



Solving the EHR Productivity Dilemma: Lessons learned from the Hopkins Octagon in 1893

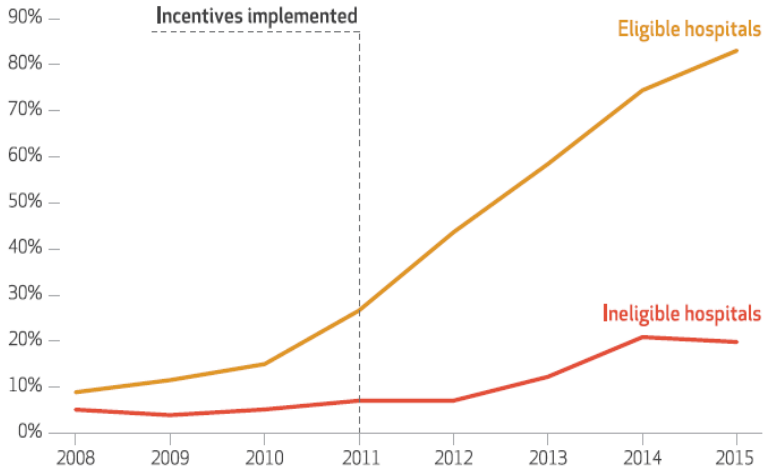
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Chief Information Officer
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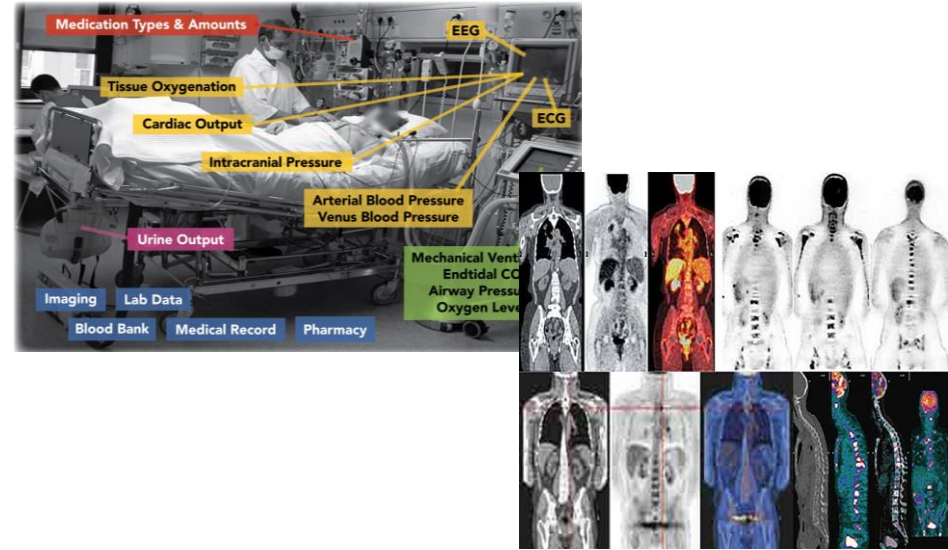
I have no COI, nor relevant disclosures for any of the content in this presentation

Rapid EHR adoption & Patient Produced Data

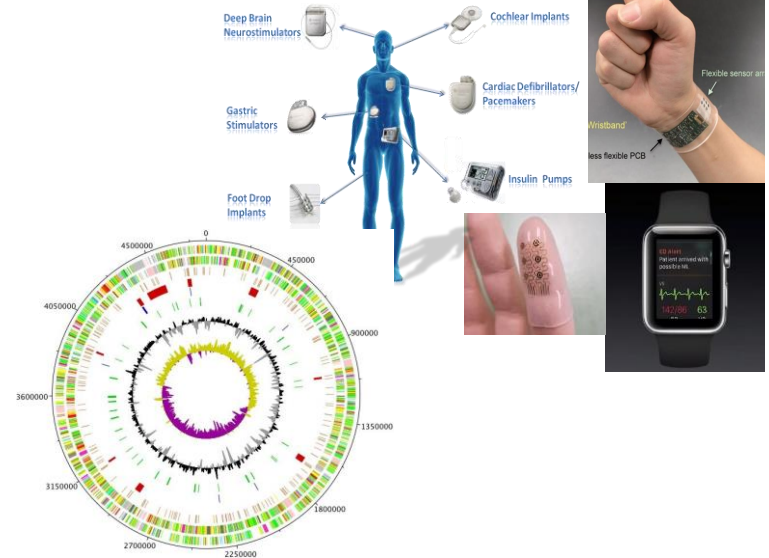
Percentages of hospitals that adopted at least a basic electronic health record system in 2008-15, by eligibility for meaningful-use incentives



