

Closing the Implementation Gap: Leveraging Learning Health Systems to Advance Child and Youth Health

Dr. Christine Cassidy RN PhD (she/her)

Associate Professor, School of Nursing, Dalhousie University

Clinician Scientist, IWK Health

Nova Scotia, Canada






What is the problem?

Evidence to Practice Gaps



The three numbers you need to know about healthcare: the 60-30-10 Challenge






Jeffrey Braithwaite^{1*} , Paul Glasziou²  and Johanna Westbrook³ 

- 60% of care is in line with evidence-based guidelines
- 30% is some form of waste or of low value
- 10% of care is harm

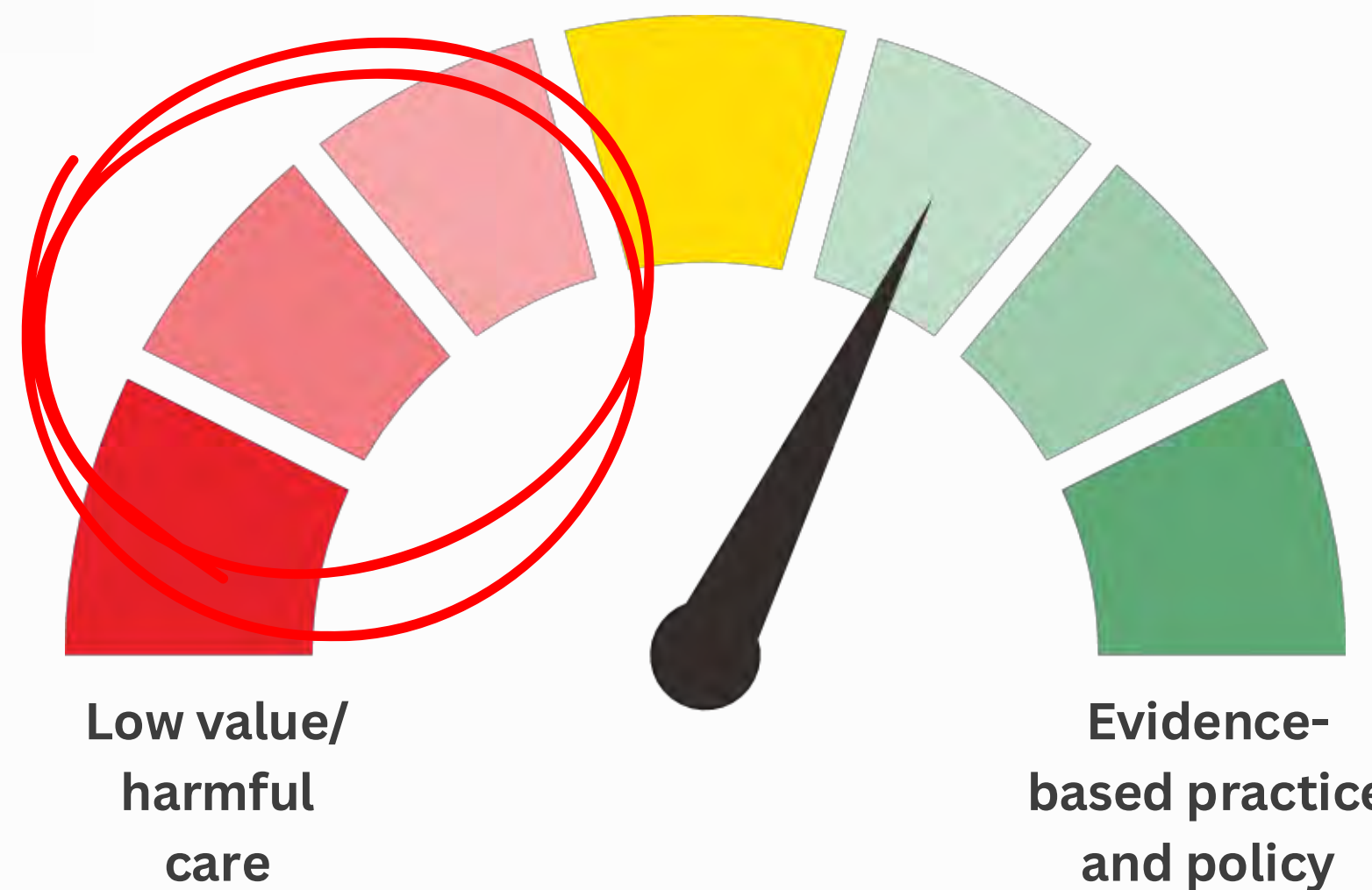


The three numbers you need to know about healthcare: the 60-30-10 Challenge

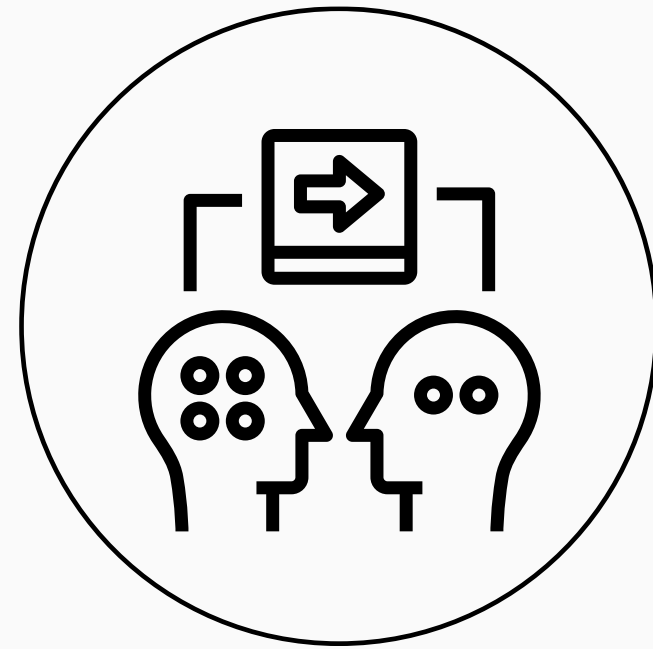


Jeffrey Braithwaite^{1*} , Paul Glasziou²  and Johanna Westbrook³ 

- 60% of care is in line with evidence-based guidelines
- 30% is some form of waste or of low value
- 10% of care is harm



Why are there evidence to practice gaps?

