

Infection prevention through the lens of implementation science

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Hosted by Prof. Hugo Sax

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Research group focusing on implementation of infection prevention

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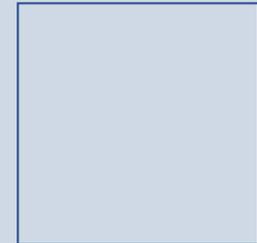
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Today's objectives

- to explore the core of implementation science
- to discuss how we can use knowledge from implementation science in practice
- to learn how to identify barriers and facilitators
- to understand how to choose implementation strategies



Implementation Science

‘...the scientific study of methods to promote the **systematic uptake** of research findings and other evidence-based practices into **routine practice**... It includes the study of influences on healthcare **professionals and organisational behaviour**’



implementation [tiab]



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RESULTS BY YEAR

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of 36,888





61 Dissemination (Scale up) & Implementation frameworks (Tabak et al., 2012)

601 Practice determinants (Krause et al., 2014)

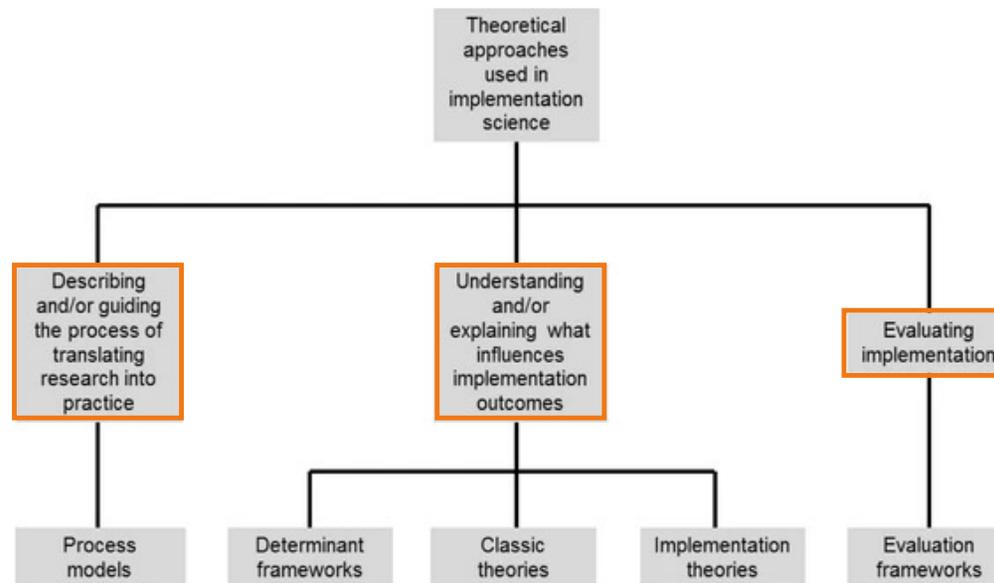
73 Implementation strategies (Powell et al., 2012 & 2015)

420 Implementation measures (Lewis et al., 2015)

10 De-implementation frameworks (Nilsen 2020)



Making sense of implementation theories, models and frameworks





Navigate Implementation Science Theory

[Dissemination Implementation - Just another WordPress site \(dissemination-implementation.org\)](https://dissemination-implementation.org)

Dissemination & Implementation Models

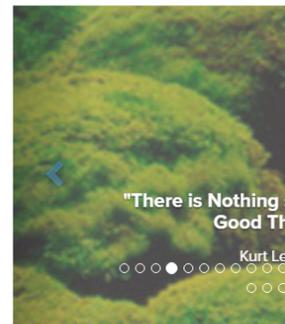
in Health Research & Practice

[Home](#) | [Access the D&I Models Webtool](#) | [Tutorial](#) | [Glossary](#) | [FAQ](#) | [Resources](#) | [Submit Models](#)

