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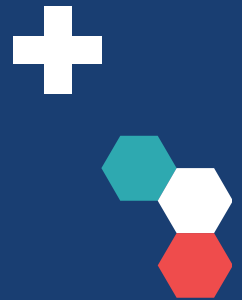
@TracyLFinch

Workshop 1- Implementation thinking from the start: how might theories and frameworks help us design (better) applied health and social care research?

Tracy Finch, Leah Bührmann

NIHR ARC Scientific Conference
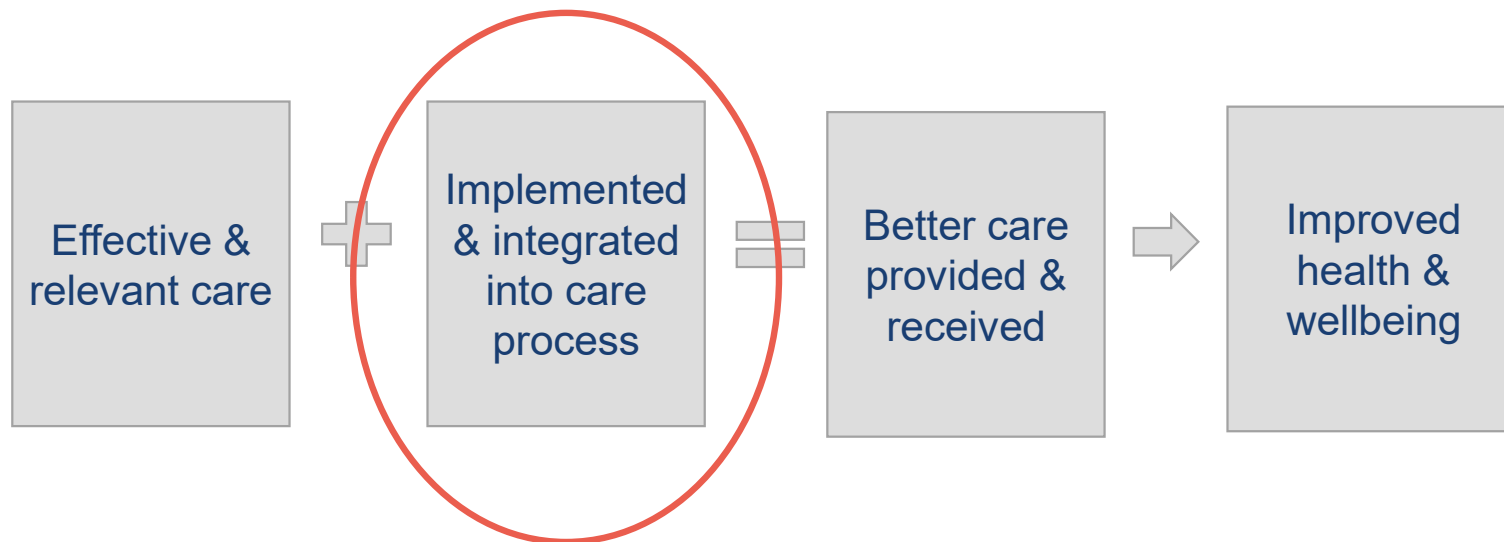May 24-25 2023, The Helix, Newcastle upon Tyne

Implementation Science…

Implementation research is the scientific study of methods to promote the systematic uptake of proven clinical treatments, practices, organisational, and management interventions into routine practice, and hence to improve health. In this context, it includes the study of influences on patient, healthcare professional, and organisational behaviour in either healthcare or population settings.

(BMC Implementation Science website 'Aims & Scope')

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Premise:

Effective & relevant care $+$ **Implemented & integrated into care process** $=$ Better care provided & received $\rightarrow$ Improved health & wellbeing

Knowledge transfer	"a systematic approach to capture, collect and share tacit knowledge in order for it to become explicit knowledge. By doing so, this process allows for individuals and/or organizations to access and utilize essential information, which previously was known intrinsically to only one or a small group of people." Government of Alberta (http://www.pao.gov.ab.ca/learning/knowledge/transfer-guide/index.html accessed Jan 24, 2006).
	"Successful knowledge transfer involves much more than a one way, linear diffusion of knowledge and skills from a university to industry; it depends on access to people, information and infrastructure." UK Particle Physics and Astronomy Research Council (PPARC) (http://www.pparc.ac.uk/in/aboutkt.asp accessed Jan 24, 2006).
	"Knowledge transfer is about transferring good ideas, research results and skills between universities, other research organisations, business and the wider community to enable innovative new products and services to be developed." UK Office of Science and Technology (http://www.ost.gov.uk accessed Jan 24, 2006).
Knowledge exchange	"Knowledge exchange is collaborative problem-solving between researchers and decision makers that happens through linkage and exchange. Effective knowledge exchange involves interaction between decision makers and researchers and results in mutual learning through the process of planning, producing, disseminating, and applying existing or new research in decision-making." Canadian Health Services Research Foundation (http://www.chsrf.ca/keys/glossary_e.php accessed Jan 24, 2006).
Research utilization	"process by which specific research-based knowledge (science) is implemented in practice"[20]
Implementation	"the execution of the adoption decision, that is, the innovation or the research is put into practice" (http://www.nursing.ualberta.ca/kusp/rustudy2/glossary.htm accessed Jan 24, 2006).

