

Dissemination and Implementation Sciences and Their Applications in Pharmacy: PART 1

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An Overview of Implementation Science

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Disclosures

- I have no financial relationships to disclose.
- Opinions are mine, not official positions of the National Cancer Institute, the National Institutes of Health, or the U.S. federal government.

Session Objectives

1. Provide rationale for the discipline of implementation science and introduce key terms in the field.
2. Identify key concepts in implementation research—frameworks, models, research designs, strategies and measures for implementation research.
3. Briefly list examples of funded research and suggest useful resources.

Definitions and Rationale

Implementation Science

- 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...”
- Understand barriers to and facilitators of adoption and use of evidence-based health practices.
- Develop and test strategies to support implementation and sustainability of evidence-based health practices.

NIH, 2016; Lomas, 1993

Dissemination Science

- Scientific study of targeted distribution of information and intervention materials to a specific public health or clinical practice audience.
- Intent is to understand how best to spread and sustain knowledge and the associated evidence-based interventions.
- Research addresses how information about health promotion and care interventions is created, packaged, transmitted, and interpreted.

NIH, 2016



Related Terms

- **Knowledge Translation (KT)**
...dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically-sound application of knowledge to improve health (CIHR, 2010)
- **Quality Improvement (QI)**
...combined and unceasing efforts of everyone to make the changes that will lead to better patient outcomes, better system performance and better professional development (Batalden & Davidoff, 2007)

Related Terms

- **Scale-Up**
Deliberate efforts to increase the impact of health service innovations successfully tested in pilot or experimental projects so as to benefit more people and to foster policy and program development on a lasting basis (Simmons, Fajans, Ghiron, 2007)
- **Sustainability**
Continued benefits after funding or support have been withdrawn, continuation of program elements, and continued capacity (Shediac-Rizkallah & Bone, 1998)

Evidence-Based Health Practices, Programs, and Interventions



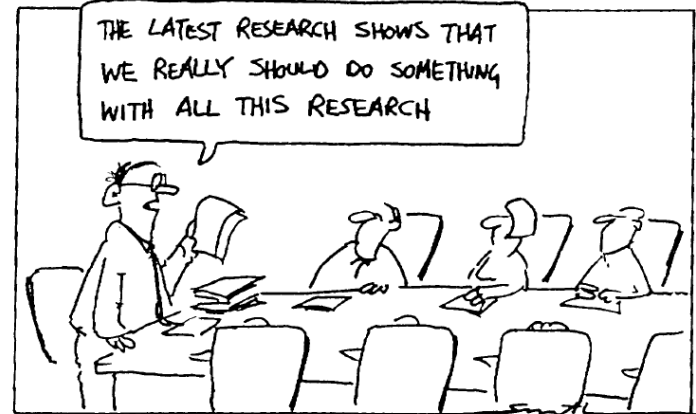
Community Preventive Services Task Force

...Working to Promote the Nation's Health since 1996...
www.thecommunityguide.org

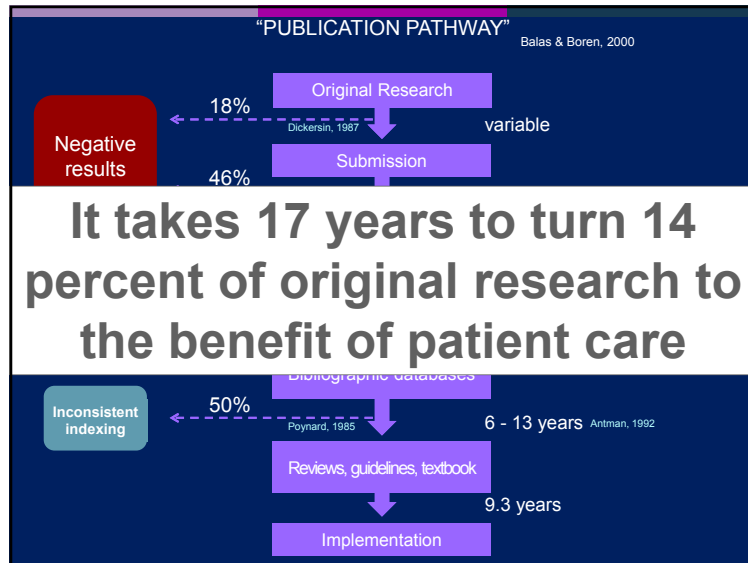
Research-Tested Intervention Programs (RTIPs) <http://rtips.cancer.gov/rtip/>

