

The Three S's of Successful Implementation: Science, Scale, and Sustainability

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30th Annual Rosalynn Carter Symposium on Mental Health Policy

November 21, 2014



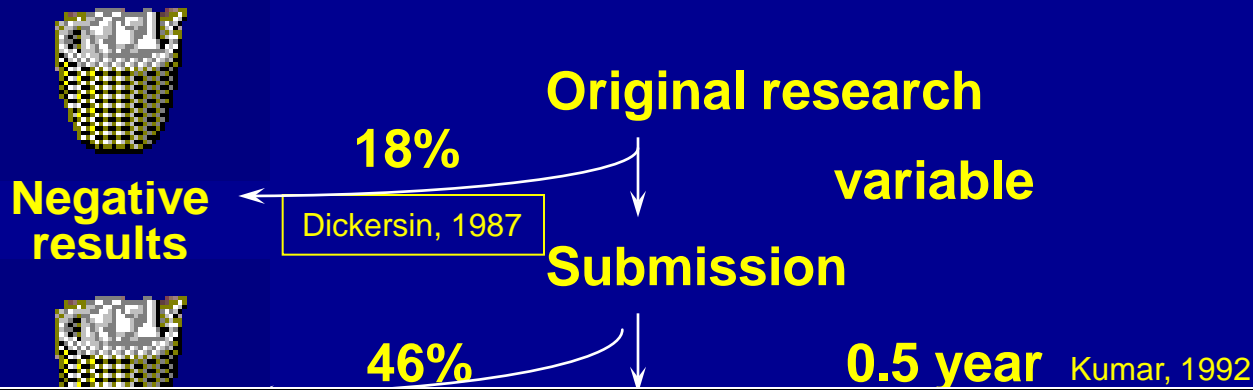
Presentation Outline

- The need for a better system
- The Challenge and Progress of D&I
- Other Services Research Areas
- Tenets of an ideal system

The need for a better system...



Sources:
NSDUH (2009); Kessler, Chiu, Demler, & Walters (2005); Wang, Lane, Olfson, Pincus, Wells & Kessler (2005); Merikangas, He, Burstein, Swendsen, Avenevoli, Case, Georgiades, Heaton, Swanson, Olfson (2011)



It takes 17 years to turn 14 percent of original research to the benefit of patient care



“PUBLICATION PATHWAY”

We assume... “If you build it...”



A Challenge from Multiple Perspectives...



RE-AIM Summary and Ultimate Impact of “The Magic Pill”

Dissemination	Concept	% Impacted
50% of Clinics Use	Adoption	50%
50% of Clinicians Prescribe	Adoption	25%
50% of Patients Accept Medication	Reach	12.5%
50% Follow Regimen Correctly	Implementation	6.2 %
50% of Those Taking Correctly Benefit	Effectiveness	3.1%
50% Continue to Benefit After 6 Months	Maintenance	1.6%

(Glasgow, 2011)

