Knowledge Translation of Research Findings

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Knowledge translation as an interdisciplinary field of research

- Improving the quality of care and decreasing the risk of adverse events challenges
- Failure to optimally use of evidence resulting in inefficiencies
- The science and practice of knowledge translation is needed to answer these challenges
- Knowledge translation research and enhanced capacity in this field are essential if we are to reap the benefits of health research, improve health and quality of life, and enhance productivity.

Knowledge Translation

- A relatively new term that is used to describe a relatively old problem "**the underutilization of evidence-based research in systems of care**"
- The gap between "**what is known**" and "**what is currently done**" in practice settings

Why is important?

- Failures to use evidence from research to make informed decisions in health care are evident across all groups of decision-makers
  - Health care providers
  - Managers
  - Policy-makers
- in both developed and developing countries
- in both primary and specialty care

Under prescribing statin

Overprescribing antibiotics

Knowledge Translation

- The process of putting knowledge into action
- Researchers have focused their attention on KT **as both a process and a strategy** that can lead to utilization of research findings and improved outcomes for consumers, students, and patients
- Primarily aimed at addressing the gap between the large volume of research data and implementation by key stakeholders

Knowledge Translation

- Interest in knowledge translation has increased dramatically in recent years due to recognition that **traditional approaches** to moving research into practice, which were predominantly based on education (e.g., continuing professional development CPD), **did not lead to optimal care**.

Definition of Knowledge Translation

Move beyond simple dissemination of knowledge to use

Canadian Institutes of Health Research (CIHR):

"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 healthcare system"

Determinants of successful knowledge translation

- Knowledge management skills and infrastructure
  - The huge volume of research evidence
  - Access to research evidence
  - Time to read
  - Skills to appraise
  - Understand and apply research evidence
- Awareness
- Agreement

Types of Translational Research

- T1, research refers to the translation of basic biomedical research into clinical science and knowledge
- T2, research refers to the translation of this new clinical science and knowledge into improved health

Knowledge Translation

Ensuring that stakeholders are aware of and use research evidence to inform their health and healthcare decision making.

- a wide range of stakeholders or target audiences for knowledge translation, including
  - Policy makers
  - Professionals (practitioners)
  - Consumers (i.e., patients, family members, and informal carer)
  - Researchers
  - Industry

How to facilitate the uptake of research?

- by addressing five questions:
  1. What should be transferred?
  2. To whom should research knowledge be transferred?
  3. By whom should research knowledge be transferred?
  4. How should research knowledge be transferred?
  5. With what effect should research knowledge be transferred?

Levels of Evidence

Systematic review

Cohort studies

Ideas opinions

Randomized controlled trials

Case series, Case reports

CEBM

What should be transferred?

- Individual studies as the unit for knowledge translation,
  - may be appropriate when the targets for knowledge translation are other researchers or research funders (who need to be aware of primary research results)
  - is inappropriate when the targets for knowledge translation are consumers, healthcare professionals, and/or policy makers
  - bias in their conduct or random variations in their findings

Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT)

What should be transferred? (Cont.)

- Ioannidis and colleagues undertook a series of landmark studies of research exploring the evolution of evidence in healthcare

Proteus phenomenon

- In both basic and clinical sciences, **the first published study** on a scientific question may find the most extravagant effect size and that as further evidence is gathered, effect sizes tend to diminish
- Results of even **highly cited clinical research** studies published in major medical and specialty journals were likely to be contraindicated or found to be exaggerated with further accumulation of evidence

Replication and evidence synthesis is needed before knowledge translation

What should be transferred? (Cont.)

- The basic unit of knowledge translation should be **up-to-date systematic reviews** or other syntheses of the global evidence.
- Greater emphasis on the results of systematic reviews would increase the likelihood of their success.
- The Cochrane Collaboration

What should be transferred? (Cont.)

- Challenges knowledge translators 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.
- Over the past decade, a variety of different products have been developed targeting different audiences
  - **Clinical practice guidelines** for healthcare professionals
  - **Policy briefs** for policy makers

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To whom should research knowledge be transferred?

- Target audiences will vary by the type of research being translated.

Table 1 Stakeholders for different types of research

Potential stakeholder	Type of research			
	Basic	Clinical	Health Services	Population Health
Consumers	-	+++	+++	-
Professionals	-	+++	+++	-
Local Administrators	-	++	+++	+++
National Policy Makers	-	+++	+++	+++
Regulatory Bodies	+++	+++	+++	+++
Industry	+++	+++	++	+
Research Funder	+++	+++	+++	+++
Researchers	+++	+++	+++	+++

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By whom should research knowledge be transferred?

- The messenger in knowledge translation efforts may be an individual (e.g., healthcare practitioner, researcher, or consumer), group, organization, or even healthcare system.
- The most appropriate messenger will vary according to the target audience and research knowledge being transferred.
- Shonkoff suggests that in determining **'who' should be the messenger credibility is important.**
- With public policy makers, Lavis and colleagues suggest that the most credible messengers might include **organizations of government officials.**

One size doesn’t fits all

- Building credibility and acting as a messenger for the transfer of research knowledge is a time-consuming and skill-intensive process, making it impossible to use a ‘one size fits all’ approach to deciding ‘by whom should research knowledge be transferred’.

