SNOMED CT

Alistair Erskine, MD
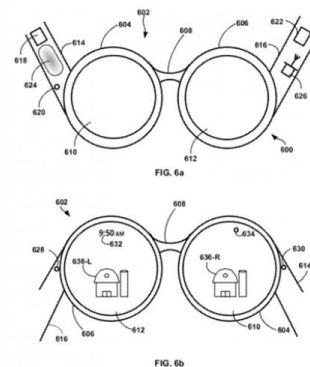**Chief Clinical Informatics Officer**

June 19th, 2014
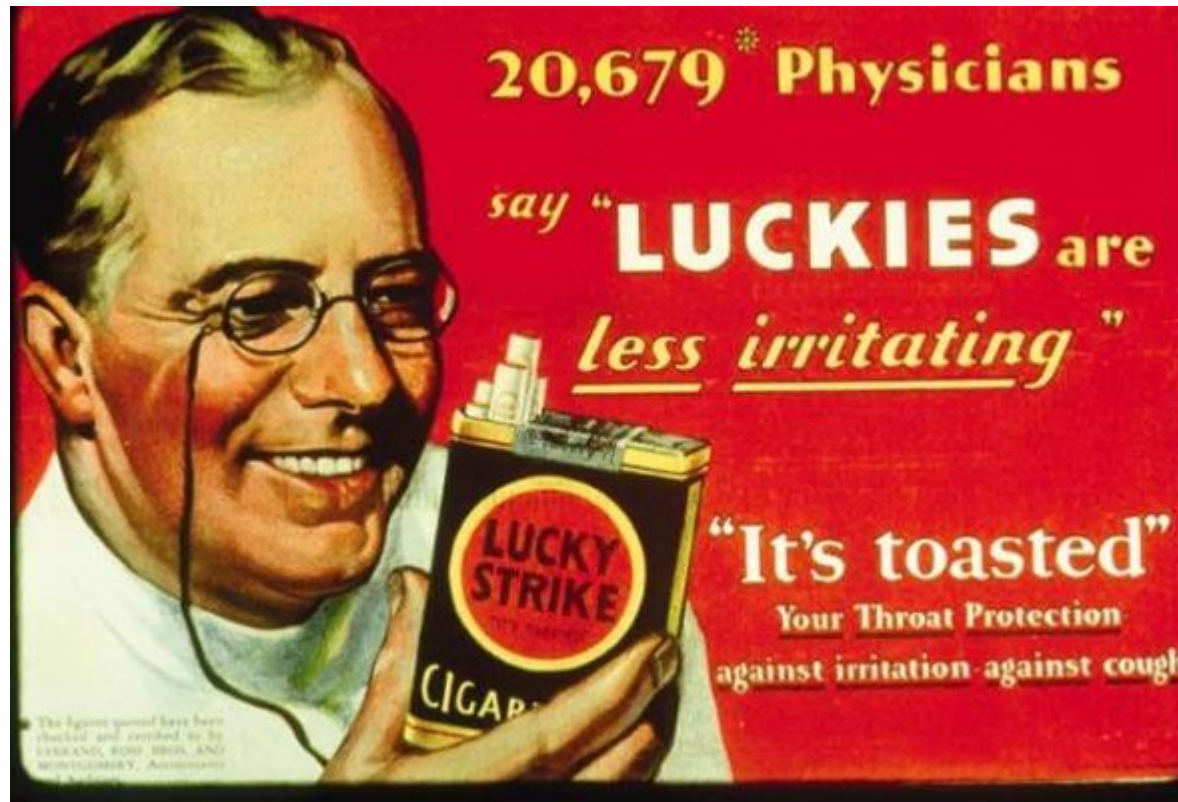
The Legacy

"Make my hospital right, make it the best."

