Experiences from an IT Innovator in Healthcare: The Human Factor in the Loop

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Lessons Learned from Around the World

- The United States “Meaningful Use” program and the HITECH Act
- Healthcare IT investment in the UK and the Wachter Report
- Digital Health in the Nordic countries
- The experience of New Zealand/Australia
- Japan and EHRs at Fukushima

Emerging Trends

- The rise of app stores/third party tools that layer on top of electronic health records.
- Work on the infrastructure that will accelerate data sharing - nationwide patient matching strategy, electronic provider directories, data governance/policy frameworks
- The urgency to reduce costs as part of the move from fee for service to value-based purchasing
- Reduced pace of government regulatory efforts
- The leadership of the private sector

The Problems to be Solved

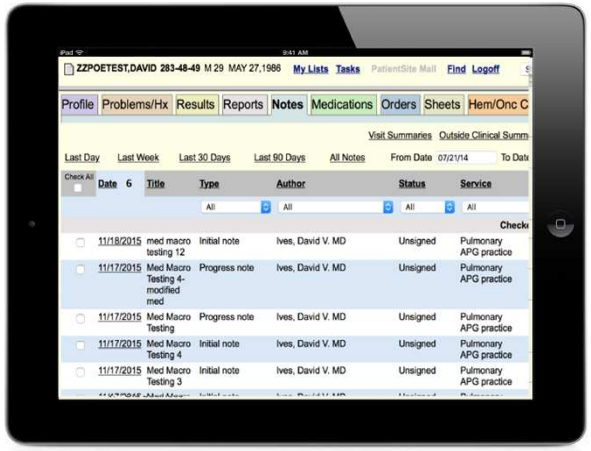
- Ever increasing healthcare costs in an aging society
- Poor tools for patients and families to navigate the healthcare system
- Caregiver burden
- Lack of enabling infrastructure to exchange data
- Significant variations in healthcare quality

Examples

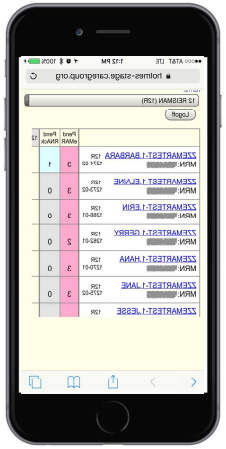
- EHR - my wife's thyroid issues and the need for "social" precision medicine
- Patient/Family engagement - my recent hypertension diagnosis and "internet of things" precision medicine
- Big Data Analytics - my wife's cancer experience and "clinical trial of one" precision medicine

