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Comparison of ICHI and CCAM Basic Coding System

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Abstract: While diagnoses are captured by ICD-Codes across the world, it is different for procedures. The implementation of an international medical procedure classification is under discussion. ICHI is currently under test.

We compared ICHI and Basic Coding System of the CCAM (*Classification Commune des Actes Médicaux)* focusing on the appropriateness of both systems.

We strongly recommend to improve the structure of ICHI by the benefits of the CCAM architecture.

Introduction

Information on surgical and other medical interventions constitutes an indicator for the use of health care, of hospitals in particular. While diagnoses are captured by ICD-Codes across the world, it is different for procedures. Europe- and worldwide, various coding systems are in use. There are, however, countries without any procedure classification. Data about the performance of medical procedures is rarely available and poorly comparable. During the last years, the introduction of a common/international medical procedure classification has been discussed again. The Australian NCCH presented the International Classification of Health Interventions (ICHI) as a proposal for an international procedure classification.

An alternative way could be to use the CCAM framework for procedure classification - "Système de Codification" of the French Classification Commune des Actes Médicaux - for the generation of a procedure shortlist.

We compared ICHI and CCAM Basic Coding System focusing on the appropriateness of both systems for supporting comparability of procedure data.

Methods & Materials

Materials:

- **ICHI Alpha-Version 2002**
  - 1421 classes
  - based on ACHI
- **CCAM Version V0bis 2001**
  - multiaxial framework
    - anatomical site
    - action
    - approach
  - using only the basic coding system of the complete CCAM with more than 8.000 codes
  - controlled vocabulary

Methods:

- Mapping ICHI classes to CCAM axes
- Comparison of the architecture
  - Coding structure
  - Axes
  - Procedure description
  - Hierarchy
  - Vocabulary

	ICHI	CCAM
Code	Sequential number	Multiaxial code (plus sequential number)
Procedure Description (Title)	ICHI block: clinical or formal	CCAM Basic Coding System: formal CCAM Tabular list: clinical, using a standardised vocabulary in standardised order
Multi-axiality	Procedures are classified according to 1)anatomical site (122 sites) 2)procedural type (11 general types, e.g. "excision"; 64 additional types for special-ties, e.g. "crown and bridge") These axes constitute a hier-archical layer above ICHI procedure descriptions (so called "blocks"), which are coded by sequential numbers (1 to 1916). No specific codes for the axes.	CCAM Basic Coding System classifies procedures according to 1)body system (16)/anatomical site (178 sites) 2)action (18 groups/codes for 40 types) 3)approach/method (14 Types) Each specific procedure description is represented by a multiaxial code which is an aggregation of the codes for the three axes.
Hierarchy	1)anatomical site (specialty) 2)anatomical site, detail 3)procedural type	1)anatomical site 2)diagnostic/therapeutic 3)anatomical site, detail 4)procedural type or anatomical site, detail In addition to the multiaxial basic coding system
European Standard EN 1828	ICHI does not claim to be compatible to EN 1828. "Anatomical site", on the other hand, is one of three concepts required for a procedure description, "procedural type" as a quasisynonym for "surgical deed" another. The third obligate concept, method/approach is not required in ICHI blocks.	CCAM procedure model is based on the GALEN model for surgical proce-dures, which specifies the model of EN 1828 Structure for Coding and Classification of Surgical Procedures: A medical procedure is described by a certain (surgical) deed on a certain anatomical site using a certain method; if necessary, a pathology concept can be used additionally. CCAM procedure descriptions cover all mandatory concepts.

Results

Mapping ICHI to CCAM axes:

- complete 78.4% (N=1.114)
- partial 21.4% (N=304)
  - no anatomy 0.5% (N=7)
  - **no action 14.9% (N=212)**
  - no approach 6.0% (N=85)
- not 0.2% (N=3)

Comparison of the architecture
(see also table below)

ICHI:
- more clinical
- two axes
- sequential numbers
- hierarchy:
  anatomy – action
- No controlled vocabulary

CCAM:
- more formal
- three axes
- specific codes for each axis
- hierarchy:
  anatomy – action – approach
- controlled vocabulary

Conclusions

Considering the ongoing standardization of terminologies and classifications for health care telematics we strongly recommend to improve the structure of ICHI by the benefits of the CCAM architecture:

- multiaxial coding system,
- detailed definitions/coding guidelines,
- controlled vocabulary,
- accordance to European Standard EN 1828,
- and last but not least simplicity.

That means in detail:

- first do the definition-framework,
- define coding rules,
- add a multiaxial code for "anatomy-action-approach"
- eliminate textual ambiguities and inconsistencies using a controlled vocabulary.