

Solving The Digital Transformation of Healthcare by 2025

MAY 15, 2019

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HiTech Act 2009



“Health information technology connects doctors and patients to more complete and accurate health records. Tools like electronic health records and electronic prescriptions help patients and providers make safer, smarter decisions about health care...Better technology can also cut costs for providers by reducing paperwork and duplicative tests.”

Electronic Health Records (EHR)



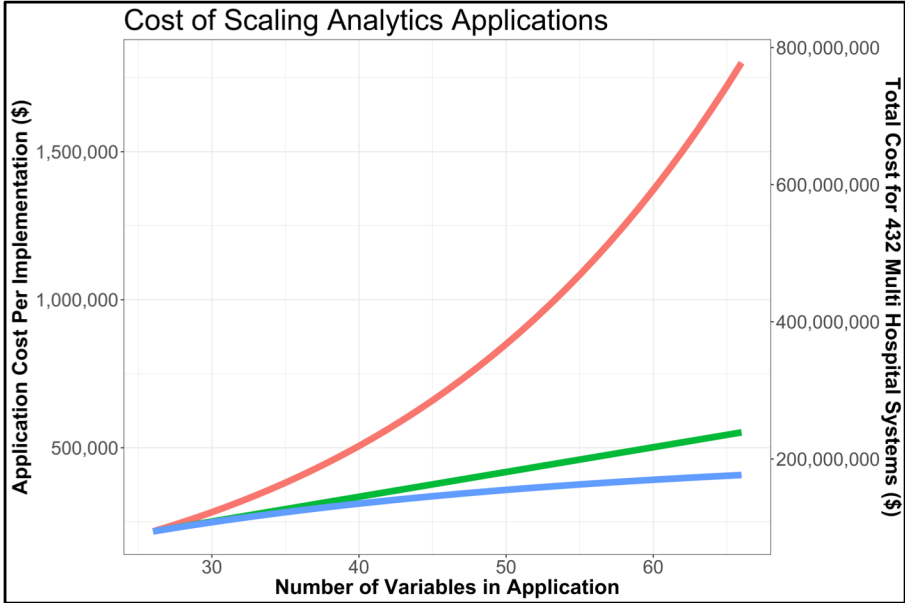
EHR Implementations NC



Scale

Number of Hospital Systems	432
Number of FTE Per System	200
Cost Per FTE	\$125,000
Annual Maintenance Cost	\$10,800,000,000

Costs of Scaling an App



HiTech Act 2009



\$38,422,505,920

An Alternative Approach



What if 50% of health care was delivered via mHealth technology by 2025?

Economics of “Machine Learning Healthcare Systems”

- Maximize the collection of meaningful data
- Minimize the cost of data curation and feedback loops
- Build work processes that reflect the availability of these tools
- Build management capacity to lead these organizations

