IMPLEMENTATION SCIENCE: OPPORTUNITIES AND RESOURCES

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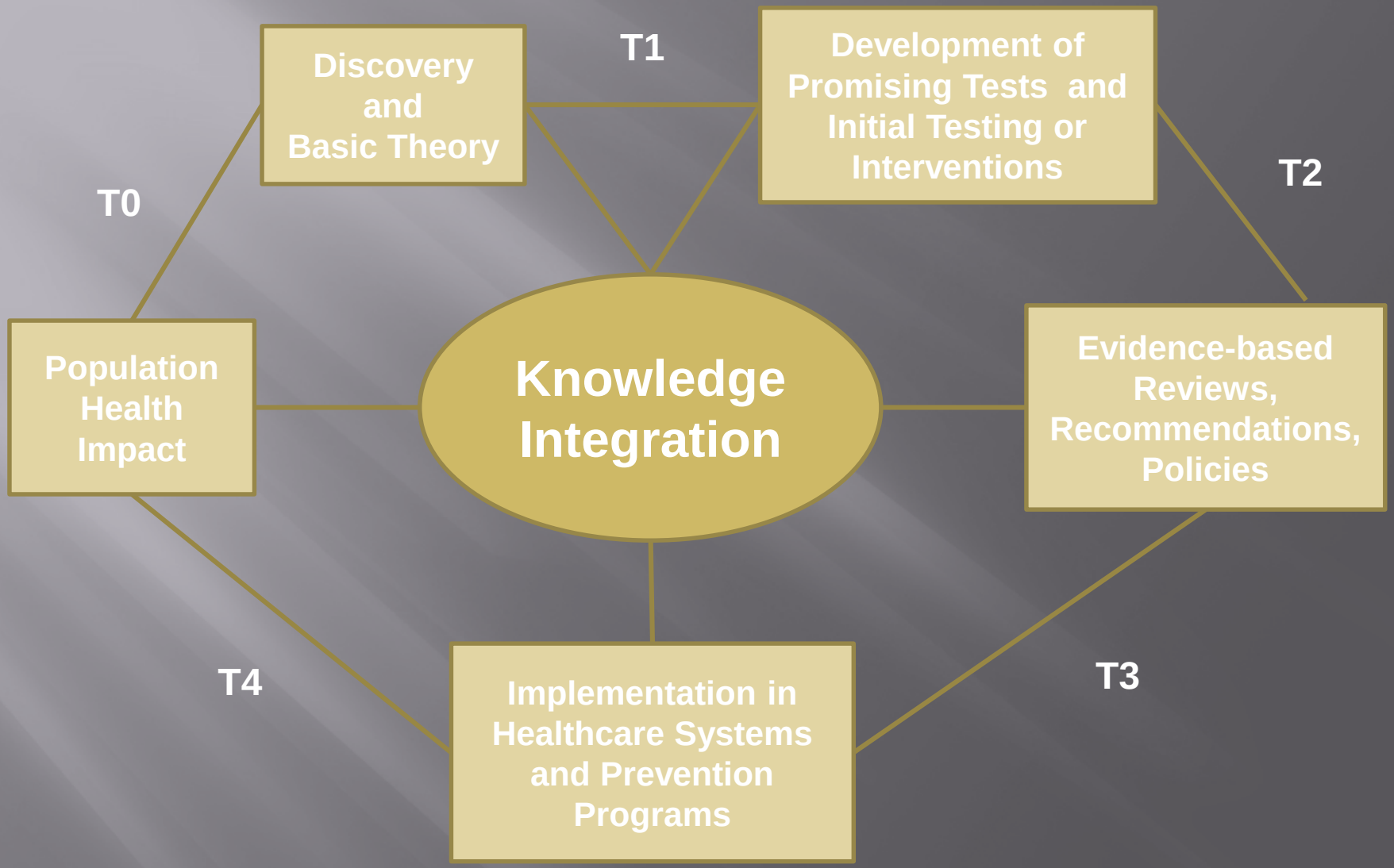
Overview

- Key Points/ Lessons Learned about Implementation Science (IS)
- Recent NIH/VA conference on reporting guidelines and assessment for IS
- Resources available: local and national, in person, and virtual
- Your requests, reactions, Q and A

Lessons Learned

- **Dissemination and Implementation (D&I) is about *CONTEXT*—understanding, assessing, tailoring to and reporting context, which changes and is multi-level—is critical**
- **Never too early to start *planning* for implementation, dissemination, sustainability, generalizability**
- **Implementation Science (IS) has many connections with pragmatic research, community engagement, mixed methods research, QI**

Types of Translation Research: T0 to T4



Khoury MJ et al. *Genet Med* 2007;9(10):665-674
Khoury MJ et al. *Cancer Epidemiol Biomarkers Prev* 2011;20(10):2105-2114.

