



University of California  
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# Introduction to Implementation Science

## *Part 1: Defining Implementation Science*

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

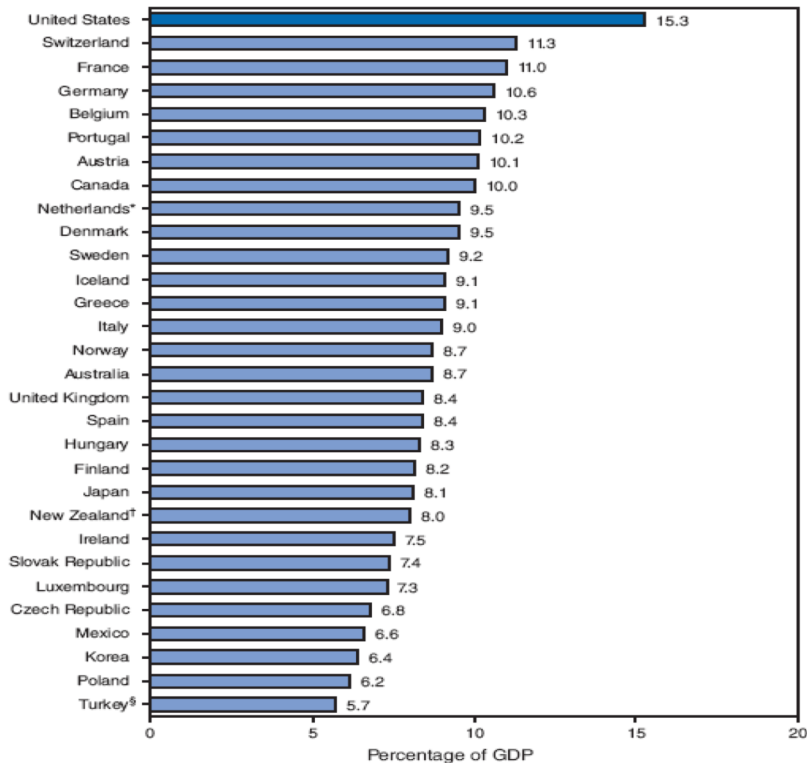


# The evidence-practice gap

- Consistent failure to translate evidence into routine practice
  - 50% of patients do not receive recommended care
  - 30% of medical spending is on unnecessary care
- Optimizing patient care requires closing evidence-practice gap

Asch SM. NEJM 2006  
Dartmouth Atlas of Healthcare

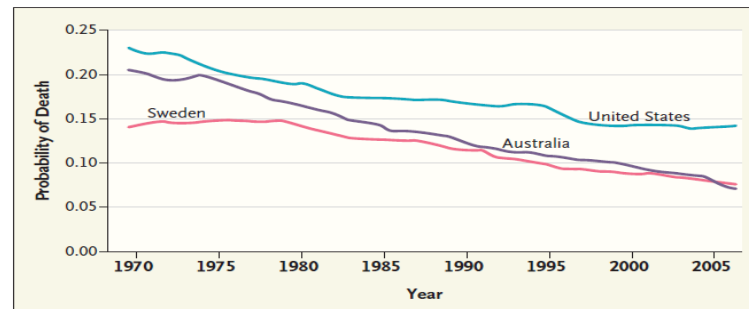
# Spend so much...