www.re-aim.org

The Three “S” Challenges

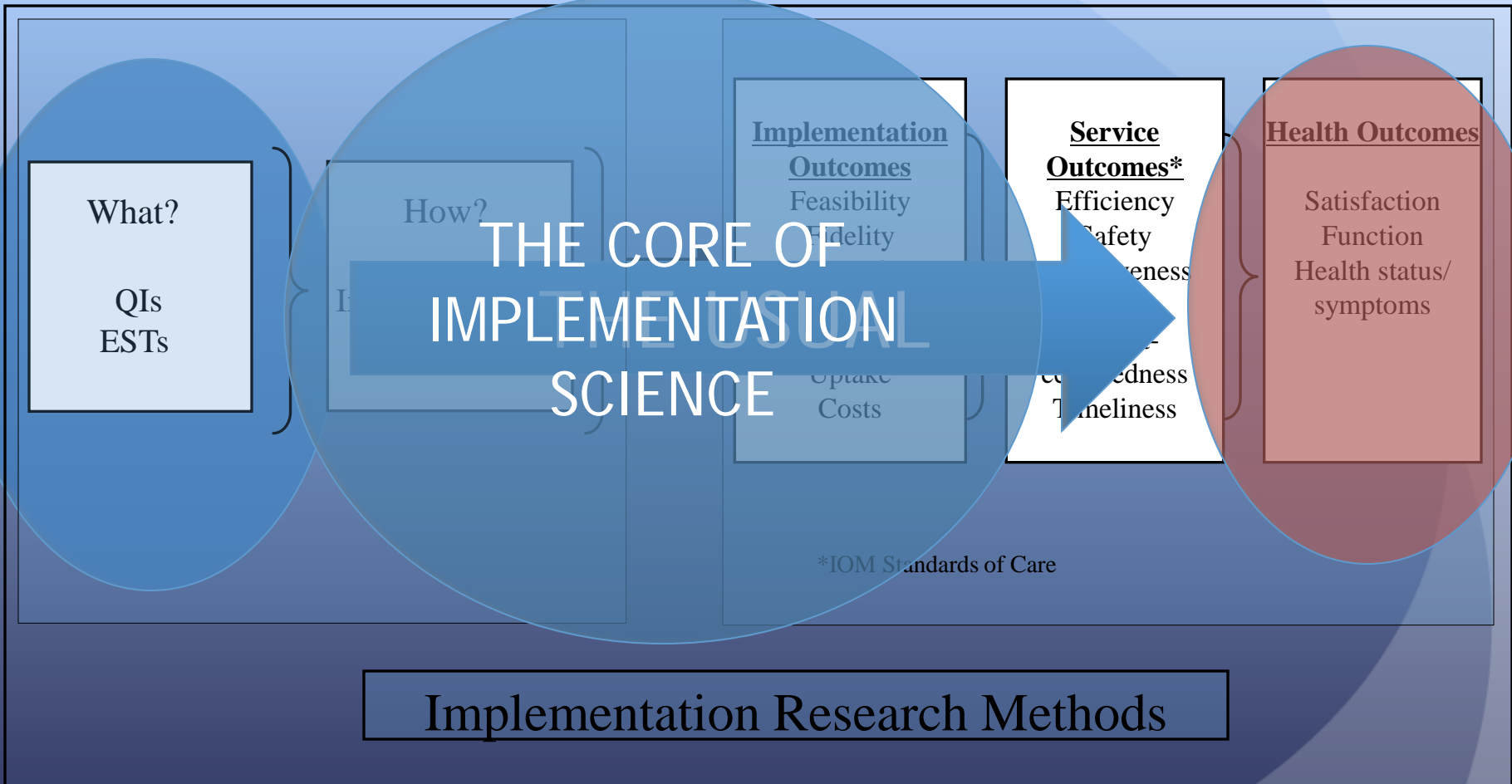
- **Science**—are we asking the right questions, and generating the right answers in the right way?
 - (Pulse of the system, Innovation in design, Meaningful responses)
- **Scale**—can we go from local solutions to population impact?
- **Sustainability**—can we have meaningful improvements in health and systems over time?

Dissemination and Implementation Research

- **Dissemination is** “the targeted distribution of information and intervention materials to a specific public health or clinical practice audience.”
- **Implementation is** “the use of strategies to adopt and integrate evidence-based health interventions and change practice patterns within specific settings.”

NIH PAR-13-055; Adapted from Lomas (1993)

Studying Implementation



The First NIH PAR(s) Portfolio ('06-'09)

- 24 R01s, 3 R03s, 13 R21s
- Primarily focused on implementation of specific EBPs
- Continuum of Intervention Types (Tx, Prevention, Screening, etc.)
- Clinical and Community Settings
- Most studies are prospective

(Ref: Tinkle et al, *Nursing Research and Practice*, 2013)

The Second NIH PAR(s) Portfolio ('09-'12)

- 25 R01s, 3 R03s, 12 R21s (*2 rounds to go)
- Enhanced focus on sustainability, improved measurements
- Continuum of Intervention Types (Tx, Prevention, Screening, etc.)
- Expansion of clinical topics (e.g. Dental, CAM, Complex patients)
- Experimental, Quasi-experimental, observational designs

(Ref: Tinkle et al, *Nursing Research and Practice*, 2013)

Dissemination and Implementation Studies

- Effectiveness of implementation approach
 - Quality Improvement Interventions
 - Organizational change
 - Provider Training and Supervision
 - Financing/policy change
- Emerging approaches
 - Learning Collaboratives
 - Technology support system

The Current Program Announcements

- PAR-13-054; 13-055;13-056
- NIMH, NCI, NIDA, NIA, NHGRI, NIAAAA, NIAID, NHLBI, NINR, NIDDK, NINDS, NIDCD, NIDCR, NCCAM, FIC, OBSSR
- 2010 CSR standing review committee
- Every round Submission