“ Speeding the national timeline of hospitals’ EHR adoption was a key first step toward **digitizing the health care system.**”



WIRELESS IMPLANTABLE MEDICAL DEVICES



1057 Health IT Studies Between 1995-2013

Conclusion: Strong evidence for;

1. Computerized clinical decision support
2. Computerized provider order entry.

The Cost of Technology



© 2011 Thomas G. Murphy, MD.

“My doctor hasn't made eye contact with me since he got on that computer—he's not a very good typist.”

ElizabethToll, JAMA 307:2497, 2012



THE PRODUCTIVITY PARADOX OF INFORMATION TECHNOLOGY

Erik Brynjolfsson

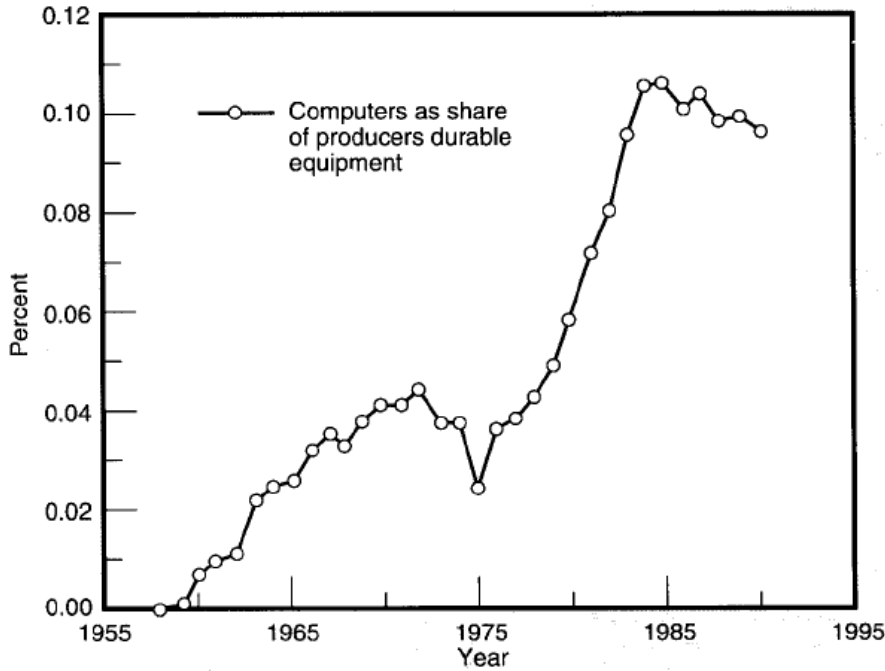


Figure 4. Computer hardware comprises about 10% of investment in producers' durable equipment

