INTERNATIONAL HEALTH TERMINOLOGY
STANDARDS DEVELOPMENT ORGANISATION

A Practical Approach to Meaningful Clinical Records with SNOMED CT

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Audience

Individuals interested in using SNOMED CT for capturing data and using semantic relationships in retrieval and decision support to achieve meaningful clinical records with SNOMED CT.

Learning objectives

Our overall objective is to demonstrate the clinical value of SNOMED CT based on our proposed SNOMED CT Clinical Value Conceptual Framework; our specific objectives include explaining and demonstrating how to:

- use SNOMED CT to improve the data quality in terms of completeness and consistency
- store SNOMED CT expressions for optimal structural subsumption retrieval
- use a web-based SNOMED CT application programming interface (API)
- benefit from incremental value of SNOMED CT for various implementation types

Outline

Introduction – Why it this an important topic?

Using the IHTSDO types of implementation as the road map

- Clinical records - encoding free text and mapping local data dictionary with/to SNOMED CT
- Knowledge representation - representing knowledge base[1] and clinical guidelines[2] using SNOMED CT
- Aggregation and analysis - applying knowledge represented against clinical records

Incorporating implementation types into our proposed SNOMED CT Clinical Value Conceptual Framework

- Visualised as a 3x3 table that shows value of SNOMED CT in different implementation types for different target groups as columns (patient, practice, population) and types of clinical value targets as rows (data capture, data retrieval and data sharing)

Achieving meaningful clinical records with SNOMED CT through our proposed conceptual framework

- Patient/data capture and sharing - suggesting billing codes, problem list items
- Patient/advance processes - improving quality of clinical summary, generating standard summary
- Patient/improved outcomes - reminding for ordering lab tests, alerting for drug allergies

Applying methods on an anynomised primary care electronic medical record (EMR) dataset to demonstrate incremental value of SNOMED CT using diabetes as an example

- Methods – encoding methodology[1], data storage options, retrieval methodology
- Results – using [2], identified 15% of diabetic patients that do not have diabetes in problem list; using [3], 40-43% of adherence rates to assessment, treatment and target attainment diabetes scores
- Implications – potential to improve data quality and care quality

Discussion on issues, opportunities and next steps in meaningful clinical records with SNOMED CT

Prior reading

1. Lee D, Lau F, Quan H. *A method for encoding clinical datasets in SNOMED CT.* BMC Medical Informatics and Decision Making 2010;53.
2. Wright A, Pang J, Feblowitz JC, et al. *A method and knowledge base for automated inference of patient problems from structured data in an electronic medical record.* J Am Med Inform Assoc. 2011 Nov-Dec;18(6):859-67.
3. Hahn KA, Ferrante JM, Crosson JC, et al. *Diabetes flow sheet use associated with guideline adherence.* Ann Fam Med. 2008 May-Jun;6(3):235-8.