Selected D&I Research Themes

- Strategies to improve sustainability/ongoing improvement of ITVs
- “Scaffolding” of multiple ITVs within Care System
- Development/Use of innovative designs and measures
- Systems science approaches (e.g. simulation modeling) to D&I
- IS in the global health context

(See PAR 13-055, for more examples)



National Institute
of Mental Health

The DIRH Study Section (Review Committee)

- “The (DIRH) Study Section reviews applications intending to bridge gaps between public health, clinical research, and everyday practice. The focus of the studies reviewed is on the transmission and implementation of knowledge from scientific discovery to transform healthcare delivery, improve health outcomes, and manage acute and chronic illness.
- **SRO: Martha Hare, Ph.D.**
- http://www.csr.nih.gov/Roster_proto/sectionI_list_detail.asp?NEWSRG=DIRH&SRG=DIRH&SRGDISPLAY=DIRH
(ROSTER)

D and I Resources (NIH and beyond)

- Funded Grants (e.g. NIH, AHRQ, CDC, VA, Foundations)
- NIH Annual Meetings
- Research Centers, CTSA cores, Networks
- Implementation Research Institute (R25)
- OBSSR-led Summer Training Institute—June, 2014
<http://conferences.thehillgroup.com/OBSSRinstitutes/TIDIRH2014/>
- *Implementation Science*
- Recent Book: Brownson, Colditz, Proctor, *Dissemination and Implementation Research in Health*, 2012

Annual NIH/VA D and I Meetings

- “State of the Science” Venue
- First meeting: September 2007: “Showcase” , ~350 participants
- Second meeting: “Building Capacity” January 2009, > 500 registrants
- Third meeting: “Methods and measures” March 2010, 900 people registered
- Fourth meeting: “Policy and Practice” March 2011, 1200 registrants
- Fifth meeting: “D and I at the crossroads” , March 19-20, 2012, 1200 registrants

[http://obssr.od.nih.gov/scientific_areas/translation/dissemin
ation_and_implementation/index.aspx](http://obssr.od.nih.gov/scientific_areas/translation/dissemin
ation_and_implementation/index.aspx)



6th Annual NIH Meeting(s)

- September 2013: “Training”
 - Chairs: David Chambers, Enola Proctor
 - Pulled together multiple D&I training program efforts
- October 2013: “Research Measures and Standardized Reporting”
 - Chairs: Ross Brownson, Gila Neta, Borsika Rabin
 - Focus on gaps in measurement, common measurement platforms
- January 2014: “Research Designs”
 - Chairs: Hendricks Brown, Lori Ducharme
 - Tools to support design decision-making

The Seventh Meeting—December 8-9, 2014

- Partnership with AcademyHealth
- Co-sponsors: AHRQ, PCORI, RWJF, VA, WT Grant
- “Transforming Health Systems to Optimize Individual and Population Health,” Bethesda, MD
- Keynote: Peter Pronovost, MD
- Panels on D&I Research and Health Equity, Maximizing Relevance, Weaving the D&I Research Tapestry
- <http://www.academyhealth.org/Events/events.cfm?ItemNumber=13518&navItemNumber=13668>

...other high impact areas

Key Dimensions of MH Services Research

- Relevance
- Impact
- Rigor
- Efficiency

Real-World Populations

Service Settings/Systems

Substantial Effect on Meaningful Outcomes

Contextualized Information

Functioning vs. Symptoms

Method of inquiry “Consumer-oriented Information

Behavior Change

Qualitative, Quantitative, Mixed

Practice, program, policy

Multi of existing data analysis

Reach

Primary vs. Secondary Data

Dissemination of Information

Embedding research within service

Implementation of effective practices

systems Transfer to Practice and Policy

Fast-track from ITV development to

uptake

A balancing act...