Patient and Provider Mobile Apps

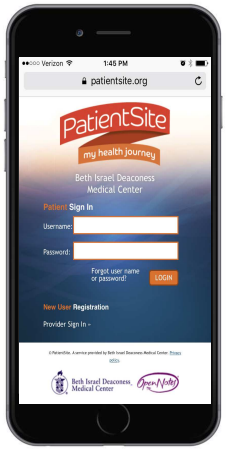
Clinician Apps



Inpatient Med Lists



PatientSite



Patient Questionnaires

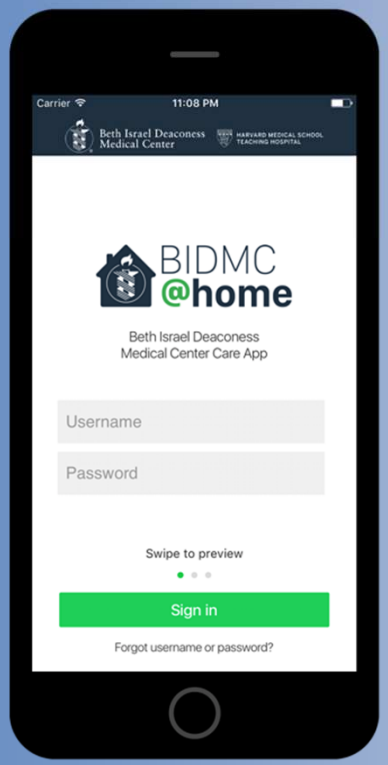
Dragon Medical Recorder

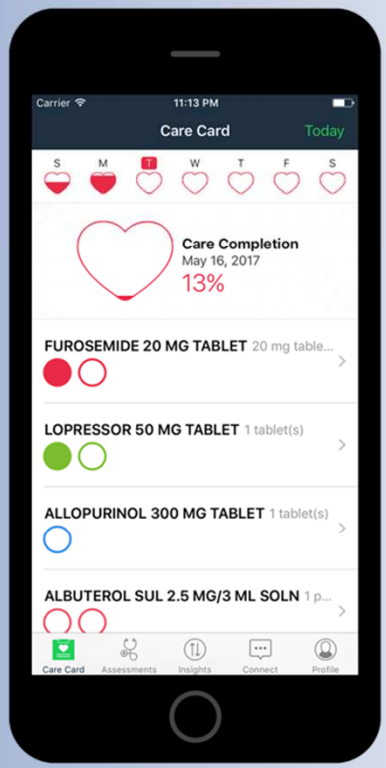
LifeImage Mobile

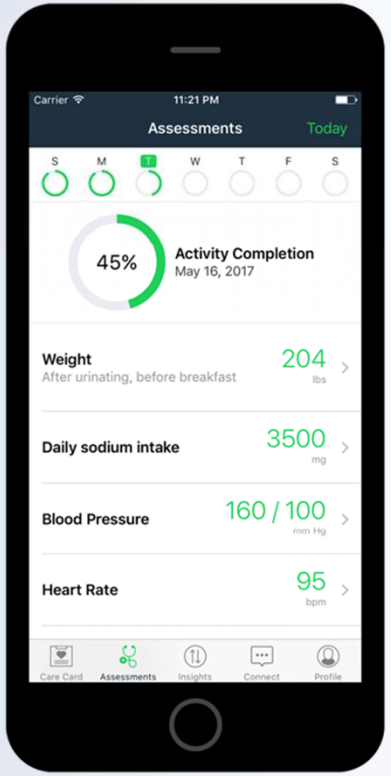
eyeRad

MyICU

BIDMC@Home



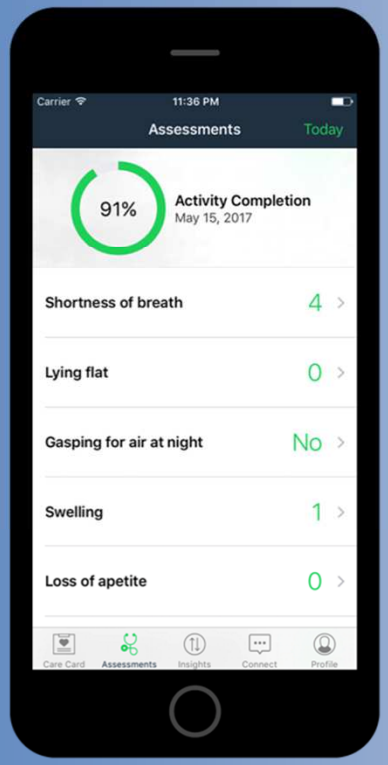


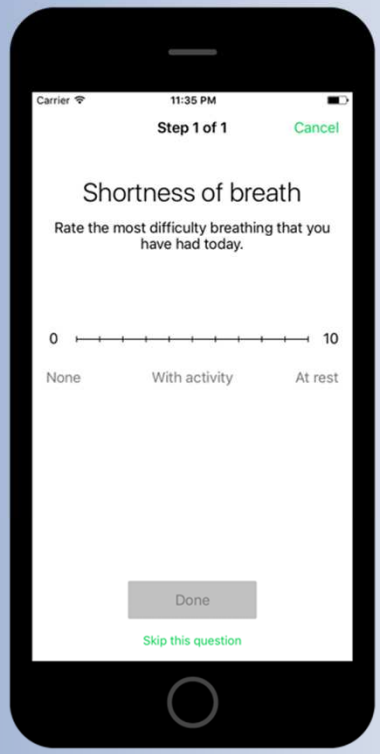


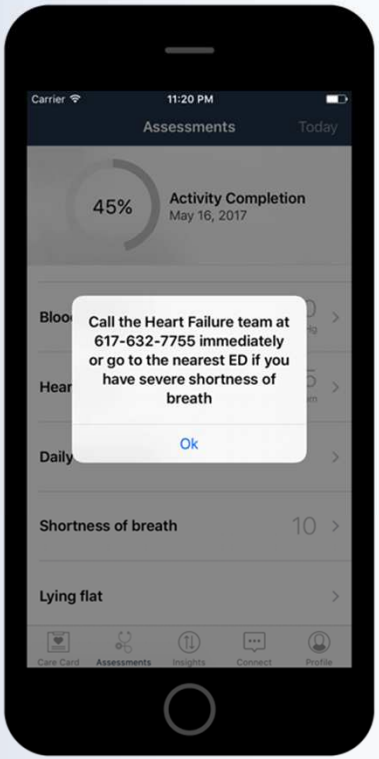
Beth Israel Deaconess Medical Center

HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

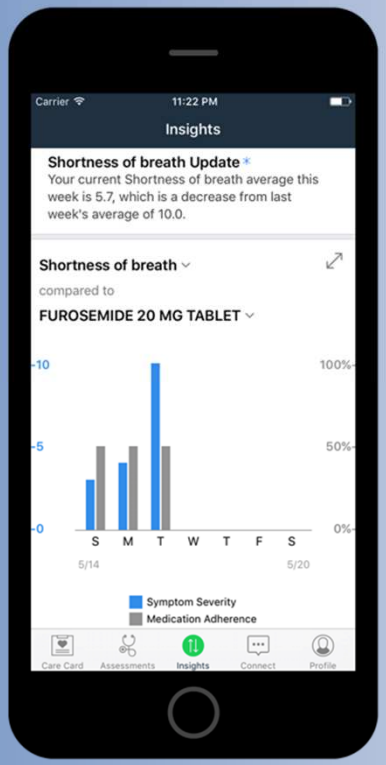
Monitoring to Management

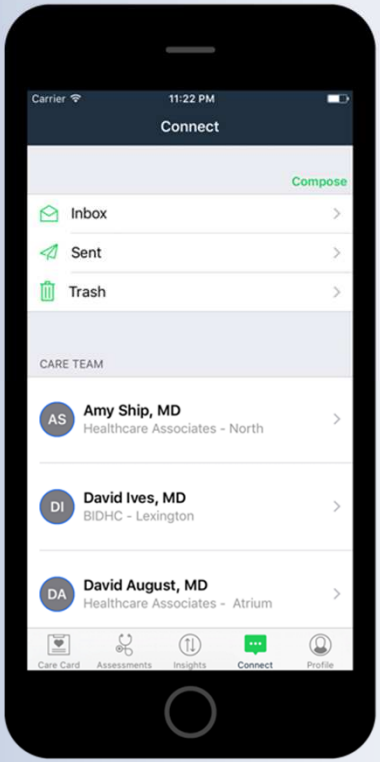