Abigail Geisinger
1827-1921

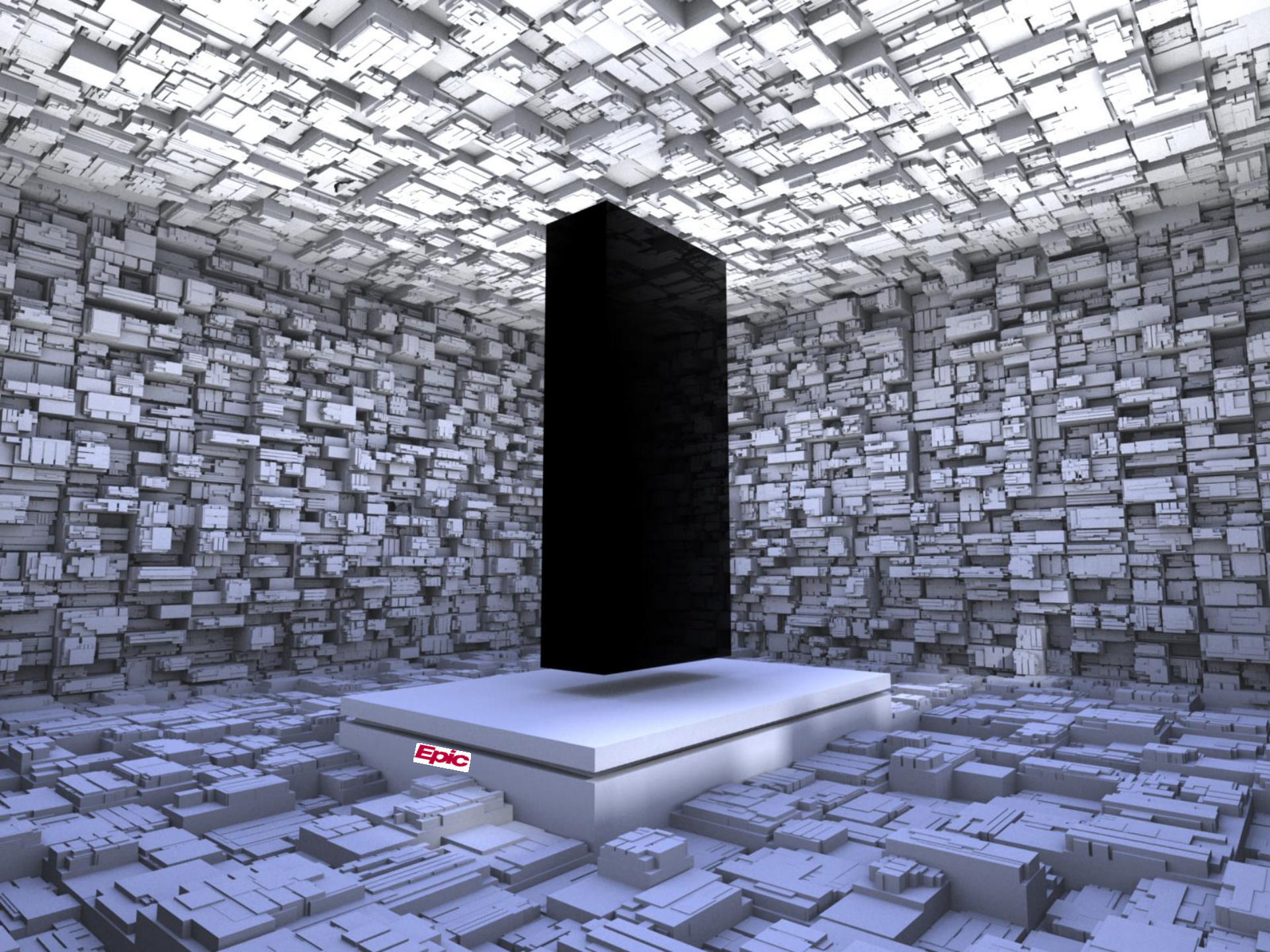*"Geisinger Quality – Striving for Perfection"*...

