Delivering on-demand evidence via an informatics consultation service

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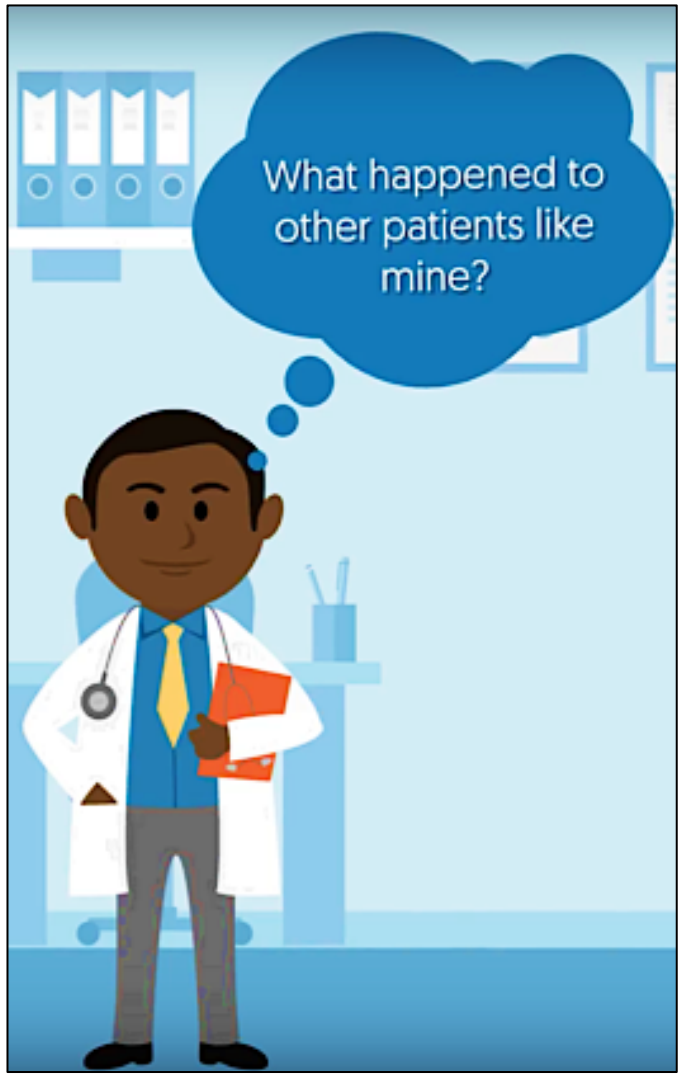
The Green Button Service



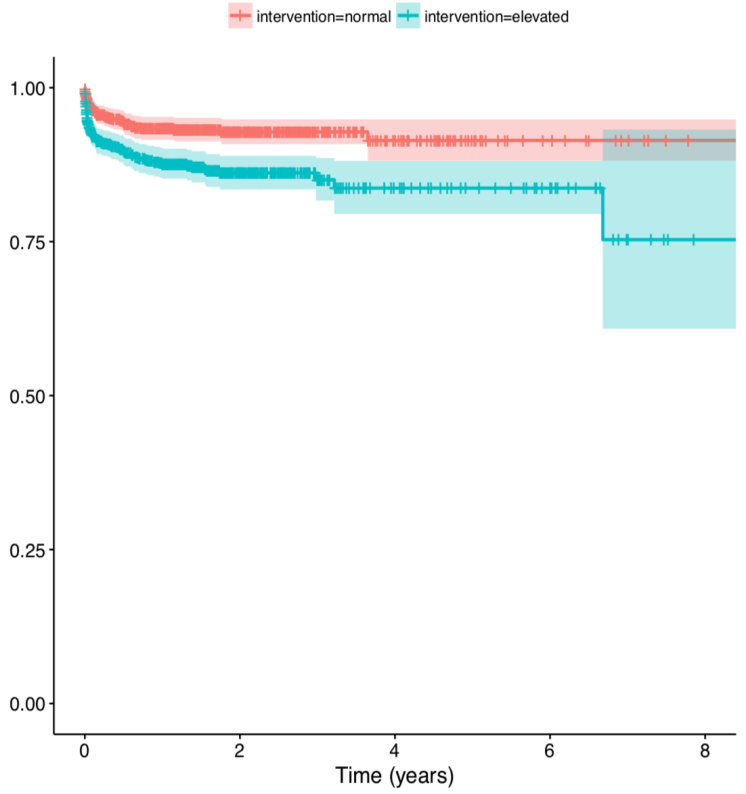
Given a specific case, provides a report summarizing similar patients in Stanford's clinical data warehouse, the common treatment choices made, and the observed outcomes.

