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London Health Sciences Centre

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UNIVERSITY · CANADA

TURNING RESEARCH INTO PRACTICE:

SCIENCE BEHIND IMPLEMENTATION SCIENCE

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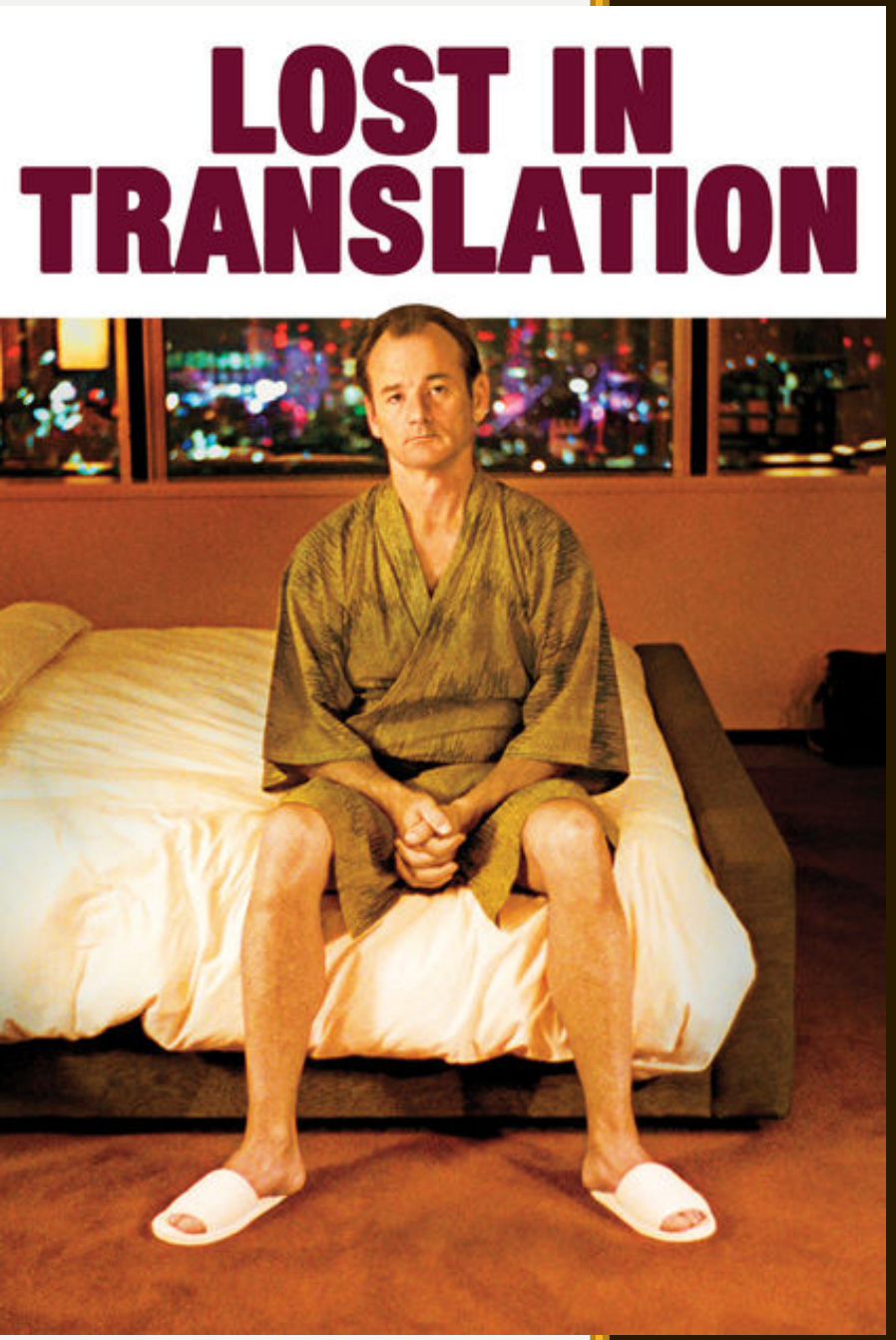
Thanks to

MEDICI Team

Selected slides and inspiration from Susan Kirsch, Trish Greenhalgh, Sharon Straus, John Lavis, Paul Glasziou



KNOWLEDGE TRANSLATION: LOST?

WHO KNEW GETTING LOST COULD BE SO MUCH FUN?

KNOWLEDGE TRANSLATION:
WHAT IS IT?

Did you know that there are over 90 terms used for knowledge translation

Some examples are:

Knowledge Mobilization

Research Translation

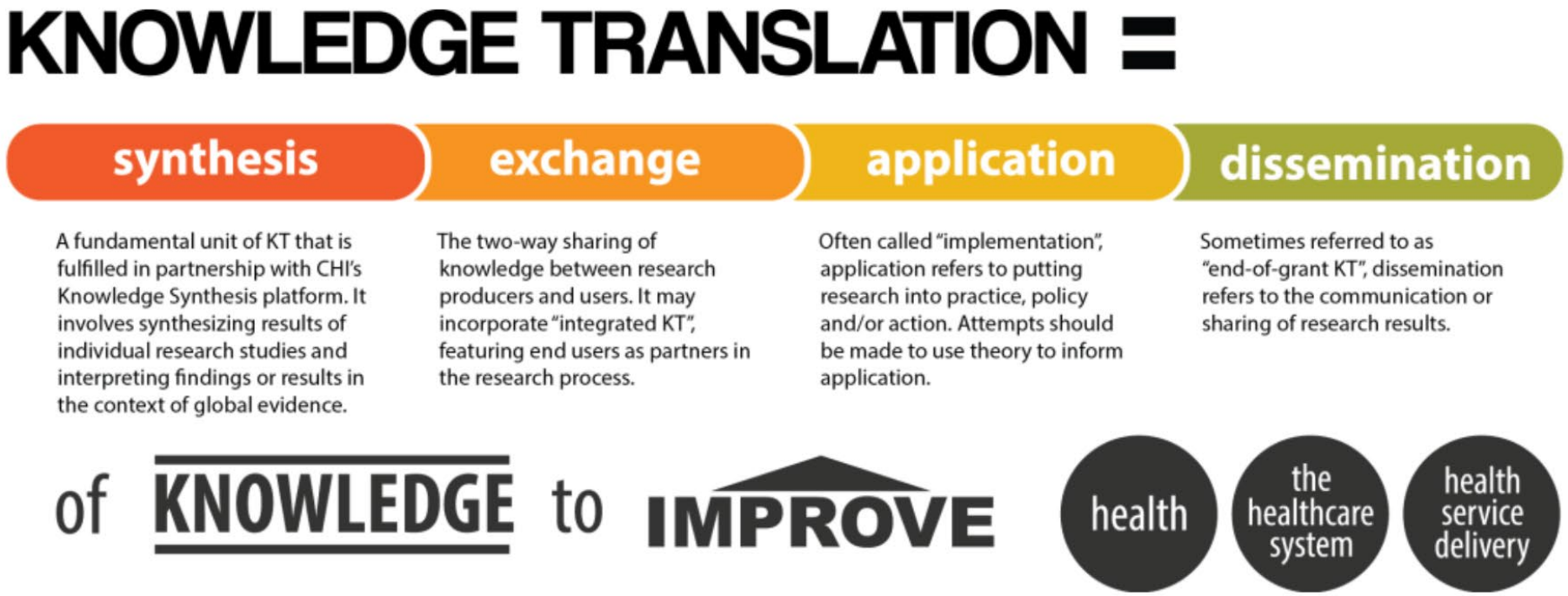
Knowledge Transfer and Exchange

Engaged Scholarship


knowledge translation
translational research
knowledge
mobilization
transfer
implementation
tech transfer
knowledge transfer
KNOWLEDGE TRANSFER
TECH TRANSFER
TRANSFER
IMPLEMENTATION
KNOWLEDGE TRANSLATION
TRANSLATIONAL RESEARCH

What We Mean When We Say "Knowledge Translation"

By Kathryn Sibley



HTTP://WWW.MEDIUM.COM/KNOWLEDGENUDGE

KNOWLEDGE TRANSLATION (KT)

KNOWLEDGE TO ACTION (KTA)

DIFFUSION

DISSEMINATION

EXCHANGE

KT: WHAT IS IT?

KNOWLEDGE TRANSLATION HAS BEEN ADOPTED IN CANADA BECAUSE **TRANSLATION OF RESEARCH IS EMBEDDED IN THE MANDATE OF THE CANADIAN INSTITUTES OF HEALTH RESEARCH** (THE FEDERAL AGENCY FOR THE FUNDING OF HEALTH RESEARCH). IN THIS SERIES, WE USE THE TERMS KNOWLEDGE TRANSLATION AND KNOWLEDGE-TO-ACTION INTERCHANGEABLY.

KNOWLEDGE TRANSLATION (KT)

KNOWLEDGE TO ACTION (KTA)

DIFFUSION

DISSEMINATION

EXCHANGE

KT: WHAT IS IT?

….A DYNAMIC AND ITERATIVE PROCESS THAT INCLUDES THE SYNTHESIS, DISSEMINATION, EXCHANGE AND ETHICALLY SOUND APPLICATION OF KNOWLEDGE TO IMPROVE HEALTH, PROVIDE MORE EFFECTIVE HEALTH SERVICES AND PRODUCTS, AND STRENGTHEN THE HEALTH CARE SYSTEM.

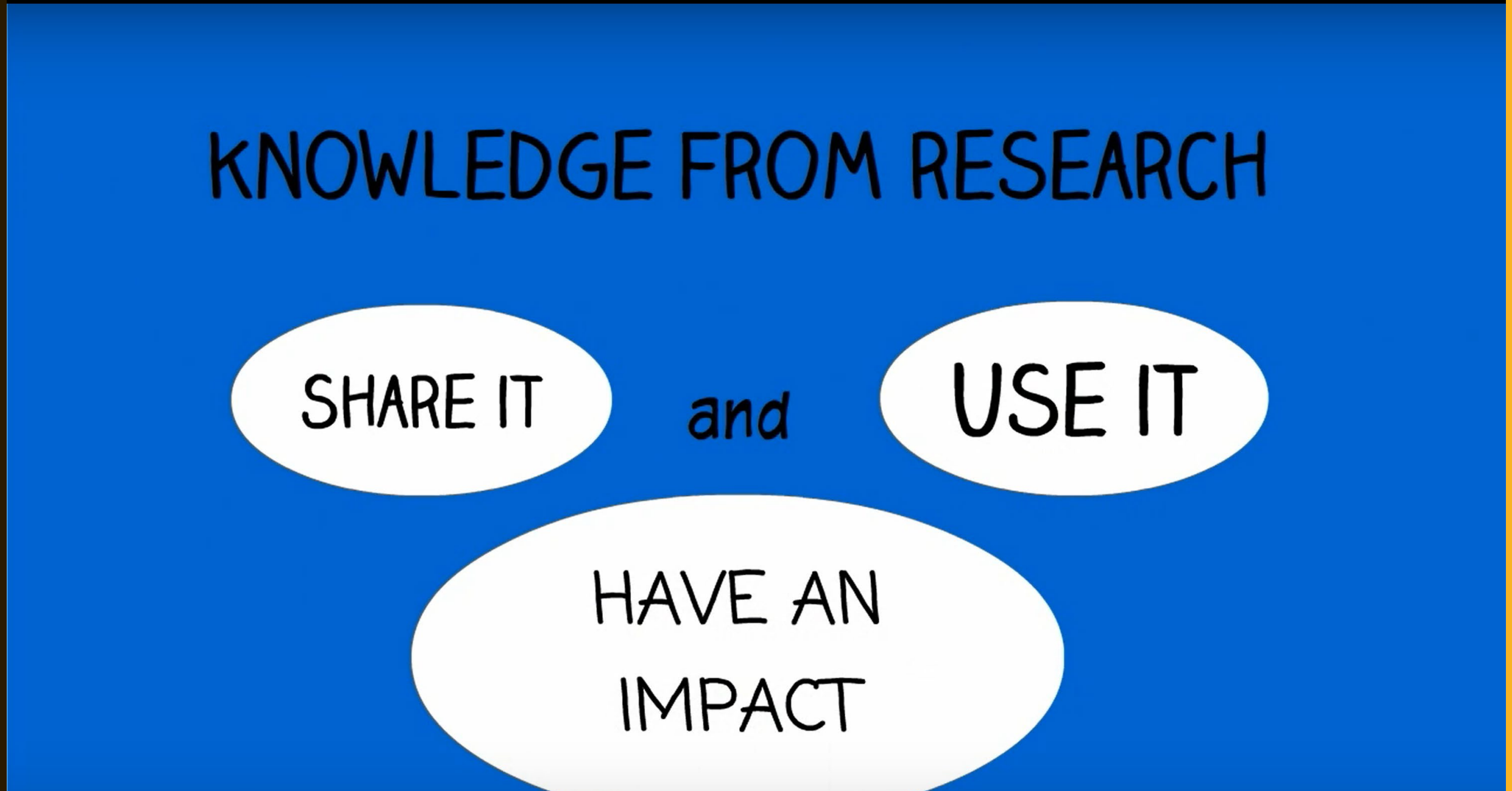
….MOVE BEYOND SIMPLE DISSEMINATION OF KNOWLEDGE INTO ACTUAL USE OF KNOWLEDGE.

KNOWLEDGE CREATION (I.E., PRIMARY RESEARCH), KNOWLEDGE DISTILLATION (I.E., THE CREATION OF SYSTEMATIC REVIEWS AND GUIDELINES) AND KNOWLEDGE DISSEMINATION (I.E., APPEARANCES IN JOURNALS AND PRESENTATIONS) ARE NOT ENOUGH ON THEIR OWN TO ENSURE THE USE OF KNOWLEDGE IN DECISION-MAKING.

