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Theoretically informed implementation research in health sciences.

TONNA, A., AKSEER, R. and HASHAD, N.

2023

كليات التقنية العليا
Higher Colleges of Technology

The HCT International Conference on Advancements in Health Sciences

ICAHS 2023

March 8-9, 2023

HCT-Dubai Men's Campus

Innovations in Health Science Education, and Healthcare Outcomes

The HCT International Conference on
Advancements in Health Sciences
ICAHS 2023
March 8-9, 2023 HCT-Dubai Men's Campus

Theoretically Informed Implementation Research in Health Sciences

Workshop primary coordinator

Nortan Hashad

Lecturer, Pharmacy Program, Health Sciences division, Higher Colleges of Technology

Workshop facilitated by:

- **Dr Antonella Tonna**
  - Senior Lecturer in Clinical Pharmacy, School of Pharmacy and Life Sciences, Robert Gordon University, Aberdeen, Scotland, UK.
- **Dr Riaz Akseer**
  - Assistant professor, Higher Colleges of Technology
- **Nortan Hashad**
  - Lecturer, Pharmacy, Higher Colleges of Technology, Dubai, UAE.

By the end of this workshop, attendees will be able to:

1. Understand the meaning of and need for implementation research.
2. Recognise the classification of implementation theories, models and frameworks.
3. Apply different implementation theories, models and frameworks to varied research studies.

Introduction

Presenter
Dr. Antonella Tonna

Implementation - historical insights

"I hate to tell you, but you have very little. Ideas are easy. Implementation is hard. Keep thinking."

Guy Kawasaki

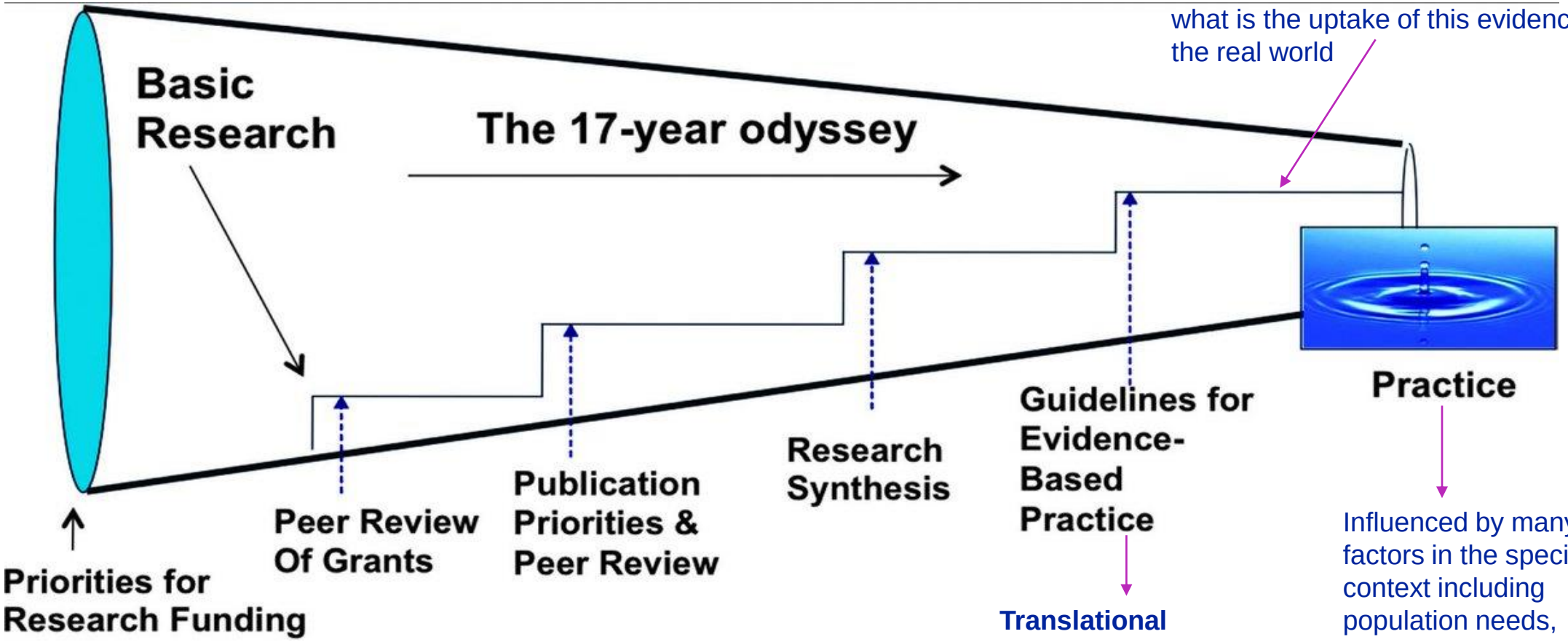
Published in a commentary Forbes.com, 2004

"Organizations are successful because of good implementation, not good business plans."

- The concept of implementation was developed in the 1970s.
- It was taken to new levels when it was linked to evidence based practice (EBP).

Bridging the Gap Between Research and Practice: Implementation Science

Implementation research: what is known to be efficacious i.e. EBM vs what is the uptake of this evidence in the real world



Translational research: applying knowledge from clinical trials to tools addressing clinical needs

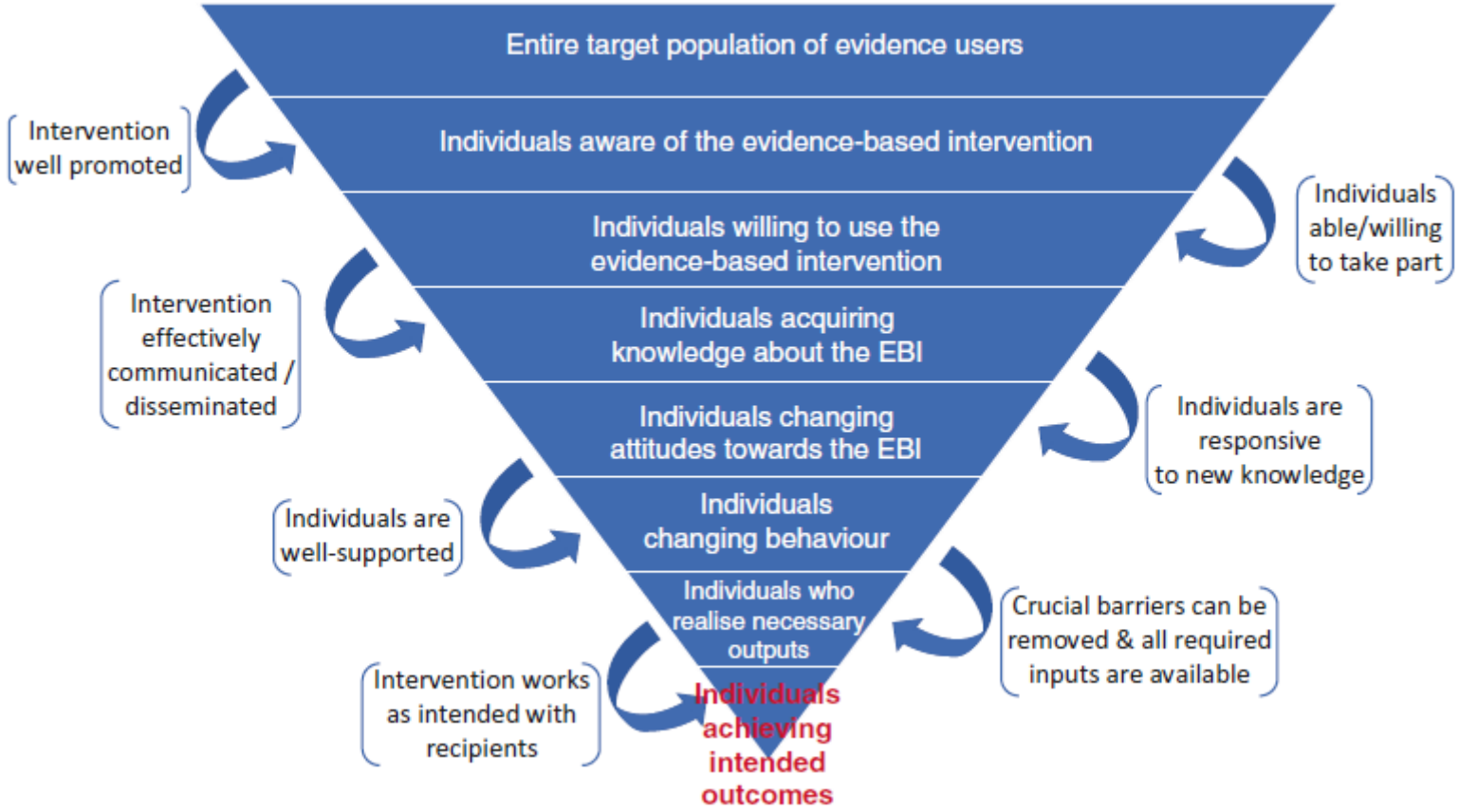
Influenced by many factors in the specific context including population needs, funding, professional discretion, fit of evidence into the practice

Closing the research – practice gap

- Scholars were increasingly interested in closing research-practice gap through the identification and examination of activities and processes that effectively support the dissemination, uptake, and implementation of evidence in real-world practice and policy settings.
- Initially elements of interest were:
  - Factors (setting or individuals related) influencing implementation
  - Activities supporting implementation
- Constructs were grouped into implementation frameworks, aiming to identify overarching determinants of implementation success or failure.

Funnel of attrition

- Multiple steps are required to achieve outcomes in real-world practice using evidence.
- This can potentially lead to a loss of impact – because of presence of a broad range of barriers hampering each stage.
- Eventually leading to a small number of individuals benefiting from the effective intervention.



Reference: ALBERS, B., SHLONSKY, A. and MILDON, R., 2020. *Implementation science 3.0.* Cham, Switzerland: Springer


Villages in Africa assigned to receive a nutrition package; they traditionally refuse any help
Some individuals within the village are aware of this help
Less individuals are willing to be weighed to qualify for this intervention
A few mothers attend nutritional counselling
These mothers change their behaviours allowing children to access food
Intervention works as intended BUT a change in malnutrition status only in a handful of children

Implementation research, definition

"The scientific study of methods to promote the systematic uptake of research findings and other Evidence-Based Practices (EBP) into routine practice, and hence, to improve the quality and effectiveness of health services and care"

Reference: ALBERS, B., SHLONSKY, A. and MILDON, R., 2020. *Implementation science 3.0.* Cham, Switzerland: Springer

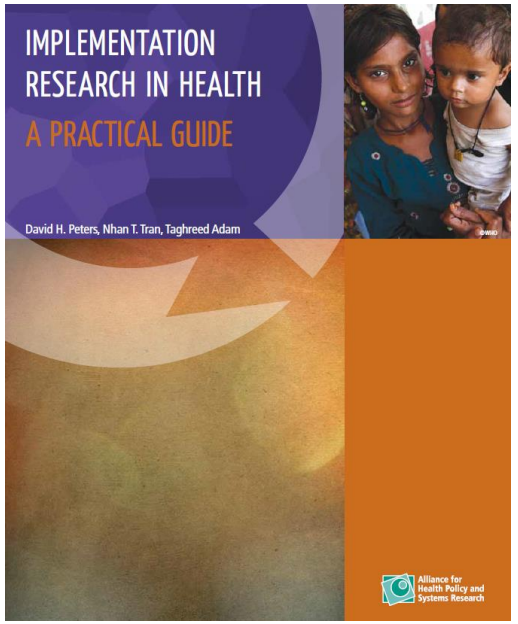
In simple language

……. Implementation research takes what we know and turns it into what we do.

Why do we need implementation research?

According to World Health Organization practical guide for implementation research:

1. Despite abundant evidence of the efficacy of affordable, life-saving interventions, there is little understanding of how to deliver those interventions effectively in diverse settings and within the wide range of existing health systems.
2. Implementation issues often arise as a result of contextual factors that policy-makers and health system managers may not even have considered.
3. Implementation research is crucial to improving our understanding of the challenges we face in confronting the real world by broadening and deepening our understanding of these real-world factors and how they impact implementation.
4. Implementation research is of immense value in shining a light on the often bumpy interface between what can be achieved in theory and what happens in practice.



Reference: PETERS, D. et al., 2013. Implementation research in health: a practical guide. Geneva: World Health Organization.