# 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.

Murray C et al. NEJM 2010

# Traditional approach to implementation



ISLAGIATT  
Principle



It Seemed Like  
A Good Idea At  
The Time

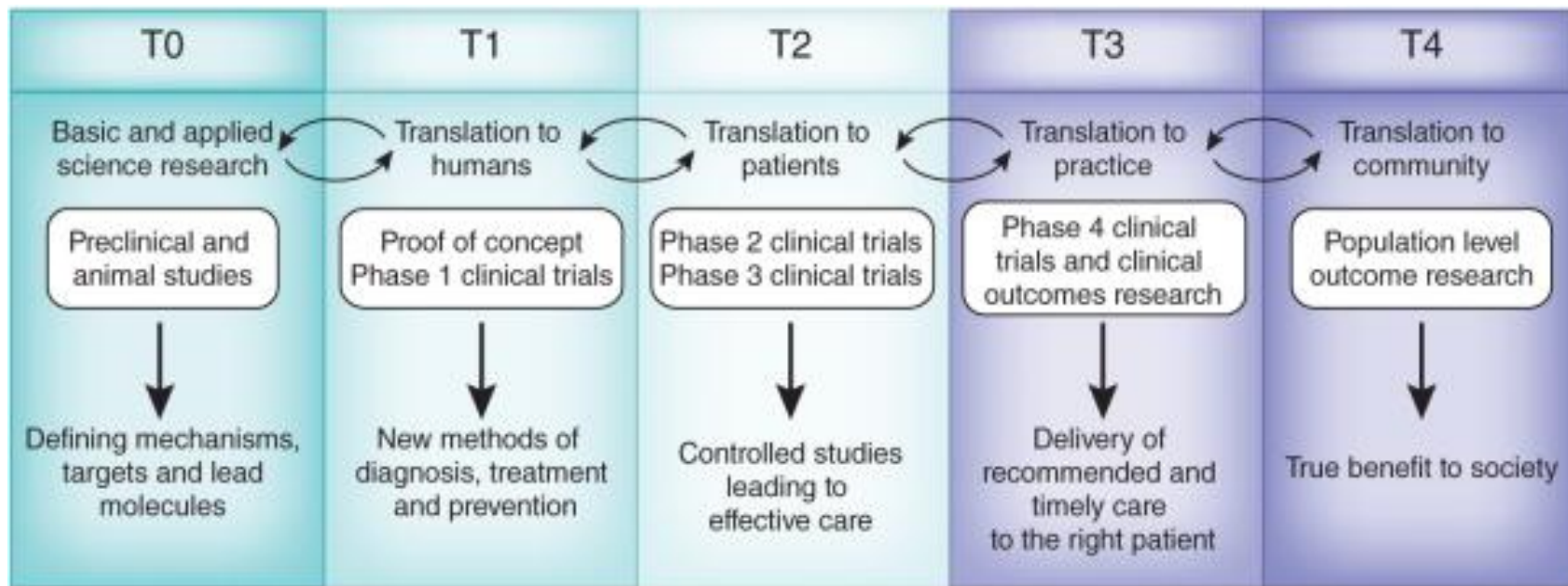
Martin Eccles

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

# What are the consequences?

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