A great definition

Getting the right information, to the right people, at the right time, and in the right format, so as to influence decision making

Knowledge Translation Background



IMPLEMENTATION SCIENCE

WHAT IS IT?

"IMPLEMENTATION SCIENCE IS THE STUDY OF FACTORS THAT INFLUENCE THE FULL AND EFFECTIVE USE OF INNOVATIONS IN PRACTICE. THE GOAL IS NOT TO ANSWER FACTUAL QUESTIONS ABOUT WHAT IS, BUT RATHER TO DETERMINE WHAT IS REQUIRED." (NIRN, 2015) NATIONAL IMPLEMENTATION RESEARCH NETWORK, 2015

"IMPLEMENTATION SCIENCE IS THE STUDY OF FACTORS THAT INFLUENCE THE FULL AND EFFECTIVE USE OF INNOVATIONS IN PRACTICE. THE GOAL IS NOT TO ANSWER FACTUAL QUESTIONS ABOUT WHAT IS, BUT RATHER TO DETERMINE WHAT IS REQUIRED." (NIRN, 2015) ...

IMPLEMENTATION SCIENCE

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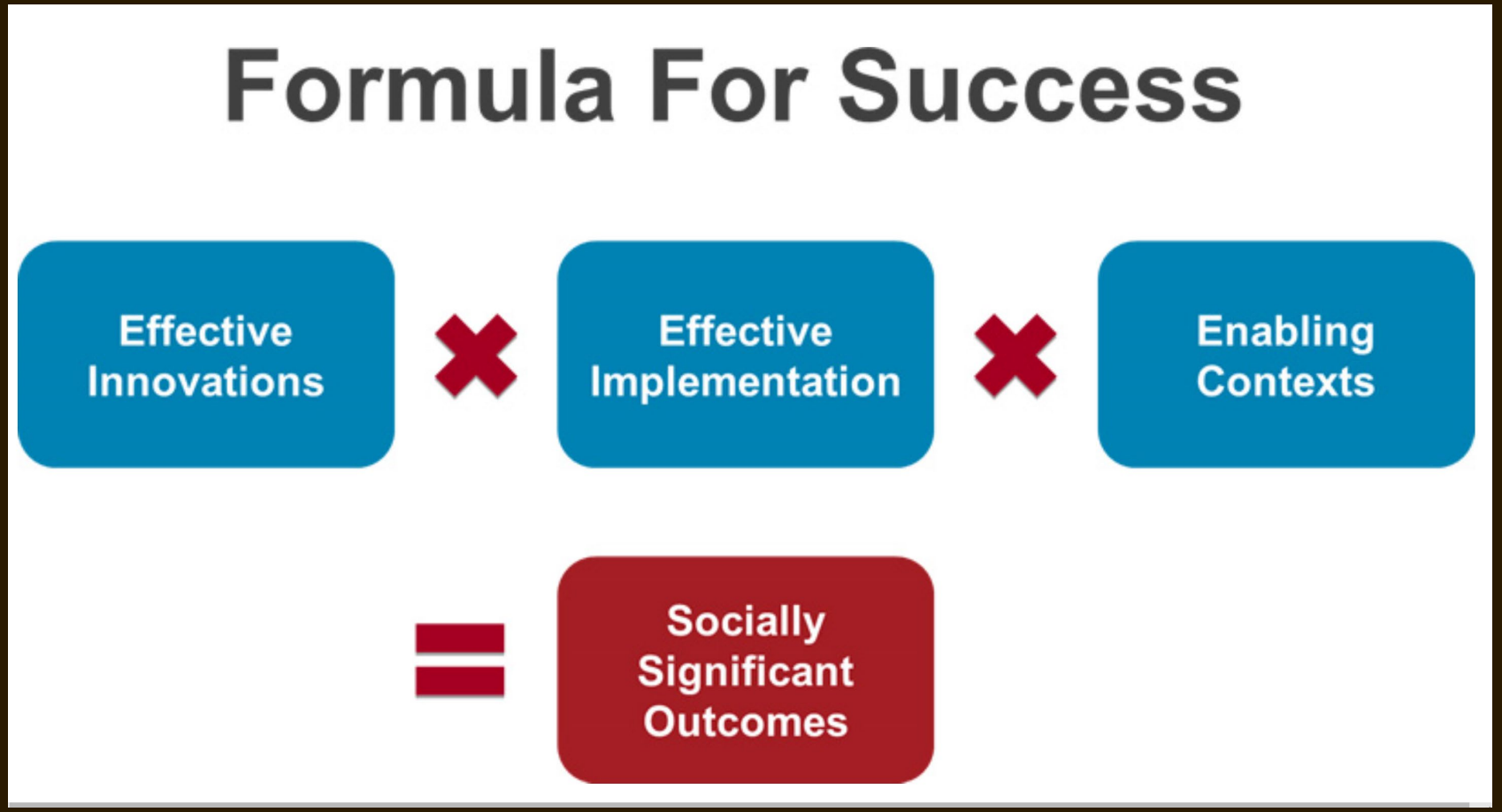
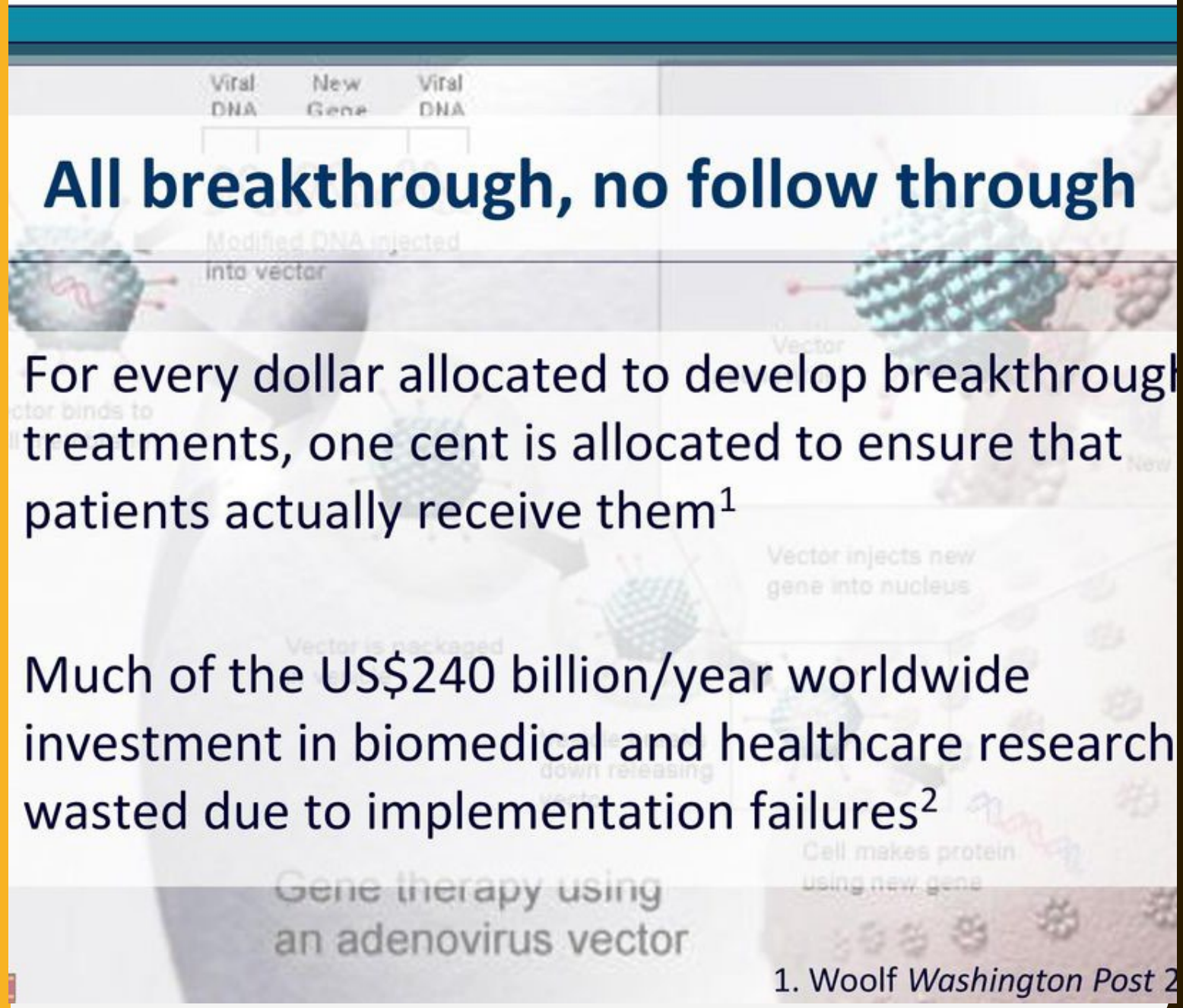


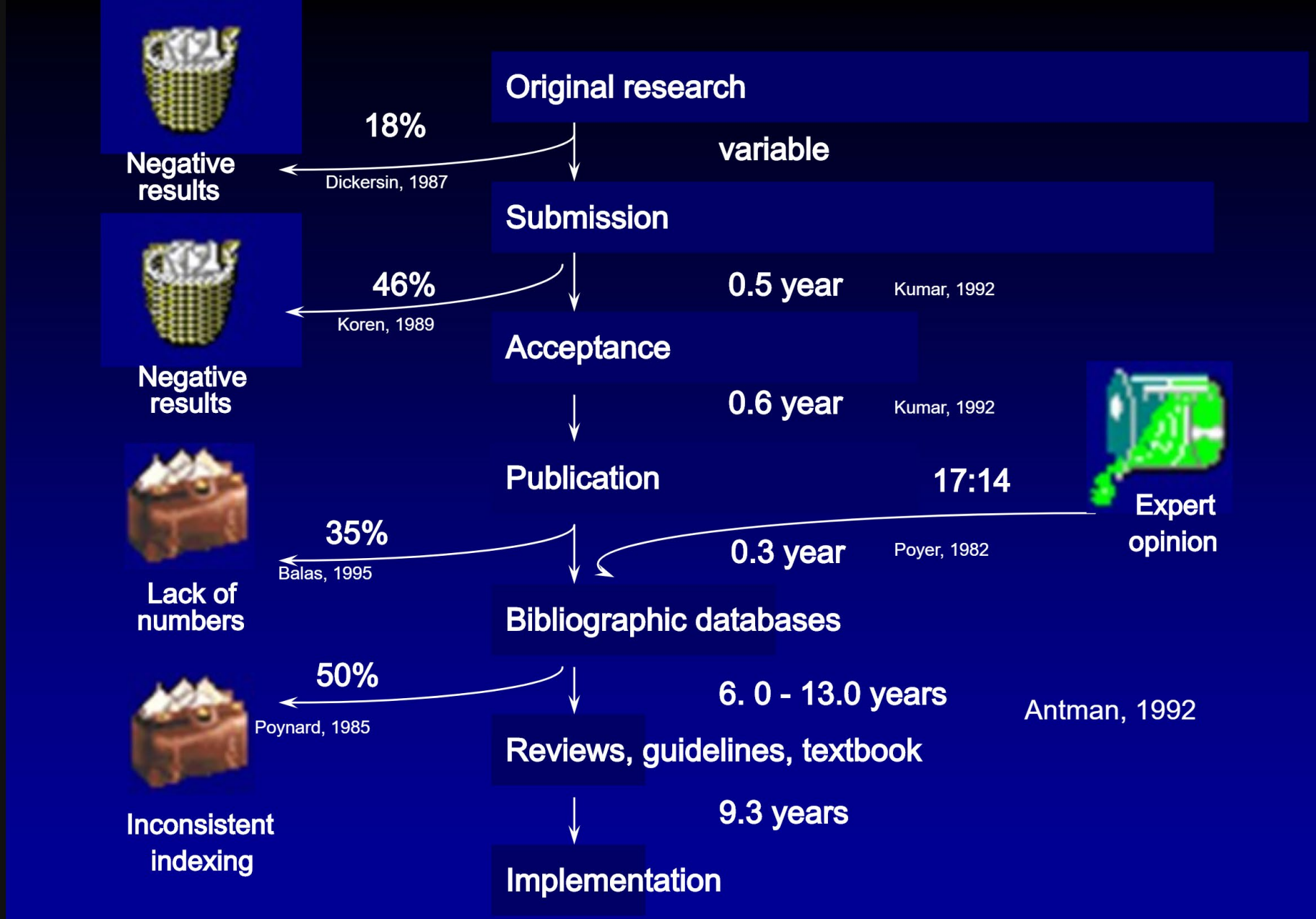
WITH THANKS TO THE TEAM…

KNOWLEDGE TRANSLATION: WHY?

