



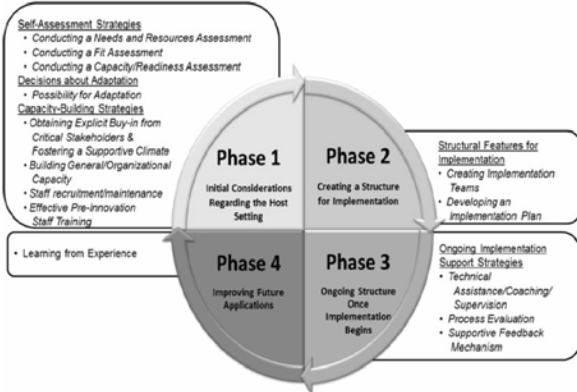
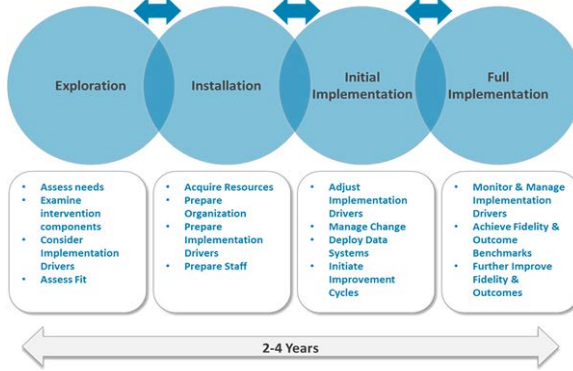
Using Frameworks in Implementation Science Research

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University College Cork



Implementation Stages



3: Potential barriers/incentives in relation to a proposed 10-step model for inducing change in professional behaviour⁶

- | | |
|--------------------|--|
| Orientation | <ol style="list-style-type: none"> Promote awareness of innovation <ul style="list-style-type: none"> Level of interest in reading and continuous education Stimulate interest and involvement <ul style="list-style-type: none"> Degree of contact with colleagues Experience of need for innovation |
| Insight | <ol style="list-style-type: none"> Create understanding <ul style="list-style-type: none"> Available knowledge and skills Ability to remember information Develop insight into own routines <ul style="list-style-type: none"> Attitude (open-minded or defensive) Willingness to acknowledge gaps in performance |
| Acceptance | <ol style="list-style-type: none"> Develop positive attitude to change <ul style="list-style-type: none"> Ability to perceive advantages of change Opinion of scientific merit of change Opinion of credibility of innovation source Degree of involvement in development process Create positive intentions/decision to change <ul style="list-style-type: none"> Perception of self-efficacy; degree of confidence in own skills Perception of potential problem Practice |
| Change | <ol style="list-style-type: none"> Try out change in practice <ul style="list-style-type: none"> Perception of practical barriers Opportunity to try change out Confirm value of change <ul style="list-style-type: none"> Whether first experiences positive Degree of cooperation expected from patients and colleagues Side effects (eg, higher or lower costs) |
| Maintenance | <ol style="list-style-type: none"> Integrate new practice into routine <ul style="list-style-type: none"> Willingness and ability to relearn Embed new practice in organisational culture <ul style="list-style-type: none"> Whether procedures in place Availability of supportive resources Degree of support from management |

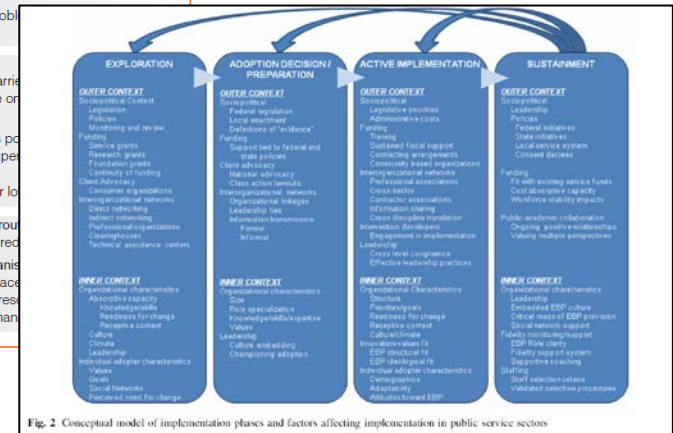


Fig. 2 Conceptual model of implementation phases and factors affecting implementation in public service sectors