Helping Navigate Dissemination and Implementation Models

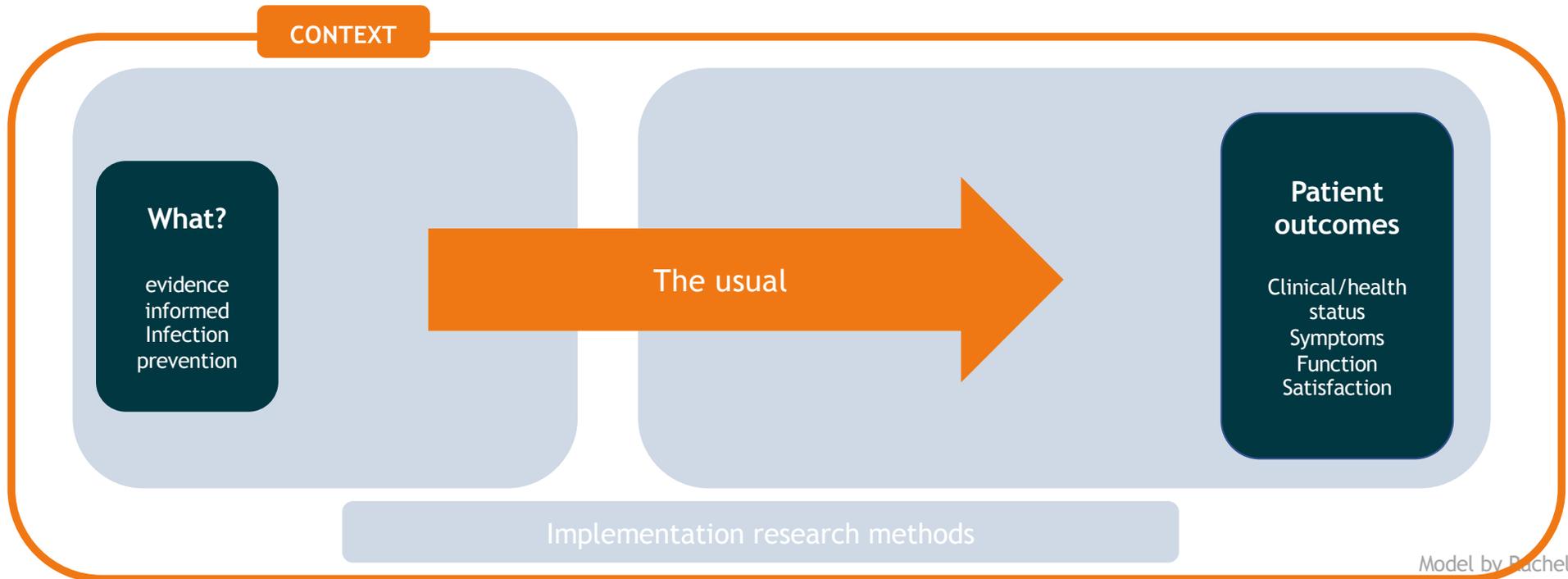
The D&I Models Webtool is an interactive, online application designed to help researchers and practitioners navigate D&I Models through planning, selecting, combining, adapting, using, and linking to measures.

[Access the D&I Models Webtool Here!](#)