Terminology Challenges for D&I

- Graham et al., identified 29 terms denoting some aspect of D&I when reviewing 33 applied funding agencies across 9 countries
- A few terms denoting D&I:
  - Dissemination and implementation research and practice
  - Implementation science
  - Translational research
  - Knowledge translation and integration
  - Population health intervention research
  - Scaling up

Graham ID, Logan J, Harrsion MB, et al. Lost in Knowledge Translation: Time for a Map? *J Contin Educ Health Prof.* 2006;26:13-24.

Diffusion-Dissemination-Implementation Continuum

Discovery/ Development → Delivery

Diffusion	Dissemination	Implementation
1. Research diffusion …the passive process by which a growing body of information about an intervention, product, or technology is initially absorbed and acted upon by a small body of highly motivated recipients (Lomas, 1993). 2. Diffusion research …centers on the conditions which increase or decrease the likelihood that a new idea, product, or practice will be adopted by members of a given culture (Rogers, 1995).	1. Research dissemination …active process through which the information needs (pull) of target groups working in specific contexts (capacity) are accessed, and information is "tailored" to increase awareness of, acceptance of, and use of the lessons learned from science (Kerner, 2007). 2. Dissemination research …the study of processes and variables that determine and/or influence the adoption of knowledge, interventions or practice by various stakeholders (Lomas, 1997).	1. Research implementation …the utilization of strategies or approaches to introduce or modify evidence-based interventions within specific settings. This involves the identification of and assistance in overcoming barriers to, the application of new knowledge obtained from a disseminated message or program (Lomas, 1993). 2. Implementation research …research that supports the movement of evidence-based interventions and approaches from the experimental, controlled environment into the actual delivery contexts where the programs, tools, and guidelines will be utilized, promoted, and integrated into the existing operational culture (Rubenstein & Pugh, 2006).

Table from: html http://cancercontrol.cancer.gov/is/definitions.html

Proliferation of D&I Models—61 and Counting?

Key Common Points

- **Context is critical**
- **Begin with stakeholders—take their perspective**
- **Design for dissemination—from beginning**
- **Need balance between fidelity to EB program and adaptation to local setting**

Theories or Frameworks Utilized in D&I R01s

Theory or model	Frequency (%)
Rogers' Diffusion of Innovations + RE-AIM	1 (2%)
Non-specific reference	2 (4%)
Rogers' DOI alone or in combination with other	5 (11%)
RE-AIM alone or in combination	7 (15%)
Specific theory/framework: - Cooperation Extension System - Community Readiness Model - Quality Assurance Model (2) - Self-regulation Theory of Health Behavior - Collaborative Depression Core Model - Cognitive Behavioral Theory - Advanced Recovery Theory - Program Change Model	9 (20%)
No theory/framework	22 (48%)

Tinkle et al. Dissemination and Implementation Research Funded by the U.S. NIH, 2005-2012. *Nursing Res and Practice*, 2013

Framework for Enhancing the Value of Research for Dissemination & Implementation

Goals

Improvements in population health, health equity, social well-being, and health system efficiency

* underused
** lacking

Pragmatic (Practical) Clinical Trials

Pragmatic (or practical) clinical trials are randomized trials that are concerned with producing answers to questions faced by decision makers. Pragmatic trials seek to increase the external validity of the findings while maintaining strong internal validity.

Tunis and colleagues defined them as studies that (1) select clinically relevant alternative interventions to compare, (2) include a diverse population of study participants, (3) recruit participants from heterogeneous practice settings, and (4) collect data on a broad range of health outcomes.