An institutional review board approved study (IRB # 39709).

http://greenbutton.stanford.edu

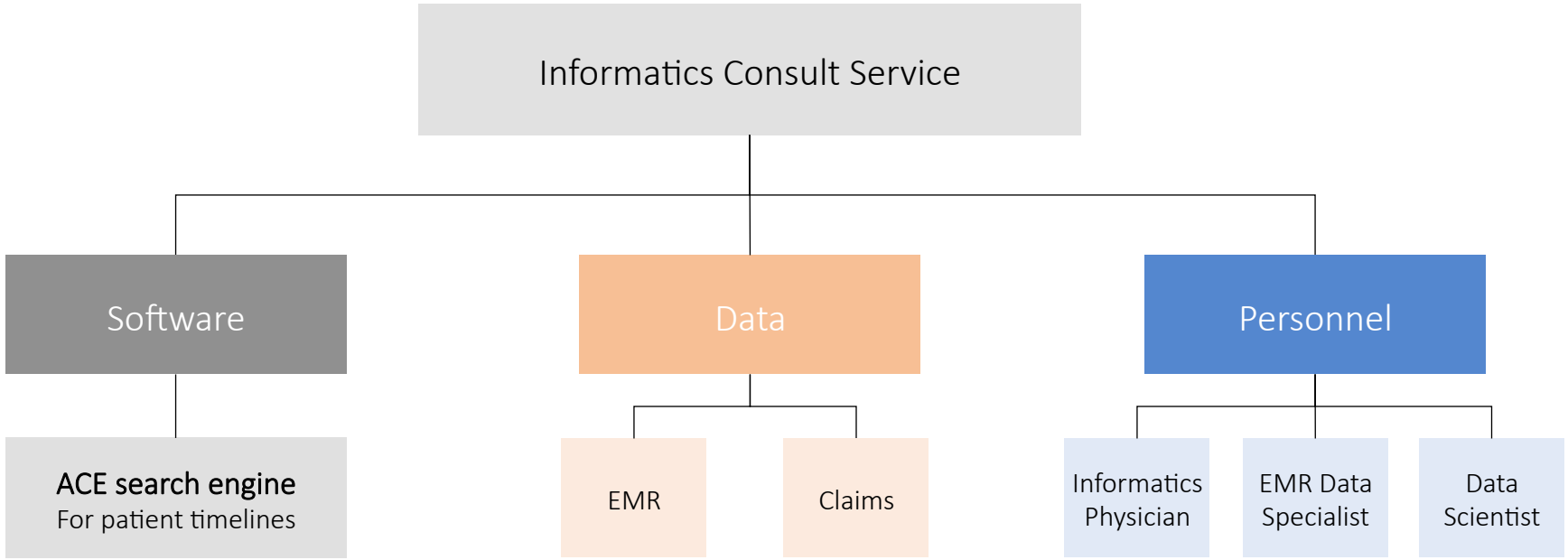
An example report

Mildly elevated serum free light chains and subsequent malignancy

