

CONFERENCE ABSTRACT

Enhancing loco-regional adaptive governance for integrated chronic care through agent based modelling (ABM)

17th International Conference on Integrated Care, Dublin, 08-10 May 2017

Jean Macq, Sophie Ces, Hedwig Deconinck, Marlene Karam, Anne-Sophie Lambert, Therese Van Durme

Universite Catholique de Louvain, Belgium

Introduction: Moving from existing segmented care to integrated care is complex and disruptive. It is complex in the sense that the type of changes and the timeframe of these changes are not completely predictable. It is disruptive in the sense that the process of change modifies but also is influenced by the nature of interactions at the individual and organisational level.

As a consequence, building competences to govern the necessary changes towards integrated care should include capacity to adapt to unexpected situations. Therefore, the tacit knowledge of the stakeholders ("knowledge-in-practice developed from direct experience; subconsciously understood and applied"¹) should be at the centre. However, the usual research and training practices using such a knowledge (i.e. action research or case studies), are highly time-consuming.

New approaches are therefore needed to elicit tacit knowledge. One of them is agent based modelling (ABM)² through computer simulation.

The aim of this paper is to make a "showcase" of an agent-based model that uses the emergence of tacit knowledge and enhances loco-regional adaptive governance for improving integrated chronic care.

Theory/Methods: We used a complex adaptive system's lens to study the health systems integration process. We applied key components of ABM to assess how health systems adapts through the dynamics of heterogeneous and interconnected agents (agents are characterised by their level of autonomy, heterogeneity, and interactions with other agents). The agent-based model was developed through a process where concept maps, causal loop diagrams, object-oriented unified modelling language diagrams and computer simulation (using Netlogo©) were iteratively used.

Results: The agent-based model was presented to health professionals with variable experience in healthcare to elicit their perceptions and tacit knowledge. It consisted of agents with certain characteristics and transition rules. Agents included providers, patients, networks' or health systems' managers. Agents can adopt or influence the adoption of

integrated care through learning and because of being aware, motivated and capable of decision making. The environment includes institutional arrangements (e.g., financing, training, information systems and legislation) and leadership. Different scenarios were created and discussed. Key rules to strengthen adaptive governance were reflected on.

Discussion and conclusion: This study is an initial step of an exercise to use ABM as a means to elicit of and enhance tacit knowledge to strengthen governance for integrated care. It is expected that the study will foster dialogue between actors of loco-regional projects to integrate health and social care for chronic diseases in Belgium (a new program initiated by federal authorities).

Suggestions for future research: Future research is expected to continue developing methods that combine ABM with participative exploration approaches to make better use of tacit knowledge in strengthening loco-regional governance for the development of integrated care.

References:

- 1- Kothari, A. et al. The use of tacit and explicit knowledge in public health: a qualitative study. *Implement. Sci.* 2012;7, 20.
- 2- Anderson, J., Chaturvedi, A. & Cibulskis, M. Simulation tools for developing policies for complex systems: modeling the health and safety of refugee communities. *Health Care Manag. Sci.* 2007;10, 331–339.

Keywords: complex adaptive system; agent based modelling; tacit knowledge; adaptive governance