Taxonomy of Theories, Models & Frameworks

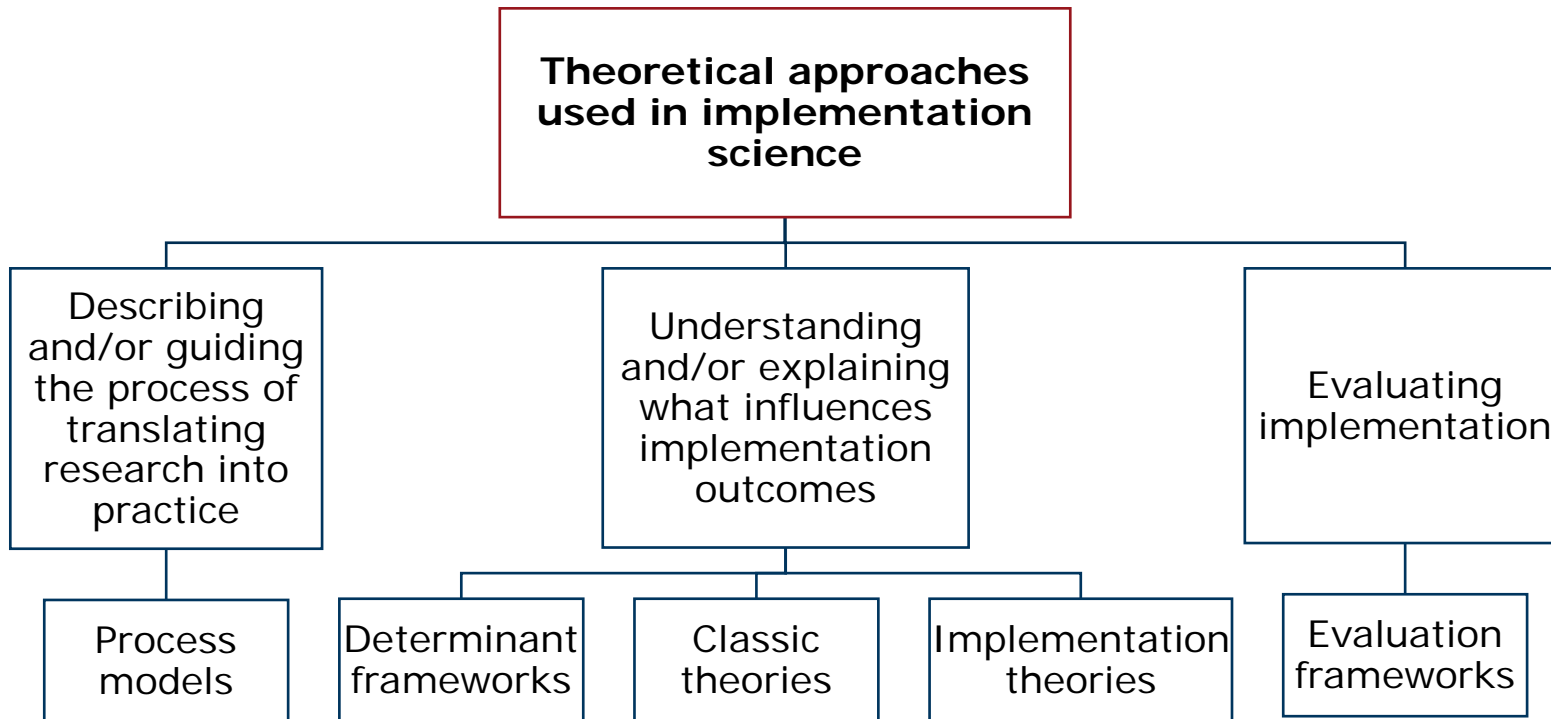
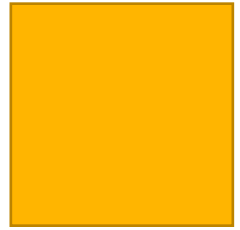


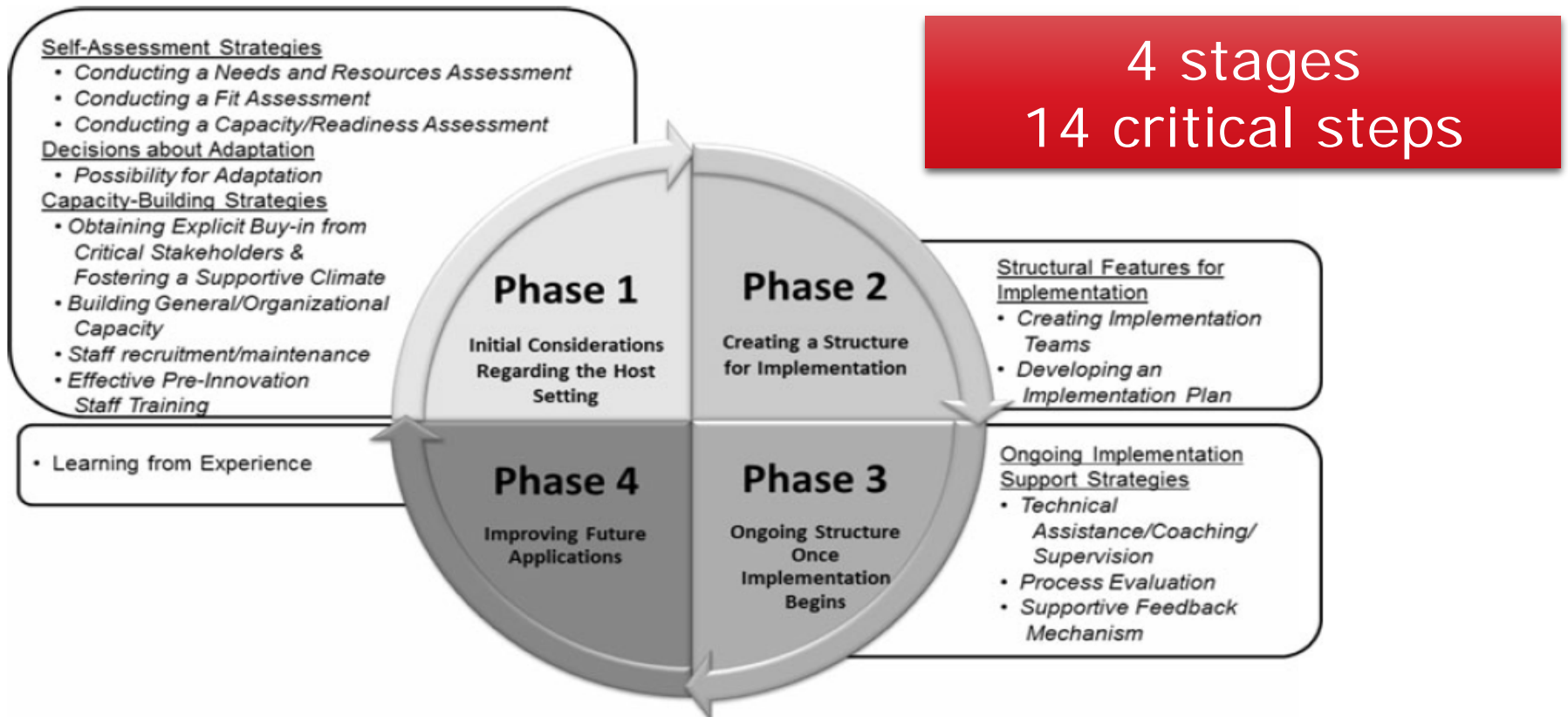
Figure: Three aims of the use of theoretical approaches in implementation science and five categories of theories, models, and frameworks