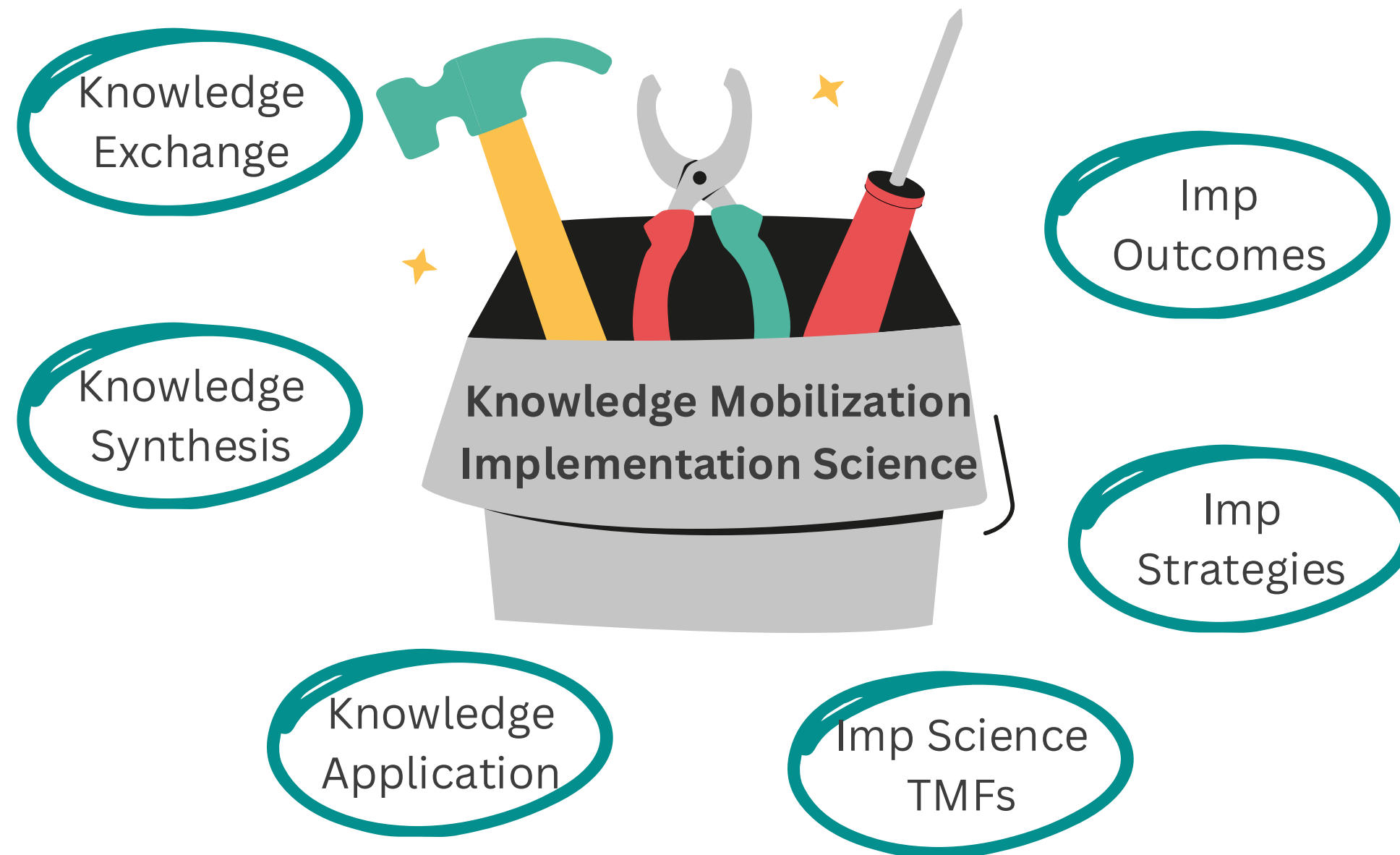


Transfer Problem



Production Problem

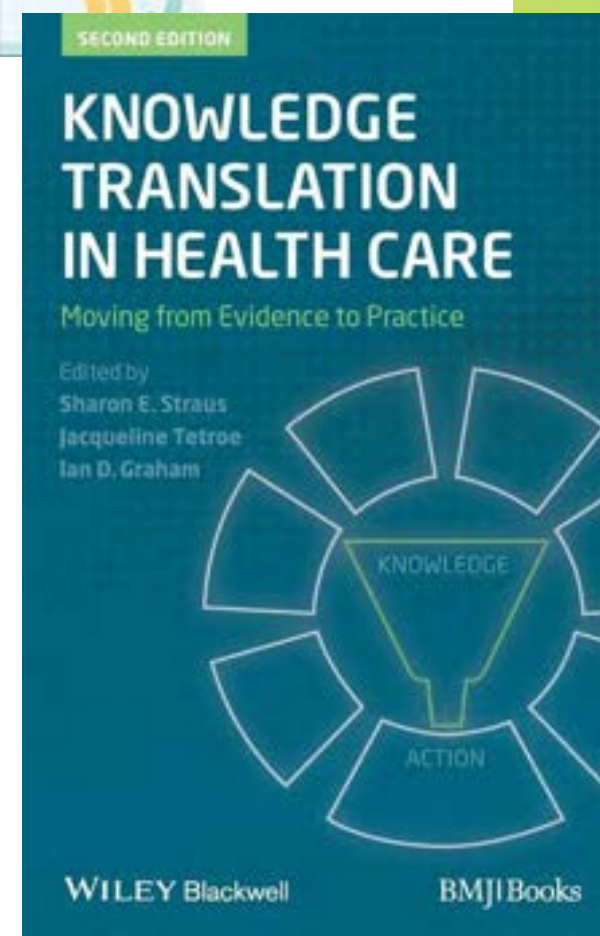
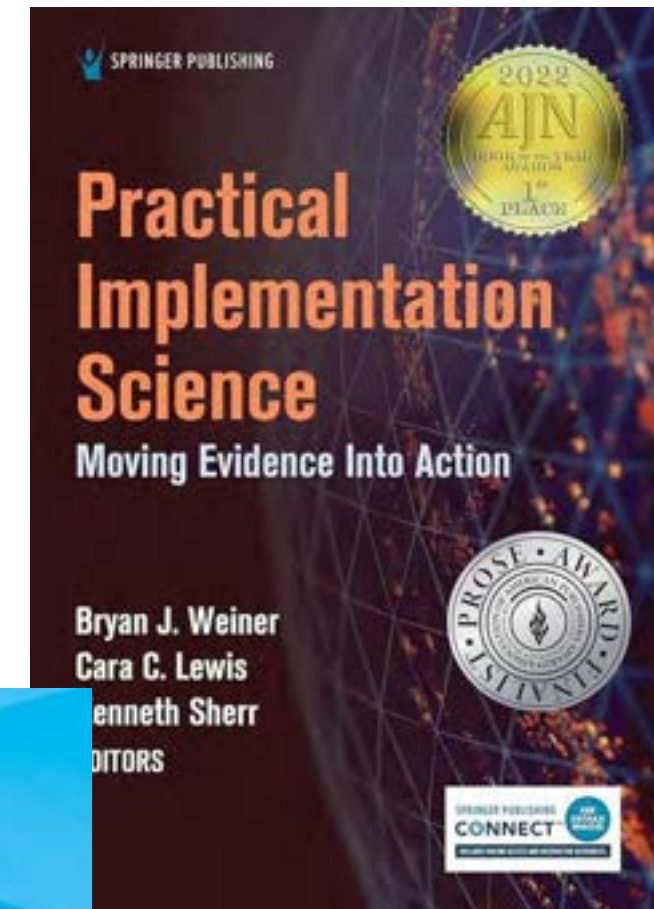
Implementation Science and Knowledge Mobilization



Implementation Science and Knowledge Mobilization



Guide to Knowledge Translation Planning at CIHR: Integrated and End-of-Grant Approaches



Have we created a paradox?



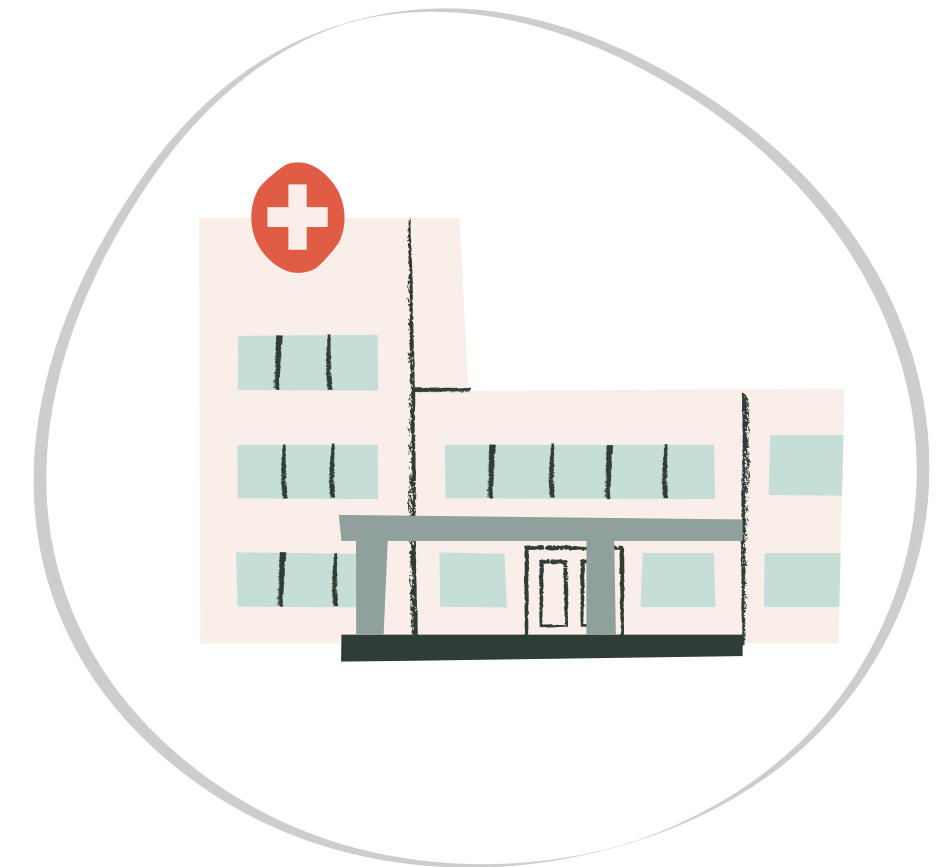
Implementation Science:

Understand the approaches that work best to translate research to the real world



Implementation Practice:

Apply and adapt these approaches in different context settings to achieve outcomes



Why do we have an implementation science - practice gap?

Challenge #1: Academic and health system communities often operate in siloes

Challenge #2: Implementation science training has largely been limited to academic roles

Challenge #3: Implementation science has centred on the individual within health system contexts

Challenge #4: Implementation science tools have not been built with equity in mind

Challenge #1: Academic and health system communities often operate in siloes

Solution #1:
Engage in Research Co-Production

Solution #1: Engage in Research Co-Production

Addresses the PRODUCTION problem – co-producing the right evidence with those who need it

Patients, families, researchers, and health system partners work together to understand and address complex health care problems

Greater research relevance and credibility

Enhanced value for research among decision-makers

Increased capacity of researchers and knowledge users

Greater likelihood research will be applied in practice

Challenge #1: Academic and health system communities often operate in siloes

Solution #1:
Engage in Research Co-Production

Strategy for Patient-Oriented Research

SPOR

Putting Patients First 

McLean et al.
Health Research Policy and Systems (2023) 21:51
<https://doi.org/10.1186/s12961-023-00990-y>

Health Research Policy
and Systems

RESEARCH

Open Access



Evaluating the quality of research co-production: Research Quality Plus for Co-Production (RQ + 4 Co-Pro)

Robert K. D. McLean^{1,2,3*}, Fred Carden⁴, Alice B. Aiken⁵, Rebecca Armstrong⁶, Judy Bray⁷, Christine E. Cassidy⁸, Olivia Daub⁹, Erica Di Ruggiero¹⁰, Leslie A. Fierro¹¹, Michelle Gagnon¹², Alison M. Hutchinson^{13,14}, Roman Kislov^{15,16}, Anita Kothari¹⁷, Sara Kreindler^{18,19}, Chris McCutcheon³, Jessica Reszel^{20,21}, Gayle Scarrow²² and Ian D. Graham^{3,23}



OPEN ACCESS TOOL

RQ+ 4 Co-Pro Assessment Instrument

Guidance, descriptors, tables and rubrics for effective research co-production design, management and evaluation.

Try it in your own project

Challenge #1: Academic and health system communities often operate in siloes

Solution #1:
Engage in Research Co-Production

<http://ijhpm.com>

Int J Health Policy Manag 2019, 8(12), 684–699

doi 10.15171/ijhpm.2019.66

IJHPM
International Journal of Health Policy and Management

Original Article



Experience of Health Leadership in Partnering With University-Based Researchers in Canada – A Call to “Re-imagine” Research



Sarah Bowen^{1*}, Ingrid Botting², Ian D. Graham³, Martha MacLeod⁴, Danielle de Moissac⁵, Karen Harlos⁶, Bernard Leduc⁷, Catherine Ulrich^{8,9}, Janet Knox¹⁰

Challenge #1: Academic and health system communities often operate in siloes

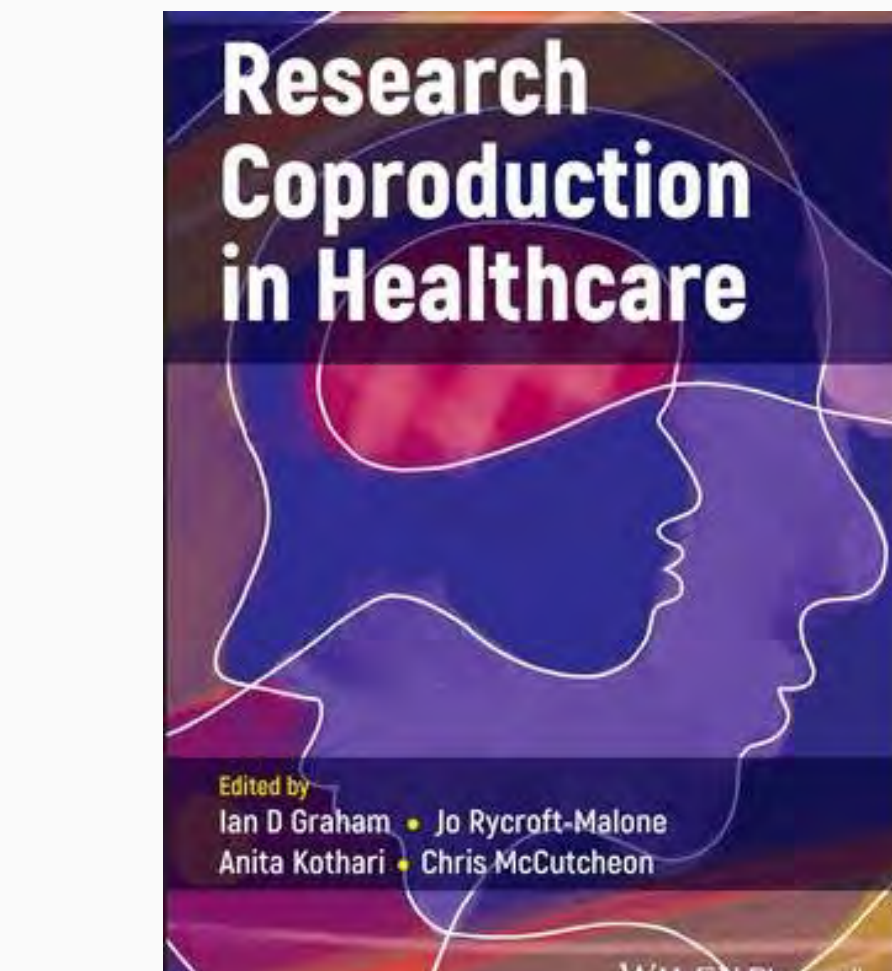
Solution #1:
Engage in Research Co-Production

REVIEW

Open Access

Trainee-led research using an integrated knowledge translation or other research partnership approaches: a scoping review

Christine E. Cassidy^{1*}, Hwayeon Danielle Shin¹, Emily Ramage², Aislinn Conway³, Kelly Mrklas⁴, Celia Laur⁵, Amy Beck⁶, Melissa Demery Varin⁷, Sandy Steinwender⁸, Tram Nguyen⁹, Jodi Langley¹⁰, Rachel Dorey¹¹, Lauren Donnelly¹¹ and Ilja Ormel¹²



FOREWORD

Christine Cassidy

“

There is no roadmap or user manual for research trainees to work collaboratively with the health system; nor will you find a how-to guide in your university's graduate studies handbook.

