**Background and challenges**

Cardio-vascular disease, cancer, chronic respiratory disease and diabetes are the four main causes of death in Non Communicable Diseases. In some of these diseases (all 4, except cancer) its daily management can alleviate the disease or even keep it under control (diabetes and chronic respiratory disease). There has been work on mobile apps to help patient. However, the question of usability of these applications and especially patient engagement is still a problem. A current trend in this line is the use of gamification techniques on health applications. Most of these approaches aim to change patient behavior towards more correct attitudes in daily life.

**Description and main innovation**

The aim is to apply user interface and application environment improvements to a diabetes management application MyDiabetes to increase patient engagement and thus data registration. Research is on UI techniques based on cognitive science together with gamification approaches to define methods to improve patient engagement in mHealth applications.

The effectiveness of the develop techniques will be evaluated with patients from the S. João Hospital following proved practices, as interviews and questionnaires, but also developing new approaches based on automatic collection of the application usage.

Badges/Medals for entering records.

**Achievements**

- Research and design new approaches to improve user/patient engagement in mHealth, namely on chronic patients.
- Usability assessment and improvement with the use of techniques as gamification to increase engagement. Validated by developing in the MyDiabetes application and testing their effect on diabetic patients. The results should be measured in terms of improving data registered in the application, thus a better engagement.
- Evaluate the clinical endpoint of improving HbA1C, but this depends mostly on the management improvement the application can provide with the increase registered on data.