Transforming Pharmaceutical and Healthcare Companies into Data Companies

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COLLABORATORS

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INDIANA UNIVERSITY
SCHOOL OF INFORMATICS AND COMPUTING
Data-driven healthcare revolves around the patient you.

Pharmaceutical Research
- Phenotypic Drug Discovery
- Adverse Event Prediction
- Population Health
- Quantified Self
- Public Health

Combination therapy
- Precision Medicine
- Real World Evidence
- Outcome Analytics

Healthcare Delivery
- Risk Adjustment
- Performance-based Pricing
- Nudge Economics

How can I stay healthy & get better when I do get sick?
Current healthcare model (siloed, not data driven)

Pharmaceutical Research
- Discovery
- Clinical Trials
- Market

Artificial Interventions

Healthcare Delivery
- Providers, Payors, Hospitals, Doctors, Patients
- Diagnoses and Treatment Plans

Public Health
- Environment, society, policy, economics
  - Factors affecting health of populations

Study of people
- Study of chemistry & biology
Vast public linked data repositories

https://ncats.nih.gov/expertise/preclinical/pd2
What adverse effects could Cymbalta cause in patients with Chron’s?

Interaction Infrastructure
Custom interfaces and applications built using reusable components

What effect will inhibiting PPAR-γ have on HER+ breast cancer tissue?

Linked Data Ecosystem
Semantic and graph technologies that allow datasets to speak the same language and bring down access barriers

Mapping across public and proprietary sources

Computation Infrastructure
Fast, in memory computation modules that work on heterogeneous data sub-graphs

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What comes next?

Prototyping radical **linked data infrastructures** crossing pharmaceutical, medical record and public health datasets in Indiana

Answering real, critical questions about health and drug treatment using linked data infrastructures

Partners include:

IU Data Science, IBRI, CTSI, Regenstrief, Eli Lilly, IU Health, IHIE, IUSOM, SPEA, Kelley School, Data2Discovery
THANK YOU

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