See: Graham et al 'Lost in translation' (table 1): https://pubmed.ncbi.nlm.nih.gov/16557505/

Implementation: A definition

Implementation involves **all activities** that occur between making an adoption commitment and the time that an innovation either becomes **part of the organizational routine**, **ceases to be new, or is abandoned** (…) [and the] behavior of organizational members over time evolves from avoidance or non-use, through unenthusiastic or compliant use, to **skilled or consistent use**. (Linton, 2002: 65)

Linton, J.D. (2002) 'Implementation Research: State of the Art and Future Directions', Technovation 22(2): 65–79.

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Varied activity focus

Planning and developing new interventions

- *Maximise potential for successful implementation*

Evaluating interventions

- *Understand and best support implementation*

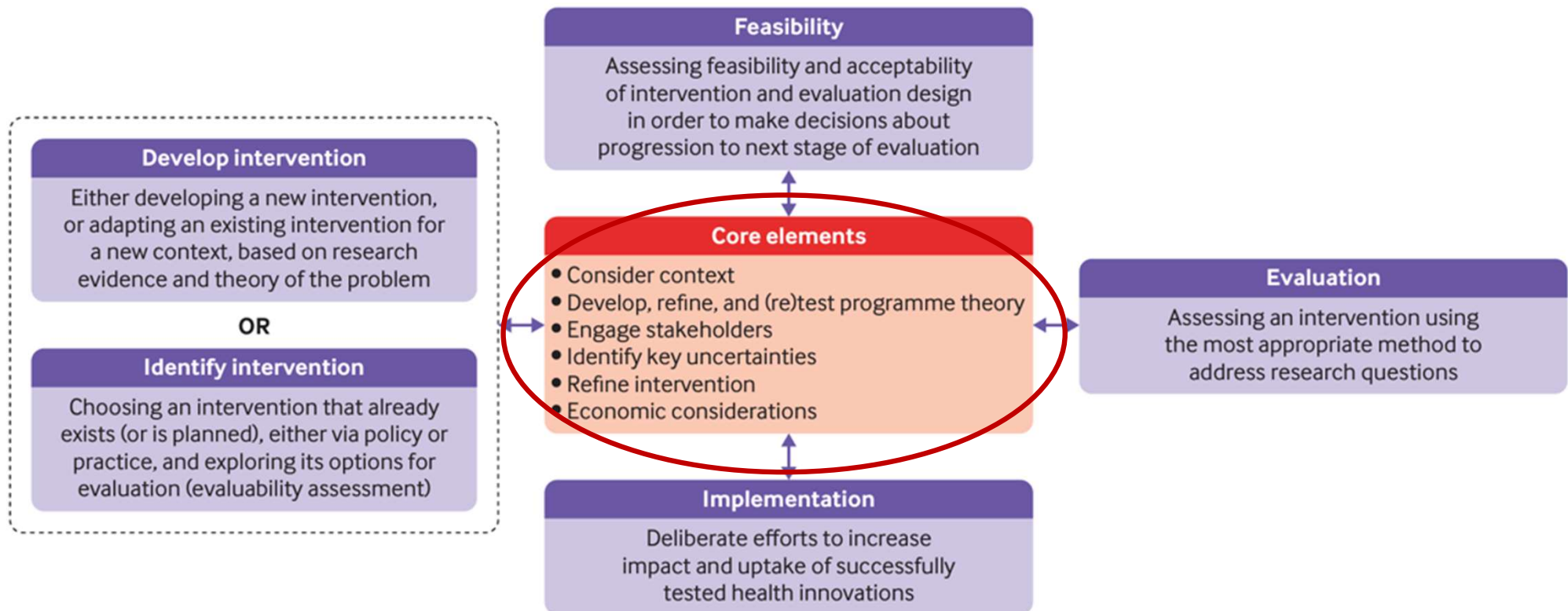Roll out of proven interventions

- *Increase scale and scope of dissemination*

See: Murray E, Treweek S, Pope C, MacFarlane A, Ballini L, Dowrick C, **Finch T**, Kennedy A, Mair F, O'Donnell C: Normalisation process theory: a framework for developing, evaluating and implementing complex interventions. *BMC medicine* 2010, 8(1):1.

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What might 'implementation thinking' bring to applied health and care research design?

