Dissemination and Implementation Research: Optimizing the Success of Health Care

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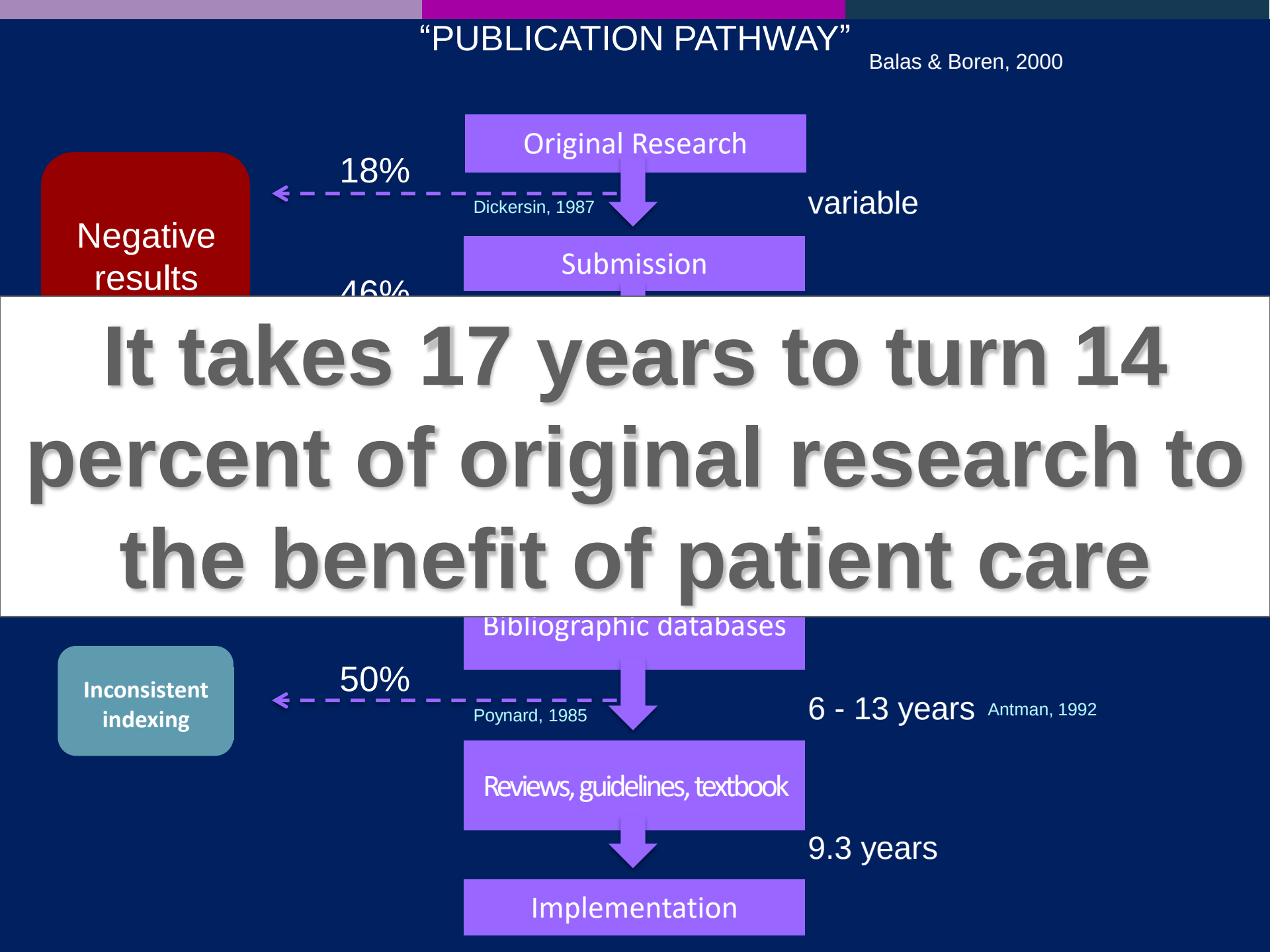
Session Outline

- An Overview to D&I
- Considering Intervention Design
- Challenging basic assumptions
- Funding Opportunities and Resources


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

A Challenge from Multiple Perspectives…

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

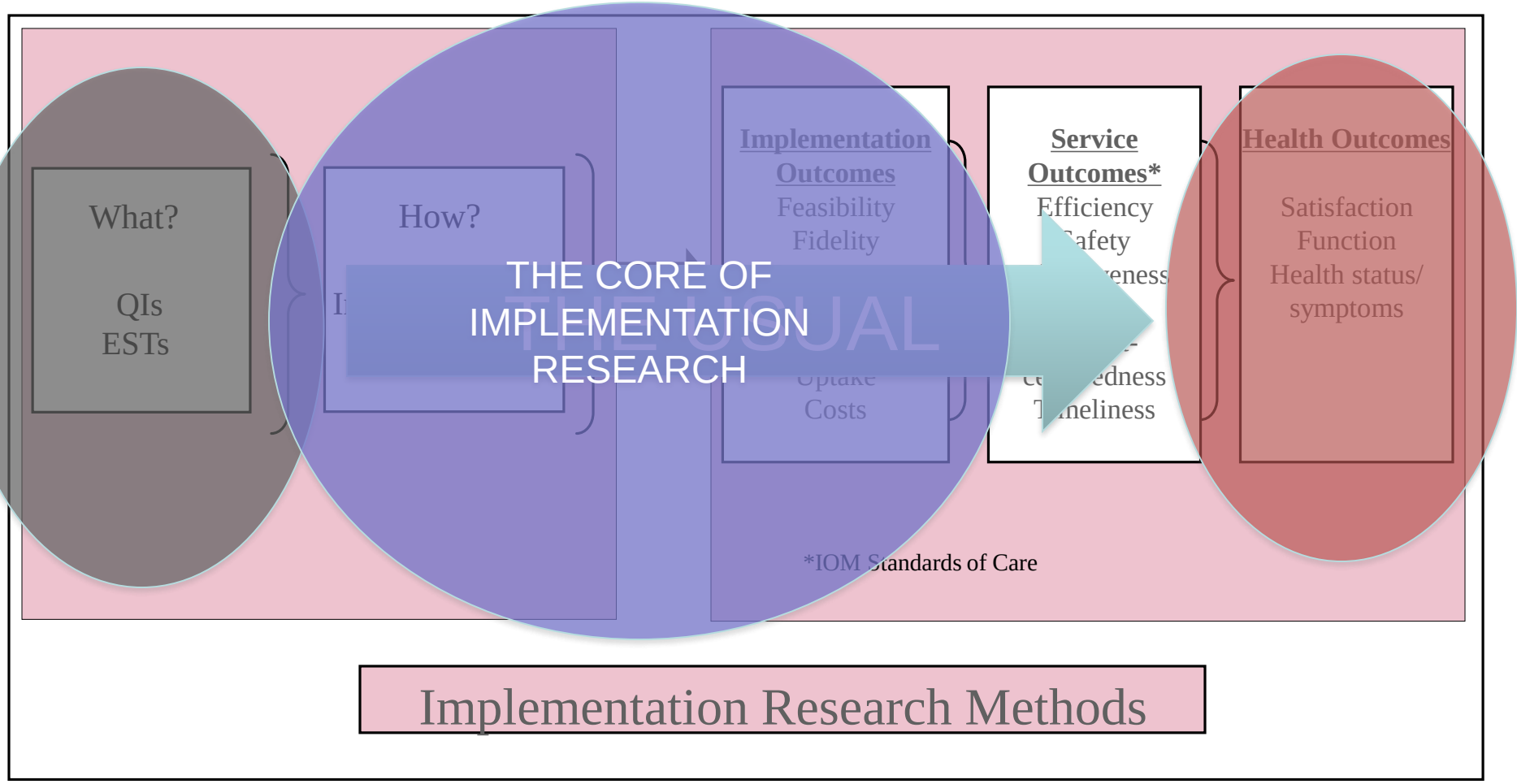
More than Efficacy/Effectiveness

Glasgow, Vogt, & Boles (1999)

Key Terms

- ***Implementation Science*** is the study of methods to promote the integration of research findings and evidence into healthcare policy and practice.
- ***Dissemination research*** is the scientific study of targeted distribution of information and intervention materials to a specific public health or clinical practice audience. The intent is to understand how best to spread and sustain knowledge and the associated evidence-based interventions.
- ***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.

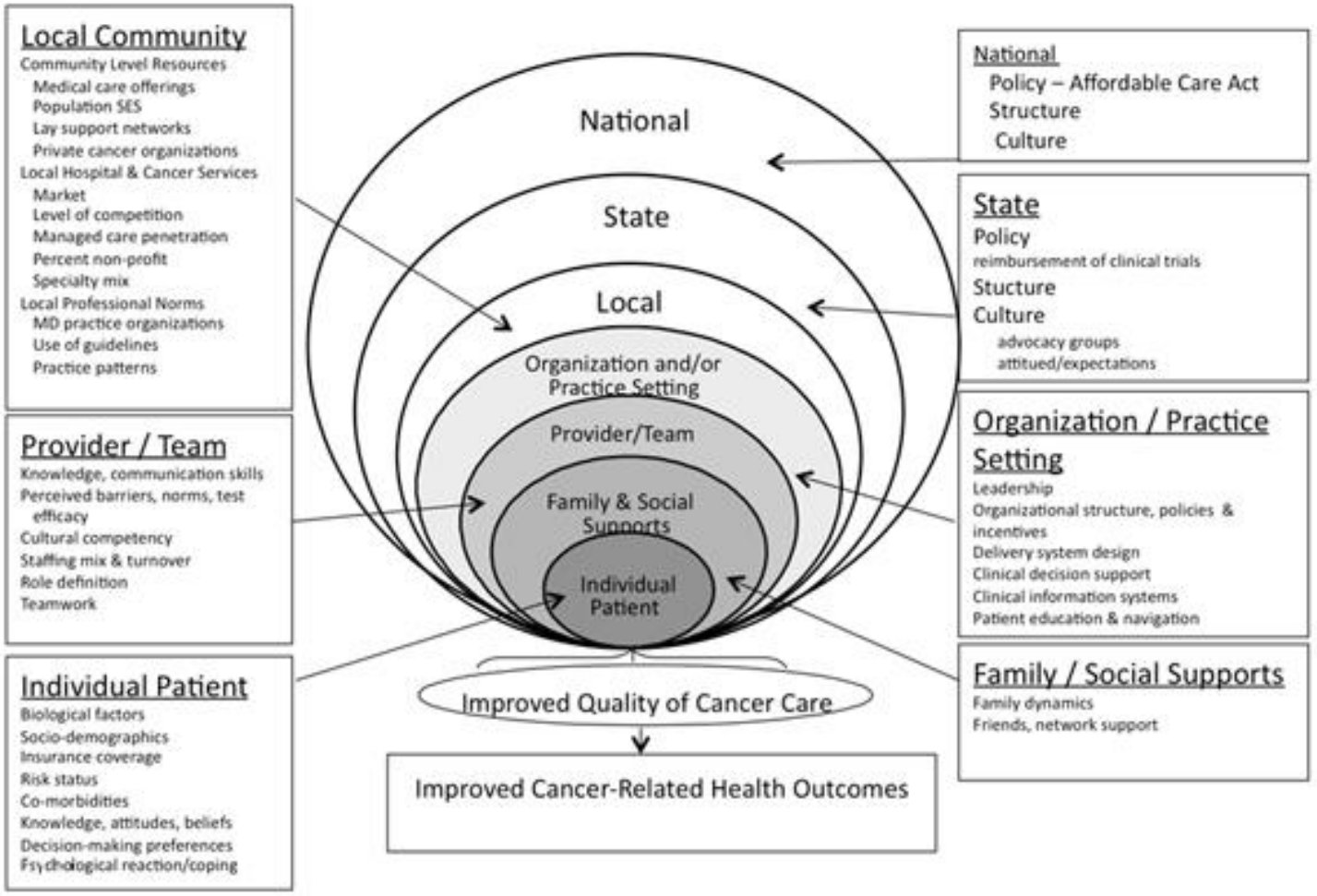
Studying Implementation



Proctor et al 2009 *Admin. & Pol. in Mental Health & Mental Health Services Research*

A multi-level challenge no matter WHAT…

Figure 1: The multilevel context of care



Taplin et al, *JNCI*, 2012

The fish-bicycle conundrum…

Ref: Paraphrased from Irina Dunn, 1970

The Importance of WHAT…

What is the intervention that needs to be implemented?

