Advancing Implementation Science in Health: Reflections, Progress, and Opportunities

David Chambers, DPhil

Deputy Director for Implementation Science,

Division of Cancer Control & Population Sciences (DCCPS)

May 19, 2026

NIH NATIONAL CANCER INSTITUTE

Session Outline

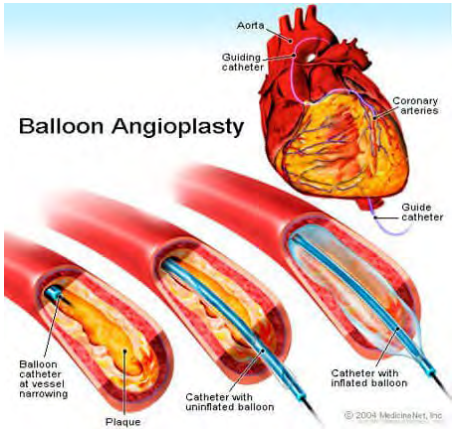
- Recognizing the Need for Implementation Science
- Growing the Field
- Key IS Topics & Resources
- Considering a Dynamic World
- Questions and Discussion

Precipitants of Implementation Science

- Centuries past: Scurvy, Maternal Mortality, Infection Control
- Decades past: “Effectiveness and Efficiency,” Randomized Clinical Trials, Quality and Safety, Clinical Guidelines, Evidence Synthesis
- Recent Era: Evidence-Based Medicine, Clinical and Community Guides, Evidence-based programs/practices/interventions
- Years past: Diffusion, Dissemination and Implementation, Translating Research into Practice, Knowledge Translation, Implementation Science

My Entry Point(Fall of 1994)

(this was my phone)



VS.

Across the Pond (Oxford, 1997-2001)

Original research

Implementation of evidence-based medicine: evaluation of the Promoting Action on Clinical Effectiveness programme

Sue Dopson, Louise Locock, David Chambers[1], John Gabbay[2]

Templeton College and [1]Said Business School, University of Oxford; [2]Wessex Institute for Health Research and Development, University of Southampton, UK

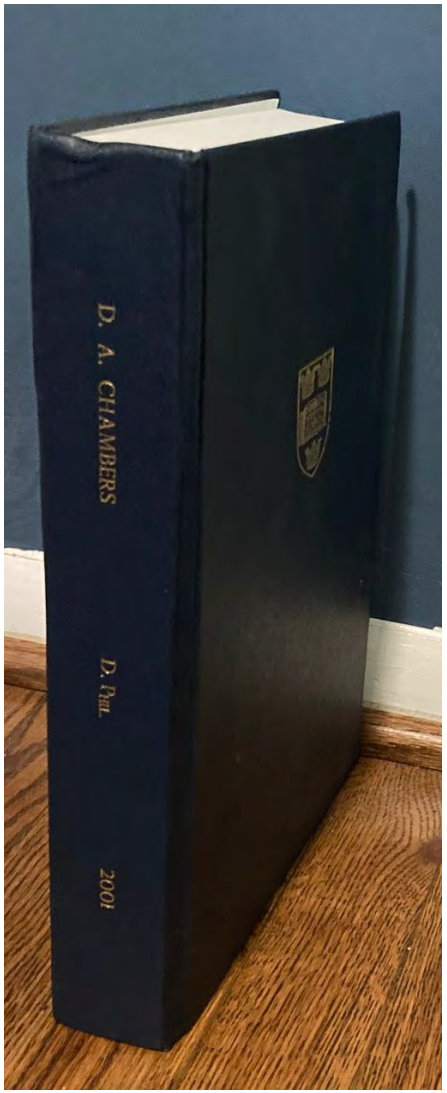
Original Articles

Closing the Gap Between Research and Practice in Health: Lessons from a clinical effectiveness initiative

Rebecca Surender, Louise Locock, David Chambers, Sue Dopson & John Gabbay

Pages 45-61 | Published online: 09 Dec 2010

Download citation https://doi.org/10.1080/14616670110101690



PERGAMON

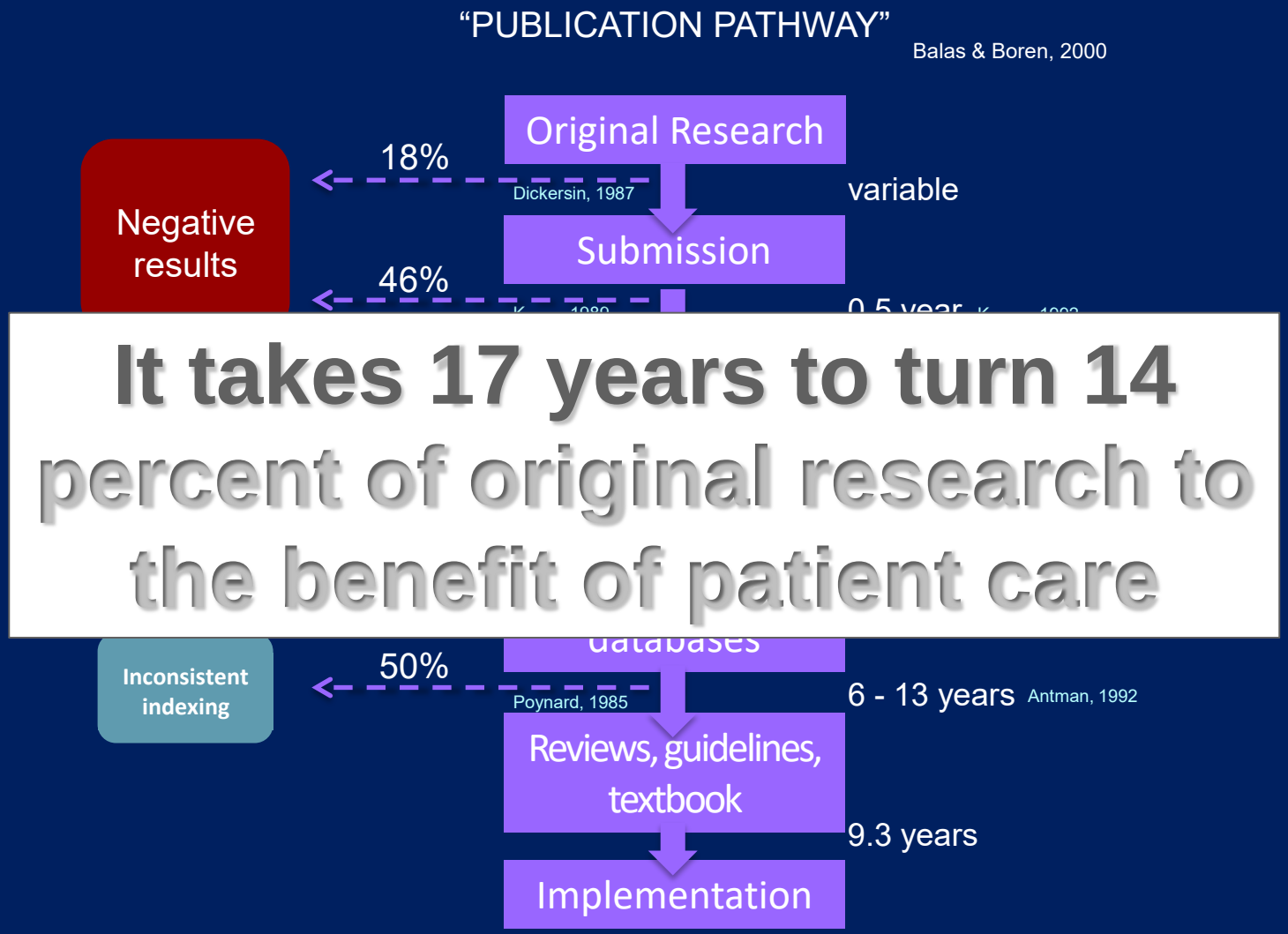
Social Science & Medicine 53 (2001) 745–757

SOCIAL SCIENCE & MEDICINE

www.elsevier.com/locate/socscimed

Understanding the role of opinion leaders in improving clinical effectiveness

Louise Locock[a,*], Sue Dopson[b], David Chambers[c], John Gabbay[d]


"PUBLICATION PATHWAY"
Balas & Boren, 2000
Original Research
18%
Dickersin, 1987
variable
Negative results
Submission
46%
0.5 year
It takes 17 years to turn 14 percent of original research to the benefit of patient care
databases
Inconsistent indexing
50%
Poynard, 1985
6 - 13 years
Antman, 1992
Reviews, guidelines, textbook
9.3 years
Implementation

Time-to-Translation in Cancer Control

Average time from landmark publication to implementation (50% uptake): **15 years**

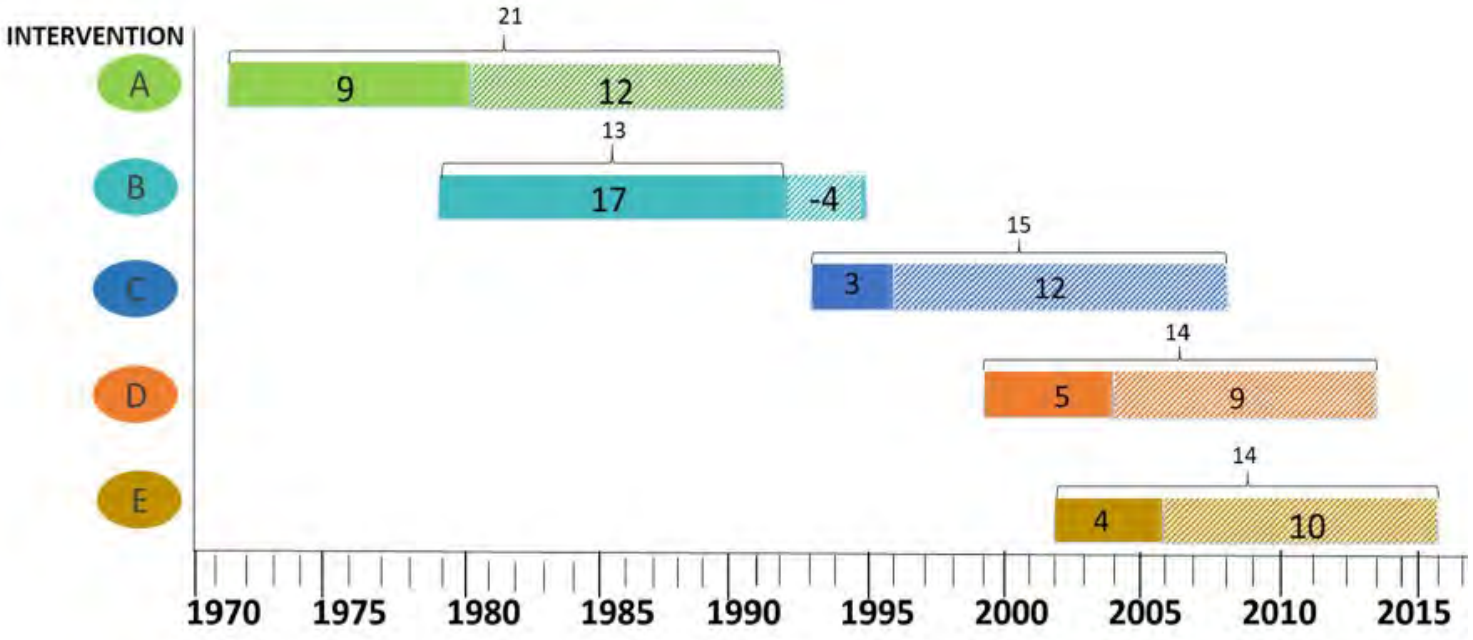
A: Mammography

B: Advice quit smoking

C: CRC screening

D: Co-testing cervical cancer

E: HPV vax



Khan, Neta, & Chambers, 2021

An Evidence-Based Health Intervention

- Is only so good as how and whether. . .
  - It is adopted?
  - Providers are trained to deliver it?
  - Trained providers choose to deliver it?
  - Eligible people receive?