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No Conflict of Interest to report

Electronic Health Record – Future?

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SuperNote

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RheumPACER

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PsychWriter

Invented at Geisinger

athenahealth
there is a better way

Commercially Available

Ordering System

Notes System

Decision Support

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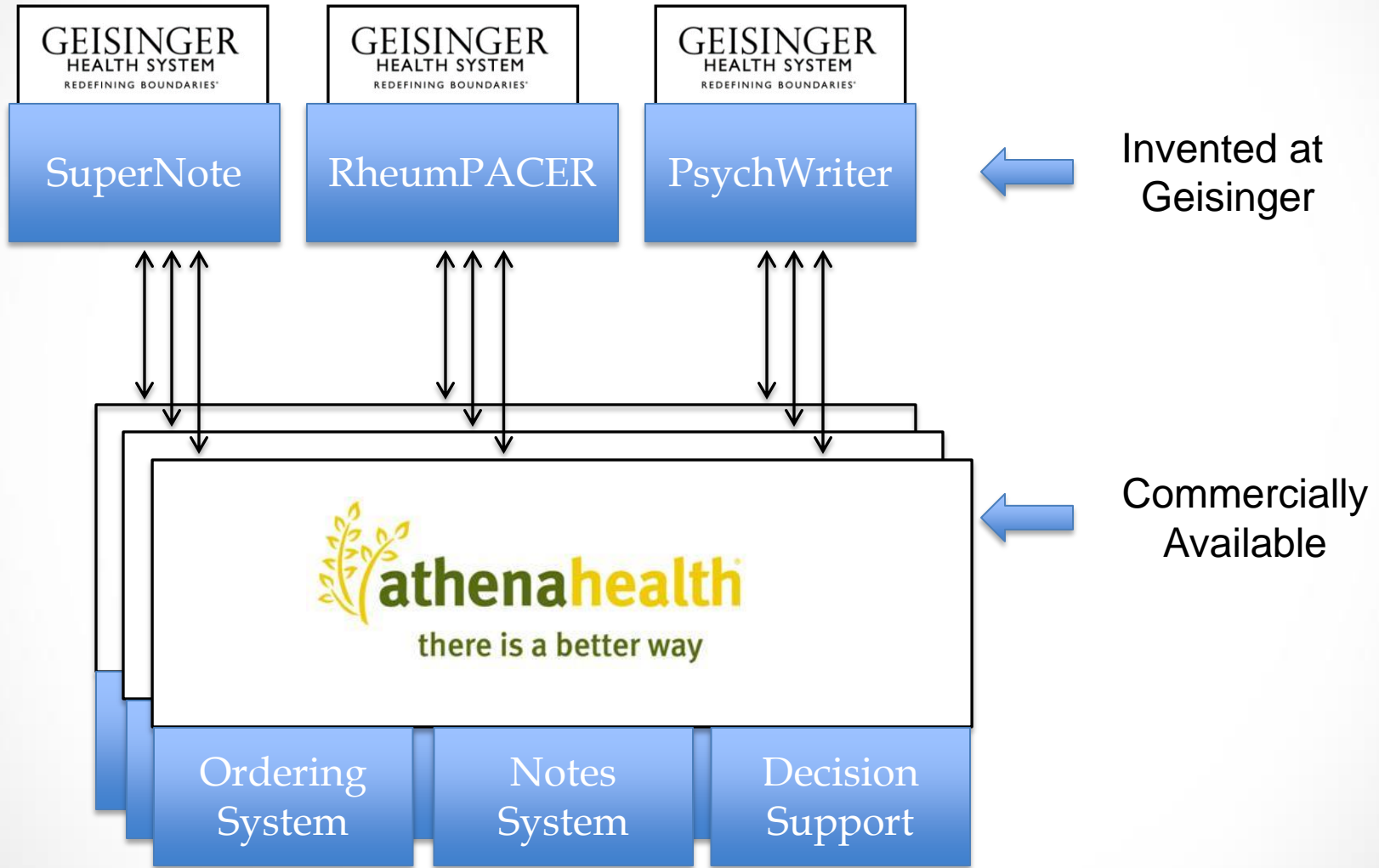
Clinical Nomenclature