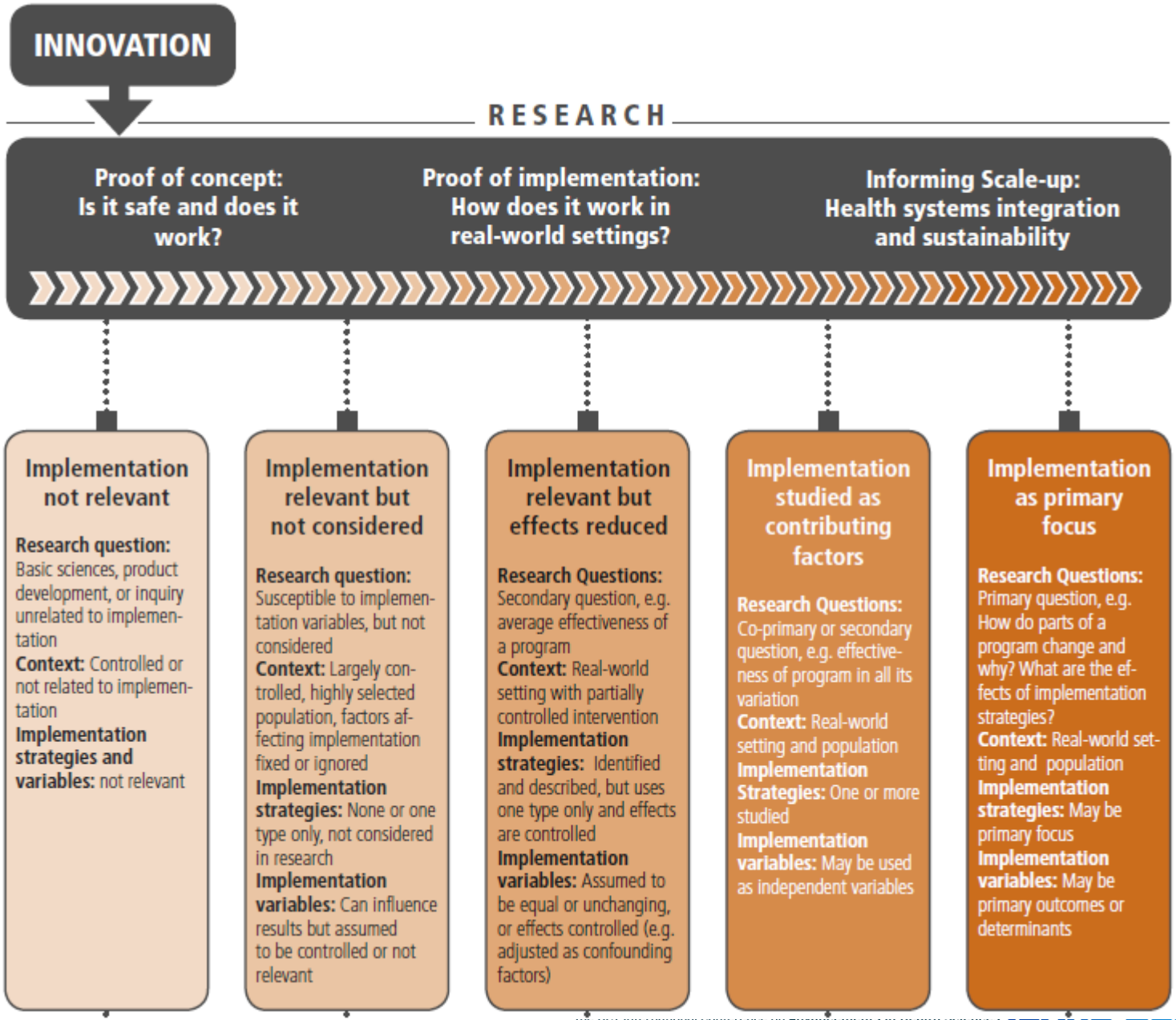
Central message to implementation research

- Contributions to implementation research can be made by people both inside and outside academia.
- It is the person in the field – the doctor in the remote rural clinic or the midwife working in the local community – who, facing some particular problem, asks the questions that are the starting point for new thinking.
- Implementation research makes sure that those questions are heard, and that the research undertaken is directed at finding answers to the questions asked rather than at the topics researchers themselves may find interesting.

Reference: PETERS, D. et al., 2013. Implementation research in health: a practical guide. Geneva: World Health Organization.

The continuum of implementation research

Once the innovation reaches health practice, the implementation process starts and as we move down the continuum, research questions become heavily implementation related.



Reference: PETERS, D. et al., 2013. Implementation research in health: a practical guide. Geneva: World Health Organization.

University of Washington implementation science research hub

Source: https://impsciuw.org/

Planning an implementation research study

Source: https://impsciuw.org/

1. Frame/Identify your research question
2. Create an implementation logic model
3. **Pick an implementation science theory, model, or framework**
4. Identify implementation strategies
5. Select research method
6. Select study design
7. Choose measures and evaluation approach
8. Secure Funding
9. Conduct Study
10. Disseminate Results

Why should we use implementation frameworks to support implementation research?

They are useful at multiple levels:

1. Guide the design and conduct of studies
2. Inform the theoretical and empirical thinking of research teams
3. Aid interpretation of findings

Reference: MOULLIN, J.C. et al., 2020. Ten recommendations for using implementation frameworks in research and practice. Implementation science communications, 1, pp. 42

Why should we use implementation frameworks to support implementation research?

Lack of employing implementation Frameworks in implementation research can lead to:

- Wasted resources, erroneous conclusions, specification errors in implementation methods and data analyses, and attenuated reviews of funding applications
- Lead stakeholders to misjudge their implementation context or develop inappropriate implementation strategies.
- Poor use of frameworks can slow the translation of research evidence into practice, and thereby limit public health impact.

Reference: MOULLIN, J.C. et al., 2020. Ten recommendations for using implementation frameworks in research and practice. Implementation science communications, 1, pp. 42

Why should we use implementation frameworks to support implementation research?

- Implementation frameworks can provide a structure for the following:

1. Describing and/or guiding the process of translating effective interventions and research evidence into practice (**process frameworks**)
2. Analyzing what influences implementation outcomes (**determinant frameworks**)
3. Evaluating implementation efforts (**outcome frameworks**)

Reference; Nilsen, P. Making sense of implementation theories, models and frameworks. *Implementation Sci* **10**, 53 (2015). https://doi.org/10.1186/s13012-015-0242-0

Selecting a suitable implementation framework

The process for selecting implementation framework(s) for a particular implementation effort should consider the following:

1. **The purpose of the framework** (describing/ guiding the implementation process, analyzing what influences outcomes [barriers and facilitators], or evaluating the implementation effort)
2. **The level(s)** included within the framework (e.g., provider, organization, system)
3. The **degree of inclusion and depth of analysis or operationalization** of implementation concepts (process, determinants [barriers and facilitators], strategies, evaluation)
4. The **framework's orientation**, which includes the setting and type of intervention (i.e., EBP generally, a specific intervention, a guideline, a public health program being implemented) for which the framework was originally designed

Reference: MOULLIN, J.C. et al., 2020. Ten recommendations for using implementation frameworks in research and practice. *Implementation science communications,* 1, pp. 42

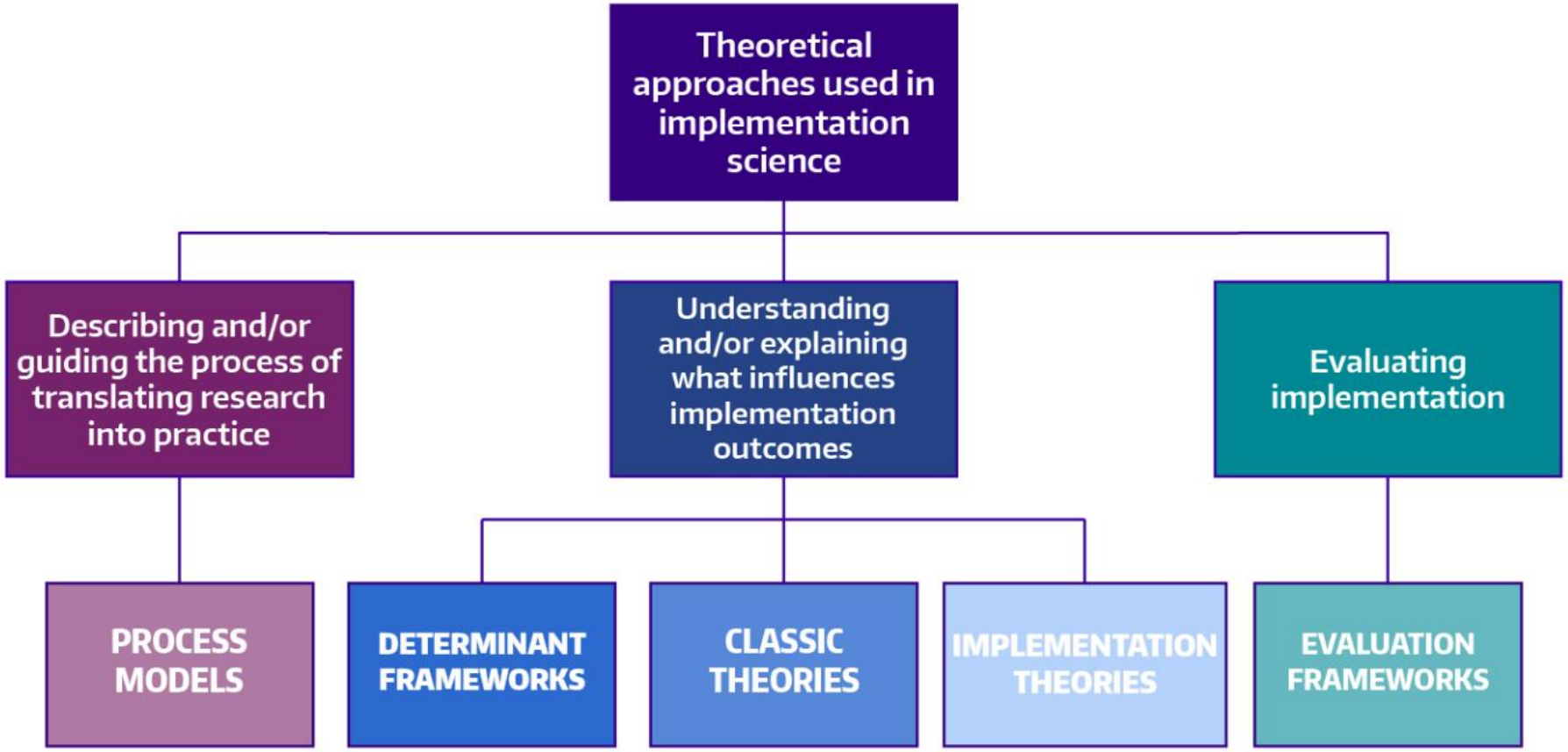
Per Nilson’s classification

Per Nilsen's schema sorts implementation science theories, models, and frameworks into five categories:

1. Process models
2. Determinants frameworks
3. Classic theories
4. Implementation theories
5. Evaluation frameworks.

Reference: NILSEN, P., 2015. Making sense of implementation theories, models and frameworks. Implementation science : IS, 10, pp. 53

Per Nilson's classification



Source: https://impsciuw.org/implementation-science/research/frameworks/

Adapted from: Nilsen, P. Making sense of implementation theories, models and frameworks. *Implementation Sci* **10**, 53 (2015). https://doi.org/10.1186/s13012-015-0242-0

Per Nilson's classification

Process models

- Describe and/or guide the process of translating research into practice.

Determinant frameworks

- Specify types (also known as classes or domains) of determinants and individual determinants, which act as barriers and enablers (independent variables) that influence implementation outcomes (dependent variables).
- Consolidated Framework for Implementation Research – organization
- Theoretical domains framework - individual

Classic theories

- Theories that originate from fields external to implementation science, e.g. psychology, sociology and organizational theory, which can be applied to provide understanding and/or explanation of aspects of implementation
- Diffusion of innovation

Reference: NILSEN, P., 2015. Making sense of implementation theories, models and frameworks. Implementation science : IS, 10, pp. 53

Available online at www.sciencedirect.com

Journal of Hospital Infection

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

The impact of COVID-19 on antimicrobial stewardship programme implementation in hospitals – an exploration informed by the Consolidated Framework for Implementation Research

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SUMMARY

Introduction and objectives: The disruption of antimicrobial stewardship programmes (ASPs) caused by coronavirus disease 2019 (COVID-19) has been recognized but not explored in depth. This study used a theoretical, qualitative approach to understand the impact of COVID-19 on ASP implementation in hospitals.

Methods: Semi-structured online interviews, informed by the Consolidated Framework for Implementation Research (CFIR), were conducted with ASP team members and non-members in hospitals. Participants were recruited via purposeful and snowball sampling with interviews video recorded, transcribed and analysed independently by two researchers based on mapping against CFIR constructs.

Results: Thirty-one interviews were conducted across 11 hospitals. The following themes were identified: (i) increased complexity of ASP implementation and changes in prescribing behaviour influenced by COVID-19; (ii) adaptations, networking and cosmopolitanism to enhance integration of COVID-19 management into ASP services; and (iii) adaptations and networking to support continuity of the ASP implementation process. A disruption to pre-pandemic ASP activities was reported, with complexity of COVID-19 overwhelming the healthcare system. ASP team members and services showed an ability to adapt and repurpose roles to respond to the pandemic. Interventions included developing national guidelines for treatment of patients with COVID-19 and contributing to guideline management and monitoring. A gradual restoration of ASP activities was perceived. Technological adaptations and enhancements in networking were reported as positive impacts of the pandemic.

Use of CFIR in practice to determine which constructs are facilitators or barriers for ASP practice during COVID pandemic

Table II
Consolidated Framework for Implementation Research (CFIR) constructs identified as facilitators or barriers for antimicrobial stewardship programme (ASP) practice under the influence of the coronavirus disease 2019 (COVID-19) pandemic mapped to their corresponding themes and subthemes

Impact on ASP practice	CFIR domain	CFIR construct	Corresponding overarching theme	Corresponding subtheme	Illustrative quotes
Facilitators	Intervention characteristics	Adaptability	Theme (2)	Adaptations for ASP activities to include management of patients with COVID-19	'… [the] Antibiotic Stewardship Committee follow the adherence of the physicians to this guideline and also the clinical pharmacists provide daily rounds for the critical care cases and the ICU [intensive care unit]' [Clinical pharmacist 6]
			Theme (3)	Adaptation of networking to facilitate continuity of ASP implementation during the pandemic	'…, everybody trying to work virtually to reduce contact with others, even our rounds, we used to do rounds, it's virtual rounds, we will do it through WhatsApp' [Clinical pharmacist 1]
			Theme (3)	Adaptation of pre-authorization forms to facilitate continuity of ASP implementation during the pandemic	'First we have this pre-authorization form…. during the COVID-19 time we change this form from paper form to electronic and it is sent through the email' [Nephrologist 1]
	Outer setting	Cosmopolitanism	Theme (3)	Cosmopolitanism and networking to support building national COVID-19 management guidelines	'Experience with ASP and having structure and having consultations and having meetings with different stakeholders really allowed us [to help in building national guidelines for COVID-19], a lot of the infectious disease people are clinical pharmacists and are actually quite solid' [Clinical pharmacist 2]
	Inner setting	Network and communication	Theme (3)	Cosmopolitanism and networking to support building national COVID-19 management guidelines	
		Access to knowledge and information	Theme (3)	Gradual decline in antimicrobial prescribing	'Many virtual conferences and virtual lectures released online at the national level and even at the international level. This helps to change the mind of the physician that no need for all these antibiotics for management of COVID-19' [Clinical pharmacist 6]
	Characteristics of individuals		Theme (3)	Desire to re-establish ASP implementation	'So, my aim now is at least to go back to the level we were

J R Coll Physicians Edinb 2017; 47: 40–46 | doi: 10.4997/JRCPE.2017.109 PAPER

A qualitative study of determinants of patient behaviour leading to an infection related hospital admission

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Abstract

Objectives To describe and understand the determinants of patients' behaviours surrounding admission to hospital for an acute infective episode

Method Patients admitted to the infection or acute medicine admission units of a major Scottish teaching hospital and commenced on antibiotic therapy after admission were included. Semi-structured face-to-face interviews were conducted using a pre-piloted interview schedule guide that focused on gathering information about patient behaviours and experiences prior to admission to hospital with an acute infection. Interviews were audio-recorded, transcribed verbatim and analysed using the Framework Approach. Emerging themes were matched to the Theoretical Domains Framework of behavioural determinants.