REVIEW

Open Access

Integrated knowledge translation guidelines for trainees in health research: an environmental scan

Sarah Madeline Gallant^{1,2*}, Christine Cassidy^{1,2}, Joyce Al-Rassi¹, Elaine Moody^{1,3}, Hwayeon Danielle Shin^{5,6}, Shauna Best⁴ and Audrey Steenbeek¹



<http://ijhpm.com>

Int J Health Policy Manag 2020, x(x), 1–7

doi 10.15171/ijhpm.2019.131

IJHPM
International Journal of Health Policy and Management

Short Communication

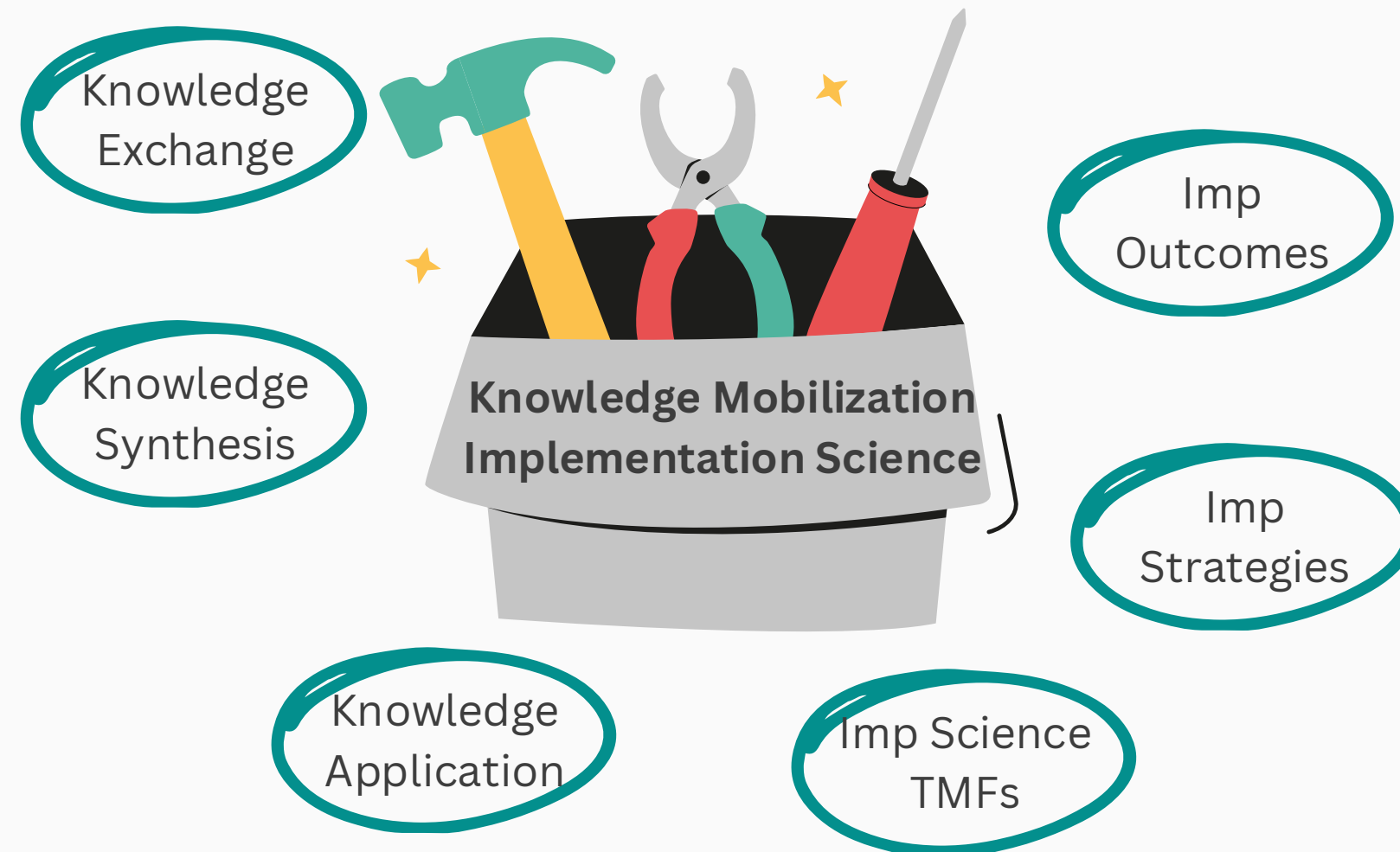
How to Work Collaboratively Within the Health System: Workshop Summary and Facilitator Reflection

Christine E. Cassidy^{1*}, Sarah Bowen², Guillaume Fontaine^{3,4}, Élizabeth Côté-Boileau^{5,6}, Ingrid Botting⁷

Challenge #2: Implementation science training has largely been limited to academic roles

Solution #2:
Build Implementation Capacity

Solution #2: Build Implementation Capacity



Apply implementation science methods
WITH the health system instead of **FOR** the health system

Addresses the TRANSFER problem – moving IS capacity to clinicians, partners, and trainees in the system

Challenge #2: Implementation science training has largely been limited to academic roles

Solution #2:
Build Implementation Capacity



Challenge #2: Implementation science training has largely been limited to academic roles

Solution #2:
Build Implementation Capacity

Reszel et al.
Implementation Science Communications (2023) 4:151
<https://doi.org/10.1186/s43058-023-00525-0>


Implementation Science
Communications

RESEARCH

Open Access



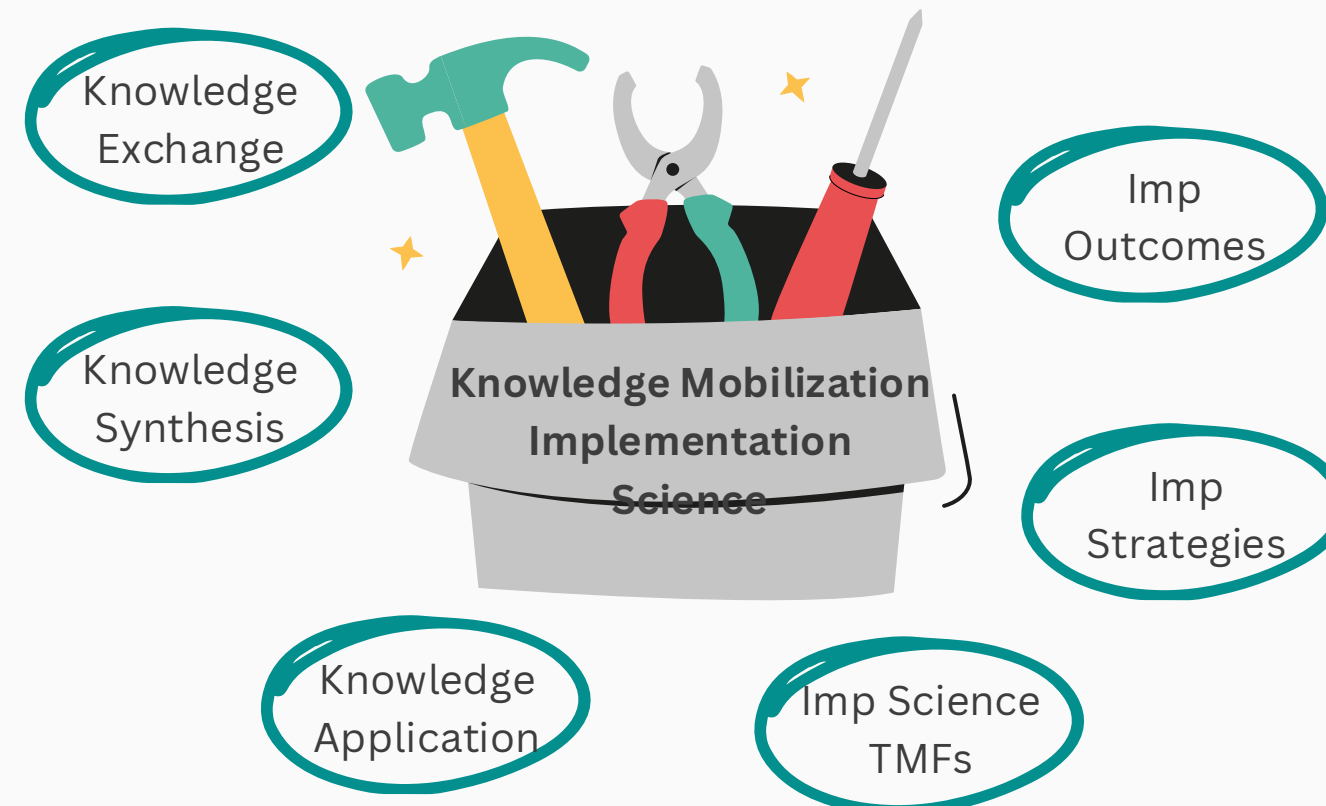
Essential content for teaching implementation practice in healthcare: a mixed-methods study of teams offering capacity-building initiatives

Jessica Reszel^{1,2,3*} , Olivia Daub⁴, Jenny Leese⁵, Hanna Augustsson^{6,7}, Danielle Moeske Bellows⁸, Christine E. Cassidy^{9,10}, Beth E. Crowner¹¹, Sandra I. Dunn^{1,2,3}, Lisa B. Goodwin¹², Alison M. Hoens¹³, Sarah C. Hunter¹⁴, Elizabeth A. Lynch¹⁴, Jennifer L. Moore^{15,16}, Miriam R. Rafferty¹⁷, Wendy Romney¹⁸, Dawn Stacey^{1,2}, Implementation Practice CBI Study Team and Ian D. Graham^{1,2,5}

Challenge #2: Implementation science training has largely been limited to academic roles

Solution #2:
Build Implementation Capacity

Theory to Practice: Transition from Pediatric to Adult Care at IWK Health



Challenge #2: Implementation science training has largely been limited to academic roles

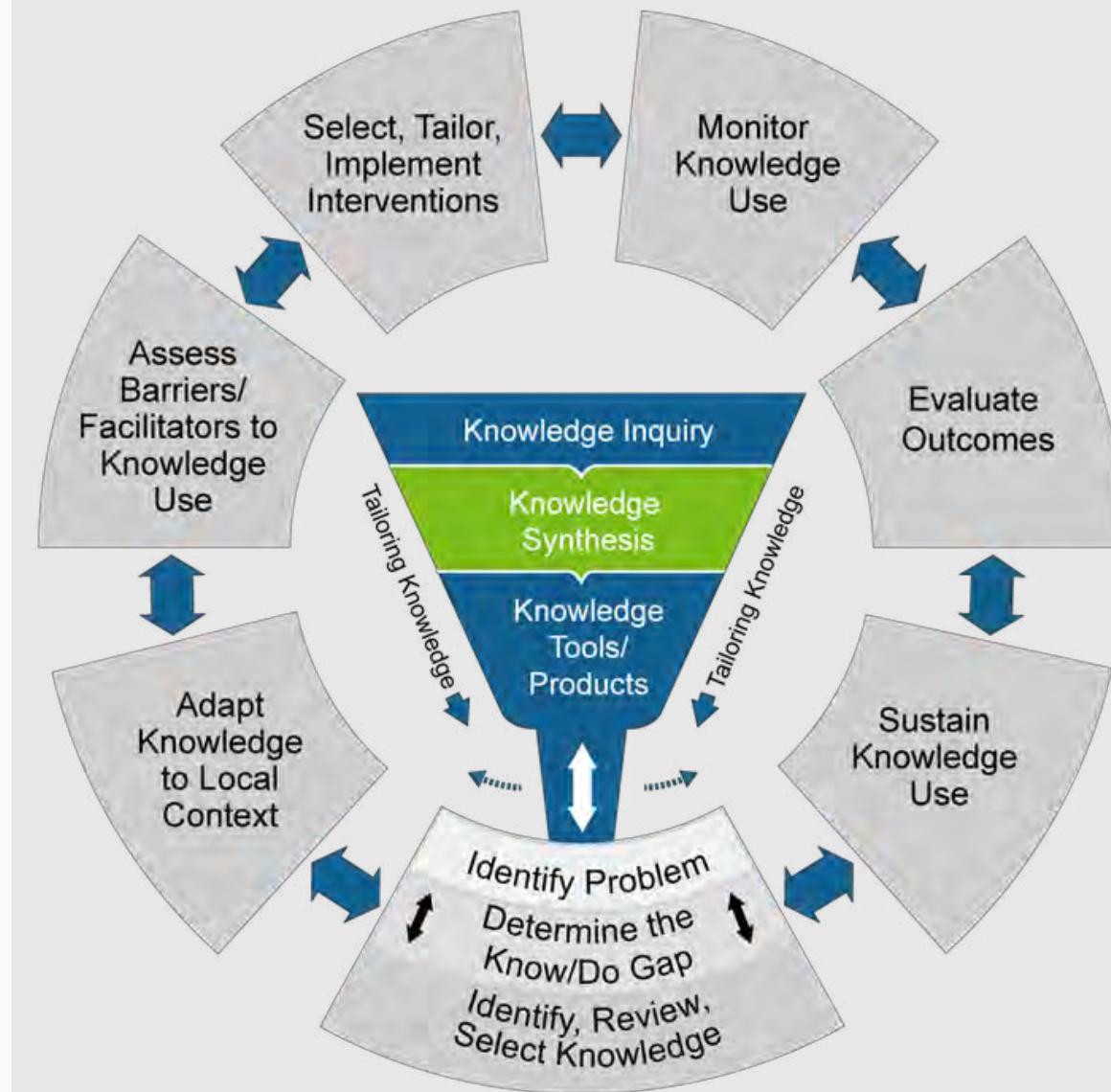
Solution #2:
Build Implementation Capacity

