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University of Pittsburgh

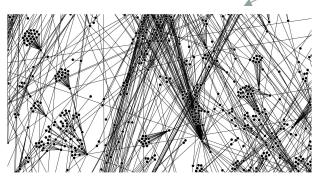
Chair, Learning Health Community







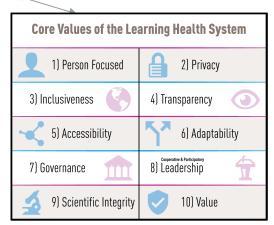
Areas of Discovery/Innovation



1. Biomedical Informatics Infrastructures (SaaS, vocab, viz)

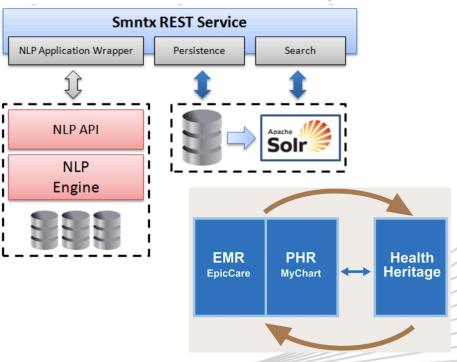


2. Clinical Decision Support (P2D and loop)



3. Collaborative networks

## Biomedical Infrastructures (SaaS, NLP, vocabularies, interactive visualization)



138875005 SNOMED CT Concept (SNOMED RT+CTV3)

### **Genomic Health Initiative (efficient research)**



Enrollment/ consenting at preexisting medical contact points

- Fully electronic through patient portal
- At routine blood draws



Multi-purpose consent

Bio-sample collection

Research Options for return of clinical data, & patient recontacting



Biological specimens

- Consenting patients are 'flagged' for bulk ordering
- At next routine blood test, we collect the specimen



Processing of blood specimens

Robotized methods Transfer of DNA aliquot to genomics



Integration with NS **EHRs** warehouse

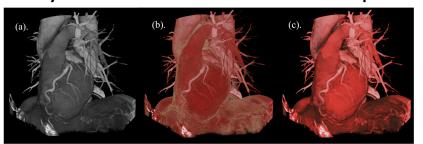
Fully identified protected linkage inside the health system



Genomics

- Results not part of
- Sharing of deidentified samples/
- Back to patient is defined in consent Alignment with NS business plans

### Grayscale + Realistic Color = Perceptual



- 123037004 O Body structure (body structure)
- 404684003 O Clinical finding (finding)
- 308916002 C Environment or geographical location (environment)
- 272379006 O Event (event)
- 363787002 Observable entity (observable entity)
  - 410607006 Organism (organism)
- 373873005 Pharmaceutical / biologic product (product)
- 78621006 O Physical force (physical force)
- 260787004 Physical object (physical object)
- 71388002 O Procedure (procedure)
- 362981000 O Qualifier value (qualifier value)
- 419891008 O Record artifact (record artifact)
- 243796009 O Situation with explicit context (situation)
- 90000000000440960 SNOMED CT Model Component (metadata)
  - 48176007 O Social context (social concept)
  - 370115009 O Special concept (special concept)
  - 123038009 O Specimen (specimen)
  - 254291000 O Staging and scales (staging scale)
  - 105590001 O Substance (substance)

# Clinical Decision Support (Structured clinical data collection and real-time use)

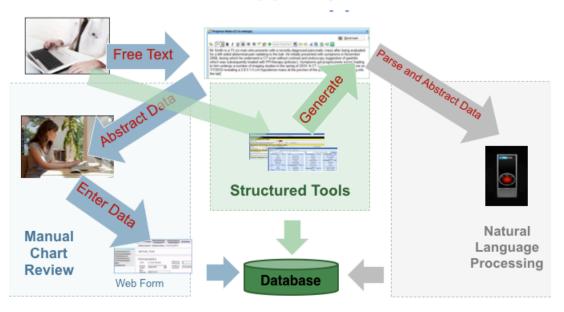
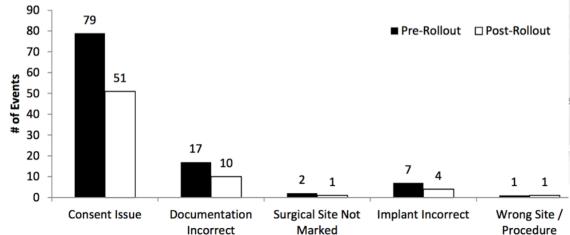
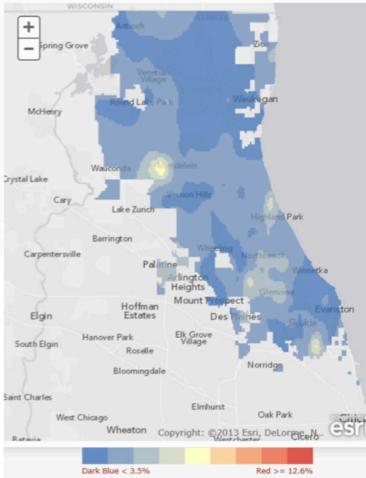


Figure 2. Perioperative Risk Events



Colors represent the *proportion of all patients seen* in the Medical Group who had the syndrome of interest. Areas with insufficient data for accurate estimates are not colored.



### **Collaborative Networks (had a lead role in each)**







CHICAGO BIOMEDICAL CONSORTIUM





Computation Institute