RTIPs - Moving Science into Programs for People

NREPP SAMHSA's National Registry of Evidence-based Programs and Practices



Cochrane News, 1995



"Know-Do" Gap

The Quality of Health Care Delivered to Adults in the United States

Elizabeth A. McGlynn, Ph.D., Steven M. Asch, M.D., M.P.H., John Adams, Ph.D., Joan Keesey, B.A., Jennifer Hicks, M.P.H., Ph.D., Alison DeCristofaro, M.P.H., and Eve A. Kerr, M.D., M.P.H.

CROSSING THE QUALITY CHASM
A New Health System for the 21st Century

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Historical Drivers of the "Know-Do" Gap

- Reward discovery instead of delivery.
- The way we develop interventions, practices, and programs is problematic.
- The information we generate often isn't important to end-users (e.g., policymakers, practitioners, patients).
- Traditional dissemination outlets are necessary but insufficient.

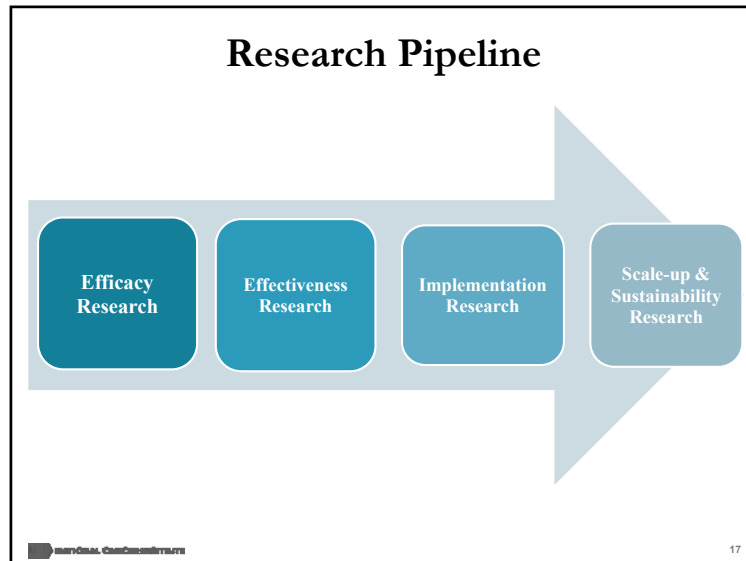
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Information for End-Users

A cartoon titled 'COCHRANE LADDER of EVIDENCE' showing a man standing on the top step, labeled 'COST-EFFECTIVENESS'. He says, 'THIS IS FINE, I CAN SEE ALL THE EVIDENCE I NEED FROM HERE'. A woman stands at the bottom of the ladder, which has steps labeled 'EFFICACY' and 'EFFECTIVENESS'. The cartoon is signed 'Wickett'.

BMJ, 2011

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Sometimes, the step from best evidence to best practice is simple; however, most of the time it is not, and we need various strategies targeting obstacles to change at different levels...

Grol & Grimshaw, 2003

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Key Concepts of Implementation Research

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Conceptual Clarifications

- **Implementation \neq Implementation Research**
- “Real-World” Research \neq Implementation Research
- Effectiveness Research \neq Implementation Research
- Cost-Effectiveness \neq Implementation Research
- CBPR \neq Implementation Research

Approaches are *related* to but *not equivalent*—
Depends on research questions and objectives