Maximize the Collection of Meaningful Data

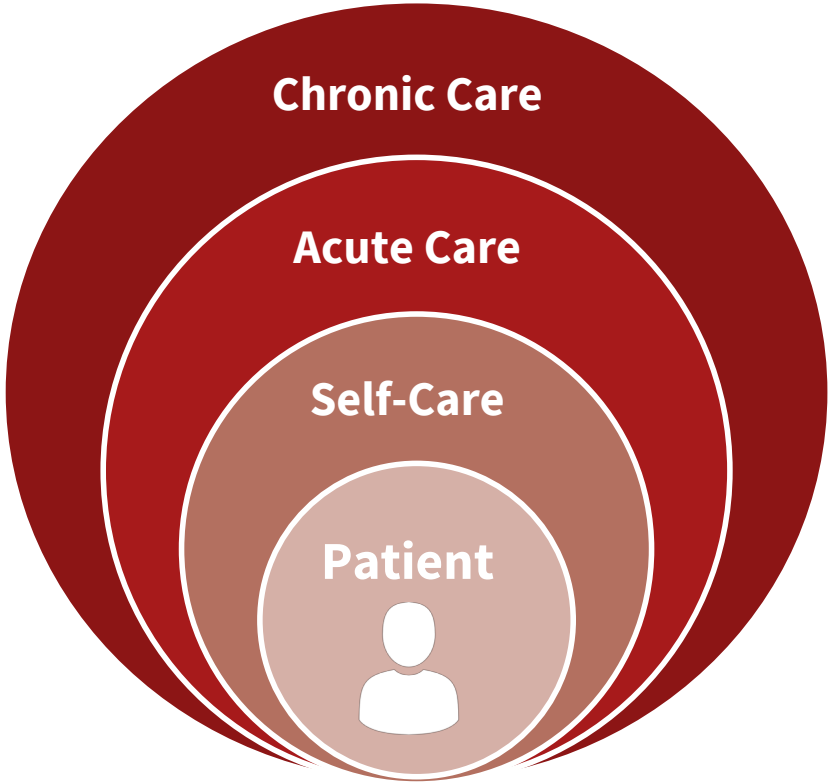
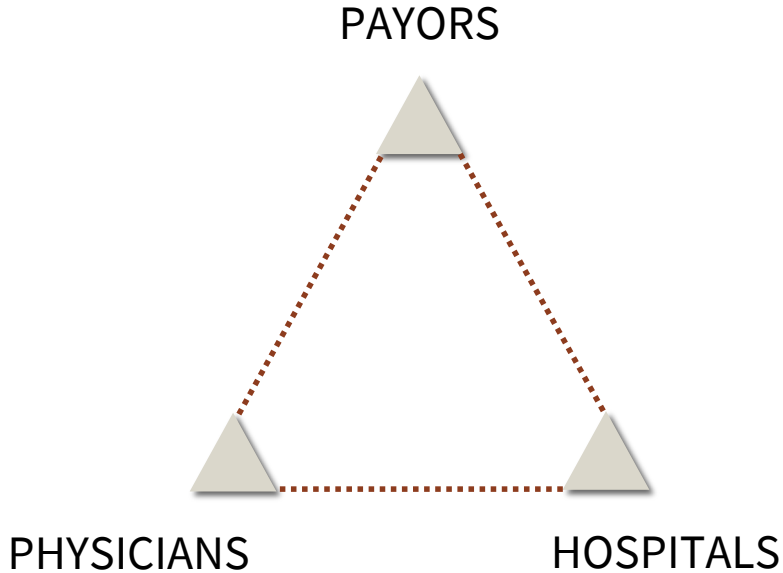