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

ICD-9	SNOMED CT®	Intelligent Medical Objects®
Circa 1893 v9 WHO 1975	International CAP based	Clinically Friendly Virtual Mapper
Health Language®	ICD-10	Home grown/ Other
Data Norm., Search ICD-10 remediation	v10 WHO 1990 CM ~ 140k codes	Curation Maintenance

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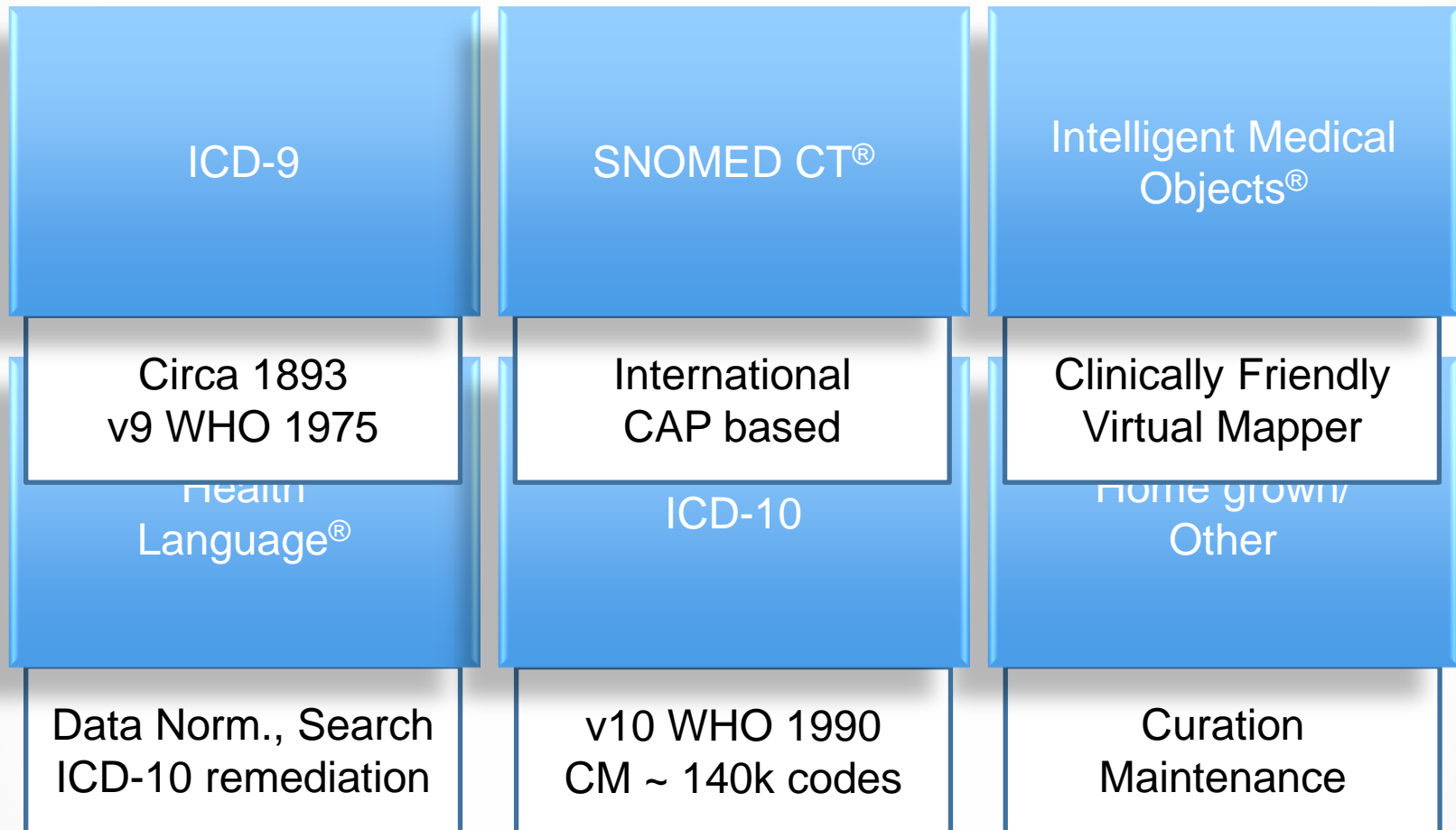
Vote now - **LIVE**