Conceptual model for implementation research

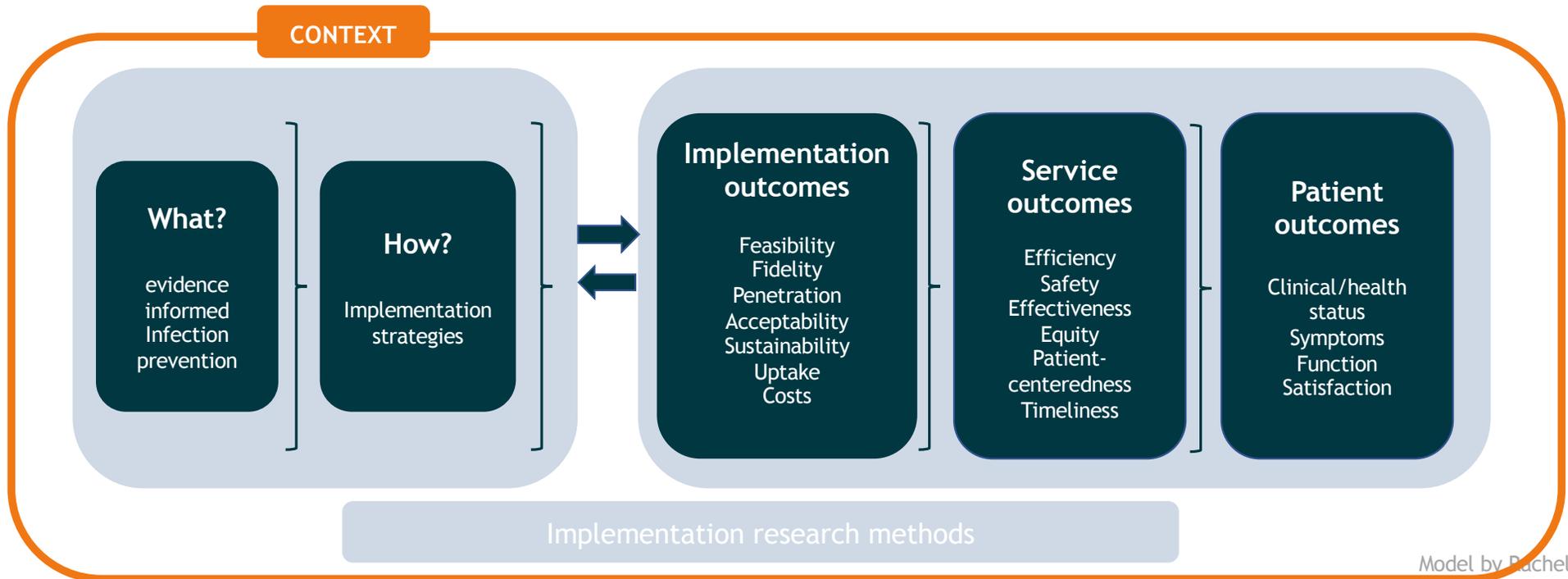


Model by Rachel Tabak

Proctor et al 2009 Admin. & Pol. in Mental Health Services



Conceptual model for implementation research

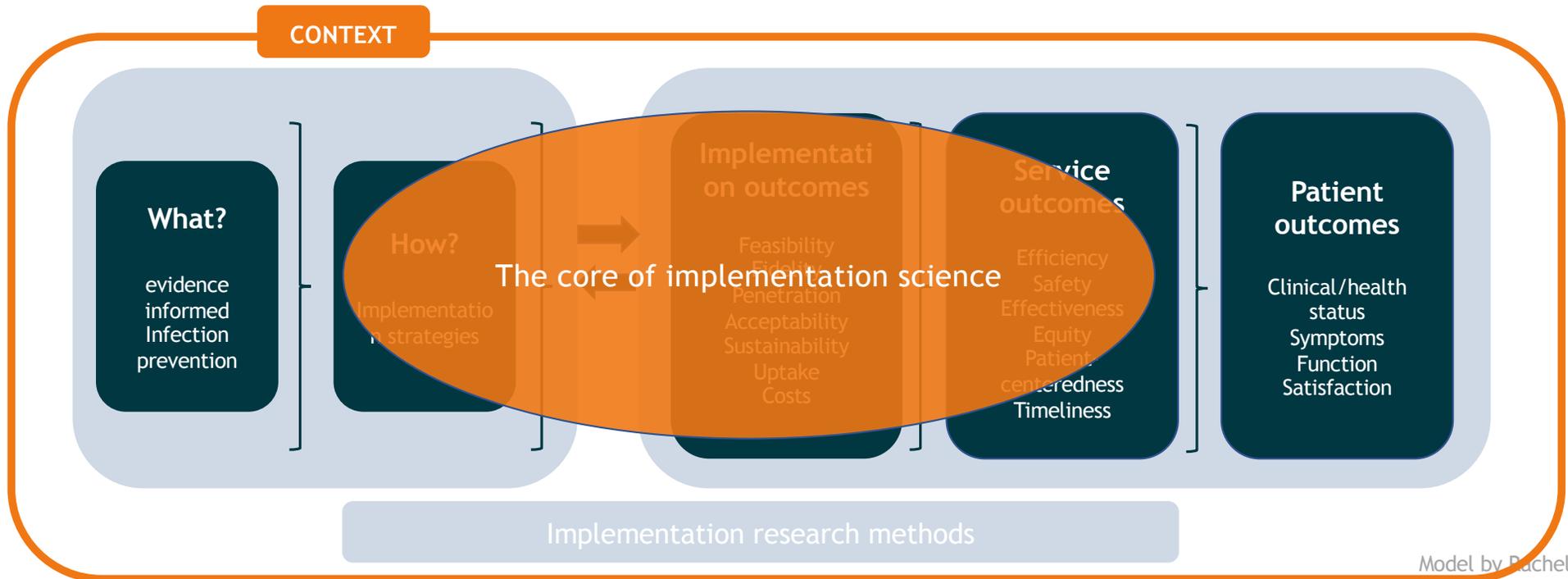


Model by Rachel Tabak

Proctor et al 2009 Admin. & Pol. in Mental Health Services



Conceptual model for implementation research



Model by Rachel Tabak

Proctor et al 2009 Admin. & Pol. in Mental Health Services



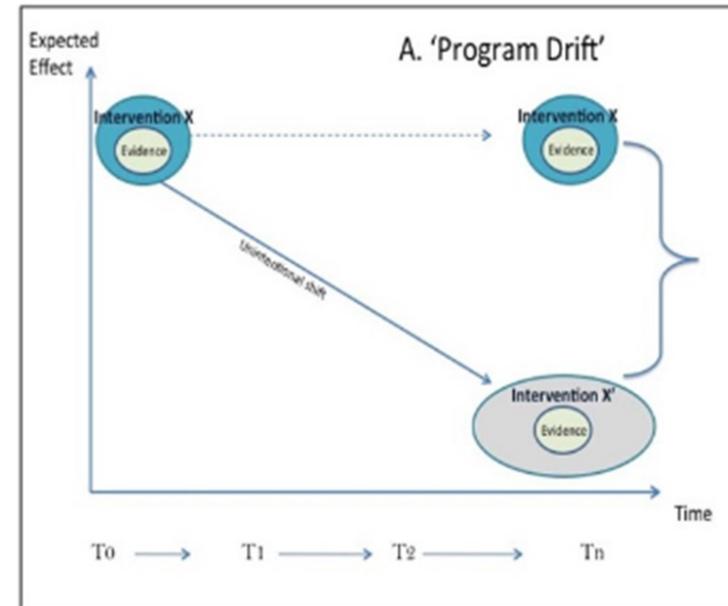
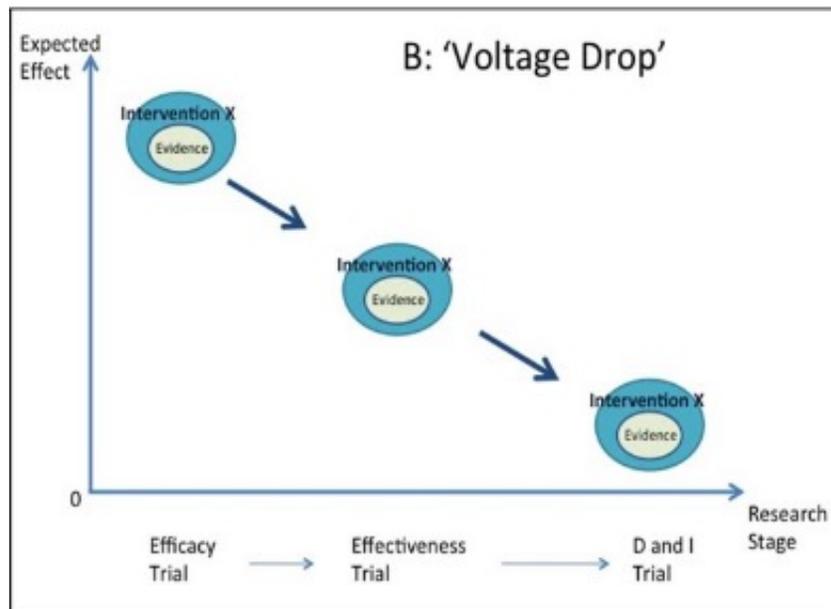
Implementation research