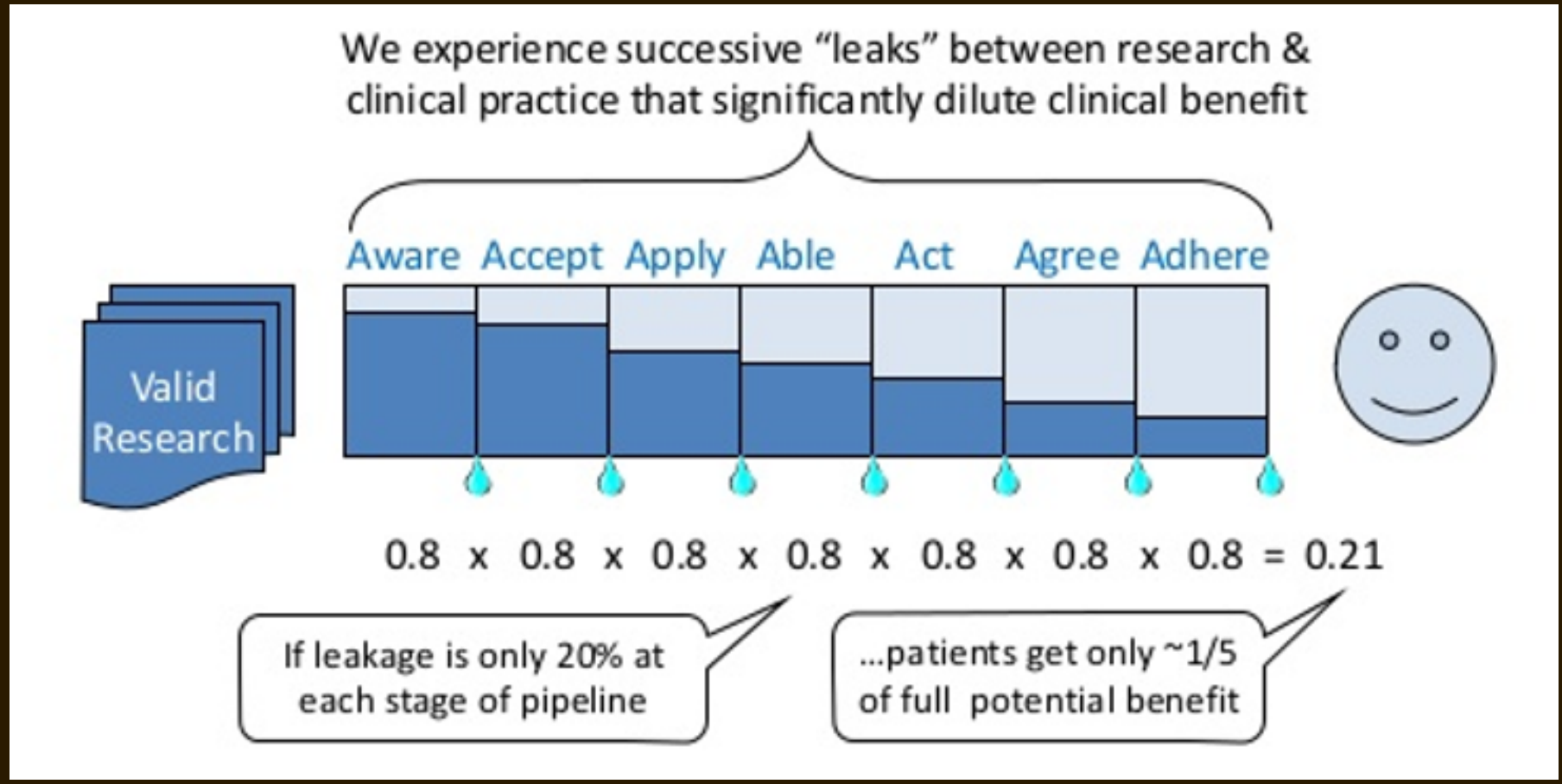


ALL BREAKTHROUGH. NO FOLLOW THROUGH

Woolf, Washington Post 20o6

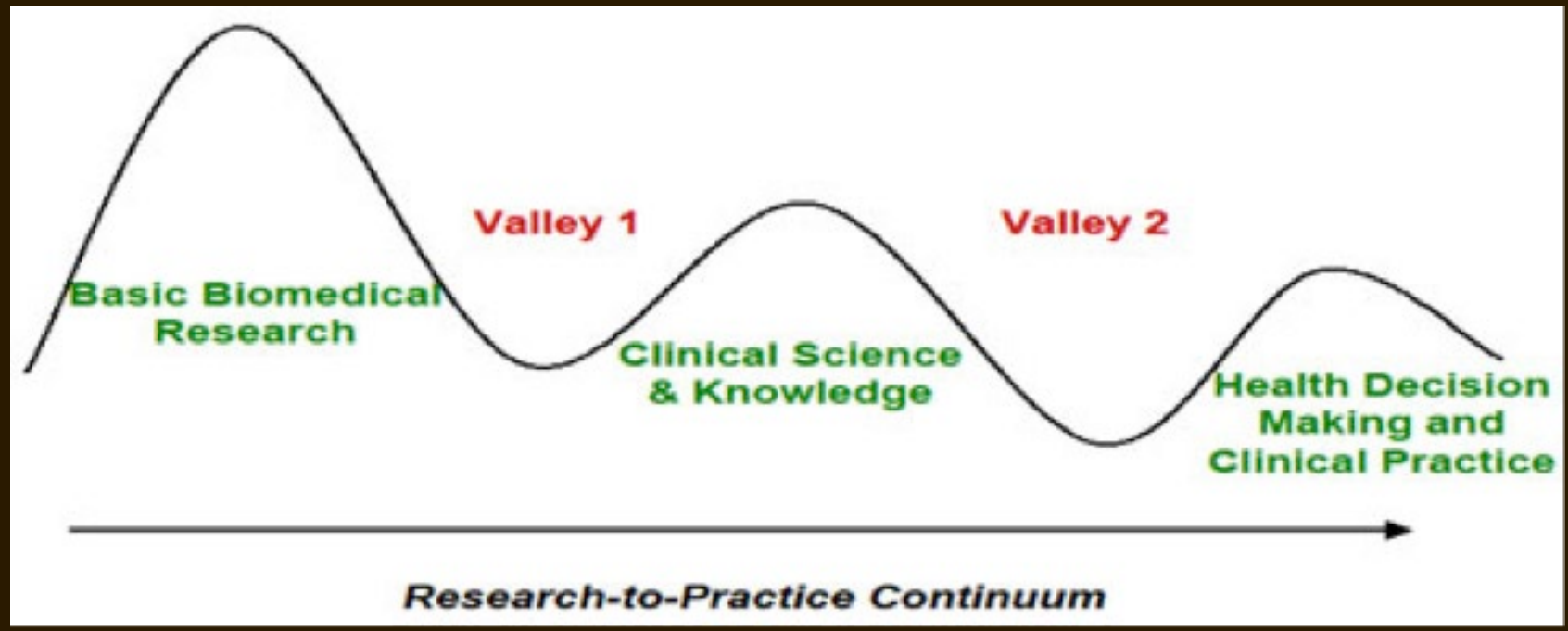


It takes 17 years to turn 14 per cent of original research to the benefit of patient care



GLASZIOU ET AL: DIFFUSION OF NEW KNOWLEDGE (HTTP://EBM.BMJ.COM/CONTENT/8/2/36.FULL)[1]...

KT: VALLEYS OF DEATH



SEE ALSO CHENG & MARTIN, CAN J ANESTH 2011;58:354-63

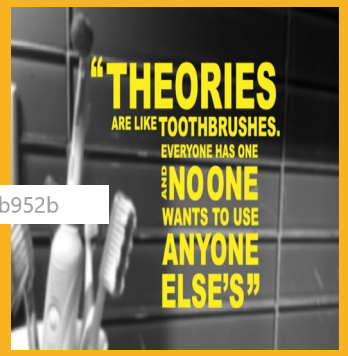
HTTP://MEOPAR.CA/NEWS/ENTRY/MY-TOP-FIVE-LESSONS-LEARNED-AT-KMB2015

WITH THANKS TO THE TEAM…

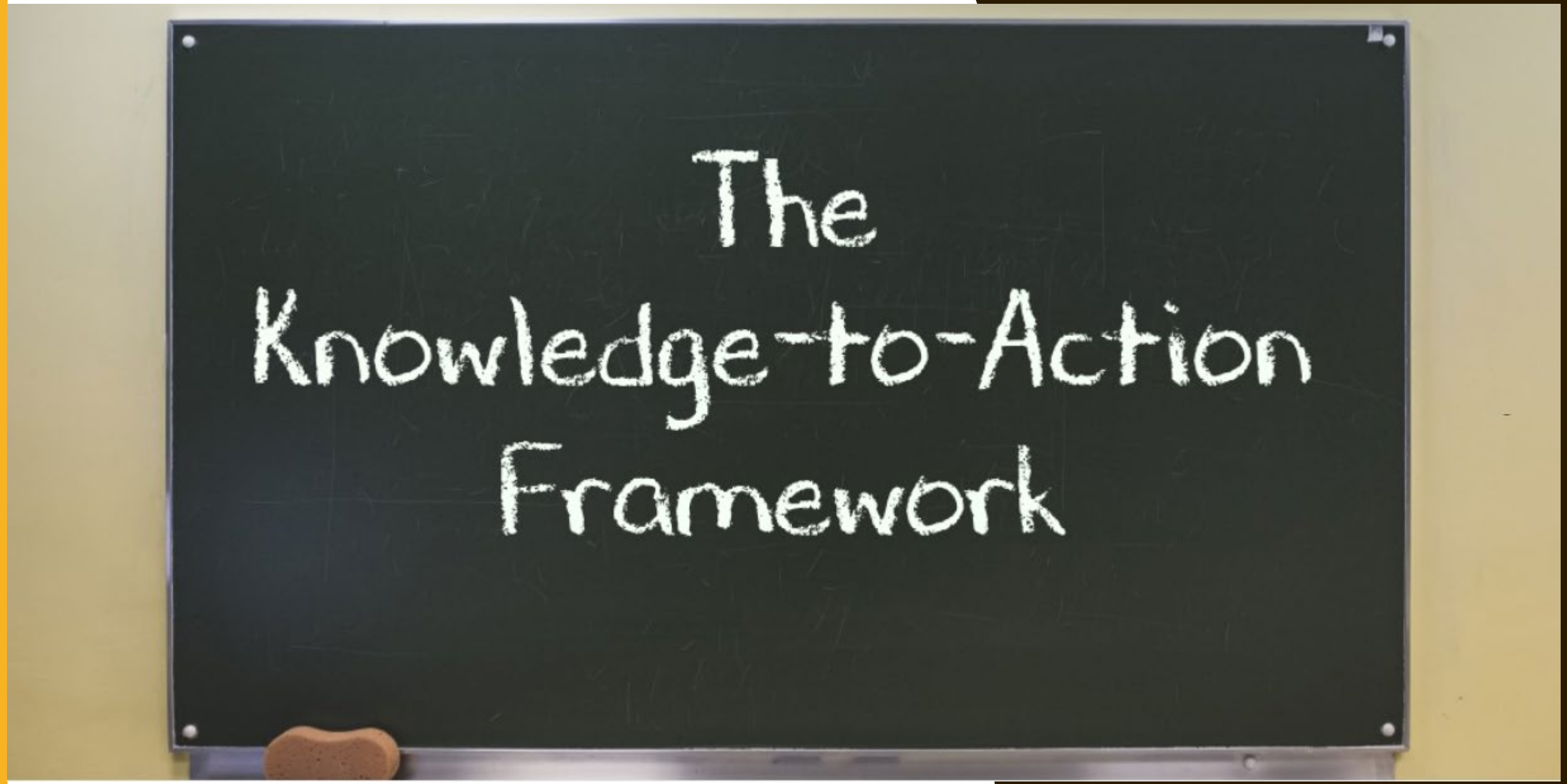
KNOWLEDGE TRANSLATION: THEORIES & FRAMEWORKS

THEORIES ARE LIKE TOOTHBRUSHES. EVERYONE HAS ONE.

NO ONE WANTS TO USE ANYONE ELSE'S.



https://medium.com/knowledgenudge/top-knowledgenudge-posts-of-2017-e50a3d1b952b



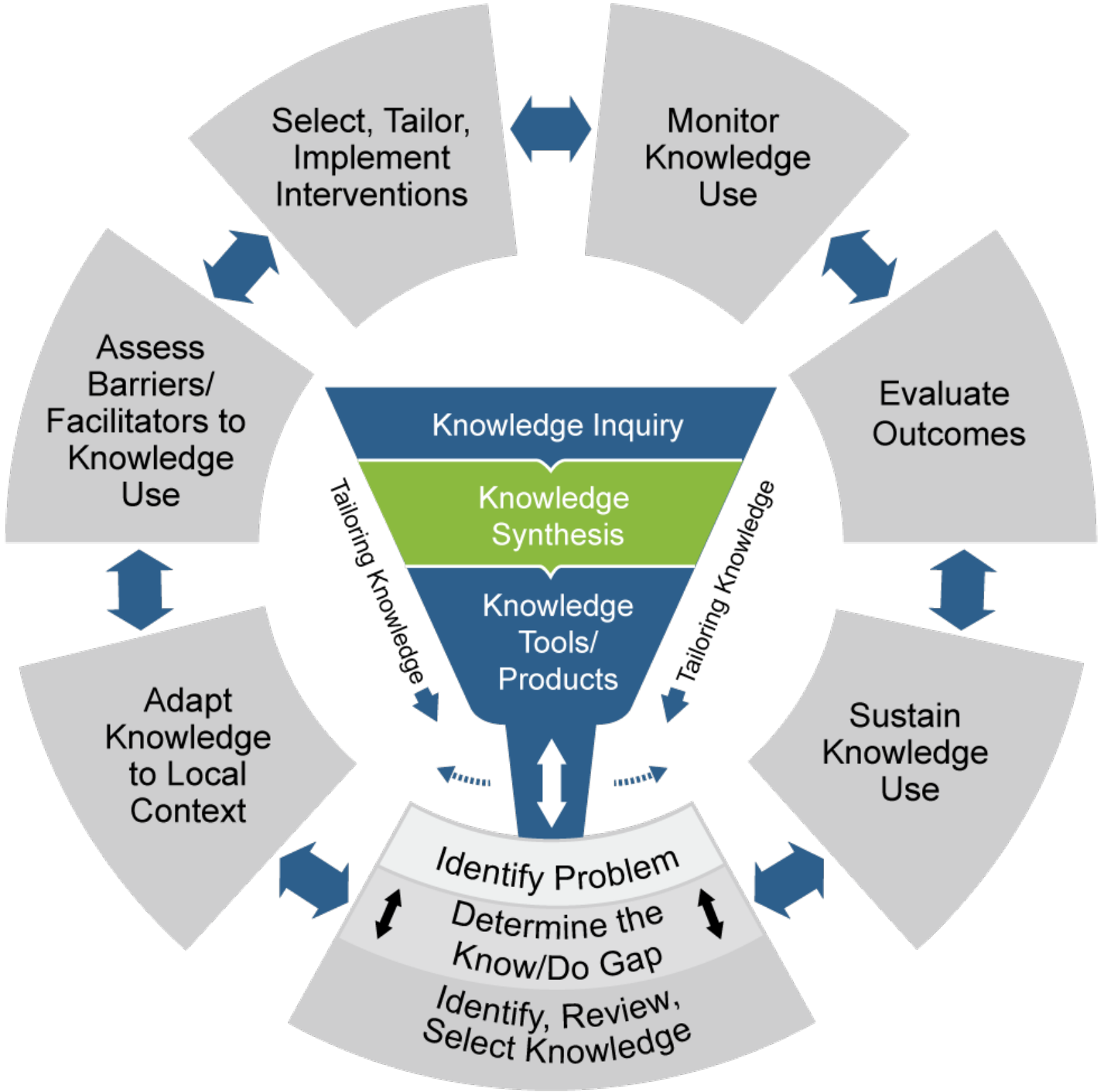
https://medium.com/knowledgenudge/kt-101-the-knowledge-to-action-framework-7fbe399723e8

