



# Introduction to Implementation Science

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# Objectives

- I. Review the need for a science to guide implementation of health interventions
- I. Define Implementation Science and its emergence as a unique discipline
- II. Describe key features of implementation science

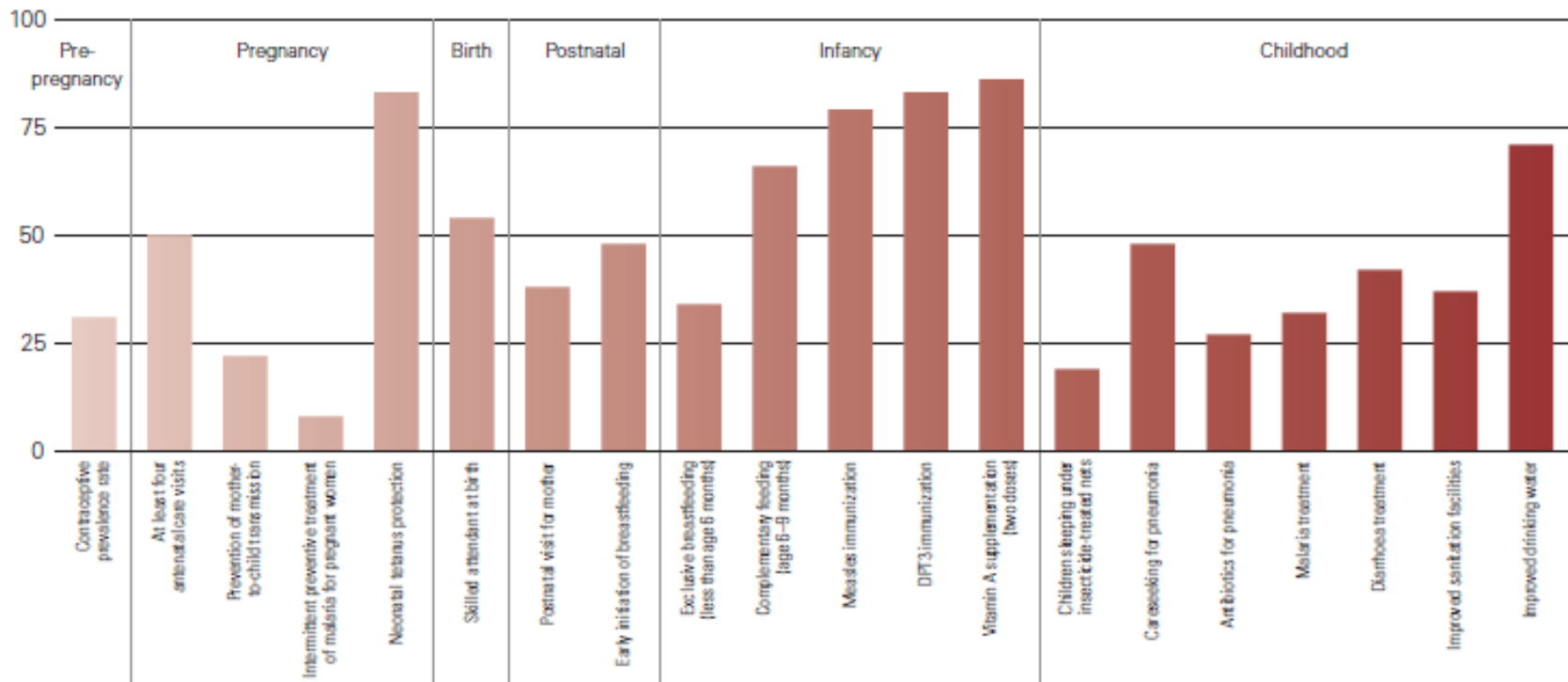
THE LATEST RESEARCH SHOWS THAT  
WE REALLY SHOULD DO SOMETHING  
WITH ALL THIS RESEARCH