RELEVANCE

RIGOR

- Research Methods Portfolio
- Research Center Methodology Cores
- From RCTs to Case Studies

- RFA on CJ/MH
- Transition-Aged Youth
- Returning Veterans
- Health of SMI
- Suicide Px

IMPACT

- Dissemination/Implementation Research
- Duration of Untreated Psychosis
- Integrating Mental Health in PC

EFFICIENCY

- MHRN
- Pooling State Data
- Use of Health IT
- HCS Collaboratory

Services Research Initiatives (Selected)

- **Dissemination and Implementation Research in Mental Health**
- **Mental Health Research Network (MHRN)**
- **Improving Services for Early Psychosis**
- **Improving the Health of People with SMI**
- **Improving Mental Health IT**



Mental Health Research Network (2010-2013)

- 11-site cooperative agreement (U19)
- PI: Gregory Simon, MD, Group Health
- Sites include HMOs in CA, OR, HI, GA, MI, MA, OR, TX, MN, WA
- Activities:
 - Virtual Data Warehouse
 - Pilot Effectiveness Trial
 - Development of Registries
 - Evaluation of practice variation
 - Policy Impact Analysis
- UH2/UH3 – Suicide Prevention in health care systems

MHRN: Melding Research and Practice

- Understanding the care process
- Finding the win-win-win (research, practice, policy, outcomes)
- Personalization of Interventions
- Reciprocal Impact of Policy, Practice and Research

- RFA-MH-14-110
 - Expanded capacity in 1) Medication studies, 2) Health IT, 3) MHRN Signature Project, 4) methodological advances
 - Open platform for collaboration...

Improving Services for Early Psychosis

- RAISE initiative—packaged ITV for first episode psychosis
- Reducing Duration of Untreated Psychosis (R34, R01)
- Research to Improve the Care of Persons at Clinical High Risk for Psychotic Disorders

Key Goals:

Reduce time to treatment from 3 years (est) to 12 weeks

Expand early intervention to be standard care

Implement and reimburse evidence-based FEP care

Improving Overall Health of SMI

- Gap in life expectancy for people with SMI (8-25 years)
- September 2012 NIMH meeting
- RFA-MH-13-140 “Leveraging Existing Natural Experiments...”
- RFA-MH-14-060 “Improving Health and Reducing Premature Mortality in People with SMI”
- Goal to connect evidence base for chronic conditions to people with SMI

Improving Health IT for MH

- Interest of MH Researchers in using Health IT
- November 2010 Meeting with AHRQ
 - Special paper series in *General Hosp Psych* 2013
- RFA-MH-13-060/061, “Use of Advanced Technologies to Drive Mental Health Improvement”
- Challenges to Overcome

