponsorship
About
Program Planning Committee
Designing for Dissemination & Implementation

SPeeding Research-tested INTerventions (SPRINT)

What is SPRINT?
Discover how this program will expedite the transfer or commercialization of your intervention into practice.

SPRINT informational Webinar(click to view)

Opening Workshop: February 7-9, 2018
On-line Sessions: Wednesdays 1:30 PM-4:30 PM
Closing Workshop: April 3-4, 2018

SPRINT Training
Textbooks

December 2017

October 2018
Training Institutes

August 13, 2018 – December 7, 2018

Training Institute for Dissemination and Implementation Research in Health

Bethesda, MD

APPLICATIONS NOW BEING ACCEPTED!

TRAINING INSTITUTE FOR DISSEMINATION AND IMPLEMENTATION RESEARCH IN CANCER

ALL MATERIALS DUE FEB. 9, 2018
Questions?

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