C408
Coding rules for the patient summary: analysis and requirements for an automated coding system

C317
A foundation terminology at the basis of morbidity coding in primary care: methodological issues

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The EU Patient Summary

- EU directive on Patient Summary:
  - most Countries are regulating the use of coding systems
- Nonetheless, GPs massively use natural language to record health conditions in the EHRs
  - generating unstructured and not coded data
- Moreover, PS cannot be automatically derived from the EHR, because it has to be validated by the GP
- In this scenario, an automated coding support system (CSS) can be of help without breaking the law
  - Coding candidates, not automated coding
CSS for PS

• In order to set up an automated CSS,
  – an Italian collaborative work group was set up
    • CNR, Italian CC, FBK
  – and a work plan was defined

• for developing the resources and tools to assist physicians in coding the PS
  – As an alternative to fully manual coding, that would require extensive training of >40000 GPs and >7000 pediatricians
Methods

1. Development of coding rules from an analysis of EU PS rules and of ICD-10 coding rules for mortality data
2. Design of an algorithm that applies coding rules to produce candidate codes and assess their accuracy;
3. Creation of a cross reference terminology of structured technical and lay terms, and related transcoding tables
4. Development of a web service-based CSS.
Foundation terminology

1. creation of a Dictionary resulting from a term extraction process on a database of GP EHRs,

2. semi-automatic integration of the Dictionary with existing Italian resources (ICD-10 Index, ICD-11 synonyms and narrower terms, ICMV (Italian Consumer-oriented Medical Vocabulary)),

3. review by domain experts;

4. mapping of the reference terminology to the international coding systems used in the Italian primary care setting (i.e. ICD-9-CM, ICD-10 and ICPC-2).
Foundation terminology architecture

EHRs Database (in natural language)

Input:
«Alteraz iride + corpo ciliare»

ICD-10 Alphabetical Index

ICD-11 narrower terms

ICMV

ICD-9-CM 364.9
«Alterazione non specificata dell'iride e del corpo ciliare»

Coding Systems:
- ICD-9-CM
- ICD-10
- ICPC-2

Foundation Termination

«Alterazione dell’iride»
«Alterazione del corpo ciliare»
Current status

• A project is starting under fundings for the Italian PS initiative
• Expected advantages: less training costs for GPs, less coding time, better coding quality
• Expected issues: complexity of the domain, relatively low detail in available morbidity coding rules
Thanks