# We know what to do.....

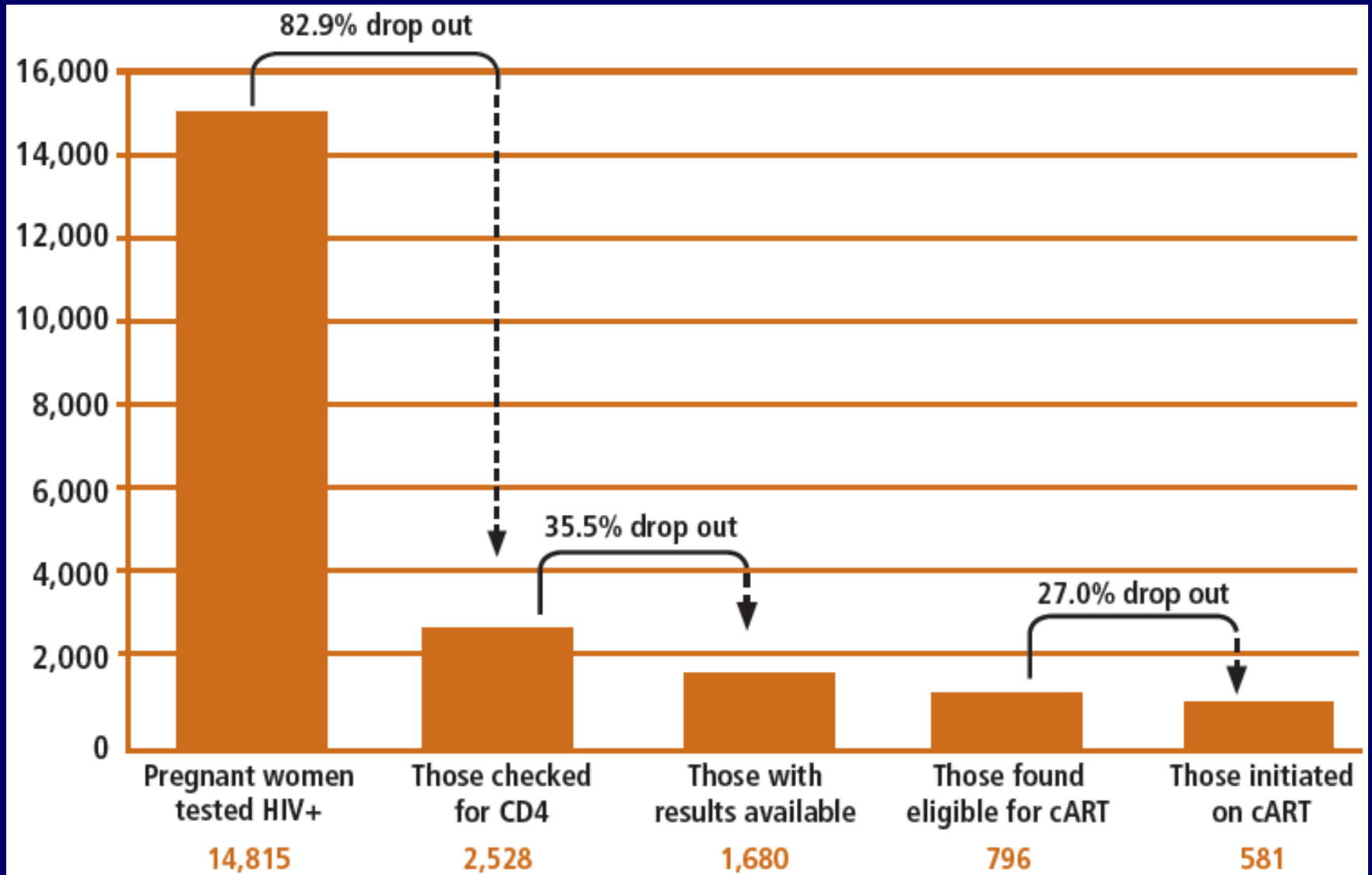
## Millennium Development Goal Coverage Gaps

Median national coverage of interventions across the continuum of care for 20 Countdown interventions and approaches in Countdown countries, most recent year since 2000 (%)

