

Testimony regarding Controlled Health Terminologies NCVHS

By

Mark R. Pittelkow, MD

Peter L. Elkin, MD

Mayo Experience

- SNOMED-CT
 - Index Clinical Notes w/ automated Data Abstraction
 - Index Images
 - Index Web Pages
 - Automated assignment of E&M Coding
 - Fraud and Abuse Auditing
 - Quality Assurance (Mayo and VA)
- NDF-RT
 - Automated Medication List Generation
 - Quality Assurance

Data about the terminologies

- SNOMED-CT
 - 380,000 Concepts
 - 800,000 Terms
 - Both Pre-coordinated and Partially Post-coordinated (not all necessary semantics are supported)
 - Some semantic overlap (e.g. “Using” and “Method”)
 - Some duplicate terms in the same hierarchy with different Concept Ids
 - Poor coverage of Drug Brand Names

Data about the terminologies

- SNOMED-CT
 - Coverage of Health Concepts in 41 Health Records was 88.7% of *14,792 Concepts*
 - Coverage of Health Concepts was 86.3% of concepts associated with Oncology Drug Indications
 - Consumer Health coverage of 1008 web pages indexed w/ SNOMED-CT. CBI had a sensitivity of 100% and a specificity of 99.8%. Keyword indexing had a sensitivity of 22.4% and a specificity of 98.7%.
 - Comparing the sensitivities showed that CBI was superior to Keyword indexing with a $p < 0.0001$ (Pearson Chi-Square Test). Comparing the specificities showed that CBI was superior to keyword indexing with a $p = 0.0063$ (Pearson Chi-Square Test).



NDF-RT

- Concepts: 122,748
Terms: 230,451
Relations: 141,465
- 71% Coverage of Drug names associated with Oncology Indications
- Compared with SNOMED-CT which had 58% Coverage ($p < 0.001$; Pearson Chi-Square)



Where we've come from....

- 1903
 - Henry Ford invented the Automobile
 - Harley and Davidson built the first Motorcycle
 - The Wright brothers flew their famous flight at Kitty Hawk, NC on December 17, 1903
- These innovations set the pace for the industrial revolution of the 20th century



Where must we go.....

How will we be remembered?

- 2003
 - Knowledge-based Health Records
 - Decision Support to *Enable* EBM
 - Longitudinal Care
 - Respect for our patients and their values
 - Maintaining our values
- PMRI Terminologies
 - Which support near complete content coverage
 - Which evolve gracefully and with open input from the clinical and informatics communities which they support
 - Which use a formal knowledge representation language to express their concepts (To Enable Decision Support)
 - Which support natural language processing



Examples of Mayo Uses of Terminologies Under Consideration