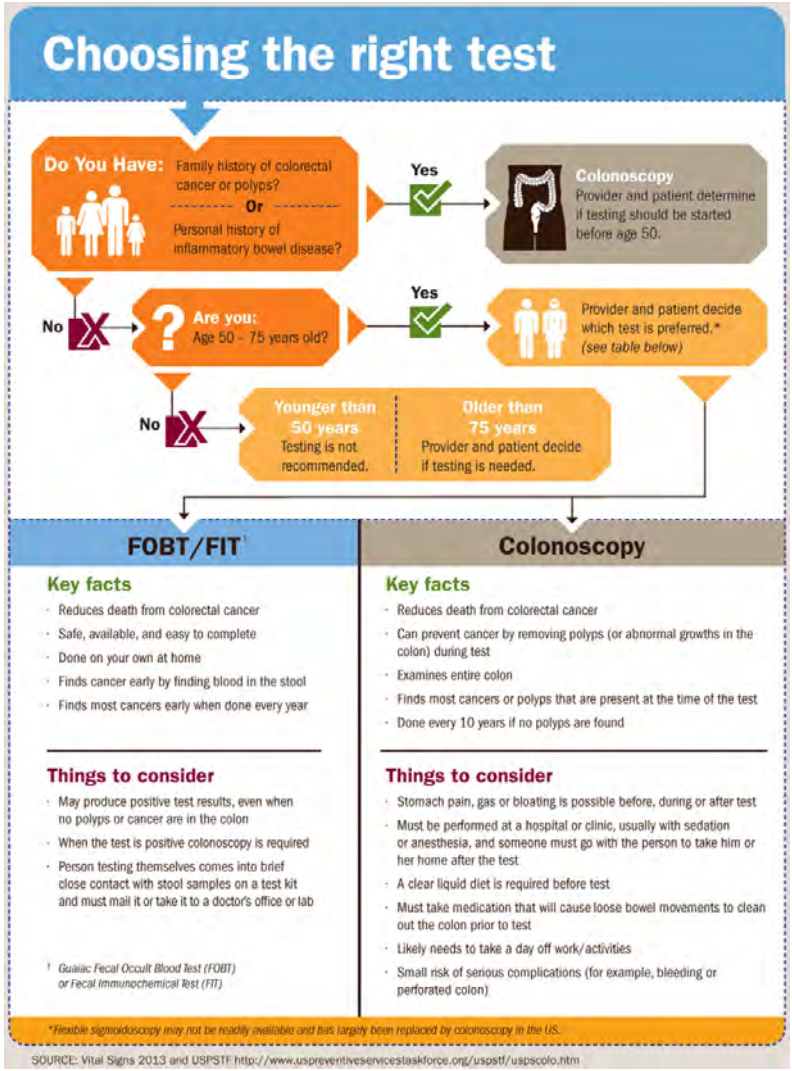
If we assume 50% threshold for each step. . .

(even w/perfect access/adherence/dosage/maintenance)

Impact: .5*.5*.5*.5=6% benefit

Adapted from Glasgow, RE-AIM

Example: CRC Screening



(2013) https://www.cdc.gov/vitalsigns/colorectalcancerscreening/index.html

Sample IS Challenges:

- Is CRC Screening a priority?
- How to reach all patients who could benefit
- Fit of ITVs with practice workflow/community & populations
- Implementing the model across varied practices
- Follow-up?
- Workforce capacity/training needs

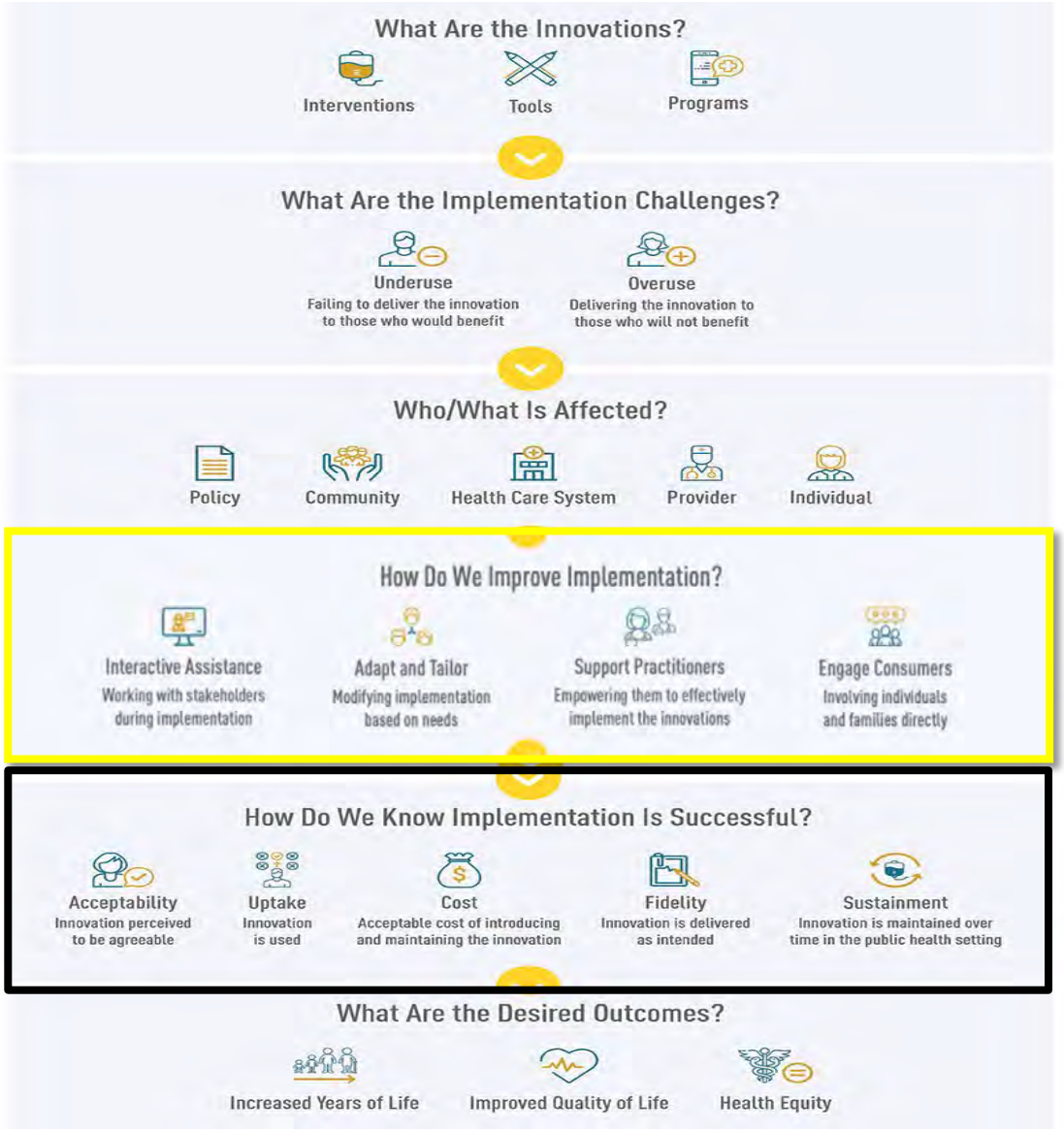
The Importance of What…

What is the intervention that needs to be implemented?

A. Screening Test
B. Information Dissemination/educational intervention
C. Monitoring and Follow-up
D. Preventive Care
E. Treatment
F. Survivorship Care
G. All of the above?

How well does the overall intervention fit with the needs, circumstances, preferences of our partners?

The Nuts and Bolts of Implementation Science



Implementation Science is the study of methods that facilitate the uptake of evidence-based practices and interventions into routine use into healthcare and public health to improve population health outcomes.

The term ***D&I research*** largely covers this same terrain.

Challenges in Implementation Science (2001)

- Variability in terms
- Little awareness of research questions
- Minimal capacity within the field
- No shared vision
- Few opportunities to present/publish
- Commentaries outpace studies
- Part of NIH/NIMH research agenda?

Program Officer, NIMH

Building NIMH's Dissemination and Implementation Research Program

Defining Terms:

- Dissemination: targeted distribution of information to a specific audience. The intent is to spread knowledge, in this case about mental illness and the associated evidence-based interventions.
- Implementation: the use of strategies to introduce or change evidence-based mental health interventions within specific settings.

