
CONFERENCE ABSTRACT

The C3-Cloud Approach to Clinical and Technical Co-production of a Multi-morbidity Integrated Care Information Technology Infrastructure.

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Introduction

The collaborative cure and care system (C3-Cloud), is a digital infrastructure offering integrated care capability for management of multi-morbidity. C3-Cloud is deployed in three pilot sites, in the UK, Spain and Sweden, integrating with their health systems. The C3-cloud pilots focus on management of congestive heart failure, diabetes, depression, and renal failure. The automatically generated personalized patient care plan is the concept at the heart of C3-Cloud, which offers an integrated view of the patient's conditions, measurements, medication and goals. Patients and the various healthcare professionals that constitute the Multi-Disciplinary Team (MDT) supporting the patients, can collaboratively review and edit the plan, further increasing its degree of personalisation. The care plan personalisation process is supported by a Clinical Decision Support (CDS) module, implementing over 500 rules, consolidating and reconciling multiple clinical practice guidelines.

Challenge

The technical implementation, clinical practice, and organisational structure go hand in hand and need to be evolved in the context of each other. The system needs to provide the necessary functionality for the pilot sites to deliver the envisioned healthcare service. Furthermore, the system needs to accommodate local organisational aspects such as roles, activities familiar to the patients, as well interoperability to existing and local EHR and GP systems. The organisational structure of pilot sites needs to adapt to effectively deploy and integrate the innovative functionality of the system into daily practice. Additionally, the system and the organisational structure, will need to be able to implement the pathway, customized for each pilot site, which represent best practice guidelines. This interdependency results into weaving of clinical, technical and organisational requirements, which need to be managed carefully. Furthermore, as the development of the integrated care model progresses, requirements evolve based on feedback of the stakeholders.

Method

C3-Cloud adopted a through-life co-production approach. From conceptual design to deployment, a well-defined process has allowed the validation and verification of the integrated care system offered, from a number of stakeholder perspectives. Clinical and technical reviewers, as well as potential users, continuously reviewed the validity of the resulting solution. A rigorous requirements management process provided very detailed traceability, amongst local clinical scenarios, clinical practice guidelines, technical requirements, system implementation and testing.

Discussion and Conclusions

C3-Cloud provides the care plan as a clinically appraised, integrated means of managing four conditions, each in the context of each other. The C3-Cloud co-production process enabled traceability of any part of the system to its clinical rationale and sufficiency of testing. The process resulted in 60 high level integrated care scenarios, over 80 use cases, over 350 functional and quality requirements, and over 500 rules, criteria and personalized goals, reconciled for the four conditions. The process allowed controlled evolution of the requirements and fine-tuning during deployment.

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