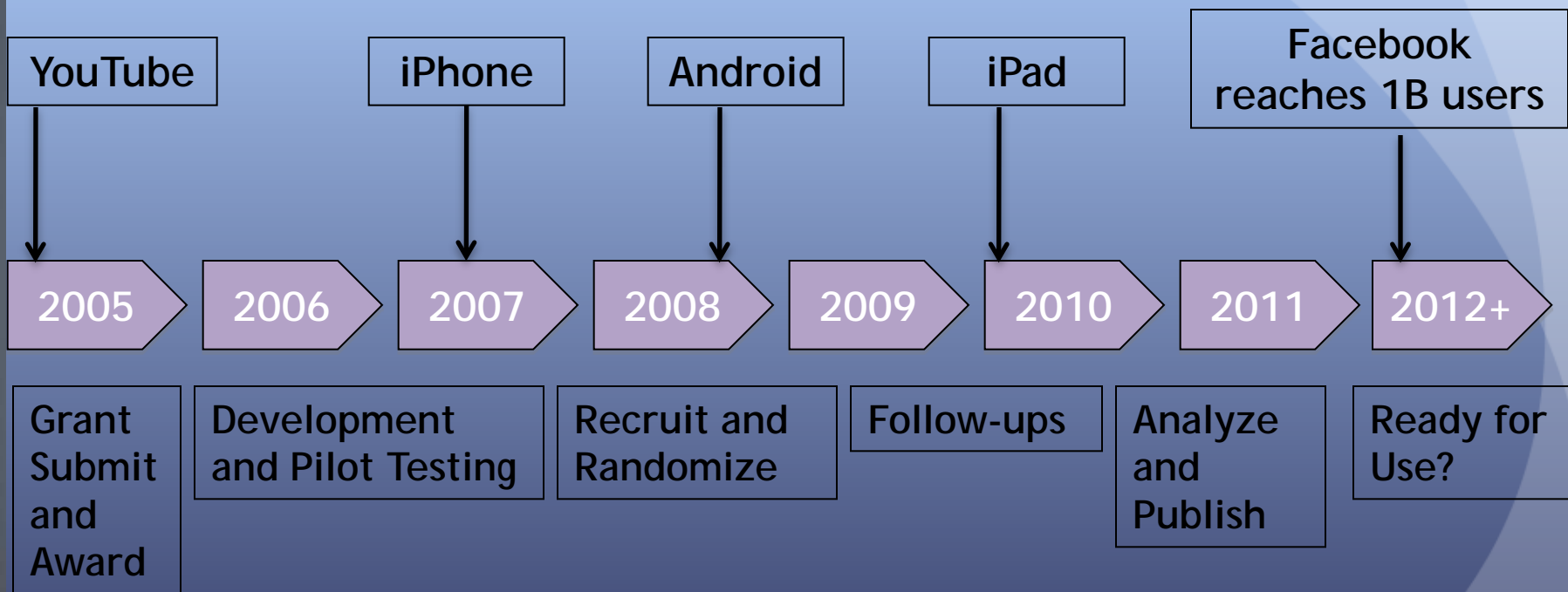
mHealth Apps

- 82 million smartphone users in the US
- roughly 1,500,000 apps available
- Over 56 billion apps will be downloaded this year (*Information Week*, Mar 5)

- 40,000 mobile health apps on market
 - “mental health” – 253 on Appstore
 - “depression” – 571
 - “mood” – 956
- 19% of mobile phone users actively use health apps



Key Challenge: How to Evaluate Technologies that Outpace Usual Research Timelines?



Adapted from William Riley, NCI; IOM Report

Complementary Pathways for NIMH

NIMH-funded Grants to improve MH care through technology

- Device Independent
- Required use of existing tools
- Efficiency in recruitment—use of “testbeds”
- Demonstrable improvement, not equivalence

NIMH support of science in industry

- Incentives for Technology Experts to incorporate MH science
- Aggregate/Share Health IT tools to lower “barriers to entry”
- Matchmaking b/w researchers and tech firms