Results Twenty-one patients consented to participate and 18 transcripts were suitable for analysis. The most common infections were those of the skin, soft tissue and respiratory tract. From the patients' perspectives, behavioural determinants that appeared to impact their admission to hospital were principally their knowledge, beliefs of consequences, the environmental context and resources (mainly out-of-hours services), social influences and their own emotions. Determinants such as knowledge of the signs and symptoms, beliefs of consequences and environmental context were facilitators of health seeking behaviours. The main barriers were a lack of awareness of consequences of infection potentially leading to delayed admission impacting infection severity, stay in secondary care and resource utilisation.

Conclusions This study has shown that any initial patient-centred intervention that is proposed to change patient behaviour needs to be based on behavioural determinants emerging in this research. The intervention may include aspects such as patient education on resources available out-of-hours and ways to access the healthcare system, education on recognising signs of infection leading to prompter treatment and positive reinforcement for patients who present with recurrences of infection.

Keywords behaviour, hospital admission, infection, theoretical domains framework

Declaration of interests No conflicts of interest declared

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Discussion

Key findings of this research are that, from the patients' perspectives, several determinants appeared to impact their admission to hospital, principally their knowledge, beliefs of consequences, the environmental context and resources (largely the GP), social influences and their emotions. Their experience of the admission was likely to impact their future behaviours of self-management and seeking help if the infective presentation recurred.

Ongoing research culture survey being conducted internally at RGU
Online questionnaire with use of multiple frameworks

6. Please rate the following statements. Please do not select more than one option per row. * *Required*

	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree	Not currently applicable to my job
I am competent to contribute to research	☐	☐	☐	☐	☐	☐
I am confident in my ability to contribute to research	☐	☐	☐	☐	☐	☐
I am able to determine my own research-related training needs	☐	☐	☐	☐	☐	☐

Use of theoretical domains framework to help us understand how the participants approach research – this question exploring Domain – “Belief about capabilities”

Diffusion of innovation theory to help us understand the respondent’s approach to change

21. Which of the following best describes your approach to change * *Required*

- ☐ Innovative with new ways of working
- ☐ Serve as a role model for others in relation to new ways of working
- ☐ Think for some time before adopting new ways of working
- ☐ Cautious in relation to new ways of working and only tend to change once peers have done so
- ☐ Resist new ways of working

Per Nilson's classification

Implementation theories

- Theories that have been developed by implementation researchers (from scratch or by adapting existing theories and concepts) to provide understanding and/or explanation of aspects of implementation
- Normalization Process Theory

Evaluation frameworks

- Specify aspects of implementation that could be evaluated to determine implementation success

Reference: NILSEN, P., 2015. Making sense of implementation theories, models and frameworks. Implementation science : IS, 10, pp. 53

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Research in Social and Administrative Pharmacy

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Use of Normalization Process Theory to explore key stakeholders' perceptions of the facilitators and barriers to implementing electronic systems for medicines management in hospital settings

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ARTICLE INFO

Keywords:
Normalization process theory
eHealth
Medication
Implementation
Hospital
Healthcare professionals

ABSTRACT

Background: Limited data exist on the facilitators and barriers to implementing electronic systems for medicines management in hospitals. Whilst numerous studies advocate system use in improved patient safety and efficiency within the health service, their rate of adoption in practice has been slow.

Objective: To explore the perceptions of key stakeholders towards the facilitators and barriers to implementing electronic prescribing systems, robotic pharmacy systems, and automated medication storage and retrieval systems in public hospital settings using Normalization Process Theory as a theoretical framework.

Methods: Individual face-to-face semi-structured interviews were conducted in three public hospitals in Ireland with 23 consenting participants: nine nurses; four pharmacists; two pharmacy technicians; six doctors; and two Information Technology managers.

Results: Enhanced patient safety and efficiency in healthcare delivery emerged as key facilitators to system implementation, as well as the need to have clinical champions and a multi-disciplinary implementation team to promote engagement and cognitive participation. Key barriers included inadequate training and organisational support, and the need for ease and confidence in system use to achieve collective action.

Conclusions: Many themes that are potentially transferable to other national settings have been identified and extend the evidence base. This will assist organisations around the world to better plan for implementation of medication-related eHealth systems.

Table 5
Summary of key facilitator and barrier themes related to NPT constructs and components.

Key themes	NPT constructs and components	Facilitators	Barriers
Theme 1: Understanding of how electronic systems differ from manual practices and the value of system implementation	**Coherence:** Differentiation Internalisation	Patient safety Efficiency: - Stock control - Traceability - Accountability - Cost reduction - Integration	Time inefficiencies Security issues Logistics of changing system
Theme 2: A need to work together to build a shared sense of purpose for system implementation and have a clear understanding of individual roles and responsibilities	**Coherence:** Communal specification Individual specification	Work [illegible] reasons for implementation Participants with experience had a clear understanding of their roles	Limited communication on implementation Participants without experience had a limited understanding of requirements
Theme 3: A need for clinical leadership, champions at ward level, and a multidisciplinary implementation team to promote buy-in	**Cognitive participation:** Enrolment Activation Initiation Legitimation	Clinical champions to promote benefits and engagement via effective communication Early adaptors Multidisciplinary team approach	Older generation may not realise benefits as easily as younger generation Resist work changes: - Lack of prioritisation - Force of change - Limited involvement - Bureaucracy - Lack of recognition of professional roles
Theme 4: A need for adequate training and organisational support	**Collective action:** Skill set workability Contextual integration	Sufficient training Sufficient support and resources Robust governance Operational guidelines	Training not sufficient Inadequate support No additional resources
Theme 5: A need for electronic systems to be easier to use than manual systems	**Collective action:** Interactional workability	Light guided Ease of stock management Sufficient number of systems Mobile units nearer the patient	Manual system easier as more patient-focused and less task oriented Workflow issues e.g. time delays in queuing, limited accessibility, inadequate numbers/sizes of units resulting in delayed medication administration
Theme 6: A need for a sense of confidence in system use	**Collective action:** Relational integration	Safety alerts Double checking Clear record Confident with familiarity	Lack of confidence with identifying drugs Substantial time away from patients
Theme 7: A need to use systems as intended	**Reflexive monitoring:** Reconfiguration	Alter system use for efficiency e.g. recheck chart before administration	Not using system as trained e.g. trolley to carry drugs for multiple patients increasing risk of errors
Theme 8: A need to measure and audit practice	**Reflexive monitoring:** Communal appraisal Individual appraisal Systematization	Auditing of practice e.g. cost, time, end-user satisfaction	Limited formal measures Unable to determine actuality from reality

References

- ALBERS, B., SHLONSKY, A. and MILDON, R., 2020. Implementation science 3.0. Cham, Switzerland: Springer.
- MOULLIN, J.C. et al., 2020. Ten recommendations for using implementation frameworks in research and practice. Implementation science communications, 1, pp. 42
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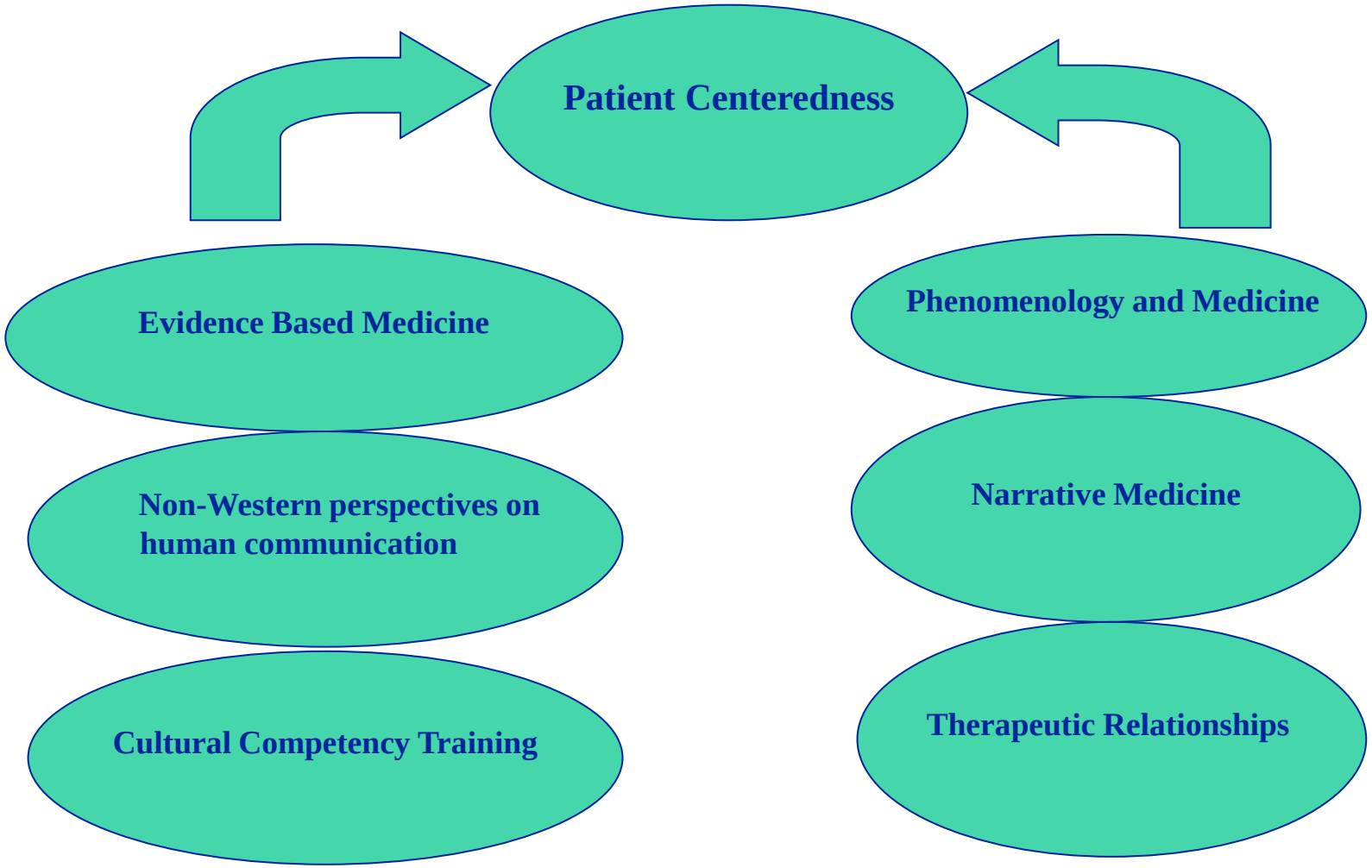
Theoretically informed research

Presenter: Dr. Riaz Akseer

How patient cantered is patient centeredness care?

Conceptual Framework/ Theory



Patient-centeredness

- Introduced by Balint (1957), pioneered by McWhinney (2001) a consumerist relationship in which patient takes an active role and clinician adopts a fairly passive role (Cluett, 2006; Morgan, 2008).
- Patient-centeredness strongly supports individualistic Western cultural views that include active patient participation in a diagnostic interview; this approach does not seem to be equally effective in communicating with patients from non-Western cultures.
- Less controlled interviewing style, with more open ended questions (Cluett, 2006)
- Patient-centeredness gained its popularity in healthcare in the late 90s (Bechtel & Ness, 2010).

Evidence Based Medicine and Practice

- The philosophy of EBM is not new in medicine; developed more in the past three decades based on changes in philosophy of healthcare systematization.
- EBM followed by the Evidence Based Practice (EBP) concept: both rooted in epidemiological and experimental designs EBM follows and supports a realist epistemology, the objective of knowledge is to predict and control (Broom & Adams, 2012; Elwyn & Edwards, 2001)
- Focuses on generalization rather than uniqueness of individual health needs (Meza & Passermans, 2011)

Evidence Based Medicine and Practice

- EBM helps improving the quality of care by standardization of medical care as well as changing medical practice based on clinical trials (Sackett et al, 1999; Sackett et al, 2000).
- Encourages healthcare professionals to justify their clinical actions based on science, effectiveness and quantification (Cluett, 2006; Elwyn & Ewards, 2001; Trinder, 2000).

Critique of EBM and practice

- EBM is encouraging generalized care (cookbook medicine) as opposed to individualized patient care.
- Is population based which may not be applicable to every individual (Scalise, 2004).
- EBP is based on quantitative studies, undermine the value of descriptive and interpretative data
- It cannot adequately explore and address the complexities of human life
- Randomized Control Trials (RCTs), mainly focused on quantitative data, 'disease-centered' rather than patient-centered

(Broom & Adamas, 2012; Broom & Tovey, 2012; Cluett, 2006; Robson, 2002)

Critique of EBM and practice

- Increased tension and dissatisfaction from patients with chronic conditions about lack of recognition to their felt experience due to clinicians' reliance largely on biomedical interventions
- EBM refers to medical practice in which clinical decision making is based on professional's expertise and less on patient's important role Patients in this approach are placed in a passive role and practitioner in a rather active role.

(Broom & Adams, 2012; Dew, 2012; Elwyn & Edwards, 2001; Goldberg, 2006).