Research Co-Production

IWK Health Transitions of Care Committee: Advisory committee which brings together youth, caregivers, health care providers and community partners to improve the transition to adult health care



THE RESEARCH PROCESS



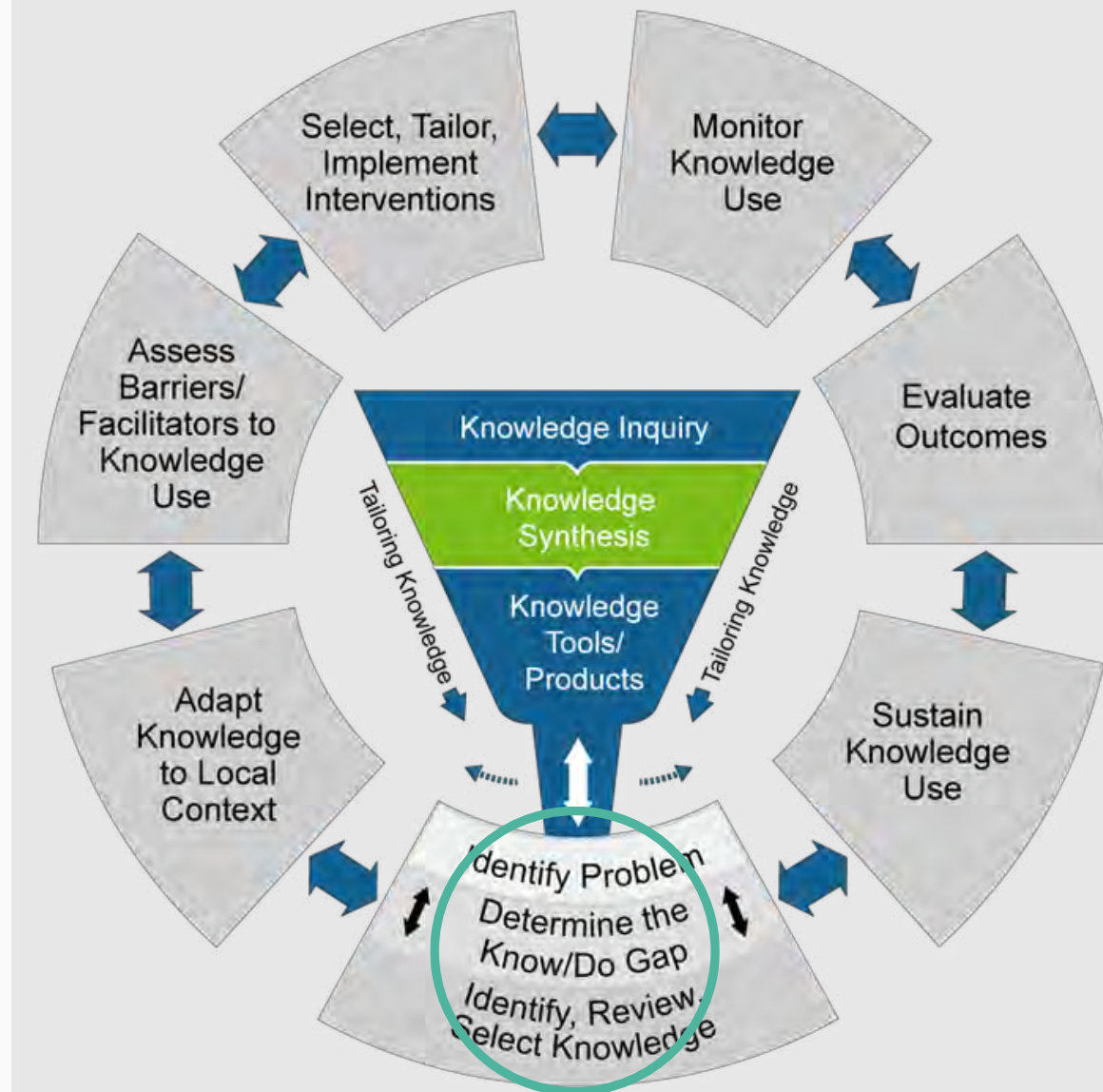
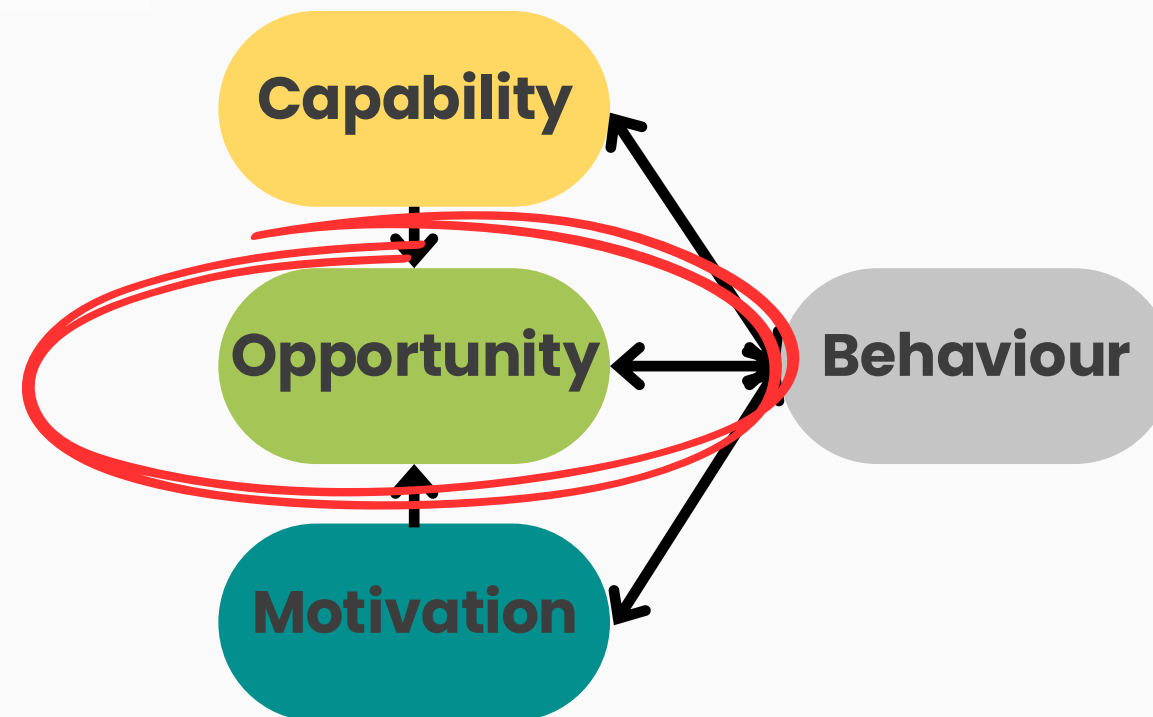
Challenge #2: Implementation science training has largely been limited to academic roles

Solution #2:
Build Implementation Capacity

Identify Problem

Objective: Explore current practices and experiences of transition from pediatric to adult care from the perspective of youth, caregivers and health care providers

Methods: Qualitative descriptive study design with semi-structured interviews guided by the COM-B Model of Behaviour

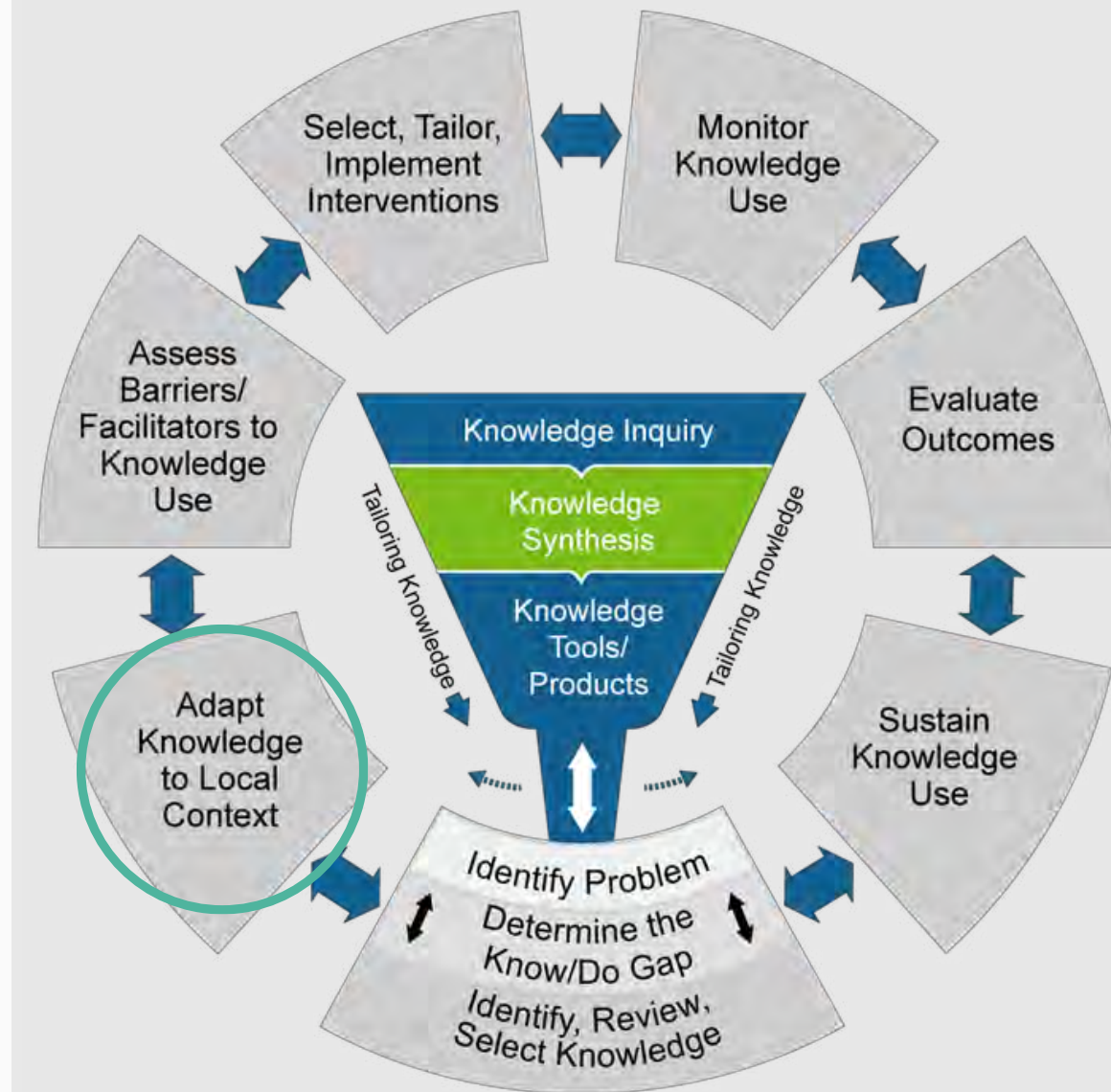


Challenge #2: Implementation science training has largely been limited to academic roles