INTEGRATED KT (IKT)

KT : a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system.

This process takes place within a complex system of interactions between researchers and knowledge users which may vary in intensity, complexity and level of engagement depending on the nature of the research and the findings as well as the needs of the particular knowledge user (Graham, 2010).

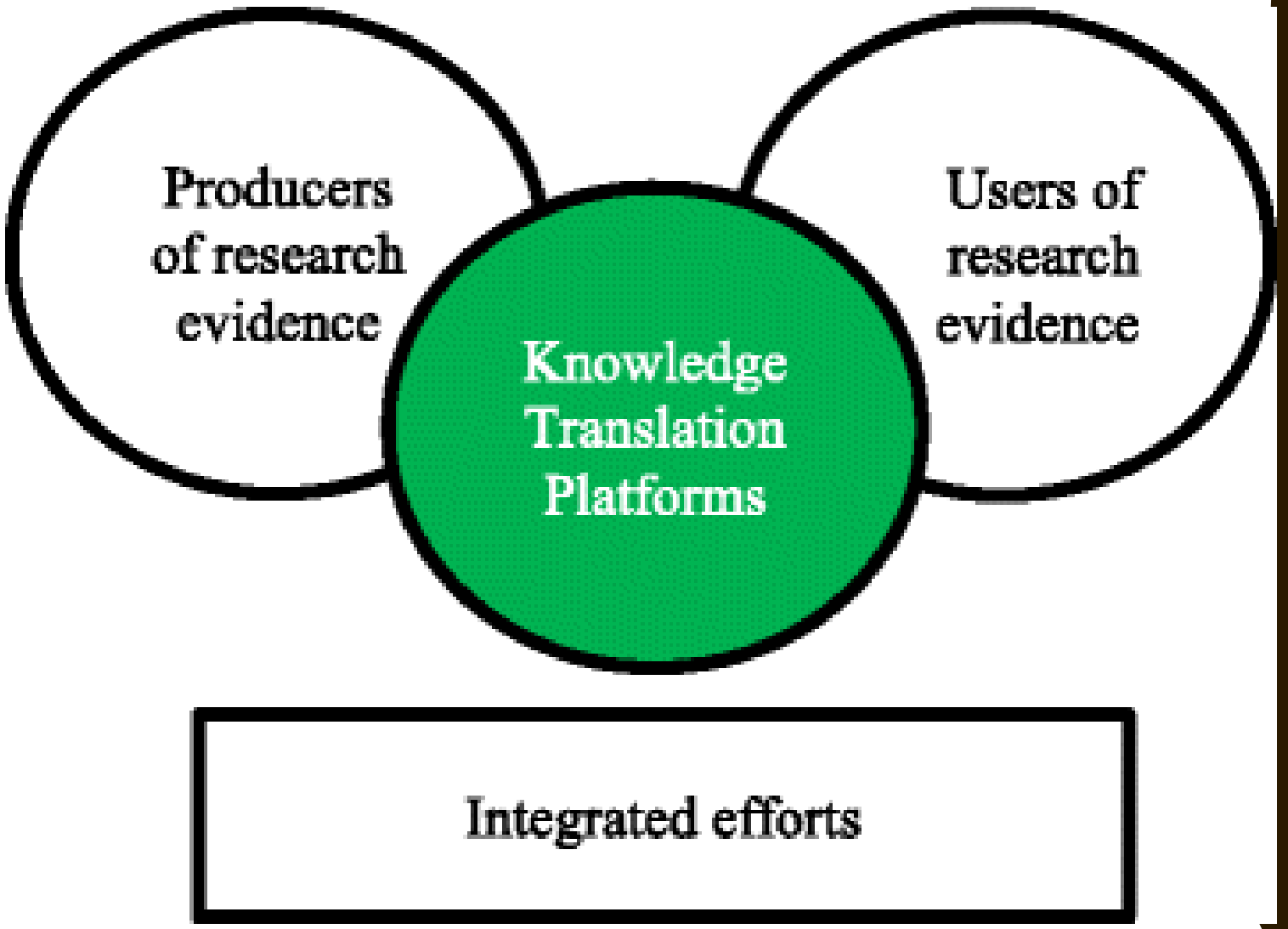
http://www.cihr-irsc.gc.ca/e/29418.html.



RESEARCH TO ACTION CYCLE

www.cihr.ca/

Knowledgetranslation.net



INTEGRATES PRODUCERS AND USERS ACROSS ALL STEPS

WITH THANKS TO THE TEAM...

KNOWLEDGE TRANSLATION: TOOLKITS

HTTP://WWW.CIHR-IRSC.GC.CA/E/40618.HTML

Key considerations for **planning** KMb

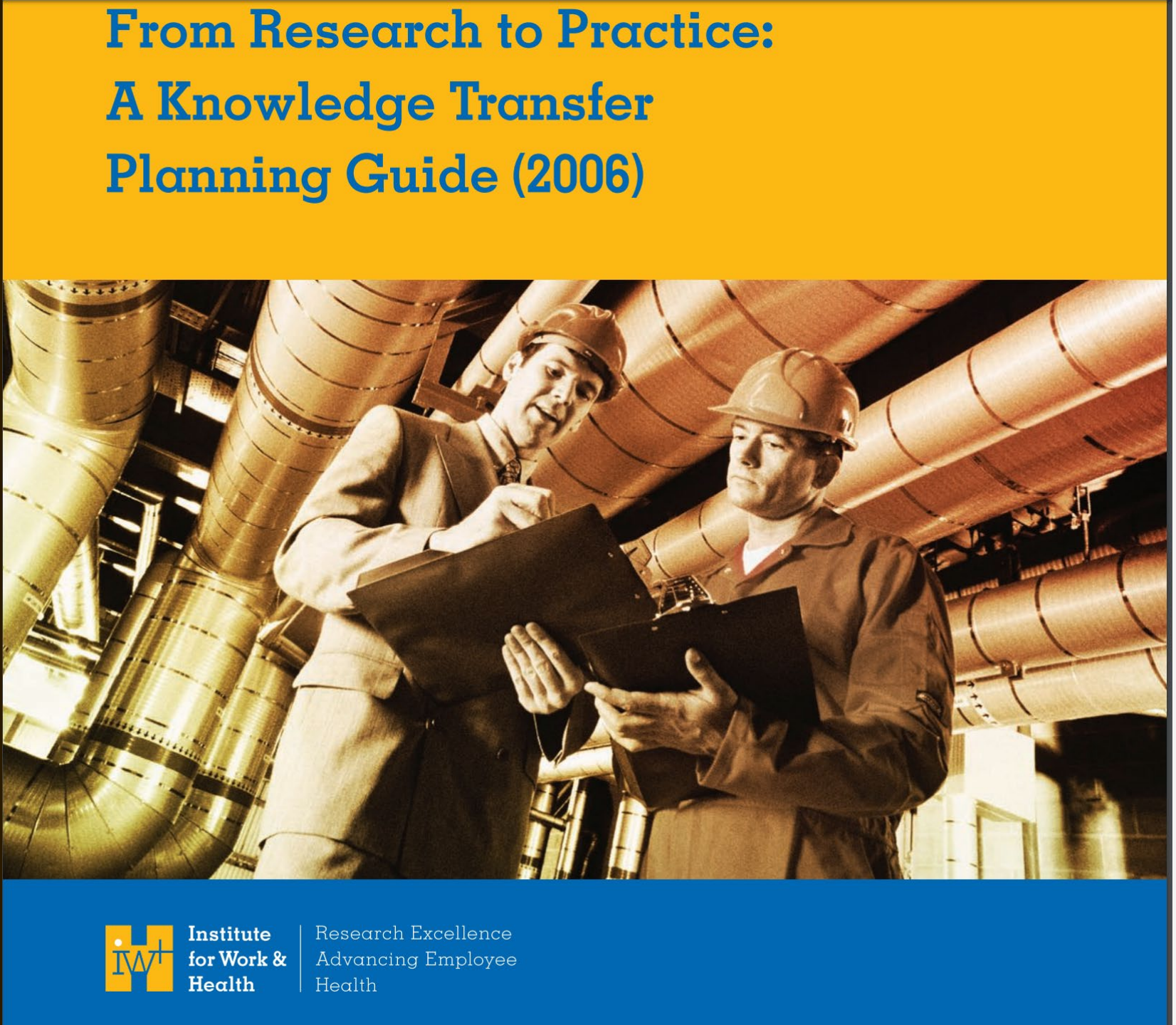
KMBTOOLKIT.CA

www.cihr.ca/

Knowledgetranslation.net

TOOLKIT

http://www.imaginecanada.ca/sites/default/files/www/en/library/csc/kt_framework-march16-_final.pdf



IWH TOOLKIT

- https://www.iwh.on.ca/sites/iwh/files/iwh/tools/iwh_kte_planning_guide_2006b.pdf

EXEMPLARY TOOLKITS

- https://www.mentalhealthcommission.ca/sites/default/files/2016-06/innovation_to_implementation_guide_eng_2016_0.pdf

EXEMPLARY TOOLKITS

- https://www.mentalhealthcommission.ca/sites/default/files/2016-06/innovation_to_implementation_guide_eng_2016_0.pdf

ALL BREAKTHRO

TDR For research on diseases of poverty
UNICEF • UNDP • World Bank • WHO

TDR IMPLEMENTATION RESEARCH TOOLKIT

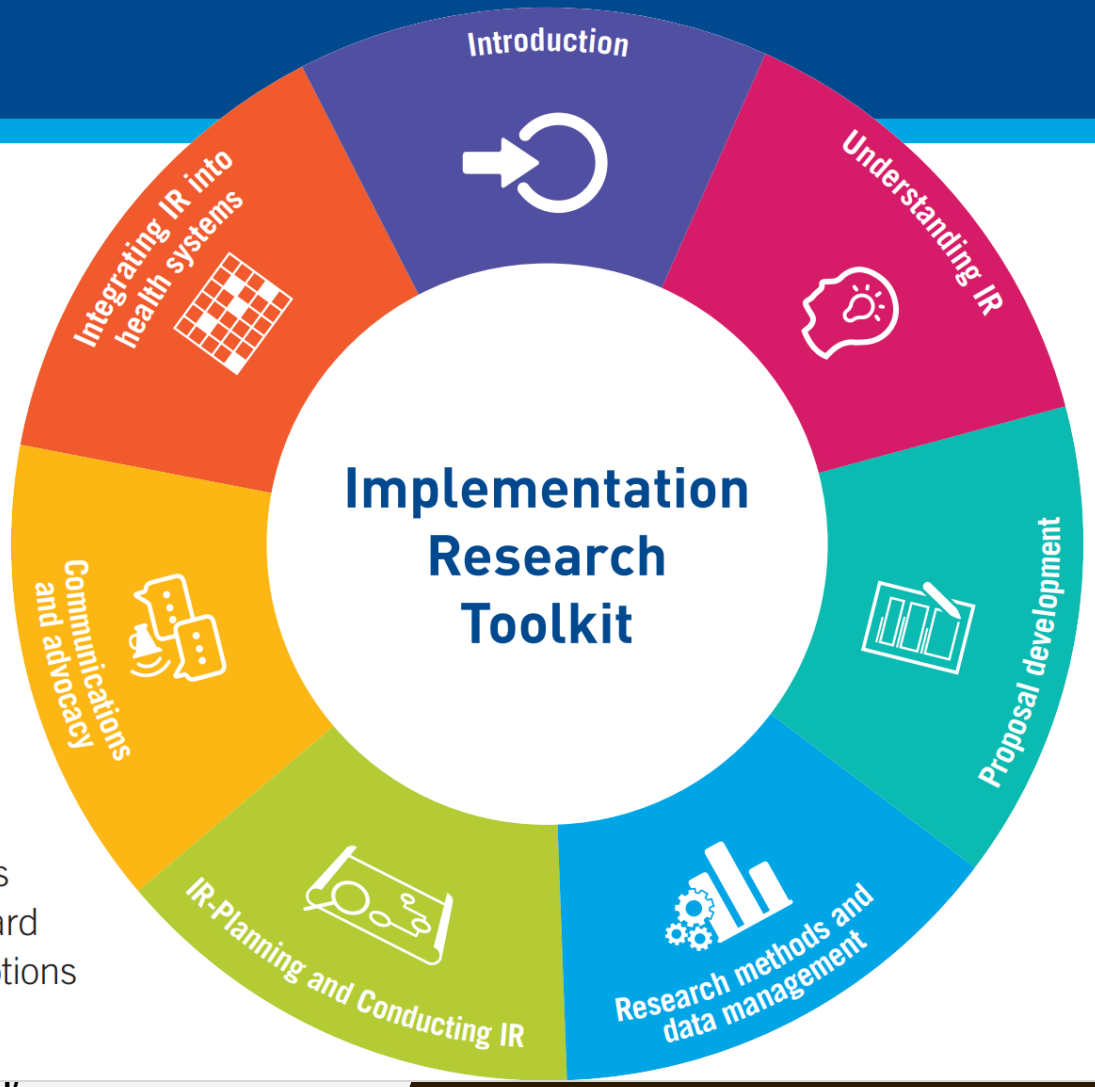
This toolkit is designed to help you conduct an implementation research (IR) project through a standard process so that you have high quality results that are reliable. Before you get started, we recommend you read the "How to use this Toolkit" section. It is also advisable to take the TDR Massive Open Online Course on IR for a foundation knowledge of IR.