Moving Forward: Toward a Learning MH Care System

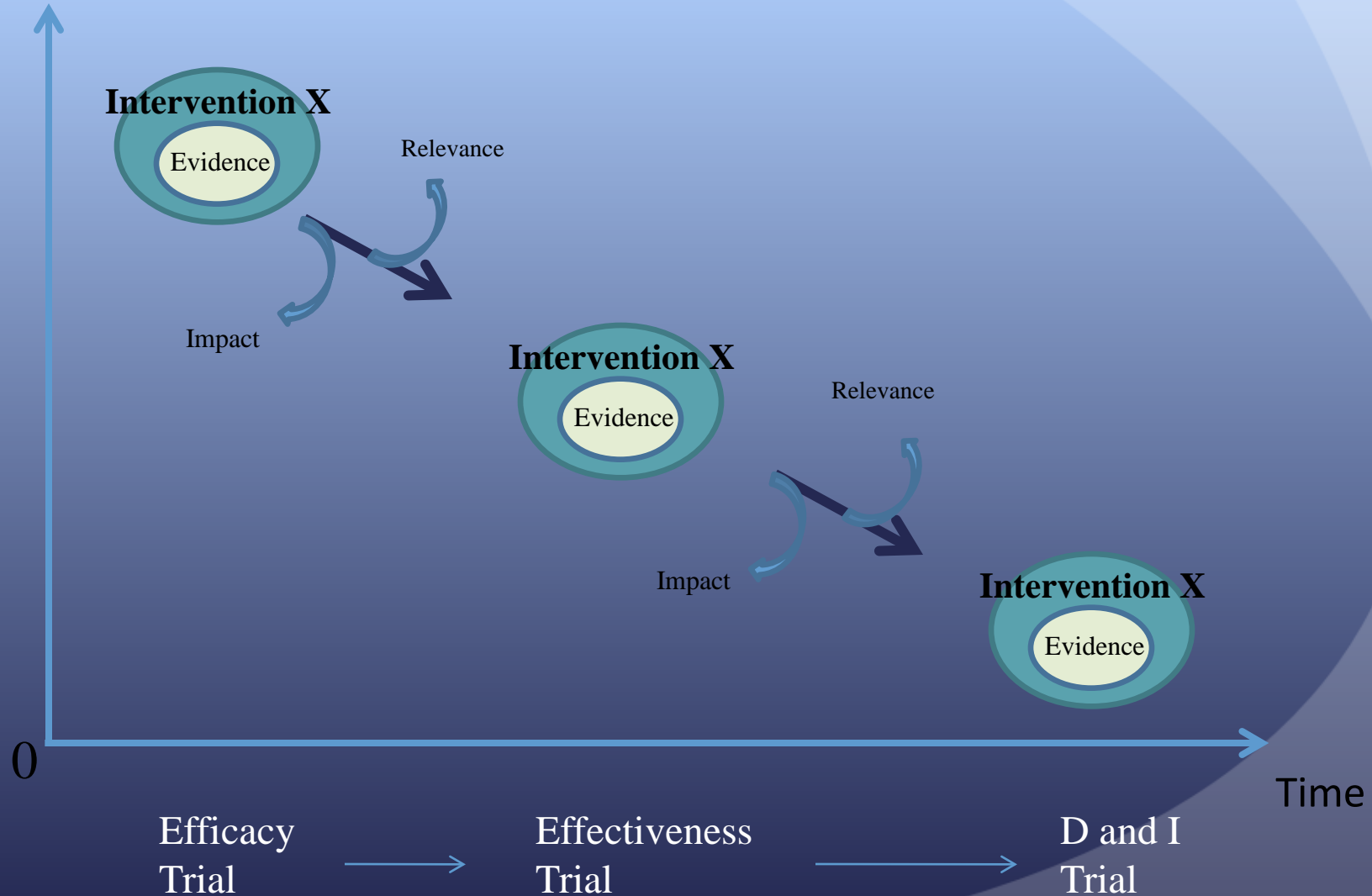
Current Assumptions

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

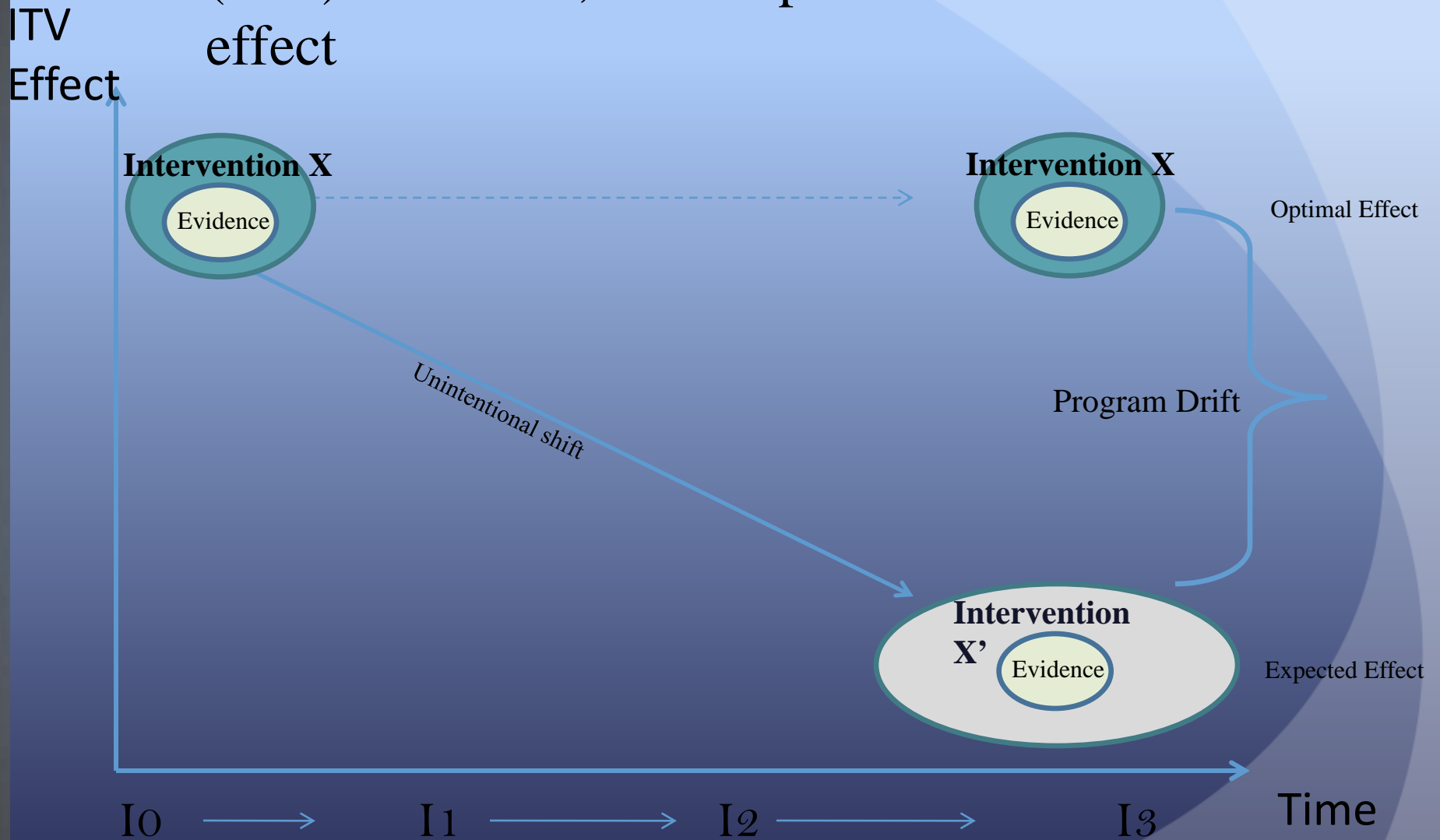
- How seriously do we take ongoing science, scale, or sustainability?