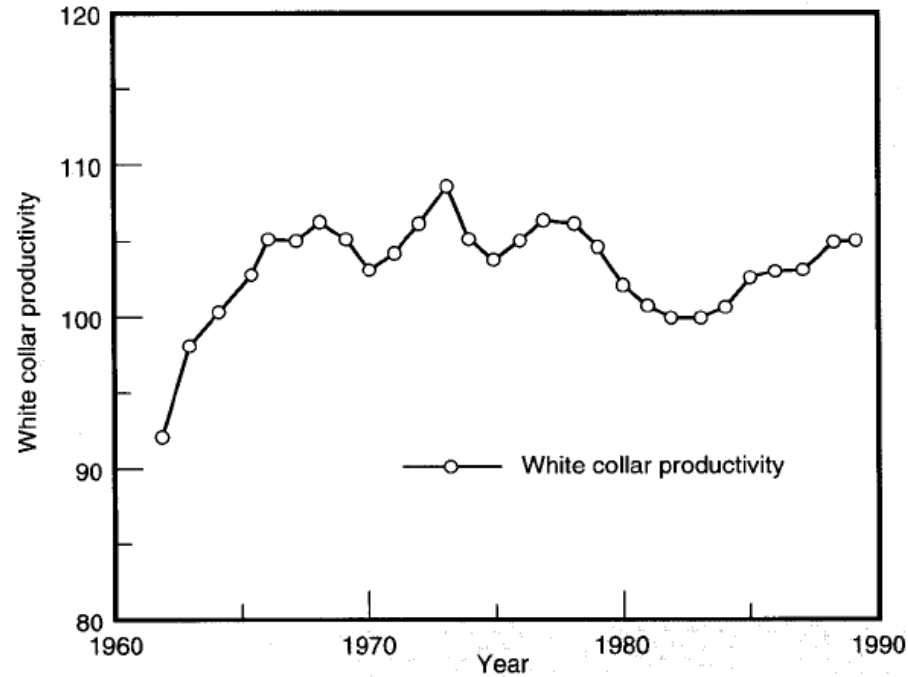


Figure 5. White collar productivity appears to have stagnated

The Productivity Paradox

It is observed that over decades an absence of significant productivity gains in multiple industries and manufacturing despite significant investment in computers/IT.

*Those realizing productivity gains went through **dramatic organizational restructuring** to take advantage of new IT capabilities*

*Those that did not make such changes were **worse off than had they not invested in IT at all***

J Adler-Milstein 2017

The need for organized medical records

“I am fain to sum up with an urgent appeal for adopting ... some **uniform system of publishing the statistical records of hospitals**. There is a growing conviction that in all hospitals, even in those which are best conducted, there is a great and unnecessary waste of life ...

In attempting to arrive at the truth, I have applied everywhere for information, but *in scarcely an instance have I been able to obtain hospital records fit for any purposes of comparison ...*

If wisely used, these improved statistics would tell us more of the relative *value of particular operations and modes of treatment than we have means of ascertaining at present.*”

The first Informatician?

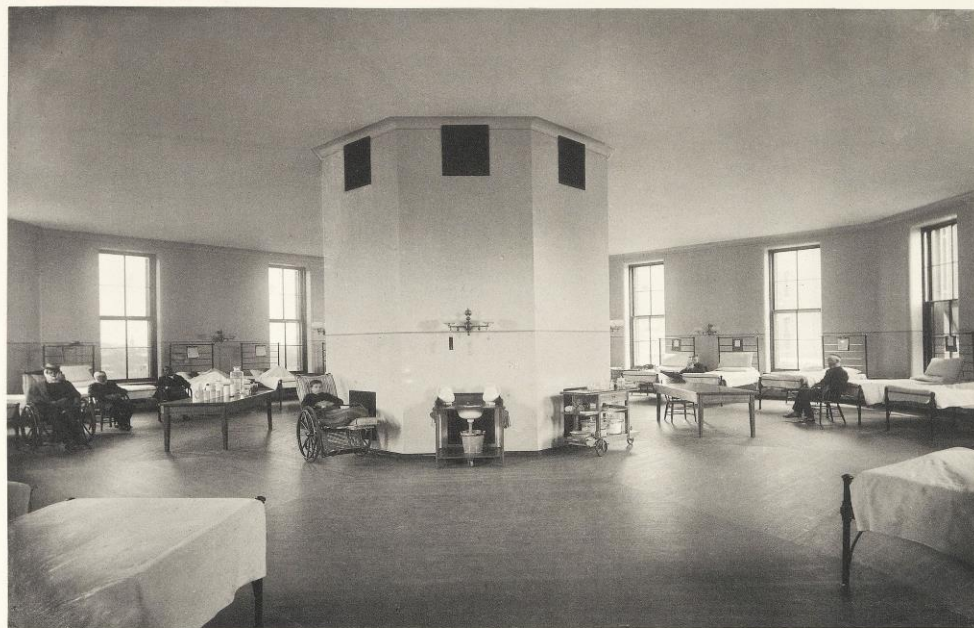


Florence Nightingale

Notes on Hospitals, London. 1863

History and
determining what
the 'innovations'
are

Hopkins Hospital- 1893 and the 'Octagon' where 'rounds' began



OCTAGON WARD.
INTERIOR VIEW.



OCTAGON WARD.
VIEW FROM SOUTHEAST.

