



Towards Demonstrating the Meaningful Use of SNOMED CT in Primary Care

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Audience

Individuals who want to learn how SNOMED CT can be used to improve data quality and potentially care quality in the primary care setting.

Objectives

To describe a conceptual framework of how health care organisations can take practical steps toward implementing SNOMED CT to enhance the meaningful use of clinical records in primary care by demonstrating the incremental value through an anonymised electronic medical record (EMR) dataset.

Abstract

Introduction. The use of free text in clinical records is a source of poor data quality and is a hindrance in both primary and secondary (re)use of data in primary care. One approach that can help improve data quality is using SNOMED CT, a United States (US) Meaningful Use requirement.

Background. The IHTSDO has defined three types of SNOMED CT implementations (i.e., clinical records; knowledge representation; aggregation and analysis) in its Technical Implementation Guide. In this study, we used all three types to demonstrate the incremental value of SNOMED CT within the context of a conceptual framework, shown in a 3x3 table with three target groups (i.e., patient; practice; population) mapped to three types of clinical value targets (i.e., data capture and sharing; advance clinical processes; improved outcomes).

Methods. We encoded an anonymised EMR dataset with 13,013 patients (clinical records) and six diabetes care guidelines [1,2] (knowledge representation) with SNOMED CT and assessed the dataset using the care guidelines through SNOMED CT's semantic relationships (aggregation and analysis).

Results. The prevalence of diabetes in the SNOMED CT encoded EMR dataset was 6.6%, which was in line with the prevalence of diabetes in Canada. Of the 274 patients identified as diabetics using the criteria in [1], 42 (15%) did not have a record of diabetes in the problem list. Of the 218 patients who were diagnosed with diabetes at least one year before, the rates of adherence to the care guidelines in [2] were 43/100 for assessment, 40/100 for treatment, and 41/100 for target attainment. Of the 25 patients diagnosed with diabetic complications, only eight (32%) were captured in both the problem list and encounter diagnoses.

Conclusion. Using [1] and [2], we identified data quality issues and lack of adherence to care guidelines. By capturing clinical records and represent clinical guidelines with SNOMED CT, and applying the guidelines against patient data, there is the potential to improve data quality and care quality.

References

1. 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.
2. 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.