SNOMED CT

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The Legacy

“Make my hospital right, make it the best.”

Abigail Geisinger
1827-1921

“Geisinger Quality – Striving for Perfection”...
No Conflict of Interest to report
Electronic Health Record – Future?

Invented at Geisinger

Commercially Available

[Diagram showing the integration of SuperNote, RheumPACER, PsychWriter, Ordering System, Notes System, Decision Support, and a placeholder for a future electronic health record system by Athenahealth.]

5
Clinical Nomenclature

ICD-9

SNOMED

LOINC
Which provider-facing nomenclature do you use for your EHR Problem List?

- **ICD-9**
  - Circa 1893
  - v9 WHO 1975
  - Health Language®
  - Data Norm., Search
  - ICD-10 remediation

- **SNOMED CT®**
  - International
  - CAP based
  - ICD-10
  - v10 WHO 1990
  - CM ~ 140k codes

- **Intelligent Medical Objects®**
  - Clinically Friendly
  - Virtual Mapper
  - Home grown/
  - Other
  - Curation
  - Maintenance
Vote now - **LIVE**

Instructions:

- Go to [http://pollev.com/alistairmd](http://pollev.com/alistairmd)
- You have **6 votes**
- Pick one/several options
- Pick several if mixture
Clinical Nomenclature

ICD - 1893, standardize for death certificates as reasons for death

**ICD-9** approved by WHO 1975
  Bastardized by US billing practice with CM version of ICD-9 (13k diagnoses and 4k procedures)

**Issues:**
Specificity and NOS “Not otherwise specified” - chosen by clinicians when they cannot find the right code, or the right code does not exist
Derived from frequency statistical classification, not hierarchy of causal relationships
Clinical Nomenclature

ICD-10 approved by WHO 1990, modified to CM (US version between 1998-2003). CM version log increases number of terms (69k) and procedures (72k)

Impact: Affect mostly Ortho (laterality), Obstetrics/Gyn (stage), Behavioral Health, not so much specialist and PCP

http://www.icd10illustrated.com
ICD-10 Delay


http://www.medicalbillingcodings.org/2014/03/ICD10-delay-news-SGRfixBill-medicare.html
SNOMED – Key Literature

Systematized Nomenclature of Medicine - pathologist then expanded to all of medicine in 1980s, added CT (Clinical Terms) in 2000¹

Evaluation of SNOMED CT in practice, identification of missing terms and assessment of overall comprehensiveness (98.5% coverage)²

Review of SNOMED CT in 2008 mostly concerned with “Does it work?” vs “Does it help?”³

Issues raised about internal consistency on SNOMED CT and its use in clinical practice⁴

³ Cornet et al Forty years of SNOMED: a literature review BMC Medical Informatics and Decision Making 2008, 8(Suppl 1):S2
⁴ Rector et al Getting the foot out of the pelvis: modeling problems affecting use of SNOMED CT hierarchies in practical applications J Am Med Inform Assoc. 2011 July; 18(4): 432-440
SNOMED CT - Benefits

- *International*, multi-lingual, multi-cultural
  - Used in 27 countries across the globe
  - Free to use for organizations in member countries
  - Non-member countries can apply for $1,688

- Open *transparent* collaboration to participate and contribute
  - Owned by IHTSDO (represented by NLM in US) not-for-profit
  - Regularly *updated* and extended in controlled fashion (every 6m)
  - Historical mechanism to *reconcile version* over time

- Precise yet *comprehensive*, clinical care level of detail
  - *Logical* semantic relationship between over concepts
  - *Hierarchy* can help aggregate similar kinds of information

http://www.ihtsdo.org/snomed-ct/
SNOMED CT - Benefits

• unaffected by **US billing practice**
  • Mapping to ICD-9CM, and ICD-10CM available from NLM along with implementation guidelines
  • ICD-11 will be based on SNOMED and planned to be available from WHO in 2017 (add 5-7 years for CM version)

• Kaiser Permanente donated *Convergent Medical Terminology* (CMT) in 2010
  • Over 75,000 extensions to existing vocabularies (new concepts, natural language descriptions for clinicians and patient friendly terms)
  • Derivative works (crossmaps of vocabularies to each other)
  • Toolkits for collaborative, on-going editing

• **Endorsed by ONC/HIT Standards Committee**
SNOMED CT - limitations

• Other proprietary nomenclature have emerged (such as IMO®, HLI®) – there must have been a need
• Cycle time to submit updates is long and bureaucratic; some new diagnosis take a while to become embedded
• Evaluation of the cross mapping from SNOMED to other has reveal problems
• Clinical language terms have been described as vague (because we treat humans, not robots)
• There are many more terms/concepts than ICD-10CM (That is why we have computers, partial/fuzzy search)

Geisinger: IMO → SNOMED → ICD-9CM
SNOMED – limitation?

SNOMED ↔ DEMONS