Johns Hopkins Individualized Health Initiative (Hopkins inHealth)

Riding the Biotechnology and Information Technology Waves

Fostering Improved Health at More Affordable Costs
Embrace meaningful variation among people,

Explain meaningful variation by novel measurements and novel analysis of existing data,

Stratify (subset) diverse individuals into subgroups and learn to “manage” each stratum optimally, and

Variability is the law of life, and as no two faces are the same, so... no two individuals react alike and behave alike under the abnormal conditions which we know as disease. – William Osler
Hopkins inHealth

Steven Johnson’s *coral reef* analogy

Fostering:
*Connections*
*Collisions*
*Recycling*

https://www.youtube.com/watch?v=ssutK1Gei4A&nohtml5=False
Some Johns Hopkins (in)Health InitiativeS of Note

• Johns Hopkins Precision Medicine - 2015
  – Precision Medicine Centers of Excellence – 2016
  – Johns Hopkins HealthCare Innovation, LLC - 2017

• Whiting School Malone Institute for Healthcare Engineering – 2015

• APL Healthcare Program – 2015

• People and Infrastructure
  – ~50 new faculty at the interface of biomedical and data sciences since 2010 with 4 new BDPs
  – MARCC – 2015
  – Center for Clinical Genomics – 2016
  – ICTR Cores - 2008
<table>
<thead>
<tr>
<th>Components</th>
<th>Prostate Cancer active surveillance example</th>
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<tr>
<td>• Frame unmet health need</td>
<td>Half of active surveillance prostatectomies yield indolent cancers</td>
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<tr>
<td>• Specify health mechanisms model</td>
<td>Predictors of indolence: PSA, past biopsies, family history,…</td>
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<td>• Identify and wrangle data into a cohort database from which to learn through careful analyses</td>
<td>Brady Institute, Bal Carter Active Surveillance clinical cohort database with 1300 men</td>
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<td>• Design and test users’ interface for population health manager, clinician and/or individual</td>
<td>PCORI ME-1408-20318</td>
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<td>• Design and test curation</td>
<td>PCORI proposal</td>
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<td>• Design and implement scale-up for wide use</td>
<td>Microsoft partnership</td>
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<td>• Design and implement business model</td>
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inHealth Resources Available

Health measurement
Peter Searson

Bioethics
Nancy Kass

JH Data
CCDA
Diana Gumas

Statistical design and analysis
Nilanjan Chatterjee

Behavior change

Finance/ org. models
Mary Cooke
Hopkins inHealth