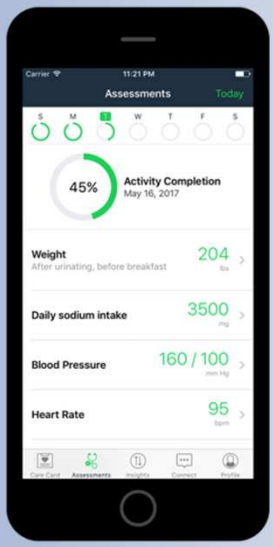


Insights and Messaging

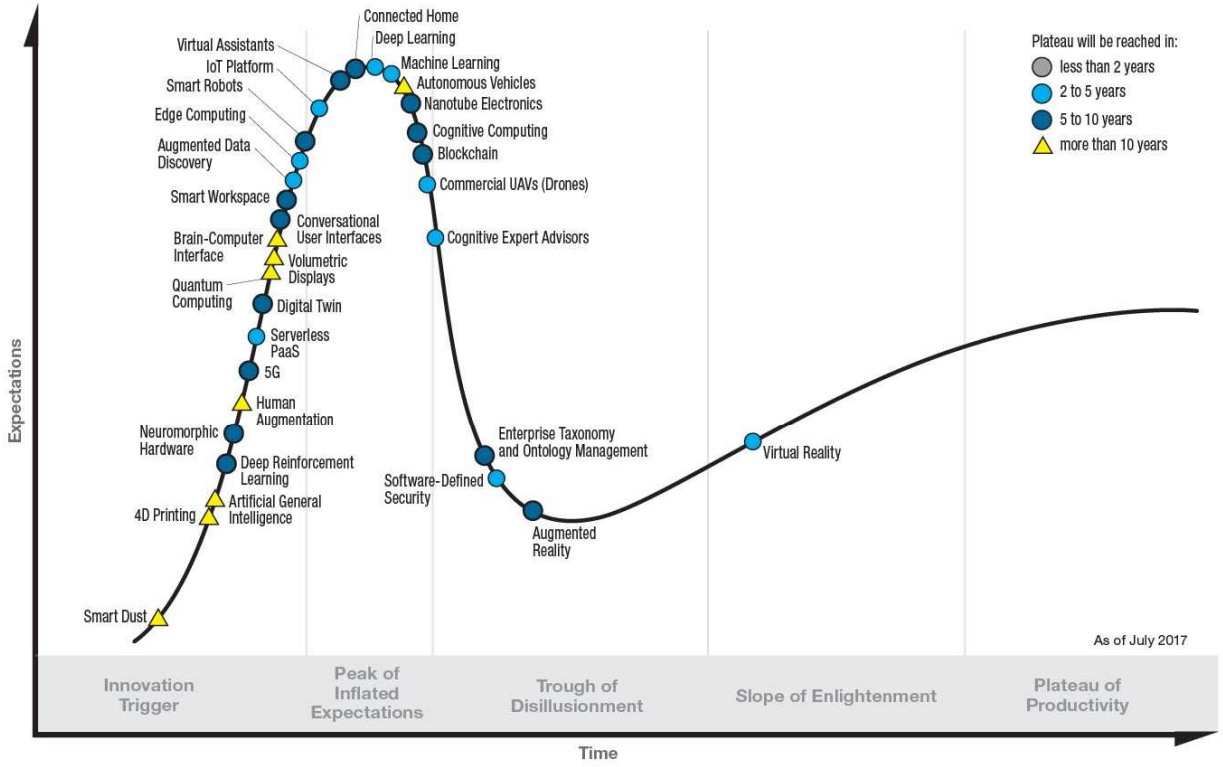




Hub for Wearables and Internet of Things



Gartner Hype Cycle for Emerging Technologies, 2017



gartner.com/SmarterWithGartner

Source: Gartner (July 2017)

Gartner

Artificial Intelligence/Machine Learning

Priority Projects	
1	Predict when a patient in the hospital will be discharged.
2	Predict no shows for ambulatory appointments.
3	Optimize operating rooms (OR) block allocation
Future Projects	
4	Predict at the time of discharge the probability that the patient will be re-admitted within 30 days and make prescriptive decisions in order to minimize the number
5	Minimize the overall length of stay at the hospital by studying the interaction between the Emergency Department (ED) and the main hospital at Beth Israel Deaconess Medical Center (BIDMC). Reduce number of patients that are re-admitted within 30 days.
6	Predict at the time of admission of a patient to the ED the probability that the patient will need an ICU bed and for how long
7	Apply methods developed by the PI in the area of personalized medicine for particular diseases; examples include but are not limited to diabetes, coronary heart disease, and breast cancer

Questions?

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