# Translational Research Pathways



**Implementation Science**

# 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.

-- *World Health Organization*

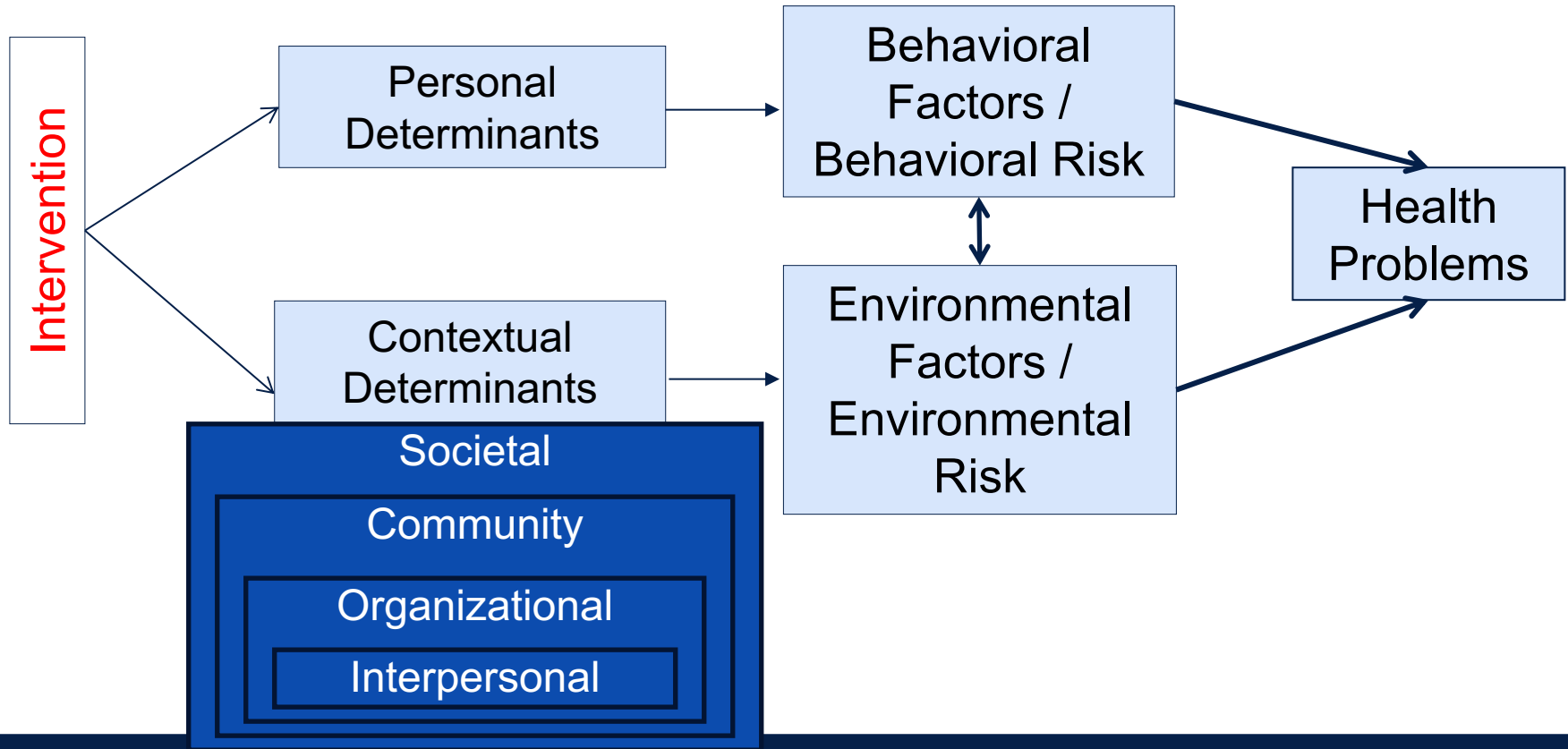


## Common themes across definitions

- Implementation science involves
  - Understanding behavior
  - Developing strategies to change behavior
  - Engaging stakeholders