Cultural competences in patient centeredness care

- Within the cultural competence patient care approach, the delivery of health services are based on acknowledgement and understanding to individuals' cultural diversity, health beliefs, values, and behaviours in the clinical setting.
- Cultural competence is an essential component of patient-centred care.
- Cultural competence is closely linked to narrative medicine epistemology in patient care
- Unlike EBM the focus of cultural competency is to improve the quality of clinical interaction by individualizing, rather than standardizing.

(Betancourt, 2004; Betancourt & Green, Cooper & Roter, 2003; 2010; Hickling, 2012; Paez et al., 2009).

EBM/EBP and patient-centered medicine Paradigm

- The outcomes on patient centered medicine show greater patient satisfaction and patient compliance, comparing to EBP (Cluett, 2006).
- Supporters of EBM claim it is based on certainty and rigorous science; however this is not true for practitioners in their daily clinical experiences (Dew, 2012).
- For example, many practitioners struggle with uncertainties in diagnosis and treatment of patients' with chronic illness and cancer.

Challenges

- Clinicians have different opinions in applying clinical guidelines, protocols and standards to specific patients, therefore, clinical decision making and implementation of EBM will vary among clinicians as they react to uncertainties in different ways

- There are differences between meanings of illness and disease for clinicians and patients. The patients' unusual changes in their bodies are considered illnesses and, to clinicians, diseases that need to be cured.

(Aho & Aho, 2008; Broom & Adams, 2012; Timmermans & Angell, 2012; Flynn, Greenhalgh, Long & Tyson, 20120

Phenomenology and Medicine

Pioneered by Zaner (1995) and Toombs, (2001)
lived body approach based on individual's lived experience.

Exploring individual's experience of illness through emotions and feelings (Komesaroff, 2001; Mazis, 2001) enriches the bio medical understanding of experiences of illness

Clinician patient communication Mishler

To gain more control over the interview process, clinicians will ask more close-ended rather than open-ended questions (Mishler, 1984).

Application of a check list protocol by clinicians supersedes patients' experiences of illness (Dew, 2012).

This also allows for the dominance of a biomedical explanation of a patient's experience of illness over a patient's real life experience (Goldenberg, 2006; Mishler, 1984; Wendell, 1996).

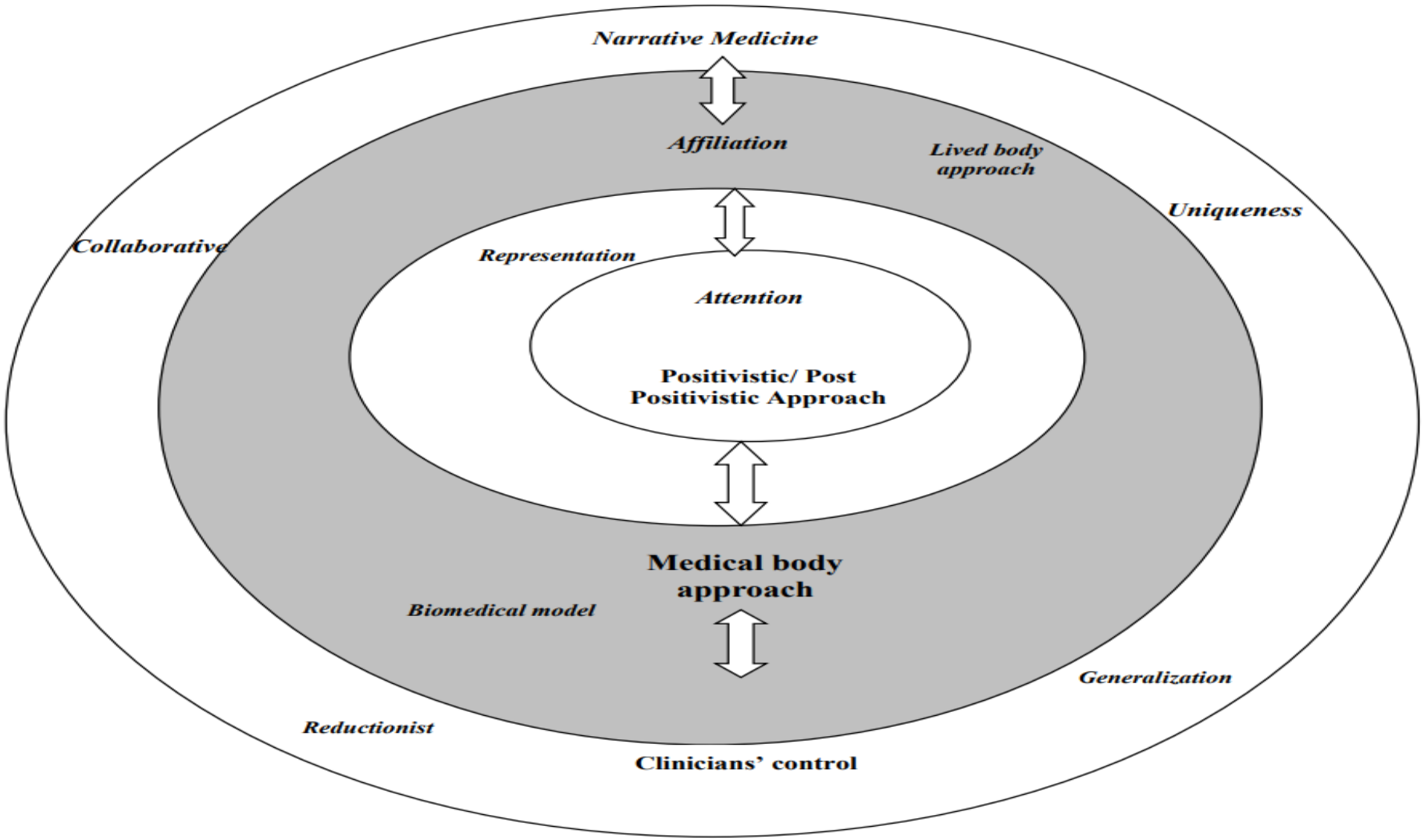
The Three Movements Within Narrative Medicine

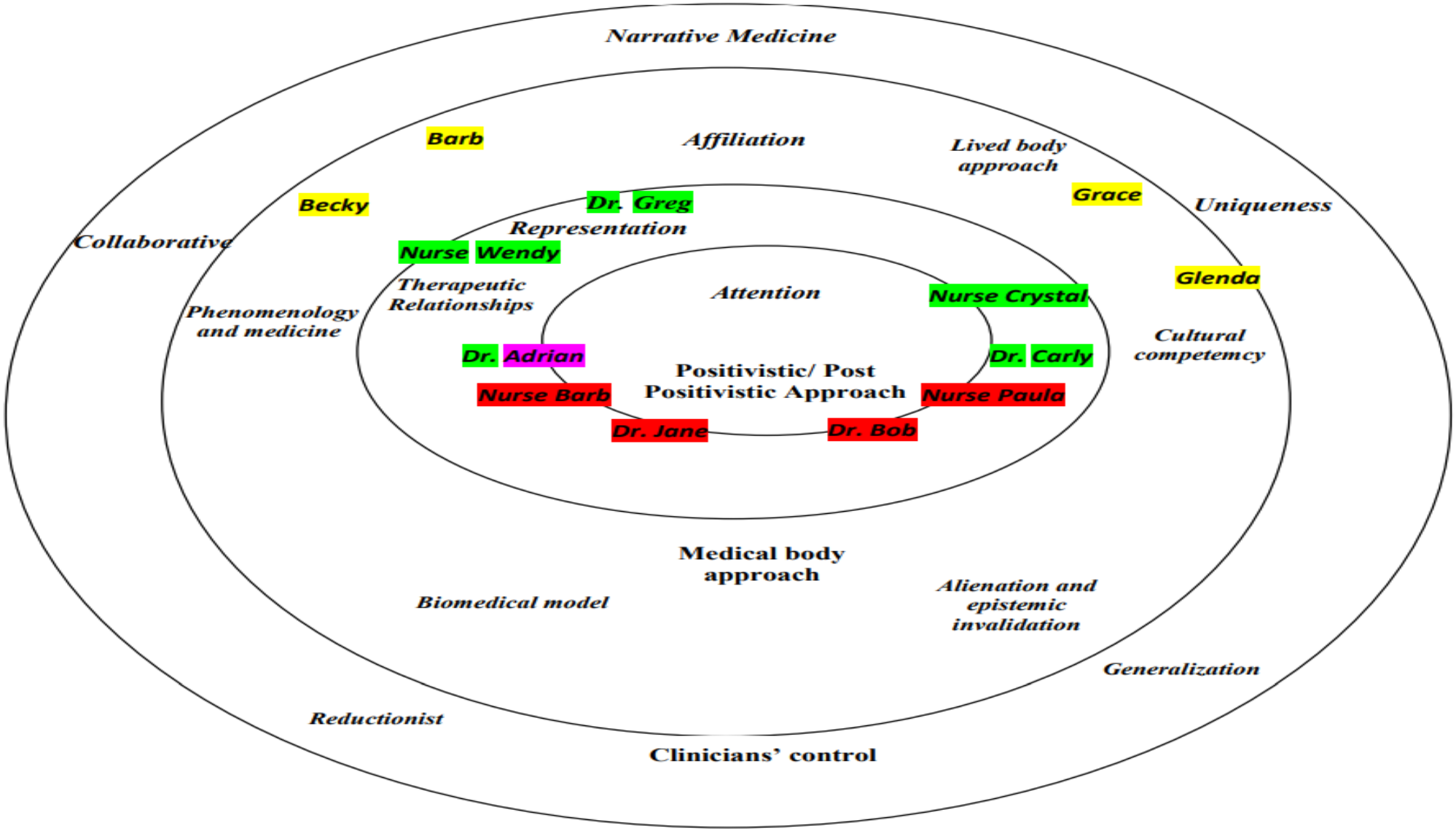
Attention	Representation	Affiliation
Attentive and careful listening to patients, which includes remaining responsive to patients' spoken and unspoken words. Caregiver's knowledge and experience play a key role in gaining potentially valuable information and making the patient feel more cared for.	Creating notes with primary language and using writing to reflect on patient interactions helps caregivers value both their own feelings and those of their patients. This process helps discover different perspectives of patient and practitioner. Once reflective notes are created based on patients' experiences of illness they can then be followed by notes that are reflective of physicians' thoughts, feelings and perceptions of patients' situation. Physician shares consideration of therapeutic and diagnostic interventions as well as prognostic outcomes with patient	The process of attending carefully to patients and reflecting on patients' stories helps caregivers become more informed and more passionate patient advocates. Physicians become closely engaged in their patients' care and gaining patients' trust. This is a stage of junction and perspectives.

(Charon, 2005, 2006a; Silva et al., 2010)

Integrating Narrative Medicine and Evidence-Based Medicine Features

Acquire	**Ask**	**Access**	**Assess**	**Apply**	**Assist**
enough information to understand the patient's concern	a clinically relevant question	information to answer the clinically relevant question	the quality of the information	the information to the clinical question	and assist the patient to make a decision


Narrative Medicine
Affiliation
Lived body approach
Uniqueness
Collaborative
Representation
Attention
Positivistic/ Post Positivistic Approach
Medical body approach
Biomedical model
Generalization
Reductionist
Clinicians' control


Narrative Medicine
Barb
Affiliation
Lived body approach
Grace
Becky
Dr. Greg
Uniqueness
Representation
Collaborative
Nurse Wendy
Glenda
Therapeutic Relationships
Attention
Nurse Crystal
Phenomenology and medicine
Cultural competemcy
Dr. Adrian
Dr. Carly
Positivistic/ Post Positivistic Approach
Nurse Barb
Nurse Paula
Dr. Jane
Dr. Bob
Medical body approach
Alienation and epistemic invalidation
Biomedical model
Generalization
Reductionist
Clinicians' control