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

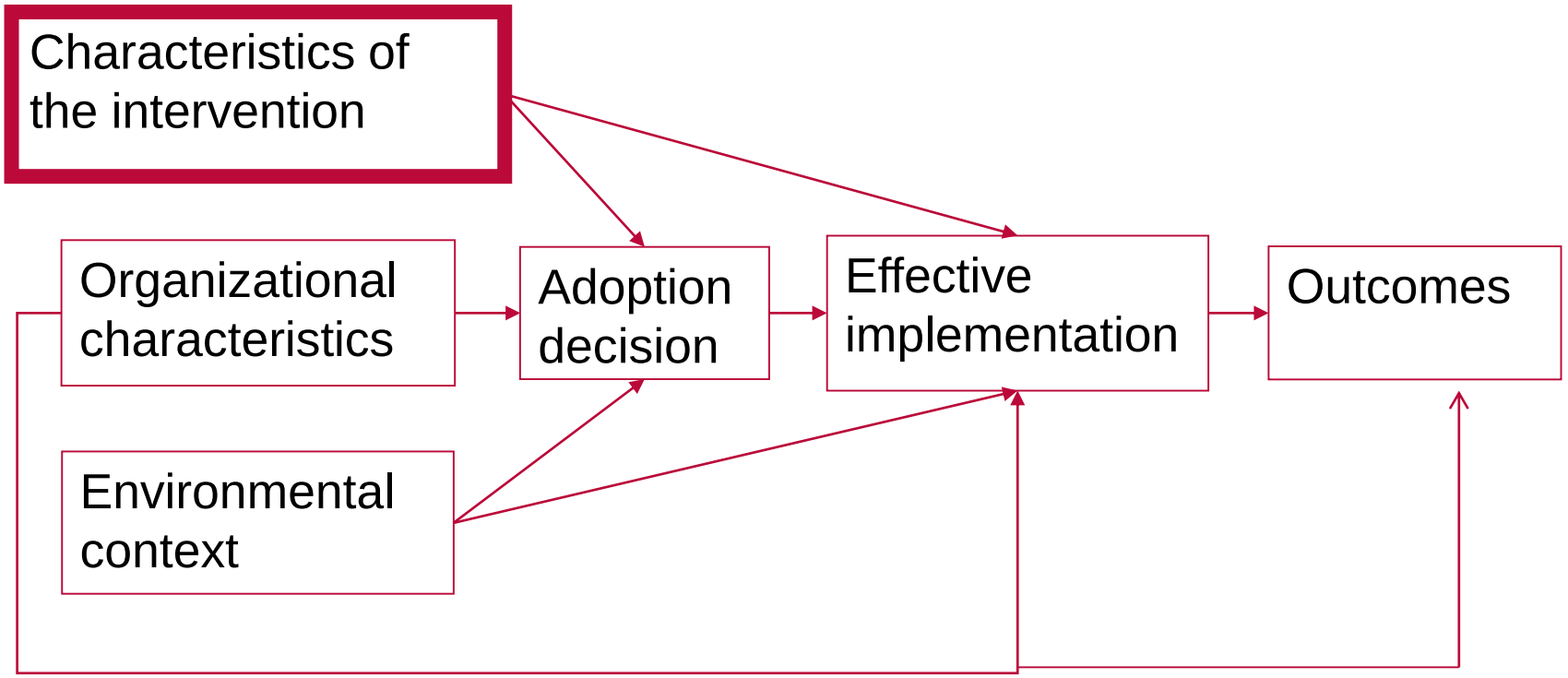
What

Tabak et al. review of Implementation Science Models

- Identified 109 models
- Exclusions
  - 26 focus on practitioners
  - 12 not applicable to local level dissemination
  - 8 end of grant knowledge translation
  - 2 duplicates
- Included 61 models
- Across Construct Flexibility, SEF, D/I

Tabak, Khoong, Chambers, Brownson, *AJPM, 2012*

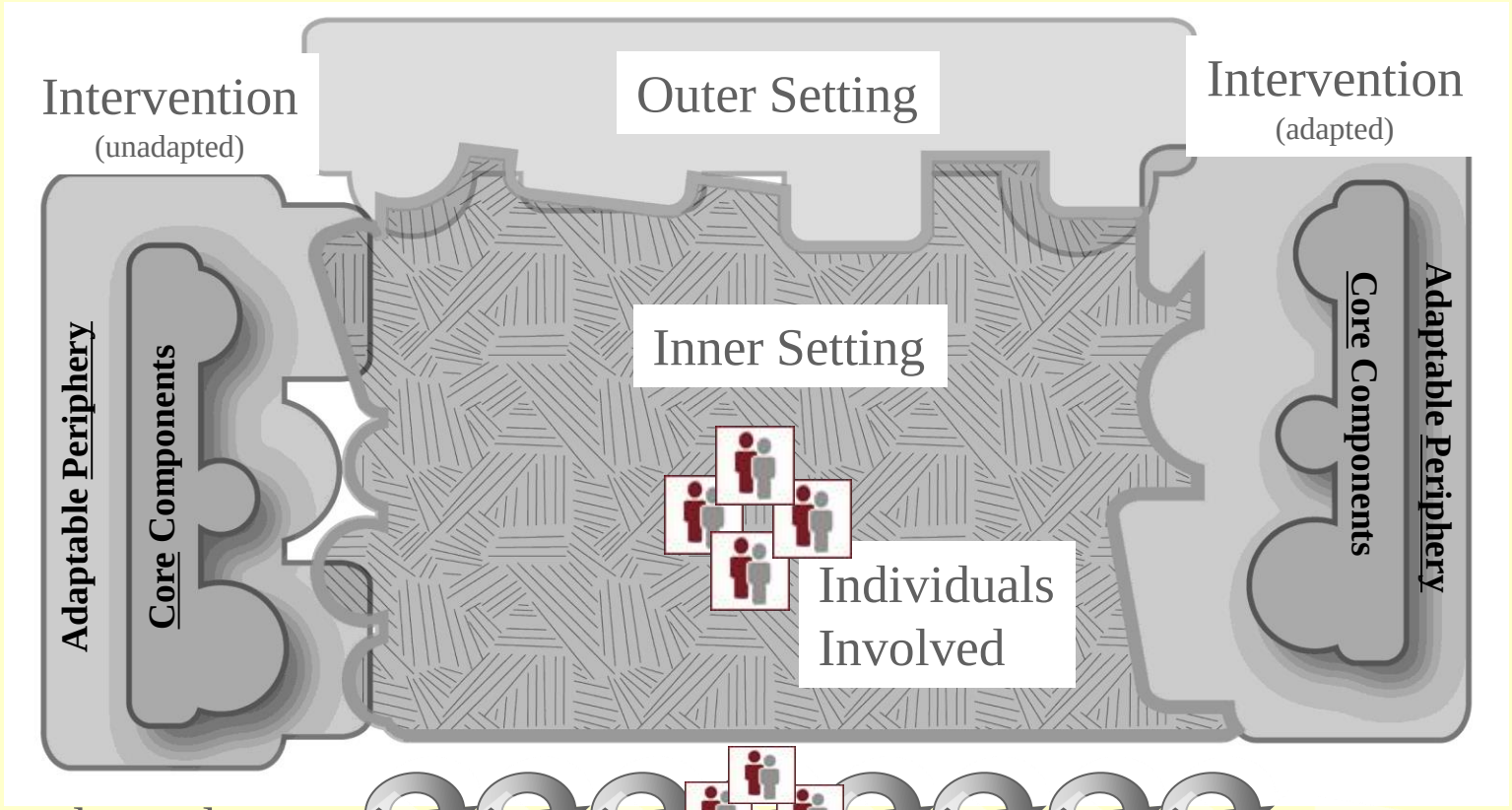
Roger's Diffusion of Innovations



CIPRS: Stetler & Damschroder Theoretical Frameworks

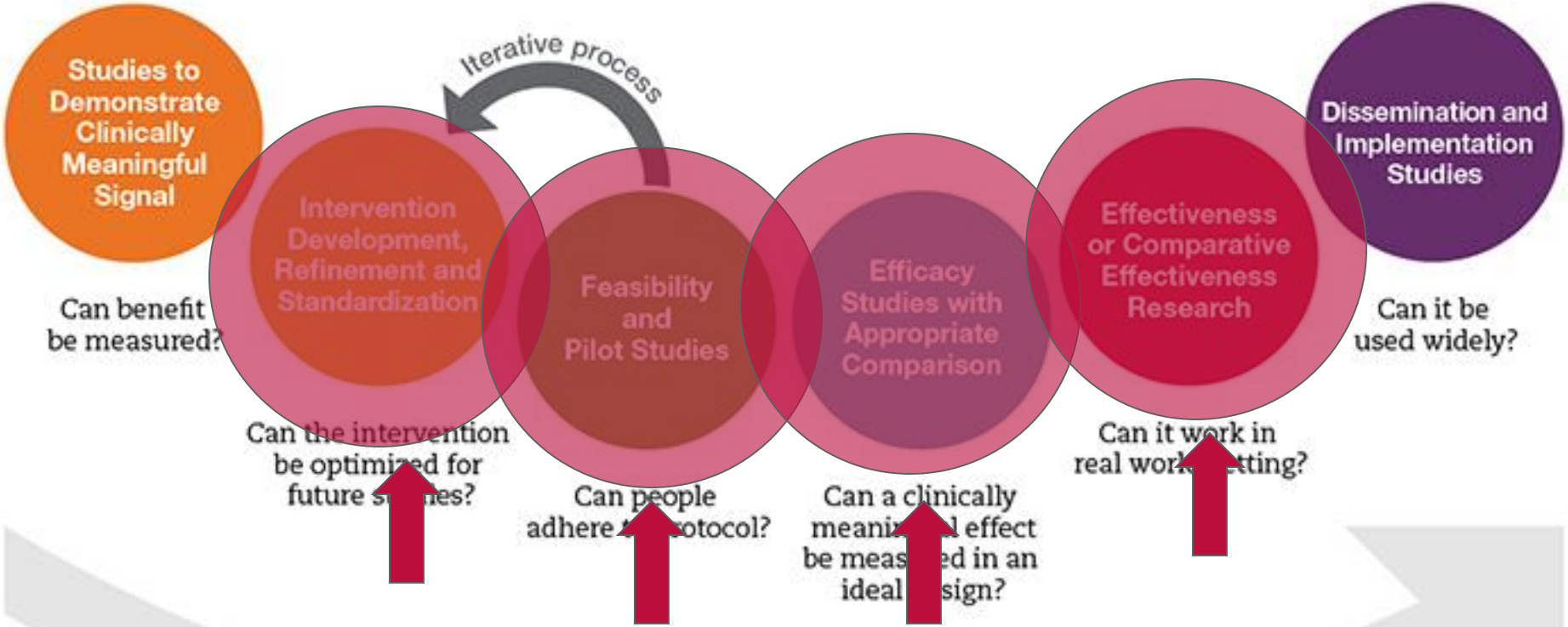
Krein SL, Olmsted RN, Hofer TP, Kowalski C, Forman J, Banaszak-Holl J, et al. Translating infection prevention evidence into practice using quantitative and qualitative research. *Am. J. Infect. Control* 2006;34(8):507-12.