Articulating Priorities: NIMH D&I PA-02-131 (R01, R21, R03)

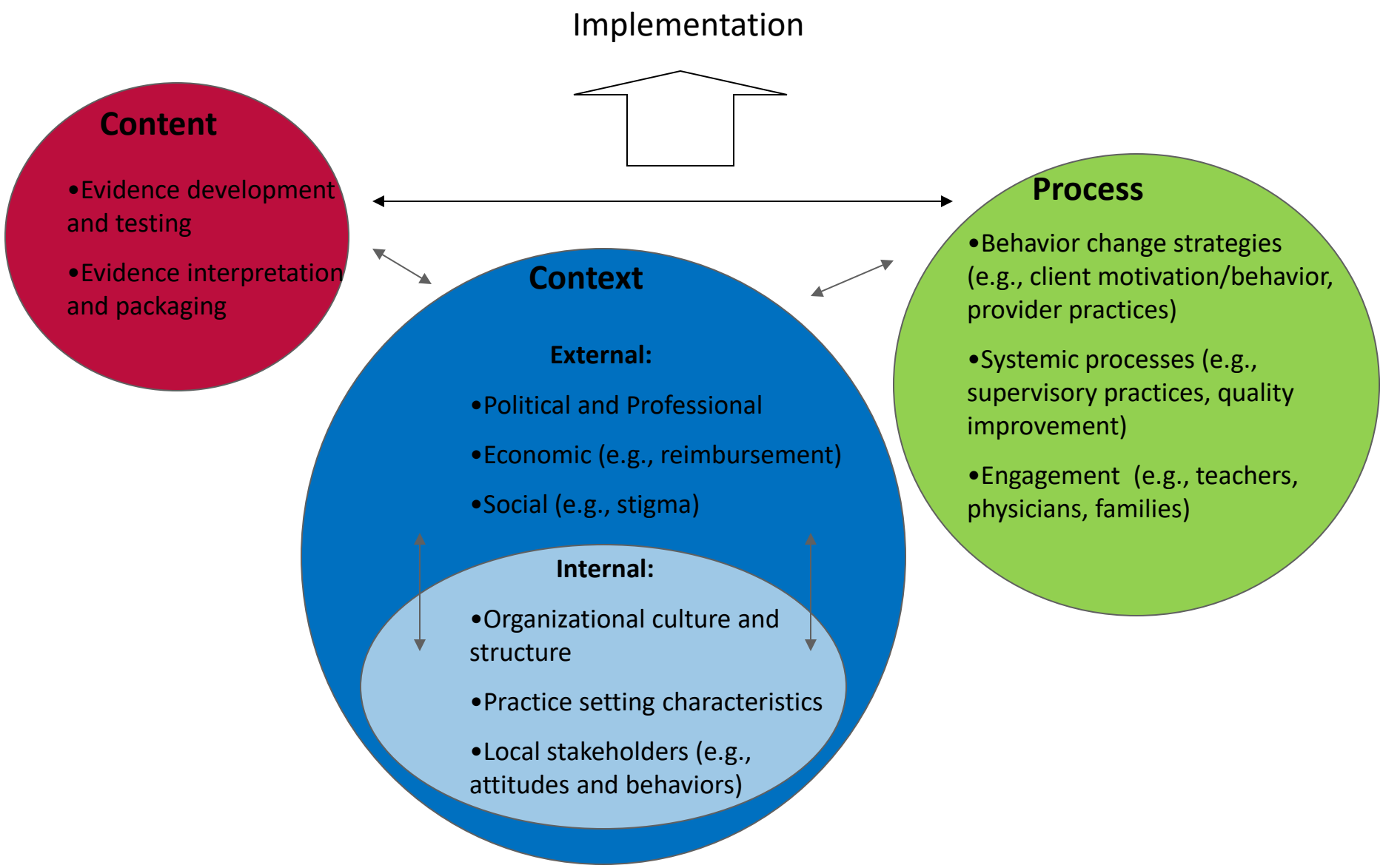
Building Momentum

- Child Mental Health, State MH Agency D&I Research Workshops (2002)
- Advancing the Science of Implementation Workshop (2004)

Novel Mechanisms

- RFAs for partnered research b/w State agencies, D&I researchers
- Regional meetings (w/ SAMHSA) on Science and Service
- New Training Programs

Real-World Implementation: The influence of content, context, and process



Adapted from Pettigrew et al, 1992 by Chambers, Ringeisen, Hoagwood & Patel, 2002

Scaling up D&I Research (aka Implementation Science)

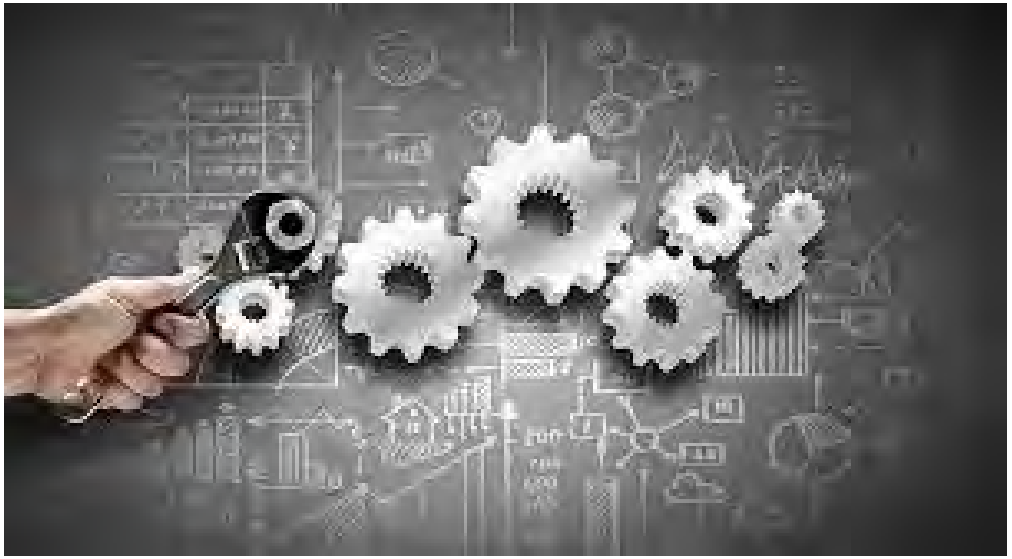
2002 OBSSR presentation on Type II Translational Research—presented NIMH Program Announcements on D&I Research

2003 a partnership with NIH partners (including NINR) to strategize

- Trans-NIH Funding Opportunities
- Expert Peer Review
- Training and Technical Assistance
- An Annual Conference

Collaboration w/ NCI

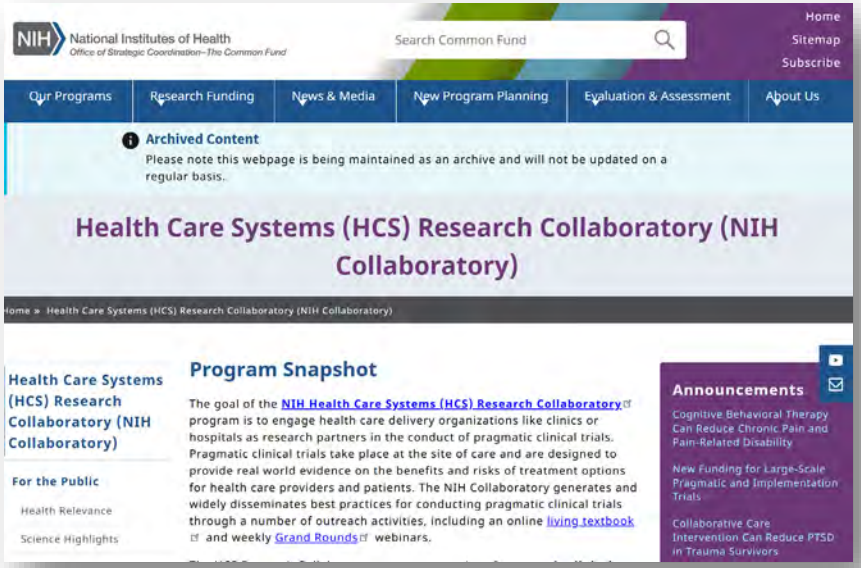
- Cancer Control P.L.A.N.E.T.
- Dialogue for Dissemination
- D&D Supplements
- iEBI (w/CDC)

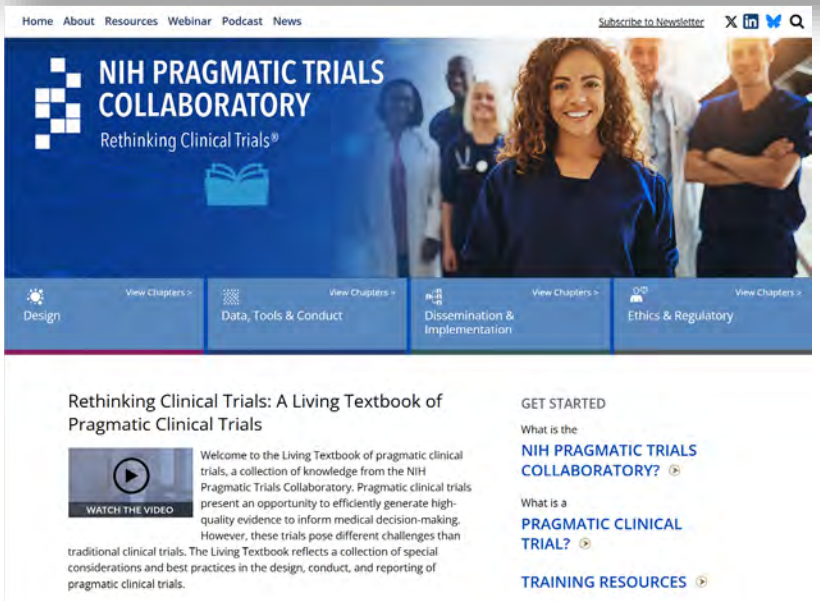


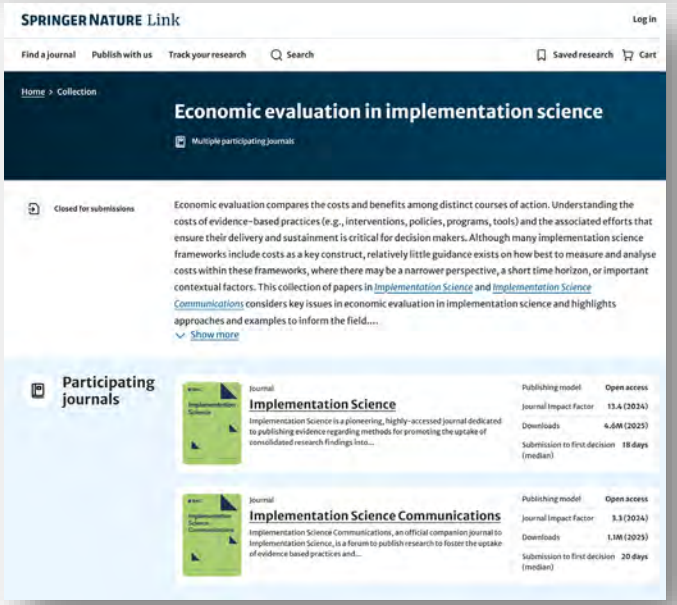
Bridging Across the NIH

- 2005 D&I Program Announcements (NIMH, NCI, NIDA, NIDCD, **NINR**, NIAAA, NIDCR, NHLBI, OBSSR, ODS)
- 2005 Joint NIH TA Workshop; reviewer orientation
- 2007 First NIH Conference on D&I (@ Natcher)
- 2009 D&I PARs reissued (12 ICs, OBSSR)
- 2010 CSR Standing Review Committee DIRH
- 2011 1st Summer Training Institute (w/theme song)
- 2012 Fifth NIH Conference (>1200 Registrants)
- 2013 D&I PARs reissued (15 ICs, OBSSR)
- 2013 6th Annual Workgroups—Training, Measures, Design