Theories, Models & Frameworks



Category	Description	Example
Process models	<ul style="list-style-type: none">Specify stepsAim: Describe &/or guide implementation	<ul style="list-style-type: none">Model for evidence based practice in healthcare by Grol & Wensing*Quality Implementation Framework

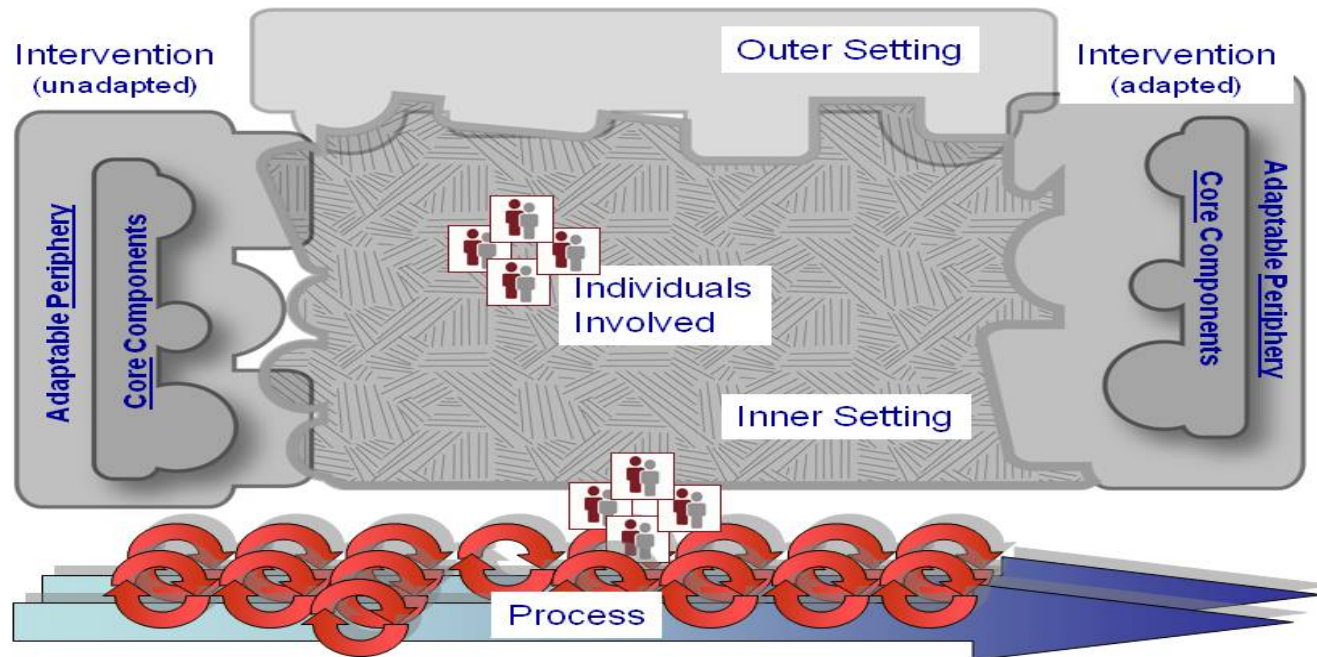
Quality Implementation Framework



Meyers DC, Durlak JA, Wandersman A. The quality implementation framework: A synthesis of critical steps in the implementation process. American journal of community psychology. 2012;50(3-4):462-80.

Category	Description	Examples
Process models	<ul style="list-style-type: none">• Specify steps• Aim: Describe &/or guide	<ul style="list-style-type: none">• Model by Grol & Wensing• Quality Implementation Framework

Consolidated Framework for Implementation Research (CFIR)



Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci.* 2009;4(1):50.

Category	Description	Examples
Process models	<ul style="list-style-type: none"> Specify steps Aim: Describe &/or guide 	<ul style="list-style-type: none"> Quality Implementation Framework
Determinant Frameworks	<ul style="list-style-type: none"> Specify types of determinants that influence implementation Barriers & enablers Aim: Understand and/or explain influences on implementation outcomes 	<ul style="list-style-type: none"> CFIR Active Implementation Framework Theoretical Domains Framework