D& I Models: Damschroder's Consolidated Framework for Implementation Research (CFIR)



Damschroder and Damush, 2009

Considering D&I earlier

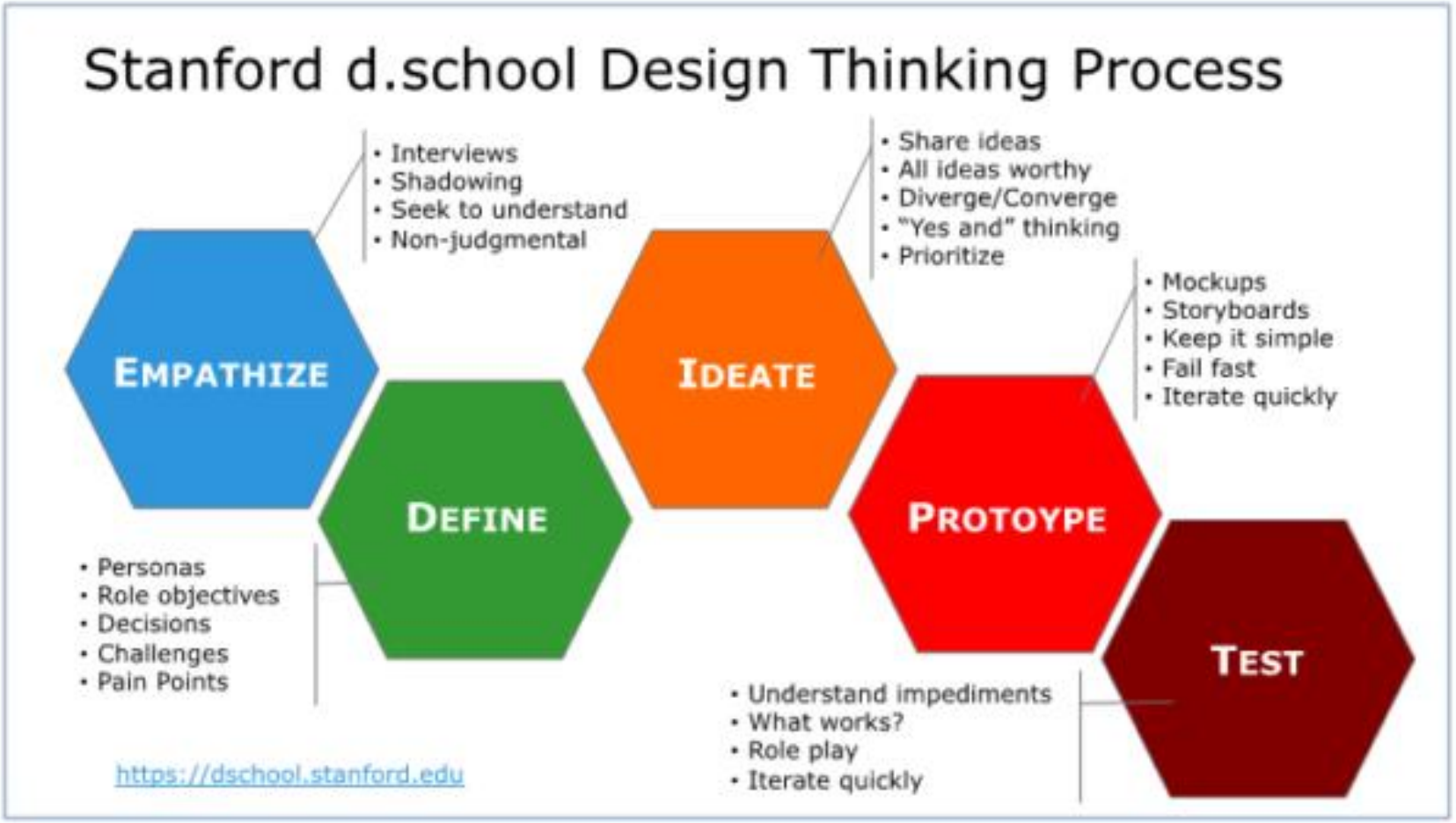


https://ncci

An earlier focus on…

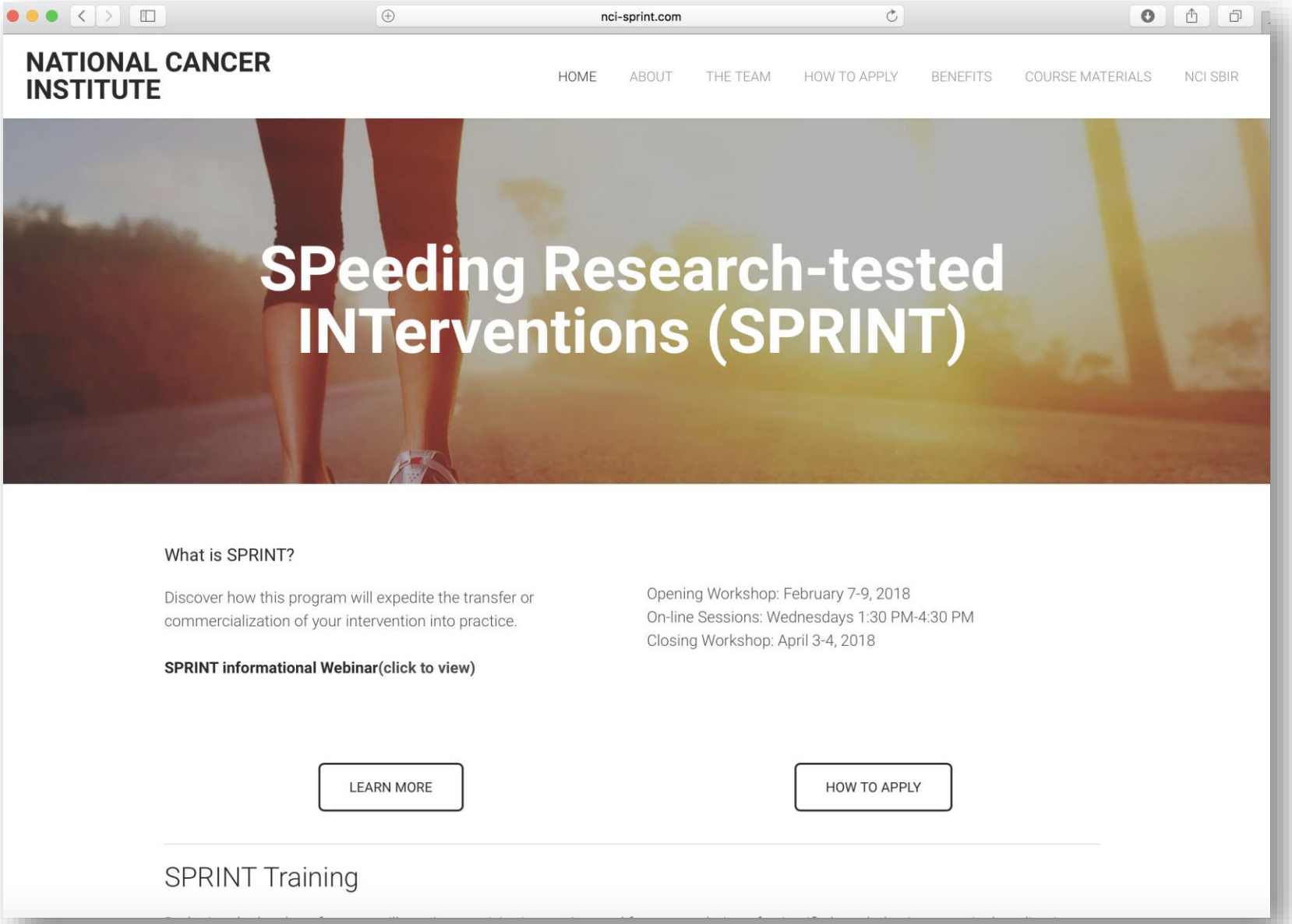
- Who's going to deliver it?
- Fit with ultimate patient population
- Building in tests of training, support, adherence, mediators and moderators to high quality delivery
- Hybrid designs

Toward User-Centered Design…

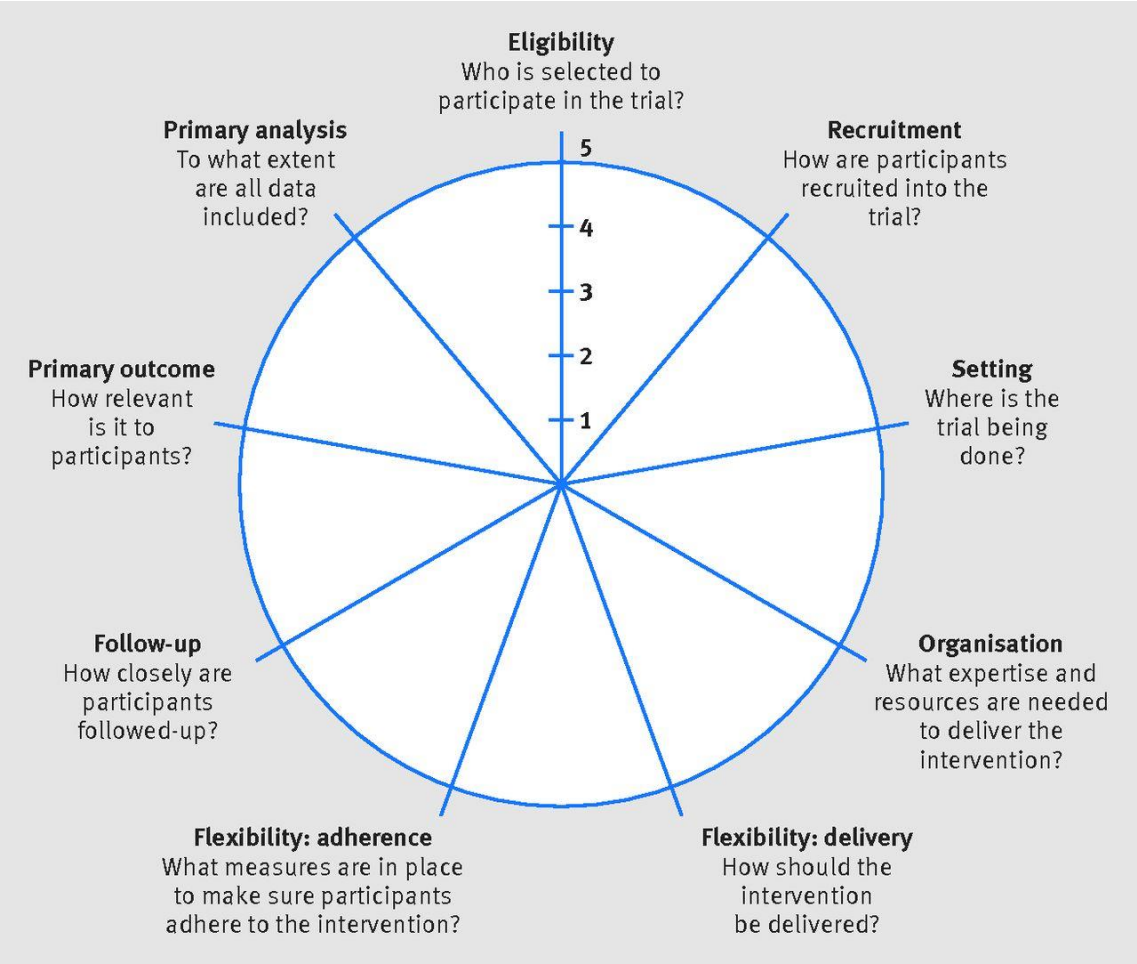


https://healthinnovationresearch.com/2018/03/01/how-human-centred-design-is-being-applied-to-health-outcomes-research/

NCI's "Designing for Dissemination and Implementation"