Solution #2:
Build Implementation Capacity

Adapt to Local Context

The IWK Health Transition of Care Committee co-designed a Transition of Care Framework



Challenge #2: Implementation science training has largely been limited to academic roles

Solution #2:
Build Implementation Capacity

Assess Barriers and Select Strategies

01
Identify Barriers and Facilitators to Implementing the ToC Framework

02
Map implementation strategies onto barriers/facilitators

Consolidated Framework for Implementation Research



Expert Recommendations for Implementing Change Taxonomy



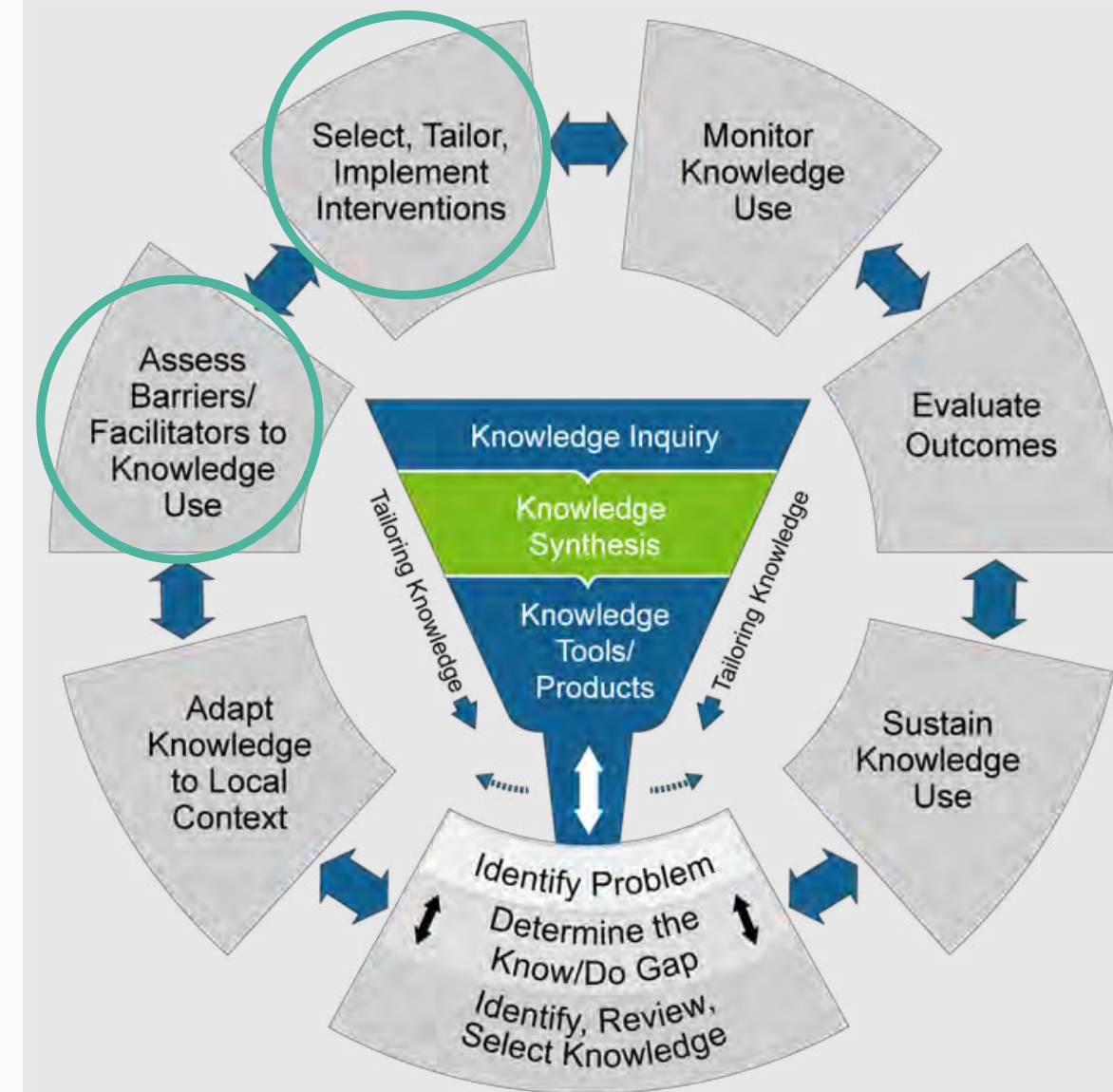
Facilitation



Adapt & Tailor to Context



Change infrastructure

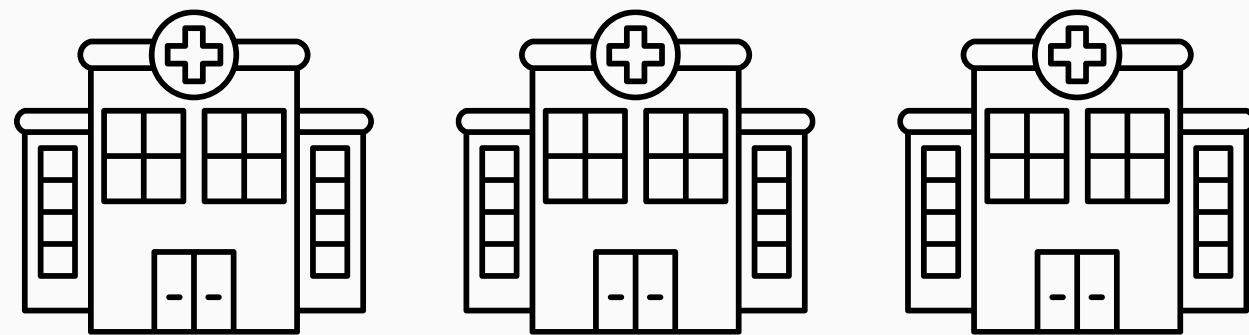


Challenge #2: Implementation science training has largely been limited to academic roles

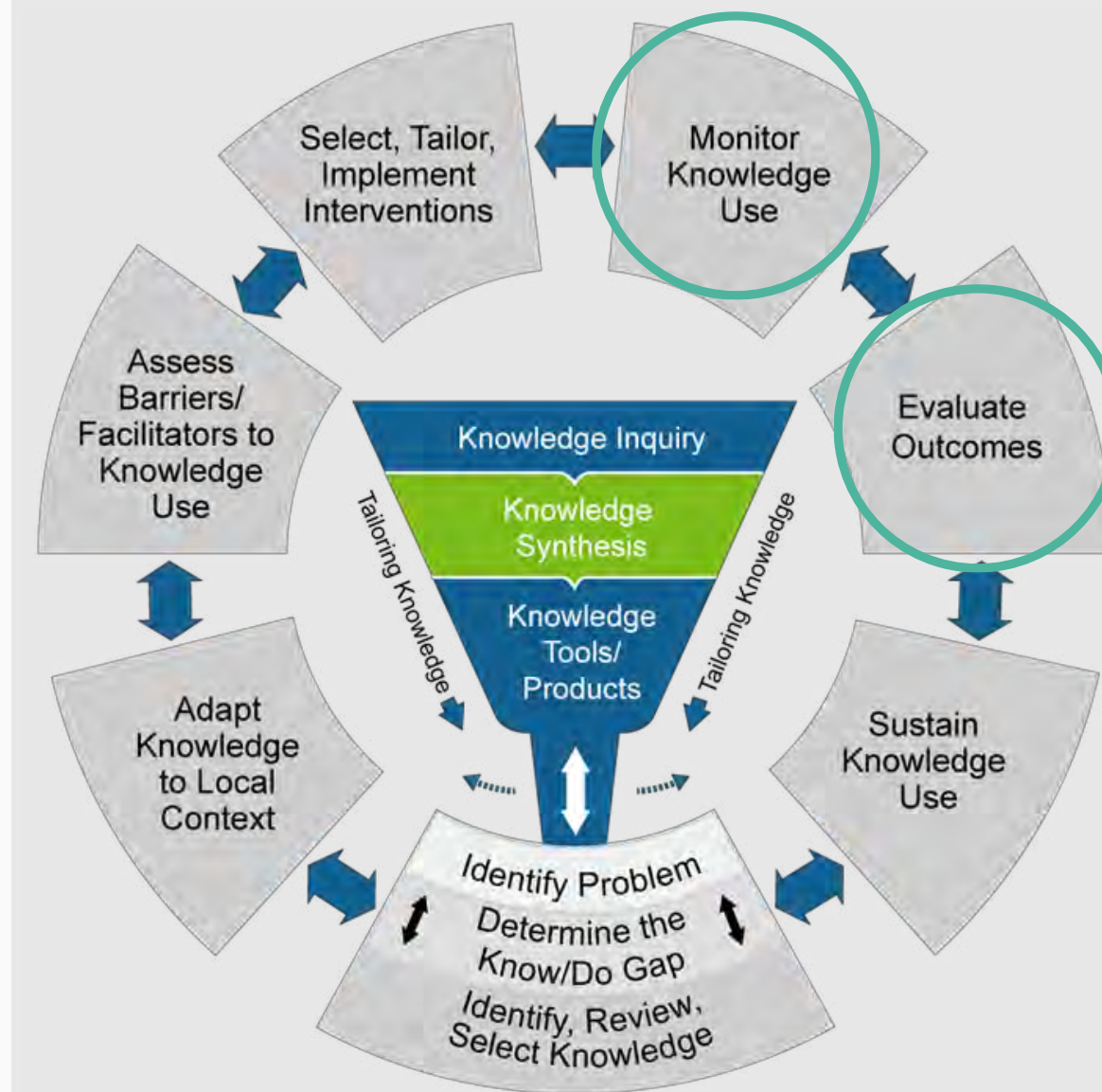
Solution #2:
Build Implementation Capacity

Evaluate Outcomes

Examine the **feasibility** and **acceptability** of the ToC Framework at IWK Health & NS Health (*Implementation Outcomes*)



Examine the **impact** of the ToC Framework on patient self-reported outcomes and healthcare utilization for patients who transition from pediatric to adult care (*Impact Outcomes*)



Challenge #2: Implementation science training has largely been limited to academic roles