Instructions:

– Go to 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)
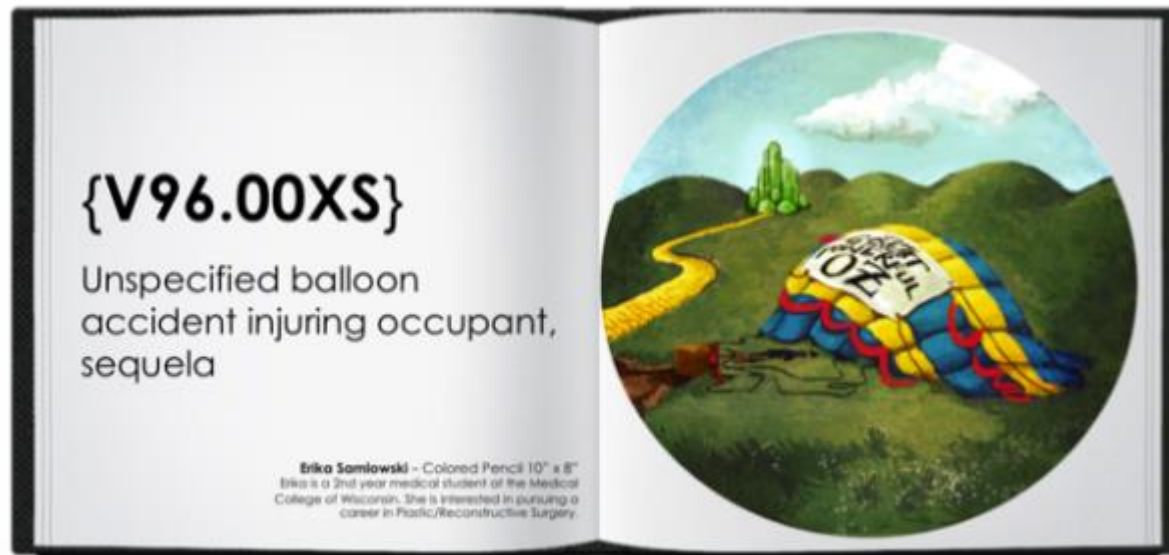
Issues:

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

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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

{V96.00XS}

Unspecified balloon accident injuring occupant, sequela

Erika Samiowski – Colored Pencil 10" x 8"
Erika is a 2nd year medical student at the Medical College of Wisconsin. She is interested in pursuing a career in Plastic/Reconstructive Surgery.

http://www.icd10illustrated.com

ICD-10 Delay

Cost? Complexity? Physician training? Beltway Shenanigans?

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SNOMED – Key Literature

Systematized Nomenclature of Medicine - pathologist then expanded to all of medicine in 1980s, added CT (Clinical Terms) in 2000[1]

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 practice[4]

[1] Stearns et al, **SNOMED clinical terms: overview of the development process and project status** Proc AMIA Symp. 2001 : 662–666

[2] Wasserman et al, **An Applied Evaluation of SNOMED CT as a Clinical Vocabulary for the Computerized Diagnosis and Problem List** AMIA Annu Symp Proc. 2003; 2003: 699–703

[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

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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

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

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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

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SNOMED – limitation?

SNOMED $\leftarrow\rightarrow$ DEMONS

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