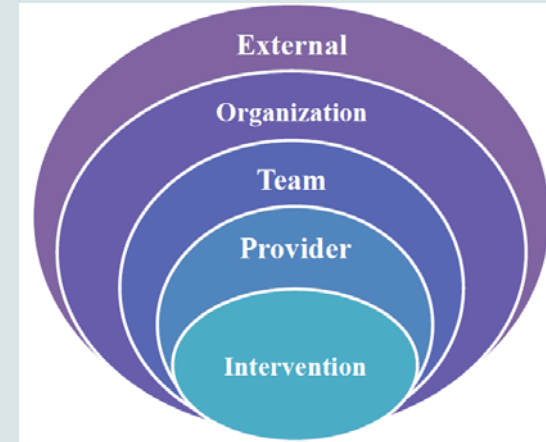
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Interdisciplinary Teams

- Health Services Researchers
- Behavioral Scientists
- Clinicians (Physicians, Pharmacists, Nurses)
- Organizational Behaviorists
- Psychologists
- Health Economists
- Public Policy Makers
- Public Health Experts
- Anthropologists
- Epidemiologists

Multi-Level Factors



Intervention Factors

- Strength of Evidence
- Relative Advantage
- Compatibility
- Complexity
- Cost
- Adaptation
- Delivery Format
- External Validity



Provider Factors

- Skills and Training
- Champions
- Incentives
- Time
- Attitudes
- Motivation
- Professional Roles
- Competing Demands



Team Factors

- *Interdependent vs. Independent Tasks*
- Team Communication
- Team Dynamics
- Skills
- Training



Organizational Factors

- Organizational Culture and Climate
- Readiness to Change
- Leadership
- Priorities
- Resources
- Technology
- Capacity



External Factors

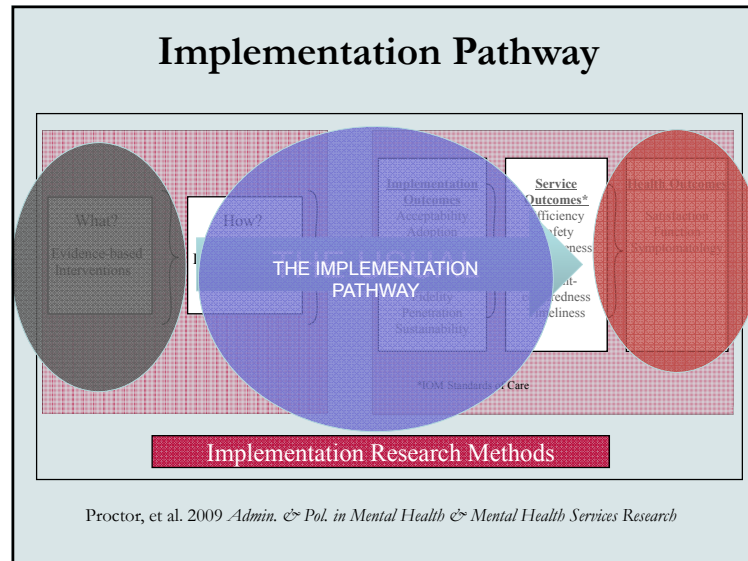
- Policy
- Funding
- Infrastructure
- Political Environment
- Physical Environment
- Workforce and Training
- Social-Ecological Climate



Theories, Frameworks, Models

- N = 61 theories, frameworks, and models
- <http://dissemination-implementation.org/>
- Select Examples:
 - ✓ Diffusion of Innovations
 - ✓ Exploration, Adoption/Preparation, Implementation, Sustainment
 - ✓ Interactive Systems Framework
 - ✓ **Consolidated Framework for Implementation Research (CFIR)**

Tabak et al., 2012



Study Designs

- Cross-sectional
- Pre-post (before-after, quasi-experimental)
- Interrupted time series
- Stepped-wedge
- Randomized controlled trials (RCTs)
- Cluster RCTs
- Pragmatic RCTs (pRCTs)
- *Hybrid* designs (effectiveness + implementation)
- Mixed methods designs (e.g., explanatory, exploratory)

Brown et al., *in press*; Curran et al., 2012; Landsverk et al., 2012; Mittman, 2010