Still 'Rounding'- 21st Cent tools with 19th Century workflow.....productivity paradox

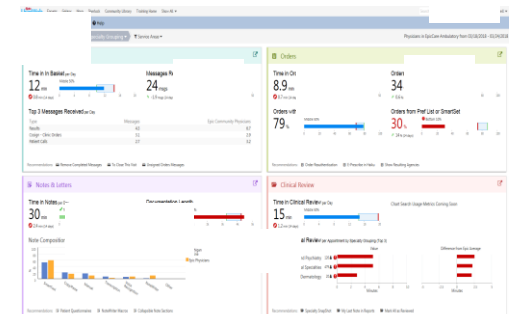
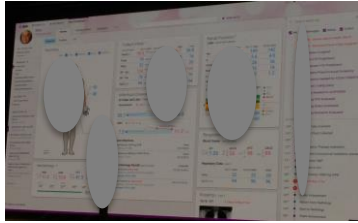


Then & Now



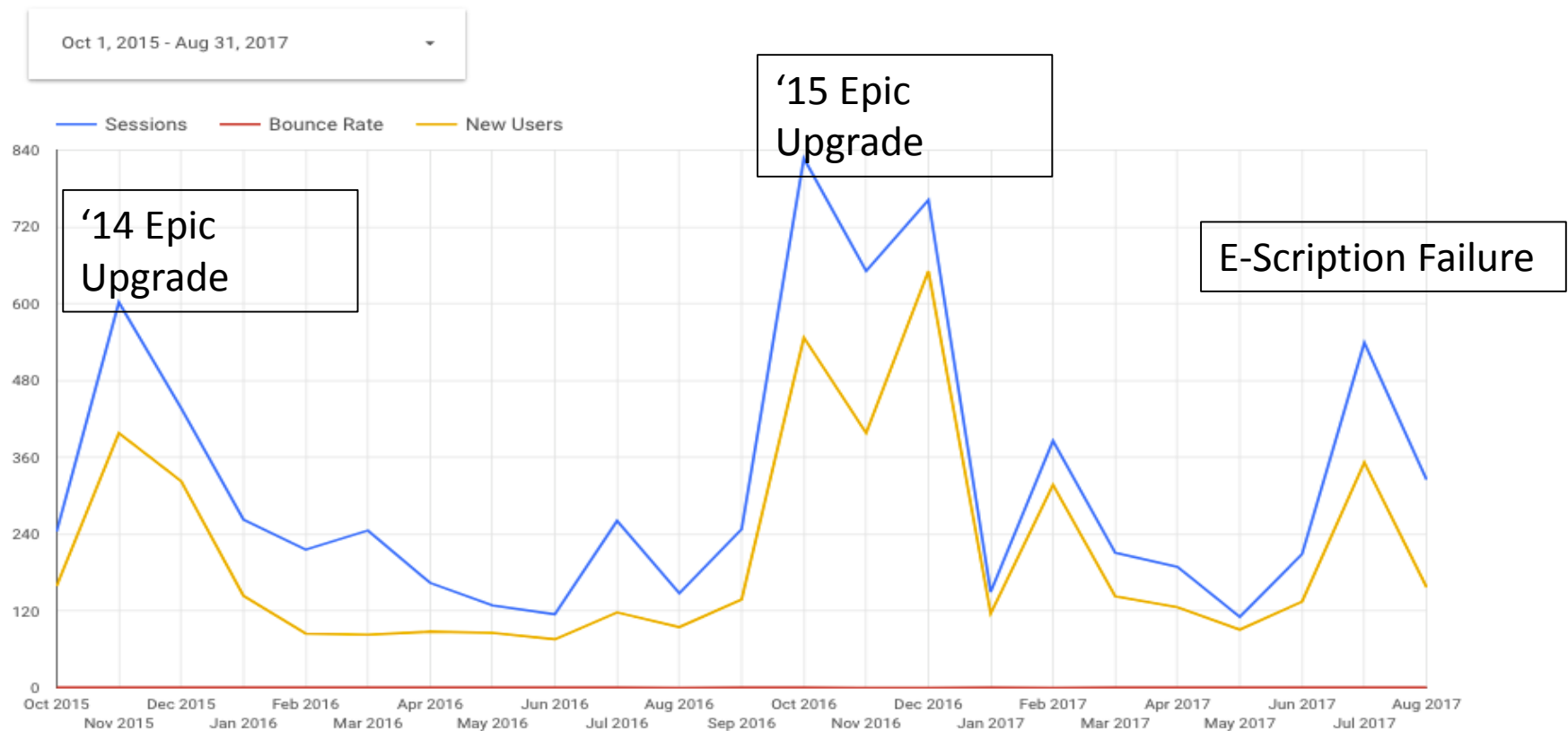
What we can do to improve

EMRs will continue to simplify and focus on user experience, human-machine interface and improved user analytics.