The PRECIS-2 Tool

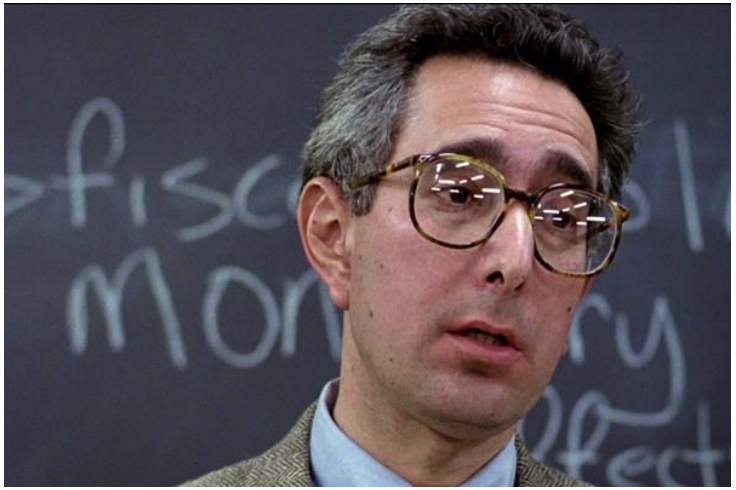


Loudon et al, *BMJ, 2015; Johnson, Neta et al,* Trials, *2016*

CHALLENGING BASIC ASSUMPTIONS

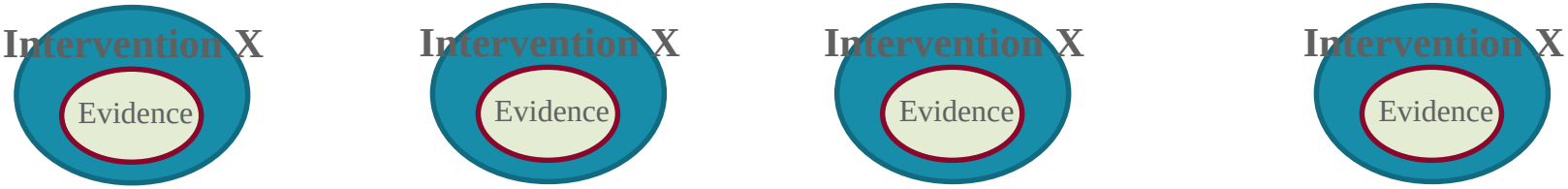
Traditional Assumptions

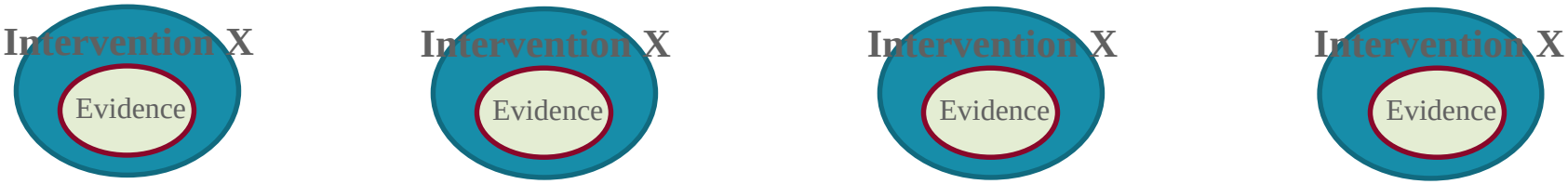
- EBPs are static
- System is static
- Implementation proceeds one practice or test at a time
- Consumers/Patients are homogeneous
- Choosing to not implement is irrational



Valuing Consistency

ITV Development → Efficacy → Effectiveness → Implementation

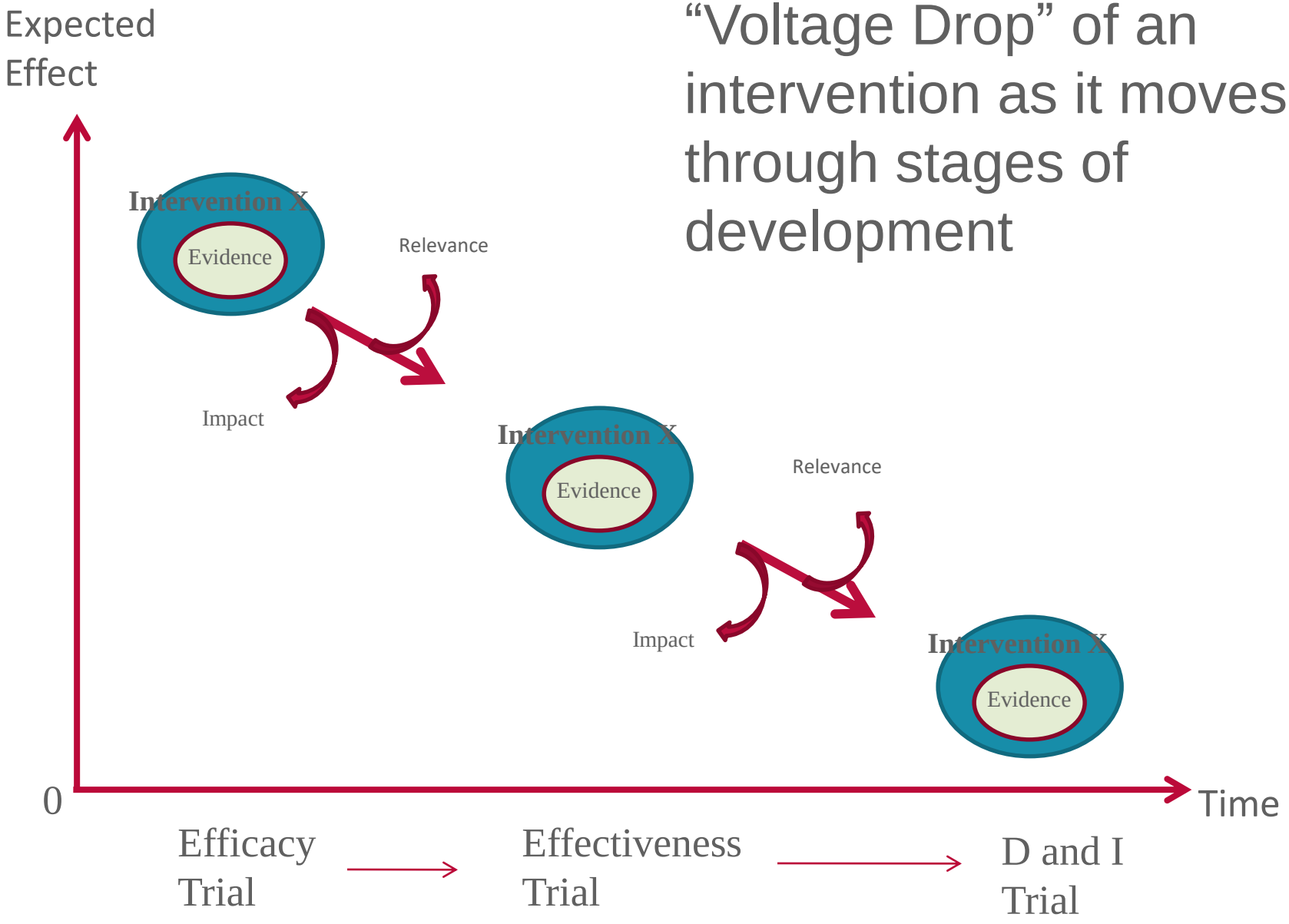




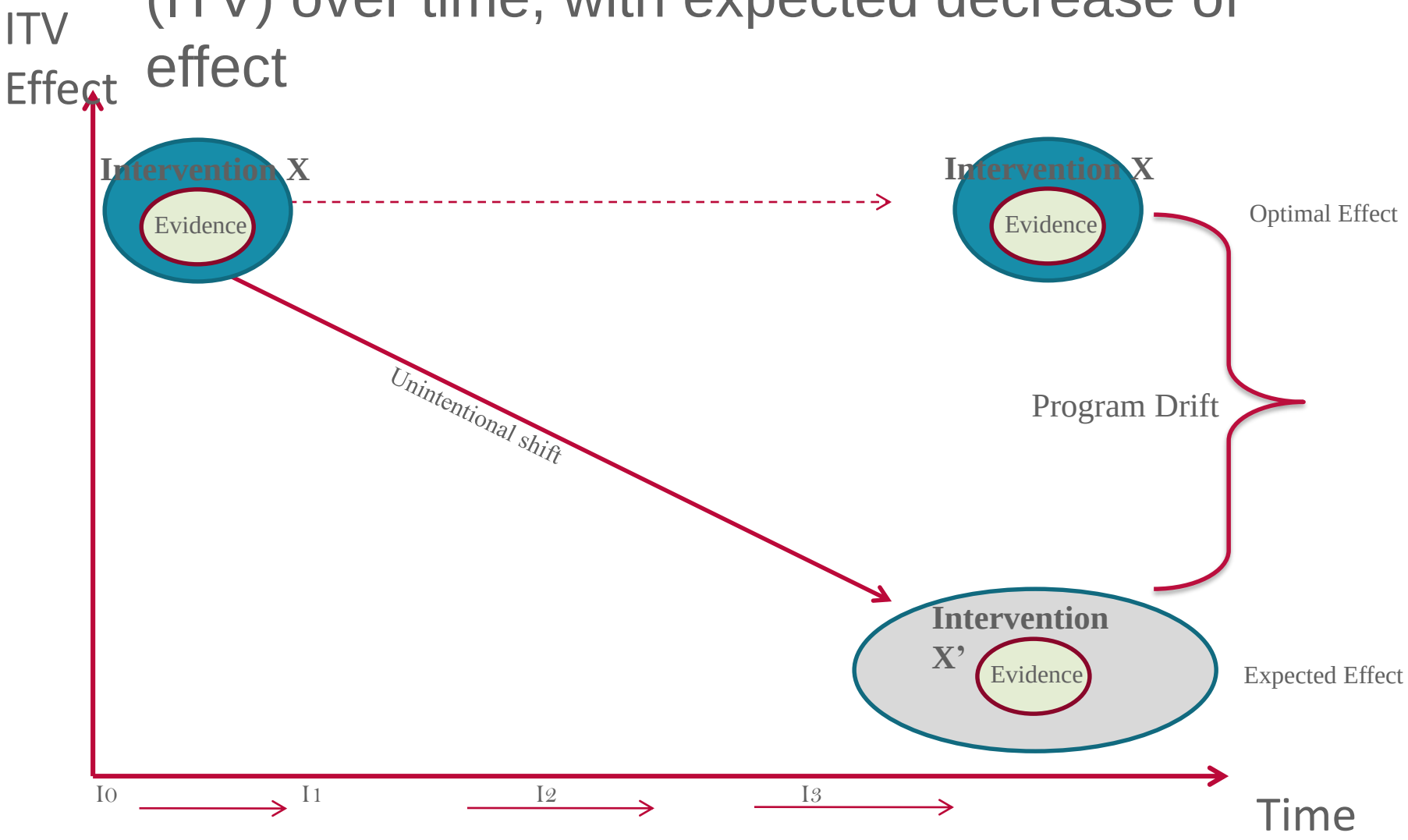
Site 1 Site 2 Site 3 Site 4

Chambers, Glasgow, Stange (2013), The Dynamic Sustainability Framework. *Implementation Science*

"Voltage Drop" of an intervention as it moves through stages of development



"Program Drift" of a fielded intervention (ITV) over time, with expected decrease of effect

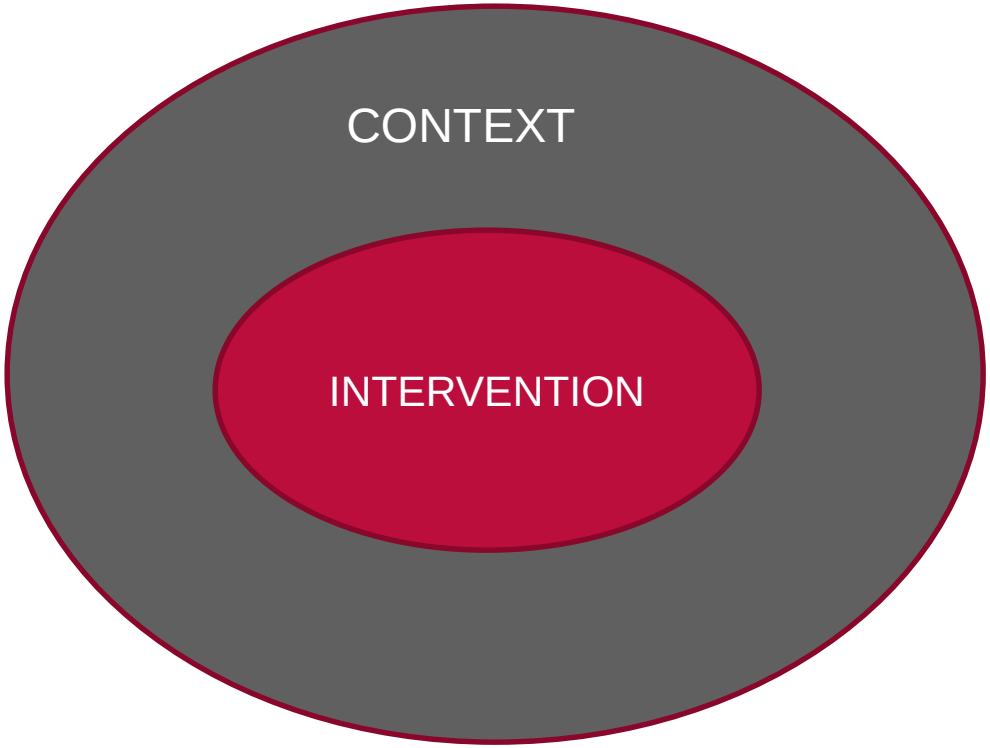


Chambers, Glasgow, Stange (2013), The Dynamic Sustainability Framework. *Implementation Science*