- Developing understandings and explanations

- Exploring and identifying contexts of implementation

- Enhance opportunity to plan for and address implementation challenges, earlier in the translational process

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Implementation Science & complex interventions research

Feasibility
Assessing feasibility and acceptability of intervention and evaluation design in order to make decisions about progression to next stage of evaluation

Develop intervention
Either developing a new intervention, or adapting an existing intervention for a new context, based on research evidence and theory of the problem

OR

Identify intervention
Choosing an intervention that already exists (or is planned), either via policy or practice, and exploring its options for evaluation (evaluability assessment)

Core elements
- Consider context
- Develop, refine, and (re)test programme theory
- Engage stakeholders
- Identify key uncertainties
- Refine intervention
- Economic considerations

Evaluation
Assessing an intervention using the most appropriate method to address research questions

Implementation
Deliberate efforts to increase impact and uptake of successfully tested health innovations

Skivington K, Matthews L, Simpson SA, Craig P, Baird J, Blazeby JM, et al. A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. BMJ. 2021;374:n2061.

Implementation 'thinking'…..

Let's start with exploring 'context'
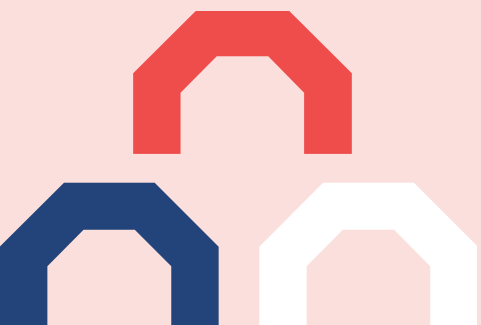
Activity 1: Together….

From practical experience (or intuitively)….

What 'factors' make implementation challenging?