http://www.who.int/tdr/publications/topics/ir-toolkit/en/

Implementation Research Toolkit

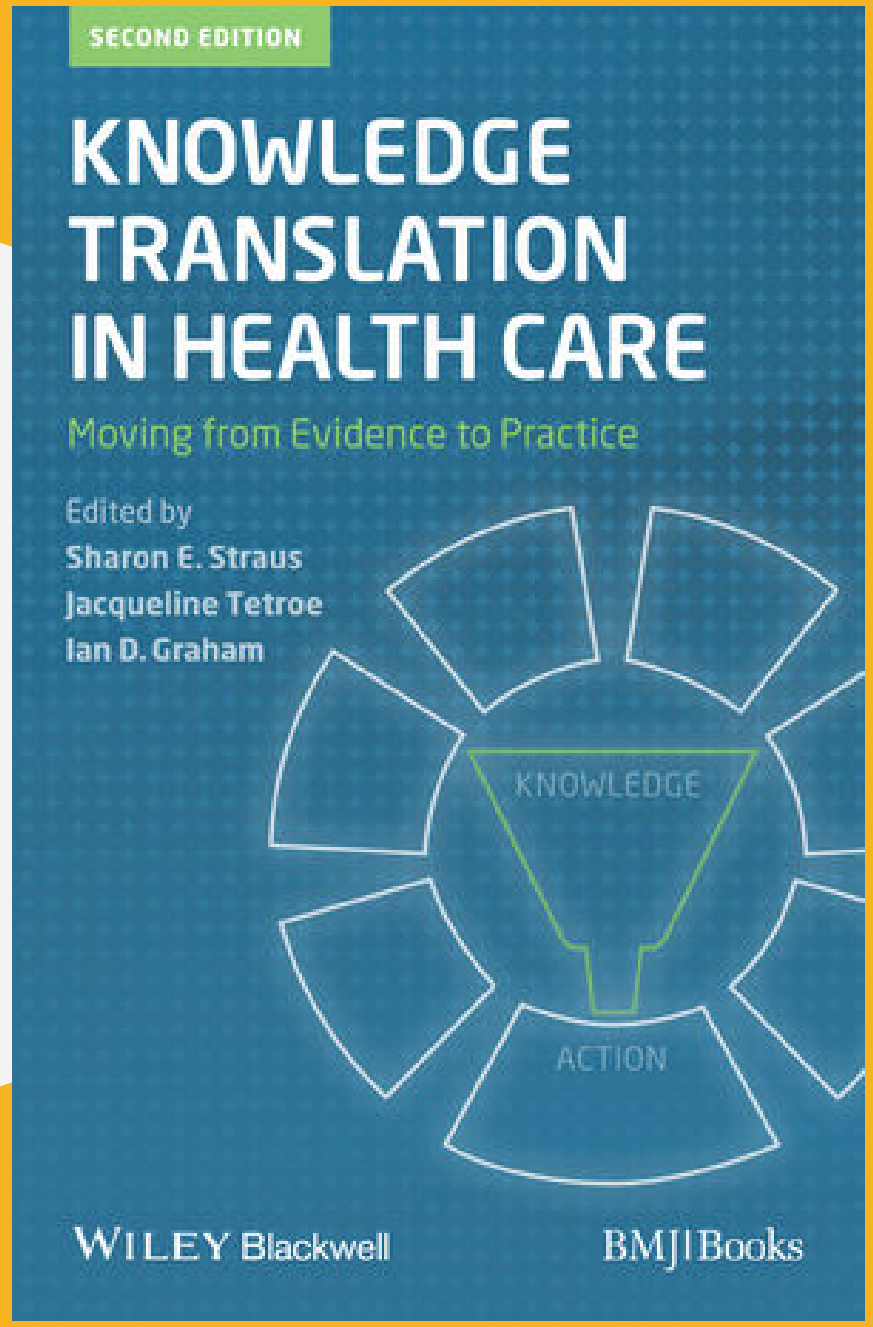
Implementation research (IR) is conducted within health systems and community settings, removed from the controlled settings associated with other types of scientific research. It is an ongoing process that provides continuous feedback of results back to the health system, facilitating adaptation of services and interventions. So, by its nature, IR is adaptive. People may not come to work; the rains may impact access of people to services; delivery of key materials may be delayed. IR teams must be willing and able to adapt their projects to address such real-life likelihoods.

The newly revised *Implementation Research Toolkit* is designed to help people learn and adapt a standard process that leads to results. It is now available with options for downloading and printing individual modules.



http://www.who.int/tdr/publications/topics/ir-toolkit/en/

PIVOTAL READING



HTTP://WWW.MEDIUM.COM/KNOWLEDGENUDGE

Grimshaw *et al. Implementation Science* 2012, **7**:50
http://www.implementationscience.com/content/7/1/50

IMPLEMENTATION SCIENCE

DEBATE Open Access

Knowledge translation of research findings

Jeremy M Grimshaw[1*], Martin P Eccles[2], John N Lavis[3], Sophie J Hill[4] and Janet E Squires[5]

Abstract

Background: One of the most consistent findings from clinical and health services research is the failure to translate research into practice and policy. As a result of these evidence-practice and policy gaps, patients fail to benefit optimally from advances in healthcare and are exposed to unnecessary risks of iatrogenic harms, and healthcare systems are exposed to unnecessary expenditure resulting in significant opportunity costs. Over the last decade, there has been increasing international policy and research attention on how to reduce the evidence-practice and policy gap. In this paper, we summarise the current concepts and evidence to guide knowledge translation activities, defined as T2 research (the translation of new clinical knowledge into improved health). We structure the article around five key questions: what should be transferred; to whom should research knowledge be transferred; by whom should research knowledge be transferred; how should research knowledge be transferred; and, with what effect should research knowledge be transferred?

Discussion: We suggest that the basic unit of knowledge translation should usually be up-to-date systematic reviews or other syntheses of research findings. Knowledge translators need to identify the key messages for different target audiences and to fashion these in language and knowledge translation products that are easily assimilated by different audiences. The relative importance of knowledge translation to different target audiences will vary by the type of research and appropriate endpoints of knowledge translation may vary across different stakeholder groups. There are a large number of planned knowledge translation models, derived from different disciplinary, contextual (*i.e.*, setting), and target audience viewpoints. Most of these suggest that planned knowledge translation for healthcare professionals and consumers is more likely to be successful if the choice of knowledge translation strategy is informed by an assessment of the likely barriers and facilitators. Although our evidence on the likely effectiveness of different strategies to overcome specific barriers remains incomplete, there is a range of informative systematic reviews of interventions aimed at healthcare professionals and consumers (*i.e.*, patients, family members, and informal carers) and of factors important to research use by policy makers.

Summary: There is a substantial (if incomplete) evidence base to guide choice of knowledge translation activities

Nilsen *Implementation Science* (2015) 10:53
DOI 10.1186/s13012-015-0242-0

IMPLEMENTATION SCIENCE

DEBATE Open Access

Making sense of implementation theories, models and frameworks

Per Nilsen

Abstract

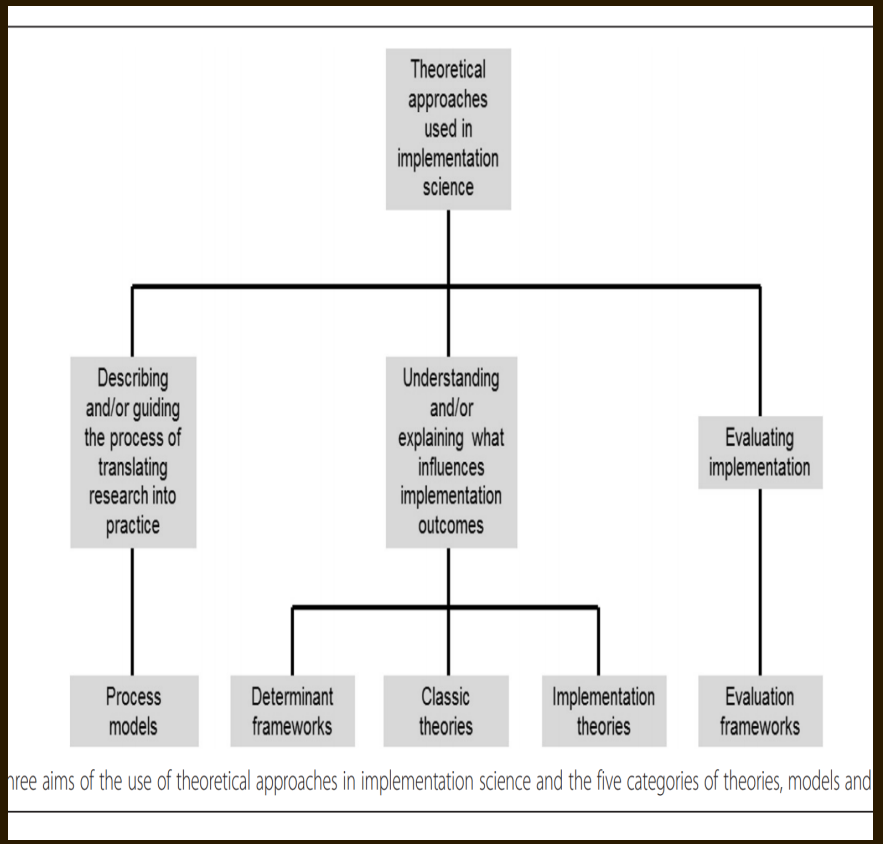
Background: Implementation science has progressed towards increased use of theoretical approaches to provide better understanding and explanation of how and why implementation succeeds or fails. The aim of this article is to propose a taxonomy that distinguishes between different categories of theories, models and frameworks in implementation science, to facilitate appropriate selection and application of relevant approaches in implementation research and practice and to foster cross-disciplinary dialogue among implementation researchers.

Discussion: Theoretical approaches used in implementation science have three overarching aims: describing and/or guiding the process of translating research into practice (process models); understanding and/or explaining what influences implementation outcomes (determinant frameworks, classic theories, implementation theories); and evaluating implementation (evaluation frameworks).

Summary: This article proposes five categories of theoretical approaches to achieve three overarching aims. These categories are not always recognized as separate types of approaches in the literature. While there is overlap between some of the theories, models and frameworks, awareness of the differences is important to facilitate the selection of relevant approaches. Most determinant frameworks provide limited "how-to" support for carrying out implementation endeavours since the determinants usually are too generic to provide sufficient detail for guiding an implementation process. And while the relevance of addressing barriers and enablers to translating research into practice is mentioned in many process models, these models do not identify or systematically structure specific determinants associated with implementation success. Furthermore, process models recognize a temporal sequence of implementation endeavours, whereas determinant frameworks do not explicitly take a process perspective of implementation.

