

# Implementation Science: An Assessment of the Developing Field

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Emma Britez Ferrante  
PI: Rinad Beidas, PhD  
SUMR Symposium 8/16/2019

# Overview

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- I. Implementation Science (IS) Overview
- II. IS Abstracts
  - I. Methods
  - II. Example abstract
- III. National Landscape of IS
  - I. Methods
  - II. Next steps
- IV. Lessons learned
- V. Questions



# I. Implementation Science Overview

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# Definition of Implementation Science

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“the scientific **study of methods** to promote systematic **uptake** of **proven** clinical **treatments, practices,** organizational, and management **interventions** into **routine practice,** and hence to **improve health**”

Eccles et al. (2012)

# Definition of Implementation Science

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“the scientific study of methods to promote systematic uptake of **proven clinical treatments, practices, organizational, and management interventions** into routine practice, and hence to improve health”

↓  
**evidence-based practices**

Eccles et al. (2012)

# What is an evidence-based practice?

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**Evidence-based practices** (or EBPs) are the “proven clinical treatments, practices, organizational, and management interventions” that come from research but do not always make it into routine practice!

Ex. cognitive behavioral therapy (CBT) to treat mental illness

Ex. a tested pharmaceutical treatment

Ex. guidelines for treating chronic disease in the primary care setting

# Definition of Implementation Science

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↪ frameworks

“the **scientific study of methods** to promote systematic uptake of proven clinical treatments, practices, organizational, and management interventions into routine practice, and hence to improve health”

Eccles et al. (2012)