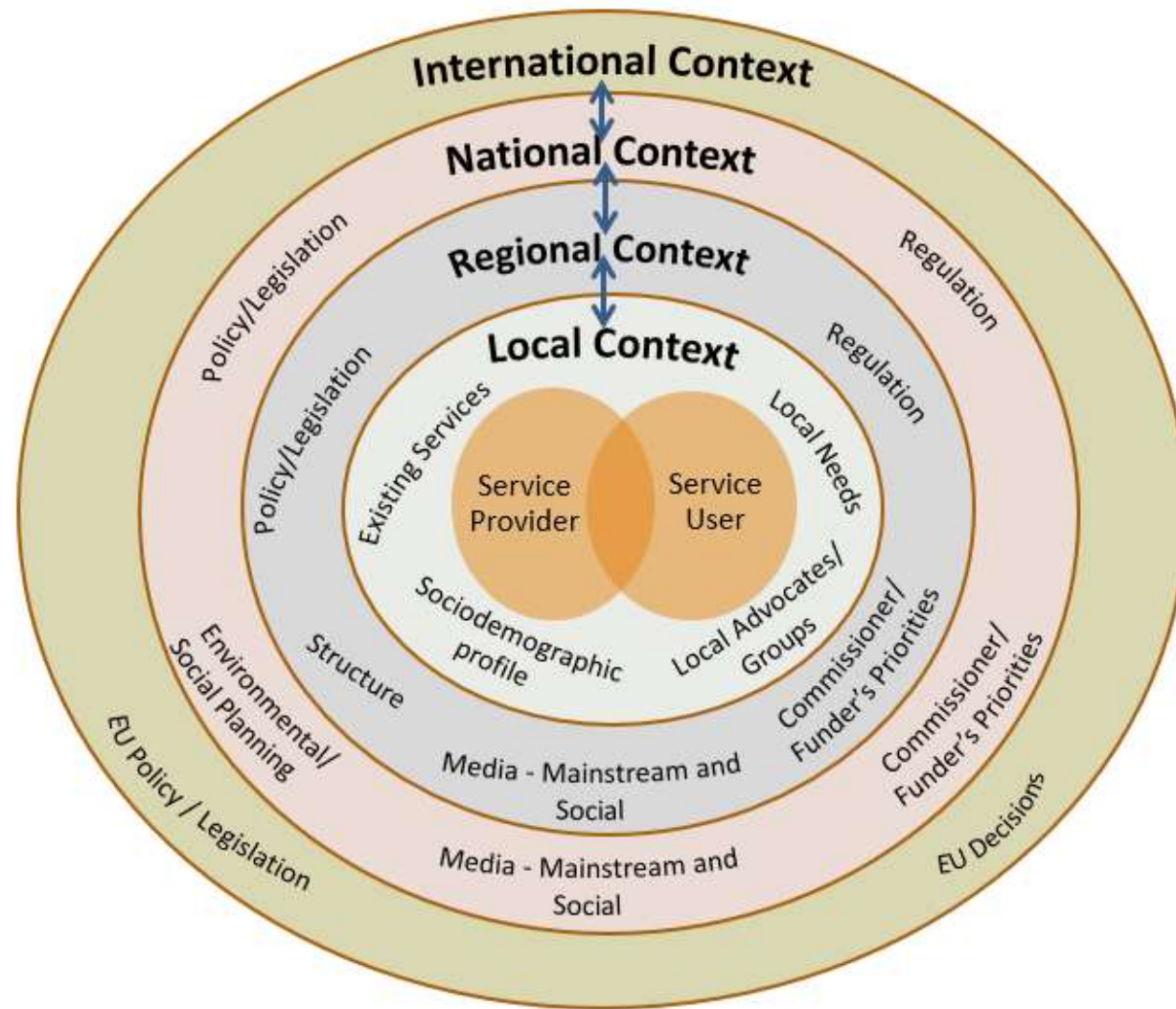*What do we think about when we hear the term 'context'?*
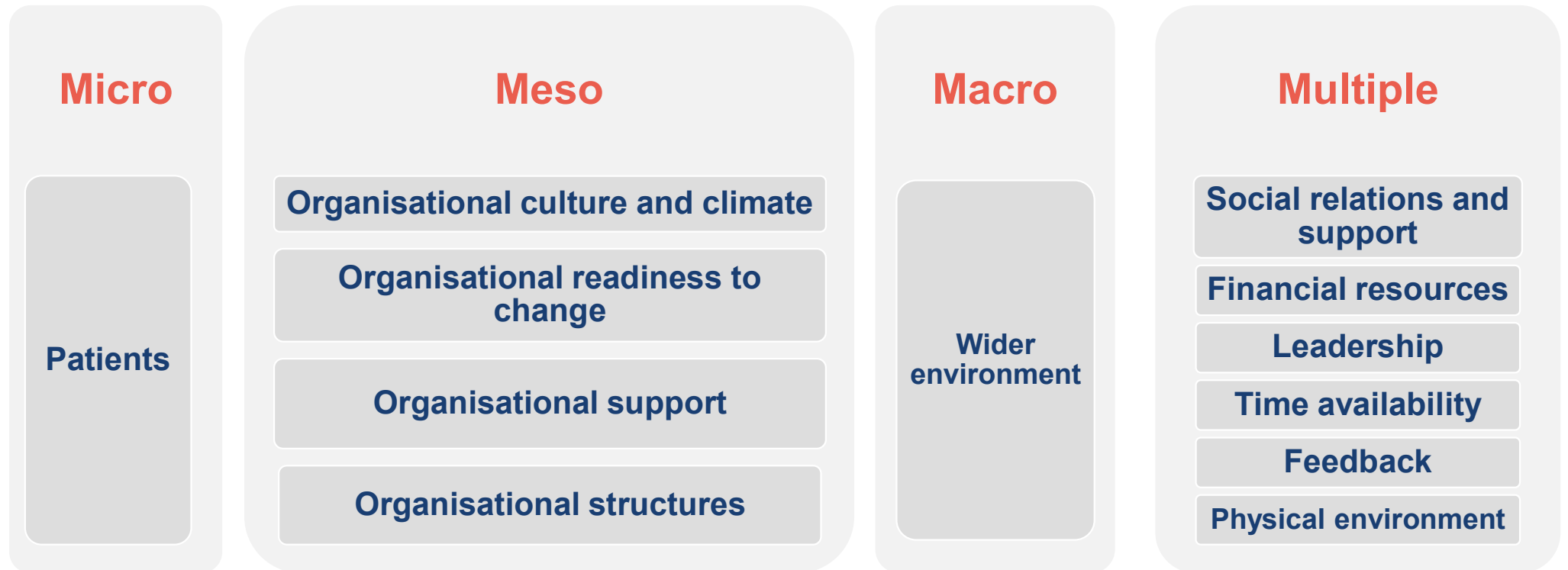
(a few minutes)

What we mean by 'context'

For implementation research, 'context' is the set of circumstances or unique factors that surround a particular implementation effort … In this paper, we use the term context to connote this broad scope of circumstances and characteristics" *(Damschroder et al, 2009).*

Terms such as "context", "setting" and "environment" are often used interchangeably in implementation science and other research fields *(Nilsen & Bernhardsson, 2019)*

Nilsen, P., Bernhardsson, S. Context matters in implementation science: a scoping review of determinant frameworks that describe contextual determinants for implementation outcomes. *BMC Health Serv Res* **19,** 189 (2019). https://doi.org/10.1186/s12913-019-4015-3

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Nilsen & Bernhardsson (2019)

Micro	Meso	Macro	Multiple
Patients	Organisational culture and climate	Wider environment	Social relations and support
	Organisational readiness to change		Financial resources
	Organisational support		Leadership
	Organisational structures		Time availability
			Feedback
			Physical environment

Determinants frameworks: CFIR

- Synthesised published theories (19 models) containing factors affecting implementation – involved conceptual/translation work

- **Five major domains (with subconstructs)**:
  - intervention characteristics (n=8),
  - outer setting (n=4)
  - inner setting (n = 12)
  - characteristics of the individuals involved (n= 5), and the
  - process of implementation (n = 8)