Solution #2:
Build Implementation Capacity

Sustain Knowledge Use

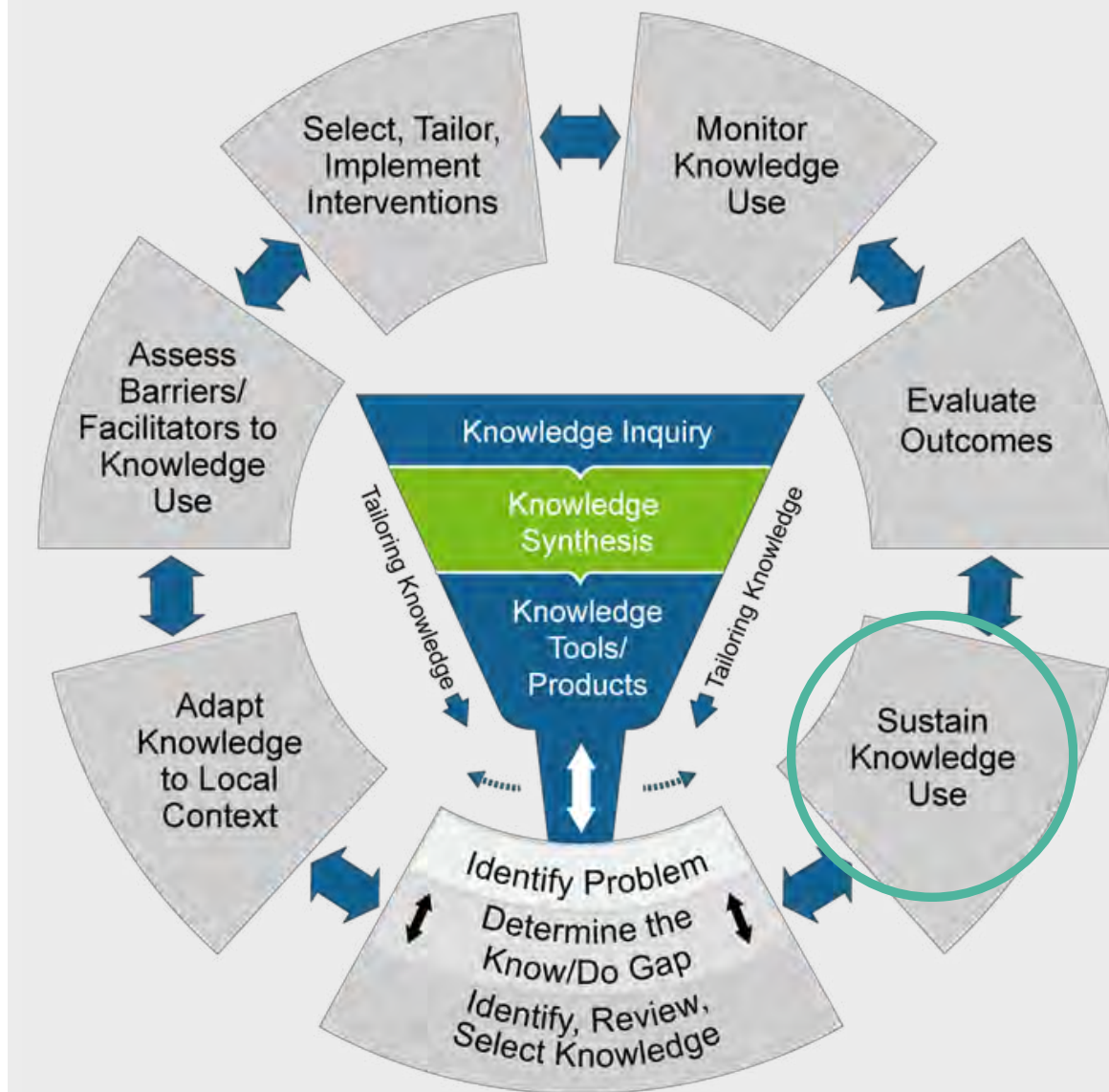
Explore how to implement and sustain Transition in Care Innovations for Youth (*Sustainability outcomes*)



I-STiCK
Implementing and Sustaining Transition
in Care Innovations for Youth using
Knowledge Translation Interventions



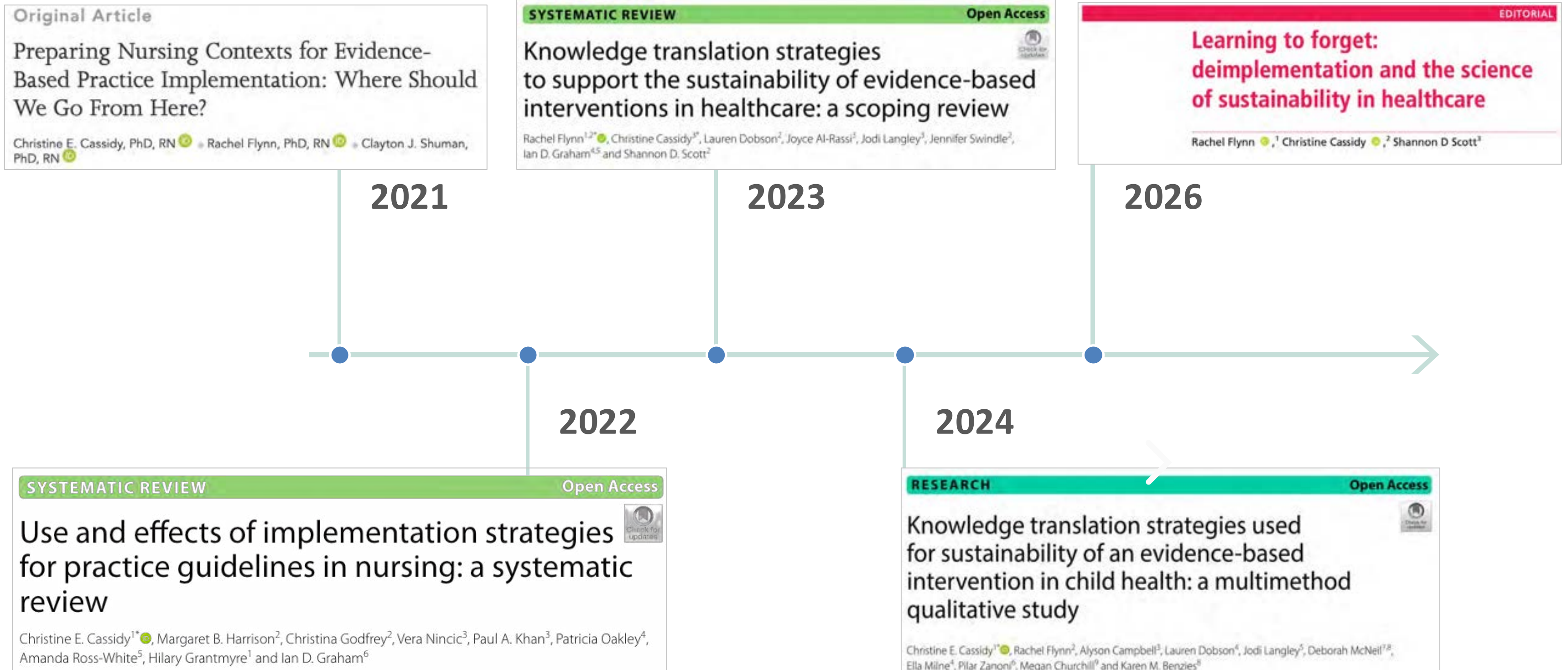
*Project Grant
(2026-2029)
\$367,000*



Challenge #3: Implementation science has centred on the individual within health system contexts

Solution #3: Foster Learning Health Systems

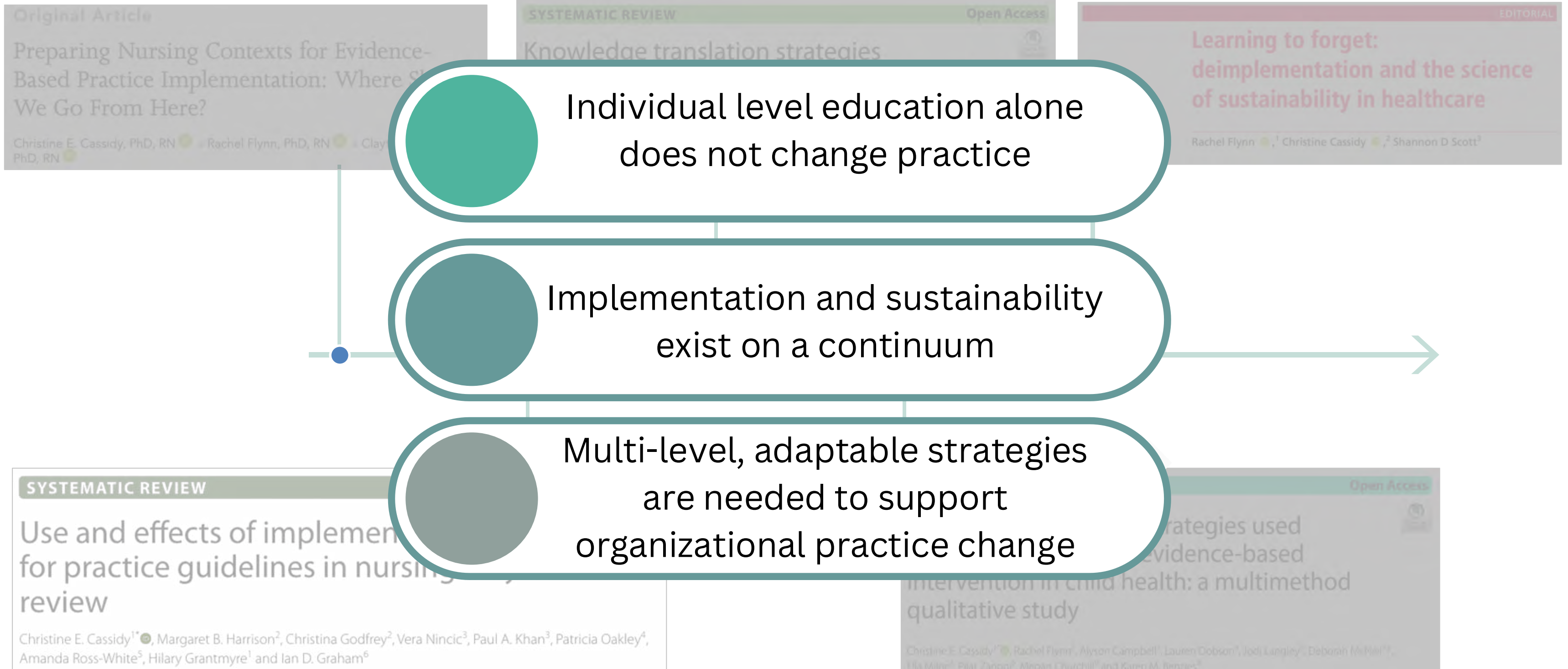
System-level Implementation & Sustainability



Challenge #3: Implementation science has centred on the individual within health system contexts

Solution #3:
Foster Learning Health Systems

System-level Implementation & Sustainability



Challenge #3: Implementation science has centred on the individual within health system contexts

Solution #3:
Foster Learning Health Systems

Solution #3: Foster Learning Health Systems

Addresses BOTH the production and transfer problems – the infrastructure to scale the first two solutions

Learning Health System (LHS) Defined

An environment where “science, informatics, incentives and culture are aligned for continuous improvement and innovation, with best practices seamlessly embedded in the delivery process and new knowledge captured as an integral by-product of the delivery experience”

Core Component	Characteristic
1. Data & Evidence Driven	Digital capture, linkage & timely sharing of relevant data
	Timely production of research evidence
2. Patient Centred	Engaged patients & communities
3. System Supported	Aligned governance, financial and delivery arrangements
	Appropriate decision supports
4. Culture & Competencies Enabled	Culture of learning & improvement
	Competencies for learning & improvement

Challenge #3: Implementation science has centred on the individual within health system contexts