# IS Framework: EPIS

Exploration



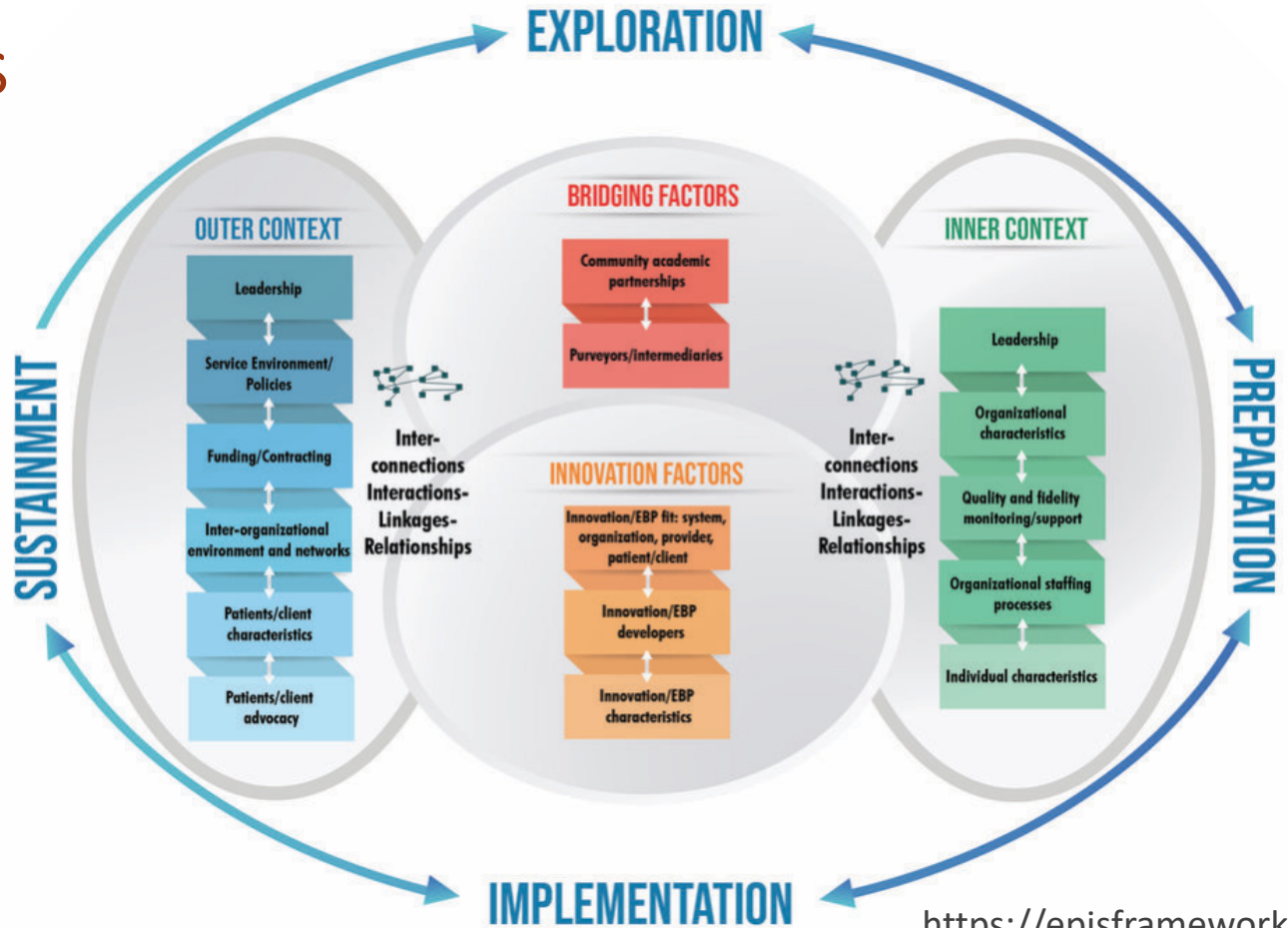
Preparation



Implementation



Sustainment



<https://episframework.com/>



# IS Framework: EPIS

Exploration



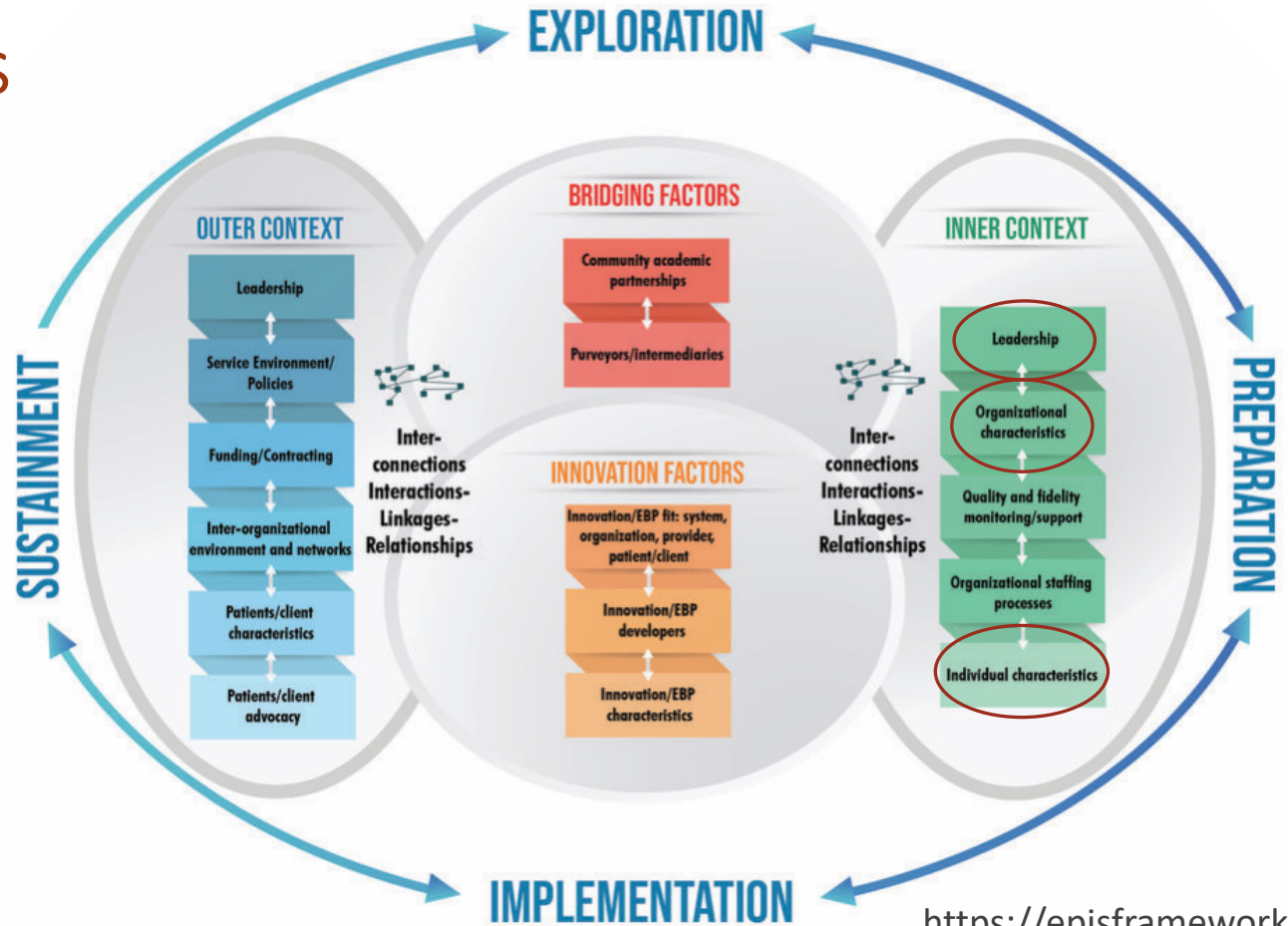
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# Definition of Implementation Science

