Towards modeling and simulation of integrated social and health care services for elderly.

Abstract:
In order to estimate the impact of an innovation on a segment of the health care system under certain assumptions such as different possible regulatory or financing schemes (scenarios) prior to its diffusion, one must understand the dynamic behavior of the entire system with its essential control loops. Aim of this feasibility study was to explore the potential of System Dynamics (SD) modeling for this purpose. First, a UML-based modeling of an Innovative Care for Elderly (ICE) system for provision of integrated social and health care services to elderly living at home was done. Then monetary and quality of life aspects of the social and health care system were described by two coarse SD models. On these models the impact of the introduction of the ICE system under certain assumption (scenarios) was studied, based on data from the German Health Expenditure and German Federal Statistics Office. The simulations show plausible behavior, however, are not yet detailed enough for a final conclusion. A major problem is missing data for setting model parameters: estimates had to be made. In conclusion, SD modeling might be a useful method for studying impacts of the diffusion of an innovation in the health for elderly sector, but more research is needed.