

Is Point-of-Care Clinical Decision Support a Substitute for EMRs?

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US Healthcare System

- Amazing medical miracles
- Preventable errors injuring or killing hundreds of thousands

Is There a Healthcare *System*?

- The human body is a *system*, but we treat it as a collection of individual parts, independently “optimized”
- Results
 - ♦ Amazing “best of breed” diagnostic tools, treatments and specialists, for individual organ systems
 - ♦ No coherent view of the overall body
 - ♦ Scattered bits of patient information, with no coherent EHR

Current Clinical IT Solutions

- A choice between:
 - ♦ “Best of breed” solutions that poorly share information, or
 - ♦ Single vendor solutions, promising a “unified view” but usually falling short
 - Often consist of separately acquired/developed solutions
 - “Integrated” healthcare delivery systems are “roll-ups” of incompatible organizations and IT systems

Consequences

- In an institutional setting, the “system” view of the patient that a primary care physician *may* have is usually lost
- Caregivers are forced to make life and death decisions without adequate information

Important Observation

- Healthcare IT reflects our Healthcare delivery model which mirrors a flawed concept of the human body
 - ♦ Discrete parts, individually optimized with interactions only occurring along fixed interfaces, driven by a central brain

EMRs to Date

Scale-up of this flawed model!

- Create ever larger, centralized IT systems
 - Fragile implementations
 - Long history of failed large-scale IT projects
- Impossible Goal: 100% information with 100% accuracy

Is There Another Model?

- How does the human body actually work?
 - ♦ Control of the body and its mechanisms is not exclusively in the brain
 - ♦ Control is actually disbursed throughout
 - Localized “data computing” and information creation
 - Processes linked by a highly redundant and parallel electro-chemical communication system

The Human Body is a Networked System of Information Generators with Decentralized Control

Internet Technologies Reflect This Model

- Information generation sources with no centralized control
- Simple information formatting standards
- Simple communication standards with parallel, self-healing communication paths
- Search, data mining, information confederation tools - Google, etc.
- The Internet would have *never* have worked with a centralized model

Discussion

Why aren't Clinical Decision Support IT Systems Built this Way Now?

- The goal of *Financial* systems is 100% accuracy
 - ♦ Financial Incentives have historically driven a centralized model
- Clinical specialty support systems *are* currently built this way (“Best of Breed”)
 - ♦ Decentralized communication and aggregation not used to communicate the resulting information

Additional Questions

- How does the needed infrastructure get created?
- How would it be governed?
- How would it get paid for?

Objections to Decentralized Model

- Can't guarantee 100% of information with 100% accuracy
 - ♦ Impossible goal with fragile centralized system
 - ♦ Acting on, say, 80% of information with accuracy judged by the caregiver is superior to acting without most of the information
 - ♦ As with the internet, the quality of information sources improves with time
- Security
 - ♦ HIPAA access control
- One vendor cannot "own" an account