- 2022: Update published- user study, some changes to domain descriptions and subconstructs

Damschroder, L.J., Aron, D.C., Keith, R.E. *et al.* **Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science**. *Implementation Sci* **4,** 50 (2009). https://doi.org/10.1186/1748-5908-4-50

Consolidated Framework for Implementation Research (CFIR) 2.0

❋ Outer Setting

- Critical incidents
- Values and beliefs
- Systemic conditions
- Policies and laws
- Partnerships and connections
- Financing
- External pressure

Inner Setting

- Structural characteristics
- Relational connections
- Communications
- Culture
- Tension for change
- Compatibility
- Relative priority
- Incentive systems
- Mission alignment
- Available resources
- Access to knowledge about the Innovation

Individuals

Implementation Process

- Teaming
- Assessing Needs
- Assessing Context
- Planning
- Tailoring Strategies
- Engaging
- Doing
- Reflecting & Evaluating
- Adapting

The WHAT (Innovation)

- Source
- Evidence-Base
- Relative Advantage
- Adaptability
- Trialability
- Complexity
- Design
- Cost

Process

Roles

- High-level leaders
- Mid-level leaders
- Opinion leaders
- Innovation recipients
- Implementation facilitators
- Implementation leads
- Innovation deliverers
- Innovation beneficiaries
- Implementation team members
- Other implementation support

Barriers and Facilitators

- Need
- Capability
- Opportunity
- Motivation

Figure adapted by The Center for Implementation

Damschroder, L.J., Reardon, C.M., Widerquist, M.A.O. et al. The updated Consolidated Framework for Implementation Research based on user feedback. *Implementation Sci* 17, 75 (2022). https://doi.org/10.1186/s13012-022-01245-0
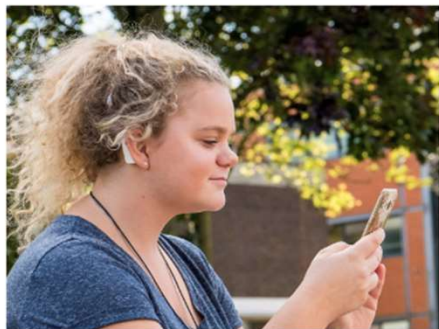
Activity 2: Small Groups

Task: Using the CHOICE study example, see if you can identify/map some of the implementation issues raised in the CHOICE study to **the five CFIR domains**

Questions for feedback and discussion:

- What was it like using the framework?

- Did it help you think about implementation issues in different ways? (if so, what)

- What's missing from it?

- How could it help in designing your research projects?

Telemedicine for Adults With Cochlear Implants in the United Kingdom (CHOICE): Protocol for a Prospective Interventional Multisite Study

Helen Cullington [1] iD; Padraig Kitterick [2] iD; Philippa Darnton [3] iD; Tracy Finch [4] iD; Kate Greenwell [5] iD; Carol Riggs [1] iD; Mark Weal [6] iD; Dawn-Marie Walker [7] iD; Andrew Sibley [3] iD

