Implementation Science

The Tennessee State University Center for Prevention Research (CPR) faculty include and collaborate with scholars in the field of implementation science and implementation research. One of the goals of the CPR is to support knowledge and skill development in this field among interested TSU faculty and students.

Implementation science is often defined using words proposed by Eccles et al. (2006), i.e., **"the scientific study of methods to promote systematic uptake of research findings and other evidence-based practices into routine practice, and hence, to improve the quality and effectiveness of health services and care."**

Implementation science aims to address the 17-year gap between development of research evidence for effectiveness of programs and interventions, and benefits in community settings patients and community members. Increasingly, implementation scientists are concerned about disparities in access to effective interventions, including prevention and screening programs, as well as treatments that can improve outcomes from disease and illness.

Figure 1. The problem addressed by implementation science

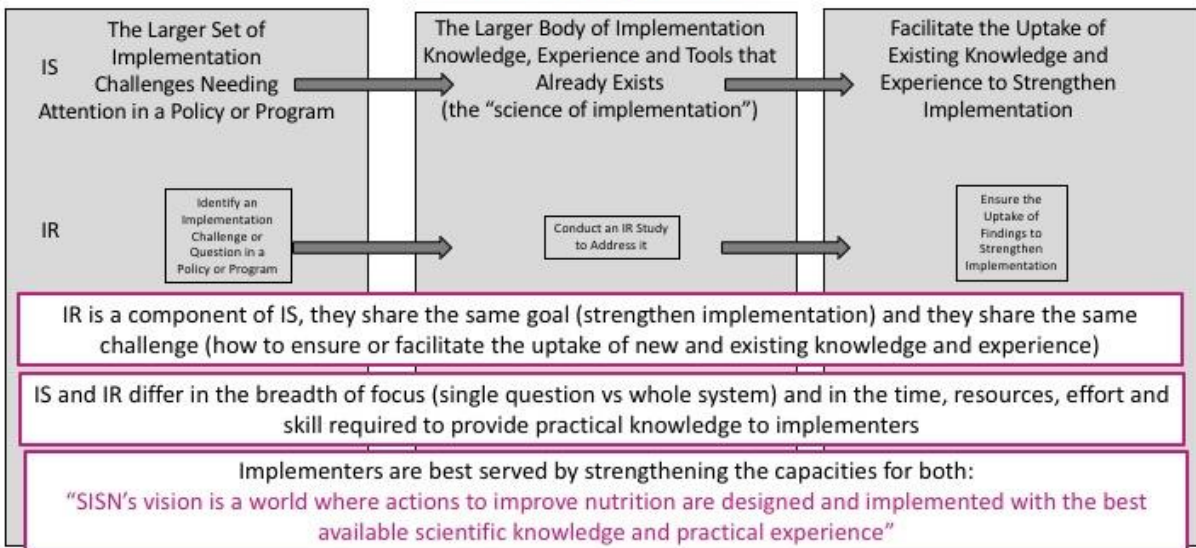Graphic used with permission from Ross Brownson, Ph.D.

The term "dissemination and implementation research" is often used to refer to the field also known as implementation science. In the United Kingdom and other countries the term "knowledge translation" is more commonly used to identify this field.

Translational research is another term that overlaps with implementation science. As noted by Leppin et al. (2021), "The purpose of translational science is to positively impact population health, with the goal of effective research products (programs, practices, and interventions) being widely implemented in real-world clinical and public health settings. This process inevitably requires users of research to identify, adopt, and normalize new policies and practices within complex, real-world contexts. Implementation science describes this process, identifies the multi-level factors influencing it, and informs efforts to make it happen more readily, more equitably, and on a broader scale. Because of this, implementation science offers a compelling value proposition to translational science, namely, as a tool for accelerating translation and achieving health impact. "

This graphic is from the Society for Implementation Science in Nutrition (SISN) https://www.implementnutrition.org/, one of many discipline-specific implementation science resources.

Implementation Science (IS) and Implementation Research (IR): How Do They Differ?