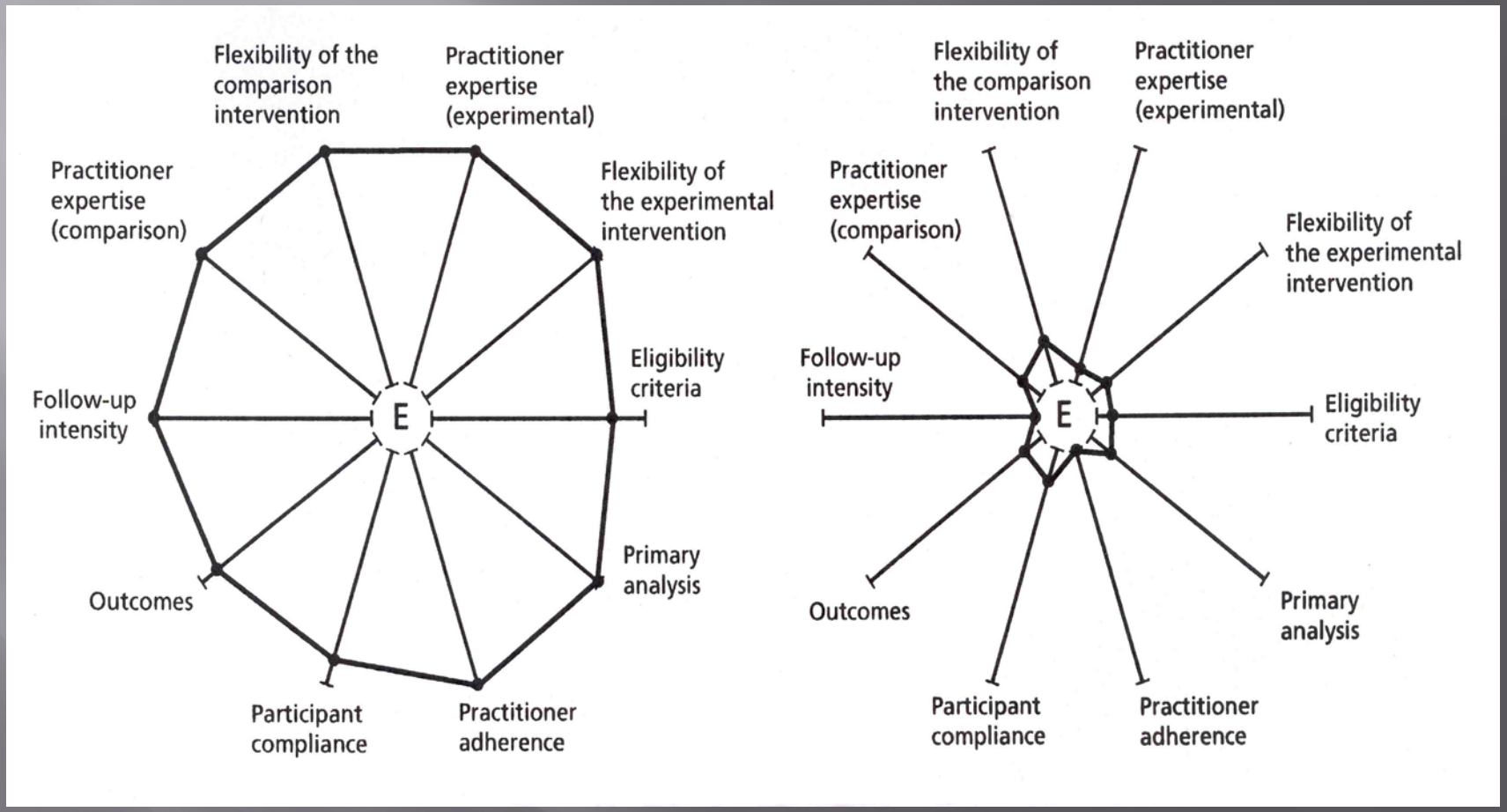
Source: Tunis SR, Stryer DB, Clancy CM. Practical clinical trials: increasing the value of clinical research for decision making in clinical and health policy. *JAMA* 2003;290(12):1624-1632.