Implementation research is particularly important to

- understand the context surrounding an intervention (excluded from efficacy and effectiveness research)
- assess how well an intervention performs
- inform you on ways to improve implementation
 - factors that affect implementation
 - the process of implementation
 - how to introduce solutions that will make interventions more sustainable



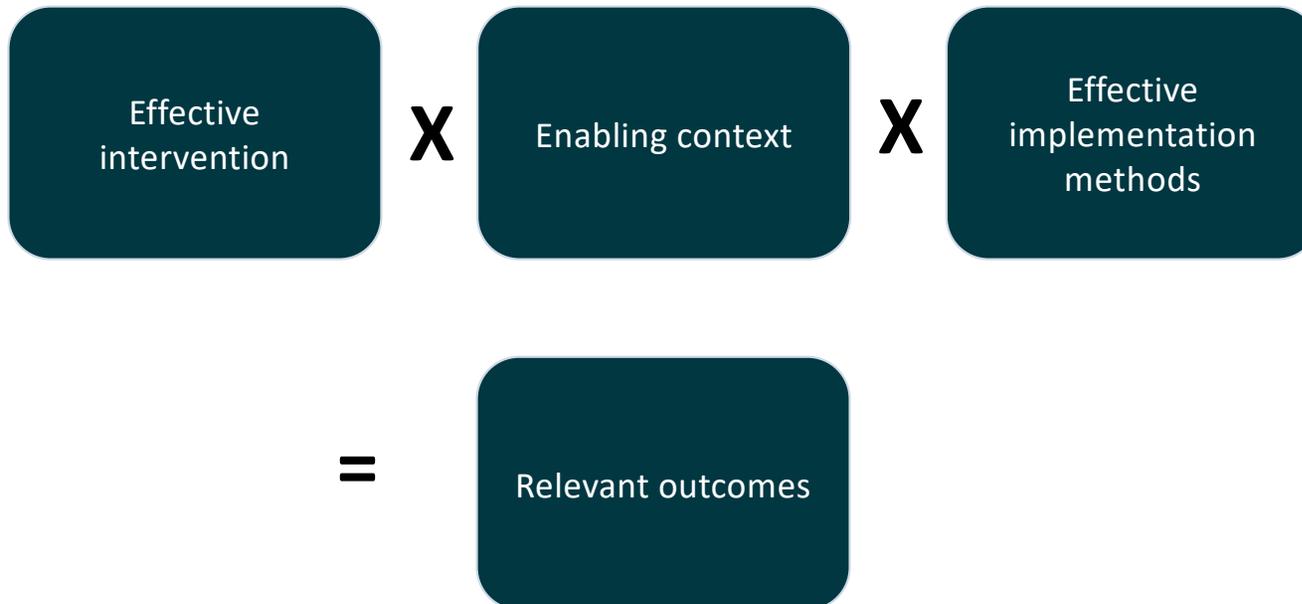
In real-world settings



Chambers et al. (2013) The dynamic sustainability framework: addressing the paradox of sustainment amid ongoing change. *Implementation Science*