IS	The Larger Set of Implementation Challenges Needing Attention in a Policy or Program	The Larger Body of Implementation Knowledge, Experience and Tools that Already Exists (the "science of implementation")	Facilitate the Uptake of Existing Knowledge and Experience to Strengthen Implementation
IR	Identify an Implementation Challenge or Question in a Policy or Program	Conduct an IR Study to Address it	Ensure the Uptake of Findings to Strengthen Implementation

IR is a component of IS, they share the same goal (strengthen implementation) and they share the same challenge (how to ensure or facilitate the uptake of new and existing knowledge and experience)

IS and IR differ in the breadth of focus (single question vs whole system) and in the time, resources, effort and skill required to provide practical knowledge to implementers

Implementers are best served by strengthening the capacities for both:
"SISN's vision is a world where actions to improve nutrition are designed and implemented with the best available scientific knowledge and practical experience"

Some authors in the field distinguish between implementation science(IS) and implementation research (IR) by describing IS as designed to contribute to the growing body of knowledge and theory about the study of implementation methods. IR is generally designed to facilitate adoption and delivery of a specific evidence-based intervention in a specific setting. This domain might also be referred to as applied implementation science.

WHY IS IMPLEMENTATION SCIENCE IMPORTANT?

Advances in health and quality of life among people around the world have been slow, despite decades of work and funding for research, and sincere effort on the parts of many policy-makers and people who deliver programs. The gap, or chasm, between progress in developing effective programs to improve health, and the level of benefit at the community level has been extremely dissatisfying. Implementation science has evolved over the past several decades as a field dedicated to improving population health and advancing health equity. Implementation science is also being applied to other fields such as education. The number of conferences, journals, and training opportunities devoted to implementation science has been expanding, and many free resources and training opportunities in the field of implementation science are available from universities, public agencies and professional organizations.

HOW DOES IMPLEMENTATION SCIENCE ADDRESS PUBLIC HEALTH AND HEALTH EQUITY CONCERNS ?

The World Health Organization asserts that health equity is a fundamental right, and defines health equity as "**the absence of unfair, avoidable or remediable differences among groups of people**, whether those groups are defined socially, economically, demographically, or geographically or by other dimensions of inequality (e.g. sex, gender, ethnicity, disability, or sexual orientation). (https://www.who.int/health-topics/health-equity#tab=tab_1) The Centers for Disease Control and Prevention note that health inequities are reflected in differences in length
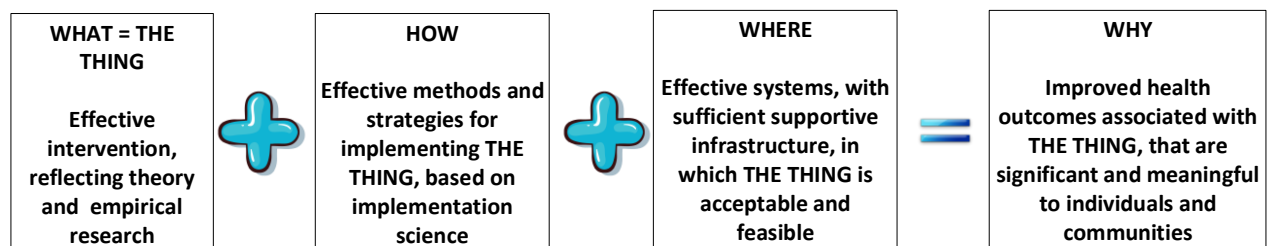
of life; quality of life; rates of disease, disability, and death; severity of disease; and access to treatment.

Brownson et al.(2021) recommended that "Every project in implementation science should include an equity focus." In their recent paper, Brownson and colleagues offer guidance in accomplishing this goal incorporating the following elements:

- link social determinants with health outcomes,
- build equity into all policies,
- use equity-relevant metrics, (4) study what is already happening,
- integrate equity into implementation models,
- design and tailor implementation strategies,
- connect to systems and sectors outside of health,
- engage organizations in internal and external equity efforts,
- build capacity for equity in implementation science, and
- focus on equity in dissemination efforts.

The Center for Prevention Research aims to promote application of implementation science to promote health equity through our research and collaboration with faculty, students, and community partners.

The graphic below summarizes key points made in this overview of implementation science.

WHAT = THE THING		HOW		WHERE		WHY
Effective intervention, reflecting theory and empirical research	➕	Effective methods and strategies for implementing THE THING, based on implementation science	➕	Effective systems, with sufficient supportive infrastructure, in which THE THING is acceptable and feasible	➖	Improved health outcomes associated with THE THING, that are significant and meaningful to individuals and communities

Adapted from Fixsen and Blasé (2012) National Implementation Research Network

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Free training:
https://cancercontrol.cancer.gov/is/training-education/training-in-cancer/TIDIRC-open-access
This site provides links to eight modules that make up the Training Institute for Implementation and Dissemination Research in Cancer (TIDIRC) Open Access course.