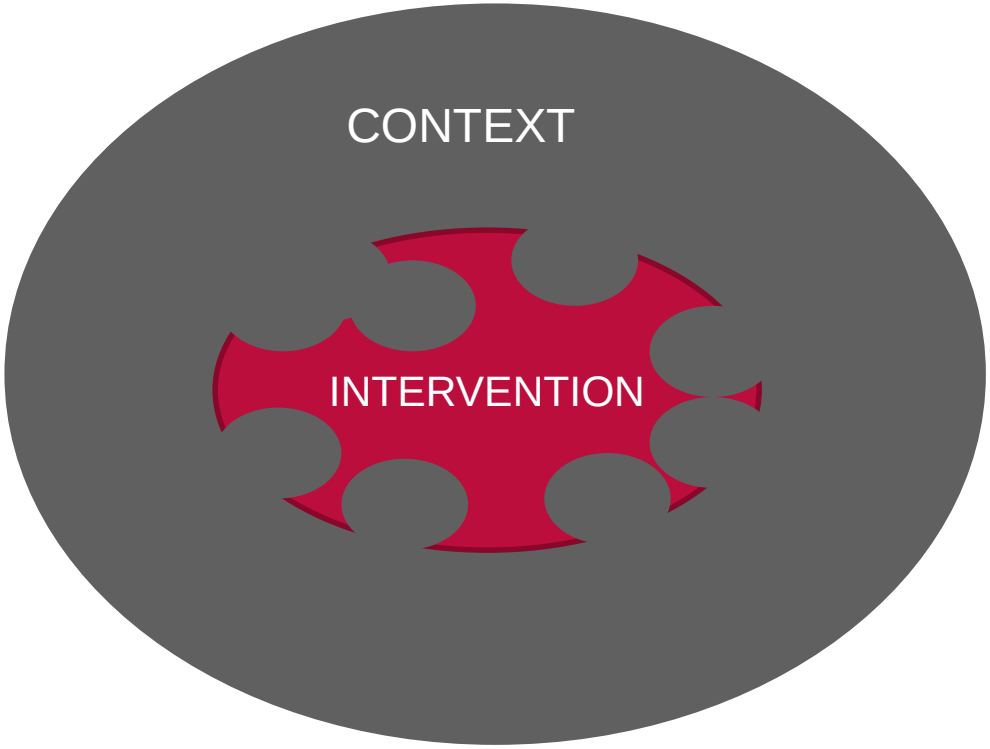
Fidelity vs Adaptation?

Variable use for variable populations, settings, and purposes…

Relative Weights?

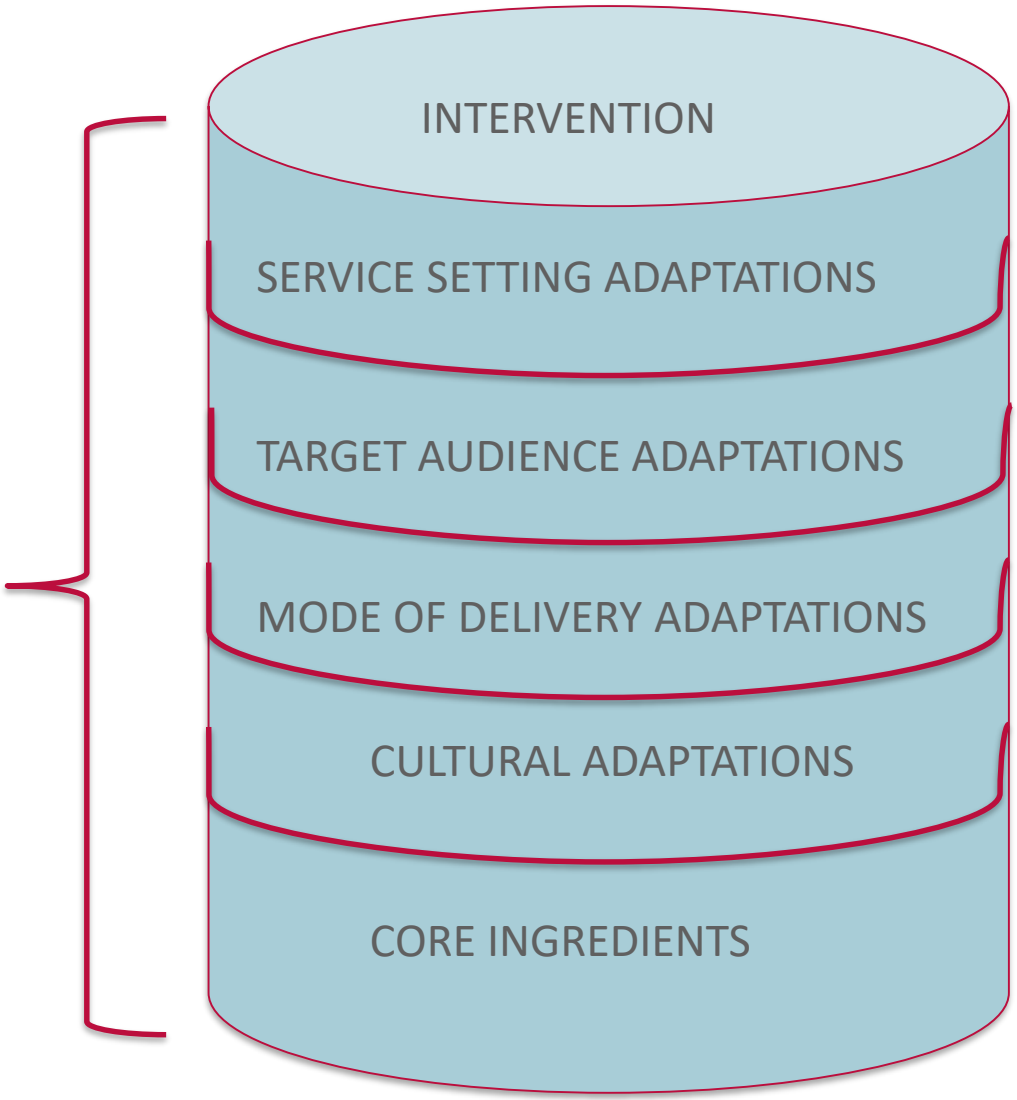


A Natural Process

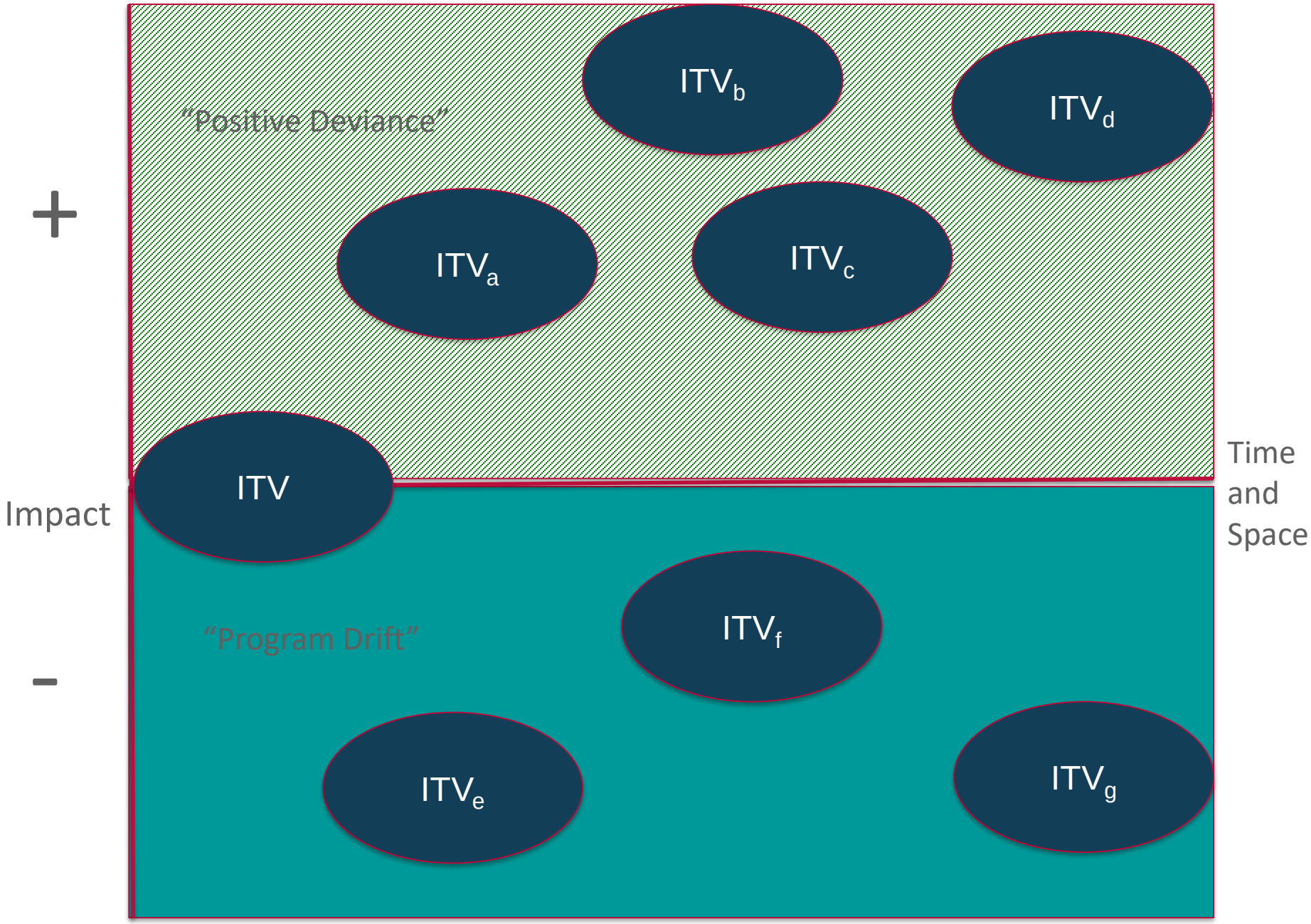


Adaptation is Inevitable…

Sources Of Intervention Adaptation



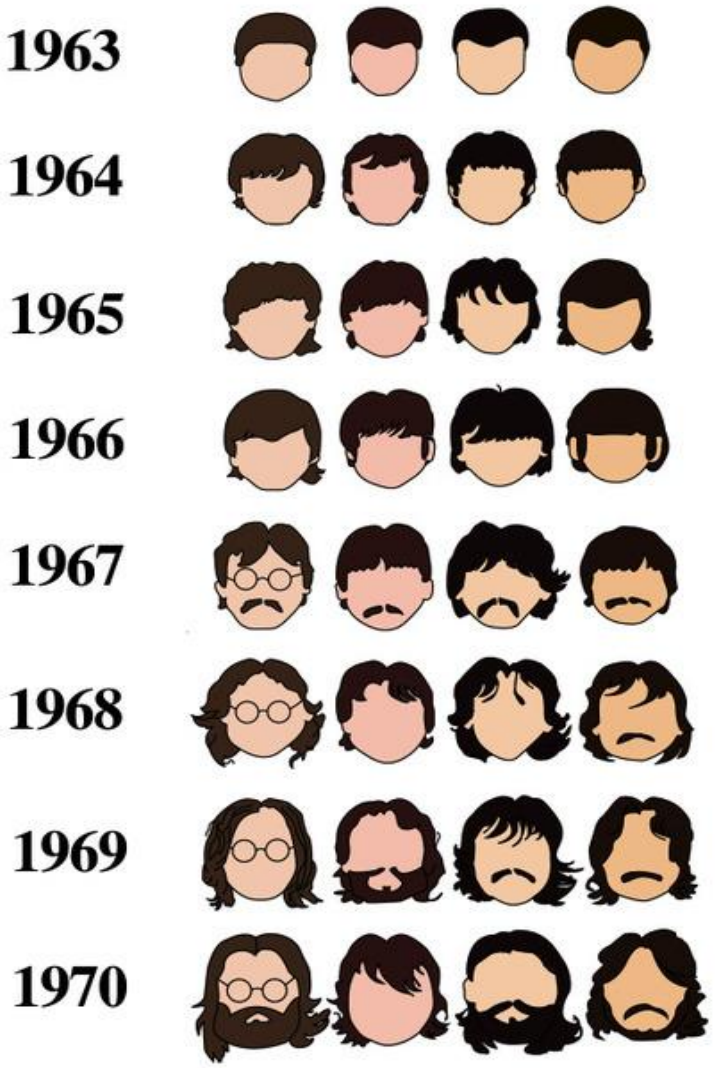
Chambers & Norton, 2016



KEY: ITV = Intervention, Time and Space = variability of intervention characteristics over time and setting