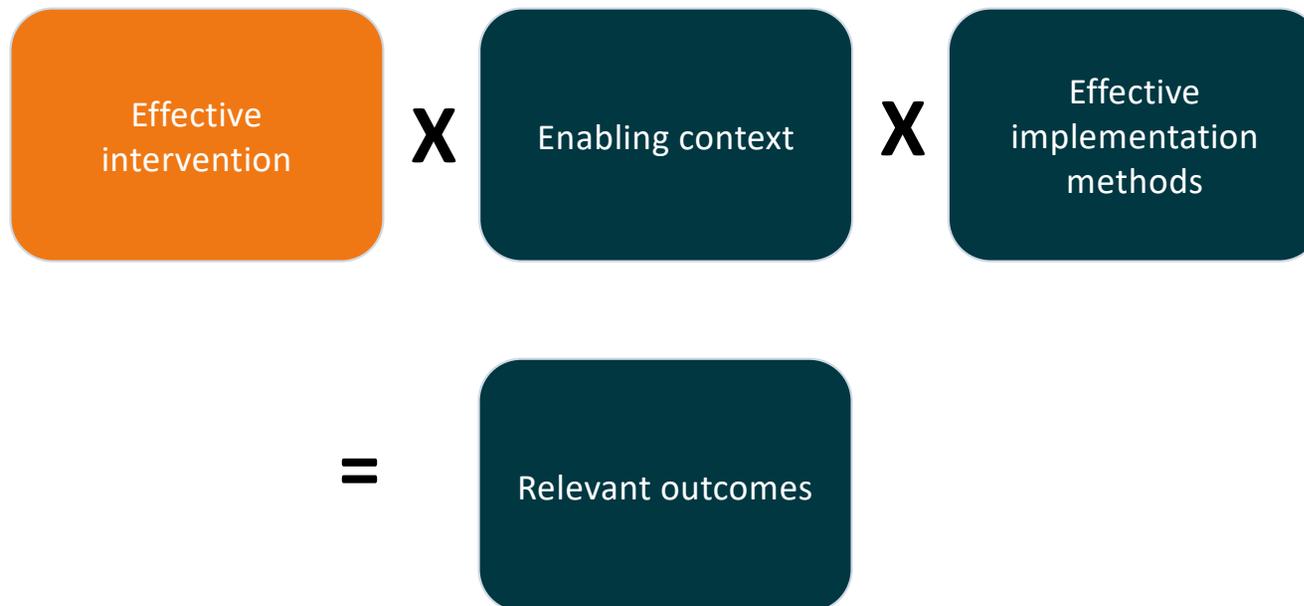


Are we successful?





Are we successful in the real world?





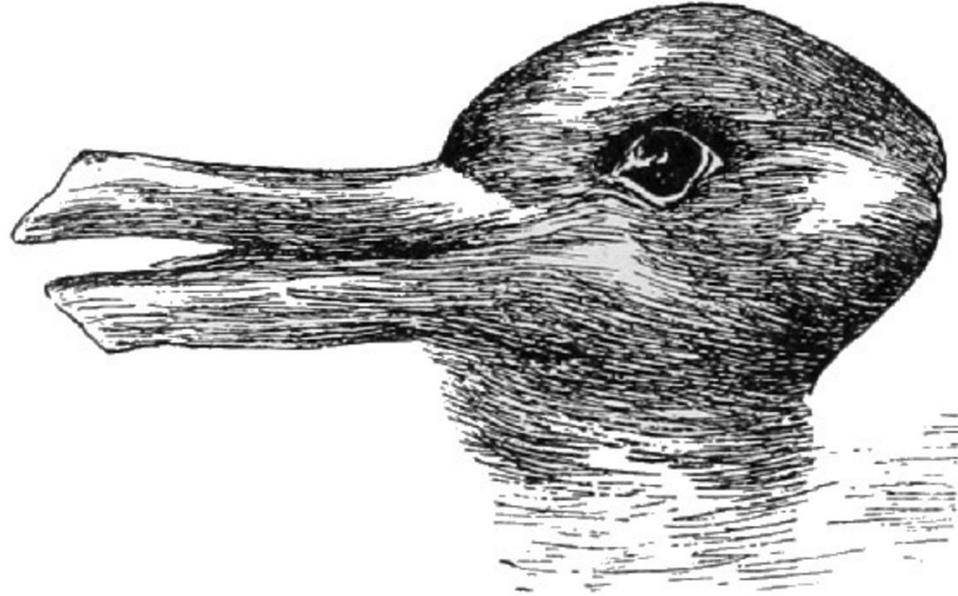
Context

The ‘implementation context’ refers to the **physical, social and cultural environment** where the intervention is to be integrated