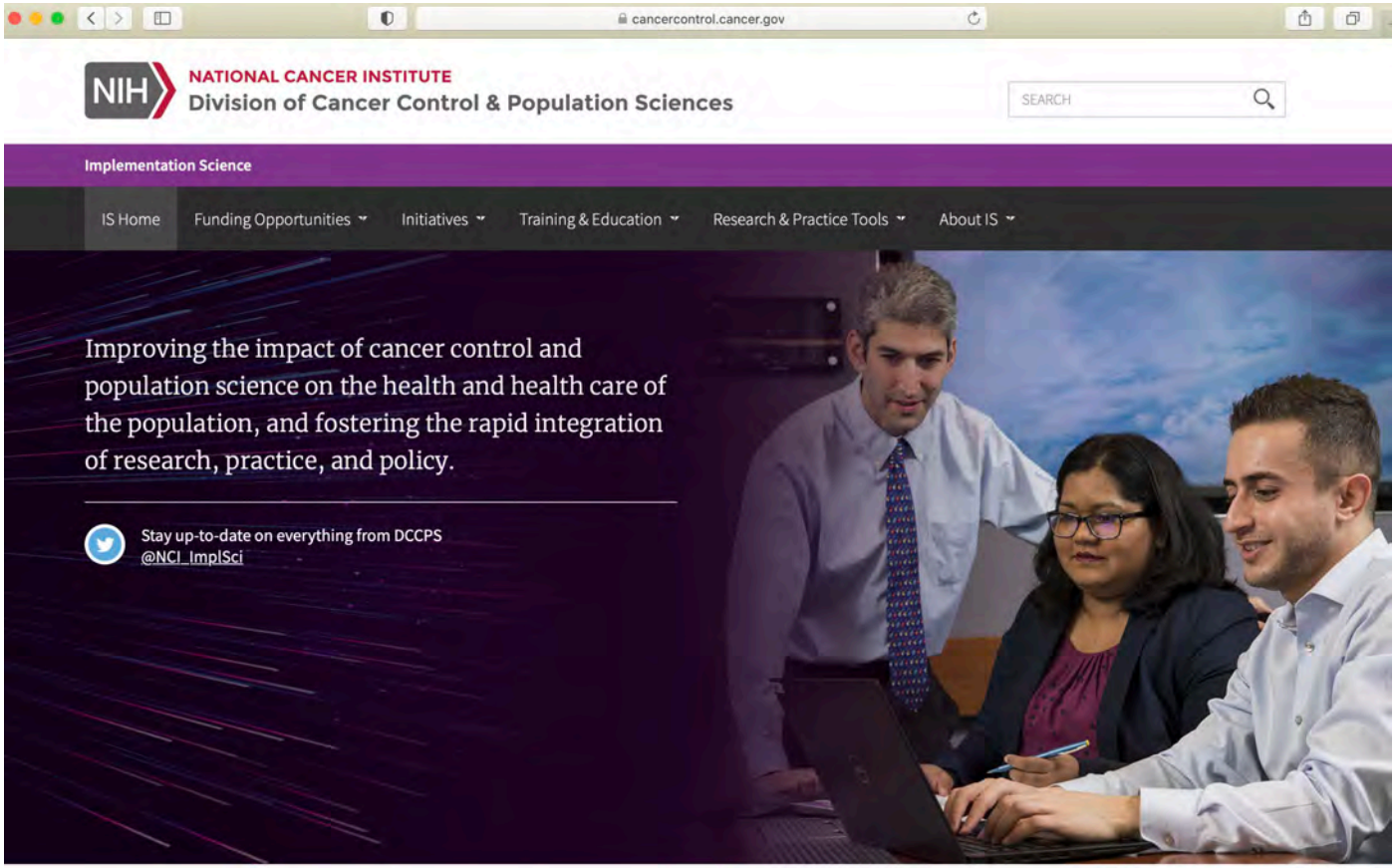
Bridging with Common Fund Initiatives







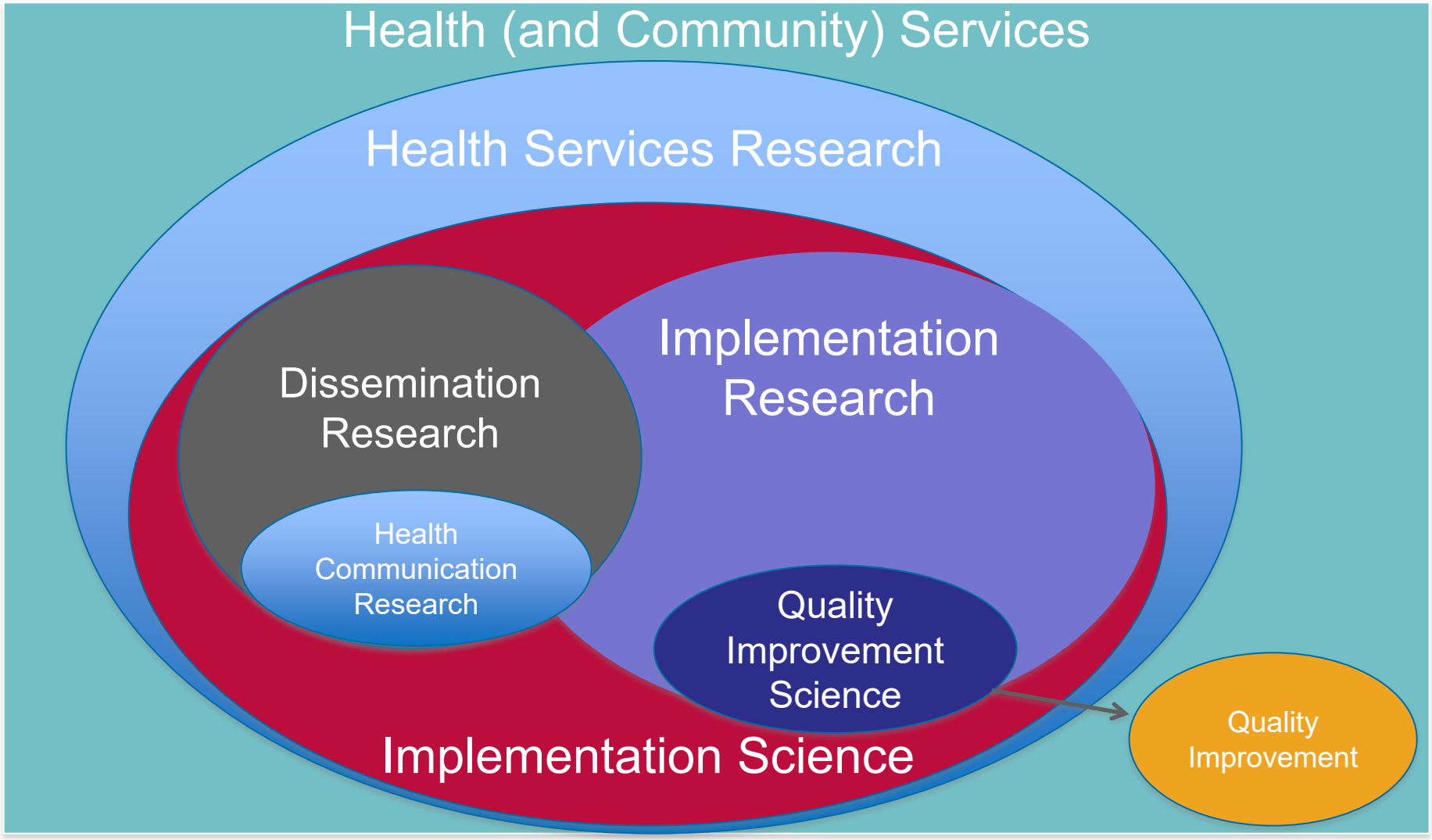
Implementation Science at NCI (2014-)



Three Strategic Goals:

- Advancing the Science of Implementation
- Integration of IS into Cancer Control Research (and beyond)
- Building Collaborations across Research, Practice and Policy

A big tent of terms (and Circles)



Mitchell and Chambers, *J Oncol Prac,* 2017

Building Implementation Science Capacity

TIDIRC

MT-DIRC
Mentored Training for Dissemination and Implementation Research in Cancer

IS-2 INSTITUTE FOR IMPLEMENTATION SCIENCE SCHOLARS

CCIS
Consortium for Cancer Implementation Science

TIDIRH

IRI
Implementation Research Institute

Mountain States Partnership
Community-Engaged Dissemination & Implementation

Clinical and Translational Science Awards (CTSA) Program

	D&I science program/ resource[a] *N* (%)	D&I science training/ workforce development *N* (%)	D&I scientific research projects[b] *N* (%)
Direct CTSA funding ($n = 37$)	20 (54.1)	19 (51.4)	22 (59.5)
Indirect CTSA support ($n = 37$)	26 (70.3)	24 (64.9)	20 (54.1)
Either type of support ($n = 37$)	28 (75.7)	26 (70.3)	28 (75.7)

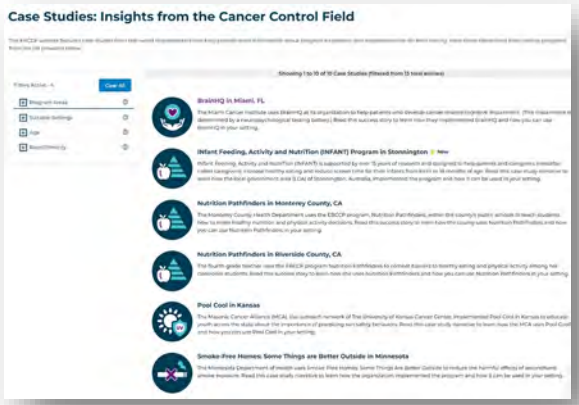
Dolor RJ et al. *JCTS*, 2020

ISC³

Fostering Collaborations Across Research and Practice

EBCCP
Evidence-Based Cancer Control Programs

CPCRN
Cancer Prevention and Control Research Network



CCIS
Consortium for Cancer Implementation Science

Comprehensive Cancer Control
Collaborating to Conquer Cancer

Trans-NIH PARs: Dissemination and Implementation Research in Health

PAR-25-144 (**R01**, Clinical Trials Optional)	PAR-25-143 (**R21**, Clinical Trials Optional)	PAR-25-233 (**R03**, Clinical Trials Not Allowed)
NCI, NEI, NHLBI, NCCIH, NHGRI, NIA, NIAAA, NIAID, NIAMS, NICHD, NIDA, NIDCD, NIDCR, NIEHS, NIMH, NIMHD, NINDS, **NINR**, ODP, OBSSR, THRO	NCI, NCCIH, NHGRI, NIA, NIAAA, NIAID, NIAMS, NICHD, NIDA, NIDCD, NIDCR, NIEHS, NIMH, NIMHD, NINDS, NINR, Fogarty (FIC), ODP, OBSSR, THRO	NCI, NHGRI, NIA, NIAAA, NICHD, NIDA, NIDCR, NIEHS, NIMH, NINDS, FIC, ODP, OBSSR, THRO