Theory of Diffusion

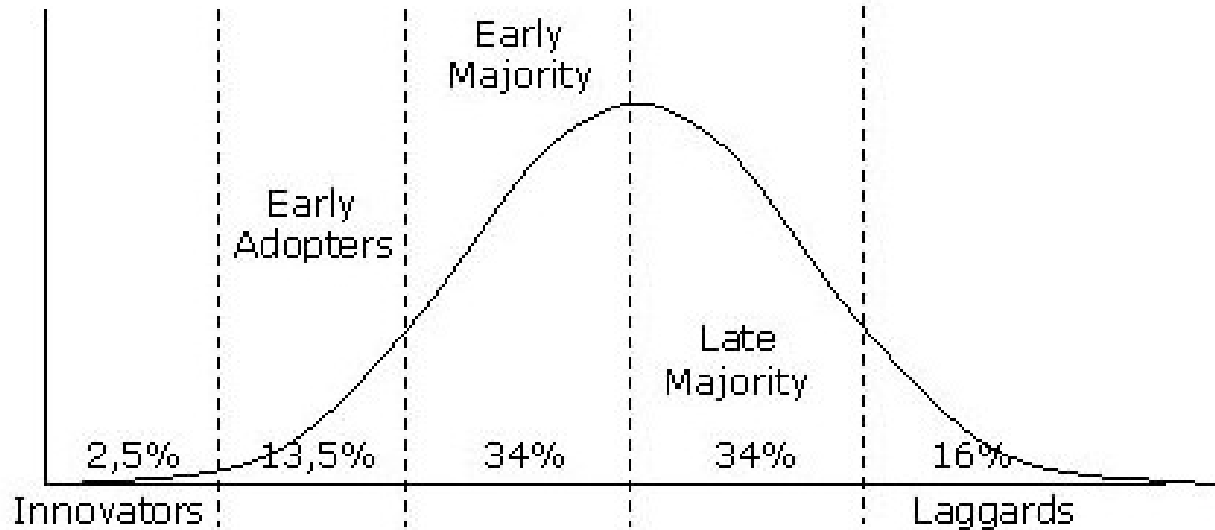


Figure. Roger's Adoption/Innovation Curve

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Classic theories	<ul style="list-style-type: none"> Originate from other disciplines Aim: Provide understanding and/or explanation 	<ul style="list-style-type: none"> Theory of diffusion Social network theory Psychological theory

Organisational Readiness

- Organisational-level construct
- Members' shared resolve to implement (change commitment) and shared belief in the change (change efficacy).
- Influenced by perceived value of change, change availability and situational factors.

Implementation Science

Debate

A theory of organizational readiness for change

Bryan J Weiner

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Shea et al. Implementation Science 2014, 9:7
<http://www.implementationscience.com/content/9/1/7>



RESEARCH

Open Access

Organizational readiness for implementing change: a psychometric assessment of a new measure

Christopher M Shea^{1,2*}, Sara R Jacobs¹, Denise A Esserman^{4,5}, Kerry Bruce^{1,6} and Bryan J Weiner^{1,2,3}

Abstract

Background: Organizational readiness for change in healthcare settings is an important factor in successful implementation of new policies, programs, and practices. However, research on the topic is hindered by the absence of a brief, reliable, and valid measure. Until such a measure is developed, we cannot advance scientific knowledge about readiness or provide evidence-based guidance to organizational leaders about how to increase readiness. This article presents results of a psychometric assessment of a new measure called Organizational Readiness for Implementing Change (ORIC), which we developed based on Weiner's theory of organizational readiness for change.

Methods: We conducted four studies to assess the psychometric properties of ORIC. In study one, we assessed the content adequacy of the new measure using quantitative methods. In study two, we examined the measure's factor structure and reliability in a laboratory simulation. In study three, we assessed the reliability and validity of an organization-level measure of readiness based on aggregated individual-level data from study two. In study four, we conducted a small field study utilizing the same analytic methods as in study three.

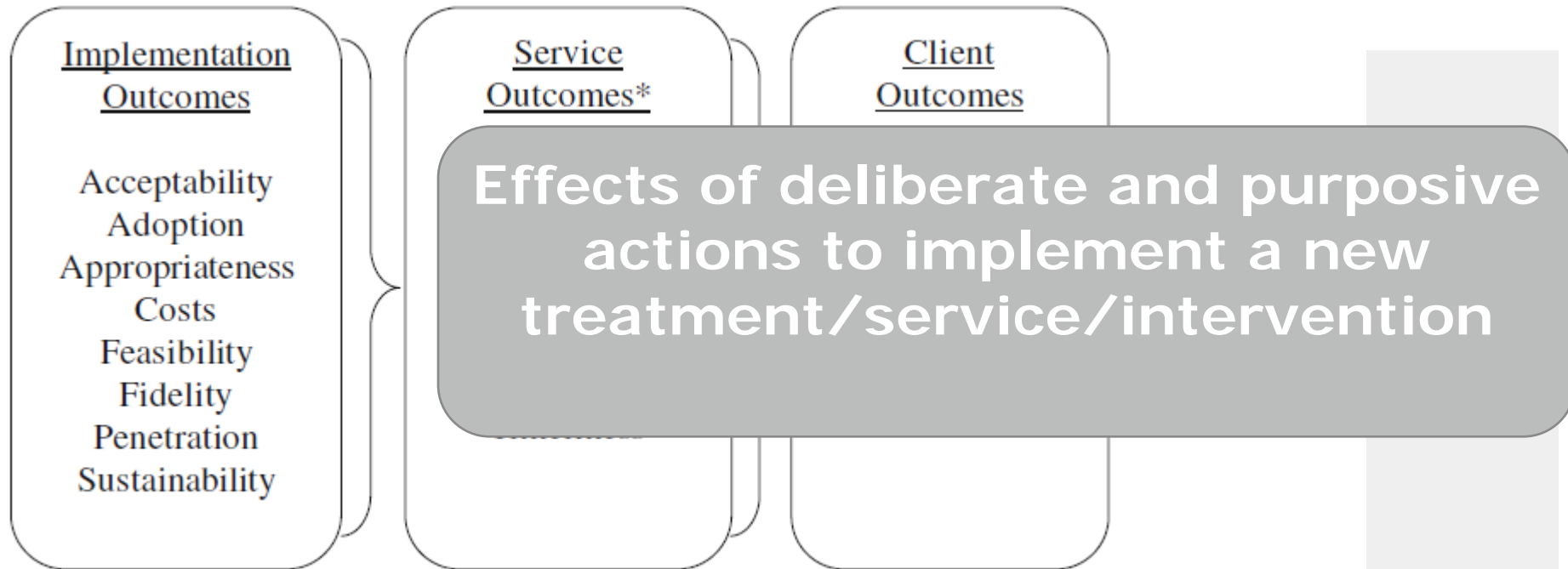
Results: Content adequacy assessment indicated that the items developed to measure change commitment and change efficacy reflected the theoretical content of these two facets of organizational readiness and distinguished the facets from hypothesized determinants of readiness. Exploratory and confirmatory factor analysis in the lab and field studies revealed two correlated factors, as expected, with good model fit and high item loadings. Reliability analysis in the lab and field studies showed high inter-item consistency for the resulting individual-level scales for change commitment and change efficacy. Inter-rater reliability and inter-rater agreement statistics supported the aggregation of individual level readiness perceptions to the organizational level of analysis.