By whom should research knowledge be transferred? (Cont.)

- Components of research knowledge infrastructures are classified into two broad categories:
- **Technological**: electronic databases and search engines
- **Organizational**: documentation specialists, data analysts, knowledge brokers (i.e., individuals who manage the collaboration between an organization, external information, and knowledge producers and users), and training programs (to assist with activities such as searching for information, quality appraisal, adaption and use of the research findings)

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How should research knowledge be transferred?

There are several proposed theories and frameworks for achieving knowledge translation

- Knowledge-to-action framework
- An iterative, dynamic, and complex process, concerning knowledge creation and knowledge application (action cycle) with the boundaries between the creation and action components being fluid.
- The end users of the knowledge are included in the entire process to ensure that the knowledge and its subsequent implementation are relevant to their needs.

Action c

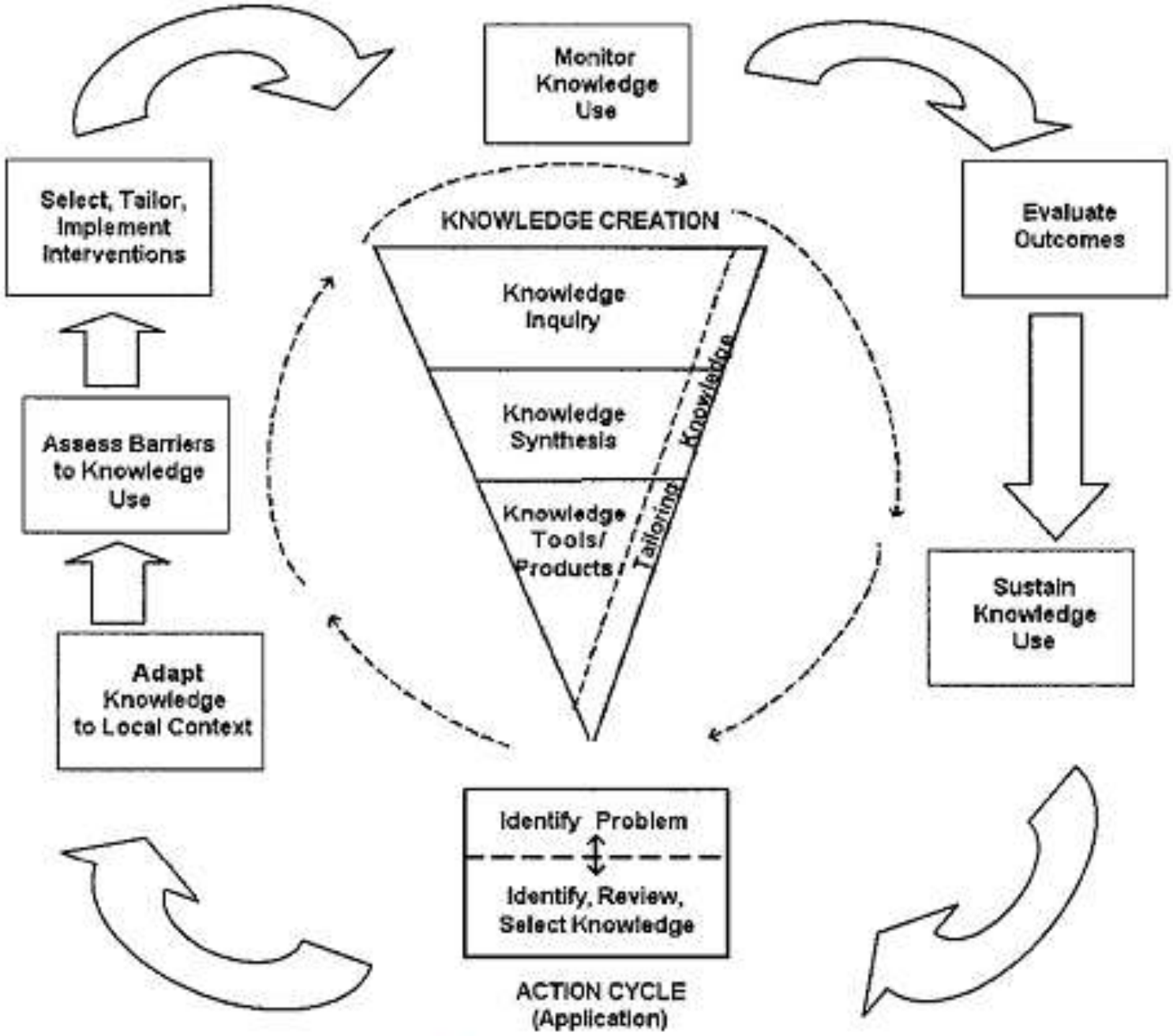

Fig. 1. The knowledge-to-action framework.

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With what effect should research knowledge be transferred?

- Appropriate endpoints of knowledge translation may vary across different stakeholder groups.
- knowledge translation targeting **professionals** should result in practice that is more evidence-based and is likely to be observable as reflected in changes in professional behaviors and quality indicators.

Thank you