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outcomes

Eccles et al. (2012)

# Comparing Research Outcomes

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## TRADITIONAL CLINICAL RESEARCH OUTCOMES

- Changes in patient health
- Efficacy → comparing the intervention to control group, in a tightly controlled setting
- Effectiveness → do we get the same results in a “real-world” setting?

## IMPLEMENTATION OUTCOMES

- Acceptability
- Adoption
- Appropriateness
- Feasibility
- Fidelity
- Cost
- Penetration
- Sustainability

Proctor et al. (2010)

# II. Implementation Science Abstracts

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# Goal

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- Project: Rating Journals in Implementation Science
- The purpose of this paper is to identify the top journals that publish implementation science related work.
- By rating abstracts, we are able to determine which journals to include in rating scheme.

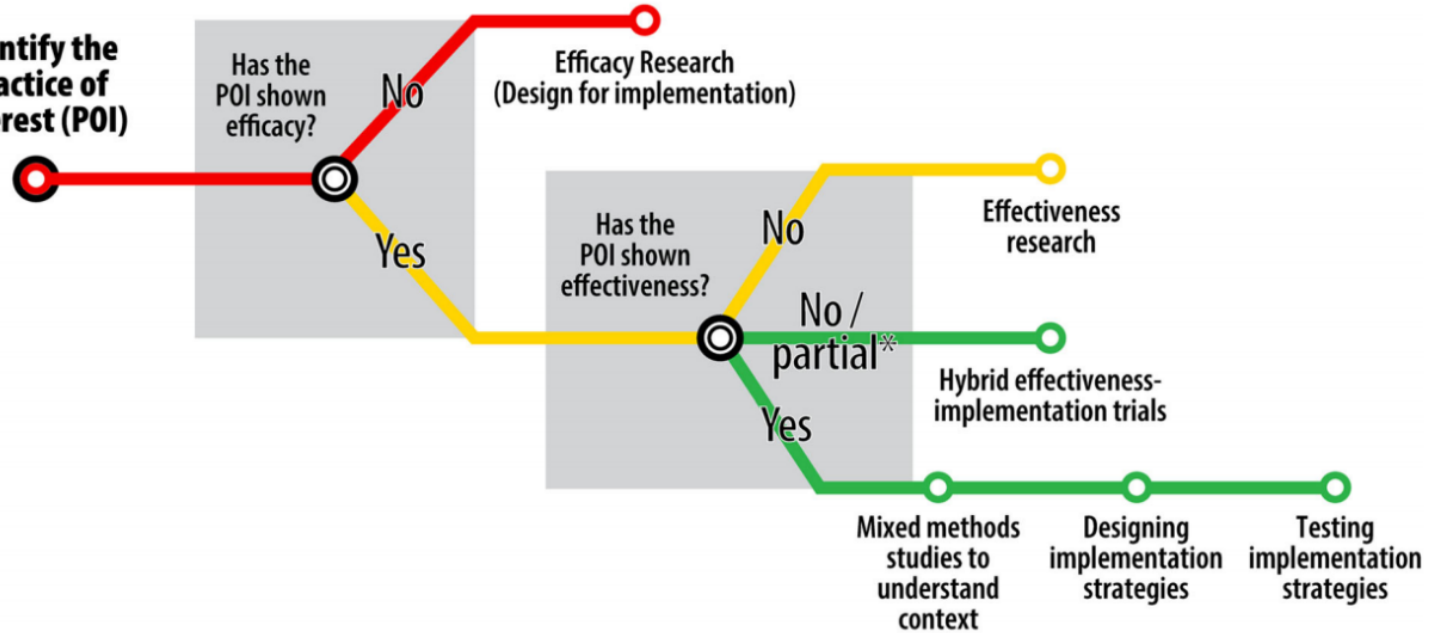
# Methods for raters

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- Training in rating abstracts
  - “Yes,” “no,” and “maybe”
- Rater reliability
- Rate 2,000+ abstracts using Rayyan

Journal	
<a href="#">Implementation science : IS</a>	1386
<a href="#">BMC health services research</a>	103
<a href="#">Academic medicine : journal of t...</a>	72
<a href="#">Journal of the American Medical ...</a>	64
<a href="#">International journal of medical i...</a>	61
<a href="#">BMJ quality &amp; safety</a>	61
<a href="#">Journal of medical Internet rese...</a>	40
<a href="#">Journal of medical systems</a>	35
<a href="#">Health policy and planning</a>	29
<a href="#">International journal for quality i...</a>	28
<a href="#">More &gt;&gt;</a>	

**Identify the practice of interest (POI)**



Graphic has been tested with colorblindness filters to ensure readability.

\* In some cases it may be appropriate to move forward with a hybrid Type 1 trial in the absence of effectiveness evidence (e.g., very strong efficacy, indirect evidence supportive of potential effectiveness in context of interest, and/or strong momentum supporting implementation in a health care context).

**Fig. 1** "Subway" schematic to guide researchers contemplating implementation studies of evidence-based interventions

# Considerations: Is this project IS?

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- What is the *specific* evidence-based practice (EBP)?
  - If there is no EBP, is this a paper about creating frameworks or determining larger context for an intervention?
- What is the context? What are the barriers and facilitators perceived by stakeholders?
- What are they developing an implementation strategy or do they already have a *specific* implementation strategy in mind?
- What outcomes do the researchers care about?



# Example Abstract

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**A case control study of the implementation of change model versus passive dissemination of practice guidelines for compliance in monitoring for metabolic syndrome.**