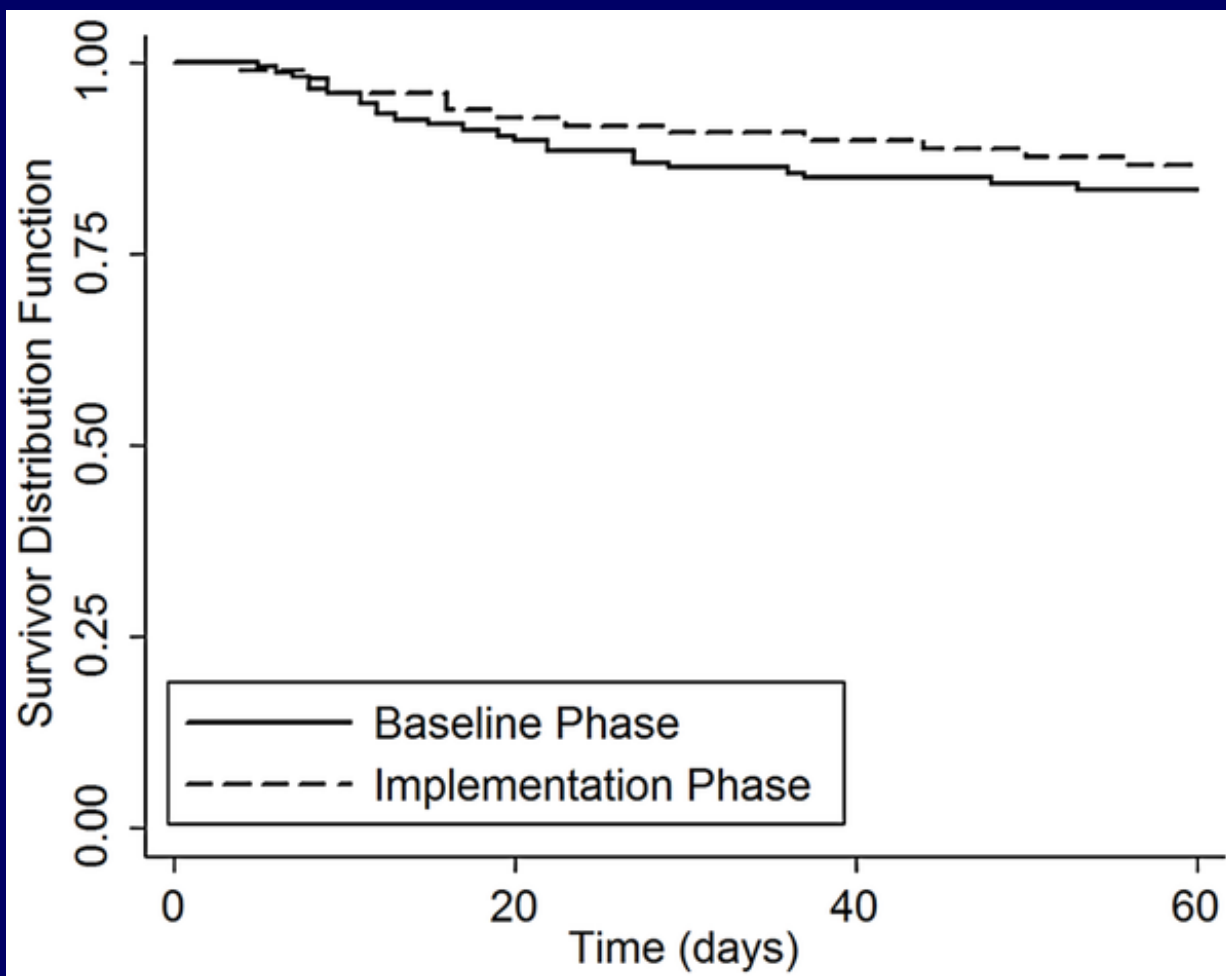


.....but not how to get it done

# PMTCT cascade



# Impact of Xpert MTB/RIF Testing on Tuberculosis Management and Outcomes in Hospitalized Patients in Uganda



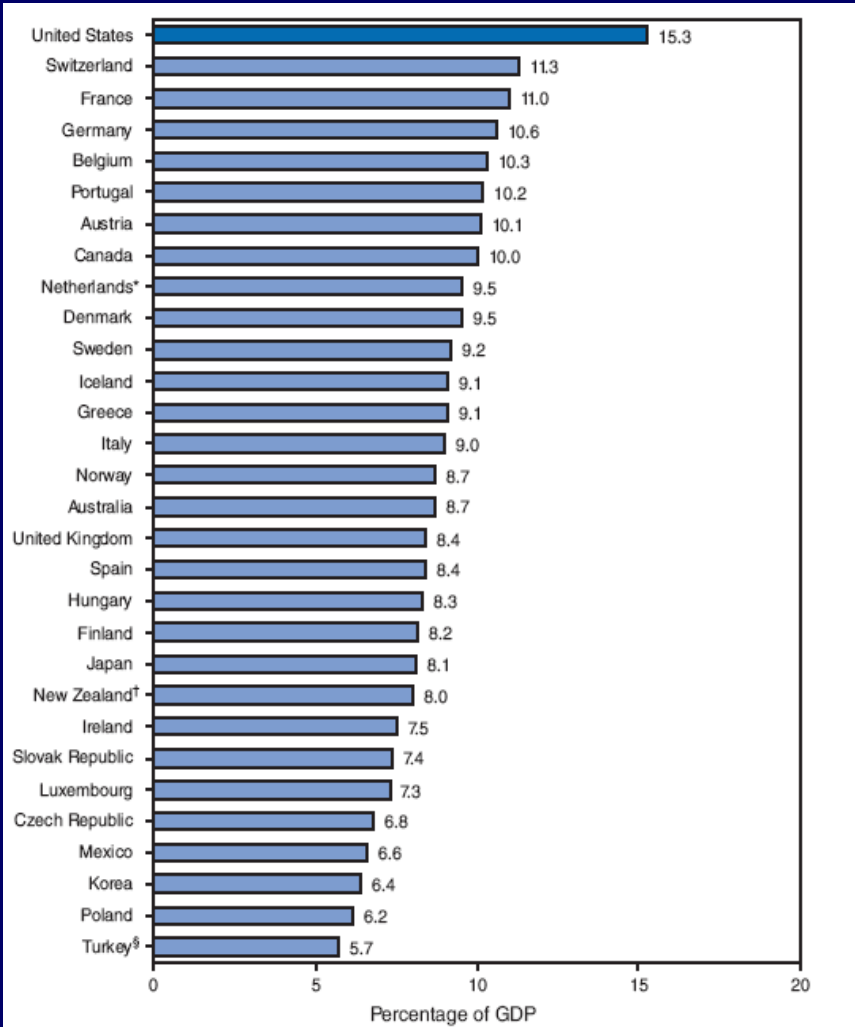
# The “implementation problem”

“Many evidence-based innovations fail to produce results when transferred to communities in the global south, largely because their implementation is untested, unsuitable or incomplete”

Madon T, et al. Science 2007.

