The Role of Data Analytics in Enhancing (and Undermining) Healthcare Information Security
Finding?
Drivers pull over when it rains

Why?
Taxi Company Policy
~S$1000 withheld if accident
Months to fight claim
15 minute ride earns ~S$10

Illustrates...
- (Visualization)
- Integration
- Latent
- Policy

Healthcare?

http://gigaom.com/2012/10/05/5-ways-big-data-is-transforming-everyday-life/oliver-senn-2/
Healthcare?

IT has significant potential
- to improve the quality of patient care
- to lower costs
- to increase social welfare efficiency gains

Examples go beyond basic record keeping and automation

Clear: Eliminate legibility problems that plague hand-written orders
Accurate: Prompt for complete and accurate information (allergies, dosage, interactions)
Accessible: Shared by all members of the health care team
Informative: Provide decision support functions
Ongoing analytic potential: e.g., historical results for other patients
Sword or shield?

Discoverability Mechanism
- All classic IT problems
- Provides evidence—good or bad!
- Hospitals avoiding IT (Miller & Tucker 2014)
- Supported in legal system

Control Mechanism
- All classic IT value benefits
- Supported in medical informatics literature
- Supported in legal system

“Exercising clinical judgment, physicians may decide to override an electronic alert [...] CPOE [...] may generated documentary evidence, which can serve as a sword or a shield [...] in a malpractice case or in peer-review proceedings”

(Korin & Quattrone 2007)
Analytical Approach

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1. Medical malpractice claims from Florida public records
   16,678 for claims originating in 177 hospitals between 1998-2006

2. IT use in hospitals from HIMSS
   Focus on medical system use in hospitals in Florida

3. Hospital data from Florida Agency for Healthcare Information
   Manually augmented HIMSS data from printed annual reports

4. Use of accepted practices from Hospital Compare
   US Department of Health and Human Services
Many risks

• Implementation failure

• Investment and return

• Data theft, denial of service, identity

• Legal risk
  (Miller and Tucker 2014, Ransbotham)

• Security, availability, performance, compliance
  (Savic 2008)

... What can data show us to think about...

Three issues to consider...

• Famine to feast
• Focus on process and small gains
• Coming commoditization
From data famine to data feast

Current fascination with “big”
- Additional can obscure more than illuminate

• Does Your Company Collect Data — Or Hoard It?
• At what point does a company’s data collection become self-defeating?

http://sloanreview.mit.edu/article/does-your-company-collect-data-or-hoard-it/
Focus on process and small gains

• We like nice stories of big gains and insights
  – Likely more value from consistent incremental improvements

• Demonstrate success
  – Avoid McBusted
  – Marathon

• Not projects
  – Processes

http://sloanreview.mit.edu/article/technology-solutions-for-health-care-need-a-continuous-process/
What happens when the use of analytics stops being new and different?

• Increase in ROI
• Shifting Risk Profile
• Changing Personnel Requirements
• Focus on Complementary Resources

Simply having may provide (short-term) competitive advantage

Having it is not enough. How do you use it?

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