

Developing a Map from SNOMED CT Procedure Concepts to ICD-10-PCS

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Abstract

Abstract: An international collaborative effort is underway to create a Map from SNOMED CT to ICD-10-PCS. Apart from following the 'code once, use many times' principle, the creation and use of this Map can also bring other benefits, including faster and better coding. It will promote the use of SNOMED CT and help to improve the quality of both terminology systems. The Map can facilitate the generation of ICD-10-PCS codes in a number of IHTSDO Member countries.

Introduction

ICD-10-PCS is a procedure coding system created to replace volume 3 of ICD-9-CM. It provides greater specificity to support research, statistical analysis and administrative uses. [1,2] In the US, ICD-10-PCS replaced ICD-9-CM from October 2015 onwards. Belgium has already transitioned to ICD-10-PCS in January 2015, and similar transition is happening in Spain and Portugal.

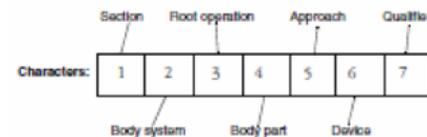
The SNOMED CT to ICD-10-PCS Map Project Group was formed in January 2015. Through bi-weekly conference calls, the group established mapping methodology and principles, and discussed tooling requirements, scope of work and project planning.

References

1. US Centers for Medicare & Medicaid Services ICD-10-PCS web page <http://www.cms.gov/Medicare/Coding/ICD10/2014-ICD-10-PCS.html>.
2. Giannangelo. K: Healthcare Code Sets, Clinical Terminologies and Classification Systems. Third edition. AHIMA

Finding ICD-10-PCS targets

All ICD-10-PCS codes are 7 characters long, each character represents an aspect of the procedure



ICD-10-PCS index and tables

Cholecystectomy
see Excision, Gallbladder [OFB4](#)
see Resection, Gallbladder [OFT4](#)

Excision: Cutting out or off, without replacement, a portion of a body part

Resection: Cutting out or off, without replacement, all of a body part

OFT

Section	0 Medical and Surgical		
Body System	F Hepatobiliary System and Pancreas		
Operation	T Resection: Cutting out or off, without replacement, all of a body part		
Body Part	Approach	Device	Qualifier
0 Liver	0 Open	Z No Device	Z No Qualifier
1 Liver, Right Lobe	4 Percutaneous Endoscopic		
2 Liver, Left Lobe			
4 Gallbladder			
6 Pancreas			

Replacement continued

Hip
Left [OSRB](#)
Acetabular Surface [OSRE](#)
Femoral Surface [OSRS](#)
Right [OSRD](#)
Acetabular Surface [OSRA](#)
Femoral Surface [OSRR](#)

OSR

Section	0 Medical and Surgical		
Body System	S Lower Joints		
Operation	R Replacement: Putting in or on biological or synthetic material that physically takes the place and/or function of all or a portion of a body part		
Body Part	Approach	Device	Qualifier
9 Hip Joint, Right	0 Open	1 Synthetic Substitute, Metal	9 Cemented
9 Hip Joint, Left		2 Synthetic Substitute, Metal on Polyethylene	A Uncemented
		3 Synthetic Substitute, Ceramic	Z No Qualifier
		4 Synthetic Substitute, Ceramic on Polyethylene	
		J Synthetic Substitute	
9 Hip Joint, Right	0 Open	7 Autologous Tissue Substitute	Z No Qualifier
9 Hip Joint, Left		K Nonautologous Tissue Substitute	

One-to-many maps very common because some aspects not specified in the SNOMED CT concept e.g., approach, laterality, device

A convenient way to represent multiple options is by **Regular Expressions** e.g.,

38102005 Cholecystectomy (procedure) maps to [OFT4\[04\]ZZ](#)

52734007 Total replacement of hip (procedure) maps to

[OSR\[9B\]0\[01234J\]\[9AZ\]||OSR\[9B\]0\[7K\]Z](#)

Map Benefits

- ➔ Improved ICD-10-PCS coding efficiency
- ➔ Better coding reproducibility
- ➔ Re-use of clinical data for epidemiologic and statistical purposes
- ➔ Promote use of SNOMED CT
- ➔ Improved quality of the two terminologies

Tooling development

The current tooling used by the IHTSDO Mapping Service Team already has many functions to support other mapping projects:

- Role-specific access and functionalities
- Batch creation
- SNOMED CT content look up
- Team communication
- Workflow management

New ICD-10-PCS-specific features (e.g., index, table, guideline searching, functions for building and validation of Regular Expressions) will be added by technical resources provided by Spain, with assistance from IHTSDO technical team

Work in Progress

Continue to develop technical documentation of map
Work on a project plan to define scope and timeline of project

Title: Developing a Map from SNOMED CT Procedure Concepts to ICD-10-PCS

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Audience

Developers and users of clinical information systems or research applications using SNOMED CT to encode clinical procedures. Clinicians and administrators using ICD-10-PCS for statistical reporting, reimbursement and other purposes.

Objectives

To explain the needs and benefits of creating a map between SNOMED CT and ICD-10-PCS. ^[1] To describe the methods that will be used in mapping, including mapping principles, map data representation, tooling requirements and workflow.

Abstract

ICD-10-PCS is a procedure coding system created to replace volume 3 of ICD-9-CM. It provides greater specificity to support research, statistical analysis and administrative uses. ^[2] In the US, ICD-10-PCS will officially replace ICD-9-CM from October 2015 onwards. Belgium has already transitioned to ICD-10-PCS from January 2015, and similar transition is happening in Spain and Portugal. A map from SNOMED CT to ICD-10-PCS will provide the following benefits:

- 1) Rapid and efficient identification of ICD-10-PCS classification codes for the reporting on medical procedures
- 2) Re-use of clinical data for additional statistical purposes
- 3) Rapid submission and response to national reporting requirements
- 4) Saving time and improving efficiency for the coding professional
- 5) Improved accuracy and reproducibility of code mapping from clinical encounters
- 6) Promulgation of widespread comparable epidemiologic and statistical data

A project group was formed earlier this year for the purpose of creating the map. Through examining commonly-used SNOMED CT procedure concepts, the group established principles and guidelines for the mapping process. We shall describe these principles and illustrate with examples. A SNOMED CT concept often maps to multiple potential ICD-10-PCS target codes, and the coding options will be represented as regular expressions in the map records. Since ICD-10-PCS is a multi-axial coding system, efficient coding requires special tooling to allow search in the individual component axes (e.g., body part, root operation, device) as well as the main index. We shall share our plan for future activity, and welcome feedback and suggestions from attendees.

References

1. US Centers for Medicare & Medicaid Services ICD-10-PCS web page
<http://www.cms.gov/Medicare/Coding/ICD10/2014-ICD-10-PCS.html> .
2. Giannangelo. K: Healthcare Code Sets, Clinical Terminologies and Classification Systems. Third edition. AHIMA