

EAHM AWARD 2024 “INNOVATION IN HOSPITAL MANAGEMENT” : The Winner of the 2024 edition is the Tallaght University Hospital (Dublin-Ireland) for the project “HELPING PATIENTS LIVE WELL WITH CHRONIC DISEASE: THE SMARTCP MOBILE APP FOR CHRONIC PANCREATITIS”. The announcement was made on 24 April 2024 at an official ceremony broadcast simultaneously in Marseille (France), Rabat (Morocco) and Da Nang (Vietnam), on the occasion of the “International Conference on Innovation and Connected Technology X.0 ICCITX.0 & the International Smart Healthcare Conference SHeIC”

The team consisting of Níamh Wilke, Marie Egan (cANP), Professor Paul Ridgway, Professor Kevin Conlon and Dr Sinead Duggan summarised the project as follows:

Chronic pancreatitis (CP) is a complex, progressive, inflammatory condition leading to permanent destruction of pancreatic tissue resulting in several debilitating symptoms including malabsorption, weight loss and unremitting abdominal pain.

As there is no cure, management is conservative and requires multidisciplinary care, with frequent referrals to other medical and allied-health teams including Endocrinology, Radiology, Social Work, Dietetics, Physiotherapy and Pain Management. The clinical course of CP is highly variable, and patients frequently call our service with CP-related problems and queries. In Tallaght University Hospital (TUH), several out-patient clinics are in operation for CP including medical-led, nurse-specialist led, and type 3c diabetes clinics. Our advanced nurse practitioner (ANP) deals with 3-5 crisis phone calls daily, each lasting up to 30 minutes.

Patients have frequent urgent clinic and Emergency Department (ED) attendances and hospital admissions. Although care is currently predominantly hospital-based, we aim to move towards a preventative/community model. Our interdisciplinary CP group designed and developed the SmartCP mobile phone application in 2022 with the support of a government innovation grant (DEPR). SmartCP complements our specialist service with features such as a symptom tracker, diet/physical activity log, alert system for escalating symptoms, quality of life assessment, red-flag alerts for diabetes/pancreatic cancer, educational content and direct messaging function.

SmartCP was designed to empower the patient to monitor symptoms and support the patient self-manage their condition where appropriate. It also supports clinical staff to react promptly to any deterioration and to provide ongoing appropriate education to patients. To assess the effectiveness of SmartCP, we are measuring reduction in unnecessary clinic and ED attendances, as well as reduction hospital admission and unnecessary GP visits in real time.

We currently report an initial reduction in unnecessary clinic attendance, ED attendance/possible subsequent hospital admissions, reduction in unnecessary GP attendances as well as a response to several red flag alerts for patients with escalation of symptoms. It is envisaged that long-term, these reductions will result in more rational allocation of clinic time and valuable resources to those who need it therefore reducing the burden on the hospital and ultimately, provide cost savings to our health system.

## MATERIALS AND METHODS

The effectiveness of SmartCP is evaluated by monitoring the following metrics:

- Number of Crisis events (crisis phone-calls to service, ED attendances)
- Number of Symptoms recorded; red-flag alert for escalating symptoms i.e. pain.
- Number of red-flag alerts for new diabetes/pancreatic cancer (or false alerts)
- Urgent clinic attendance rates
- Change in quality-of-life scores (SF-12)
- Hospitalisations (number of admissions, length of stay)
- Usage and engagement with communication/education features

## RESULTS AND DISCUSSION

According to our initial evaluation, results are as follows:

- 27 patients reported severe pain escalation via SmartCP and were subsequently contacted by the ANP. Of these, 2 then were advised to attend ED, whilst 25 avoided an ED attendance and possible subsequent hospital admission.
- 21 episodes of patients requesting a prescription via SmartCP. Typically, these patients would have attended their local GP, and this was therefore avoided.
- 33 alerts as part of the SmartCP Monthly Check-In with symptoms suggestive of potential pancreatic cancer. In all cases, following a work-up, the ANP organised subsequent scans and/or blood tumour markers.
- In total, there were 282 communications requests (including blood results, scan results, appointment queries and prescription).

Prior to SmartCP, patients typically were unable to report concerning symptoms and may have waited longer to attend their GP or report their symptoms at our clinic, particularly those not living close to TUH. Patients with CP have an increased risk of developing pancreatic cancer, a cancer with often very poor outcomes due to late presentation.

As demonstrated by our initial results, due to SmartCP, the ANP was able to deal with these remotely without the need for clinic appointments, or without a delay in imparting information. The development of SmartCP incorporated not only our local hospital strategy, but also compliments several national government policies and frameworks including the “National Framework for The Integrated Model of Care for the Prevention and Management of Chronic Disease in Ireland 2020-2025” and the “HSE Healthy Ireland Strategic Action Plan” as well as the “HSE Digital Roadmap” and “HSE 2023 Waiting List Action Plan”.

As well as the initial benefits realised, there are also several expected long-term outcomes of implementing digital technology such as SmartCP alongside the traditional model of care. The potential for detecting early signs of pancreatic cancer among CP patients with increased risk is compelling, given its dismal outcomes, in part due to late presentation and poor appreciation of early symptoms.

This initiative will also build patients digital health literacy, allowing for shared decision making, disease prevention and health promotion and improved quality of life. It is our hope that SmartCP could be integrated into traditional CP management on a national scale, and in future, for other chronic conditions resulting in improved health outcomes, patient empowerment, and ultimately, decreased healthcare costs.