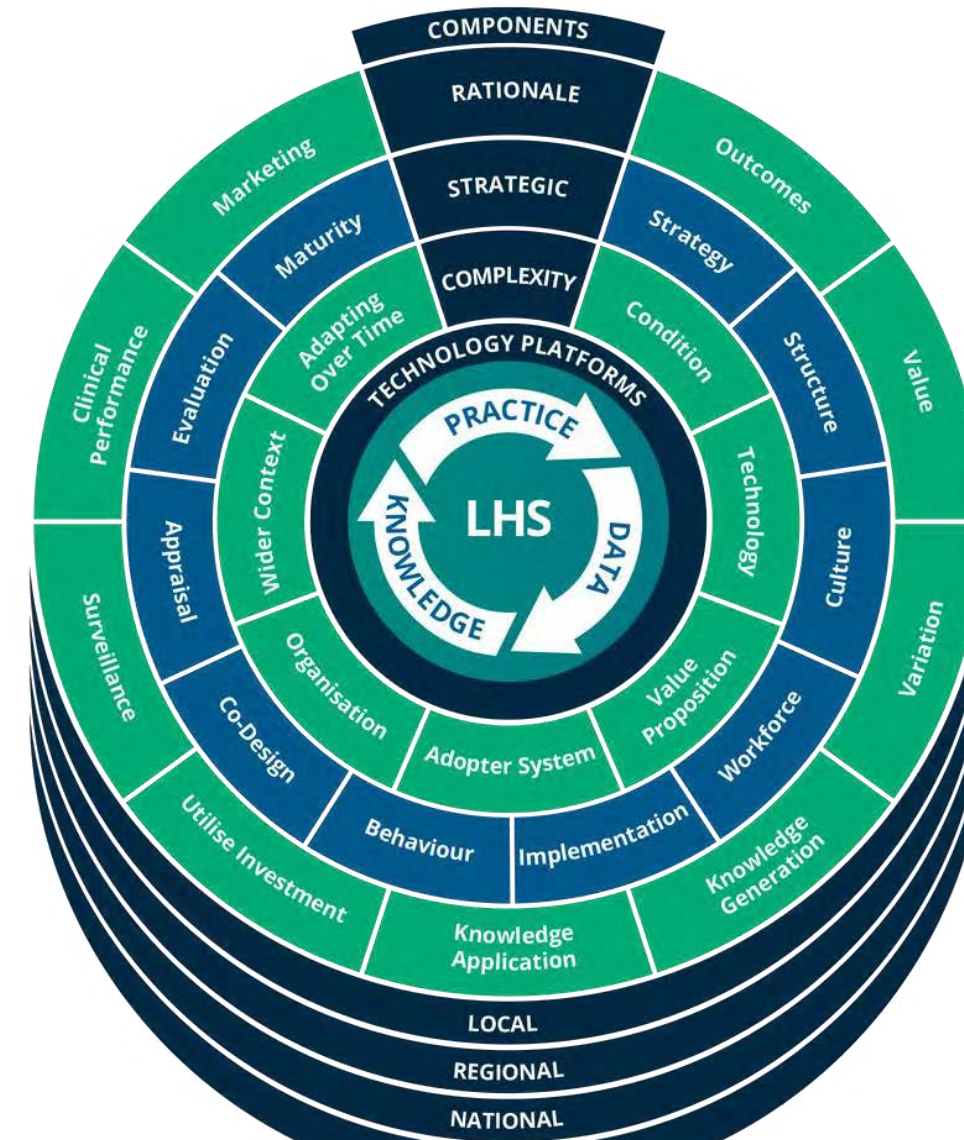
Solution #3:
Foster Learning Health Systems

Solution #3: Foster Learning Health Systems

Learning Health Systems



Agency for Healthcare Research & Quality
(2012)



The Learning Healthcare Project

Challenge #3: Implementation science has centred on the individual within health system contexts

Solution #3:
Foster Learning Health Systems

LHS Implementation

Somerville et al.
Health Research Policy and Systems (2023) 21:120
<https://doi.org/10.1186/s12961-023-01071-w>

Health Research Policy
and Systems

REVIEW

Open Access

Implementation strategies and outcome measures for advancing learning health systems: a mixed methods systematic review

Mari Somerville^{1*}, Christine Cassidy², Janet A. Curran¹, Catie Johnson¹, Douglas Sinclair¹ and Annette Elliott Rose¹



- 5171 studies identified
- 35 papers included, representing 31 unique LHSs
- Majority reported from the US (n=20) in the past 6 years (2019-2022; n=24)
- Range of positive outcomes observed included reduced length of stay, improved time to diagnosis

Challenge #3: Implementation science has centred on the individual within health system contexts

Solution #3:
Foster Learning Health Systems

LHS Components

Somerville et al.
Health Research Policy and Systems (2023) 21:120
<https://doi.org/10.1186/s12961-023-01071-w>

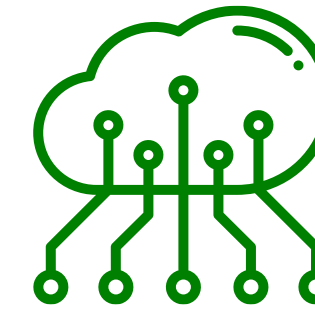
Health Research Policy
and Systems

REVIEW

Open Access

Implementation strategies and outcome measures for advancing learning health systems: a mixed methods systematic review

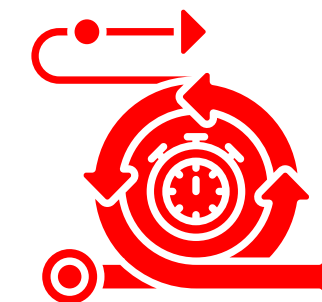
Mari Somerville^{1*}, Christine Cassidy², Janet A. Curran¹, Catie Johnson¹, Douglas Sinclair¹ and Annette Elliott Rose¹



Digital Data Capture



Patient Engagement



Culture of Rapid Learning
and Improvement

Challenge #3: Implementation science has centred on the individual within health system contexts

Solution #3:
Foster Learning Health Systems

LHS Implementation Strategies

Somerville et al.
Health Research Policy and Systems (2023) 21:120
<https://doi.org/10.1186/s12961-023-01071-w>

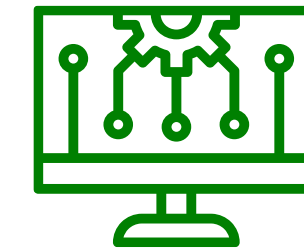
Health Research Policy
and Systems

REVIEW

Open Access

Implementation strategies and outcome measures for advancing learning health systems: a mixed methods systematic review

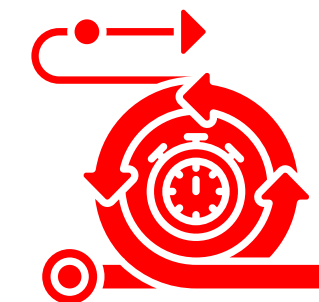
Mari Somerville^{1*}, Christine Cassidy², Janet A. Curran¹, Catie Johnson¹, Douglas Sinclair¹ and Annette Elliott Rose¹



Change Record Systems



Patient Engagement



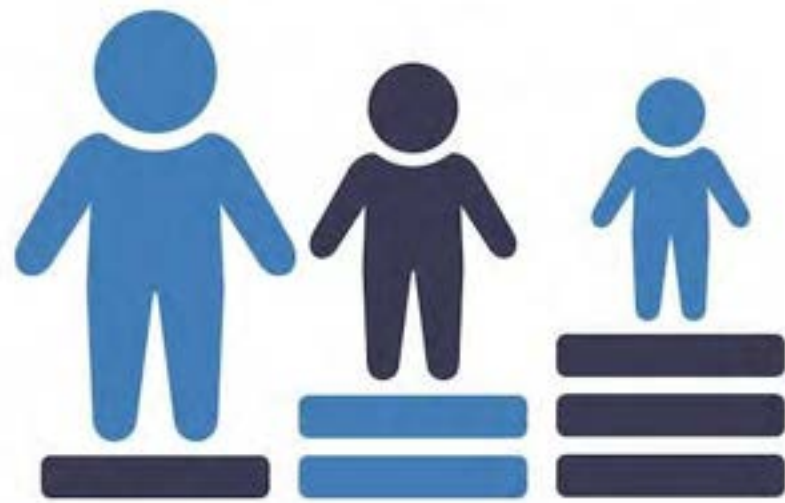
Culture of Rapid Learning
and Improvement

Challenge #4: Implementation science tools have not been built with equity in mind

Solution #4:
Embed equity into everything we do

Solution #4: Build Equity Into Implementation Science Approaches

Cross-cutting: Runs across the first three solutions; addresses both production and transfer problems



Even evidence-based interventions can unintentionally widen gaps for the families already underserved unless equity is built into the implementation approaches itself, not added at the end.

Challenge #4: Implementation science tools have not been built with equity in mind

Solution #4:
Embed equity into everything we do

Embedding equity into the frameworks we use

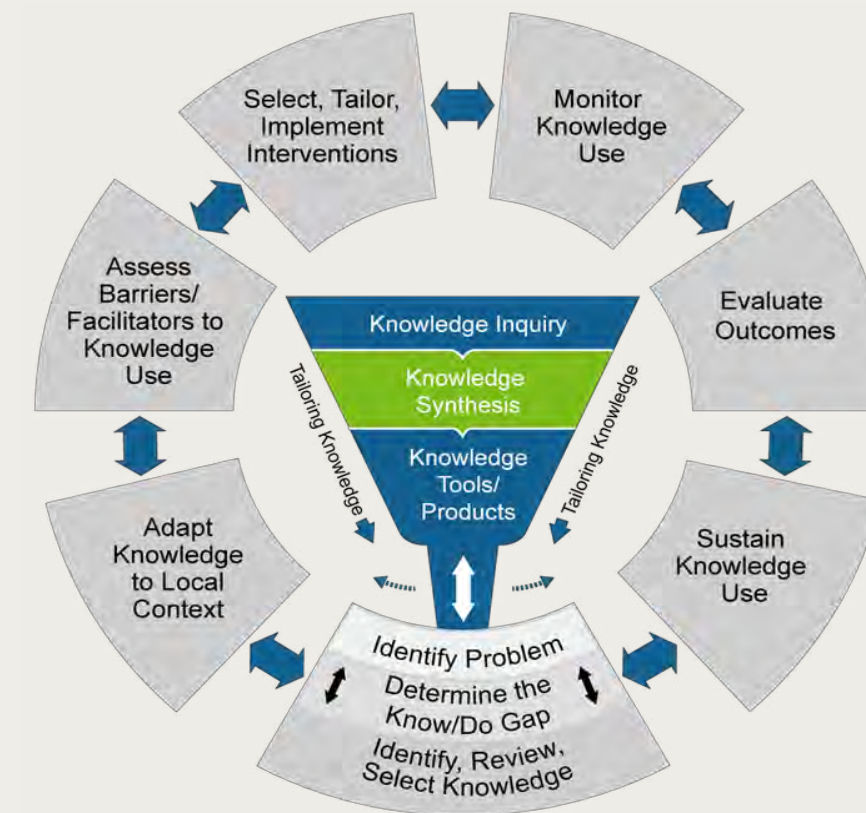
The FINE Study

Frameworks Incorporating Equity



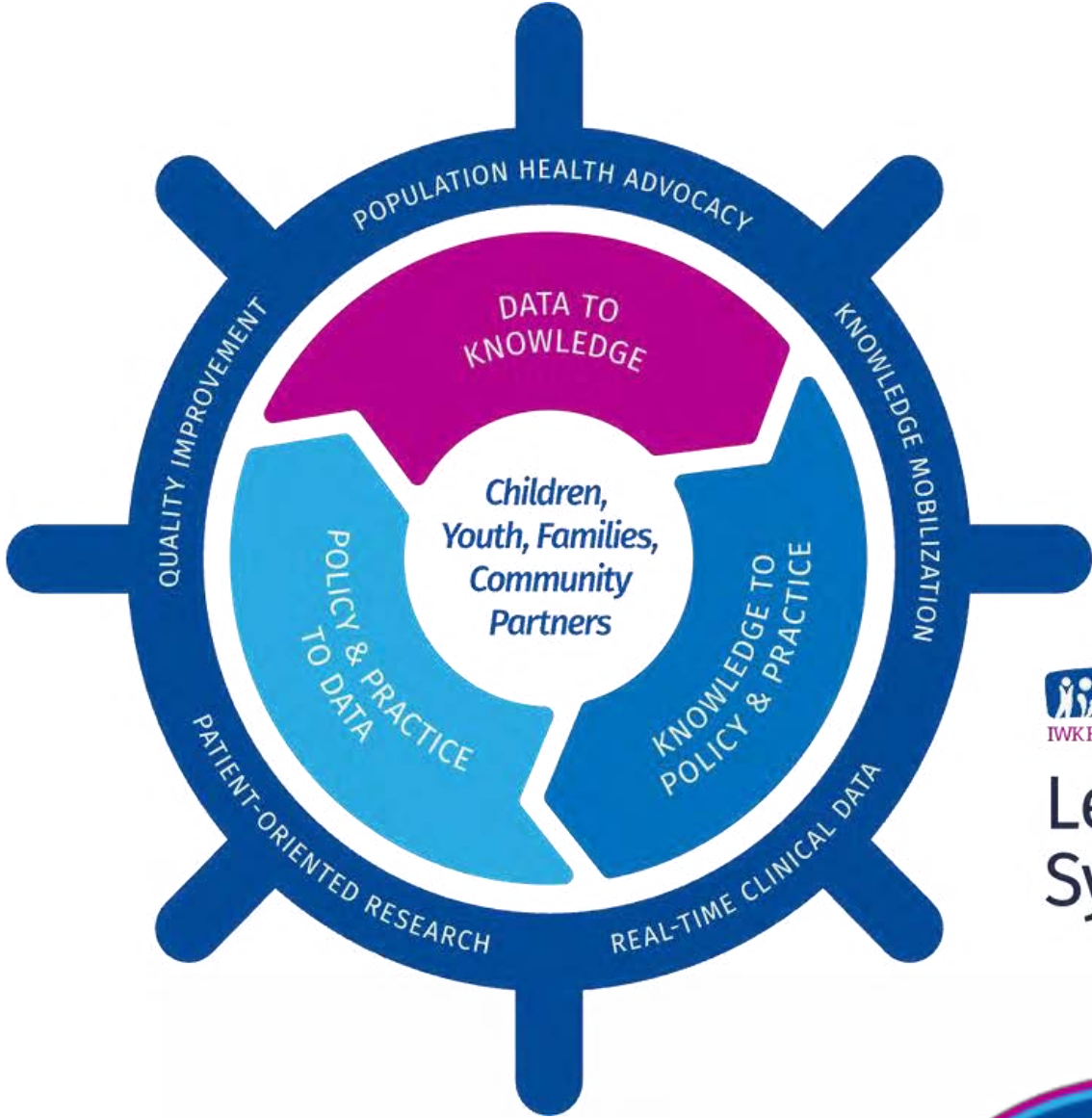
The Knowledge-to-Action Project

Part One: Citation & co-authorship network analysis
Part Two: Development of EquiPace Framework (led by Dr. Rachel Flynn)

