Sifting Through Lines, Events, and Trees: Stories of EHR Visual Exploratory Analysis

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• Research Information Services & Computing (Shawn Murphy)
  • Curate clinical data for research
  • IRB-approved, HIPAA-compliant, auditable
  • i2b2, RPDR, mi2b2
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Dynamic Query
Lifelines2
EventFlow
Treemap + Piccolo

- Mediated access to clinical PACS
- Cloud storage
- Download to local machines

All data on this slide is de-identified
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Data Extract, Transform, Load (ETL)

- Searching for the right patients for a comparison is difficult
  - SQL is complex, prone to mistakes
  - Mistakes are hard to spot

Data ETL: Glargine & Pancreatic Cancer

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Order of Cancer and Glargine is not enforced.

Nor is the time taken from Glargine to Cancer taken into account.

All data on this slide is simulated (i.e. made up)
Data ETL: Glargine & Pancreatic Cancer

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Diabetes Treatment Progression: SGLT-2

• Type 2 diabetes mellitus (DM2) has complex causes and treatments
• New class of diabetes drug: SGLT-2
• Interested in its usage, in particular:
  • Characteristics of patients on different drug classes
    • Demographics, measurements before/after taking a drug class, etc.
  • What drugs were used prior to prescribing SGLT-2
    • EventFlow
  • Phenotypes of patients on SGLT-2 vs other diabetes patients
    • Treemap
All data on this slide is simulated (i.e. made up)
Comparing Large Trees: Diabetes Drugs

• Two populations of patients (e.g. CGLT-2 vs Other)
• Hierarchically organized diagnosis code (e.g. ICD9)

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Thank you

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