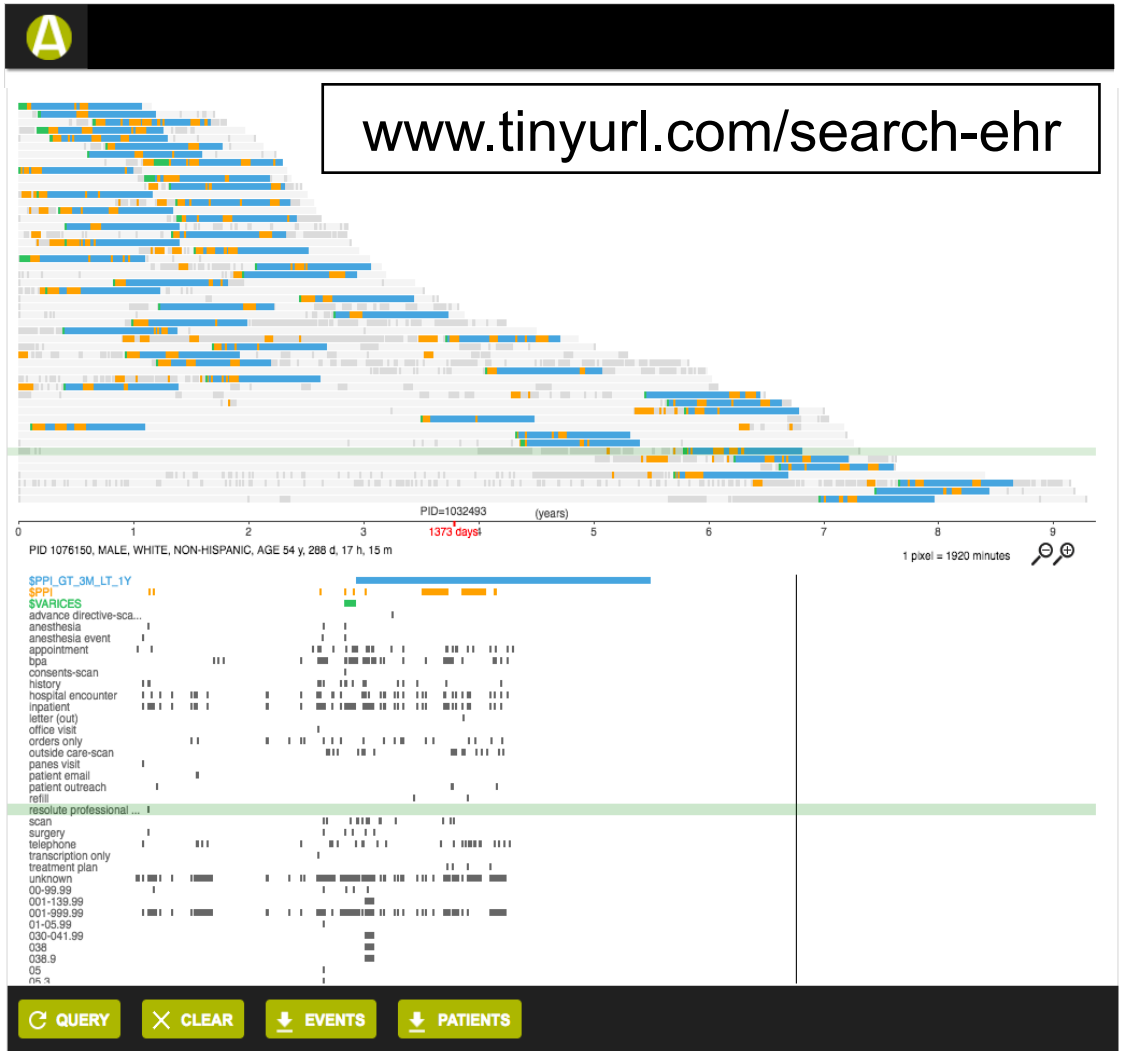


	N	Observed	Expected	$(O-E)^2/E$	$(O-E)^2/V$	chisq	pvalue
normal	760	49	73.365	8.092	16.413	16.4	5.09e-05
elevated	760	96	71.635	8.287	16.413	16.4	5.09e-05