Figure 1. Cochlear implant home care (CHOICE) web app patient dashboard.
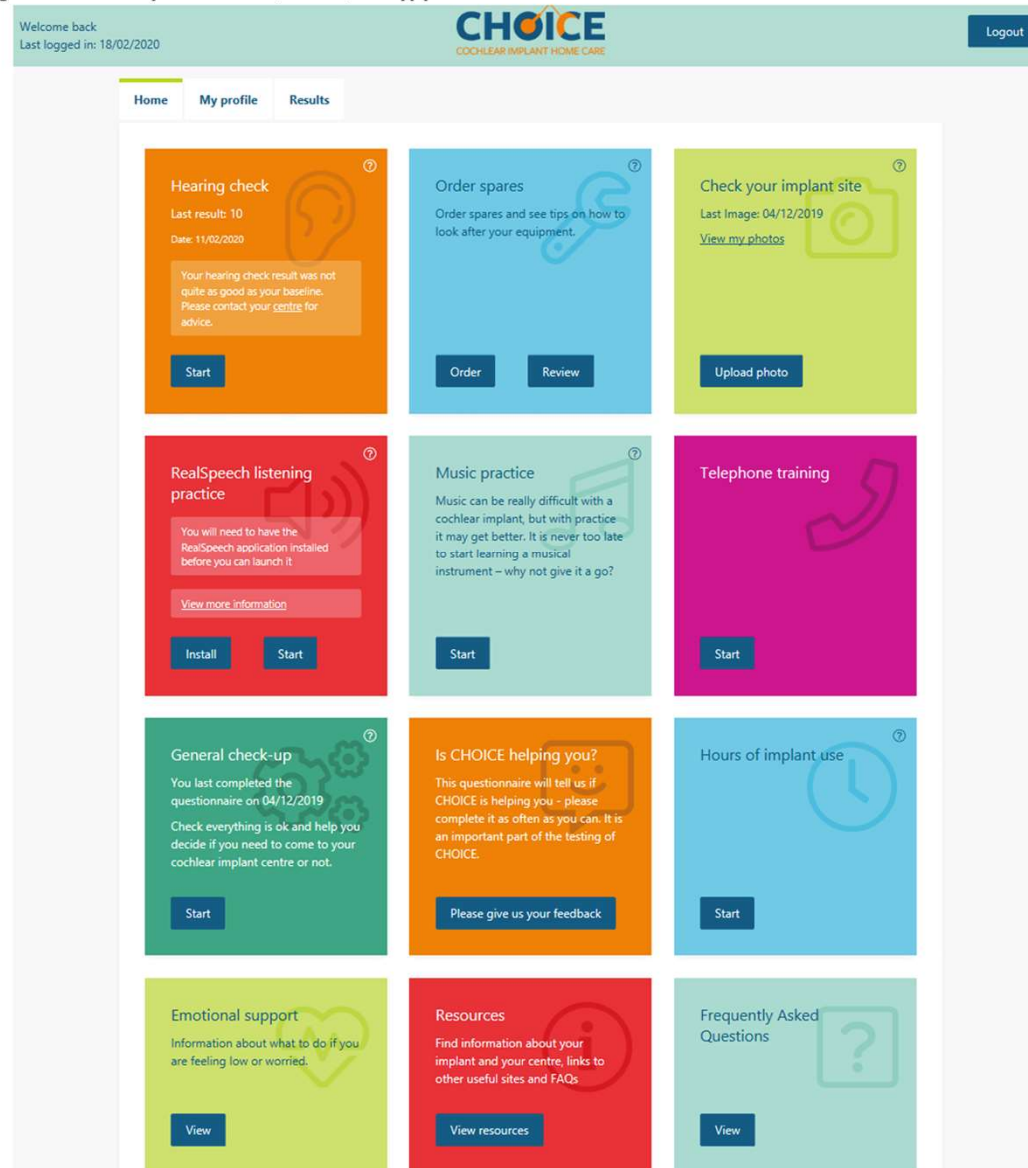
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**Mechanisms of change:
Trying out Normalisation Process Theory (NPT) thinking**

ImpRes
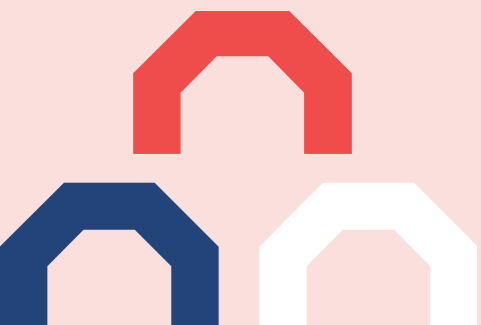
A theory is defined as 'a set of analytical principles or statements designed to structure our observation, understanding and explanation of the world. A theory is made up of definitions of variables, a domain where the theory applies, a set of relationships between the variables and specific predictions.'

A framework is defined as 'a structure, overview, outline, system or plan consisting of various descriptive categories, e.g. concepts, constructs or variables, and the relations between them that are presumed to account for a phenomenon. Frameworks do not provide explanations; they only describe empirical phenomena by fitting them into a set of categories.'

A model is a 'deliberate simplification of a phenomenon or a specific aspect of a phenomenon. Models need not be completely accurate representations of reality to have value.'

All definitions taken and adapted from Nilsen et al, 2015.[10]

No 'theory' (or framework)…..