We developed an intervention to improve compliance with guidelines for monitoring metabolic syndrome and compared compliance prior to intervention and three times post-intervention at three community mental health clinics in Texas. One test clinic received intervention and two other clinics served as controls. Fifty random charts were reviewed from each clinic for three specific, 1–2 weeks periods over the course of 18 months. There were significant improvements in the ordering of labs, the presence of lab results in the chart, and documentation of blood pressure, body mass index and waist circumference in the intervention clinic over time in comparison to the control clinics. Documented evidence of physician action with respect to out of range values remained low. Metabolic monitoring is a multi-step process. Removing barriers, creating specific procedures, and dedicating staff resources can improve compliance with monitoring.

Velligan, D. et al. (2013)

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# III. National Landscape of Implementation Science

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# Goal

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Research Implementation Science funding, training opportunities, and infrastructure to create a “national landscape.”

This research can then inform the development of the Penn Implementation Science Center (PISCE@LDI).



# Methods

## 1. Conduct search using NIH RePORTER for active implementation science grants

The screenshot displays the NIH RePORTER search interface. At the top, the logo for NIH RePORTER (Version 7.40.0) is visible, along with navigation links for 'About RePORTER DATA', 'FAQ', 'EXPORTER', and 'RSS of Newly Added Projects'. A yellow banner highlights the option to 'FIND PROGRAM OFFICIALS OR SIMILAR PROJECTS'. Below this, a navigation bar includes 'QUERY', 'BROWSE NIH', 'MATCHMAKER', and 'SEARCH PUBLICATIONS BETA'. The main search area features a 'SUBMIT QUERY' and 'CLEAR QUERY' button, and a 'Fiscal Year (FY):' dropdown set to 'Active Projects' with a 'SELECT' button. The 'RESEARCHER AND ORGANIZATION' section includes fields for 'Principal Investigator (PI) / Project Leader' (Last Name, First Name), 'City', 'State', 'Country', 'Congressional District', and 'DUNS Number', each with a 'SELECT' button. The 'Organization' field has a 'LOOKUP' button and radio buttons for 'Contains', 'Begins with', and 'Exact'. The 'Department Type' and 'Organization Type' fields also have 'SELECT' buttons. The 'TEXT SEARCH' section shows a search box with the text 'Implementation science', radio buttons for 'And', 'Or', and 'Advanced', and a 'Characters left: 2476' indicator. To the right, there are checkboxes for 'Search in' (Projects, Publications, News) and 'Limit Project search to' (Project Title, Project Terms, Project Abstracts). The 'Limit Publication search to' section includes 'Start Year' (2018) and 'End Year' (2019) dropdown menus.

