

# TRUST AND CONTEXTUAL ENGAGEMENT WITH THE PEPPER SYSTEM: THE QUALITATIVE FINDINGS OF A CLINICAL FEASIBILITY STUDY

M. Waite<sup>3</sup> A. Aldea<sup>3</sup>, P. Avari<sup>1</sup>, Y. Leal<sup>2</sup> C. Martin<sup>3</sup> D. Duce<sup>3</sup>, M. Fernández-Balsells<sup>2</sup>, J.M. Fernández-Real<sup>2</sup>, P. Herrero<sup>1</sup>, N. Jugnee<sup>1</sup>, C. Lui<sup>1</sup>, B. López<sup>4</sup>, J. Massana<sup>4</sup>, A. Russell<sup>3</sup>, M. Reddy<sup>1</sup>, M. Wos<sup>2</sup> and N. Oliver<sup>1</sup>

<sup>1</sup>Imperial College London, London, United Kingdom,

<sup>2</sup>Institut d'Investigació Biomèdica de Girona Dr. Josep Trueta, Girona, Spain,

<sup>3</sup>Oxford Brookes University, Oxford, United Kingdom,

<sup>4</sup>University of Girona, Girona, Spain

## Background and aims

PEPPER (Patient Empowerment through Predictive PERsonalised decision support) is an EU-funded research project which aims to improve self-management of type 1 diabetes (T1D). The system comprises an AI insulin bolus recommender, coupled with a safety system. The aim of the qualitative arm of this clinical feasibility study was to examine the context of participants' interaction with the PEPPER system and identify incidents where bolus recommendations were trusted and accepted.

## Methods

This was a multicentre (UK and Spain) non-randomised open-labelled 6-week pilot study. Thirteen adults with T1D participated in weekly telephone interviews to explore the context of their interactions and responses to PEPPER. Data was thematically analysed through conceptual frameworks for engagement with healthcare digital behaviour change interventions.

## Results

Participants reported their key interactions as responding to PEPPER bolus recommendations, inputting carbohydrate values, interpreting continuous glucose monitoring (CGM) values through visualization of personal data and dealing with safety alarms. Two themes were associated with trust and engagement with the system; 'feeling monitored' and 'feeling in control'. The incidents where participants trusted PEPPER also enhanced personal expertise of T1D through insights provided by the safety system such as low glucose basal insulin for pump users. Benefits were balanced against technical challenges of the system, which were used to improve the PEPPER application and enhance user experience.

## Conclusion

Some participants suggested that even access to PEPPER for a temporary period could positively influence self-management strategies. Contextual interviewing is a valuable tool in mobile application development for diabetes decision support systems.