Embracing Dynamism

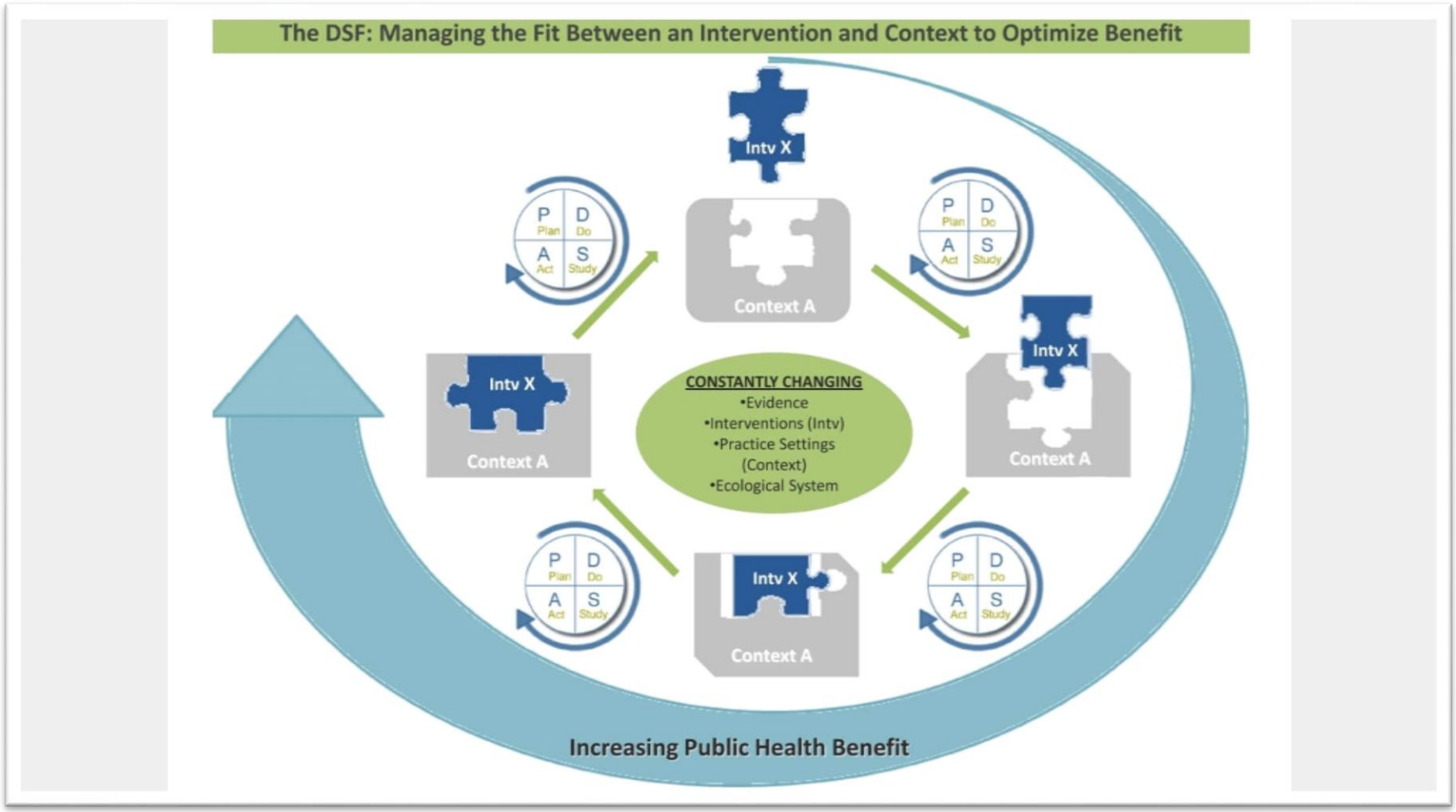
Sustainability or Evolution?



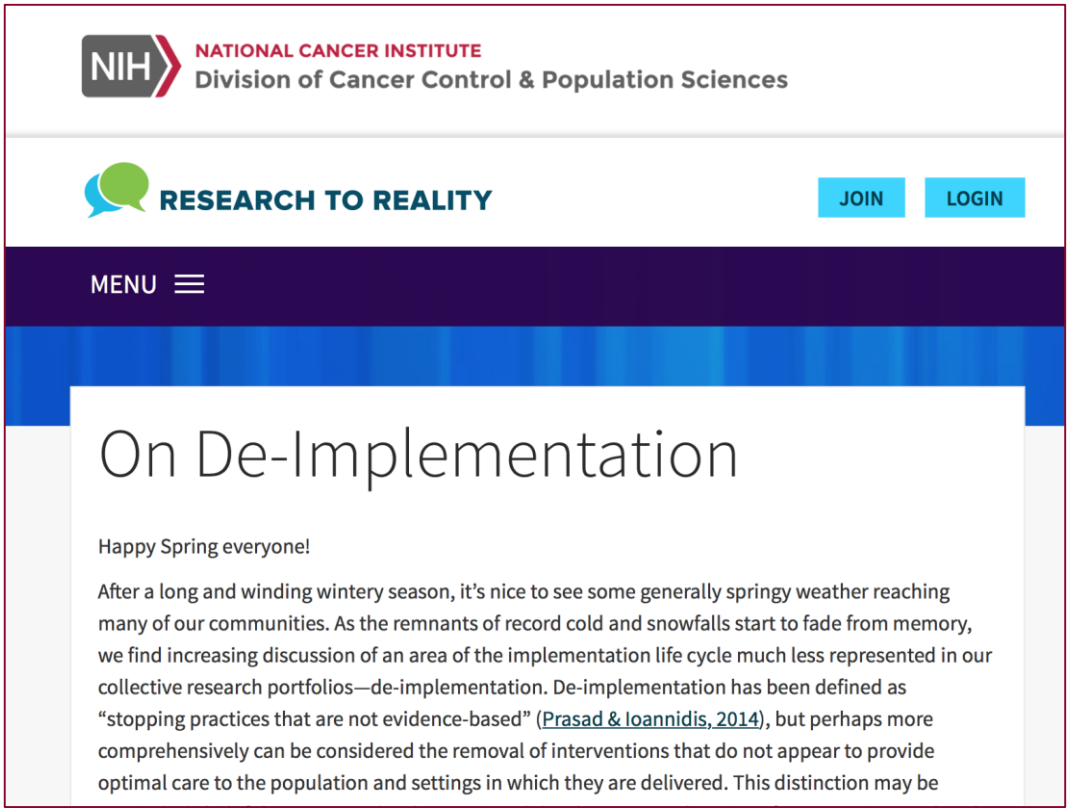
- IF PRECISION MEDICINE CONTINUES TO EVOLVE, SHOULD EXISTING INTERVENTIONS BE SUSTAINED IN THE SAME FORM THAT WE'VE CREATED THEM?
- HOW DOES THE SYSTEM COPE WITH A DYNAMIC FIELD THAT IS CONSTANTLY CHANGING?
- WHERE DO WE GO FROM HERE?