1. “Voltage Drop” of an intervention as it moves through stages of development

Expected Effect



2. “Program Drift” of a fielded intervention (ITV) over time, with expected decrease of effect



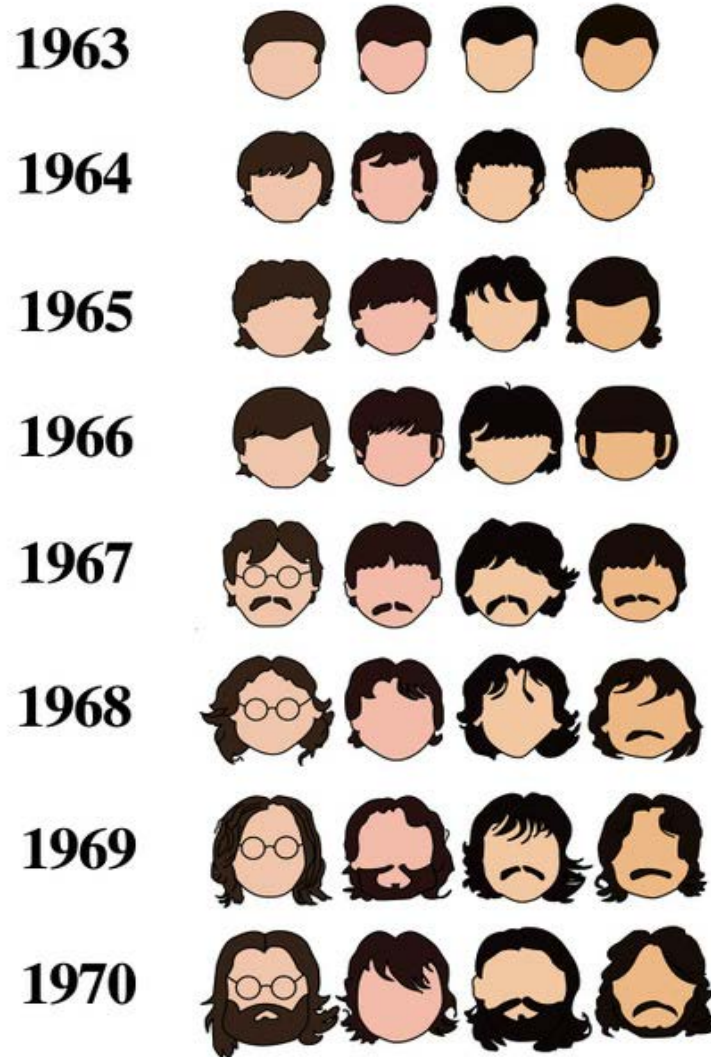
3. Choosing not to implement is irrational... (Does it fit?)