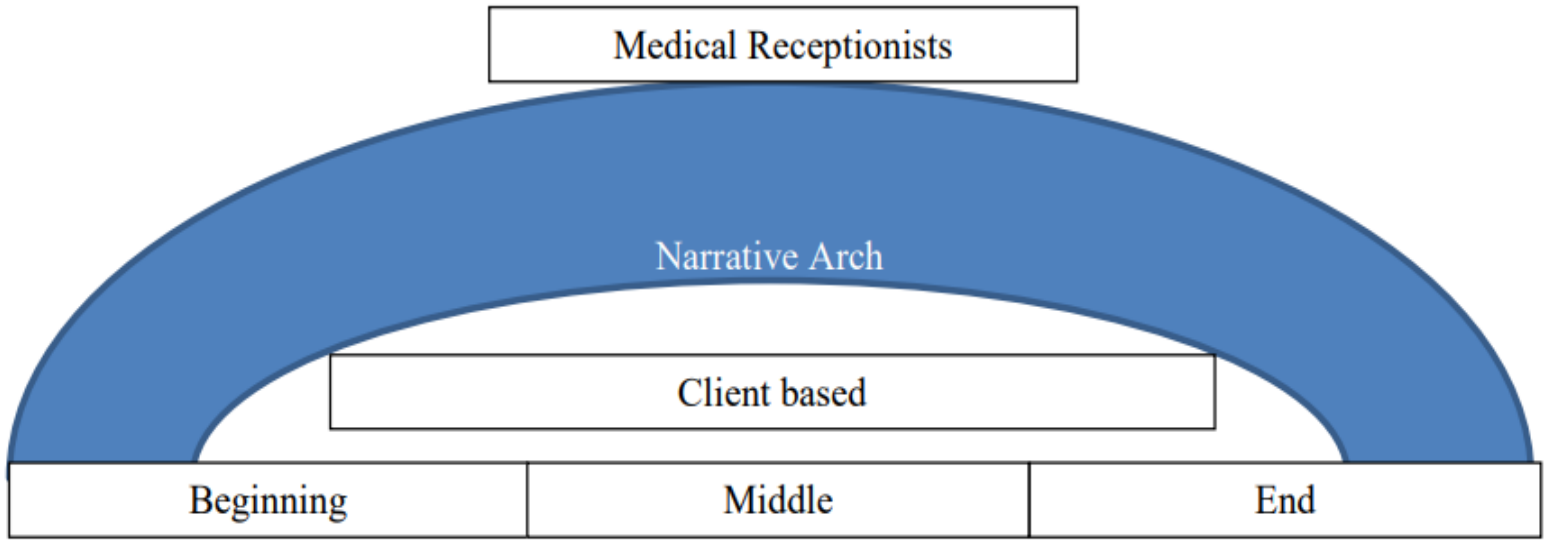
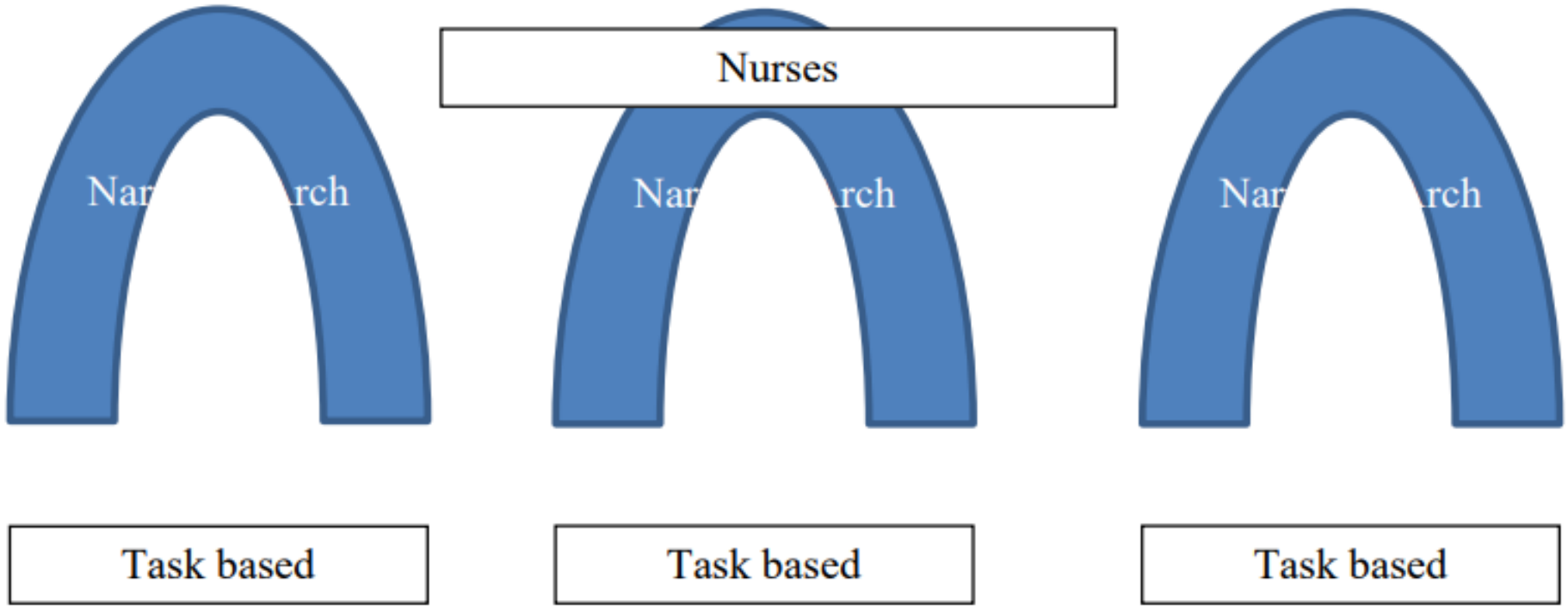
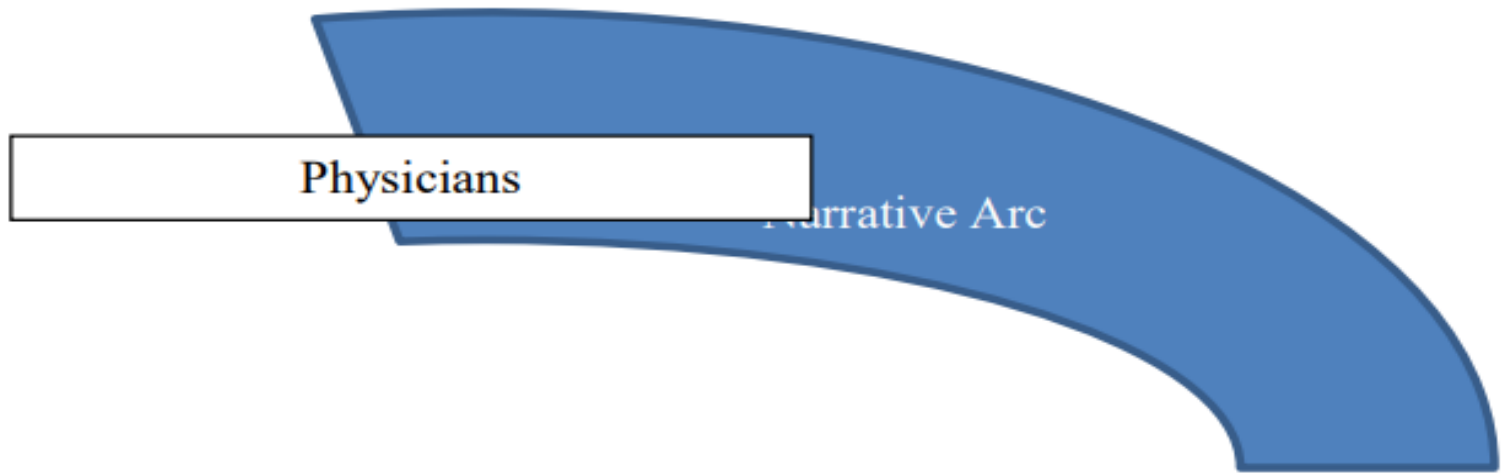


Figure 5. Narrative arc: Medical receptionists.


Nurses
Task based
Task based
Task based



Plan based	Outcome based

“The patient will never care about how much you know, until they know how much you care”

(Terry Canale in his American Academy of Orthopaedic Surgeons Vice Presidential Address; Tongue, Epps & Forese, 2005)

Conclusion

- Is patient centered care really patient centered?

References

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Application to different case scenarios

Presenter: Nortan Hashad

Application of knowledge gained to case scenarios

- Now we will be looking into few case scenarios and attempt to identify a suitable implementation theory/model/framework according to Per Nilson classification.
- We will need the following:

1. Per Nilson classification article (See printed simplified guide)
2. University of Washington implementation research Hub (https://impsciuw.org/implementation-science/research/frameworks/)
3. Dissemination and implementation models in health (interactive web-based tool) (https://dissemination-implementation.org/tool/explore-di-models/)

University of Washington implementation research Hub

Dissemination and implementation models in health (interactive web-based tool)

Application of knowledge gained to case scenarios

First: What is the aim of the implementation research project?

Second: Select one of the theories/models/frameworks as per the recommendation of Per Nilson

Third: Use D and I link to check the included constructs, examples of publications and figure if available.

Case scenario one

- A pharmacist working in an ambulatory health care clinic, is about to start using automated dispensers.
- These are machines which employ artificial intelligence to prepare prescriptions according to system entry by physicians.

- **The pharmacist is interested in examining which contextual factors that will support the implementation process so that he can consider in his plan.**

Criteria for selecting implementation science theories and frameworks: results from an international survey

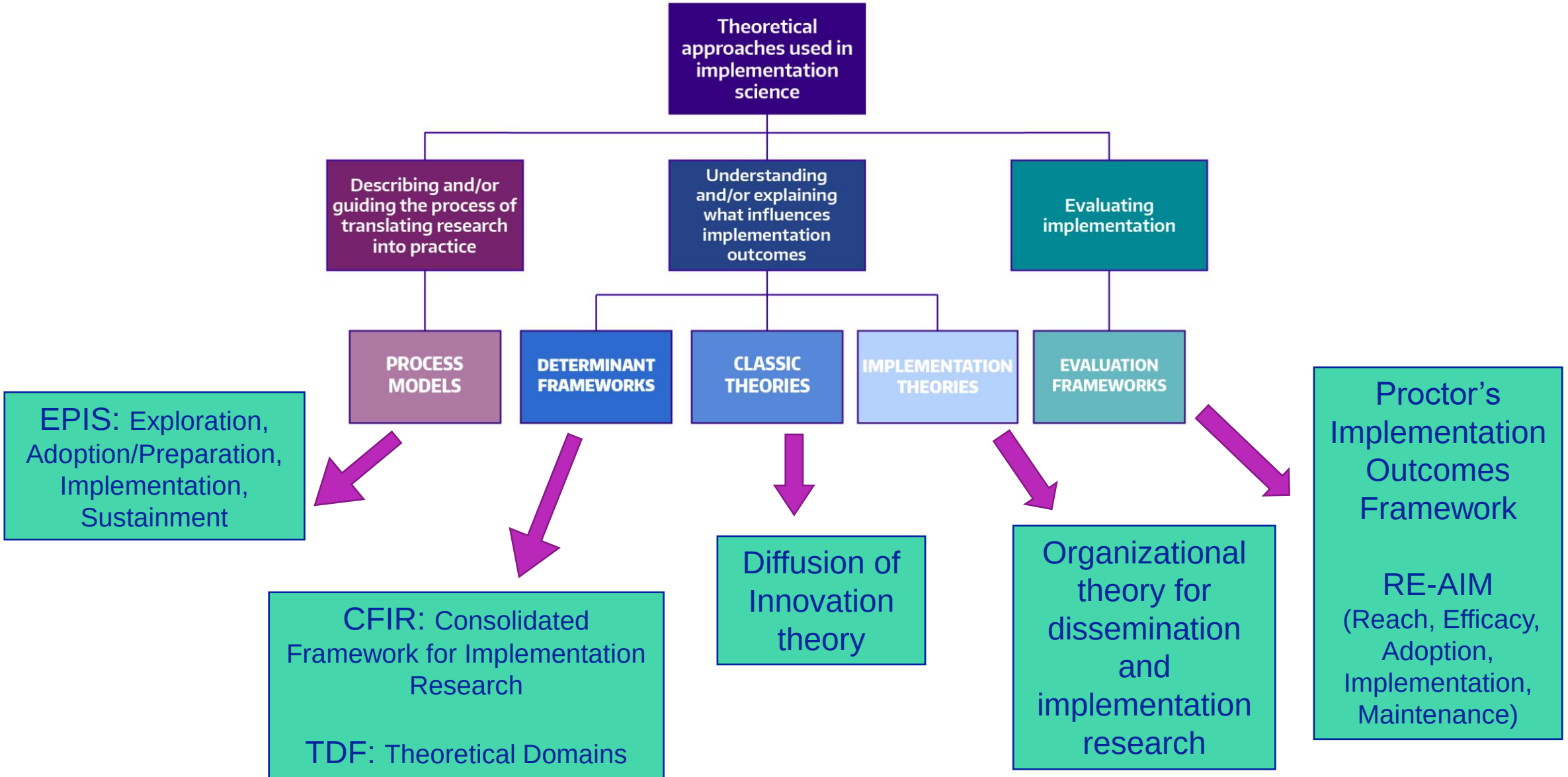
Most commonly cited theories/models/frameworks for implementation research

Table 5 Theories used

Theory	Percent
Consolidated Framework for Implementation Research	20.63
Reach Effectiveness Adoption Implementation Maintenance	13.90
Diffusion of Innovation	8.97
Theoretical Domains Framework	5.38
Exploration, Preparation, Implementation, Sustainment	4.93
Proctor's Implementation Outcomes	4.93
Organizational Theory of Implementation of Innovations	3.59
Knowledge to Action	3.14
Implementation Drivers Framework	3.14
Active Implementation Framework	2.69
Theory of Planned Behaviour	2.69
Behaviour Change Wheel	2.69
Normalization Process Model	2.69
PARIHS	1.79
Social Cognitive Theory	1.79
Intervention Mapping	1.79
Interactive Systems Framework	1.79
Organizational Readiness Theory	1.79
Replicating Effective Programs	1.35
Social Ecological Framework	1.35
QUERI	1.35
PBIS	1.35
Social Learning Theory	1.35
Other	4.04

Reference: BIRKEN, S.A. et al., 2017. Criteria for selecting implementation science theories and frameworks: results from an international survey. *Implementation science : IS,* 12(1), pp. 124

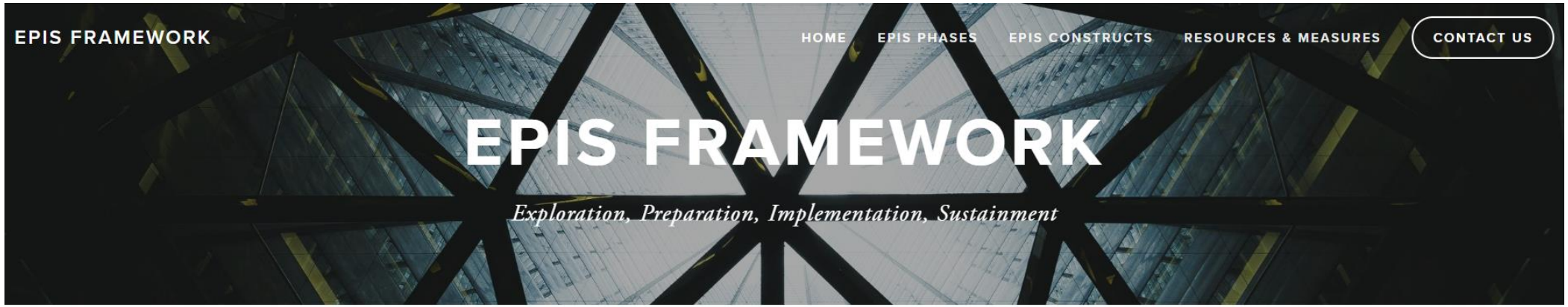
Choose an implementation model/theory/framework?