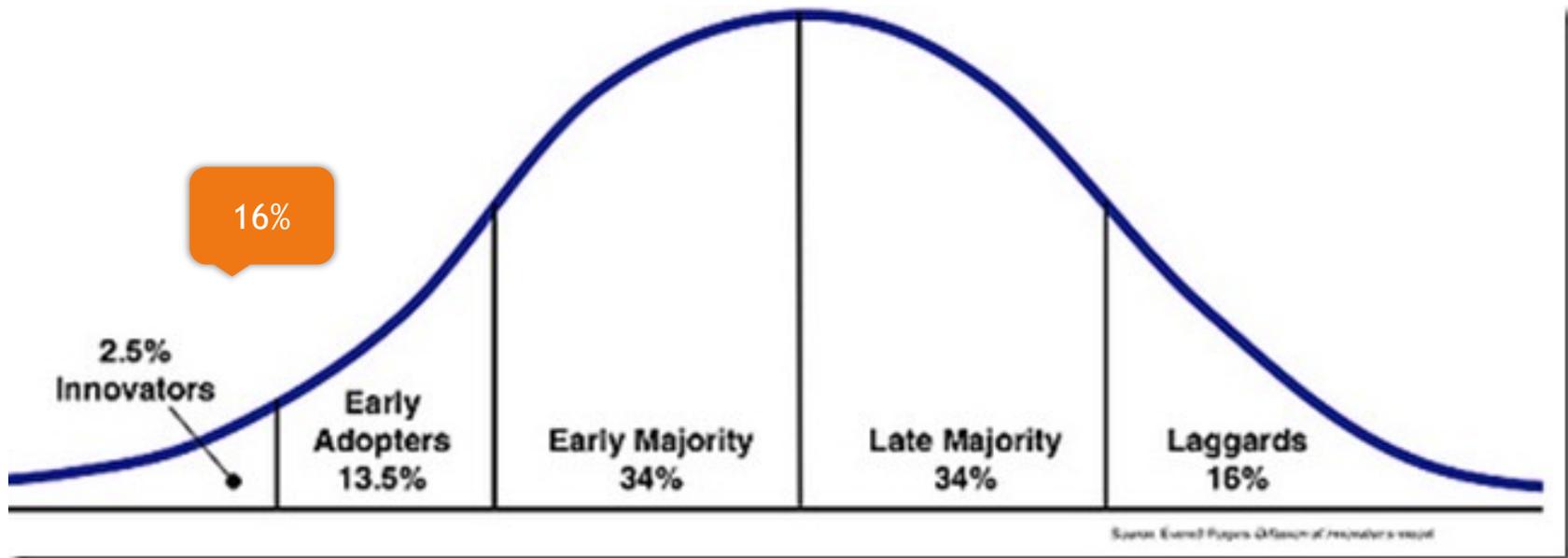
The implementation context also includes who, what and how the intervention would be **delivered if research funding has ceased**



Context









Potential influences on intervention implementation in practice

Innovation characteristics

i.e. innovation's legitimacy, quality/validity of evidence, adaptability, trialability, complexity, compatibility, relative advantage, design quality and cost (Durlak & Dupre 2008, Damschroder et al. 2009)

Process of implementation

i.e. innovation specific and general capacity building (Durlak & Dupre 2008, Wandersman et al. 2008), and planning, engaging, executing, reflecting and evaluating the implementation process (Damschroder et al. 2009)

User characteristics at individual level

i.e. motivation, personality (Rojatz, Merchant et al. 2016), knowledge and beliefs (Damschroder et al. 2009)



Potential influences on the implementation of infection prevention in practice

ORIGINAL RESEARCH



OPEN ACCESS

Implementing infection prevention practices across European hospitals: an in-depth qualitative assessment

Lauren Clack,^{1,2} Walter Zingg,² Sanjay Saint,^{3,4} Alejandra Casillas,⁵ Sylvie Touveneau,² Fabricio da Liberdade Jantarada,² Ursina Willi,¹ Tjallie van der Kooi,⁶ Laura J Damschroder,³ Jane H Forman,³ Molly Harrod,³ Sarah Krein,^{3,4} Didier Pittet,² Hugo Sax,^{1,2} PROHIBIT Consortium

Journal of Hospital Infection 137 (2023) 61–68

Available online at www.sciencedirect.com



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Journal of Hospital Infection