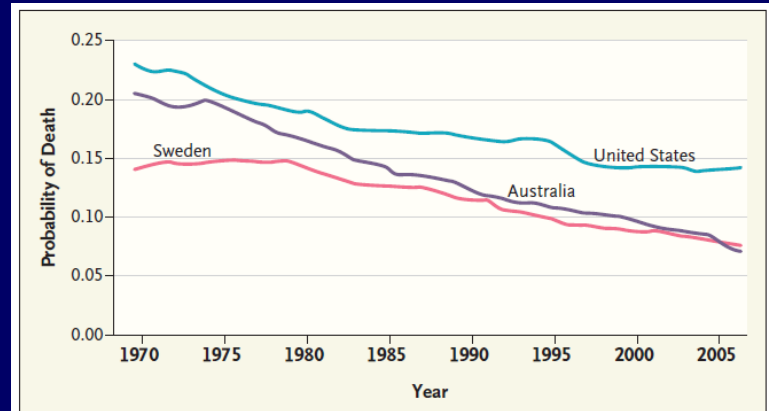
# Spend so much...

# Get so little...



## World Health Rankings

- infant mortality 39th
- female mortality 43<sup>rd</sup>
- male mortality 42<sup>nd</sup>
- life expectancy 36<sup>th</sup>




Probability of Death for Boys and Men 15 to 60 Years of Age in Sweden, Australia, and the United States, 1970–2007.


Data are from the Australian Bureau of Statistics, the U.S. National Center for Health Statistics, and the World Health Organization.