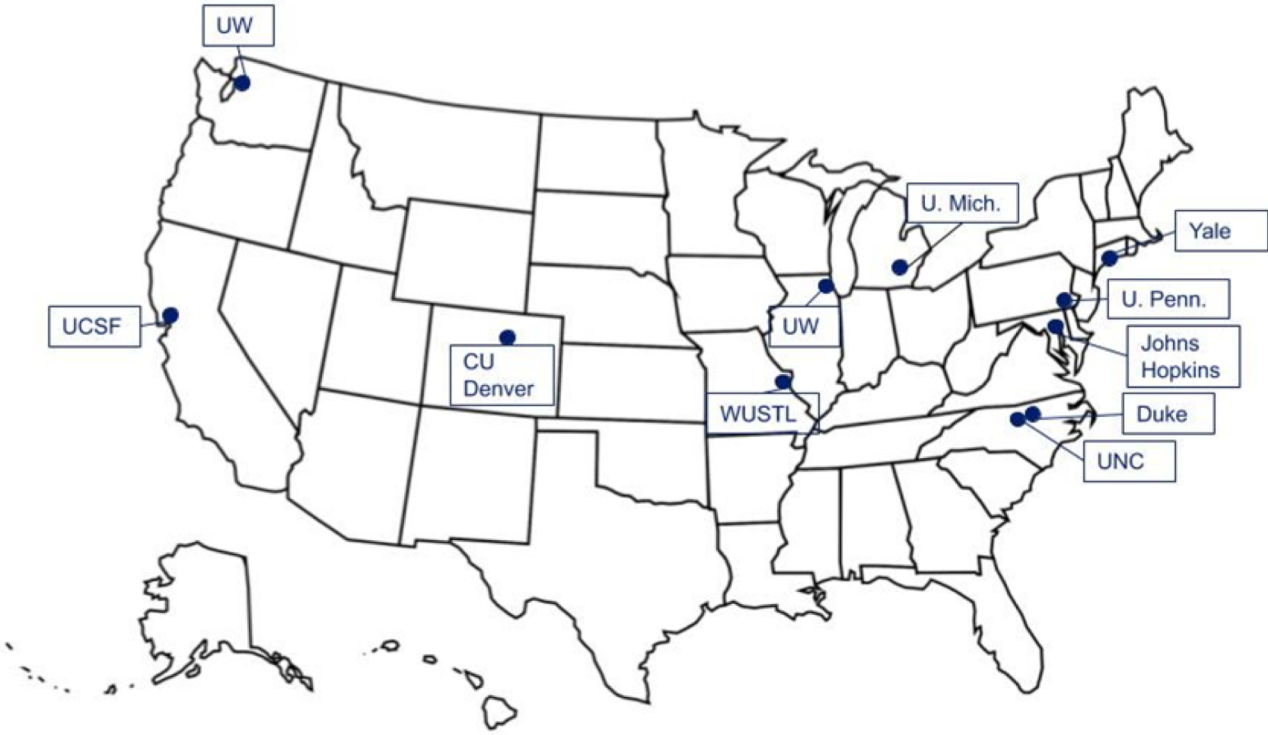
<https://projectreporter.nih.gov/reporter.cfm>

# Methods

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1. Conduct search using NIH RePORTER for active implementation science grants
2. **Identify institutions with the largest numbers of grants**

Institution	Grants
University of Washington	39
University of California San Francisco	30
Johns Hopkins University	29
Yale University	25
University of Pennsylvania and Children's Hospital of Philadelphia	18
Washington University	17
Duke University	16
Northwestern University at Chicago	16
University of North Carolina Chapel Hill	16
University of Colorado Denver	16
University of Michigan at Ann Arbor	16





# Methods

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1. Conduct search using NIH RePORTER for active implementation science grants
2. Identify institutions with the largest numbers of grants
3. **Research grants, training opportunities, and infrastructure at top institutions**

Grant Name	Contact PI	Other PI or Project Leader(s)	Abstract	Funding Year	Funding Year Total Cost
Training Opportunities	Degree program	Course Instructors	Link		Other Notes
Center or Department	Lead	Lead Email	Link		Other Notes

# Next steps for the National Landscape

What is next for Penn and PISCE@LDI?