http://www.thestrut.com/2012/12/19/the-evolution-of-the-beatles-hair/

A Dynamic Approach to Sustainability…

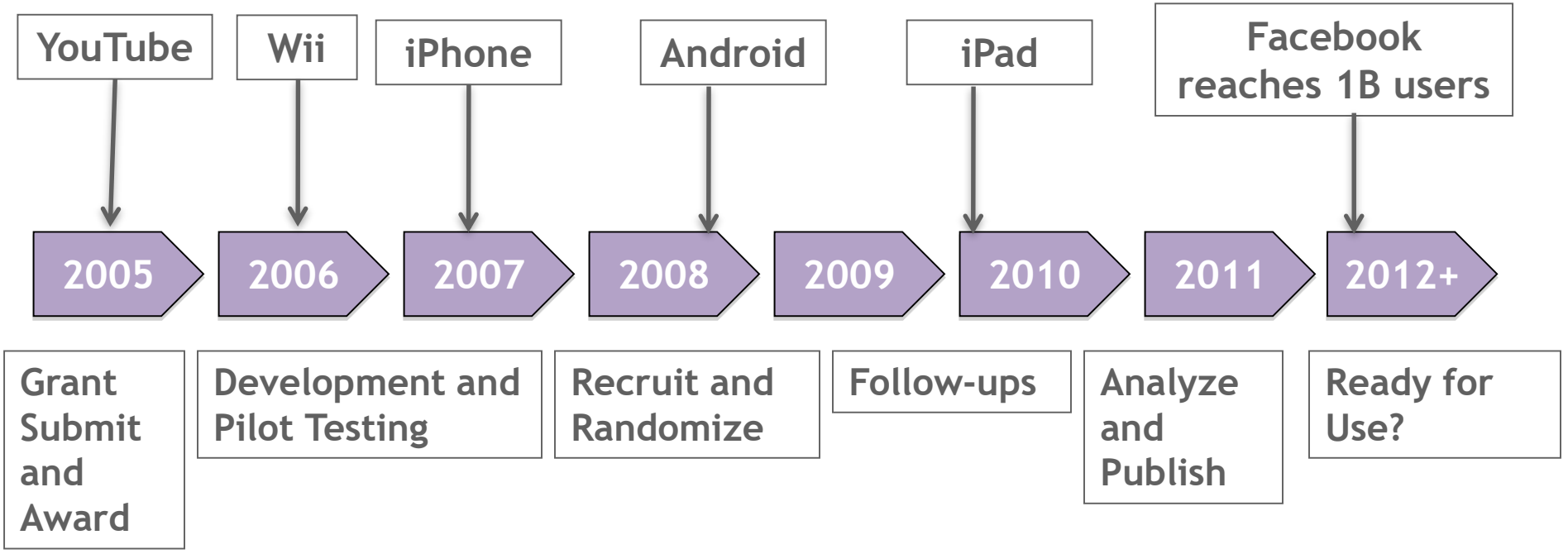


Chambers, Stange, & Glasgow, *Implementation Science,* 2013



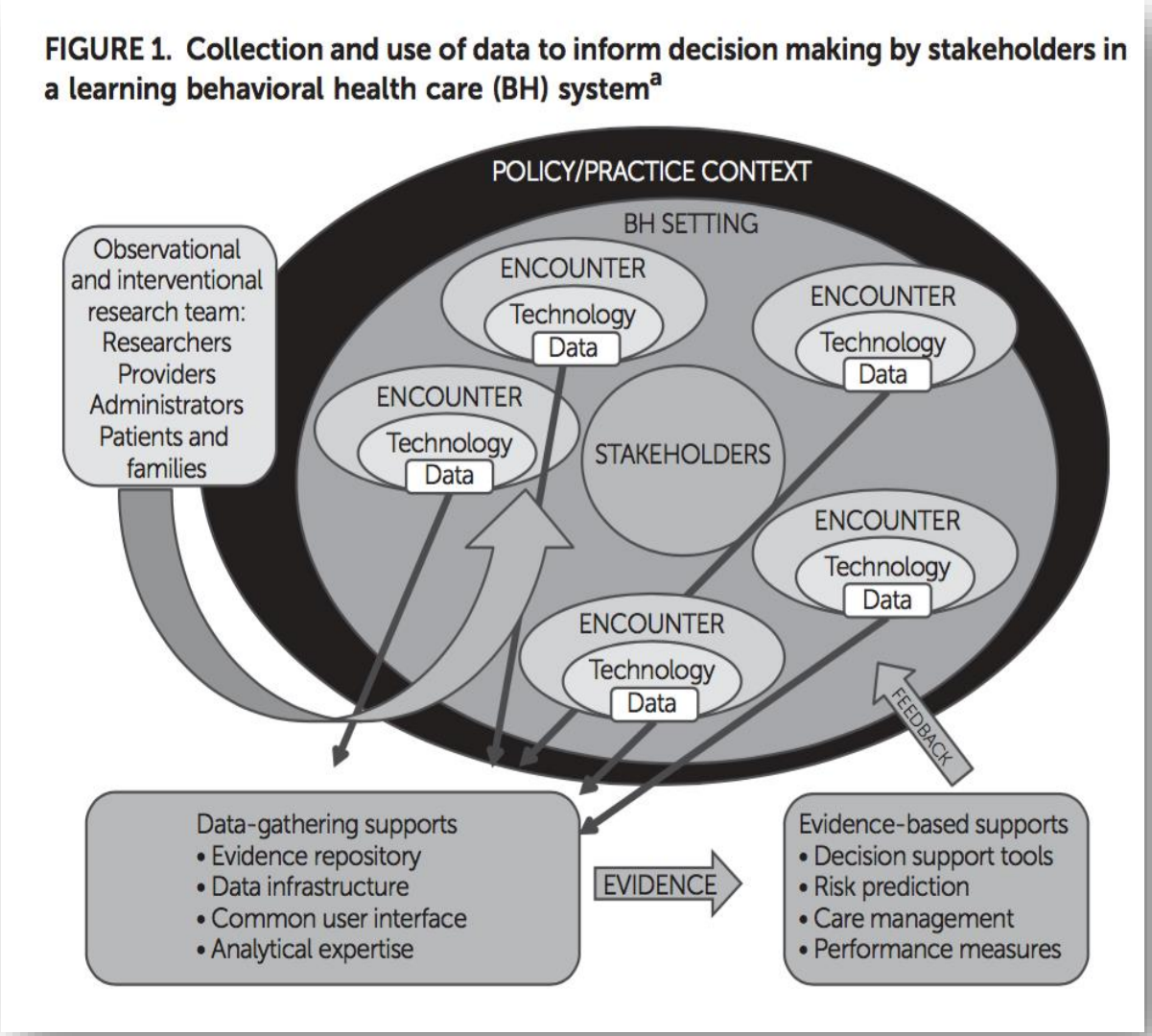
- Overuse of evidence-based practices
- Any use of harmful practices
- Mis-use of evidence-based practices

How to Evaluate Innovations that Outpace Usual Research Timelines?



Adapted from Riley et al, 2013

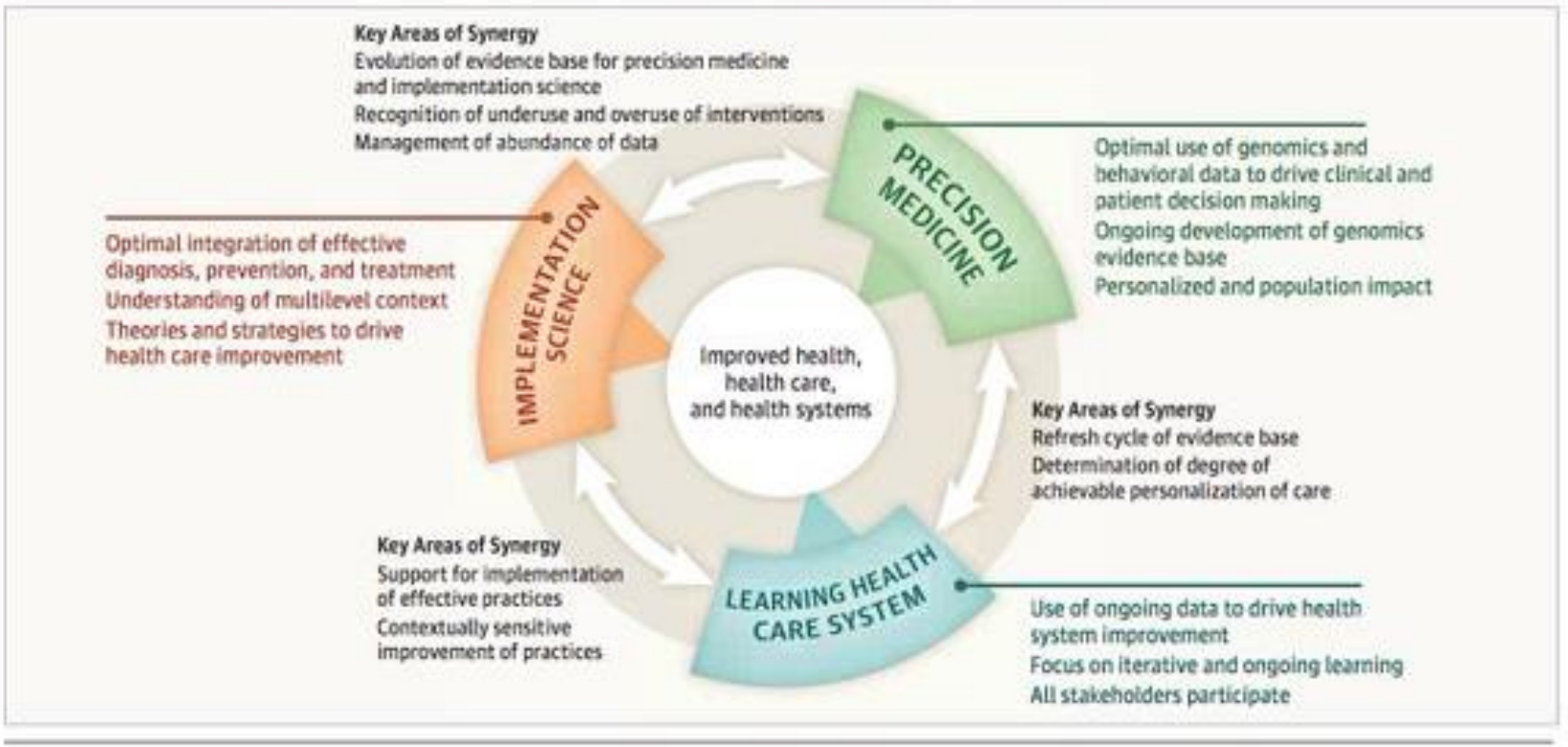
Enter the learning health care system…



Stein, Adams, Chambers. *Psychiatric Services,* 2016.

Hope for the future…

Figure. Contributions of Implementation Science, Learning Health Care System, and Precision Medicine



Chambers DA, Feero WG, Khoury MJ. Convergence of Implementation Science, Precision Medicine, and the Learning Health Care System: A New Model for Biomedical Research. JAMA. 2016 May 10;315(18):1941–2.

Current Funding Announcements

- NIH: PAR-18-007; 18-017;16-237 (R01, R21, R03)
- NCI leads (16 ICs total, including FIC, NIMH, NHLBI, NHGRI, as well as OBSSR and ODP)
- Organizes the D&I research agenda across NIH
- >200 grants funded through NIH since 2006
- 2010 CSR standing review committee
- Program staff (contacts) happy to review concept papers, specific aims, answer questions at any time

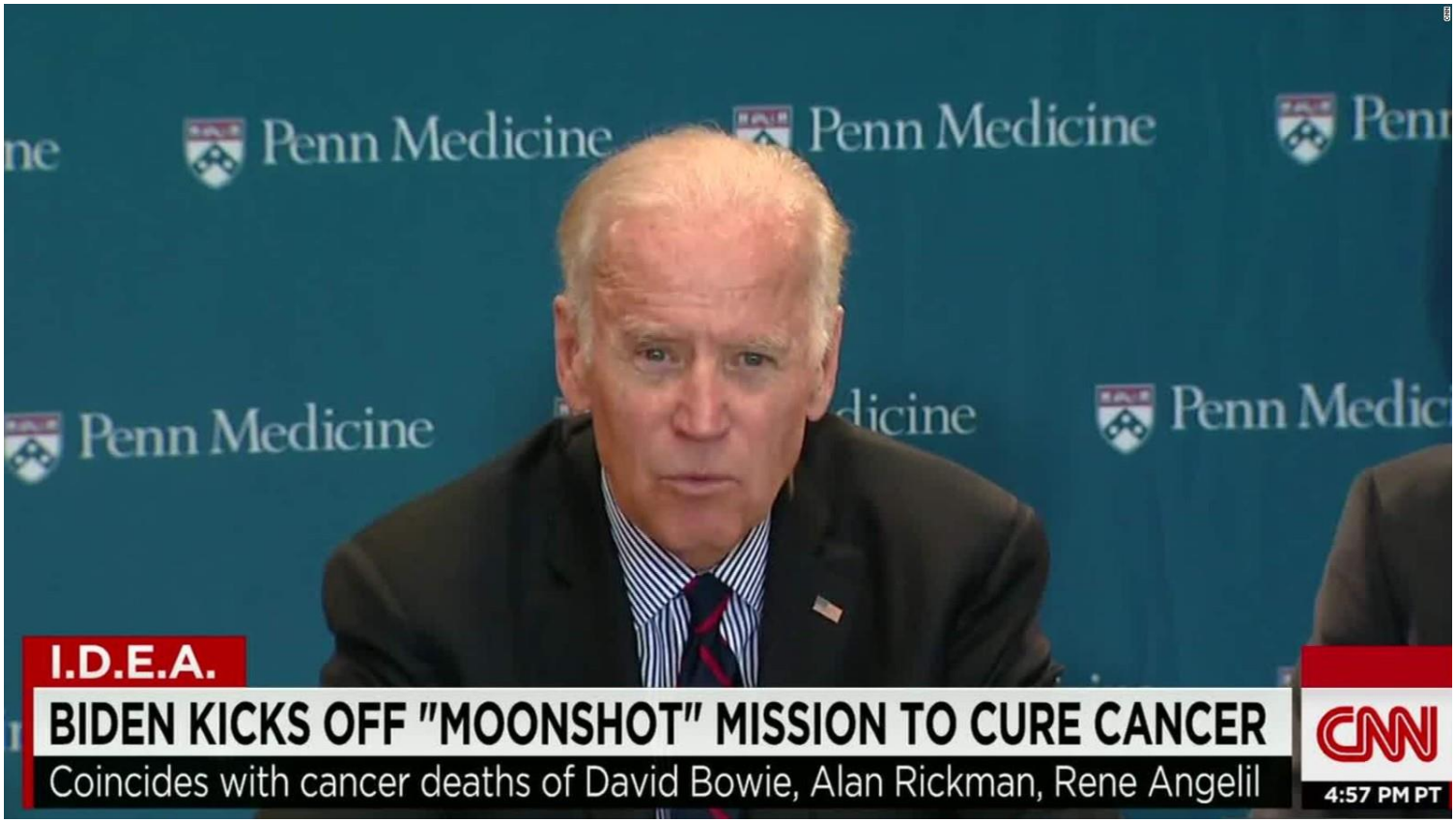
Areas Ripe for Exploration

- Sustainability of EBPs in a changing context
- Adaptability/Evolution of EBPs over time
- Implementation of a set of ITVs
- Impact of dissemination strategies on practice
- Scaling up practices across health plans, systems, networks, and nations
- De-Implementation/Exnovation
- Adaptive designs (implementation as a step-wise approach)

Other PAs with an Implementation Science Flavor (mmm…sweet)

- Reducing overscreening for breast, cervical and colorectal cancers among older adults
- Linking the Provider Recommendation to Adolescent HPV Vaccine Uptake
- Oral Anticancer Agents: Utilization, Adherence, and Health Care Delivery
- Improving Smoking Cessation in Socioeconomically Disadvantaged Populations via Scalable Interventions
- Innovative Tobacco Control Policies to Reduce Disparities in Tobacco Use
- Innovative Approaches to Studying Cancer Communication in the New Media Environment

CANCER MOONSHOT



http://www.cnn.com/2016/11/30/politics/joe-biden-cancer-moonshot-congress/

Implementation Science Working Group: Prevention and Screening

- Issue: Suboptimal uptake of evidence-based cancer prevention and screening programs, particularly among underserved populations.
- Can we better implement what has already been developed and tested?
- Effective scale-up of CRC screening and follow-up, HPV vaccination, and tobacco cessation interventions could result in:
  - 389,900 fewer new cancer cases annually
  - 318,500 fewer cancer deaths annually
- A robust knowledge base around implementation strategies needed to enact evidence-based care

Funding Opportunities to Support Cancer Moonshot

New Cancer Moonshot funding opportunities from NCI support goals articulated in the recommendations made by the Blue Ribbon Panel.