Keywords: Theory, Model, Framework, Evaluation, Context

THEORIES, FRAMEWORKS, MODELS



ree aims of the use of theoretical approaches in implementation science and the five categories of theories, models and

BMJ

BMJ 2013;347:f6753 doi: 10.1136/bmj.f6753 (Published 20 November 2013)

RESEARCH METHODS & REPORTING

Implementation research: what it is and how to do it

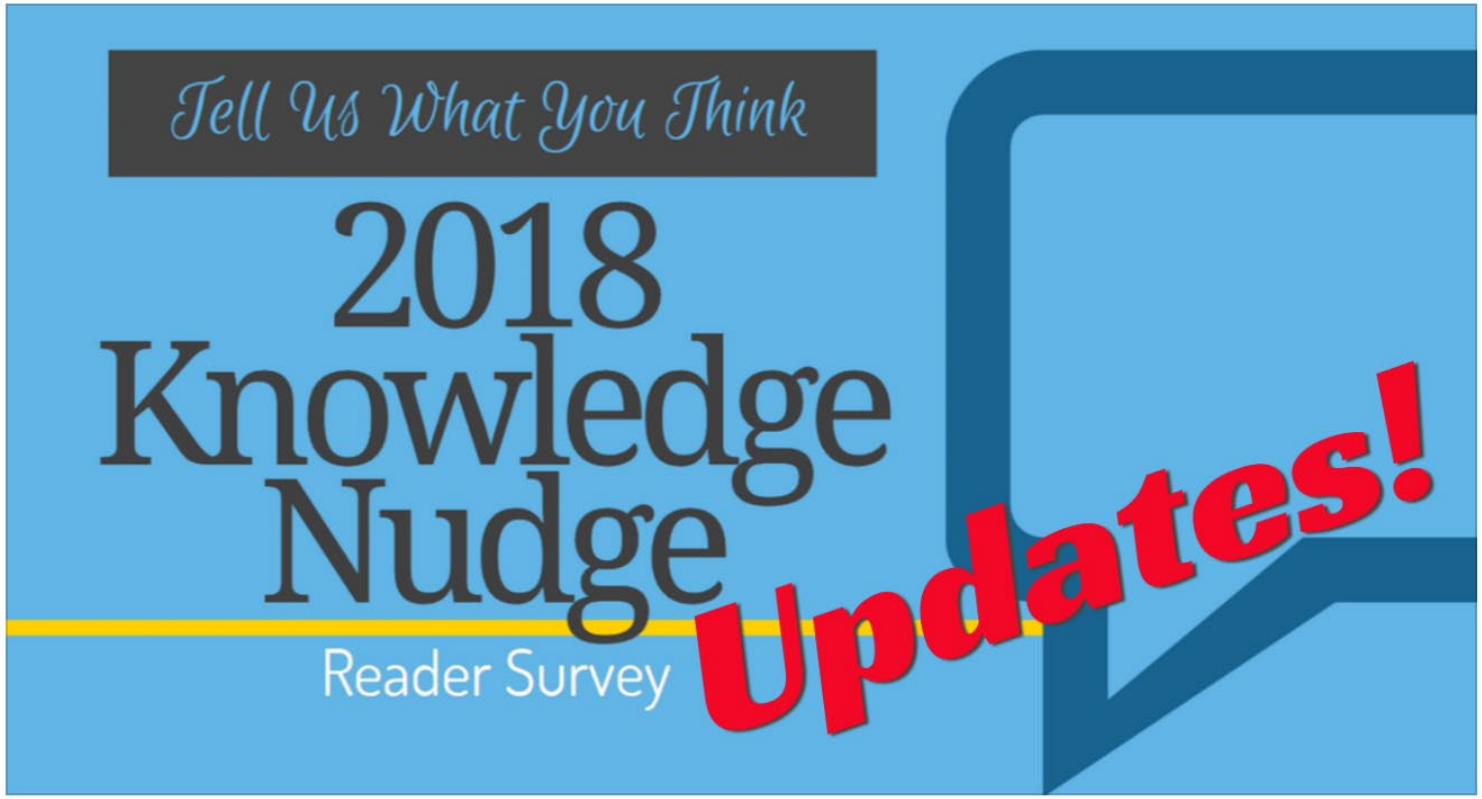
Implementation research is a growing but not well understood field of health research that can contribute to more effective public health and clinical policies and programmes. This article provides a broad definition of implementation research and outlines key principles for how to do it

David H Peters *professor*[1], Taghreed Adam *scientist*[2], Olakunle Alonge *assistant scientist*[1], Irene Akua Agyepong *specialist public health*[3], Nhan Tran *manager*[4]

[1]Johns Hopkins University Bloomberg School of Public Health, Department of International Health, 615 N Wolfe St, Baltimore, MD 21205, USA; [2]Alliance for Health Policy and Systems Research, World Health Organization, CH-1211 Geneva 27, Switzerland; [3]University of Ghana School of Public Health/Ghana Health Service, Accra, Ghana; [4]Alliance for Health Policy and Systems Research, Implementation Research Platform, World Health Organization, CH-1211 Geneva 27, Switzerland

The field of implementation research is growing, but it is not well understood despite the need for better research to inform decisions about health policies, programmes, and practices. This article focuses on the context and factors affecting implementation, the key audiences for the research, implementation outcome variables that describe various aspects of how implementation occurs, and the study of implementation strategies that support the delivery of health services, programmes, and policies. We provide a framework for using

Implementation research can consider any aspect of implementation, including the factors affecting implementation, the processes of implementation, and the results of implementation, including how to introduce potential solutions into a health system or how to promote their large scale use and sustainability. The intent is to understand what, why, and how interventions work in "real world" settings and to test approaches to improve them.



Tools for KT: Knowledge

Core Outcome Sets: What

KNOWLEDGE NUDGE

Medium.com/knowledgenudge.

KT
MATTERS

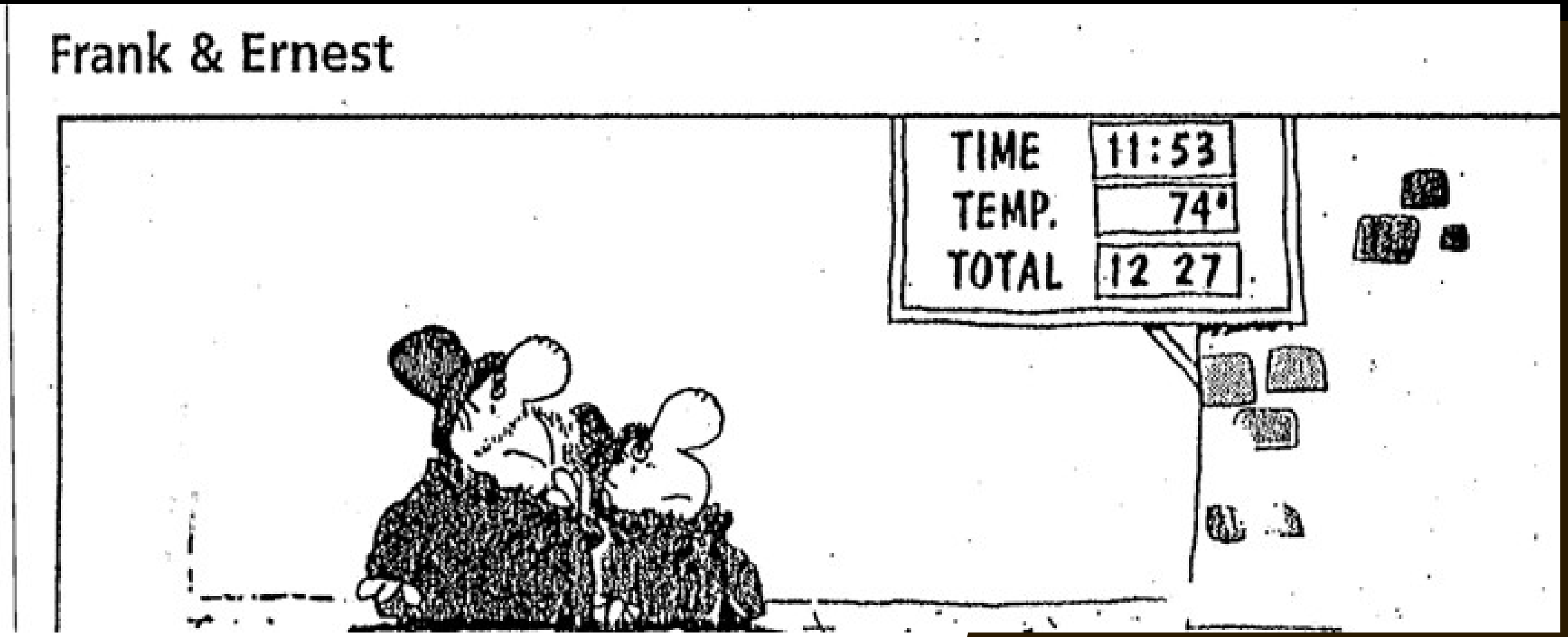
WHY KT?

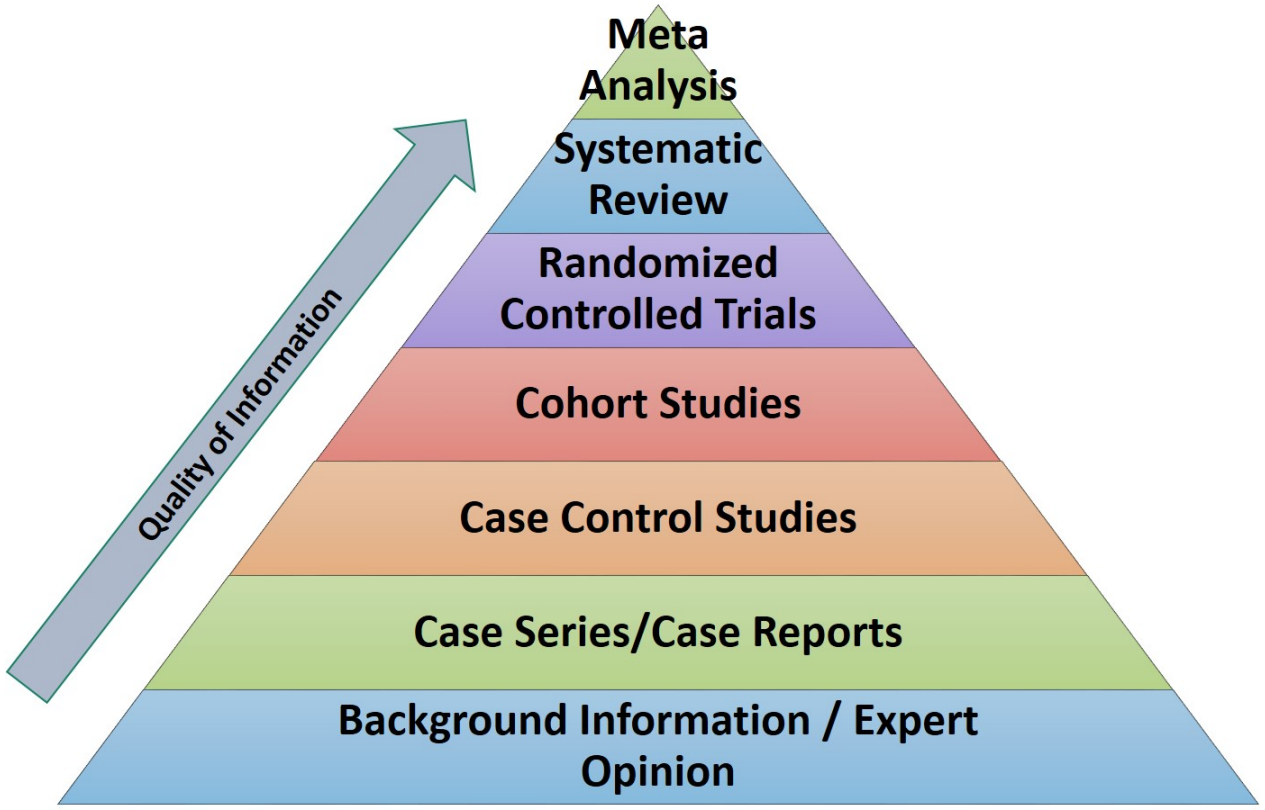
KNOWLEDGE GENERATION
SYNTHESIS
CONTEXTUALIZATION

WILD AND WOOLLY

REAL WORLD SETTING

PRECISE . . . AND POINTLESS!





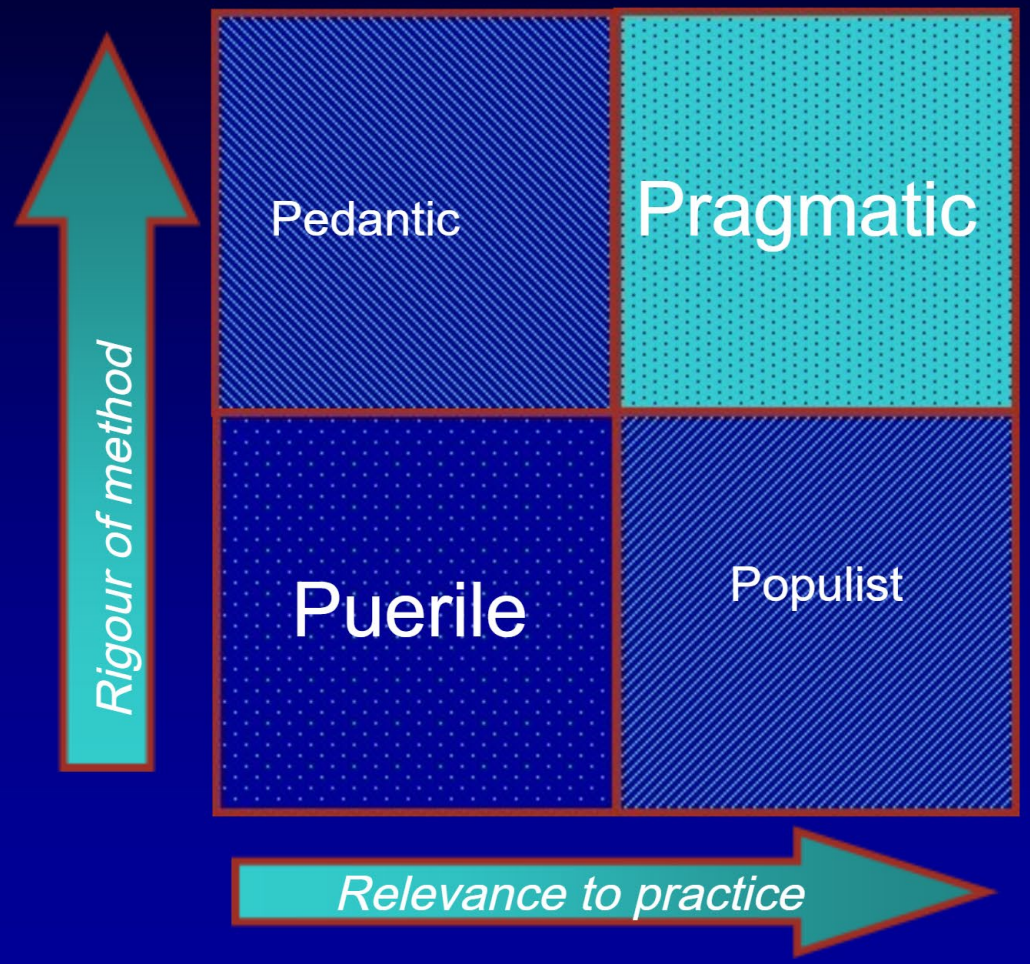
AIM FOR HIGHEST FEASIBLE EVIDENCE

Evidence needs to be right-sized for the type of question.