Conclusions: This article provides evidence in support of the ORIC measure. We believe this measure will enable testing of theories about determinants and consequences of organizational readiness and, ultimately, assist healthcare leaders to reduce the number of health organization change efforts that do not achieve desired benefits. Although ORIC shows promise, further assessment is needed to test for convergent, discriminant, and predictive validity.

Keywords: Readiness for change, Measure development, Psychometrics

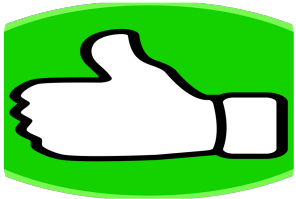
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Classic theories	<ul style="list-style-type: none"> Originate from other disciplines Provide understanding and/or explanation 	<ul style="list-style-type: none"> Theory of diffusion Social network theory Psychological theory
Implementation theories	<ul style="list-style-type: none"> Developed or expanding on existing theories Understand &/or explain specific aspects of implementation 	<ul style="list-style-type: none"> Implementation Climate Organisational Readiness Normalisation Process Theory

Implementation Outcomes Framework



*IOM Standards of Care

Proctor E, Silmere H, Raghavan R, Hovmand P, Aarons G, Bunger A, et al. Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. *Administration and policy in mental health*. 2011;38(2):65-76.



Acceptability
: intervention
is agreeable or
satisfactory



Adoption:
intention,
initial decision
or use of
intervention



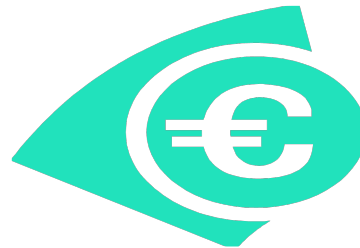
Appropriateness
perceived fit,
relevance,
compatibility



Feasibility:
extent to which
intervention can
be used in a
setting.



Penetration
Integration of
practice within
setting



Cost: of
implementa
tion efforts

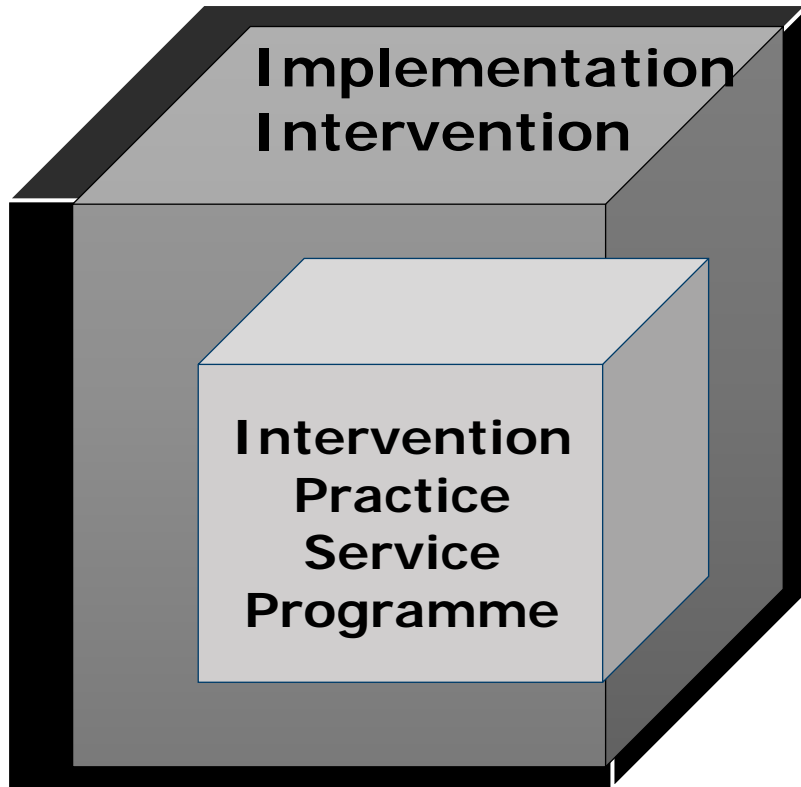


Sustainability
Extent to
which
intervention is
maintained



Fidelity:
degree to which
intervention
was
implemented as
intended.