Case scenario one

https://episframework.com/

EPIS: Exploration, Adoption/Preparation, Implementation, Sustainment



The EPIS Implementation Framework

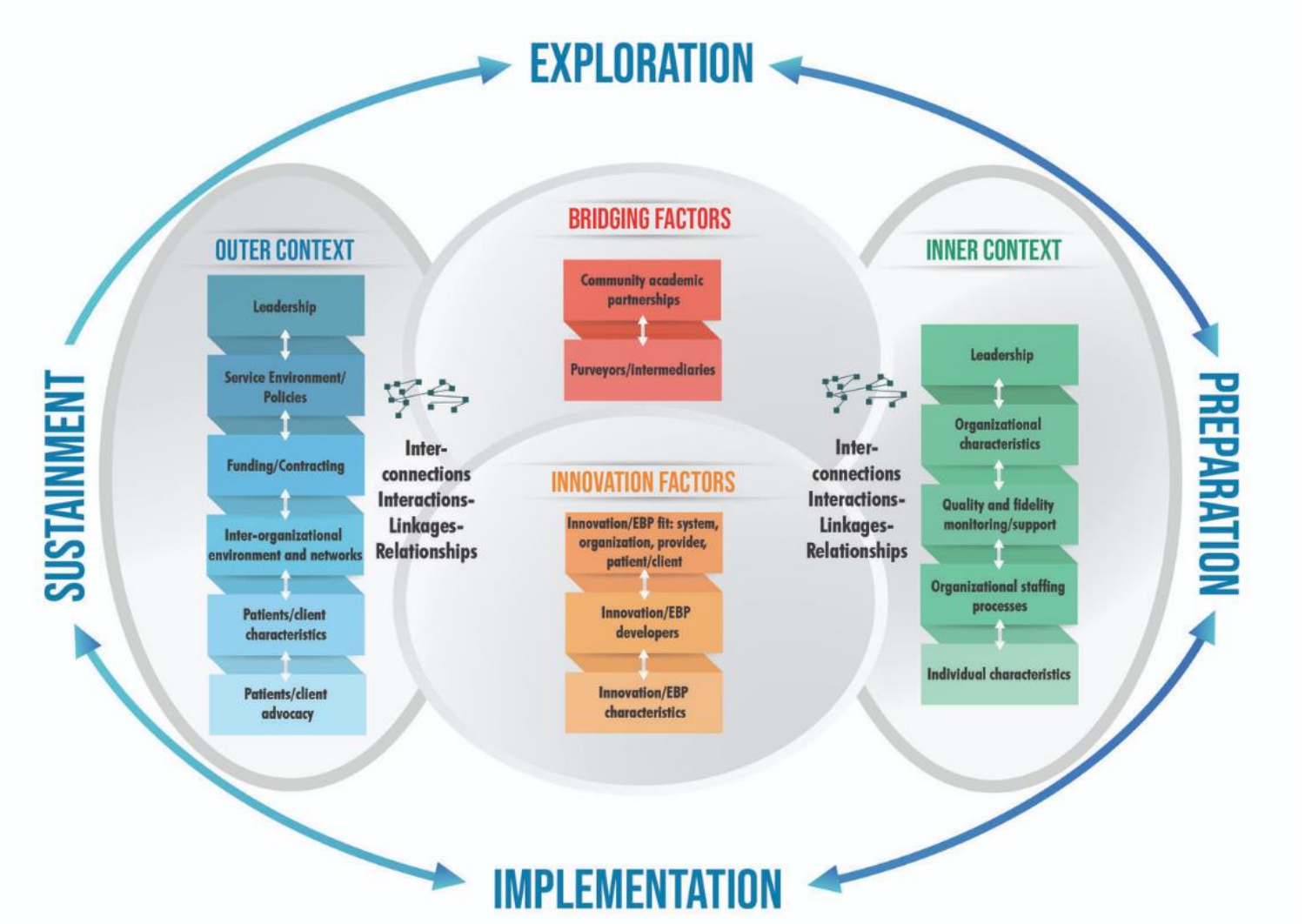
Welcome to the Exploration, Preparation, Implementation, Sustainment (EPIS) Website! This site was created to explain and support the EPIS Framework and provides resources for using EPIS including measures and tools (e.g., worksheets, guides).

The EPIS Framework highlights key phases that guide and describe the implementation process and enumerates common and unique factors within and across levels of outer context (system) and inner (organizational) context across phases, factors that bridge outer and inner context, and the nature of the innovation or practice being implemented and the role of innovation/practice developers.

Case scenario one

https://episframework.com/

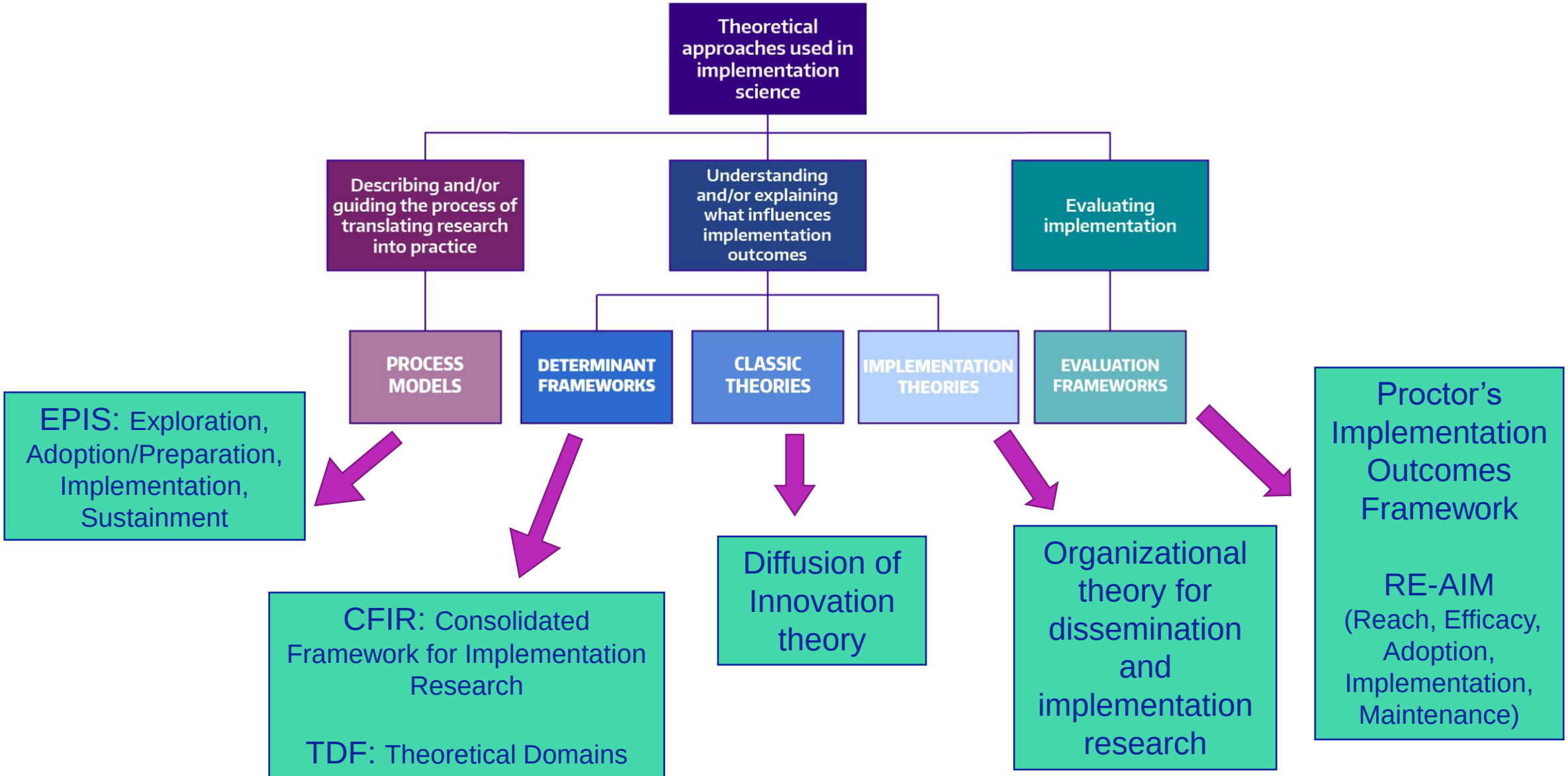
EPIS: Exploration, Adoption/Preparation, Implementation, Sustainment



Case scenario two

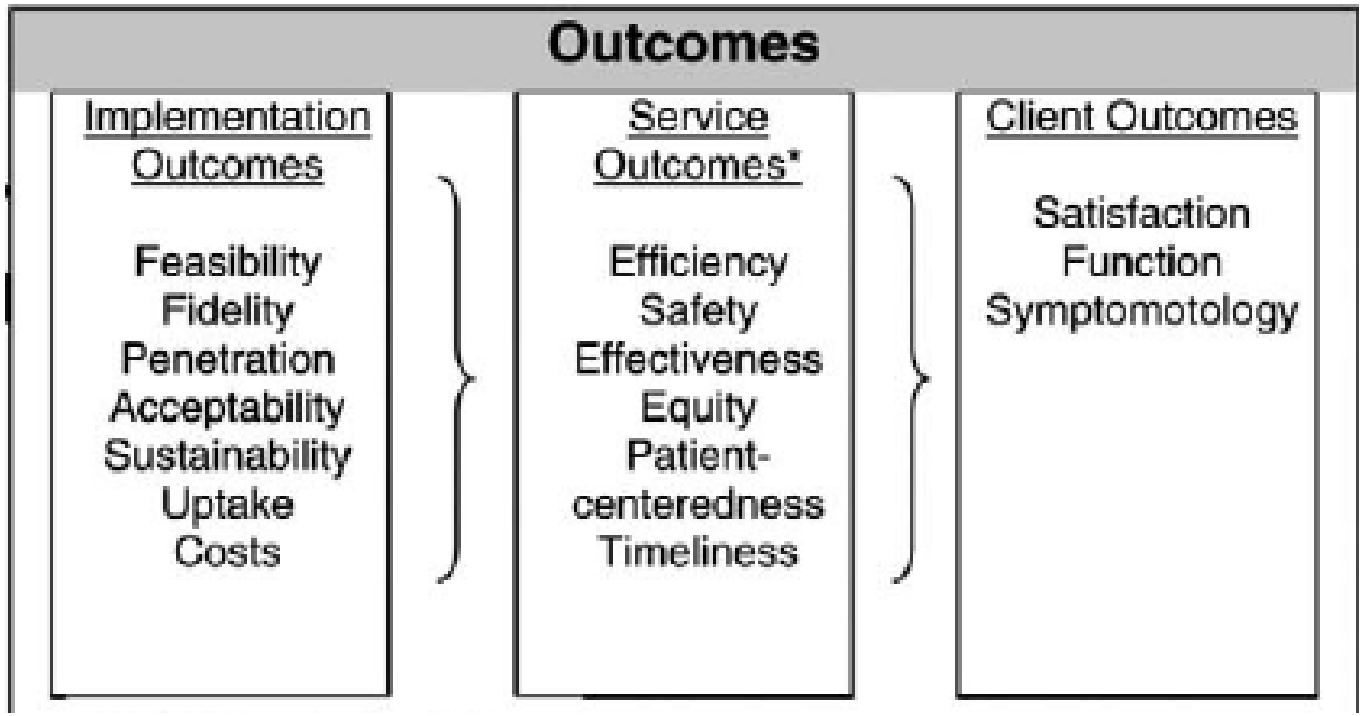
- A pharmacist working in an ambulatory health care clinic, which has been using automated dispensers throughout the past year.
- These are machines which employ artificial intelligence to prepare prescriptions according to system entry by physicians.
- **The pharmacist is interested in evaluating outcomes of implementation.**

Choose an implementation model/theory/framework?



Case scenario two

Proctor's Implementation Outcomes Framework

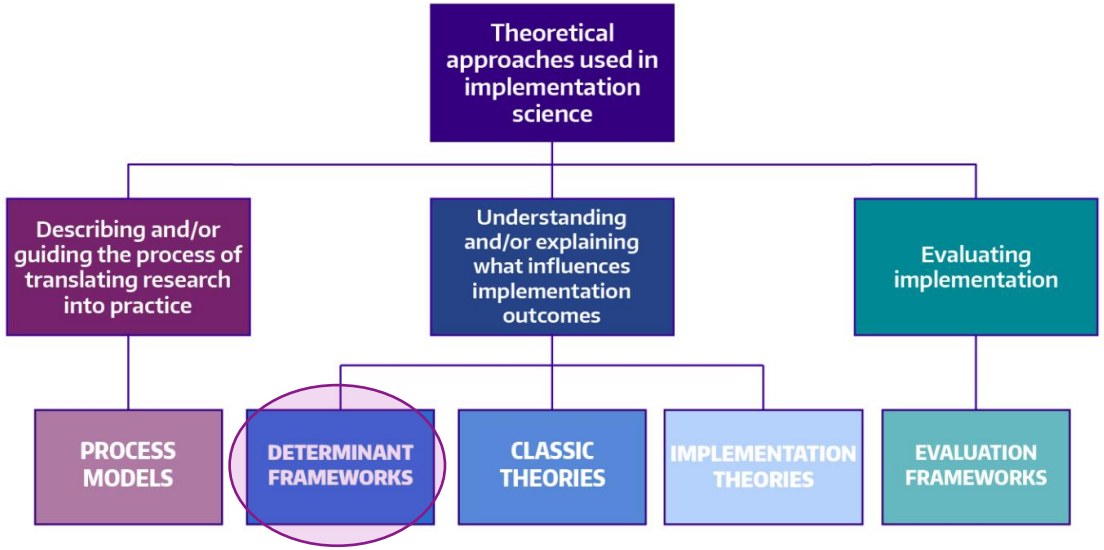


A theoretical exploration of the implementation of Antimicrobial Stewardship Programmes

Perspectives of key stakeholders underpinned by the Consolidated Framework for Implementation Research