NPT Normalization Process Theory
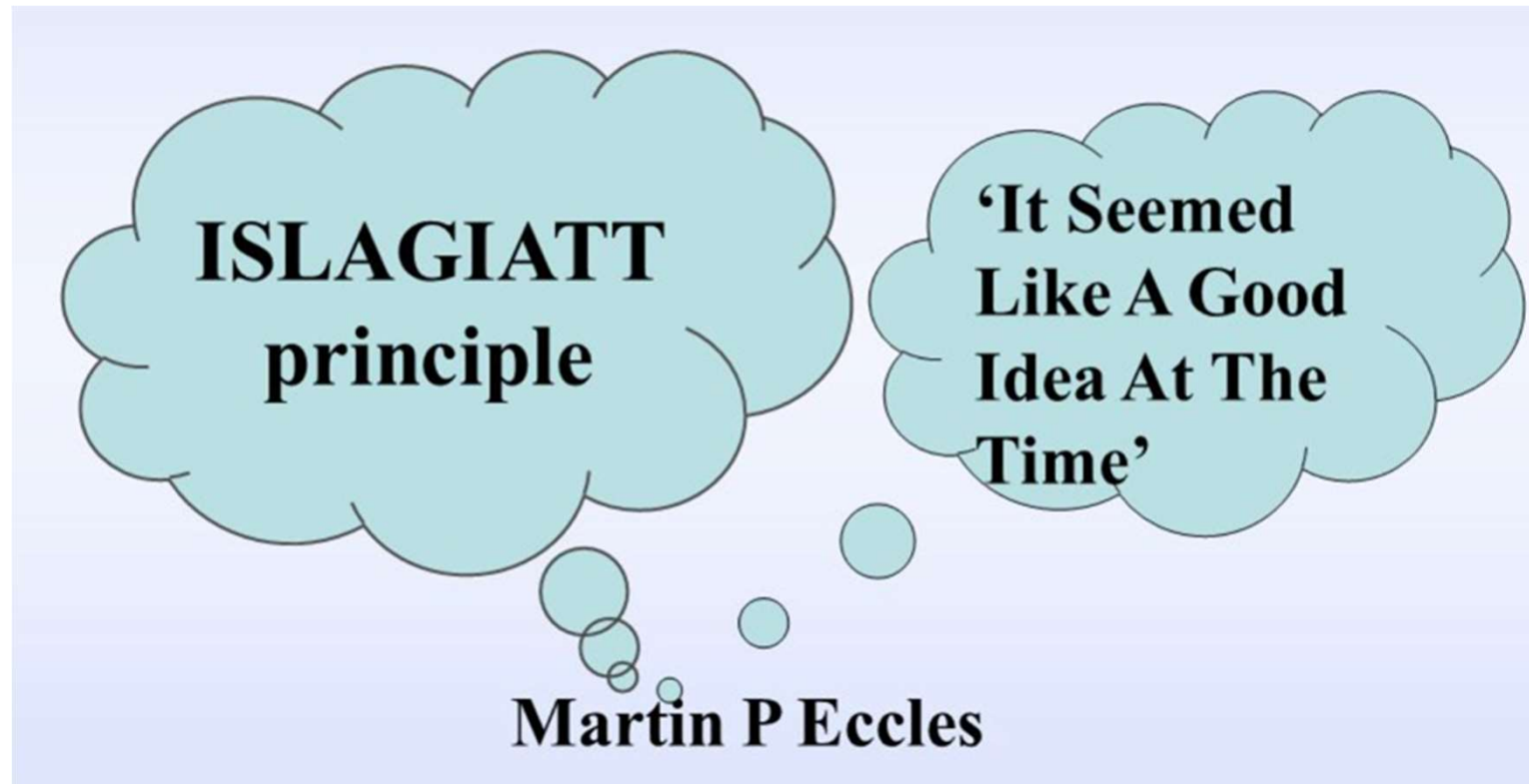
What is NPT?

A way of thinking about implementation problems that focuses on:

- How interventions can become part of everyday practice
- How different groups of people need to work together to achieve it

How do I use it?

Thinking of your intervention, use the four sets of questions on the right to identify possible barriers to successful implementation, and suggest solutions to improve the process.

www.normalizationprocess.org

COHERENCE

How do people make sense of the intervention as something 'new'?

(eg. what it involves, why?)

COGNITIVE PARTICIPATION

How do people get involved and stay committed?

Can they see how they contribute?

'WHAT WORK NEEDS TO BE DONE?'

COLLECTIVE ACTION

How do people make it work in practice?

What do they need to make it happen?

REFLEXIVE MONITORING

How do people assess whether it is worth the effort?

Can improvements be made?

Or more simply….

'It's all about the 'work'':

What is it?   *(Coherence)*

Who does it?   *(Cognitive Participation)*

How does it get done?   *(Collective Action)*

Why did it happen like that?   *(Reflexive Monitoring)*

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What does NPT tell us about implementing and sustaining change?

Implementation work is complex and involves **ongoing efforts** to achieve sustainable change through **building understanding** of the work, establishing and maintaining the **participation of key persons**, and ensuring that participants/organisations have the means of **appraising and adapting** (where necessary) the work that has to be done.

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Activity 3: Small Groups

Task

Using the CHOICE study example again, see if you can identify/map some of the implementation issues raised in the CHOICE study using the **four NPT constructs**

Questions for feedback and discussion:

- How easy/difficult was this?

- What kinds of insights did you get into the problems around implementing CHOICE?

- How was this 'different' to using the CFIR?

- Could it help in designing your research?

Understanding implementation context and social processes through integrating Normalization Process Theory (NPT) and the Consolidated Framework for Implementation Research (CFIR)

Dawn Schroeder, Thea Luig, Tracy L. Finch, Sanjay Beesoon & Denise Lynn Campbell-Scherer ✉

The integration of NPT and CFIR provides guidance to identify and explore **complex entangled interactions between agents, processes**, and contextual conditions within and beyond organizations to embed innovations into routine practices. Nuanced understandings gained through this approach **moves understandings beyond descriptions of determinants** to explain **how change occurs** or not during implementation. Mechanism-based explanations illuminate concrete practical strategies to support implementation.

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Group reflections

- How can we use these approaches to maximise the impact of our research?