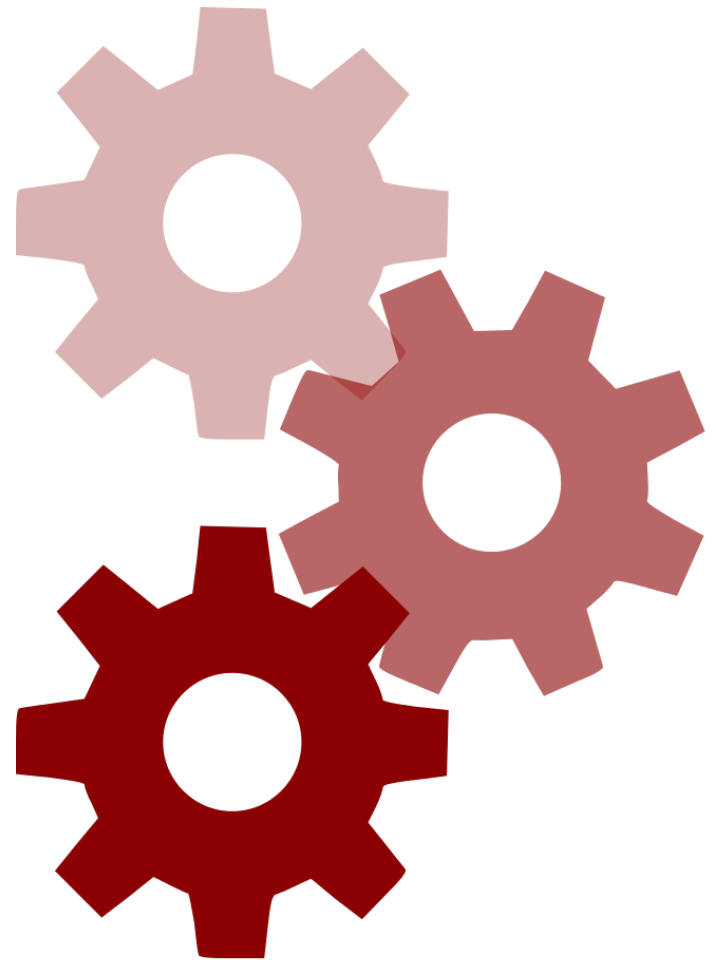
- Ongoing effort to quantify the IS work at other institutions
- Create a resource to be displayed on the PISCE@LDI website
- Write publication

The screenshot shows the PISCE@LDI website. At the top, it features the Penn LDI logo (Leonard Davis Institute of Health Economics) and a 50th anniversary logo (1967-2017) with the text "FIRST THEN. FIRST NOW.". Below this is a dark blue banner with the text "Research to Improve the Nation's Health System. DATA DRIVEN. POLICY FOCUSED." and "PISCE@LDI Penn Implementation Science Center (PISCE) @ LDI Advancing the science of implementation and training the next generation of implementation researchers". The main content area has a white background with the PISCE@LDI logo and the text "Penn Implementation Science Center". Below this is a photograph of a meeting around a long table. To the right, there is a section titled "INITIATIVE LEAD" featuring a portrait of Rinad Beidas, PhD, and her title: "Associate Professor, Psychiatry and Medical Ethics & Health Policy, Perelman School of Medicine, Director, Implementation Research, Center for Mental Health Policy and Services Research, Perelman School of Medicine". Below this is a section titled "PARTNER CENTERS" with links to "Penn LDI, CHIBE, CMHSR, PRC, PAIR CENTER, CPORT". At the bottom, there is a section titled "GET INVOLVED".

# IV. Lessons learned

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- Lessons about the field of Implementation Science and IS in practice
- Strategic reading of abstracts
- Conducting searches in a systematic way
- Presenting!



# V. Questions?

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THANK YOU!