Episodic, micro-tutorials (when needed!)

User Activity for a MiChart Physician-Focused Knowledge Base
Correlates with Need to Know: Upgrades and Interruption of Dictation Service



UM Michigan Medicine
michartfly.med.umich.edu

Source, MiChartFLY Google Analytics
Image Credit, Raf Rizk, MD

Michigan Medicine's “Home for Dinner”

	Total Hours spent charting in the EMR at night or on weekends (not scheduled) Before Class	Total Hours Charting After Class (2 months since training)
	369 hrs	171 hrs
Total Reduction in Hours:		198 hrs. (54% reduction)
Per Person Difference (avg):		8 hrs (4hrs/month)

26 Clinical Faculty

Pre-intervention two months prior

Post-intervention two months post data:

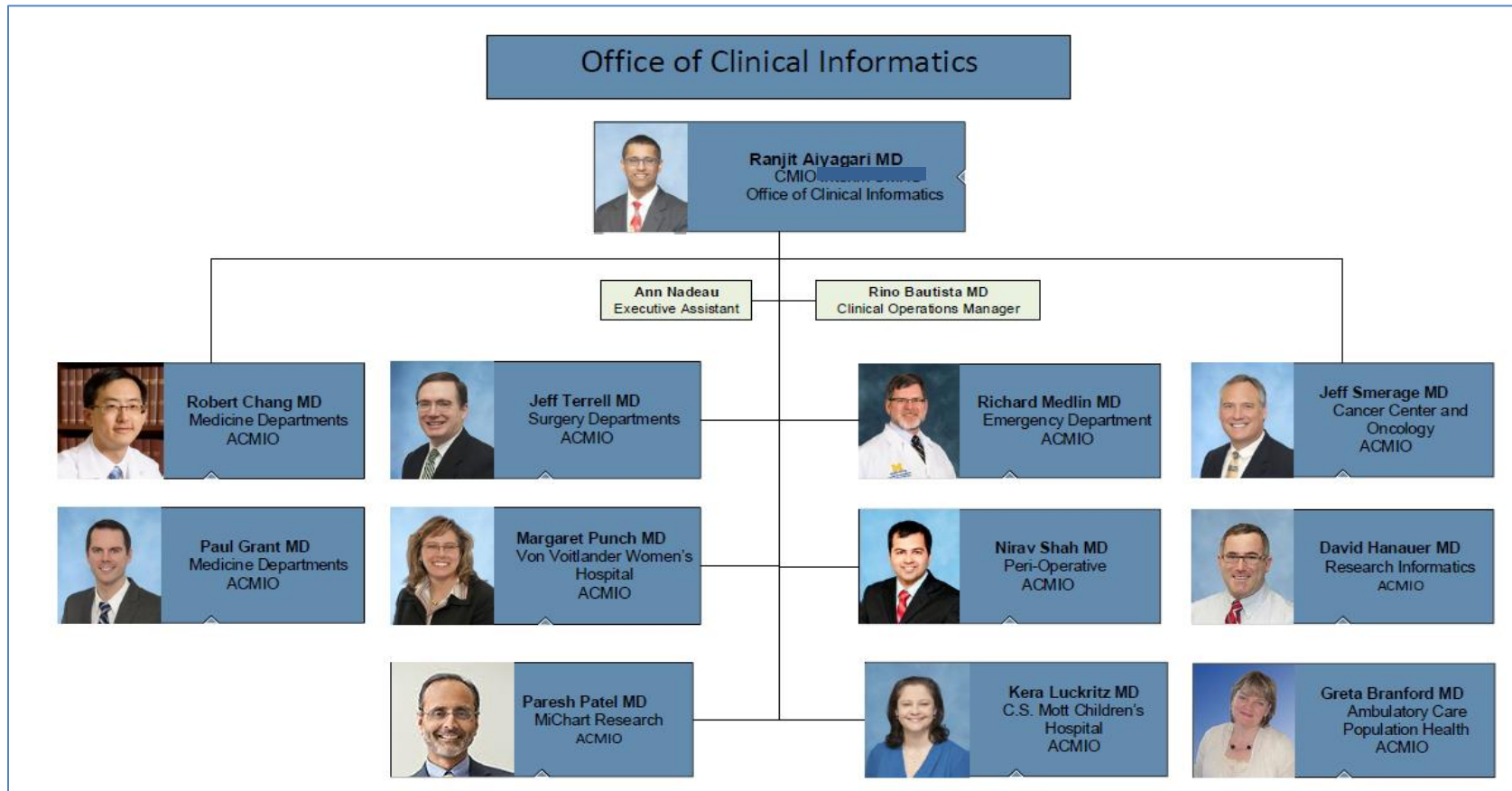
Inpatient Notes: Hospitalists and Digital Medicine—Overcoming the Productivity Paradox