RCTs of sufficient size and duration are necessary for most interventions (drugs, devices, medical procedures, to answer 'can it work?'

Subsequent implementation research focuses on 'does it work?' when we translate it to our context. This may or may not require an RCT, but should be well-controlled.

Importance of rigor and relevance



Populist: insufficient rigour/incorrect, ill conceived/conducted studies, populist books, inadequate refereeing

Puerile: low practical relevance, insufficient rigour/ incorrect, ill conceived/ conducted studies

Pedantic: fastidious design and sophisticated analysis but relevance limited (myopic)

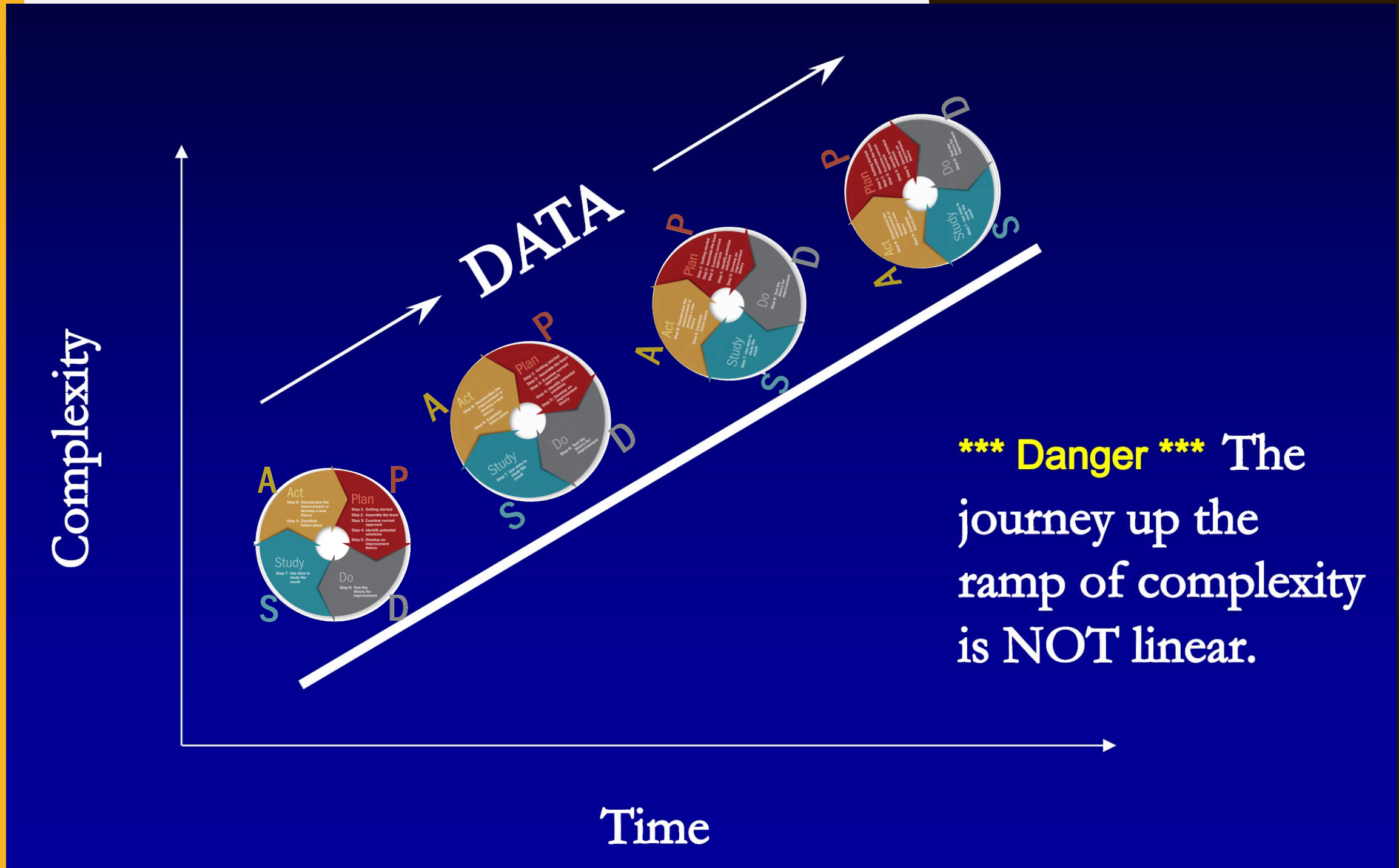
Pragmatic: rigor in method and relevant to organisations

Modified from MNK Saunders, Oxford Brooks Univ.

Developed from: Anderson et al. (2001)

PLAN-DO-STUDY-ACT (PDSA)

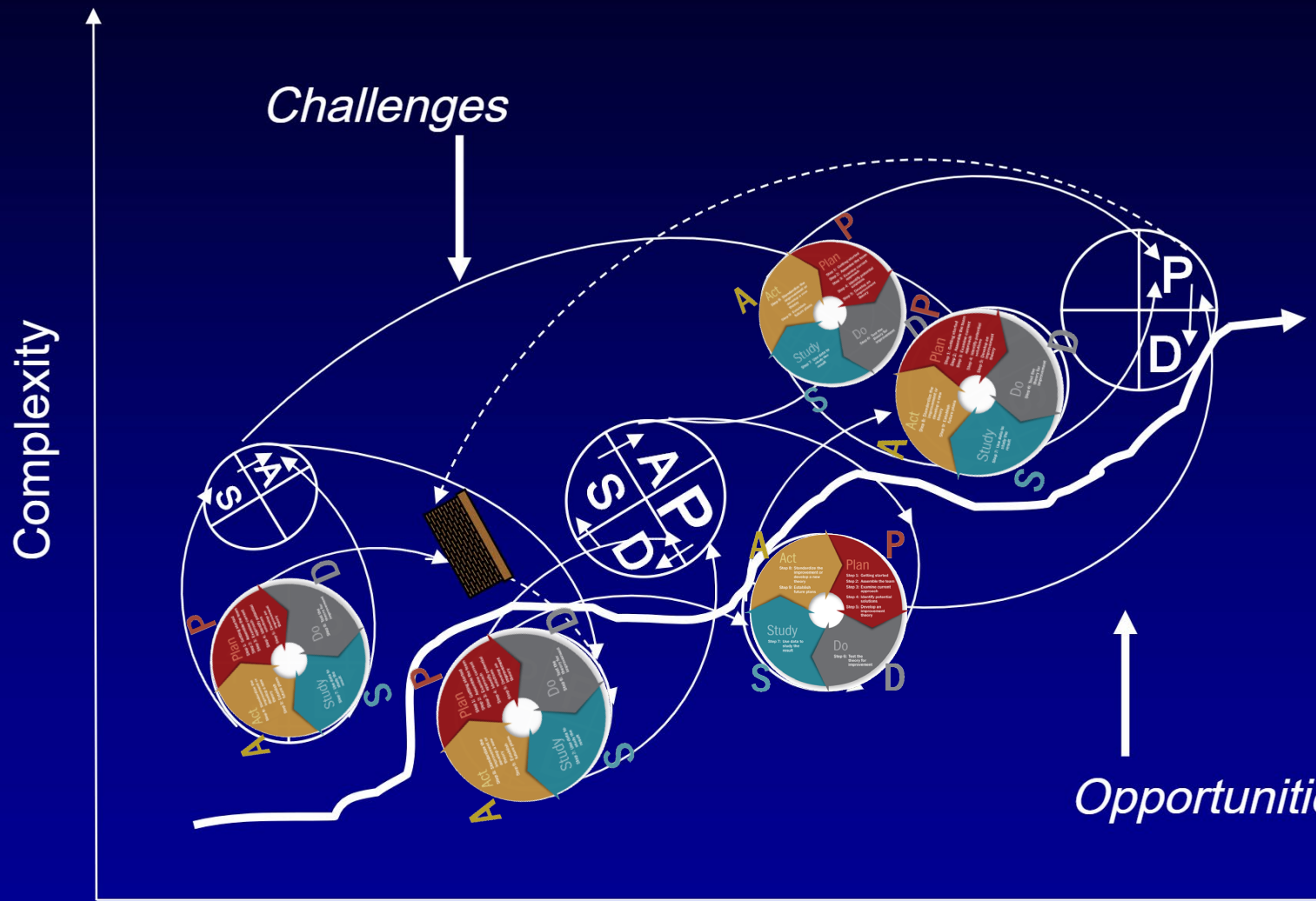
PLAN-DO-STUDY-ACT IS AN ITERATIVE, FOUR-STAGE PROBLEM-SOLVING MODEL USED FOR IMPROVING A PROCESS OR CARRYING OUT CHANGE.



https://slideplayer.com/slide/4540340/

REAL WORLD SETTING

https://slideplayer.com/slide/4540340/



Continuum of Quality Improvement and Research: Rigor vs. Relevance

Operations

"Relevant"
Context-Dependent
Problem Solving
Quantitative >, <, or =
Qualitative
Pre-test post-test or
Quasi-experimental designs
Tends to be NON-LINEAR

Potential Synergy

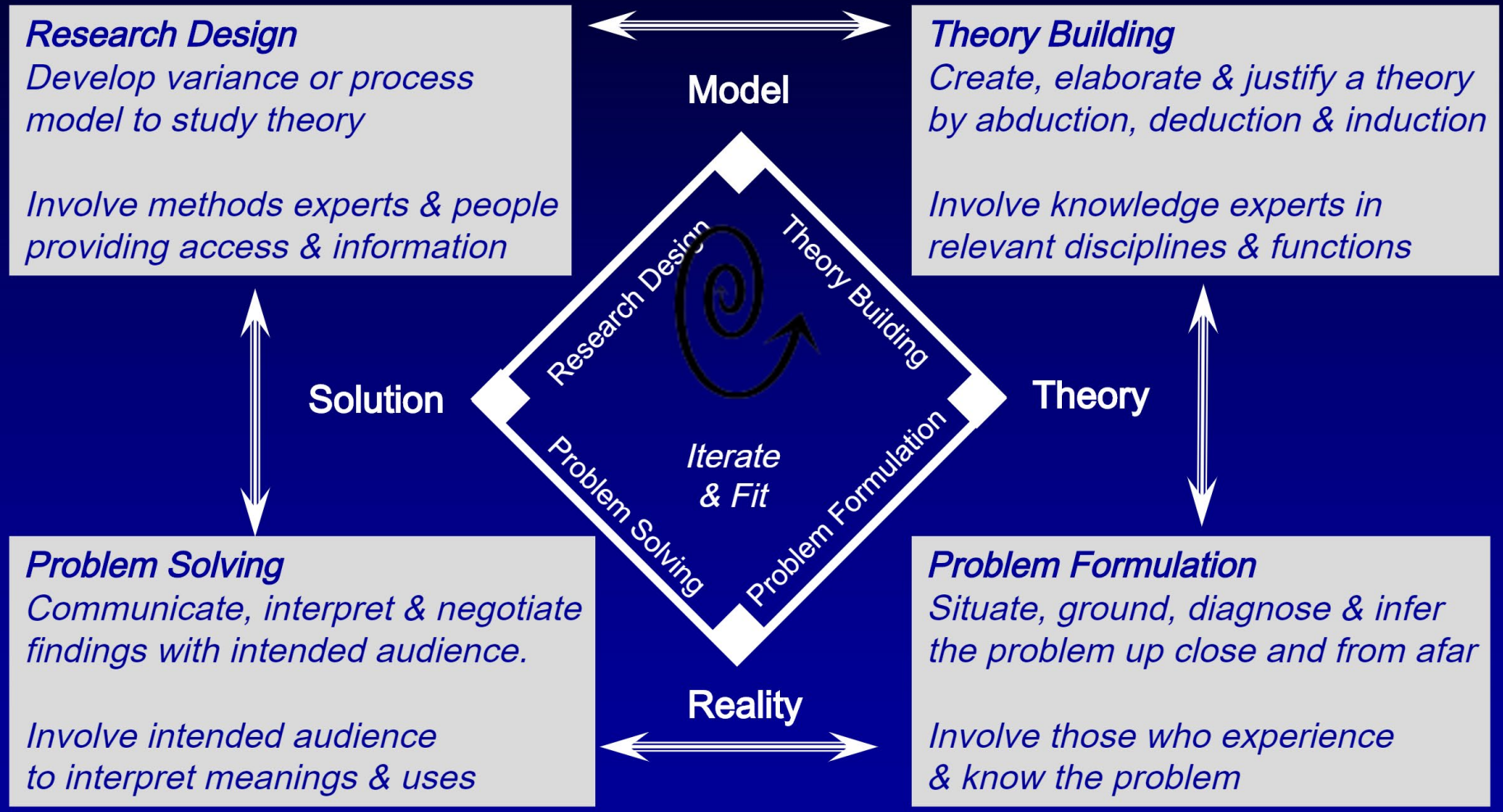
Research

"Rigorous"
Identify generalizable knowledge, i.e.,
Eliminate Context
Publishable
Quantitative>Qualitative
RCTs Rule
Tends to be LINEAR

- Continuum not a dichotomy
- Goal is relevance moving as close to rigor as one can

Major Activities in an Engaged Scholarship Study

Study Context: *Complexity, research team organization, stakeholders' perspectives*



Research Design
Develop variance or process model to study theory

Involve methods experts & people providing access & information

Theory Building
Create, elaborate & justify a theory by abduction, deduction & induction

Involve knowledge experts in relevant disciplines & functions

Problem Solving
Communicate, interpret & negotiate findings with intended audience.

