Telehealth: Towards a Global Decision Support Framework based on Value Creation for Healthcare Systems Design
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Research objectives

- Elaborate a new multi-scalar method based on the concept of value creation
- Develop a decision support framework permitting to better envision potential impacts of different scenarios in the healthcare system
- Design new telehealth processes with a Systems Engineering point of view for Health Organization Transformation

A - Multi-scalar Method of Value Creation

- Industrial Engineering tools can be used to help design new organizational processes in the healthcare context (Reid et al. 2005)
- A new multi-scalar method of value creation based on the systemic approach is developed. This method takes into account multi-stakeholder and multi-criteria aspects (Jean et al. 2012)
- The ultimate goal is to build a robust and generalizable model to simulate and optimize value creation in the healthcare context

B - Value Creation of the Telehealth System

- The main idea of telehealth is to provide a remote access to healthcare services thus closing the distance with appropriate healthcare professionals
- However, the introduction of telehealth involves a major organizational change
- For identification and definition of health system values we have collected very different data
- We investigate a first experiment of telehealth named Télégéria at the European George-Pompidou Hospital, realize workshops and assist to dedicated conferences in order to extract a first set of value creation for each of the stakeholders
- The representation identifies a synthetic part of the relation between values and stakeholders of our telehealth system. (The intersection is represented by a green box for a value creation, and a red box for a destruction of value)

C - Design of New Healthcare Organization Processes and Medico-economic Models

- Correlated to this value creation identification, our objective is to go towards the proposition of a new business model to identify multiple potential payers.
- A Cash Flows Matrix and Graph are elaborated in order to calculate the balance of annual margin of each stakeholder comparing the “before” to the “after” telehealth implementation
- Finally, processes and activities are operationally defined. The next processes represent the new telehealth process of dermatology consultations
- For example, this new process provides:
  - Better accuracy to find the appropriate healthcare professional
  - Direct cooperation and transfer of knowledge between the specialist and the referring doctor
  - More time for the relationship during the teleconsultation
  - Less stress for the patient due to the lack of transport
  - Economic benefits with the absence of transport and the optimization of the patient pathway

D - Future Works

- Scenarios-based decision-making technique will be used to determine the new processes that guarantee the value creation
- Future numerical simulations will validate our hypothesis on a long term to provide a medico-economic model viable and sustainable
- These works will allow to determine the advantages of the telemedicine and to organize its large-scale setting-up at the regional and national level

References

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