CANCER EPIDEMIOLOGY, BIOMARKERS & PREVENTION

Dissemination and Implementation Research at the National Cancer Institute: A Review of Funded Studies (2006–2019) and Opportunities to Advance the Field

Gila Neta, Mindy Clyne, and David A. Chambers

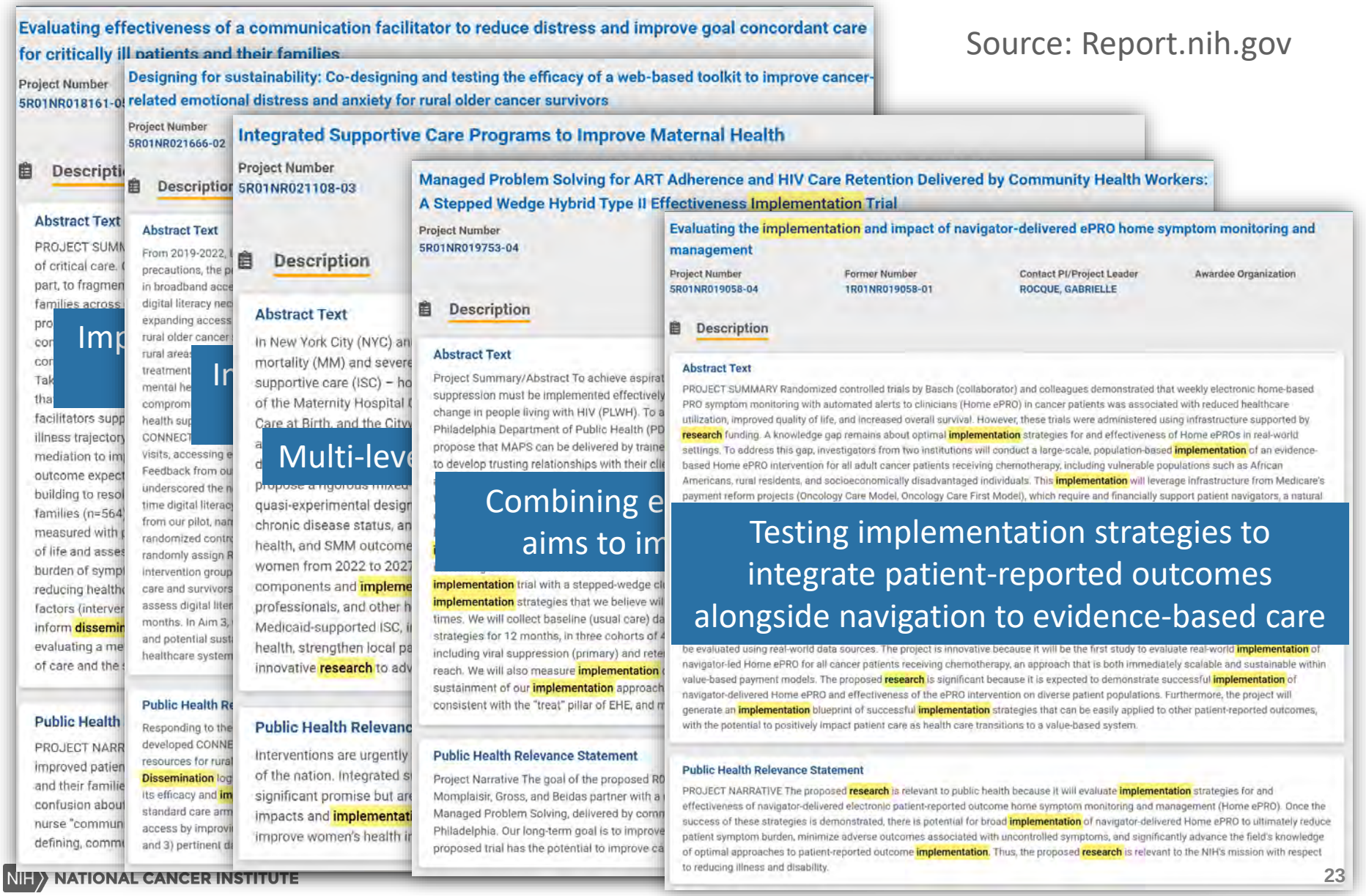
ABSTRACT

"National Institute of Nursing Research (NINR)
The National Institute of Nursing Research (NINR) supports research aligned with our mission and strategic priorities, conducted by scientists from any discipline… Drawing on the strengths of nursing's holistic, contextualized perspective, core values, and broad reach, NINR funds multilevel and cross-sectoral research that examines the factors that impact health across the many settings in which nurses practice, including homes, schools, workplaces, clinics, justice settings, and the community."

- Program Contacts for each I/C/O: (e.g. Gila Neta, Wynne Norton, NCI)
- IC-specific priorities in each announcement
- Sample grants available

Sample NINR Grants Advancing Implementation Science

Source: Report.nih.gov



Accelerating Colorectal Cancer Screening and follow-up through Implementation Science (ACCSIS)

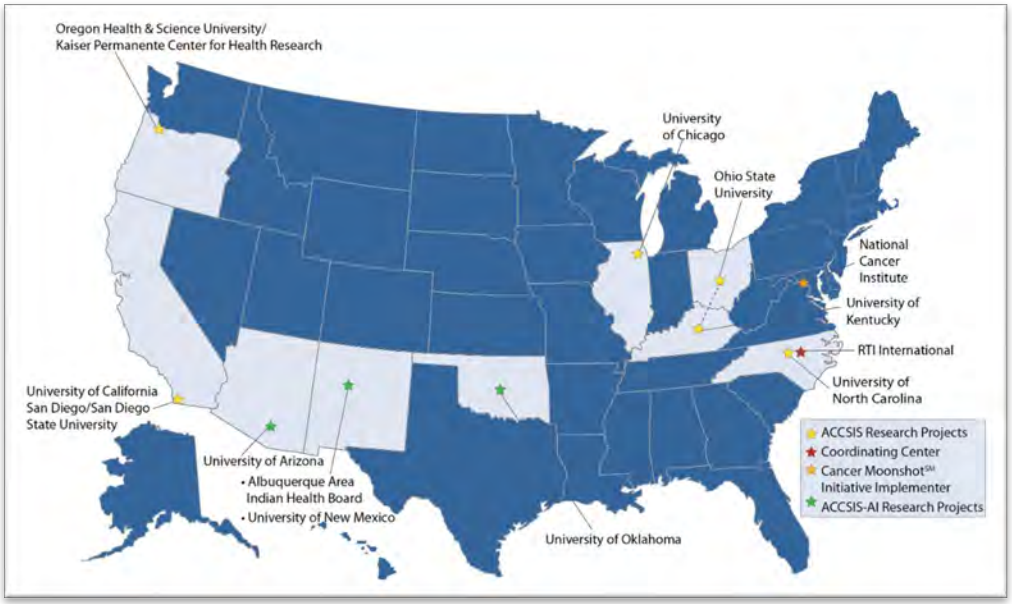
ACCSIS
Accelerating Colorectal Cancer Screening and Follow-Up Through Implementation Science

NCI: Sarah Kobrin, Wynne Norton, Michael Halpern, Robin Vanderpool, Genevieve Grimes, Sharon McCarthy (ACCSIS 1 and 2); Amy Kennedy & Shobha Srinivasan (ACCSIS AI)

Goal: Generate implementation strategies that substantially improve CRC screening and follow-up rates in populations where baseline rates remain low.

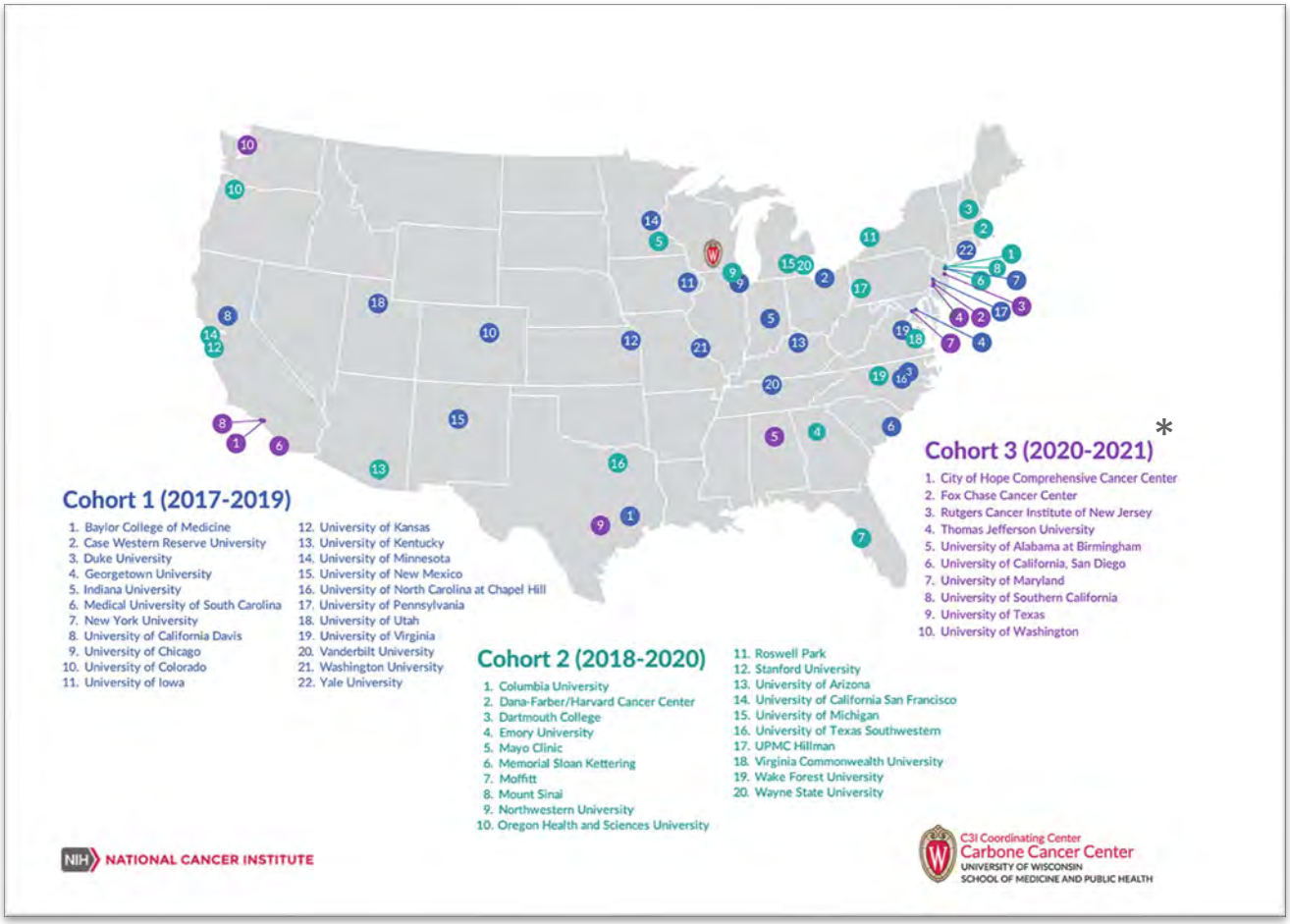
ACCSIS Consortium consists of one Coordinating Center (U24), five Research Projects (UG3/UH3) with 2 cohorts (ACCSIS 1, ACCSIS 2), and three ACCSIS American Indian Research Projects.