PRECIS EVALUATION CRITERIA

DOMAIN	DESCRIPTION
1. Eligibility criteria	Explanatory trials tend to have more exclusion criteria than pragmatic trials.
2. Intervention flexibility	The pragmatic approach leaves the details of how to implement the experimental intervention up to the practitioners and does not dictate which co-interventions were permitted or how to deliver them.
3. Practitioner expertise (experimental)	A pragmatic approach would put the experimental intervention into the hands of all practitioners treating (educating, and others) the study participants.
4. Comparison intervention	The pragmatic approach would typically compare an intervention to "usual practice" or best available alternative management strategy; an explanatory approach restricts the comparison allowed.
5. Practitioner expertise (comparison)	The explanatory extreme would maximize the chances of detecting benefits whereas the pragmatic extreme would aim to compare benefits and harms to usual practice in the settings of interest.
6. Follow-up intensity	The pragmatic approach would be to seek follow-up contact with the study participants consistent with usual practice for the practitioner.
7. Primary outcome	The most explanatory approach selects endpoints based on biological mechanisms. Time horizons are driven by what is minimally required. Pragmatic approaches choose time horizons most relevant for clinical decision making. Using patient-important outcomes is also more pragmatic.
8. Participant compliance	The pragmatic approach recognizes that noncompliance is a reality in routine medical practice. The more rigorous a trial is in measuring and mitigating noncompliance, the more explanatory it becomes.
9. Practitioner adherence	The pragmatic approach acknowledges that providers will vary in how they implement an intervention. The more rigorous a trial is in monitoring and mitigating protocol nonadherence, the more explanatory it becomes.
10. Primary Analyses	A pragmatic trial answers the question, "Does the intervention work under usual conditions?" An explanatory trial answers the question, "Does the intervention work under ideal conditions?"

Pragmatic-Explanatory Continuum Indicator Summary (PRECIS)

More Pragmatic **Less Pragmatic**



Measures for D&I

Questions:

- **What to measure?**
- **How frequently?**
- **When?**
- **With what duration?**
- **With what kind of instruments?**

When, where, how, with whom, under what circumstances, and why does this [xxxx] work?

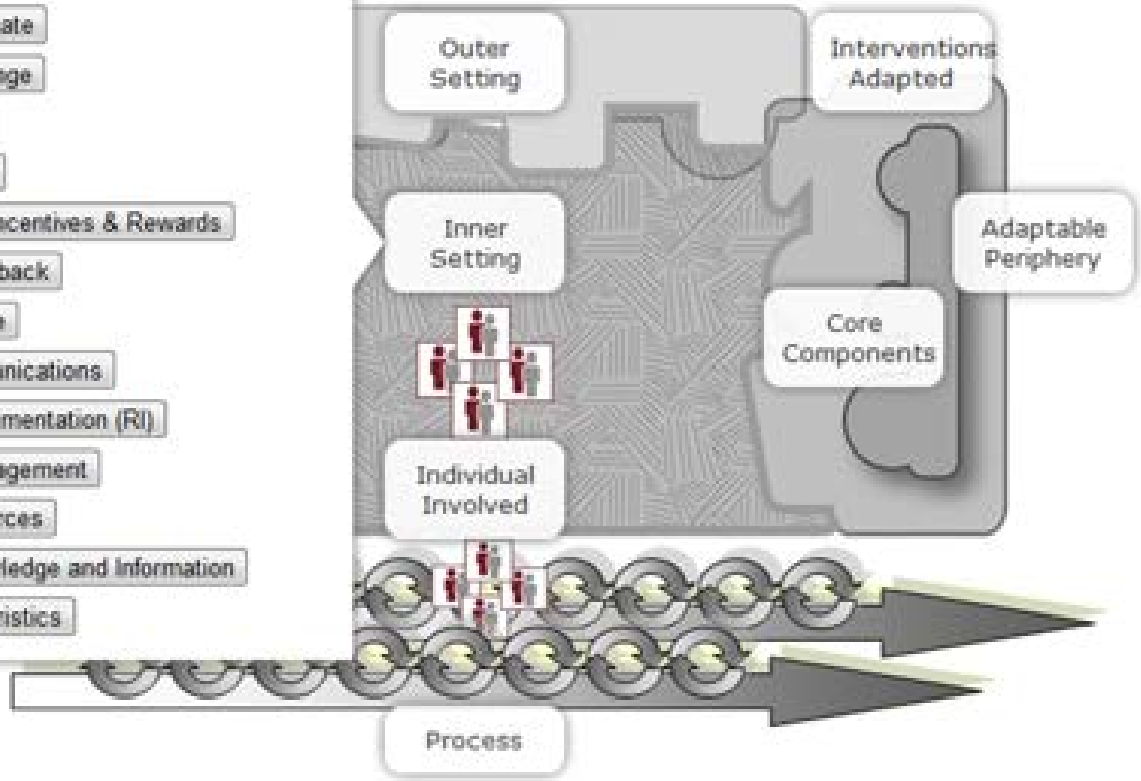
Possible answers for D&I research:

- **Diverse set of outcomes (including adverse outcomes and cost)**
- **Process measures (mediators, moderators)**
- **Measures at multiple levels and collected from various stakeholders**
- **Mix of quantitative and qualitative measures**
- **Practical measures**

Consolidated Framework for Implementation Research

INNER SETTING

- Combined
- Culture
- ImplementationClimate
- IC: Tension for Change
- IC: Compatability
- IC: Relative Priority
- IC: Organizational Incentives & Rewards
- IC: Goals and Feedback
- IC: Learning Climate
- Networks & Communications
- Readiness for Implementation (RI)
- RI: Leadership Engagement
- RI: Available Resources
- RI: Access to Knowledge and Information
- Structural Characteristics



Proposed criteria for rating dissemination and implementation measures for scientific soundness and practicality

GOLD STANDARD MEASURE RATING CRITERIA - For Primary Research Focus	PRACTICAL MEASURE RATING CRITERIA - For Real-World Application[1]
Reliable: Especially test-retest (less emphasis on internal consistency)	Feasible*: Brief (generally 2 to 5 items or less); easy to administer/score/interpret
Valid: Construct validity, criterion validity, performed well in multiple studies	Important to Practitioners and Stakeholders*: Relevant to health issues that are prevalent, costly, challenging; helpful for decision makers or practice
Broadly Applicable: Available in English and Spanish, validated in different cultures and contexts; norms available; no large literacy issues	Actionable: Based on information, realistic actions can be taken,e.g., immediate discussion, referral to evidence-based on-line or community resources
Sensitive to Change* (if applicable): Longitudinal use, for performance tracking over time	User Friendly: Patient interpretability; face valid; meaningful to clinicians, public health officials, and policy makers
Public Health Relevance: Related to Healthy People 2020 goals, key IOM objectives or national priorities	Low Cost*: Publicly available or very low cost to use, administer, score, and interpret
	Enhances Patient Engagement: Having this information is likely to further patient engagement
	Do No Harm: Can likely be collected without interfering with relationships, putting respondents at risk, or creating unintended negative consequences

(Rabin et al. *Implement Sci* 2012 7:119)

Resources—Local

- Borsika and Russ (Office hours and monthly meeting, e-mail appointments)
- CRISP colleagues—especially Prevention and Pediatrics
- COHO colleagues and resources/cores including Borsika and Russ
- Coming attractions via CCTSI

Resources—National

- **QUERI trainings; resources; webinars: http://www.queri.research.va.gov/**
- **NCI (for NIH)- web resources; research tested programs; webinars: http://www.cancer.gov/**
- **Wynne Norton Implementation Network monthly eNewsletter: http://www.implementationnetwork.com/**
- **RE-AIM website (including measures; self-quizzes, literature, examples): www.re-aim.org**

Recommended Readings

Brownson, R.C., Colditz, G.A., & Proctor, E.K. (Eds.), *Dissemination and Implementation Research in Health: Translating Science to Practice*. New York: Oxford University Press.

CRISP D&I in Health Training Guide and Workbook (available upon request)

Tabak RG, Khoong EC, Chambers DA, Brownson RC. Bridging research and practice: models for dissemination and implementation research. *Am J Prev Med*. 2012 Sep; 43(3):337-50.

Glasgow RE, What does it mean to be pragmatic? Pragmatic Methods, Measures, and Models to Facilitate Research Translation *Health Educ Behav June 2013 vol. 40 no. 3 257-265*

Rabin BA, Purcell P, Naveed S, Moser RP, Henton MD, Proctor EK, Brownson RC, Glasgow RE. Advancing the application, quality and harmonization of implementation science measures. *Implement Sci.* 2012; 11:7:119.