Robert M. Wachter, MD

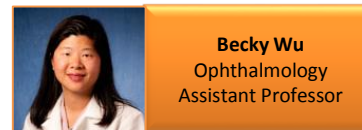
2016

Reimagining the work is not easy, but it is achievable, particularly if there are people who have a deep understanding of both clinical work and technology, who can build and run teams effectively, and whose thinking naturally gravitates toward system improvement.....

Informaticians bridge the gap between healthcare and IT



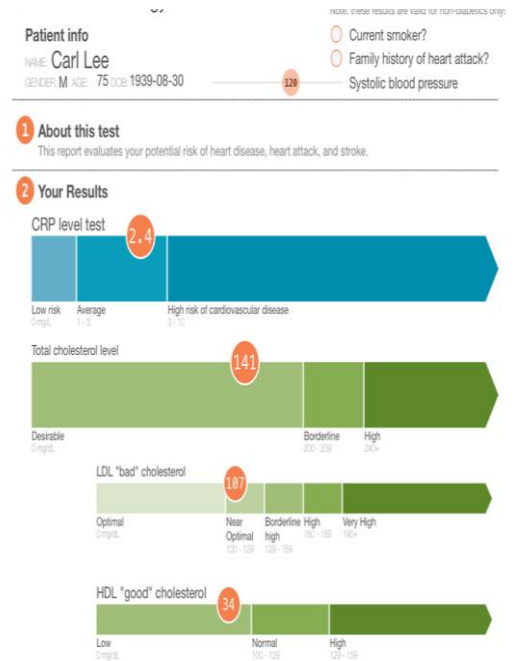
Informatics Directors and Physician Champions



HL7[®] FHIR[®] Open Source API (Application Programming Interface)



Improved clinical tools



'Digital Twin' and other techniques applied to health care and Health IT

Autonomous control will be based on large scale Digital Twin asset models



Large scale, composite digital twins will enable sophisticated monitoring, simulation and automation at scale

Virtual and Augmented Reality- Education





Virtual Care Hospital

Business

Mercy debuts new \$54 million virtual care center



Rounds and new Hopkins 'Capacity Cntr'



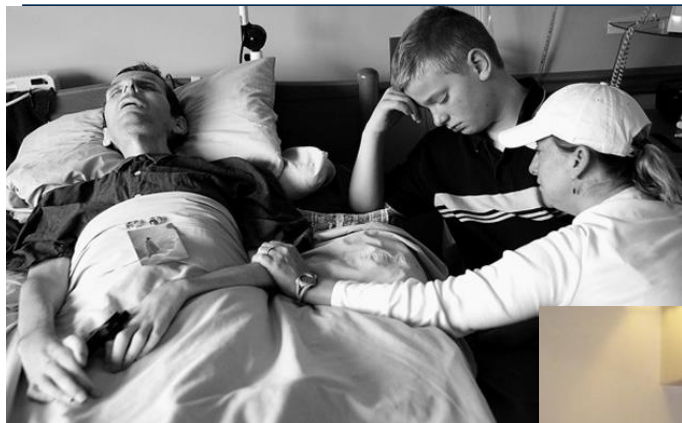
OCTAGON WARD.
INTERIOR VIEW.



New Care Paradigms



Medicine is about Caring & Comforting, It is Personal.
Technology will help, but not lead us, to making this better for all.



Questions- Discussion