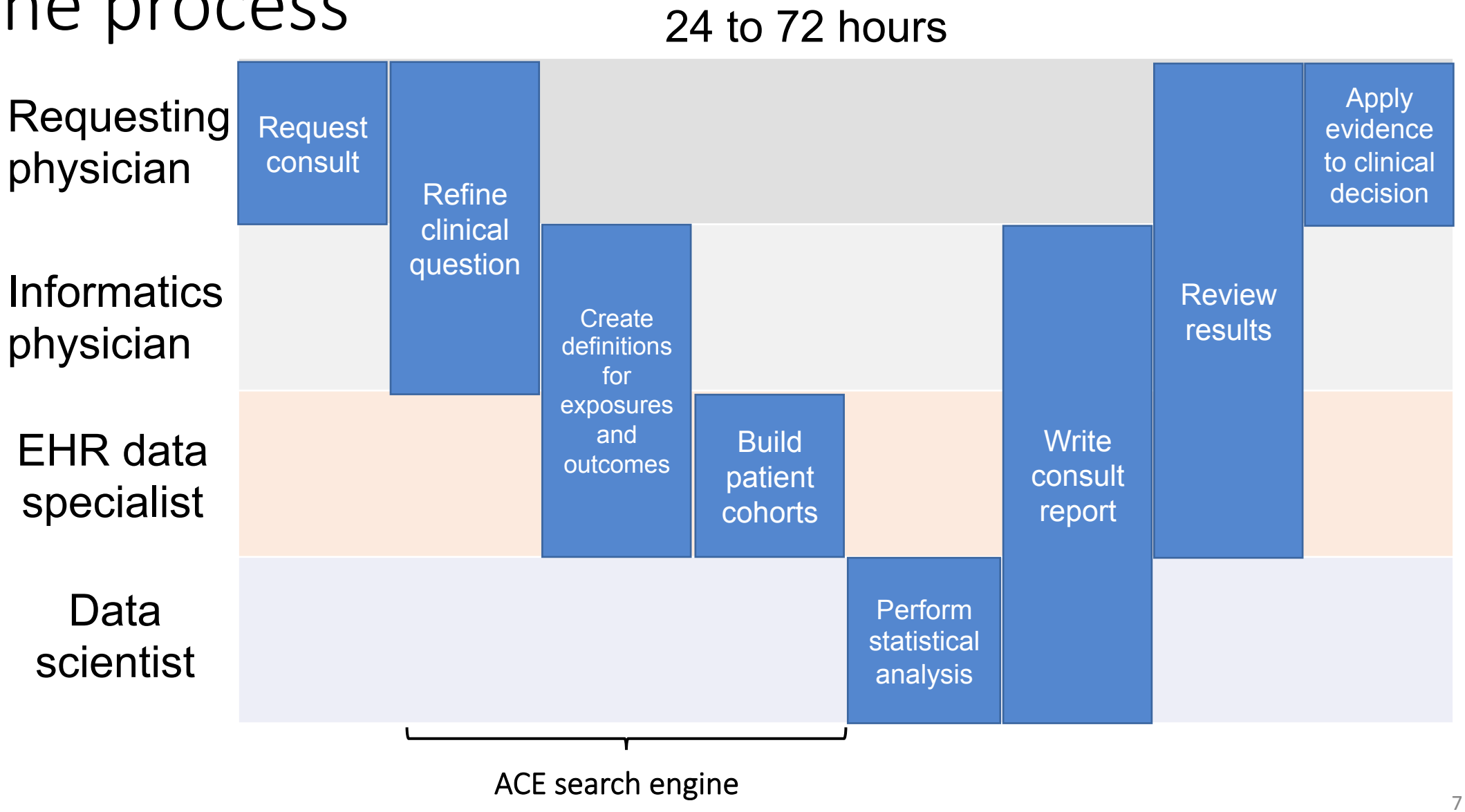
Service = software, data, and personnel



The ACE search engine



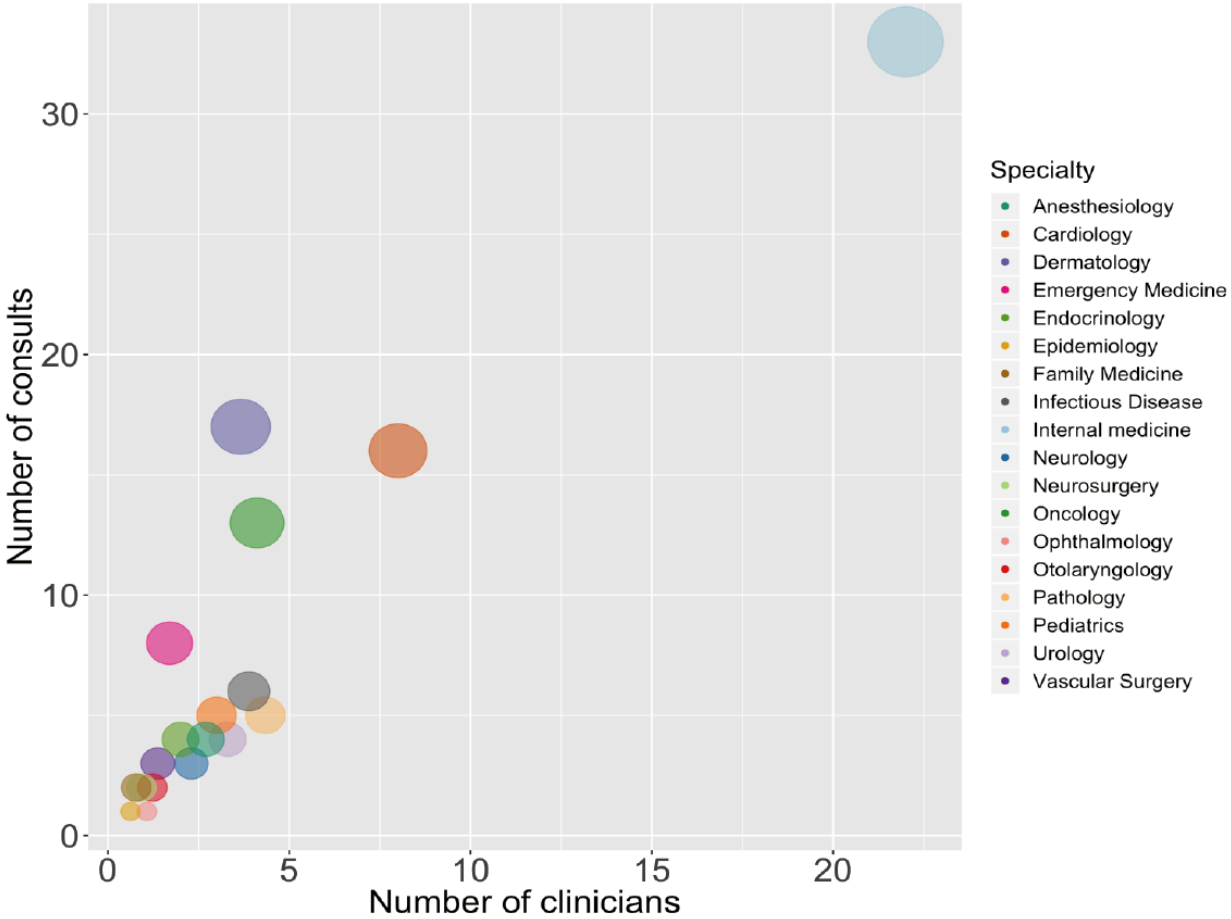
The process


24 to 72 hours
Requesting physician
Informatics physician
EHR data specialist
Data scientist
Request consult
Refine clinical question
Create definitions for exposures and outcomes
Build patient cohorts
Perform statistical analysis
Write consult report
Review results
Apply evidence to clinical decision
ACE search engine