Evolving / Cutting Edge IS Issues (Sample)

- **Balance between fidelity to protocol and local adaptation**
- **Incorporation of thinking and measures of costs, resources, capacity into planning, conduct, and reporting**
- **What is it that makes programs and policies replicable, generalizable, sustainable?**

Types of Evidence Needed: A New "Bold Standard"? The 5 R's

- **R**elevant (to stakeholders)
- **R**apid
- **R**igorous (redefined to include robustness and replication)
- **R**esources Reported
- **R**ecursive—iterative, ongoing learning

Peek, Kessler, Glasgow, Klesges, Purcell, Stange.
Accepted,pending revision—available by request

Your Questions / Comments

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Terminology Challenges for D&I

- D&I in health emerged as a relatively new field
- A number of non-health fields informed the development of D&I in the health context (e.g., agriculture, education, marketing, communication, management)
- Contribution from various health-related areas (e.g., mental health, health services research, HIV prevention, nursing, school health, cancer control, rehabilitation and disability)
- Differences in terminology across countries

INCONSISTENCY AND VARIATION IN TERMINOLOGY AND CLASSIFICATION

Terminology Challenges for D&I

Dissemination strategy

Dissemination strategies describe mechanisms and approaches that are used to communicate and spread information about interventions to targeted users. Dissemination strategies are concerned with the packaging of the information about the intervention and the communication channels that are used to reach potential adopters and target audience.

Evidence-based intervention

The objects of D&I activities are interventions with proven efficacy and effectiveness (i.e., evidence-based). Interventions within D&I research should be defined broadly and may include programs, practices, processes, policies, and guidelines.

Terminology Challenges for D&I

Dissemination is the targeted distribution of information and intervention materials to a specific public health or clinical practice audience. The intent is to spread knowledge and the associated evidence-based interventions.

Implementation is the use of strategies to adopt and integrate evidence-based health interventions and change practice patterns within specific settings.

Department of Health and Human Services. *Part 1 Overview Information Dissemination and Implementation Research in Health* (R01).

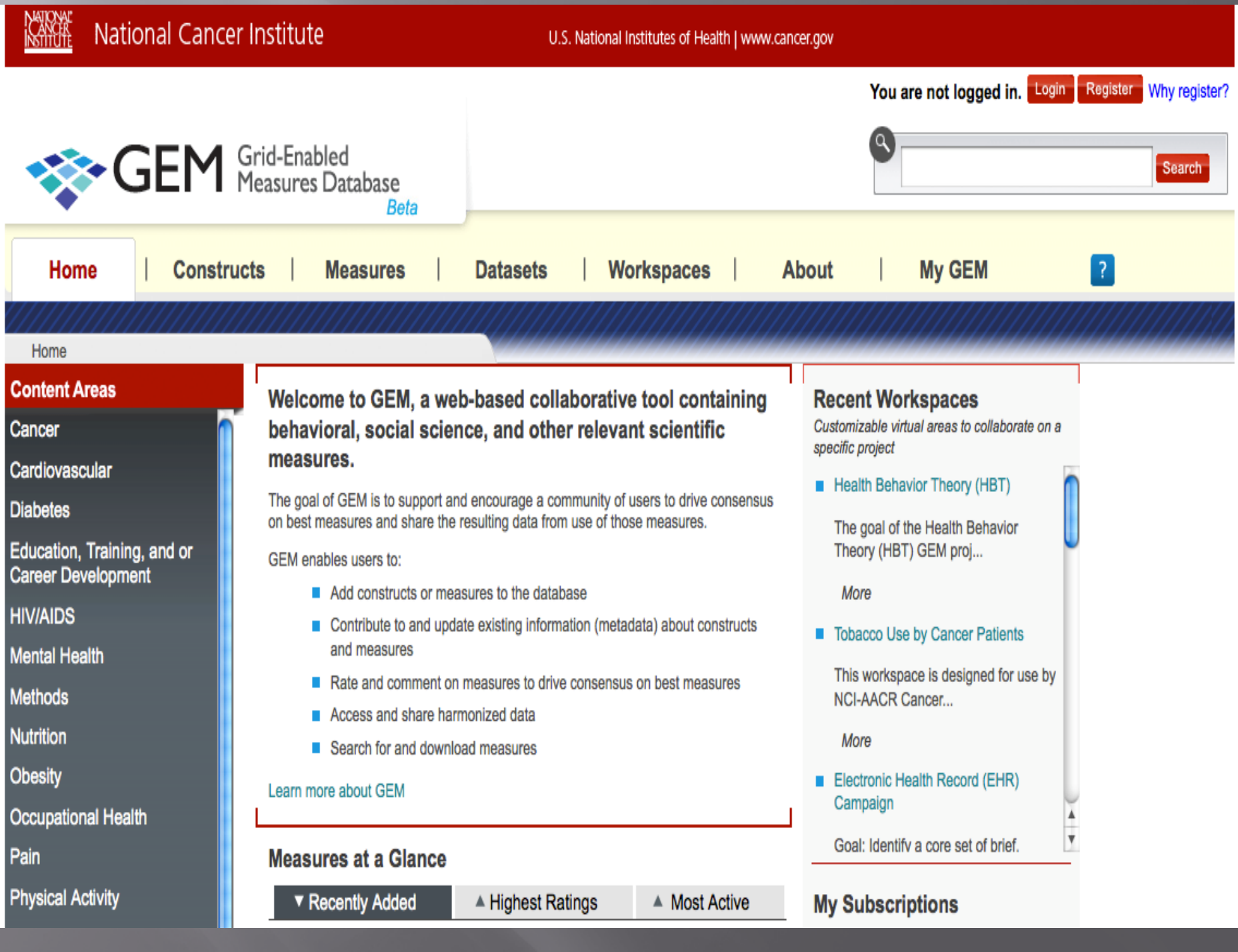
http://grants/nih.gov/grants/guide/pa-files/PAR-13-055.html