Emphasis on testing strategies addressing disparities in cancer screening, follow-up and referral to care across the United States



Cancer Center Cessation Initiative (C3I)

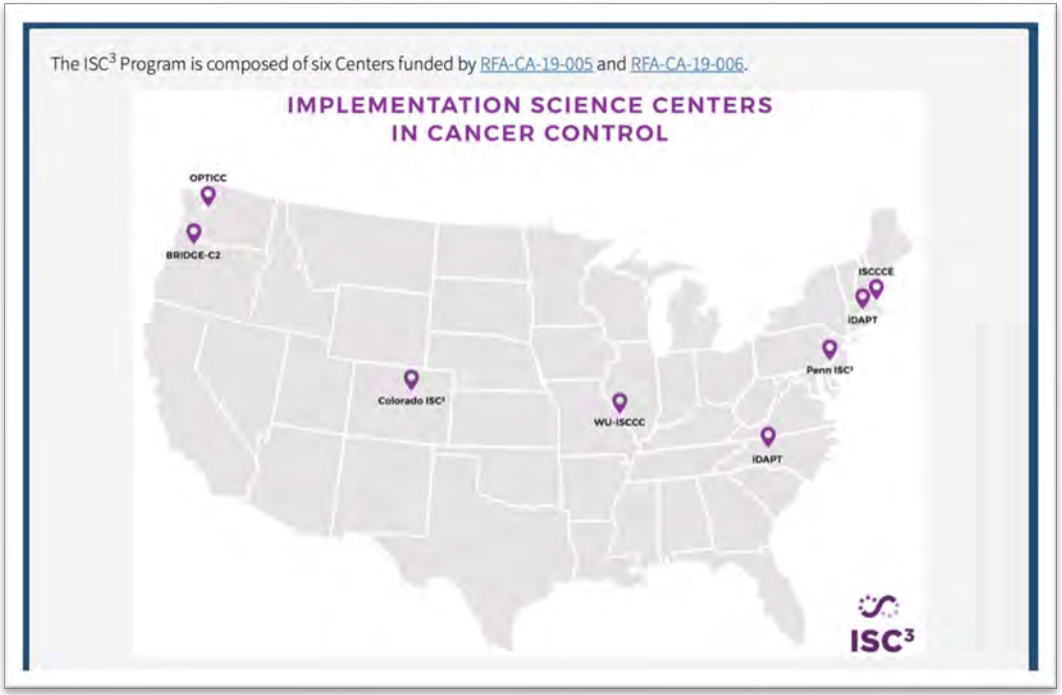
"Administrative supplements to develop tobacco cessation treatment capacity and infrastructure for cancer patients that should lead to the implementation and dissemination of a sustainable tobacco cessation treatment program within the cancer center."

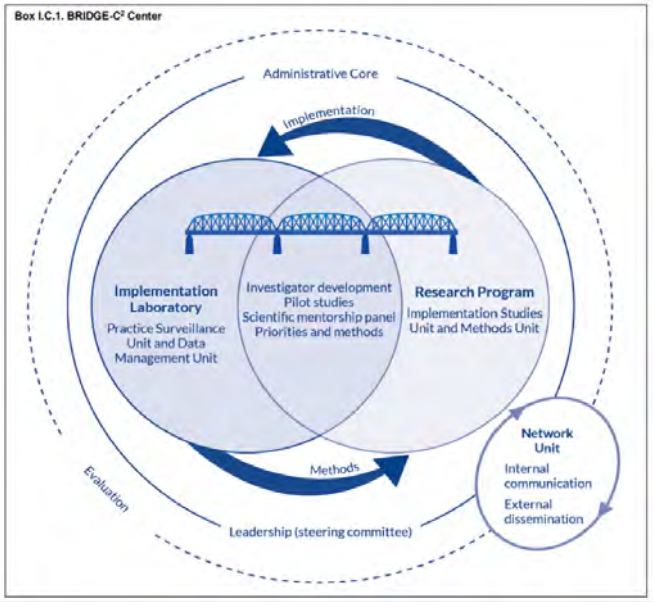


- NCI Lead: **Stephanie Land**
- Natural laboratory of 52 cancer centers for understanding implementation of tobacco cessation within cancer center care delivery
- *11 centers received add'l funding to focus on sustainment

Coordinating Center: University of Wisconsin Madison (Lead: Michael Fiore)

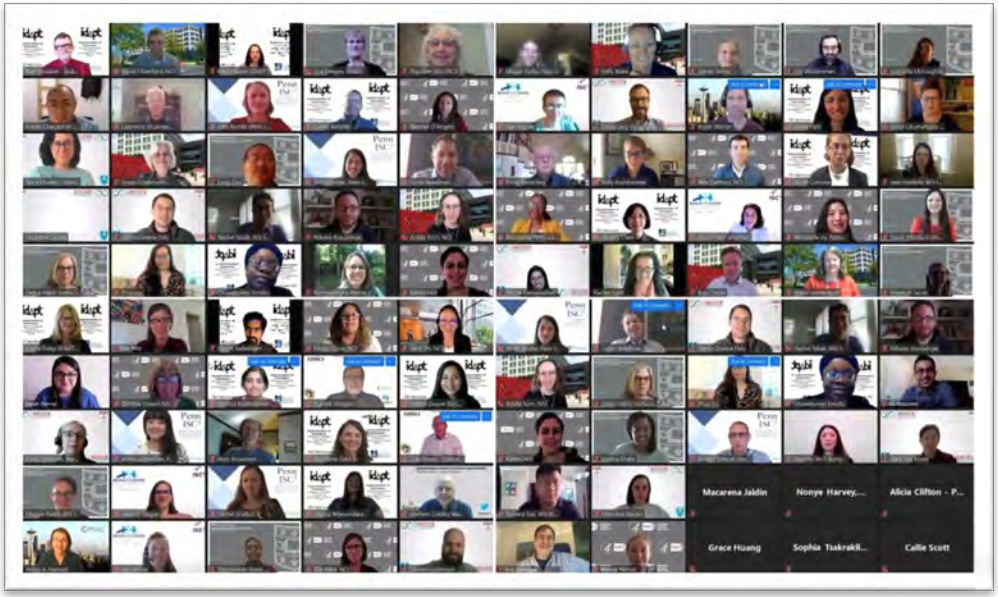
Implementation Science Centers in Cancer Control (ISC^{3})



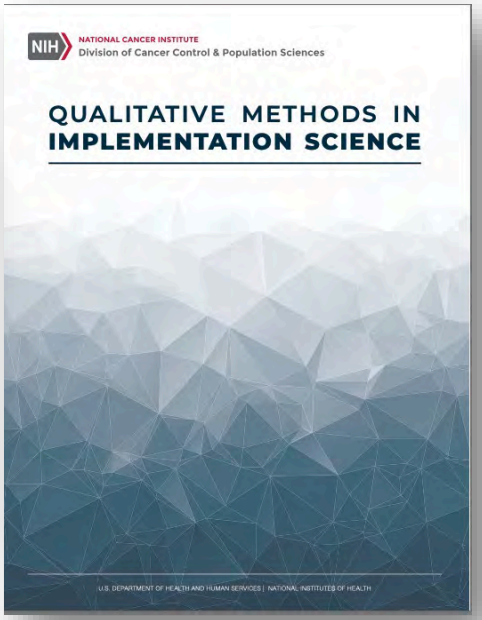


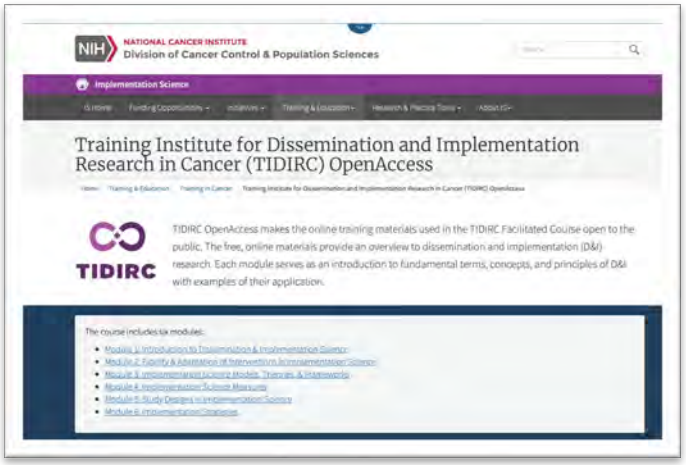
NCI Staff: Cynthia Vinson, April Oh, Wynne Norton (leads), Kelly Blake, Mindy Clyne, Robin Vanderpool, Amy Caplon, Heather D'angelo, Susan Czajkowski and more