Black Box of Implementation



Implementation Intervention

- Any activities or strategies designed to support an intervention and help make it happen.
 - Deliberate & purposeful
 - Should be specified

Which framework to choose

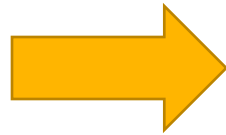


- Synthesis of existing frameworks or drawing on classic theories
- Some specify stages of implementation
- Others focus on determinants of implementation outcomes
- Comprehensive but not all-encompassing

Using Frameworks in Research

An Evaluation of the Implementation of a Falls Prevention & Treatment Service

Cork Integrated Falls and Fracture Prevention Pathway

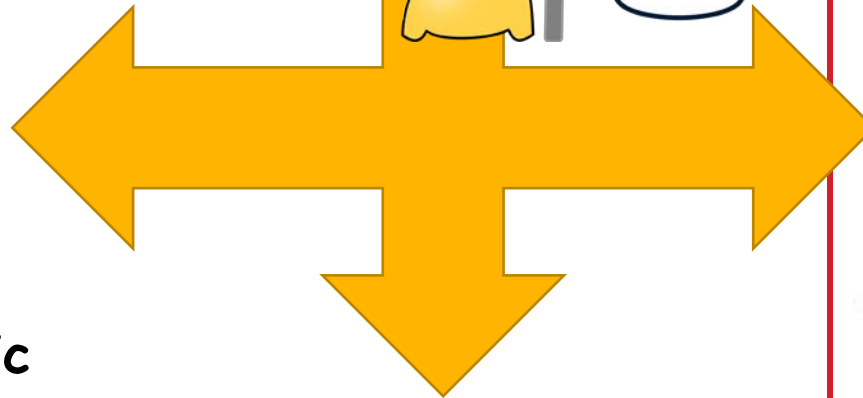


Specialist Clinic

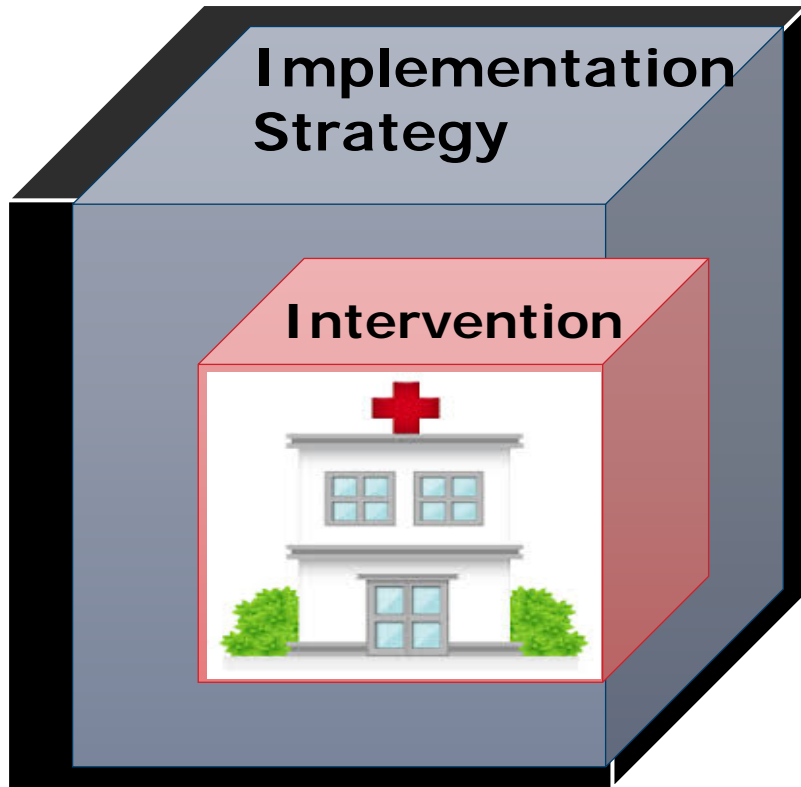
**Community Rehabilitation
& Support Team**



**Falls Risk
Assessment
Clinic**



Complex Falls Prevention Intervention



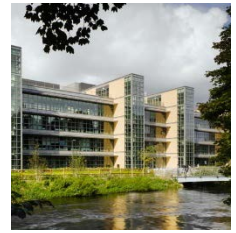
Implementation Strategy

- Training & education
- Advertising & communications strategy
- Pathway coordinator & administrative support

Falls Risk Assessment Clinic

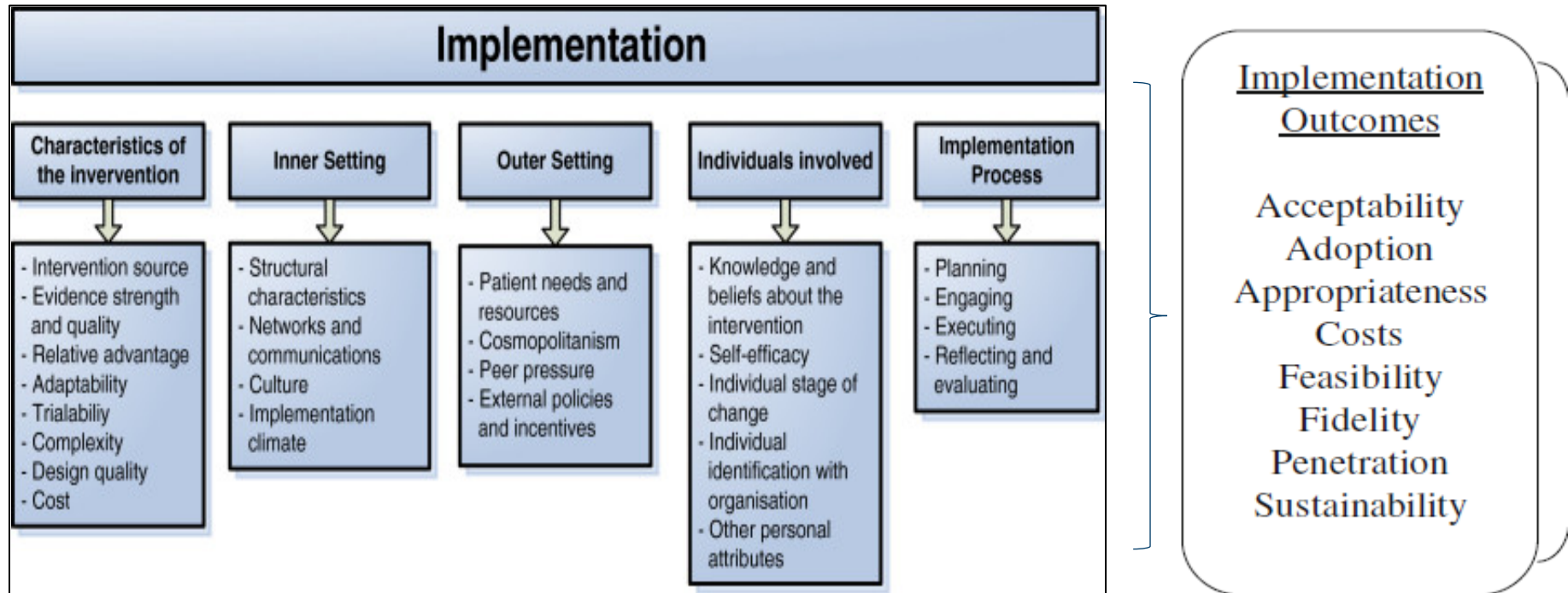
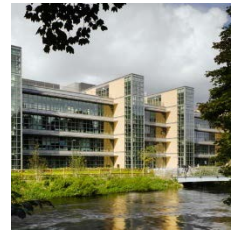
- Multifactorial risk assessment, intervention, onward referral
- Standardised risk assessment tool
- Delivered by multidisciplinary team