journal homepage: www.elsevier.com/locate/jhin

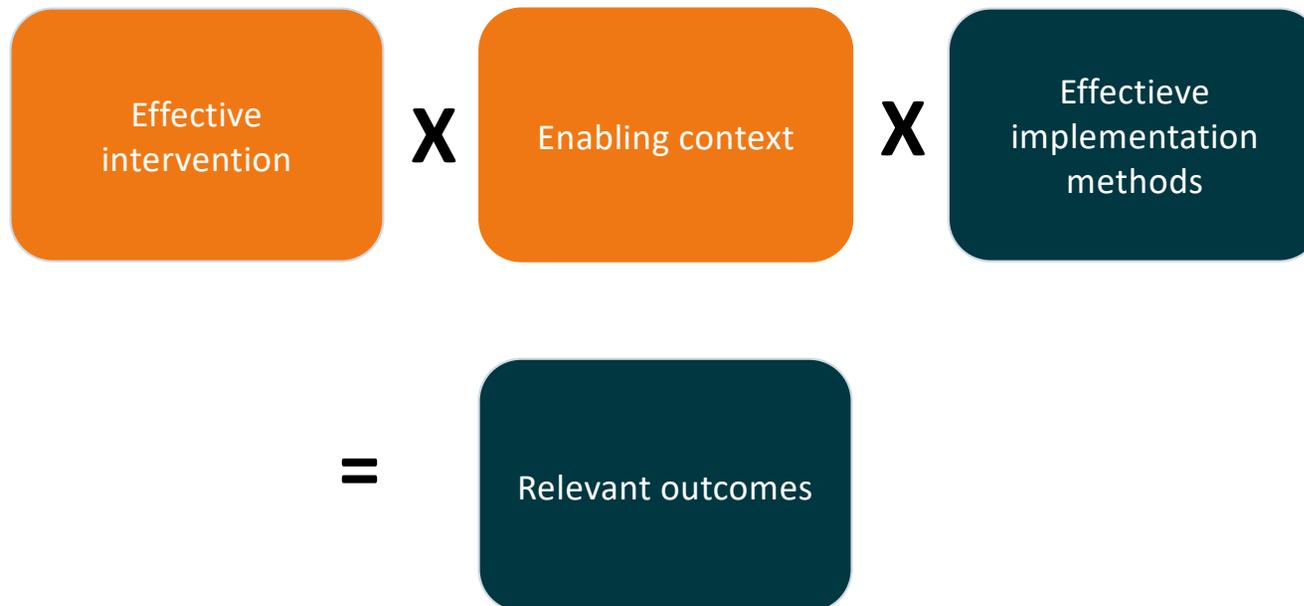


Validity of self-reported compliance and behavioural determinants of observed compliance: an application of the COM-B hand hygiene questionnaire in nine Dutch hospitals

M.D. van Dijk^{a,*}, D. Nieboer^b, M.C. Vos^{a,†}, E.F. van Beeck^{b,†}



Are we successful in the real world?





Implementation Strategies are...

“...methods or techniques used to enhance the adoption, implementation, and sustainability of a program or practice”

OR

The “how” of implementation

Use evaluative and iterative strategies

- Assess for readiness and identify barriers and facilitators
- Audit and provide feedback
- Purposefully reexamine the implementation

Adapt and tailor to context

- Tailor strategies
- Promote adaptability
- Use data experts

Train and educate stakeholders

- Conduct ongoing training
- Distribute educational materials
- Use train-the trainer techniques

Engage consumers

- Increase demand
- Use mass media
- Involve patients/consumers and family members

Change infrastructure

- Mandate change
- Change record systems
- Change physical structure and equipment

Implementation strategies

- Facilitation
- Provide local technical assistance
- Provide clinical supervision

Provide interactive assistance

- Identify and prepare champions
- Organize clinician implementation team meetings
- Identify early adopters

Develop stakeholder interrelationships

- Remind clinicians
- Revise professional roles
- Facilitate relay of clinical data to providers

Support clinicians

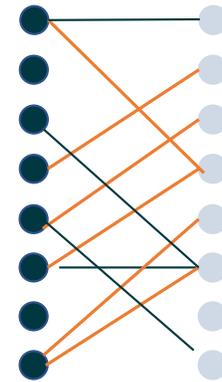
- Alter incentive/allowance structures
- Access new funding
- Fund and contract for the clinical innovation

Utilize financial strategies



Selection of strategies

- Ask your stakeholders
- Look into the literature
- Make sure your selected strategy is addressing your previously identified barriers
- One activity can contain more strategies (bundle), and, thus can address different barriers
- One barrier can be tackled using different strategies





Common pitfalls



train and pray



rely on people without competence or power



one size fits all



ISLAGIATT



everything but the kitchen sink



Strategies for infection prevention

Barrier	Why is this a barrier?	CFIR domain	CFIR construct
Infection control has no priority at the hospital level	There were other priorities at the hospital level (e.g., hospital merger) which resulted in the ceasing of link nurse programmes	Inner setting	Relative priority Tension for change
	A lack of time and power (mandate) was allotted to link nurses which resulted in the ceasing of link nurse programmes	Inner setting	Leadership engagement Relative priority
	A lack of support from ward management to acknowledge and validate the link nurse role to the rest of the team, e.g., when peers resist compliance with infection control policies. Link nurses felt their role was undermined when this support was not in place	Inner setting	Leadership engagement
	Operational difficulty at the individual level – high workload and low staffing leaving insufficient time for link nurse activities	Inner setting	Available resources



