Condition Coding Practice Differences Between USA, Asia and Europe: Preliminary Results from European Birth Season – Disease Risk Study

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What Do These Have in Common?

V23 Codes
In ICD Terminology

ICD-10
ICD-9

Difference Based on Version
All Terminologies Mapped to SNOMED

Includes Terminologies from Across the Globe

https://confluence.ihtsdotools.org/display/DOCANLYT/5.2+Mapping+Other+Code+Systems+to+SNOMED+CT
What Happens When You Add Another Site?

Global – SeaWAS Collaborator Sites

Main climate
A: equatorial
B: arid
C: warm
D: snow
E: polar

Legend:
Af | Am | As | Aw | BSh | BSk | BWh | BWk | Cfa | Cfb | Cfc | Csa | Csb | Csc | Cwa
Cwb | Cwc | Dfa | Dfb | Dfc | Dfd | Dsa | Dsb | Dsc | Dwa | Dwb | Dwc | Dwd | EF | ET
Differences Still Persist Across Sites

Code Agreement USA Sites (N=354)

Code Agreement All Sites (N=71)

Non-USA Sites Tend to Be Singletons
Caveats of EHR data

- 4340 unique condition concepts were found across 7 sites
- 4238 out of 4340 were mapped to standard terminologies
- We can leverage the concept ancestor:
- 243 / 249 unique Netherlands concepts were in the concept ancestor file
Congenital anomaly of cardiovascular system

- Congenital anomaly of cerebrovascular system
  - Congenital heart disease
    - Congenital anomaly of pulmonary artery
    - Congenital abnormality of cardiac connection
      - Ventricular septal defect
        - Congenital anomaly of coronary artery
          - Patent ductus arteriosus
        - Tetralogy of Fallot
          - Congenital insufficiency of mitral valve
            - Congenital insufficiency of aortic valve
Congenital anomaly of cardiovascular system

Rotterdam

Nashville
NYC
Seattle
Taipei

Congenital heart disease

Congenital anomaly of pulmonary artery

Congenital abnormality of cardiac connection

Patent ductus arteriosus

Congenital Heart Disease Can Be Rolled Up to Congenital Anomaly of Cardiovascular System

Tetralogy of Fallot

Congenital insufficiency of mitral valve

Congenital insufficiency of aortic valve

Highest Level At Different Sites
Some Concepts Can Be Mapped

- Genuine Stress Incontinence
  - Female Stress Incontinence
    - Nashville
    - Mount Sinai and Columbia in NYC
    - Seattle
    - Taipei
  - Mixed Urinary Incontinence
    - Nashville
    - Mount Sinai in NYC
    - Seattle
    - Rotterdam

Suwon did not use the term, or it was infrequently used.
Caveats of EHR data

Most codes can be mapped within 2 levels of hierarchy!
Two Degrees of Separation

- Congenital anomaly of cardiovascular system
  - Rotterdam

- Congenital anomaly of cerebrovascular system
  - Seattle

- Congenital heart disease
  - NYC

- Congenital anomaly of pulmonary artery
  - Taipei

- Nashville
Concluding Remarks

• Many concepts can be mapped within 2 degrees of separation within the concept hierarchy
• Must be careful that the correct clinical meaning is preserved before merging concepts
• Unfortunately this requires a lot of manual review due to inconsistencies in semantics within the hierarchy
Summary of Relevant Studies


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