# Traditional approach to implementation



ISLAGIATT  
Principle



It Seemed  
Like A Good  
Idea At The  
Time

Martin Eccles

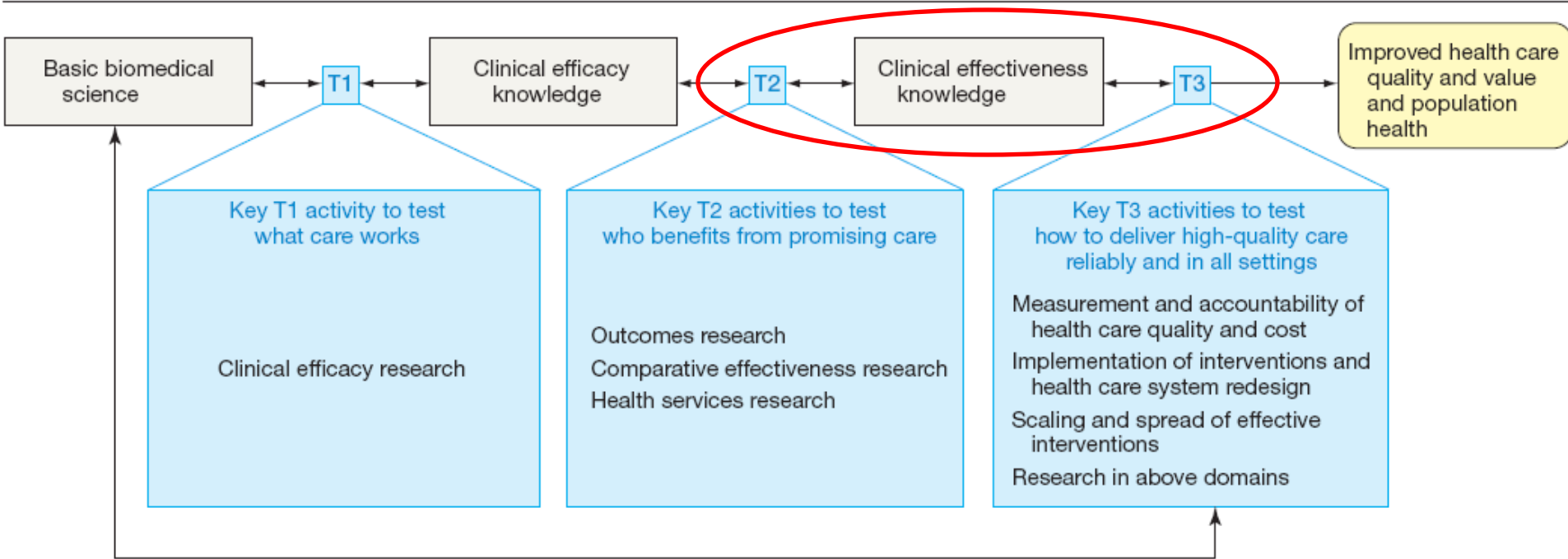
KEY PROBLEM – Does not identify or address factors critical for successful implementation

# What are the consequences?

- New research takes **too long** to get adopted
- Many interventions are **not aligned** with needs/priorities of patients and communities
- Providers lack **tools** to implement relevant and effective interventions
- **Variation** in effectiveness in different settings not understood or planned for

# Translational Pathways

**Figure.** The 3T's Road Map



T indicates translation. T1, T2, and T3 represent the 3 major translational steps in the proposed framework to transform the health care system. The activities in each translational step test the discoveries of prior research activities in progressively broader settings to advance discoveries originating in basic science research through clinical research and eventually to widespread implementation through transformation of health care delivery. Double-headed arrows represent the essential need for feedback loops between and across the parts of the transformation framework.

# Implementation Science

- Study of methods or strategies to promote the systematic uptake of proven interventions into routine clinical practice. In this context, it includes the study of influences on the behavior of patients, providers, and organizations in either healthcare or population settings.  
-- *Implementation Science Journal*
- Study of methods to promote the integration of research findings and evidence into healthcare policy and practice. It seeks to understand the behavior of healthcare professionals and other stakeholders as a key variable in the sustainable uptake, adoption, and implementation of evidence-based interventions  
-- *NIH Fogarty International Center*
- Study of processes used in the implementation of initiatives and contextual factors that affect these initiatives. The basic intent is to understand not only what is and is not working, but how and why implementation is going right or wrong, and testing approaches to improve it.  
-- *WHO*

# Common themes across definitions

- More than just the validation of evidence-based practices in “real-world” settings
- Focus on developing and testing strategies to improve speed, quantity and quality of uptake of evidence in routine practice settings
- Uptake depends on changing the behavior of key stakeholders

# Is implementation science the same as applied public health, operations or M&E research?

- **Yes**

- ◆ Involves conducting/evaluating real-world health programs
- ◆ Seeks to understand what is and is not working well

- **No**

- ◆ Seeks to create more *generalizable* knowledge that can be applied across settings
- ◆ Applies scientific rigor to understand barriers to implementation and to design and evaluate implementation strategies