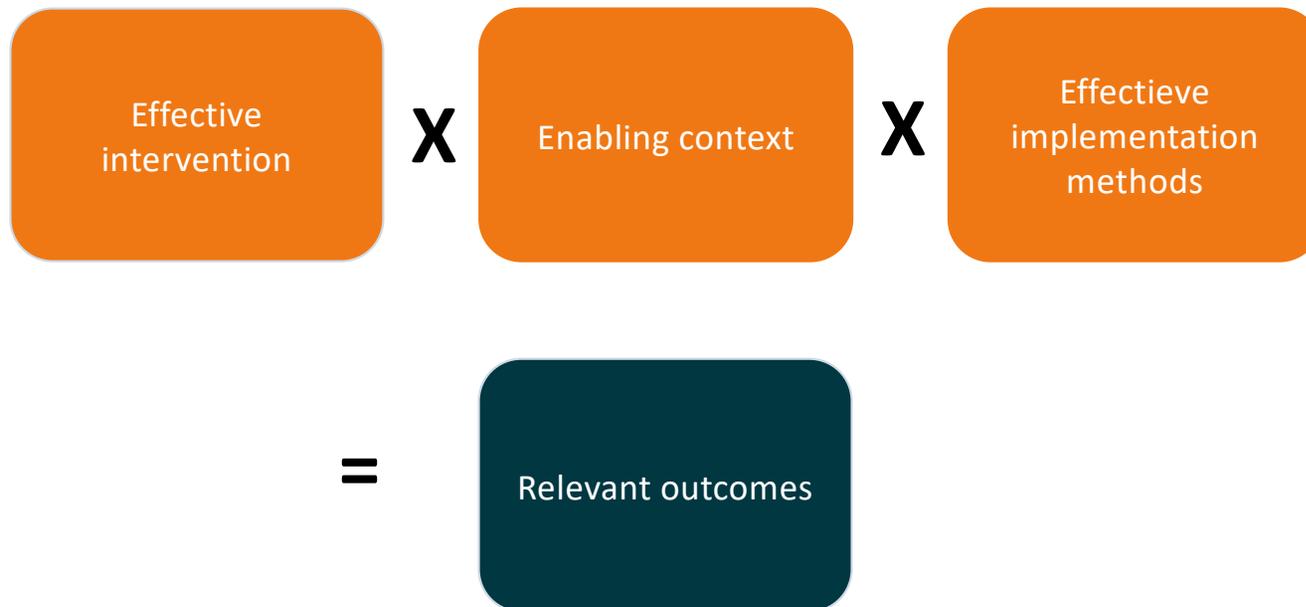
Top 10 implementation strategies based on the Consolidated Framework for Implementation Research (CFIR)-Expert Recommendations for Implementing Change (ERIC) tool

CFIR constructs ERIC strategies	Cumulative value of percentages	Design quality & packaging	Networks & communications	Culture Tension Compatibility for change	Relative priority	Learning climate	Leadership engagement		
Identify and prepare champions	670	15	17	52	48	21	18	31	41
Conduct local consensus discussions	439	26	22	22	43	41	46	27	27
Assess for readiness and identify barriers and facilitators	436	7	13	41	35	34	36	19	14
Inform local opinion leaders	387	19	22	22	39	3	14	19	18
Facilitation	363	7	26	30	0	24	14	54	18
Create a learning collaborative	313	7	35	30	9	14	4	15	5
Conduct local needs assessment	310	15	9	22	43	21	32	19	14
Develop a formal implementation blueprint	306	15	13	7	13	3	14	12	23
Build a coalition	301	0	39	19	9	21	18	19	18
Identify early adopters	300	11	17	11	13	10	7	12	9

Level 1 endorsements in dark grey, level 2 endorsements in light grey. Endorsements in % represent the proportion of panel participants that recommend the strategy for that specific barrier.



Are we successful in the real world?





Key message

Carefully plan your implementation

- Identify barriers & facilitators
- Plan your implementation in close collaboration with stakeholders
- Choose strategies that fit barriers & facilitators and stakeholder groups
- Tailor these strategies to your local context



Thank you

Happy to take questions

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[Implementation Science Knowledge
Hub - Overview \(amsterdamumc.org\)](https://www.amsterdamumc.org)



www.webbertraining.com/schedulep1.php

March 5, 2024

(FREE Teleclass ... Denver Russell Memorial Teleclass Lecture)

WATER AS A RISK OF HEALTHCARE-ASSOCIATED INFECTION

Speaker: **Prof. Jon Otter**, Imperial College London

March 7, 2024

(FREE Teleclass)

INFECTION PREVENTION AND CONTROL CERTIFICATION: OBTAINING YOUR ENTRY LEVEL IPC CERTIFICATION THROUGH CBIC

Speaker: **Jessica Dangles**, Certification Board of Infection Prevention and Control

March 14, 2024

COVID-19 PREPAREDNESS – WHAT WENT WRONG? WHAT ARE THE NEXT STEPS? THE POINT OF VIEW OF A BIOMEDICAL ENGINEER

Speaker: **Dr. Davide Piaggio**, University of Warwick, School of Engineering, UK

March 21, 2024

EMERGING FUNGAL INFECTIONS: ENVIRONMENTAL CHANGES BRING ABOUT NEW CHALLENGES

Speaker: **Dr. Tom Chiller**, Centers for Disease Control, Atlanta

April 2, 2024

COVID-19's CHALLENGES TO INFECTION CONTROL DOGMA

Speaker: **Prof. Michael Klompas**, Harvard University

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