An Example of a Multi-Professional Process-Oriented Structured Documentation Bound to SNOMED CT

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Abstract. Structured code-based documentation, i.e. templates which restrain the user with predetermined terms/phrases bound to terminologies, offers opportunities for advanced types of retrieval and guides the user in multiple ways; to act in accordance with evidence, for decision support and to achieve adequate documentation for the condition in question. This type of documentation is especially appropriate in health care processes which are nearly the same every time. A template for documentation of the family planning process (abortion) was elaborated at a Swedish hospital. It uses both structured elements and free-text and covers all information needed in the process. The predetermined terms and phrases were bound to SNOMED CT concepts. After the template has been completed, it forms the basis for a customary free-text note in the record. The structured information is also stored in its original form and can be used for different kinds of advanced data retrieval. The documentation is completed during the visit and there is no need for additional secretarial work. The implementation has reduced the total time used for documentation, reporting and follow up and shows that process-oriented structured documentation bound to SNOMED CT improves the documentation, supports advanced retrieval of data and reduces resource utilization.

Keywords. Electronic health record, multi-professional, process-oriented, structured documentation, SNOMED CT

Introduction

Free-text documentation can be reused in one way only; it can be read again. The inability to aggregate, search and share data is a factor inherent in text-based systems[1]. Structured code-based documentation, i.e. templates which restrain the user with predetermined terms/phrases bound to terminologies, on the other hand, offers opportunities for advanced types of retrieval like analysis of aggregated data later on. This type of documentation is especially appropriate in health care processes which are nearly the same every time. Templates also guide the user in multiple ways; to act in accordance with evidence, for decision support and to achieve the adequate

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documentation for the condition in question, i.e. to document what is relevant, but nothing more. [2]

The electronic health record is often divided in several parts, each one reserved for different professional categories. When there are great differences between patients and situations, this is a good solution, providing the possibility to document according to each category´s area of responsibility and professional norms. If, on the other hand, the different categories work together in teams, but continue to document separately, there is a risk of inefficiency due to double documentation. The same information is recorded several times without good reason. This inefficiency is especially obvious in routine processes which are repeated time after time, e.g. documentation after standard surgery and documentation of evidence-based standardized examinations in health care.

One of us, Carina Zetterberg, conducted the design of a template for documentation of the family planning process (abortion). We report of our experiences both of the design and use of the template.

1. Methods

The template was elaborated by a working team of obstetricians, midwifes and welfare officers. The National Board´s regulation for abortion [3] and the local clinical pathway were the basis for the work. The QMS tool from Tieto was used for design of the template and storage of data. [4, 5] The template has been used for documentation since September 2010 and it has been updated several times. Nodes and fixed responses in the template were linked to SNOMED CT in a standardized process including two independent mappers and one map leader.

2. Results

The template consists of boxes (nodes), each one with one or more fixed responses. In addition there are boxes for free-text refinement of information. Thus, the template uses both structured elements and free-text. The information in the template consists of patient history in general, gynecological and obstetric anamnesis, findings related to the gynecological examination and obstetric ultrasound scan, recent and planned family planning treatments and the method chosen for termination of pregnancy. After the template has been completed, it forms the basis for a customary free-text note in the record. The next time the record is opened the screen will only show this note. The structured information is stored in its original form and can be used for different kinds of advanced data retrieval. 167 headings and fixed responses were bound to SNOMED CT. 85 of these concepts already existed in SNOMED CT, and in 82 cases we had to form new concepts; for example to express history of contraceptive use, e.g. "History of copper intrauterine contraceptive device usage" and "History of transdermal contraception usage". Use of ICD-10, a statistical classification, is not proper for this type of clinical information.
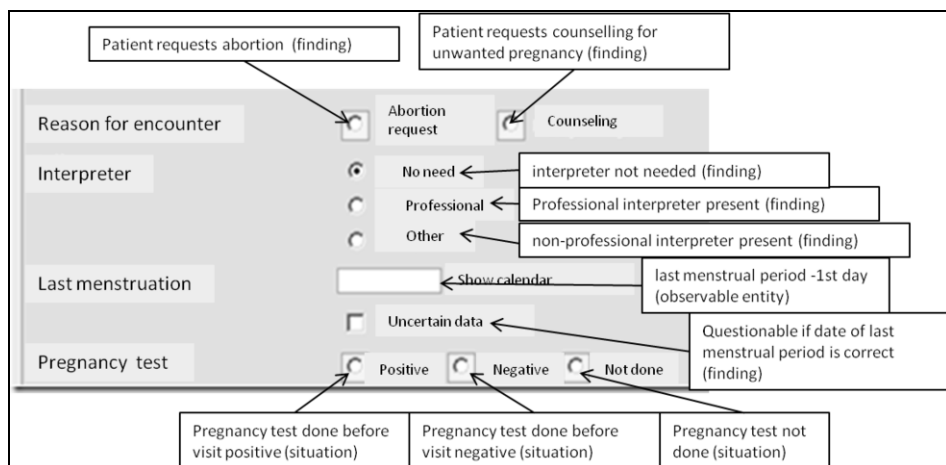
Figure1. Excerpt from the template showing nodes, fixed responses and links to SNOMED CT (fully specified names only, Snomed CT-codes omitted).

3. Discussion

The patient is handled by a team consisting of physicians, midwifes and welfare officers and the documentation is ready when the visit is over. There is no need for additional work by a secretary. The registered information is appropriate with no missing data. The transition to the new system has been smooth, and the template has now been utilized in over 1,250 instances.

Structured EHRs populated with Snomed CT-codes can be searched, aggregated, analyzed and shared, providing a powerful source of information for routine clinical work, for follow-up and for research. The implementation of the template has reduced the total time used for documentation, reporting and follow up. The clinic secretaries used to spend 30 hours per month for documentation and now they don´t need to do the job at all. The time needed for the visit has not been prolonged, despite the fact that the staff now handles the documentation themselves. The time used for routine follow-up statistics has been reduced from 12 to 1.5 hours per month. In the future the contents of the follow-up will be expanded, e.g. to cover the end result and complications.

This example shows that process-oriented structured documentation bound to SNOMED CT improves the documentation, supports advanced retrieval of data, facilitates transmission to registries and reduces resource utilization.

References

[1] Benge J, Beach T, Gladding C, Maestas G. Use of Electronic Health Record Structured Text and Its Payoffs. The Approach and Barriers to Using Structured Text in EHR to Document Care Encounters. J Healthc Inf Manag. 2008;22(1):14-19.
[2] Al-Ghamdi O. A Clinical Aspect of the Computer-Based Patient Record: Free Text versus Coded Data. http://www.osalghamdi.com/omar/A%20clinical%20aspect%20of%20The%20Computer.pdf
[3] National Board of Health and Welfare. [Regulations for Abortion] Stockholm 2009; [Swedish]
[4] Kohrtz S. Product Description of QMS. Tieto Corporation; 2012
[5] Kohrtz S. Indlejring af QMS i Örebros EPJ. Tieto Corporation; 2011 [Danish]