Aims



1. To identify the barriers and facilitators to implementation
2. and their influence on implementation outcomes.
3. What is the relationship between these factors and specific outcomes?

Determinant Framework

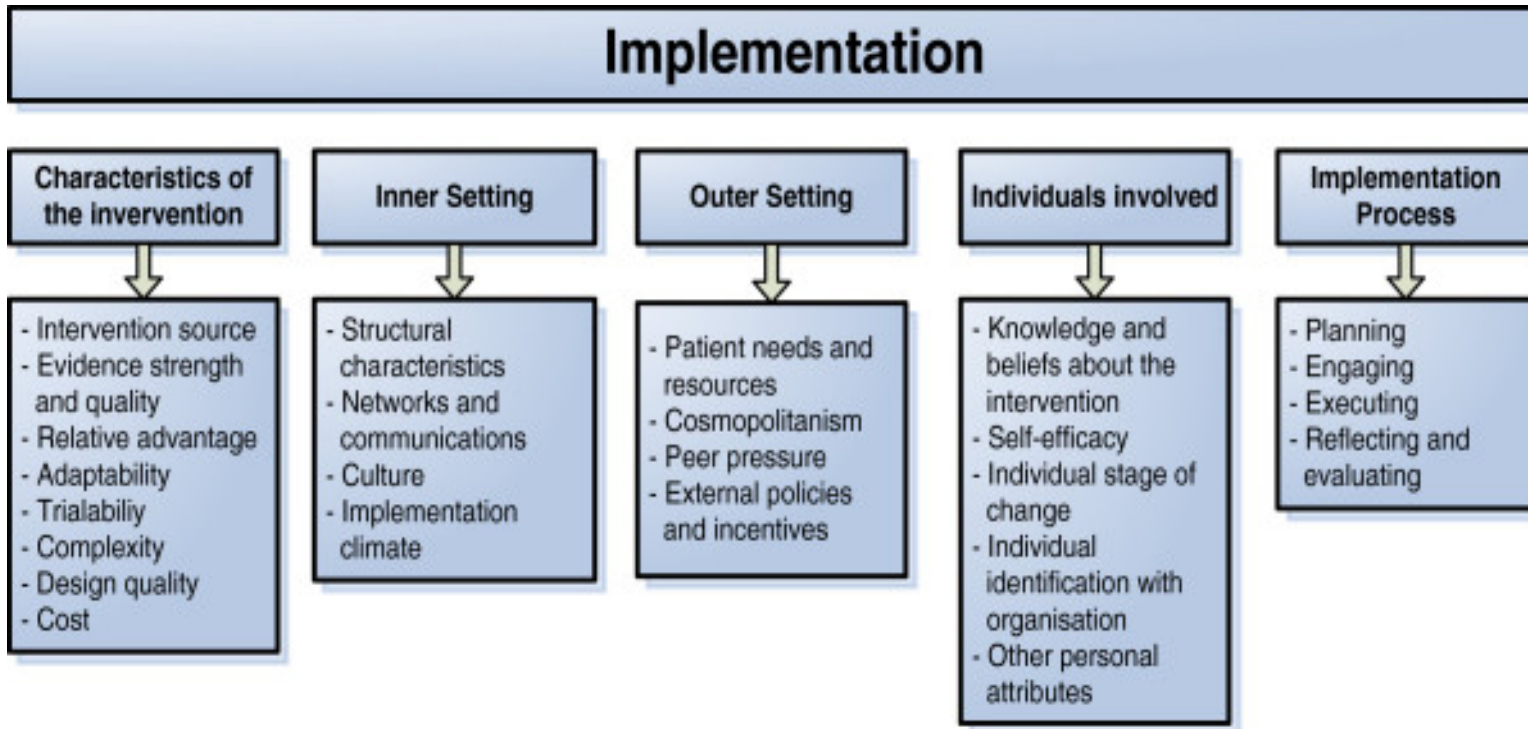


Linking CFIR & Implementation Outcomes Framework

Study design

- Mixed methods with concurrent qualitative & quantitative data collection
- Qualitative: Semi-structured interviews
 - Clinic staff (18) (0 & 4-6 months)
 - Referrers (n=10) (4-6 months)
 - Service users (n=12)
- Quantitative
 - User experience survey
 - Administrative data: demographics, source of referral, attendance rates, rates of onward referral, implementation inputs

Guide for Data Collection & Analysis





Consolidated Framework for Implementation Research

Home

CFIR Constructs

Design an Evaluation

- Overview
- Qualitative Data
- Quantitative Data
- Implementation Outcomes

Design an Implementation Strategy

Tools and Templates

- Interview Guide

Published Studies

Additional Resources

Participate

Contact Us

Tools and Templates

Data Collection Tools:

[Interview Guide Tool](#): An interactive online tool to create an interview guide. For more information on using this tool, please see the Data Collection section on the [Design an Evaluation: Qualitative Data](#) page.

