Clinical Planning and Coordination Module: from concepts to prototype

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From sector fragmented episodes of care to cross sectorial continuity of care

In Denmark, the government in 2010 launched a programme to improve the healthcare of patients with chronic conditions. One of the requirements was to support the “cross sectoral” patient experiences to improve the reported failures of communication and deliver better quality and continuity of care for patients with chronic conditions.

Today
Fragmented healthcare services, no effective coordination

Prototyping
Shared plan provided by the plan & coordination module

Redesign healthcare
New care model implementing coordination, healthcare services and health condition monitoring

The results from the from a clinical simulation study with the P&C prototype identifies opportunities for designing the healthcare organization with embedded coordination functions to support the care processes in particular in relation to chronic conditions like COPD and diabetes. This includes new roles and healthcare business logics based on coordination and continuity in the case management and empowerment of the patients.

Pathways
Text based standard pathway and guideline for COPD and diabetes

Health service catalogues
Transforming text based standard pathways to computable health services

Care Plan
Instantiating, individualizing and maintaining the patients plan

Health Condition
Using data from measurements and monitoring to overview the patients condition

The Capital Region has developed standard pathways for COPD, Diabetes and other chronic conditions. These pathways are all text based documents, which are difficult to use in clinical practice at the point of care. They serve as reference material for clinical practice for the entire region, including 14 hospitals covering a population of 1.7 mio. citizens, 29 municipalities and 1000 general practitioners.

In the project, a model for health services was developed and used in the transformation of the text based prevention and treatment health services for COPD and Diabetes II pathways into a data object model structure which was implemented, and embedded in an open source SugarCRM toolset.

The purely clinical plans are instantiated as standard care management programs with patient details, services per stratification level, and leaves room for self-defined optional services. The plan is shown in 3 explodeable tree levels in a Gantt diagram. The services are designed as standard placeholders for concrete services, to be modeled into searchable service catalogues, owned and managed by the different users with the individual providers. A diagram of service states and shifts between them was defined, and made documentable on a per-service manner. These service state shifts are the core formulation of the it support of the coordination problem. The care programs are formulated in a manner such that it is possible to concatenate the instantiated plans over multiple health conditions, and the system holds a simulated results window with measurement results stemming from the execution of services.

Conclusions
This planning and coordination module is a first-of-a-kind in Denmark and represents a “missing link” in the Danish IT infrastructure for healthcare. We have found requirements of such functionality in other literature, but have not been able to find references of a similar running module. The prototype opens up for new concepts in the care models and the healthcare organization including sector neutrality, patient centrality, self control, health service deployment and systemic health proactive in the context of population management.

References