Hospital Health Record



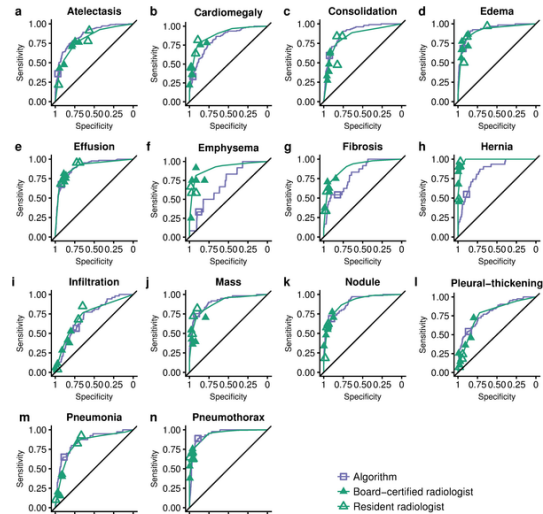
Personal Health Record

Maximize the Collection of Meaningful Data

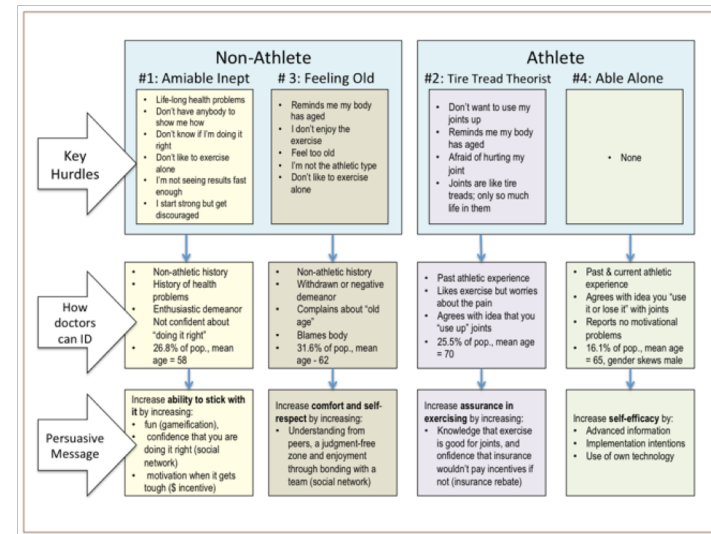


Enable Data Curation and Feedback

Supervised Learning



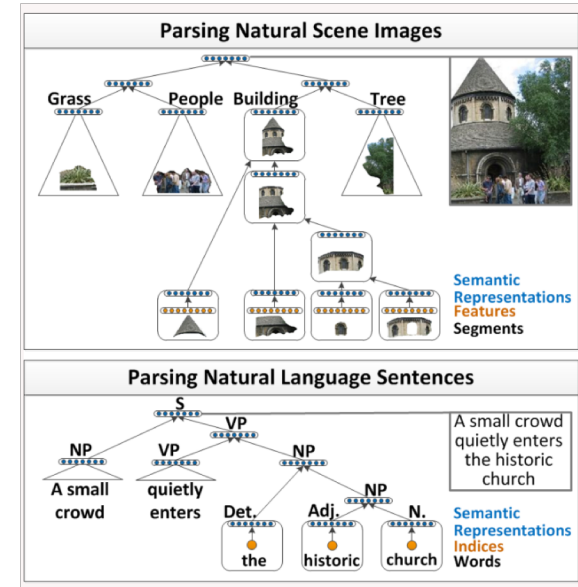
Unsupervised Learning



Organizing Around Capital Assets



20th Century:
Hospital Operating Room



21st Century:
Machine Learning Environment

Building Work Processes



Given the technology, how do we redesign the workflows in healthcare?

Which tasks will be performed by the technology?

Which tasks will be performed by people?

<https://www.vox.com/2017/1/27/14406702/self-driving-cars-autonomous-vehicles-uber-lyft-tesla-waymo-recode-podcast>

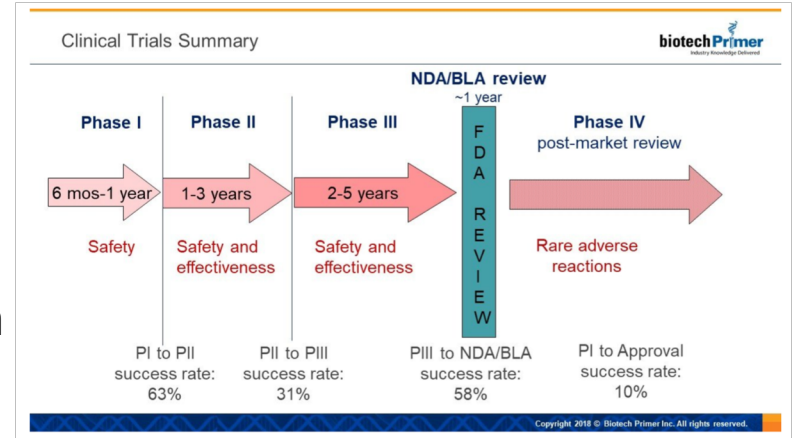
Governance

- Capacity for a Portfolio of Investments



Governance

- Capacity for a Portfolio of Investments
- Appropriate Evaluation
- Discovery, Development, Dissemination

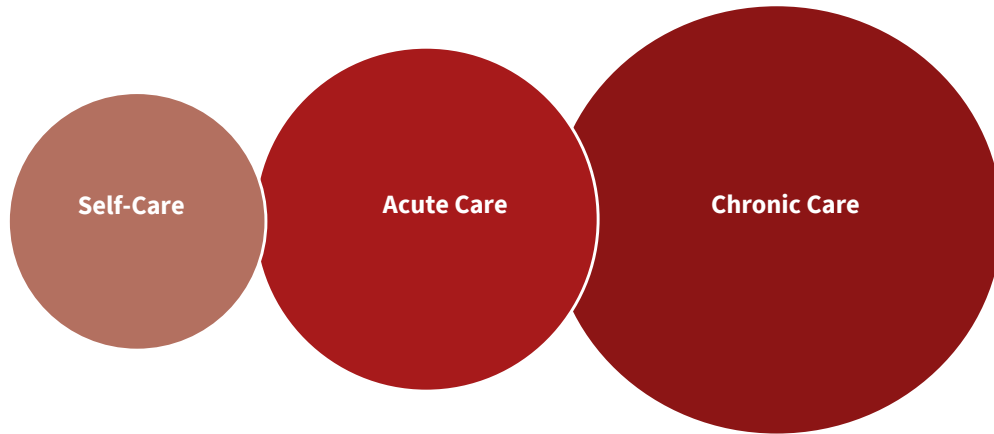


Governance

- Capacity for a Portfolio of Investments
- Appropriate Evaluation
 - Discovery, Development, Dissemination
- Legacy Costs



Bringing it All Together: The Services Ecosystem



- What is the clinical problem?
-The “job to be done”
- How can we use data and analytics to support the solution?
- What physical resources are needed to support the solution?
- How do we build the business models to support the solution?

The Innovation Challenge

“...as a rule the new does not grow out of the old but appears alongside of it and eliminates it competitively...”

Joseph A. Schumpeter

The Theory of Economic Development (1911)

An Alternative Approach



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Stanford CERC: How Do Deliver Great Care at Lower Cost?