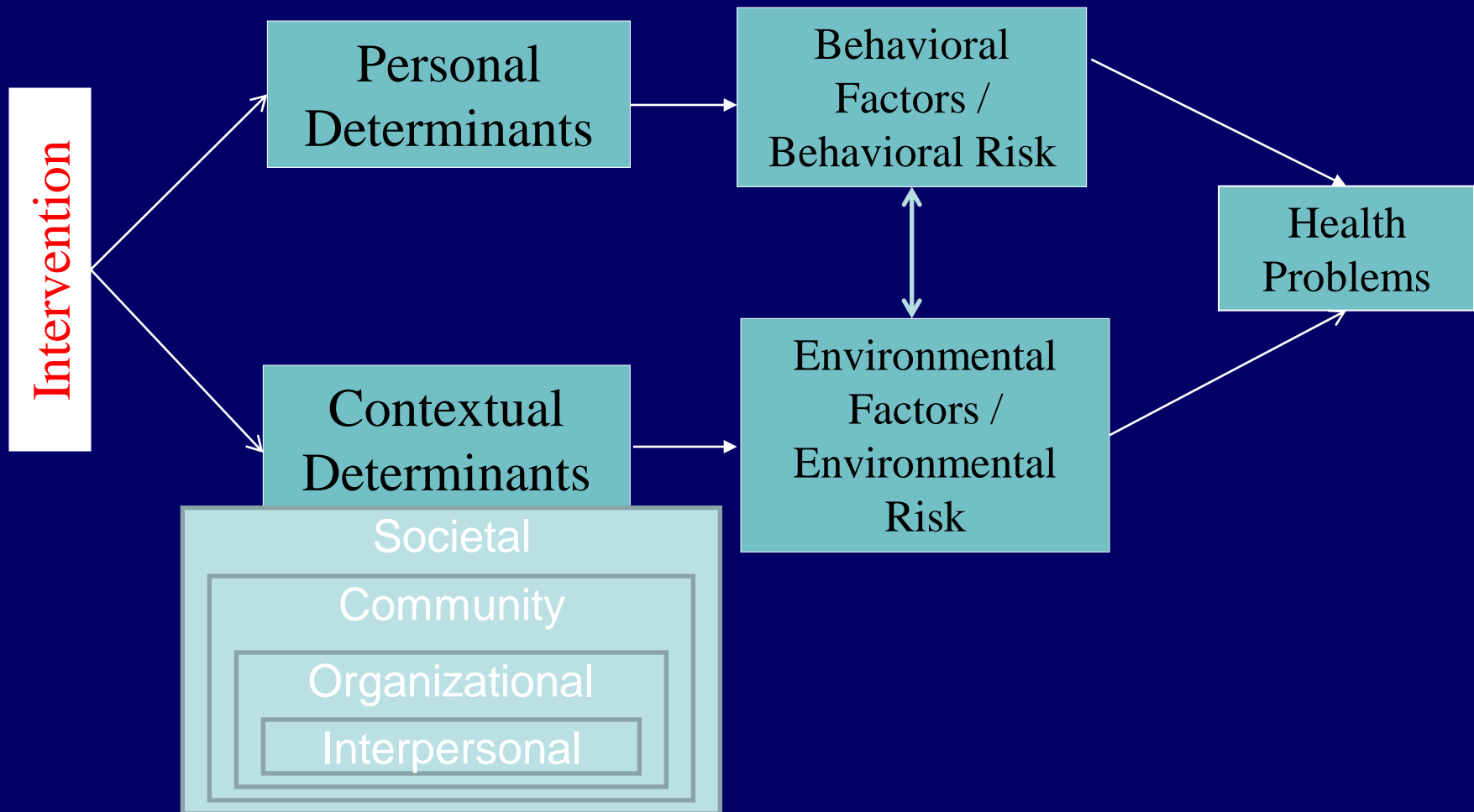
# Key Principles

**Principle 1: Engagement with stakeholders is essential at all stages**

**Principle 2: Behavior change is inherent to translation of evidence into practice and policy**

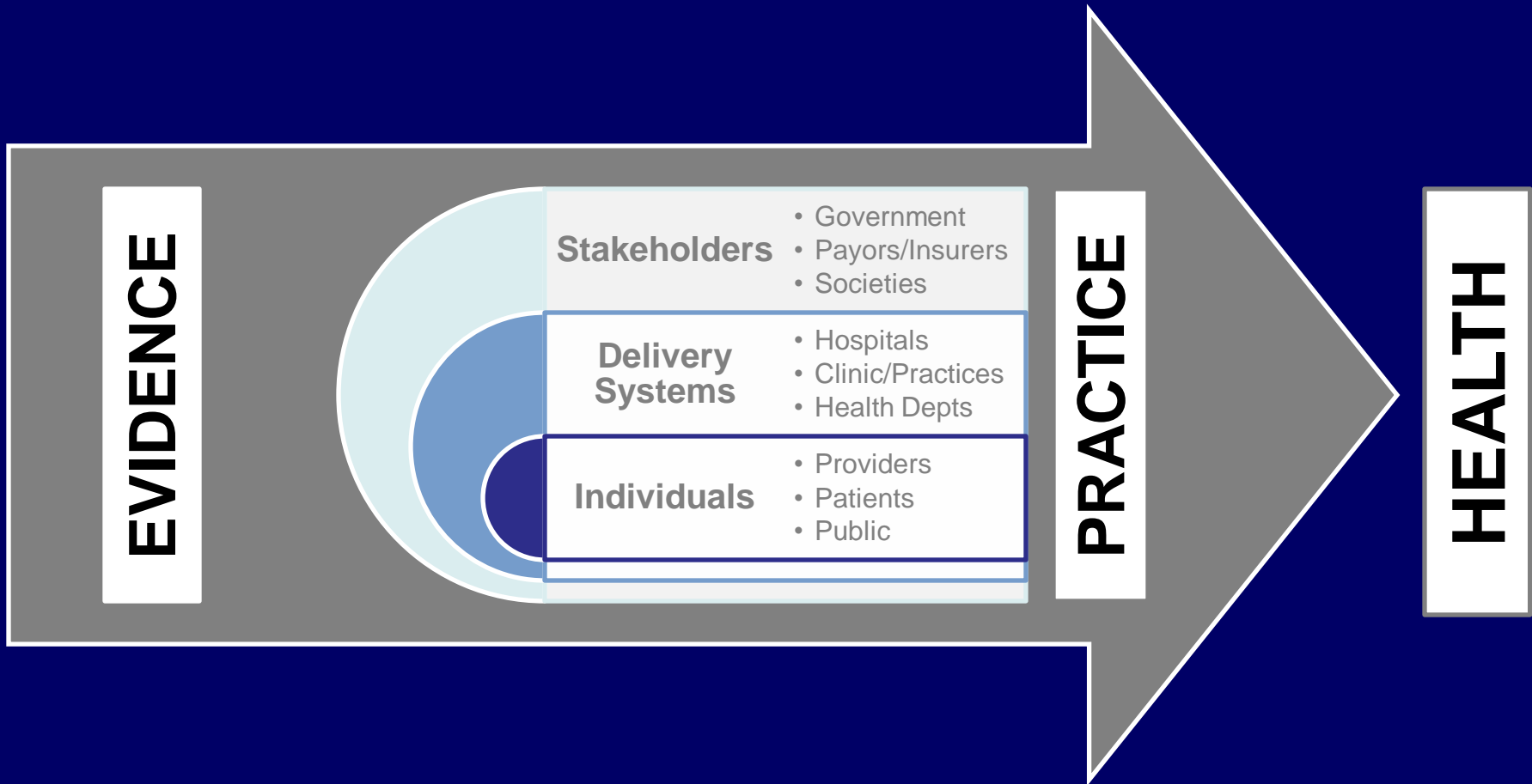
**Principle 3: The process of behavior change is iterative, favoring cycles and bidirectional relationships**

# A focus on mechanisms of change





# An Ecological View of Improving Practice



# Use of theory to identify mechanisms of change

- “theory without empirical research is empty; empirical research without theory is blind” -- Immanuel Kant
- Roles of behavioral theory in implementation science
  - Guide qualitative data collection
  - ◆ Inform analysis of barriers to change
  - ◆ Guide selection of relevant behavior change techniques
  - ◆ Help understand why an intervention did or did not work in different settings

# Examples of Implementation Science Research

- Identification of strategies to encourage provision and use of effective health services
- Identification of strategies to promote the integration of evidence into policy and program decisions
- Appropriate adaptation of interventions according to population and setting
- Conducting an impact evaluation for a population-based intervention