Increase speed, quantity and quality of evidence uptake

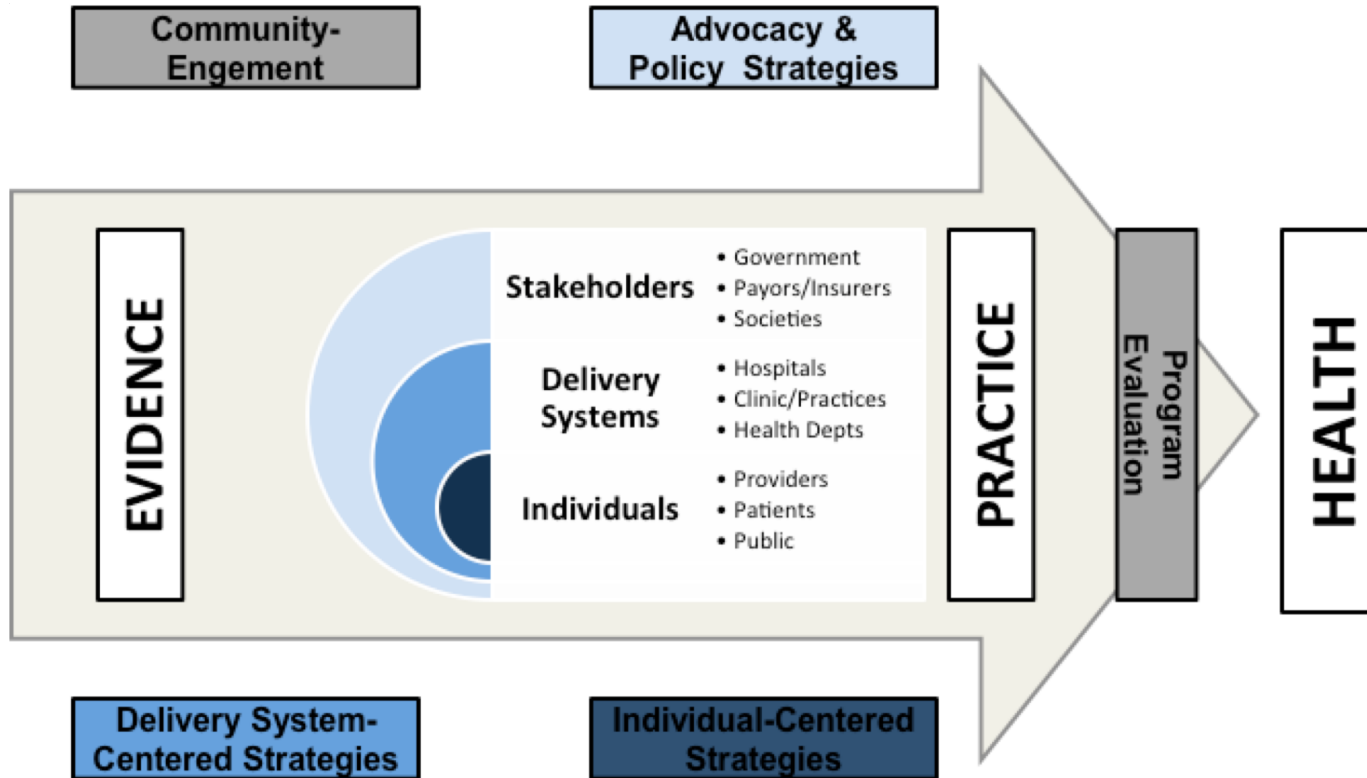
# A focus on mechanisms of change



## Use of theory/frameworks

- “Theory without empirical research is empty; empirical research without theory is blind” -- Immanuel Kant
1. Identify determinants of behavioral/environmental risk factors
  2. Create a causal model of the problem
  3. Specify determinants being targeted for change
  4. Select intervention methods to match targets
  5. Inform evaluation of implementation strategy

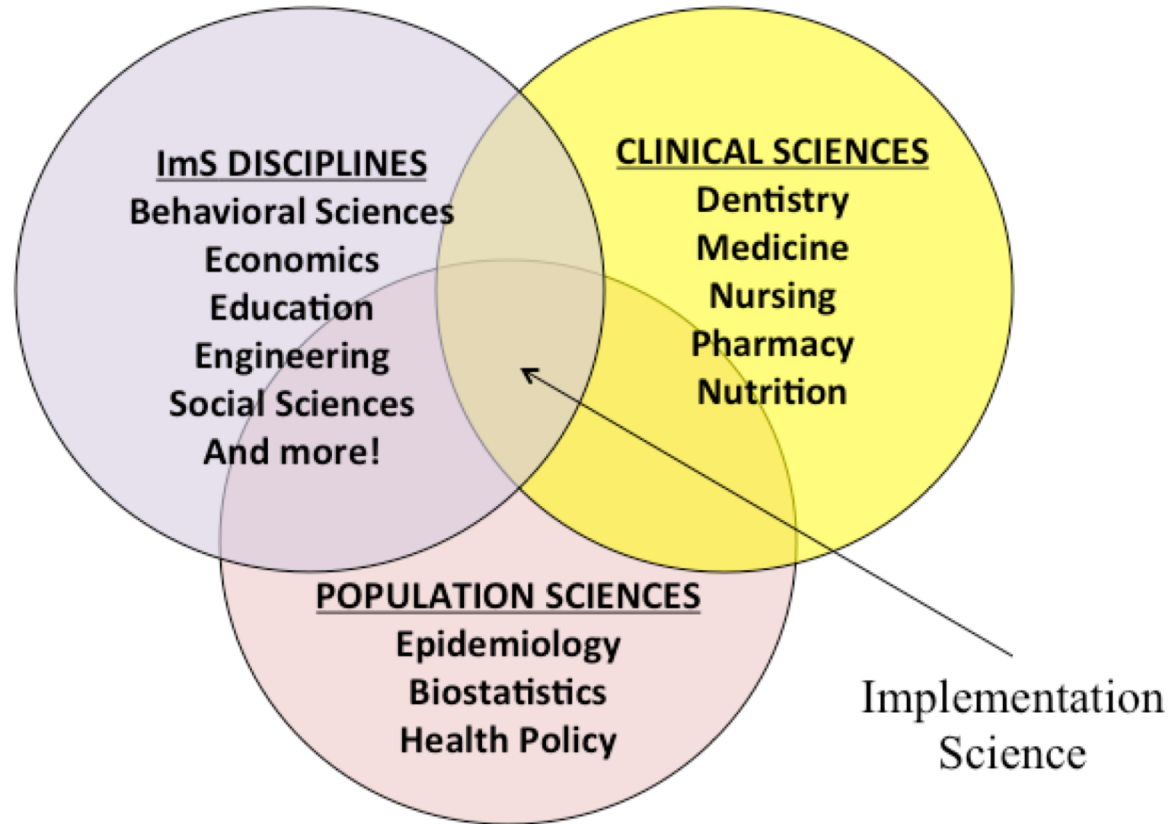
# An ecological view of improving practice