https://cancercontrol.cancer.gov/is/initiatives/isc3



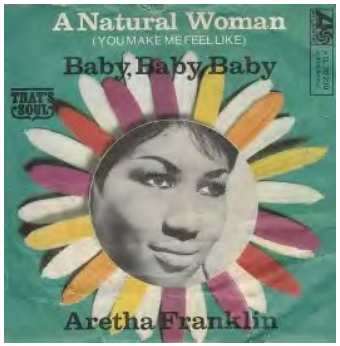
Implementation Science Resources

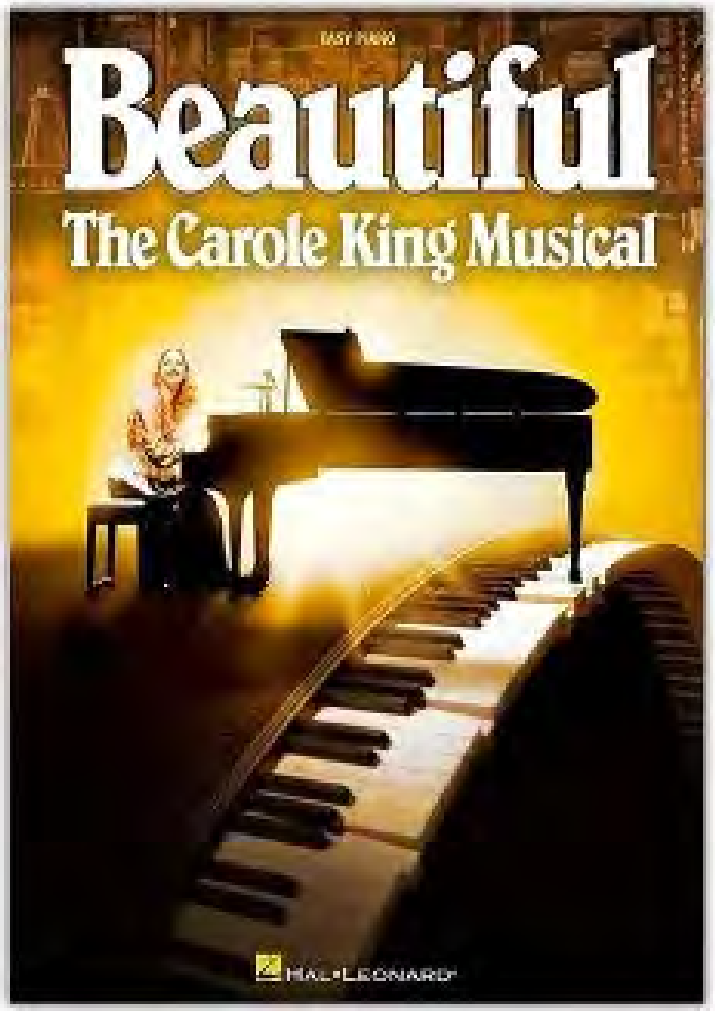


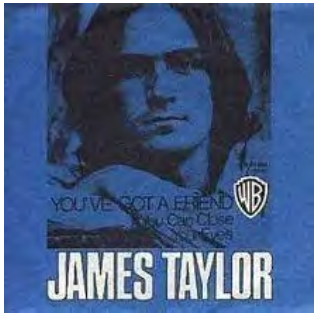


Embracing Dynamism

Fidelity versus Adaptation of Interventions

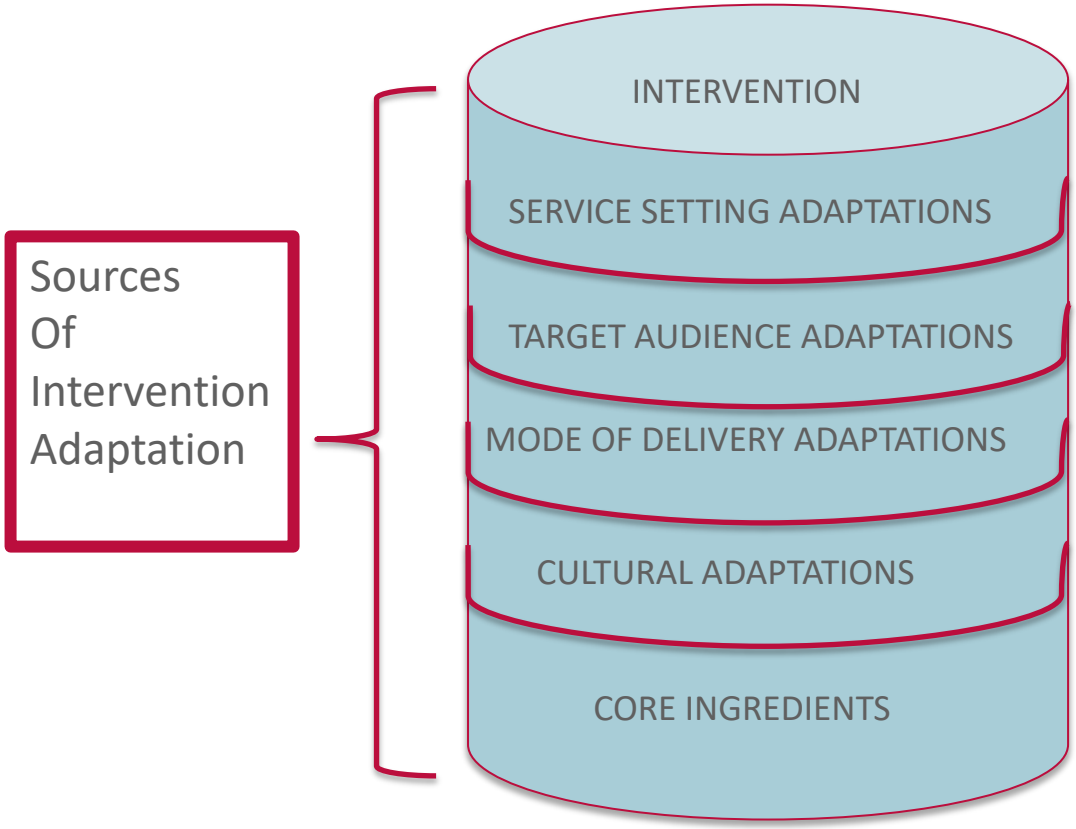






Variable use for variable populations, settings, and purposes…

In What Ways are Interventions Adapted?

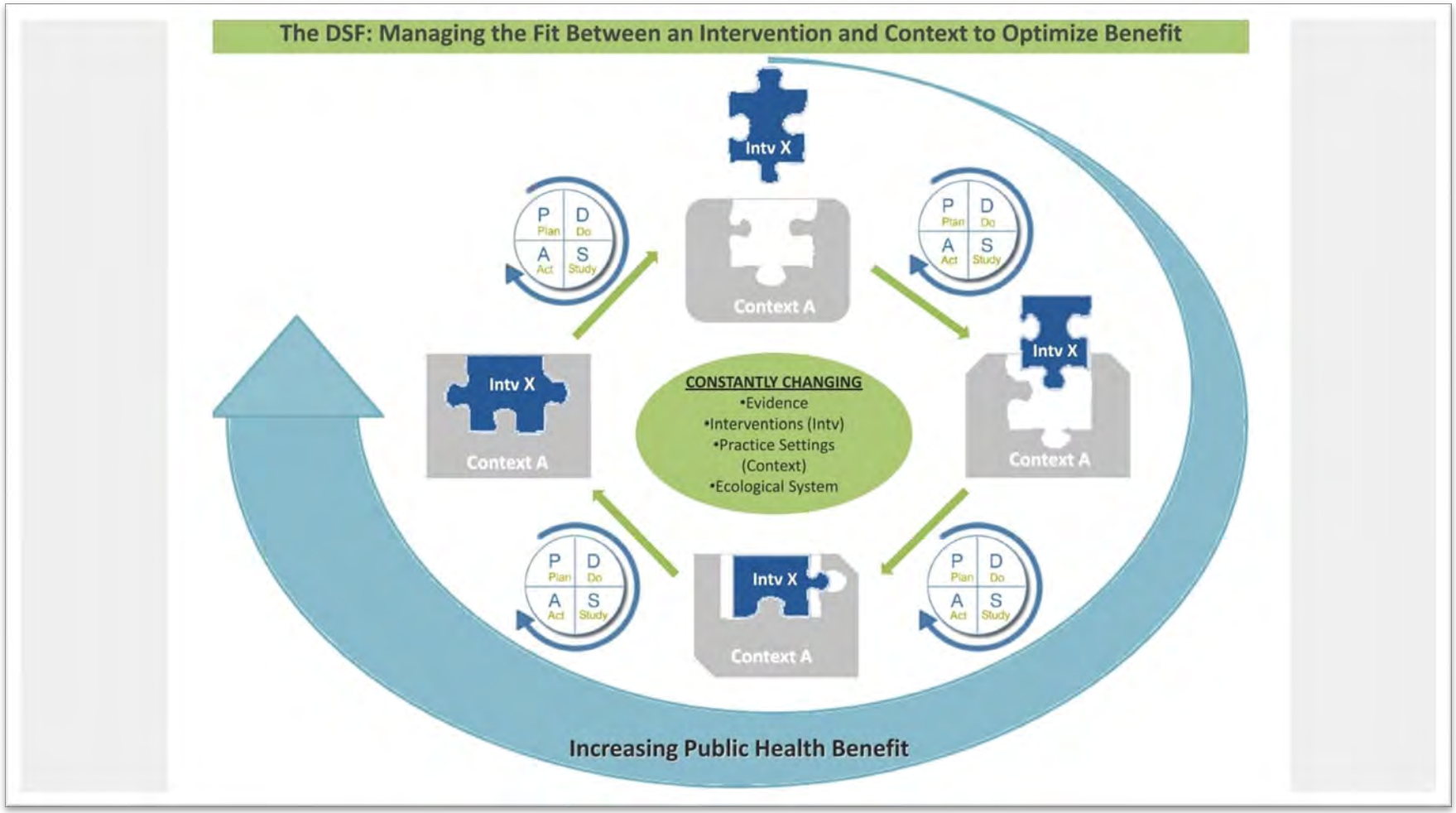


Chambers & Norton, 2016

Sustainability or Evolution?

- IF HEALTH CARE CONTINUES TO EVOLVE, SHOULD EXISTING INTERVENTIONS BE SUSTAINED IN THE SAME FORM THAT WE'VE CREATED THEM?
- HOW DOES THE SYSTEM COPE WITH A DYNAMIC FIELD THAT IS CONSTANTLY CHANGING?
- WHERE DO WE GO FROM HERE?