Consolidated Framework for Implementation Research (CFIR)

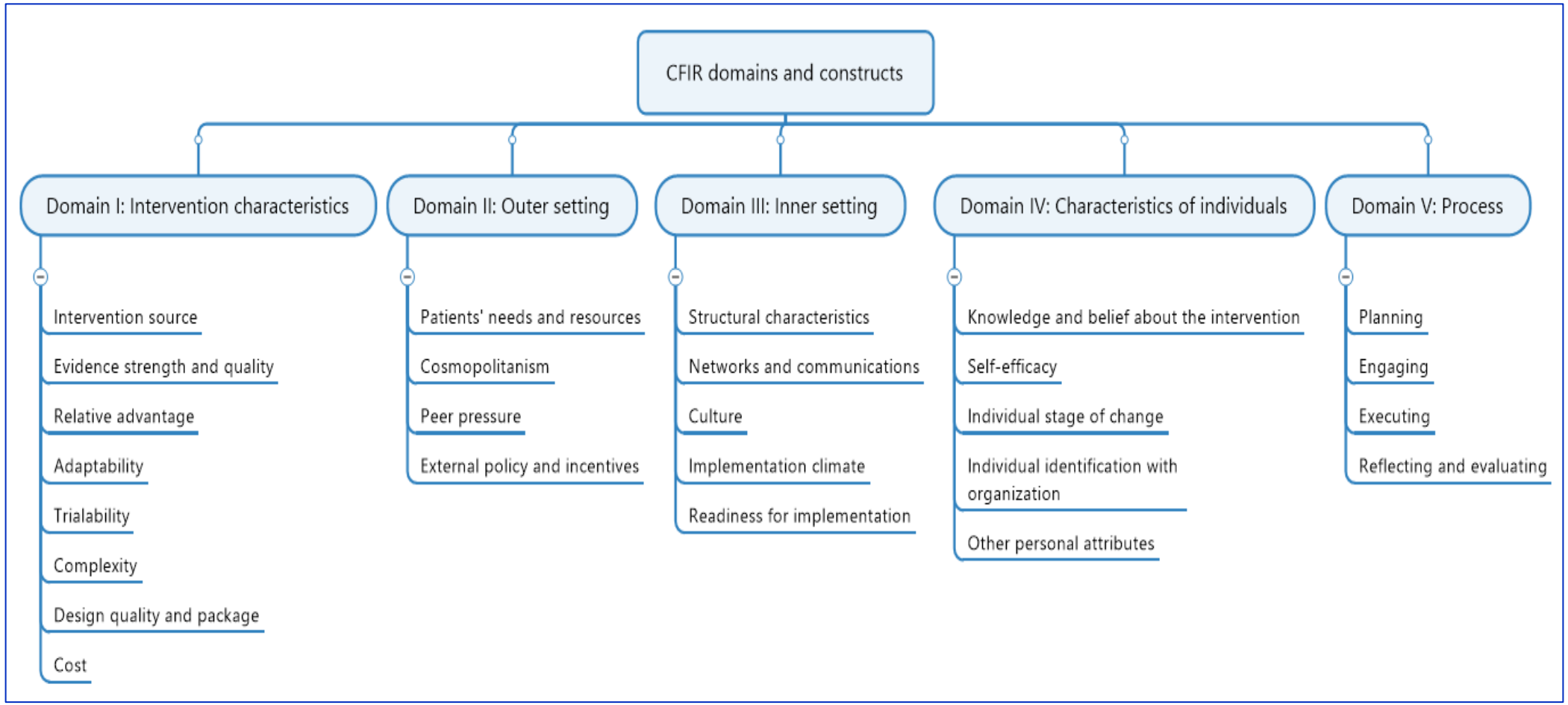
- The study aim was to explore key stakeholders' perspectives of ASP implementation in United Arab Emirates (UAE) hospitals, with a focus on facilitators and barriers.
- Therefore, a determinant comprehensive framework was deemed most suitable.



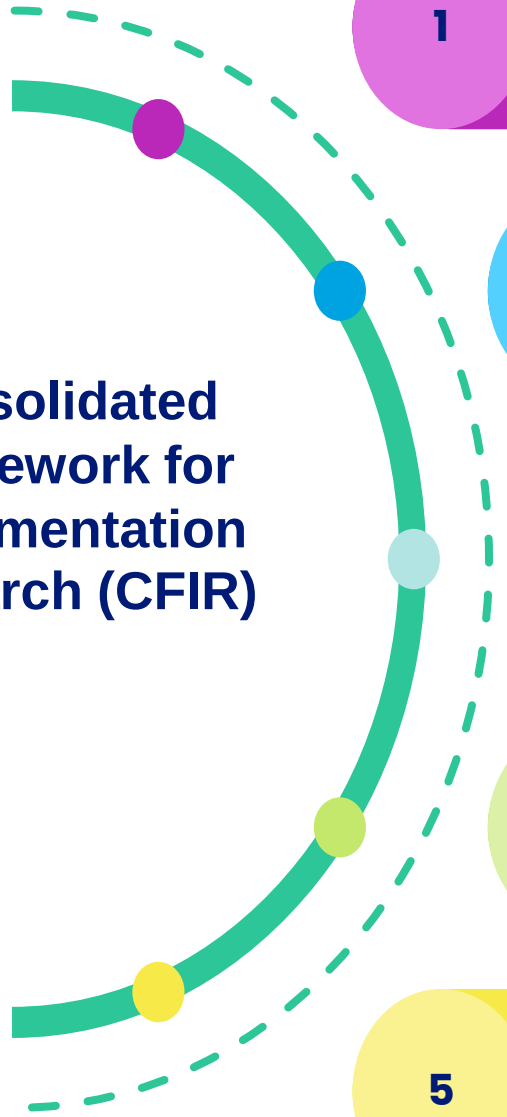
Specify types of determinants which act as barriers and enablers that influence implementation outcomes

Source: https://impsciuw.org/implementation-science/research/frameworks/
Adapted from: Nilsen, P. Making sense of implementation theories, models and frameworks. *Implementation Sci* **10**, 53 (2015). https://doi.org/10.1186/s13012-015-0242-0

Consolidated Framework for Implementation Research



Map produced by Mind Manager from Coral Corporate



Consolidated Framework for Implementation Research (CFIR)

1 Formation

A panel of 39 constructs arranged across five domains.

2 Application

Increasingly used in healthcare-related implementation research.

3 Purpose

Help to gather data about contextual factors that can impact implementation of a service as facilitator or barrier for implementation.

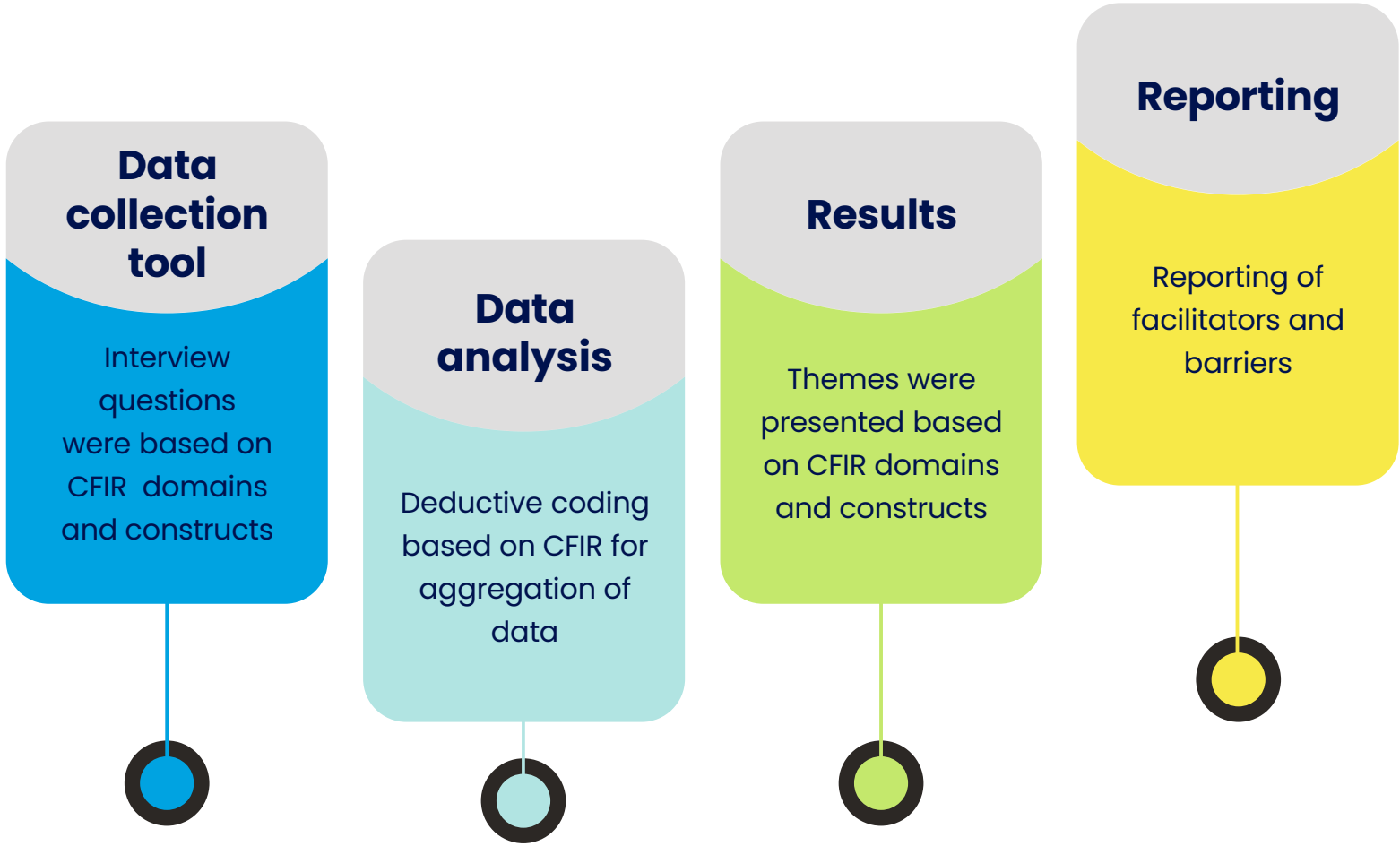
4 Development

Developed based on a constellation of 19 implementation theories, models or frameworks that are published in peer-reviewed journals.

5 Use in this research

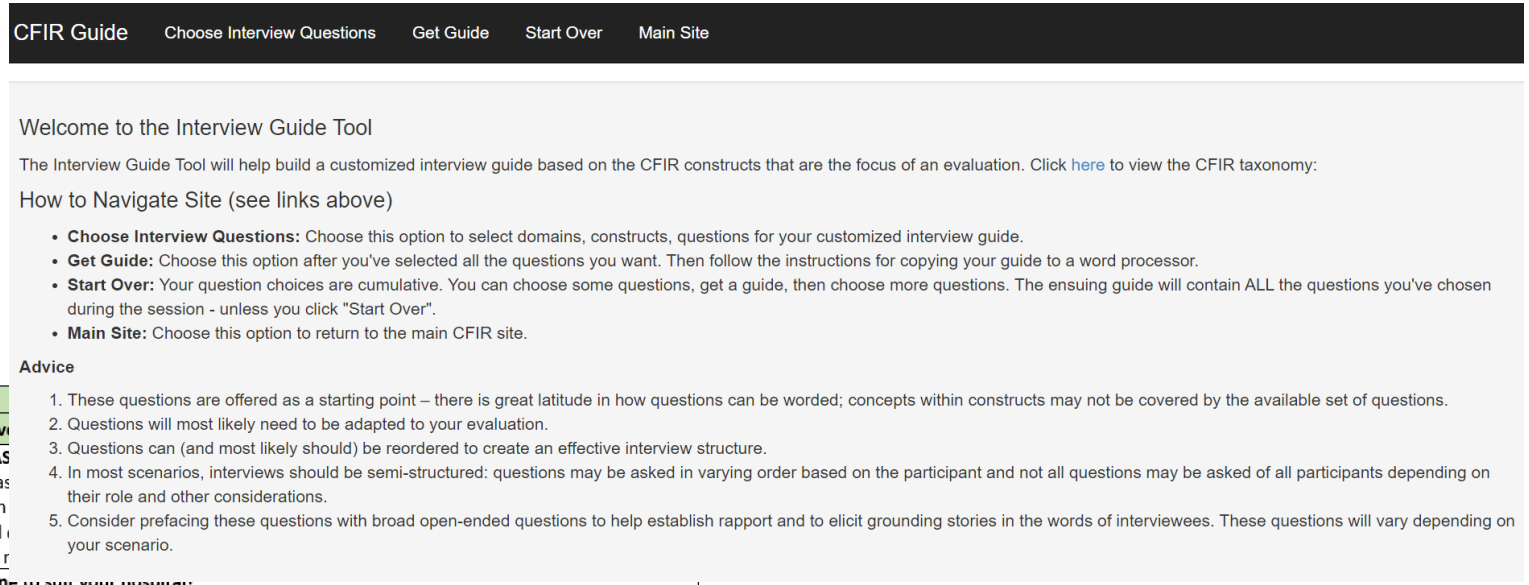
CFIR was used to guide: data collection tool development, coding and analysis as well as final reporting of results.

How CFIR was integrated throughout the research process?



How CFIR was integrated throughout the research process?