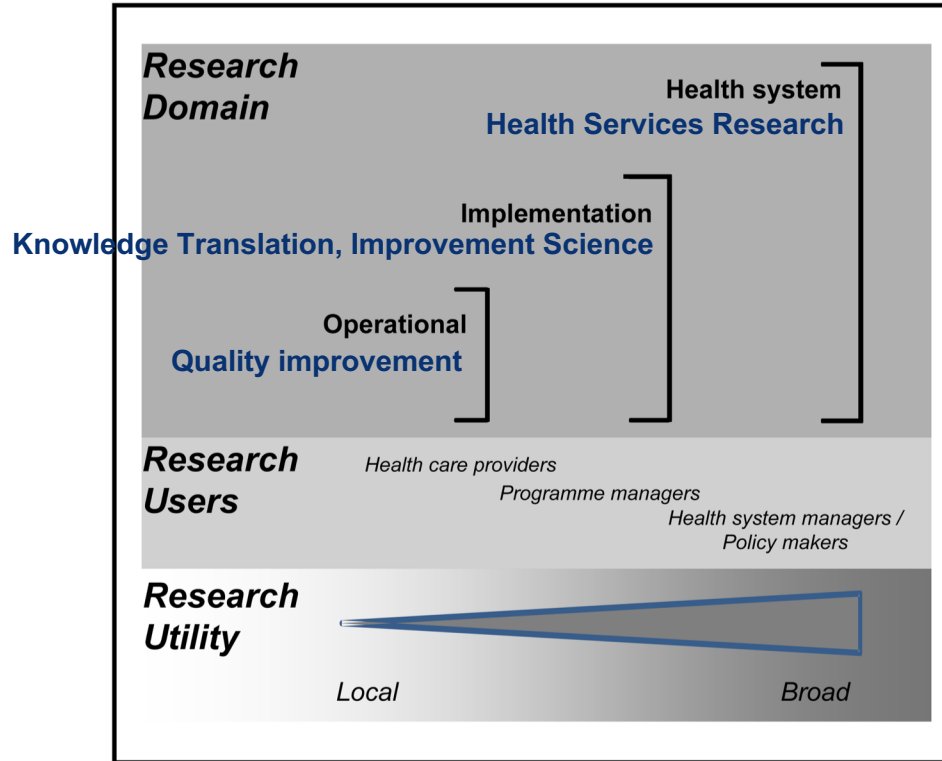
# Types of implementation science research

- Identify barriers and facilitators to translation of evidence
- Develop strategies to improve healthcare delivery
- Evaluate impact of strategies to improve healthcare delivery
- Adapt interventions and implementation strategies to new settings
- Identify strategies to integrate evidence into policy/program decisions

# Cutting-edge research



# Implementation Science in context



Adapted from: Remme J. PLoS Med 2010

# Challenges facing implementation research

- **New and developing field**
  - Consensus emerging on optimal methodologies
- **Multi-disciplinary approach**
  - Coordination between stakeholders
  - Assembling relevant expertise
- **Causal inference and generalizability**
  - Fidelity vs. adaptation in real-world settings
  - Need for qualitative and quantitative methods