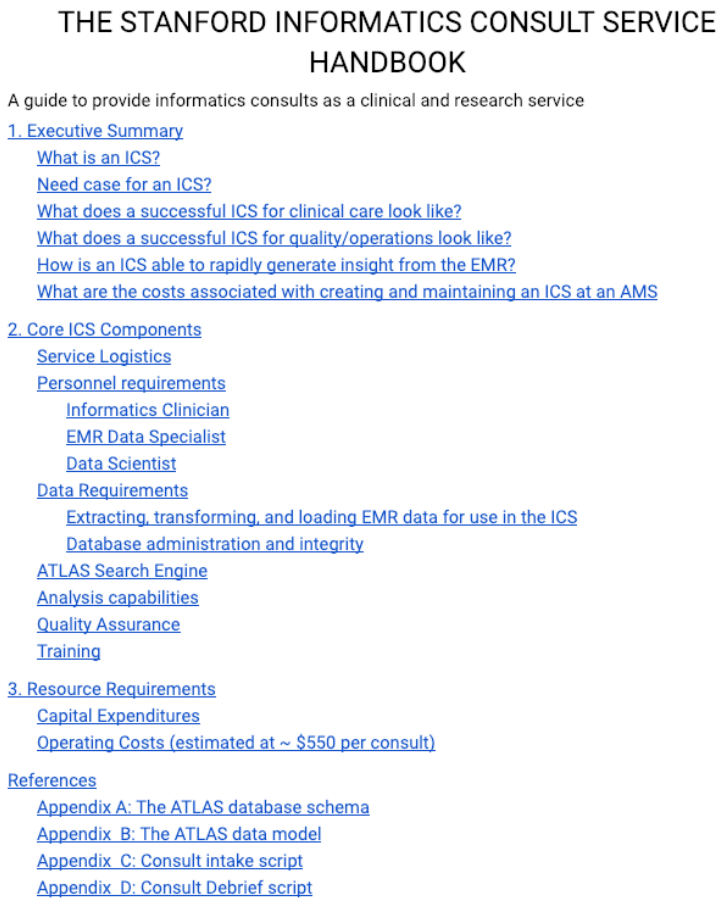
What we do to not be wrong

- Use CohortMethod's data diagnostics
- Use negative controls for empirical calibration
- E-values to quantify the degree of confounding that can produce the observed effect
- Ask the question using multiple datasets
- Schedule an in-person debrief

Learning from the first 150 consults



Deploying the service at your site



THE STANFORD INFORMATICS CONSULT SERVICE HANDBOOK

A guide to provide informatics consults as a clinical and research service

1. Executive Summary
   - What is an ICS?
   - Need case for an ICS?
   - What does a successful ICS for clinical care look like?
   - What does a successful ICS for quality/operations look like?
   - How is an ICS able to rapidly generate insight from the EMR?
   - What are the costs associated with creating and maintaining an ICS at an AMS

2. Core ICS Components
   - Service Logistics
   - Personnel requirements
     - Informatics Clinician
     - EMR Data Specialist
     - Data Scientist
   - Data Requirements
     - Extracting, transforming, and loading EMR data for use in the ICS
     - Database administration and integrity
   - ATLAS Search Engine
   - Analysis capabilities
   - Quality Assurance
   - Training

3. Resource Requirements
   - Capital Expenditures
   - Operating Costs (estimated at ~ $550 per consult)

References
   - Appendix A: The ATLAS database schema
   - Appendix B: The ATLAS data model
   - Appendix C: Consult intake script
   - Appendix D: Consult Debrief script

- Data in OHDSI CDM
- Institutional support
- Data science expertise
- Marketing
- A process to sanity-check the data and consult findings

http://greenbutton.stanford.edu

Ask me about the next phase of our study on measuring utility, and deploying the Green Button at Stanford Health Care