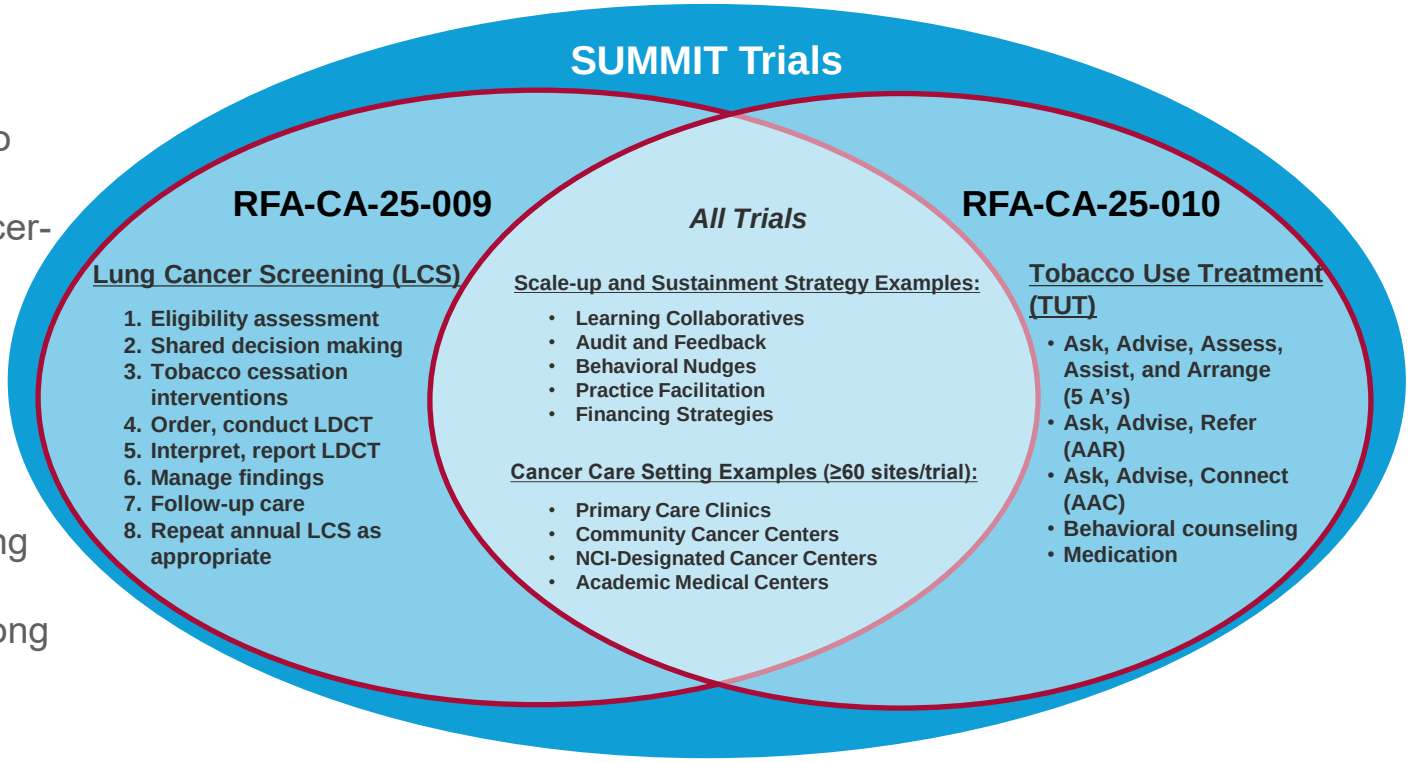
Expecting Dynamism over time…



Chambers, Stange, & Glasgow, *Implementation Science,* 2013

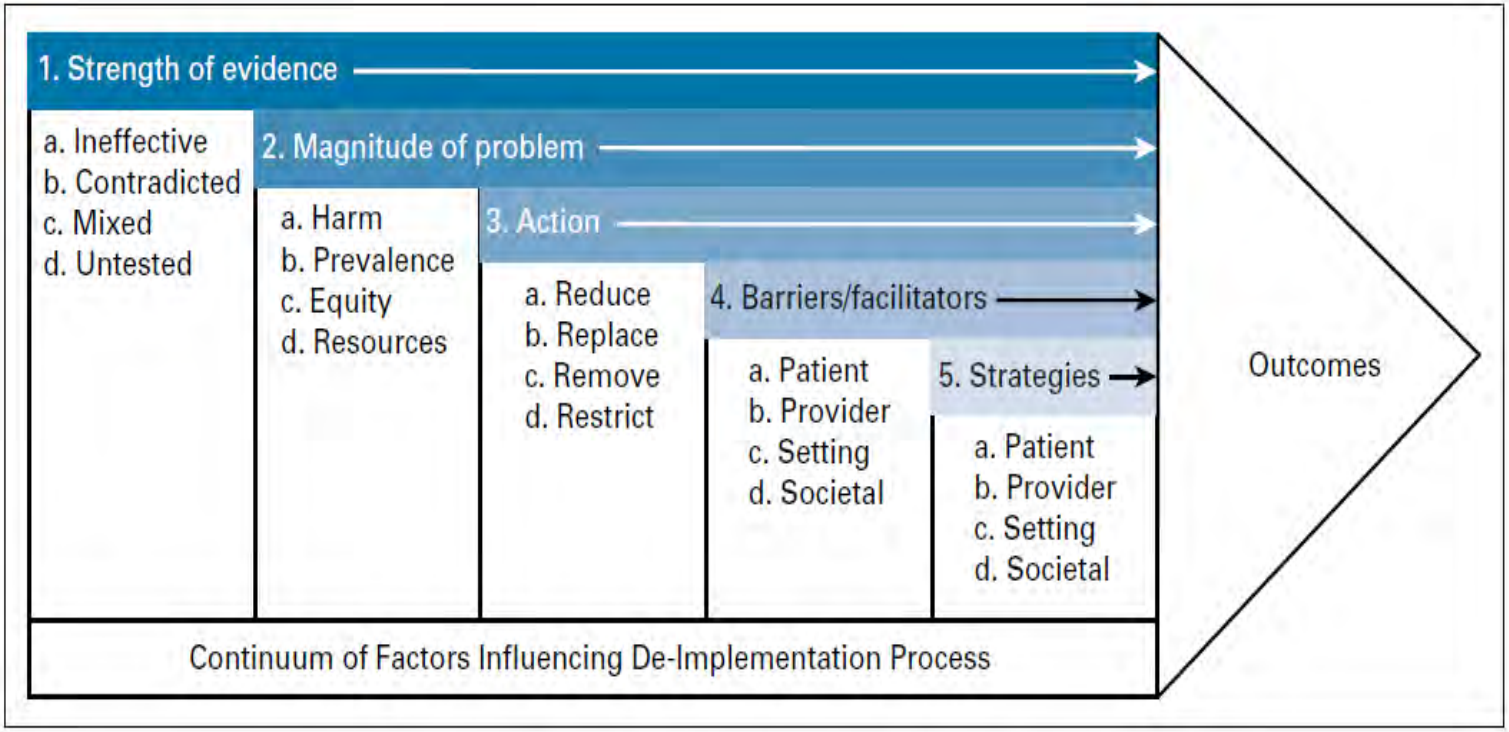
Purpose:

- **Advance the science of scale-up and sustainment** to increase the widescale, long-term delivery of effective cancer-related interventions.
- **Reduce cancer-related deaths** by significantly increasing (1) lung cancer screening (LCS) among populations at high risk for lung cancer and (2) tobacco use treatment (TUT) services among cancer survivors.
- **Develop generalizable knowledge** on how to scale-up and sustain effective cancer-related interventions.



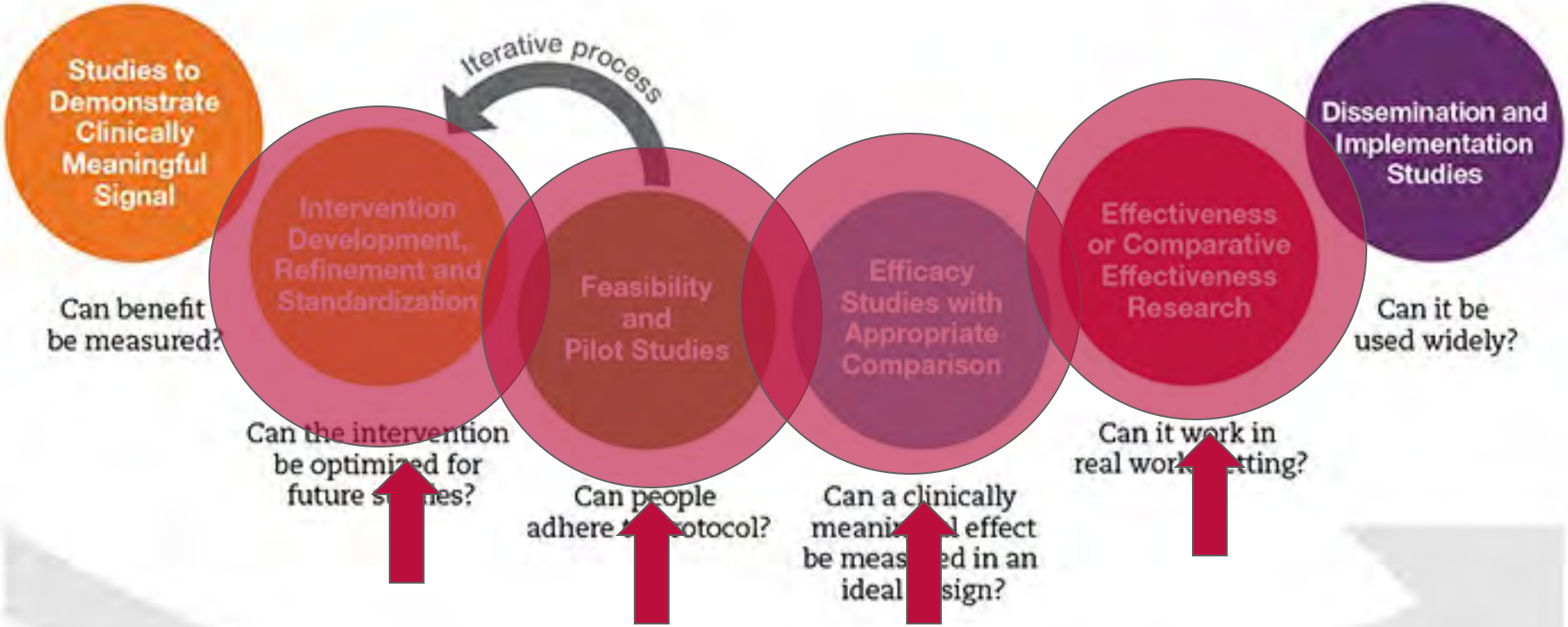
Four Projects (3 for LCS, 1 for TUT for Cancer Survivors)
More than 300 sites expected to be part of trials

Need: Understanding De-Implementation



Norton, Chambers, & Kramer, *JCO*, 2018

Considering D&I earlier



An earlier focus on…

- 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

Chambers and Emmons
Implementation Science (2024) 19:26
https://doi.org/10.1186/s13012-024-01352-0

COMMENTARY Open Access

Navigating the field of implementation science towards maturity: challenges and opportunities

David A. Chambers[1*] and Karen M. Emmons[2]

Embracing the goal of "big tent"

The implementation science community should embrace the goal of a "big tent," in which all partners can contribute to the development and execution of implementation studies.

This goal may be aided by addressing a set of observations to support this community of science and practice.

NINR Collaborators (2005-present): Martha Hare, PhD, RN; Karen Kehl, PhD; Lynn Adams, PhD; Augie Diana, PhD; Karen Huss, PhD, RN, APRN-BC, FAAN, FAAAAI; Dara Blachman-Demner, PhD; Mary Bowen, PhD; Paul Cotton, PhD

dchamber@mail.nih.gov
240-276-5090