Involve intended audience to interpret meanings & uses

Problem Formulation
Situate, ground, diagnose & infer the problem up close and from afar

Involve those who experience & know the problem

A. Van de Ven

IMPLEMENTATION OF INVESTMENT DECISIONS IS FAR EASIER THANIMPLEMENTATION OF DISINVESTMENT DECISIONS

LOCAL CASES

INVESTMENT VS DISINVESTMENT

TAVI VS MEDICAL MGT (INVESTMENT)

EXAMPLE 1

VOLUVEN/HES VS CRYSTALLOIDS (DISINVESTMENT)

EXAMPLE 2

KT
MATTERS

LESSONS

WITH THANKS TO THE TEAM...

HOW FRAGILE IS THE EVIDENCE BASE? A STUDY OF 374 RCTS

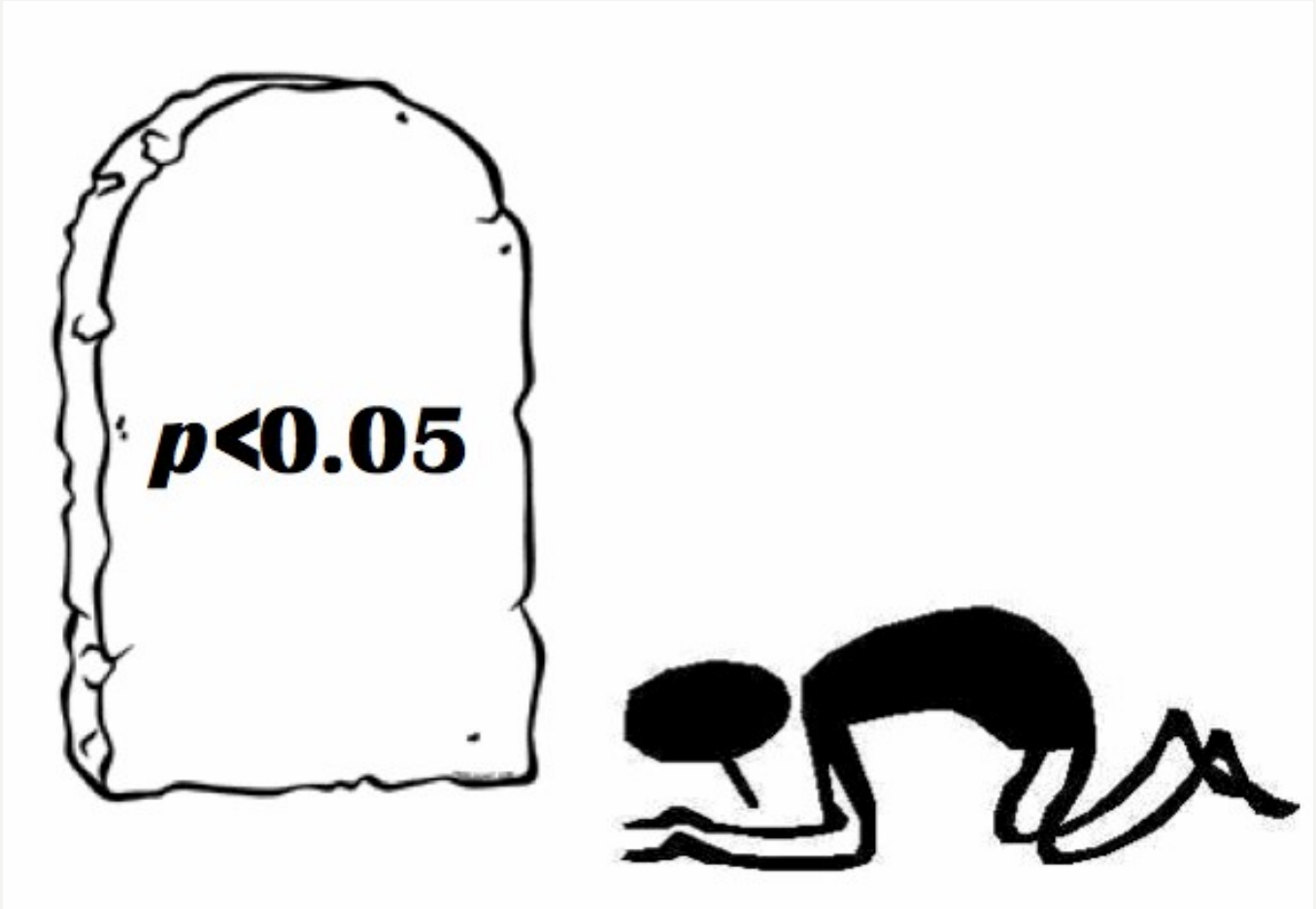
QURESHI R, SUTTON D, CHENG D, MARTIN J.

A STUDY OF 374 RCTS IN NEJM

QURESHI, SUTTON, CH


Cost
Risk
Benefit

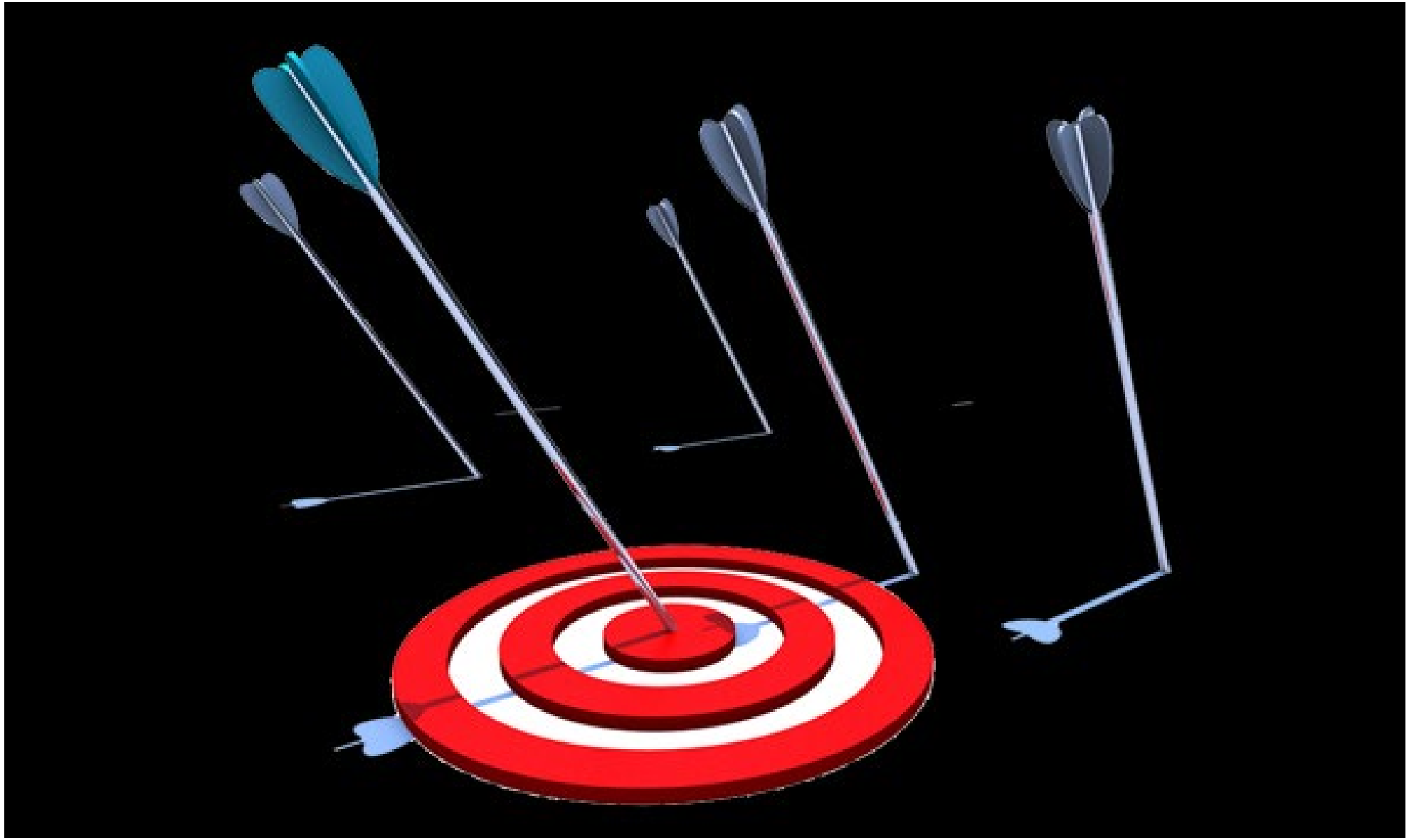
BREAKING DOWN THE ALTAR

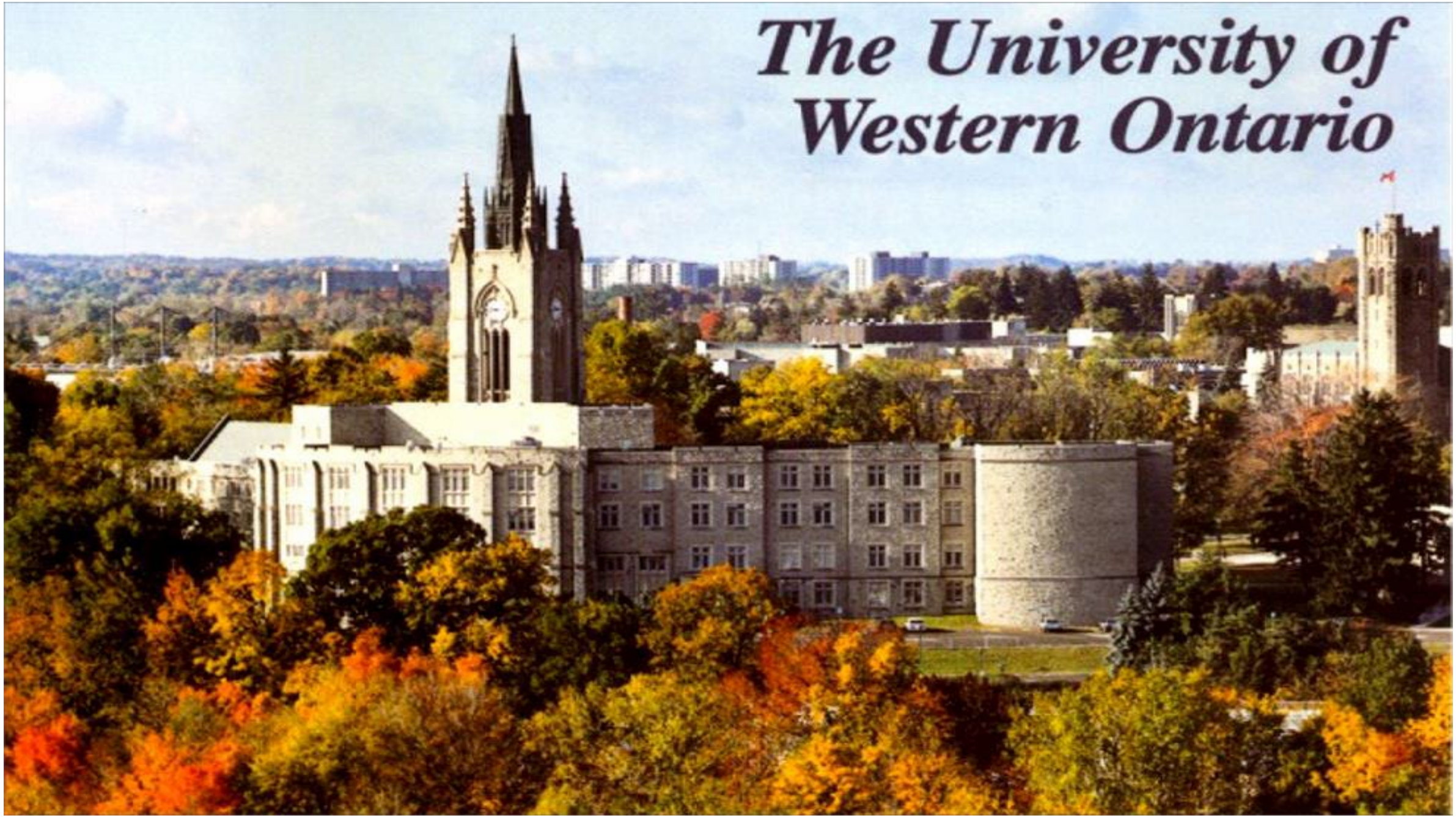


Slice and Dice Data

= torture

1) Shoot 2) Draw Target





Janet.martin@lhsc.on.ca