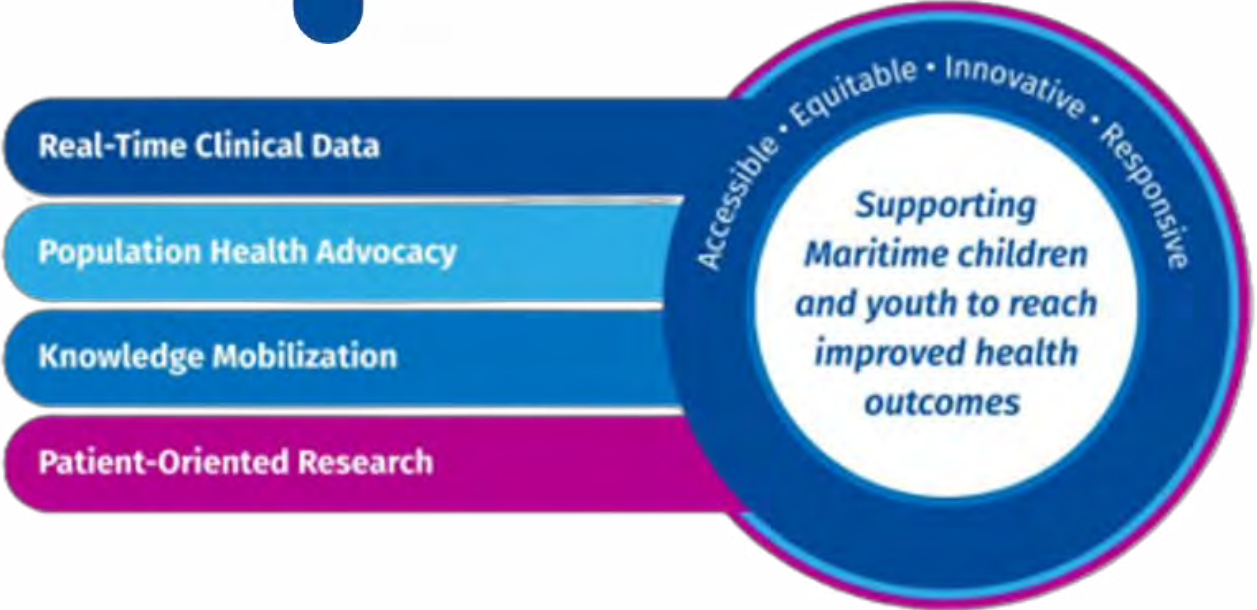


Maritime Child Health is a 5-year, donor funded initiative.

Using a Learning Health System approach, we strive to connect data, research, and care for Maritime children and families.



 Maritime Child Health
Learning Health System Model



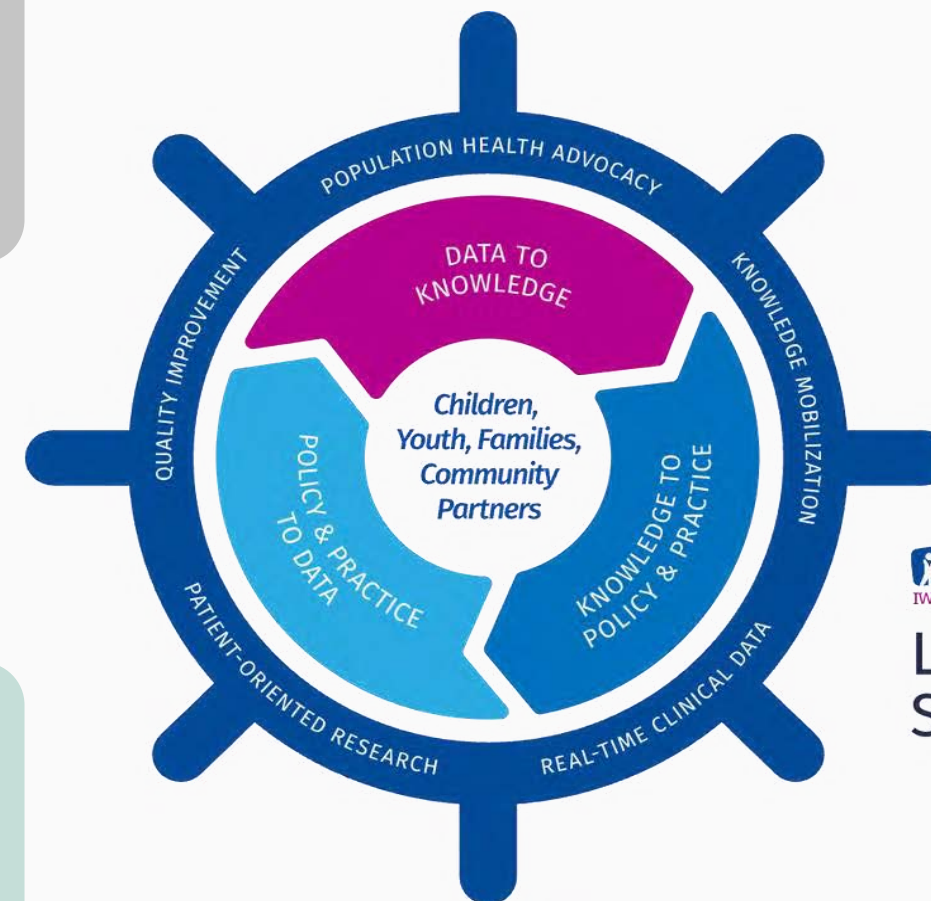
Where the four solutions converge: *Maritime Child Health*

Solution #1: Co-Production

Youth, families, clinicians, and health system partners shape every research question and intervention.

Solution #3: LHS Structure

System-owned, system-funded infrastructure for continuous learning and improvement



Maritime Child Health
Learning Health System Model

Solution #2: Capacity Building

IS methods live with the clinical teams that use them – not just in the lab.

Solution #4: Equity Embedded

EDIA principles shape questions, methods, and outcomes from the start – not added on.

Closing the Implementation Science - Practice Gap

Challenge #1: Academic and health system communities often operate in siloes

Solution #1:
Engage in Research Co-Production

Challenge #2: Implementation science training has largely been limited to academic roles

Solution #2:
Build Implementation Capacity

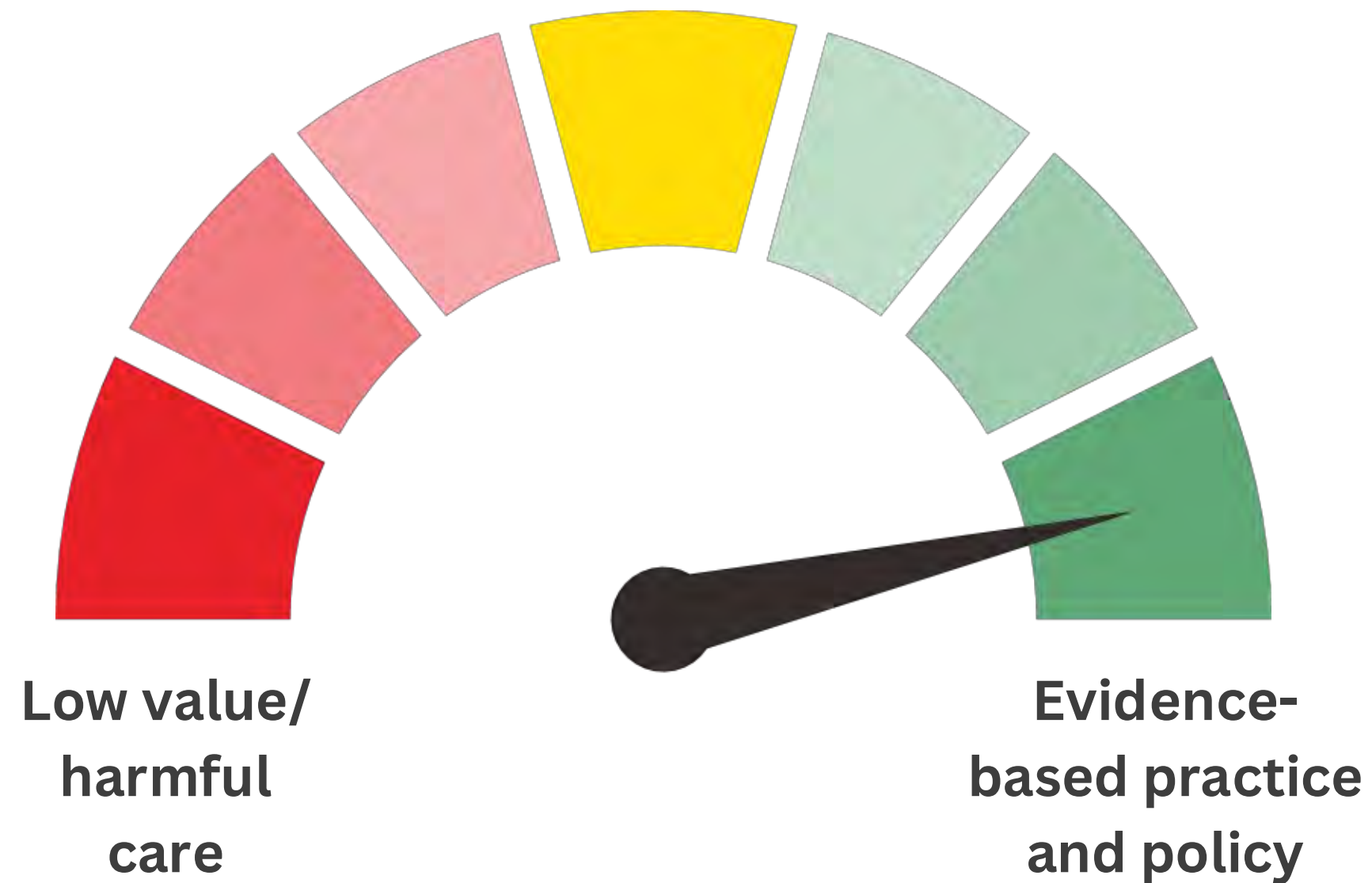
Challenge #3: Implementation science has centred on the individual within health system contexts

Solution #3:
Foster Learning Health Systems

Challenge #4: Implementation science tools have not been built with equity in mind

Solution #4:
Embed equity into everything we do

Where we started: Shifting 60-30-10 for children and youth



Thank you!

ccassidy@dal.ca