Ongoing Efforts 1: SIRC Instrument Review

- Seattle Implementation Research Collaborative Instrument Review Project
- Conduct a systematic review of D&I instruments
- Three primary outcomes for this project series include:
  - A comprehensive library of D&I instruments measuring the implementation outcomes identified by Proctor and colleagues (2010) and organized by the Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2009)
  - A rating system reflecting the degree of empirical validation of instruments
  - A consensus battery of instruments.
- To date, 450 instruments were identified. Rating of these measures using the above-described criteria is ongoing.
- To learn more: http://www.seattleimplementation.org/sirc-projects/sirc-instrument-project/

Ongoing Efforts 2: GEM D&I

- **The Grid-Enabled Measures Database is a collaborative, web-based activity using the National Cancer Institute's portal that uses a wiki platform to focus discussion and engage the research community. Its goal is to enhance the quality and harmonization of measures for implementation science health-related research and practice.**
- **Number of workspaces around various topics**
- **The GEM D&I initiative has provided information about 130 different implementation science measures across 74 constructs, their associated characteristics and a rating of these measures for quality and practicality.**
- **This resource and ongoing activity has the potential to advance the quality and harmonization of implementation science measures and constructs.**
- **To learn more: http://www.gem-beta.org/GEM-DI**


National Cancer Institute
U.S. National Institutes of Health | www.cancer.gov
You are not logged in.
Login
Register
Why register?
GEM Grid-Enabled Measures Database
Beta
Search
Home
Constructs
Measures
Datasets
Workspaces
About
My GEM
?
Home
Content Areas
Cancer
Cardiovascular
Diabetes
Education, Training, and or Career Development
HIV/AIDS
Mental Health
Methods
Nutrition
Obesity
Occupational Health
Pain
Physical Activity
Welcome to GEM, a web-based collaborative tool containing behavioral, social science, and other relevant scientific measures.
The goal of GEM is to support and encourage a community of users to drive consensus on best measures and share the resulting data from use of those measures.
GEM enables users to:
Add constructs or measures to the database
Contribute to and update existing information (metadata) about constructs and measures
Rate and comment on measures to drive consensus on best measures
Access and share harmonized data
Search for and download measures
Learn more about GEM
Measures at a Glance
▼ Recently Added
▲ Highest Ratings
▲ Most Active
Recent Workspaces
Customizable virtual areas to collaborate on a specific project
Health Behavior Theory (HBT)
The goal of the Health Behavior Theory (HBT) GEM proj...
More
Tobacco Use by Cancer Patients
This workspace is designed for use by NCI-AACR Cancer...
More
Electronic Health Record (EHR) Campaign
Goal: Identifv a core set of brief.
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