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Research Methods

- Qualitative
 - Semi-structured interviews, focus groups, etc.
- Quantitative
 - Questionnaires, surveys, etc.
- Mixed Methods
 - Collection and integration of qualitative + quantitative data

Brown et al., *in press*; Curran et al., 2012; Landsverk et al., 2012; Mittman, 2010

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Selected Discrete Strategies

<ul style="list-style-type: none"> ▪ Access new funding ▪ Assess for readiness ▪ Audit and feedback ▪ Change service sites ▪ Conduct educational meetings ▪ Create new clinical teams ▪ Develop academic partnerships 	<ul style="list-style-type: none"> ▪ Facilitate relay of clinical data to providers ▪ Identify early adopters ▪ Mandate change ▪ Prepare patients to be active participants ▪ Revise professional roles ▪ Tailor strategies
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Powell BJ. *Implementation Science* 2015;10:21

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Funding for Implementation Studies

NIH Funding Opportunities

- **Dissemination and Implementation Research in Health**
- **Mechanisms**
 - R03, R21, R01 (reissued May 2016)
- **Standing Study Section**
 - Dissemination and Implementation Research in Health

150+ studies funded from Trans-NIH PARs!

Examples of Funded Studies

- Implementing Tobacco Use Treatment Guidelines in Dental Public Health Clinics (Shelley/Ostroff)
- Sustainability of Change within a Quality Improvement Collaborative (Ford)
- Testing the Leadership and Organizational Change for Implementation (LOCI) Intervention in Substance Abuse Treatment Programs (Aarons)
- Reducing CV Risk in Pre-Diabetes Patients Using EHR-Based Decision Support (Desai)

Priority Areas

- Adaptation, Sustainability, and/or Scale-up of Practices, Programs and Interventions
- *De-Implementation* of Ineffective Practices
- Tailored Implementation Strategies
- Cost-Effectiveness of Implementation Strategies

Resources

Conferences

- 9th Annual Conference on the Science of Dissemination and Implementation in Health
 - ✓ December 14-15th, 2016 in Washington, D.C.
 - ✓ Abstracts due August 4th
 - ✓ 9 thematic tracks (e.g., clinical care settings, health policy, big data and technology, etc.)
- AcademyHealth Annual Research Meeting
- AHRQ Annual Conference

Webinar Series

Advanced Topics in Implementation Science Series

- National Cancer Institute
- *Examples:* Hybrid designs; theories, frameworks and models; measure development; implementation strategies; mixed methods

QUERI Implementation Network Series

- VA HSR&D
- *Examples:* Facilitation; qualitative comparative analysis; expert recommendations for tailoring strategies to context

Training Programs

Implementation Research Institute

- Washington University in St. Louis
- NIMH- and VA-funded



Mentored Training for Dissemination and Implementation Research in Cancer

- Washington University in St. Louis
- NCI-funded



Training Programs

NIH Training Institute for D&I Research in Health

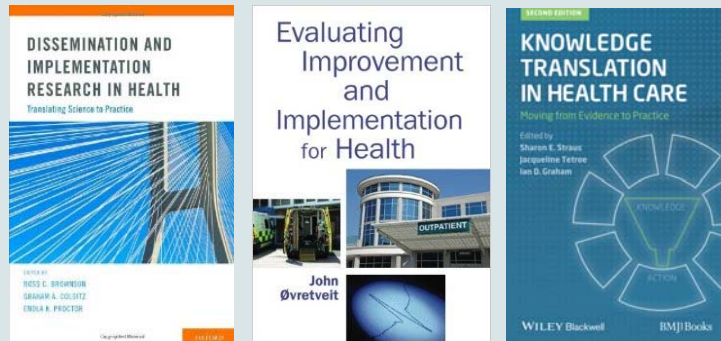
- *Next cycle TBD*



Peer-Reviewed Journals

- Implementation Science
- Translational Behavioral Medicine
- American Journal of Public Health
- BMJ Quality & Safety
- American Journal of Preventive Medicine
- Administration and Policy in Mental Health Services Research
- Journal of Substance Abuse Treatment

Textbooks



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