- What general principles might help us with this kind of work?

Padlet: https://bit.ly/3MuJ4iw

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ImpRes

ImpRes contains 10 domains that cover the core principles and methods of implementation science that researchers should consider when planning and designing high-quality and rigorous implementation research.
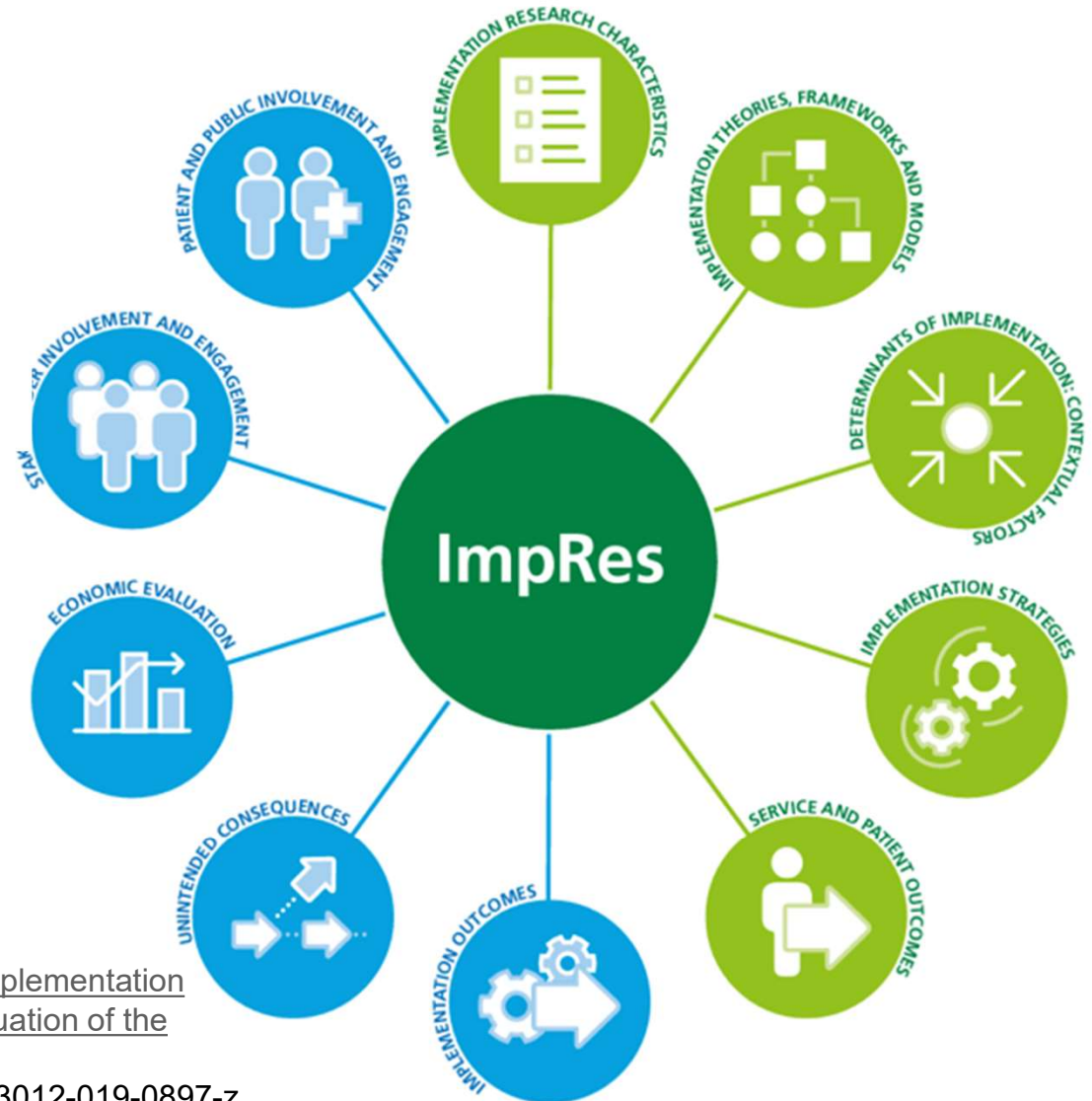
Hull, L., Goulding, L., Khadjesari, Z. *et al.* Designing high-quality implementation research: development, application, feasibility and preliminary evaluation of the implementation science research development (ImpRes) tool and guide. *Implementation Sci* **14,** 80 (2019). https://doi.org/10.1186/s13012-019-0897-z

How can you get involved in SKIM Activities?

- Contact us directly: susan.sleight@northumbria.ac.uk

- To register for **updates** / check out the **NENC ARC website:** https://arc-nenc.nihr.ac.uk/

- Have a look at our MS Teams site with resources and members bios

- Post questions and suggestions to other members in the chat

- Join our members meetings

- Attend events and training sessions, help contribute to delivering some

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Thank you for your engagement ☺