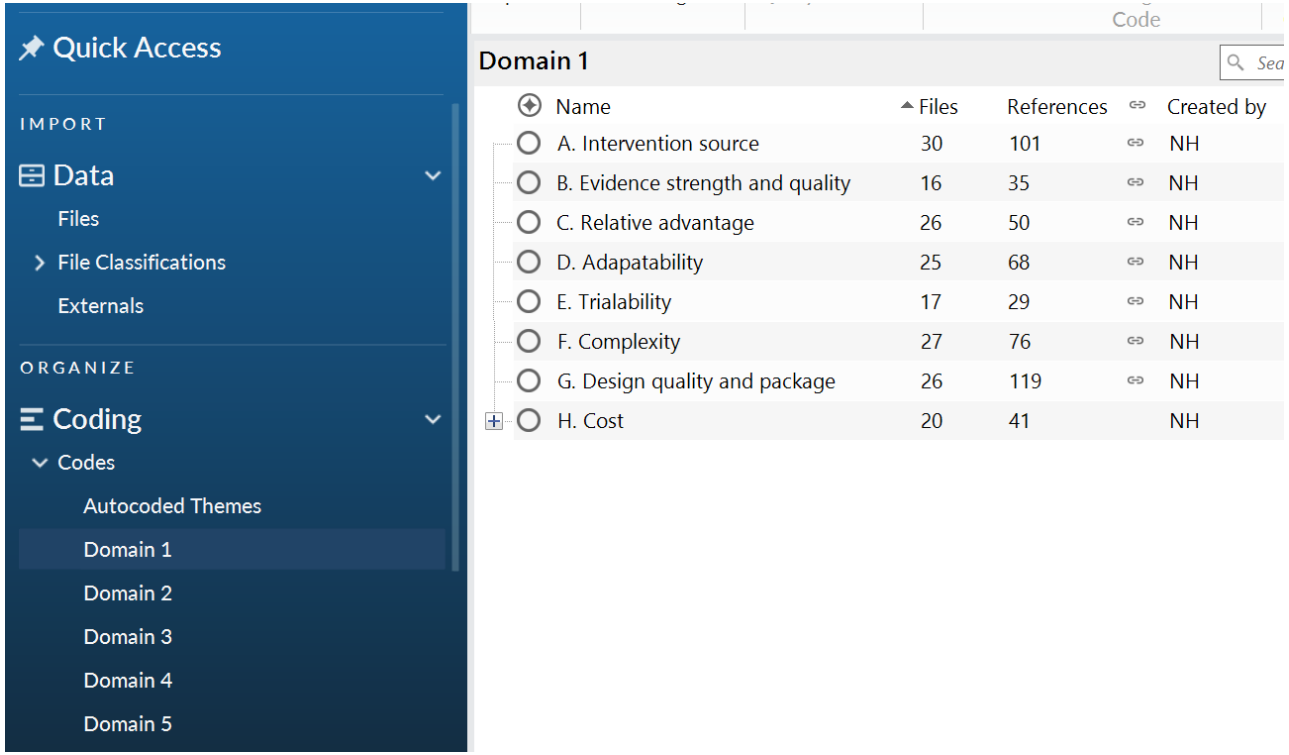
- First step was operationalizing CFIR interview guide tool to suit ASP implementation



CFIR construct	
	Domain One; Interv
Intervention source	**How did your hospital start AS** • Was it developed bas • Who was involved in • What went well and ○ Can you tell r
Adaptability	**Did you have to adapt or refine to suit your hospital?** • Can you describe these changes required? • Who was involved? **Or Any special plan for adapting or refining ASP to integrate it within the current** practice? • Who will be involved?
Complexity	**What are your thoughts on how complex the ASP was for your hospital?** • Was there a need for stepwise implementation? • Was there any specific training program for staff around implementation? • Do you feel there will be a need for step wise implementation? How?
Cost	**To what extent was (is) cost a consideration for implementing ASP?** • Think about costs incurred and potential to save costs
	Domain Two; Outer setting
Peer pressures	**How did ASP practices from other hospitals influenced your implementation?** • Positive and negative influences?
External policies and incentives	**What kind of national policies or directions influenced the decision to implement ASP?** • Any support has been received from authorities to encourage implementation? • Special training, seminars, educational material, bonuses, or incentives?
	Domain Three; Inner setting
Structural characteristics	**To what extent does (did) your hospital need to update its infrastructure for ASP implementation? (like policies, information technology, practices and guidelines)** • Such as hospital size, staff turnover, use of technology and central decision-making.
Networks and communication:	**Can you comment on the effect of formal and informal communication among teams inside your hospital on ASP implementation?**

How CFIR was integrated throughout the research process?

- Then used the CFIR code book as a guide for inductively coding data during analysis



CFIR Codebook

Note: This template provides inclusion and exclusion criteria for most constructs. Please post additional inclusion and exclusion criteria, guidance, or questions to the CFIR Wiki discussion tab in order to help improve the CFIR.

This template only includes CFIR definitions and coding criteria; codebooks may include other information, such as examples of coded text, rating guidelines, and related interview questions.

I. Innovation Characteristics	
A. Innovation Source	Definition: Perception of key stakeholders about whether the innovation is externally or internally developed. Inclusion Criteria: Include statements about the source of the innovation and the extent to which interviewees view the change as internal to the organization, e.g., an internally developed program, or external to the organization, e.g., a program coming from the outside. Note: May code and rate as "I" for internal or "E" for external. Exclusion Criteria: Exclude or double code statements related to who participated in the decision process to implement the innovation to Engaging, as an indication of early (or late) engagement. Participation in decision-making is an effective engagement strategy to help people feel ownership of the innovation.
B. Evidence Strength & Quality	Definition: Stakeholders' perceptions of the quality and validity of evidence supporting the belief that the innovation will have desired outcomes. Inclusion Criteria: Include statements regarding awareness of evidence and the strength and quality of evidence, as well as the absence of evidence or a desire for different types of evidence, such as pilot results instead of evidence from the literature. Exclusion Criteria: Exclude or double code statements regarding the receipt of evidence as an engagement strategy to Engaging: Key Stakeholders. Exclude or double code descriptions of use of results from local or regional pilots to Trialability.

How CFIR was integrated throughout the research process?

- Results were presented based on the most dominant CFIR domains and constructs

C. Overall summary of CFIR constructs identified as perceived facilitators or barriers for ASP implementation with supporting quotes (Table 1)

CFIR domain	CFIR construct	Identified themes	Supporting quotes	Perceived facilitator/barrier
Domain I	Complexity	Perceived complexity of ASP implementation.	"You say start simple but [ASP] gradually becomes complex because the more and more areas you involve to bring under your stewardship programme, the more difficult it becomes and the more challenging it becomes, because of the data gathering and number of people involved." [Microbiologist 1]	Perceived barrier
Domain II	External policy and incentives	ASP mandates by UAE health authorities and international accreditation bodies.	"We started in the summer of 2017. That was after the Department of Health in Abu Dhabi issued … a circular requiring that all the hospitals operating in the Emirate of Abu Dhabi have such a programme." [Clinical pharmacist 4]	Perceived facilitator
Domain III	Implementation climate (Tension for change)	Inconsistent prescribing practices creating a tension for change and a need to implement ASP.	"People are not using a standard protocol, each one is using his own protocol. Because we have the physicians which are trained in different countries. So, when we see the antibiotic usage, there are many things which were not consistent and standardised, so we wanted to standardise for our hospital also." [Surgeon 1]	Perceived facilitator
	Culture	Influence of blame culture on initial resistance to change antimicrobial prescribing behaviour.	"Most of the physicians, especially the surgeons, are afraid to be blamed of postoperative infection, complications of surgery… [due to]…inadequate coverage of antibiotic or inadequate duration of antibiotic." [Nephrologist 1]	Perceived barrier
		Collaborative culture to enhance acceptance of changing antimicrobial prescribing habits.	"Really, they're [prescribing physicians] accepting the changes. This [collaborative] culture helped to ease implementation of the programme, otherwise we cannot implement any programme if there is so much resistance and nobody is taking initiatives." [Nurse 3]	Perceived facilitator
	Available resources	A Lack of sufficient human resources.	"Our hospital didn't recruit an ID [Infectious diseases] consultant, but it consulted with the ID [consultant] at hospital X as needed." [Clinical pharmacist 4]	Perceived barrier
	Leadership engagement	Importance of engaging leadership using cost savings data.	"They [leadership] actually hired an infectious disease physician to be responsible for ASP." [Clinical pharmacist 5]	Perceived facilitator
	Network and communication	Establishment of effective formal and informal communication routes among ASP team members and healthcare providers.	"You don't come up as a policeman to police on them [physicians]. If you convey this message that … we are not challenging … your clinical decisions… and you do in a timely way the … face to face communication, that is much better than sending an email." [Clinical pharmacist 3]	Perceived facilitator
Domain V	Planning	Effective future planning for ASP implementation through selection of suitable interventions tailored to the specific organisation.	"We collected baseline data for one year to help us to decide where to start. Based on our baseline data, we decided that critical care area is the highest priority… to improve the prescribing practice of antibiotics … to decrease the incidence of the development of multi-drug resistant organism" [Clinical pharmacist 6]	Perceived facilitator

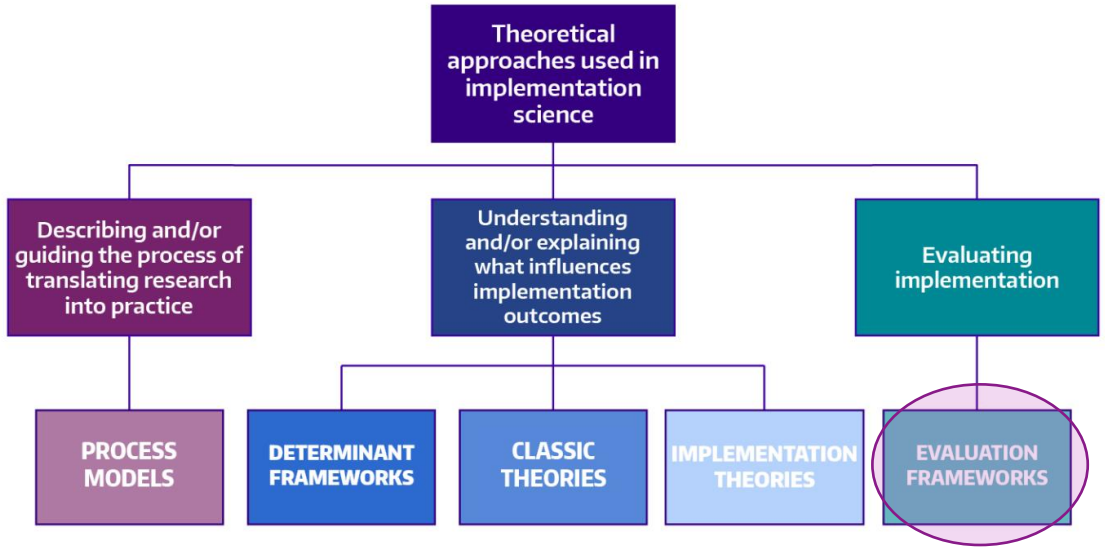
Theoretical exploration of healthcare providers' perceptions regarding the effectiveness of real time telemedicine implementation

An experience form the United Arab Emirates

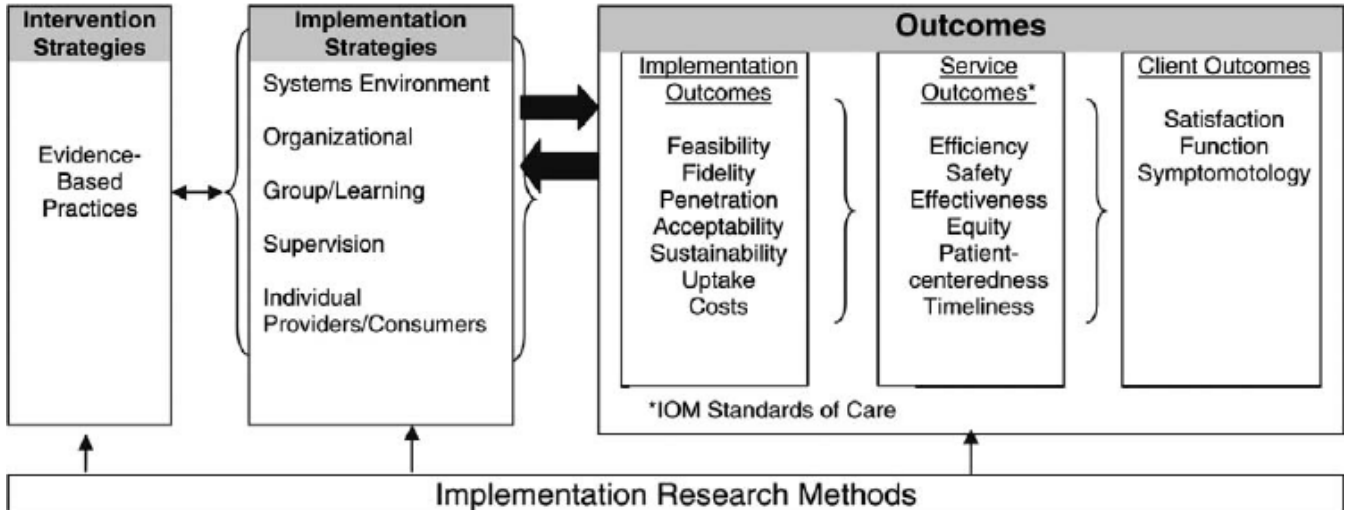
Conceptual model of implementation Research

- The study aim was to explore healthcare providers' perception regarding the implementation of real time telemedicine as a clinical management option.
- **Objectives include:**

1. explore implementation strategy adopted
2. critically appraise and consolidate evidence on various outcomes related to real time telemedicine including implementation, service and patient outcomes



Conceptual model of implementation Research



Operationalising the theoretical model

Selection of constructs which address our research needs.

Agreement on definitions of constructs that will be employed throughout research tool development, coding/analysis of data collected and reporting of results.

Implementation strategy	Implementation outcomes	Service outcomes	Patient outcomes
• Organisational • Group learning	• Feasibility • Penetration • Acceptability • Sustainability • Uptake	• Safety • Effectiveness	• Satisfaction • Symptomatology

Short message

- The use of theories, models or frameworks can provide researchers with a better understanding of how and why implementation is successful.
- Each tool has a distinct purpose.
- After identifying the correct tool:
  - Explore constructs covered by the tool
  - Explore other published research that have used the tool
  - Optimize the tool through defining terminologies to suit your research topic

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