4. When is de-implementation appropriate?



5. Sustainability or Evolution?



Emphasizing Multi-level, Multi-Domain Change

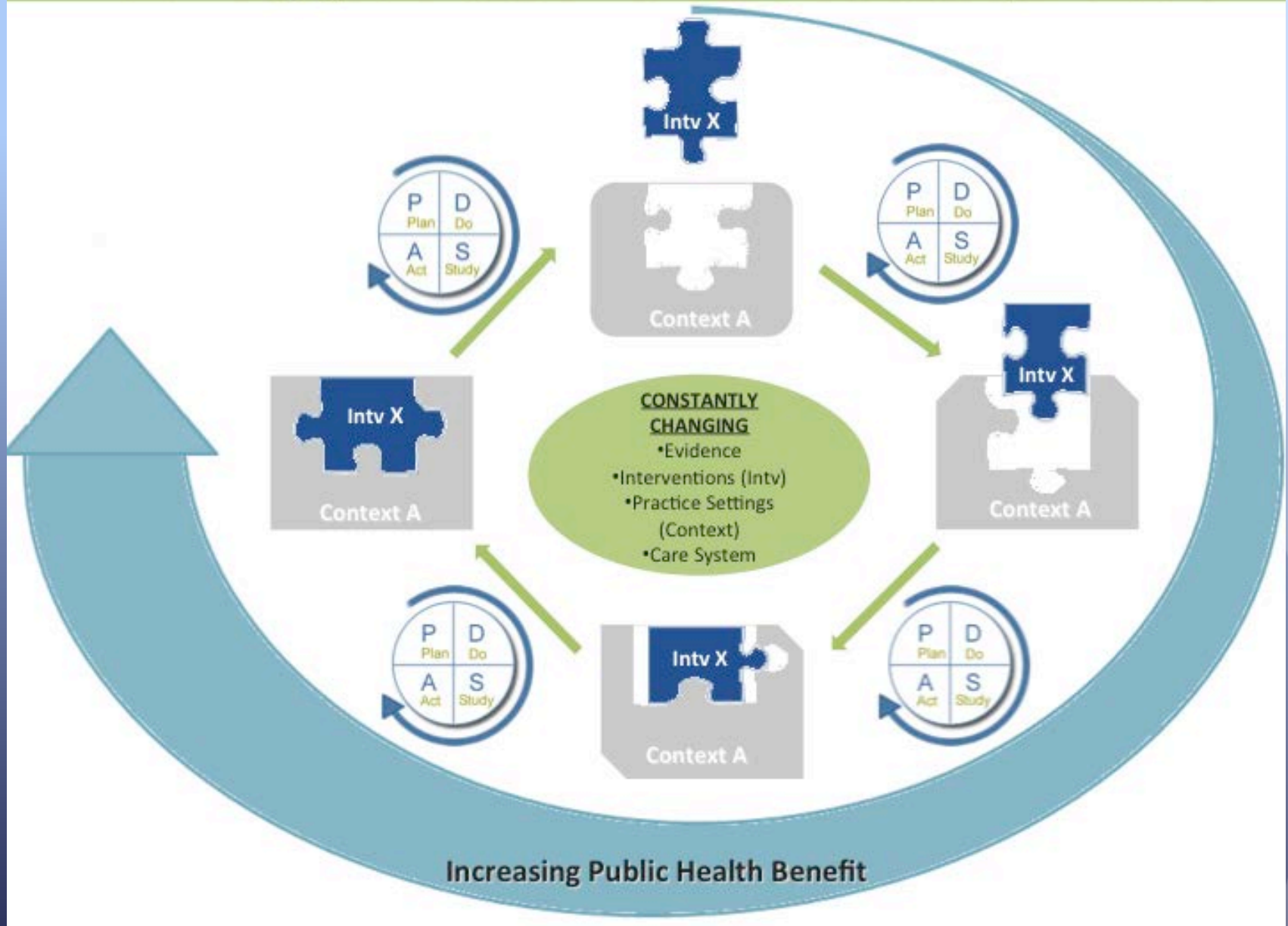
Context

Intervention

Evidence

- Evidentiary Changes
- Environmental Changes
- Practice Changes
- Personnel Changes
- Knowledge Changes
- System Changes
- Policy Changes

The DSF: Managing the Fit Between an Intervention and Context to Optimize Benefit



A learning health care system...

- Decision-making based on data
- Iteration/ongoing improvement of practices
- Shared learning across providers, patients, networks
- Patient/Consumer centered and engaged
- Dynamism and complexity is assumed

We can do this...

- Outcome management system (are the clients/patients/consumers getting better?)
- Quality measurement system (is the ITV being delivered in a high-quality way?)
- Adaptation Monitoring (How is the delivery of the ITV changing?)
- HC setting monitoring (How is the organization changing over time?)

MHSR 2014: Research in Pursuit of a Learning MH Care System—April 23-25, 2014 (Bethesda)



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