Accelerating Colorectal Cancer Screening and Follow-Up Through Implementation Science (ACCSIS) – RFA-CA-17-038/9

CRC Screening & Follow-Up Practices

- FOBT*
- gFOBT
- FIT*
- Flexible Sigmoidoscopy
- Colonoscopy

- Guideline-concordant Follow-up

Implementation Strategies

Examples:
Outreach/Media
Navigation
Health IT supports
Pat/Prov Reminders
Workflow Changes
Staff Training
Innovative Funding Models

Targets:
Patient
Provider
Team
Organization
Community

Community and Healthcare Settings

Contexts:
Primary Care Clinics
Community Centers
Integrated Health Systems
Technology Platforms
Home

Strata:
FQHCs
Metropolitan Areas
Health Systems
Rural Settings
(State or County approaches)

*FOBT=Fecal occult blood test; FIT=Fecal Immunochemical Test

IMPLEMENTATION SCIENCE & GENOMICS RFA

Prevention and Early Detection: Implementation Science	Approaches to Identify and Care for Individuals with Inherited Cancer Syndromes (U01)	RFA-CA-17-041	12/9/2017	1/10/2018

Implementation Science Centers for Cancer Control RFA Concept (via 3 Moonshot Teams)

- 4-5 Research Centers
  - Implementation “Laboratories”
  - Methods Development, Network Cores
  - Pilot Implementation Studies
  - Common Data Repositories
  - Building a Field-wide Consortium

- 3 Advanced Centers ($2M per yr); 2 Developing ($1M per yr) [P50/P20]
  - Advanced Ctrs in established areas (Cancer Prevention, Screening, Symptom Management)
  - Developing Ctrs in newer areas (precision medicine, de-implementation)
- **FY19 Budget: $8M TC ($40M TC over 5 years)**

Implementation Science Centers for Cancer Control (IS-C^3)

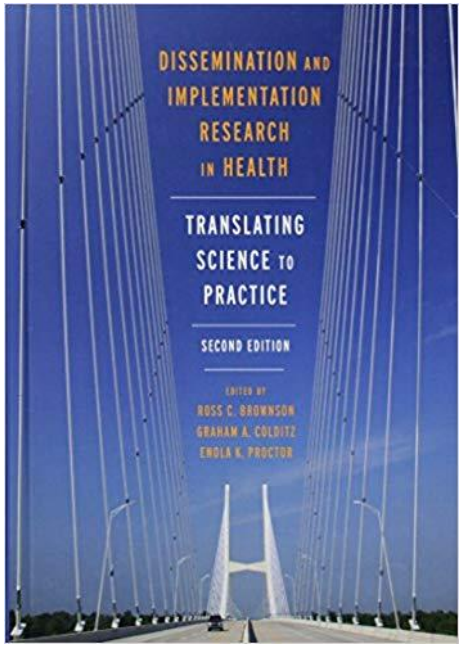
Goal: Scaling Up IS Efforts Across Moonshot (and then some)

1. Administrative Core
2. IS Laboratories: Established Collaborations with Health and Community Systems (e.g. Oncology, Primary Care, Community Settings)
3. Measurement and Methods
4. Set of Innovative Research Pilots
5. Network Activities
   - Shared capacity to run program-wide IS Consortium (host annual meetings/dissemination of findings/training)

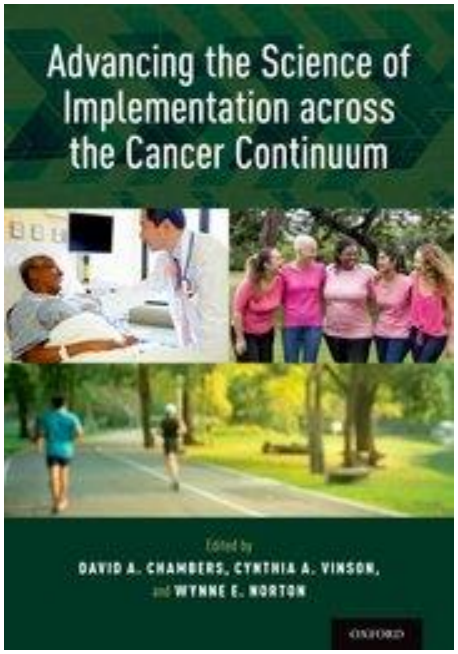
Implementation Science Training…

IRI

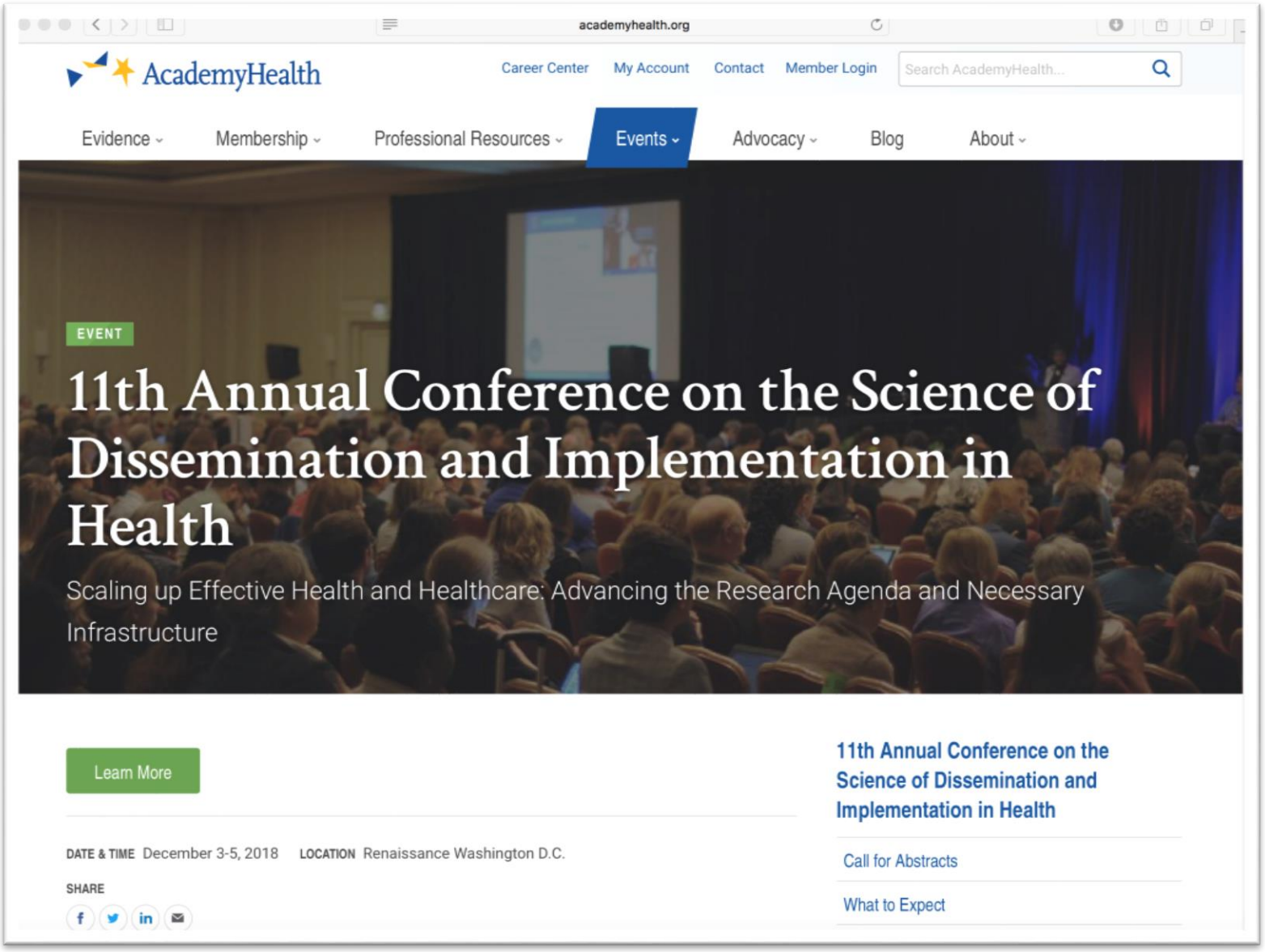
Future Directions in Implementation Research



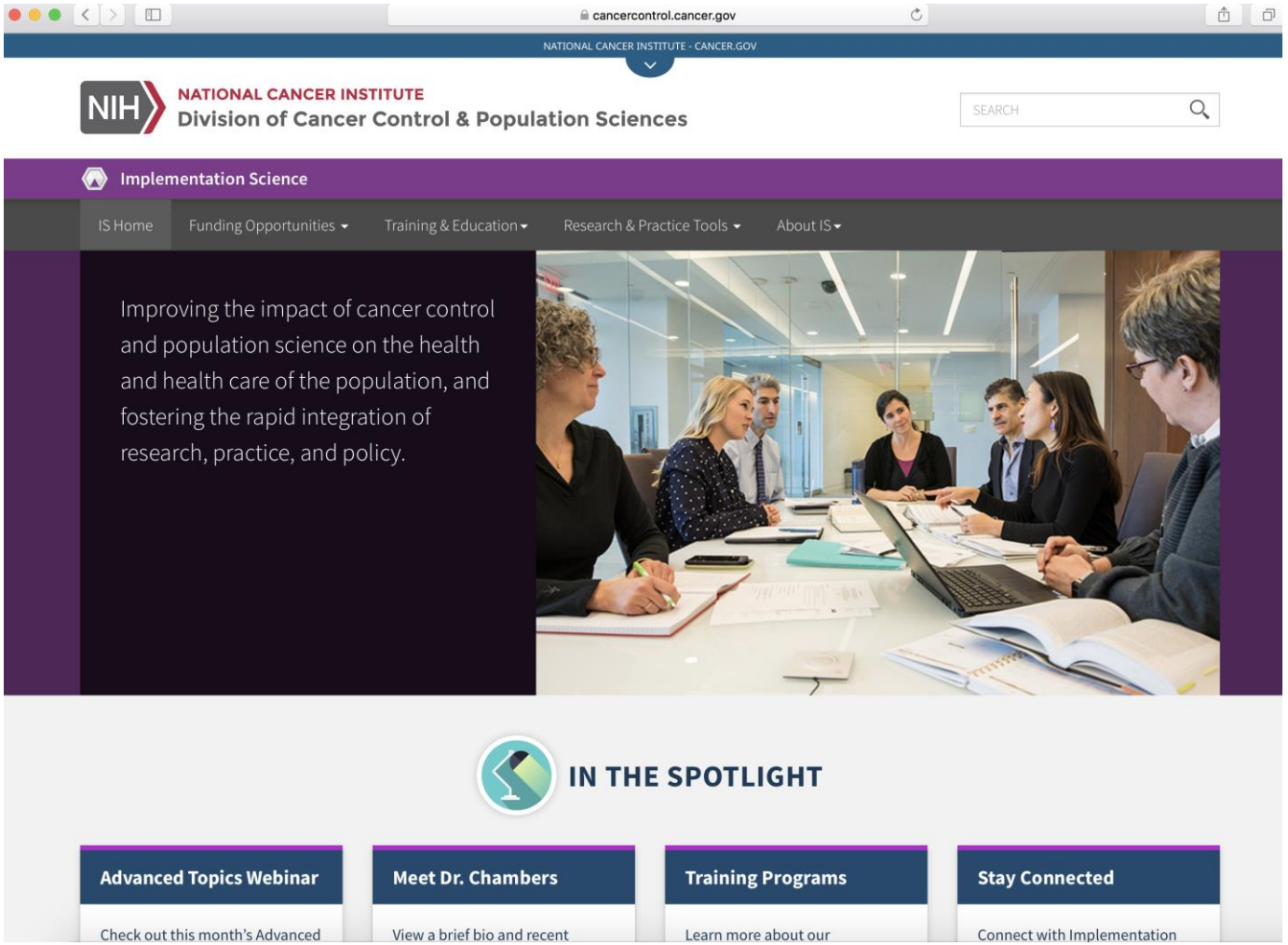
December 2017



In Press



https://www.academyhealth.org/events/site/11th-annual-conference-science-dissemination-and-implementation-health


cancercontrol.cancer.gov
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