

CONFERENCE ABSTRACT

A federated collaborative care cure cloud architecture for addressing the needs of multi-morbidity and managing poly-pharmacy (c3-cloud project)

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Theodoros N. Arvanitis¹, Gokce Banu Laleci Erturkmen², Mustafa Yuksel², Antonio de Blas³, Nicolas González³, Dolores Verdoy⁴, Esteban de Manuel⁴

1: Institute of Digital Healthcare, WMG, University of Warwick, Coventry, United Kingdom;

2: SRDC Software Research Development & Consultancy Corp, Ankara, Turkey;

3: Osakidetza, Spain;

4: Kronikgune, Research Center in Chronicity, Spain

Introduction: (comprising context and problem statement) There is an increasing need to organise the care around the patient and not the disease, taking into account his or her multiple physical and psycho-social conditions. An integrated, patient-centred care and cure delivery architecture needs to be developed considering the realities of multi-morbidity and poly-pharmacy. This needs to address the medical, technological, organisational and socio-economical challenges of creating a collaboration environment for all of the stakeholders involved in the holistic continuum of care.

Short description of practice change implemented: The project C3-Cloud (H2020, PHC-25-2015, 689181) aims to enable the development of personalised care plans for multi-morbid conditions supported by innovative ICT components to improve delivery of integrated care services to elderly patients with multi-morbidity through continuous coordination of patient-centred care activities by a multidisciplinary care team (MDT). It is undertaking the design and development of: (i) Personalised Care Plan Development Platform & Coordinated Care and Cure Delivery Platform managed by a coordinated multidisciplinary team, (ii) Clinical Decision Support Modules enabling risk stratification, poly-pharmacy management and goal setting and monitoring and (iii) Patient Empowerment Platform facilitating and fostering the involvement of the patient and his informal care givers.

Aim and theory of change: The applicability of this C3-Cloud integrated care approach and supporting set of innovative ICT components will be demonstrated in varying clinical, technological and organisational settings by piloting in three European regions (South Warwickshire, Basque Country and Region Jämtland Härjedalen) with quite different health and social care systems and ICT landscapes. Then new organisational models for addressing multi-morbidity will be proposed by identifying the best practices in different deployment settings.

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Targeted population and stakeholders: The target population for the C3-Cloud pilot applications is elderly (65+) patients, having at least two among these four chronic diseases: heart failure, renal failure, diabetes and depression.

In total in the 3 pilot sites, 150 patients for intense evaluation in exploratory trial, 600/600 patients for resource monitoring to support large-scale impact assessment and 62 multidisciplinary care team members composed of health professionals, social care workers and homecare providers will be involved in pilot operation and evaluation activities.

Timeline: The project is running for 48 months, from May 2016 to April 2020. The main phases are:

Conceptual design of the C3-Cloud System Architecture according to pilot applications' requirements, May 2016-December 2016

Exploration of new patient pathways and organisational models for improved delivery of integrated care: May 2016-April 2017

Development and testing of ICT components: January 2017-June 2018

Preparation of exploratory trial: November 2017-October 2018

Exploratory trial: 15 months long pilot operation: November 2018-January 2020

Evaluation: January 2019-April 2020

Highlights: (innovation, impact and outcomes) A thorough review of the state of the art has provided a comprehensive survey of currently available standards, technologies and architectures in the field of advanced ICT systems and services for integrated care, that have helped to support the design of the C3-Cloud architecture.

The conceptual design of the C3-Cloud architecture has been finalized based on the results of pilot application user requirements and the scientific and technical requirements.

Currently we are defining the existing organizational models in each pilot site and their graphical representation. Then through a self-assessment exercise, each pilot is going to identify its improvement areas in order to achieve the organizational model enabling the C3-Cloud delivery of care. The key elements will be identified at the end.

The evidence based clinical guidelines for targeted individual chronic conditions have been identified and represented as flowcharts. Then guidance will be developed on how individual clinical guidelines can be reconciled for the automation of personalised and integrated care plan development.

Comments on sustainability: The intervention in the pilot sites will use the human resources available in the three settings and the technological resources generated along the project, which will facilitate subsequent deployments.

The consortium of the project is really concerned to develop sustainability strategies for the results obtained during the project.

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Comments on transferability: Starting from the evidence of risks and complications from today's delivery of care in disease silos, and the requirements of the identified new generation integrated care pathways, the implications for scaling up adoption are being examined. This includes generalizing the architecture to other long term conditions. Special focus is being put on the transferability of the new organisational models supported by the development of guidelines for smooth management of necessary changes and taking into account diversity of European national and regional systems.

Conclusions: During the lifetime of C3-Cloud project, new patient-centred pathways focused on integrated and collaborative care and cure will be developed and experienced with the participation of all stakeholders and innovative ICT tools. These new pathways will require new organizational models to enable their management and implementation. All these outcomes supported with change management guidelines and lessons learned will be shared with the European community.

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Keywords: coordinated and integrated care; patient centred care; personalized plans; clinical decision support modules; icts