[Observation Template](#): A Microsoft Excel template used to document observations organized by CFIR construct during a site visit. For more information on using this template, please see the Data Collection section on the [Design an Evaluation: Qualitative Data](#) page.

[Meeting Minutes Template](#): A Microsoft Excel template used to gather notes organized by CFIR construct in meetings. For more information on using this template, please see the Data Collection section on the [Design an Evaluation: Qualitative Data](#) page.

Data Analysis Tools:

[Codebook Template](#): A Microsoft Word template pre-populated with CFIR definitions and guidance for coding qualitative data. For more information on using this codebook, please see the Data Analysis section on the [Design an Evaluation: Qualitative Data](#) page.

[NVivo Project Template](#): An NVivo project populated with CFIR codes and useful queries. For more information on using this NVivo project, please see the Data Analysis section on the [Design an Evaluation: Qualitative Data](#) page. Note: This file can only be opened and used with NVivo10 Software. If you use another type of qualitative data analysis software (e.g., ATLAS.ti, MAXQDA) and would like to share a coding template, please [contact us](#) and we will provide it on the website.

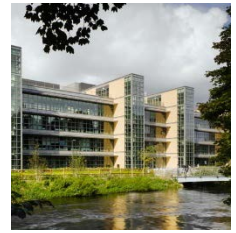
[Memo Template](#): A Microsoft Word template to aggregate data at the organizational level. For more information on using this template, please see the Data Analysis section on the [Design an Evaluation: Qualitative Data](#) page.

[Rating Rules](#): A PDF guide for applying ratings consistently across sites and/or studies. For more information on using these rating rules, please see the Data Analysis section on the [Design an Evaluation: Qualitative Data](#) page.

[Matrix Template](#): A Microsoft Excel template to aggregate data by all organizations and data collection time points. For more information on using this template, please see the Data Analysis section on the [Design an Evaluation: Qualitative Data](#) page.

Outcome	Level of Analysis	Measure
Adoption/Uptake	Clinic staff Service users Referrers	Administrative data
Acceptability	Clinic staff	Interviews
Appropriateness	Clinic staff Service users Referrers	Interviews
Feasibility	Clinic staff Service users Referrers	Interviews
Fidelity	Clinic staff	Admin data, audit, qualitative descriptions Service user survey
Reach	Referrers	Number of referrers of those eligible in an area
Sustainability	Clinic staff Referrers	Interviews
Wider impact	Provider organisation (HSE)	Onward referrals

Using Frameworks to support Implementers



- Providing formative feedback at different stages
- Outcomes framework useful to guide evaluation plan & negotiation around data collection
- Setting realistic expectations around evaluation



The Consolidated Framework for Implementation Research (CFIR): a useful theoretical framework for guiding and evaluating a guideline implementation process in a hospital-based nursing practice

Helga E. Breimaier^{1*}, Birgit Heckemann², Ruud J. G. Halfens² and Christa Lohrmann¹

Abstract

Background: Implementing clinical practice guidelines (CPGs) in a hospital-based nursing practice involves both independent and interdependent components. All *Implementation Research* (CFIR) has never been evaluated in a practical theoretical framework to guide an implementation process. The comprehensiveness, applicability and usefulness of the CFIR in the nursing practice to improve patient care in an Austrian university

Methods: The evaluation of the CFIR was based on (1) team-meeting diary, containing a record of a before-and-after, mixed-methods study research (PAR) approach for guideline implementation, and (3) data collected from graduate and assistant nurses in two Austrian universities was used to organise data per and across time point(s) and assesses resulting in implementation and service outcomes.

Results: Overall, the CFIR could be demonstrated to be a comprehensive guideline into a hospital-based nursing practice. However, the CFIR did not account for some crucial factors during the planning phase of an implementation process, such as consideration of pre-established measures related to the complexity of a prospective CPG-implementation project. The CFIR constructs *reflecting & evaluating* were recommended. The framework and its supplements could easily be used for the complexity of a prospective CPG-implementation project. The CFIR provided a structure that allowed project results to be organised and findings.

Conclusions: The CFIR was a valuable and helpful framework for (1) describing the state of the implementation process and influential factors, (2) the complexity throughout the implementation process, and (3) explaining the main findings.

Keywords: Consolidated Framework of Implementation Research (CFIR), Evaluation, Guideline implementation, Nursing

- CFIR did not account for some crucial factors during the planning phase of an implementation process
- Could easily be used by researchers, and scope was appropriate for complexity of project.
- Facilitated qualitative data analysis and provided a structure that allowed results to be organised and viewed in a broader context to explain the main findings.



Summary

- Framework selection depends on aim of the research & the stage & level at which you are studying implementation.
- Guide for hypothesis generation, data collection, analysis & interpretation.

“Well I can see that it works in practice but does it work in theory?” – Garrett Fitzgerald