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CONFERENCE ABSTRACT

Facilitating coordinated Care for Multi-morbidity patients through integrated preventive Clinical Decision Support (C3-Cloud)

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Introduction: A growing share of the population in OECD countries is of age 65 and over, expected to reach 22% by 2030 (compared to 15% in 2010). Life expectancy has also significantly increased. People at age of 65 are expected to live for an average of 21 and 17 years for women and men; an almost 40% increase since 1960. The profound success in improving life expectancy has resulted in a new set of challenges.

Challenge: Shift of resources was necessary, redirected to address the complex needs of multi-morbidity patients. Furthermore, patients' needs are not effectively met by current care models, which tend to operate in isolation. This results in static services that patients need to wander. It is common for patients to revisit all levels of care discussing their needs, and reconciling potentially conflicting objectives amongst their conditions (e.g., incompatible lifestyle goals, adverse drug effects and side-effects, undetected conditions). Optimal collaboration and coordination between professionals in the delivery of integrated care have become essential requirements for the provision of high-quality care. Coordinated care aims for the orderly arrangement of individual and group efforts providing unity of action in pursuit of a common goal.

Method: C3-Cloud is an e-health based ICT system, offering integrated, patient-centred care, considering all aspects of multi-morbidity and creating a collaborative environment, for all involved stakeholders. The navel of the system consists of the patient care plan, a digital shared picture of the patients' needs and care regime. The care plan allows all professionals to review and understand the implications of one condition in the presence of others; this by its nature is complex, containing a considerable amount of diverse information. Navigating, understanding, and interpreting all the information can be confounding. The C3-Cloud Clinical Decision Support Service (CDS) offers an automated means of interpreting the available data. CDSS connects to the care plan repository, and continuously searches records for relevant data. The algorithms and integration of recommendations to the service were reviewed and validated by clinicians. Human computer interaction methods were employed to ensure optimal interaction between C3-Cloud and its users.

Results: C3-Cloud offers CDSS for diabetes, renal failure, depression and congenital heart failure, with over 300 rules and checks that deliver four best practice guidelines in parallel; whilst

reconciling their objectives, and monitoring their outcomes. It creates warnings or recommendations for the patient as well as for formal and informal carers.

Discussion and Conclusions: C3-Cloud offers a powerful way to ensure that subtle, as well as critical, information about the patient, is presented to healthcare professionals, along with guideline based recommendations. The rules reconcile potential conflicts amongst conditions. Combined with a single patient and professionals interface, it provides a seamless experience throughout the health and care service. The C3-Cloud CDS service provides support to three pilot sites throughout Europe, currently undergoing evaluation.

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Keywords: integrated care; multimorbidity; clinical decision support; clinical guidelines