Bridging Danish EHR systems by sharing, reusing and standardising Clinical Content

Kirstine Hjære Rosenbeck*, Anne Randorff Rasmussen*, Pia Britt Elberg*

*Department of Health Science and Technology, Aalborg University, Aalborg, Denmark

Introduction

The vision for EHR systems in Denmark is, that they must be both configurable, in order to support an ever-changing clinical practise, and support interoperability e.g. to enable clinical research and quality assessment.

In Denmark the term Clinical Content is used to define the clinical domain knowledge that is build into EHR systems. The formulation of Clinical Content is seen as a key to reach the EHR vision of configurability and interoperability. There is a need for sharing, reusing and standardising Clinical Content e.g. in order to prevent that all local projects start from scratch when formulating clinical content and hereby achieve time- and cost savings.

This project proposes what should be demanded of a national interchange format for clinical content and an IT-system for sharing, reusing and standardising Clinical Content. Furthermore the aim of the project was to identify the challenges related to sharing, reusing and standardising Clinical Content.

Materials and Methods

Experience regarding formulation of Clinical content was collected by qualitative interviews in two local EHR projects.

A proof of concept CC-format and system was developed using UML diagrams and GUI Mock Ups. The CC-format and -system was not implemented.

The CC-format and –system was evaluated through a presentation for and commented by a collection of local and national actors in the field of Clinical Content under “Connected Digital Health in Denmark” (SDSD) auspices and followed up by an interview with a central SDSD representative.

Results

Characteristics of the developed CC-format are:

- The level of detail is bases on the way Clinical content is formulated in local EHR projects.
- The level of standardisation is based on an analysis of what EHR standards would be valuable to approach. openEHR, HL7 standards were considered but rejected due to lacking strategic decisions in Denmark. In contrast there is a strategic decision to use SNOMED CT. Therefore the CC-format is supporting the use of SNOMED CT for structure and classification purposes.
- In its nature a CC-format should be considered dynamic since the local, national and international experiences regarding detail and standardisation level of clinical content is developing.

The CC-system is a solution to enable sharing and reuse of Clinical Content and furthermore the design of the system makes it attractive for local users to reuse and hereby standardise the content of EHR systems. Reuse should not be confused with clinical quality; therefore the CC-system includes an application where national organisations e.g. medical societies can monitor the local Clinical Content and suggest alternatives.

Discussion

SDSD has a forum for sharing experiences regarding local and national projects related to the formulation of clinical content. Hereby the foundation of sharing Clinical Content is present.

When moving to reuse of clinical content the challenge is that consensus regarding a CC-format is needed in order to be able to reuse others work effectively. It is considered time demanding and difficult to articulate the need whenever talking about consensus or standardisation in the field of Clinical Content and that is why projects of this character easily move slowly or stop.

The work is further made complex by the fact that Clinical Content is placed between technology and medical knowledge both on a practise and standardisation level. This demands bridge-building between various actors and organisation in order to implement EHR systems that fulfil the vision of configurability and interoperability.

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Address for correspondence

Kirstine Rosenbeck: kirstine.rosenbeck@gmail.com