THE FUTURE OF CHRONIC PAIN MANAGEMENT

Transforming Pain Care Delivery with Digital Health Technology

> Learn about the important questions and considerations that emerged from our innovation lab to develop personalised pain management

Our Vision

Develop an effective personalised intervention with digital health technologies that provides evidence-based pain management.

Our Approach

Two half-days innovation lab with **25 experts** in chronic pain, pain treatment and management, behaviour change, complex analytics, digital health, health informatics and data governance, as well as public contributors.

We discussed **current barriers and opportunities** in chronic pain management and explored solutions using **just-in-time adaptive intervention (JITAI)**, an approach for **providing the right support to the right person at the right time**.

Key Questions

Personalised approach

- What **exposures** associated with pain should be monitored and how?
- How to define **personalised profiles** (e.g. pain patterns, exposures, short-term and long-term goals) for tailoring?
- What do patients want to **know about their pain**?

Intervention codesign

- What digital tools are **acceptable** to the target population?
- How to best **engage** patients to monitor their pain?
- What **feedback** increases engagement?
- How to organise **multiple therapeutic targets**?

Outcome evaluation

- What can be learned from **successful and unsuccessful interventions**?
- What **behaviour change techniques** work? Where? When? How? For whom?
- At what point is the intervention considered **effective**?

Designing a just-in-time adaptive intervention for chronic pain

1 Decision points

Time points for deciding whether an intervention should be delivered and how

- An intervention decision should be made when there may be a **"significant change"** in pain severity
- Defining **operational goals** for monitoring pain triggers, such as data collection methods and tools, as well as the frequency of engagement

2 Tailoring variables

Information about end-users that is utilised to determine when and how to intervene

- Tailoring variables should not be limited to individual pain experiences, but also users' **receptibility**
- **Group-level tailoring** is a more realistic and feasible approach when individual data is not available

3 Intervention options

Various support types or delivery modes that can be used at given decision points

- Support and delivery modes should consider **individual differences** as expectations and priorities change over time
- Providing **bite-sized and graded tasks**, and offering **breaks** could minimise engagement burden

4 Decision rules

Systematic rules linking tailoring variables and intervention options for adaptation

- Effective decision rules depend on the **levels** at which tailoring variables and intervention options are linked
- Using **clusters or subgroups** based on similar characteristics at various tailoring levels when individual data is limited

5 Proximal outcomes

Short-term goals often acted as mediators

6 Distal outcome

The primary clinical outcome

- Using a **multi-level modular intervention** format that targets multiple needs, such as pain acceptance, perception or functionality
- The distal outcome should move beyond pain intensity and **prioritise pain impact and individual well-being**