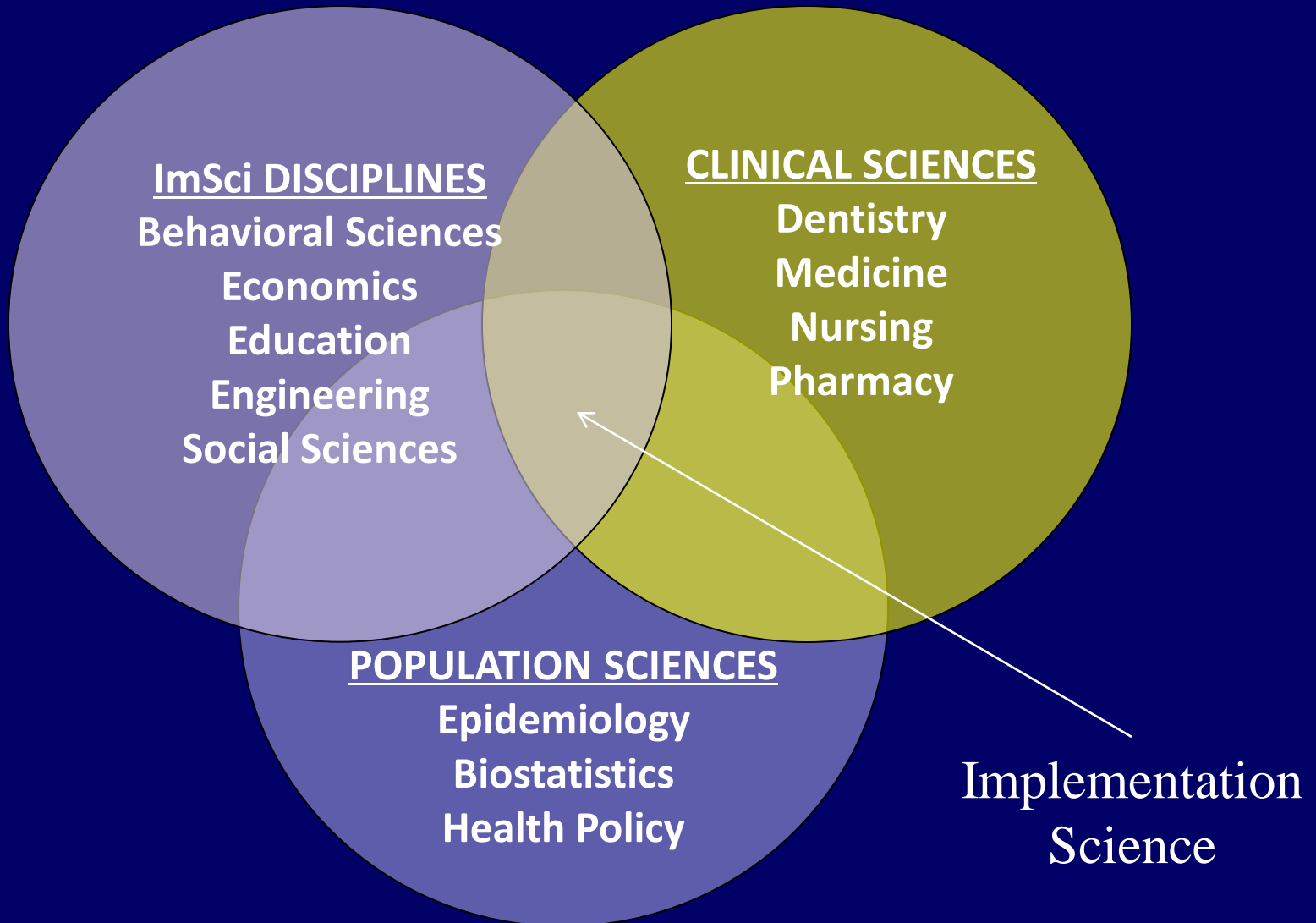
# Requires range of methods

- Community engagement strategies and participatory research designs
- Qualitative methods – focus groups and interviews
- Modeling – cost-effectiveness, efficiency
- Quality Improvement – continuous process improvement
- Experimental and quasi-experimental designs

# Benefits from range of expertise

- Epidemiology and Biostatistics
- Health systems research
- Health and behavioral economics
- Policy analysis
- Psychology, anthropology, sociology
- Communications and marketing
- Engineering and management science

# ***Cutting-edge research***



# Implementation science research - Challenges

- **New and developing field**
  - ◆ Consensus still emerging on optimal methodologies
- **Interdisciplinary and multidisciplinary approach**
  - ◆ Coordination between researchers, implementers, policymakers, and communities/populations
  - ◆ Assembling multi-disciplinary expertise
- **Causal inference and generalizability**
  - ◆ Efficacy vs. effectiveness in real-world settings
  - ◆ Need for qualitative and quantitative methods

# Summary

- Urgent need for research to address the evidence-practice gap
- Implementation science is focused on developing and testing strategies to promote uptake of research evidence into practice and policy
- Implementation science involves multi-disciplinary, team science