Health 2.0
Santa Clara, California
September 29–October 2, 2013

M. R. Pamidi, Ph. D.
Editor-in-Chief
IT Newswire

Glossary

ACA	Affordable Care Act
ARRA	American Recovery and Reinvestment Act
CDC	Centers for Disease Control and Prevention
CEHRT	Certified Electronic Health Record Technology
ER	Emergency Room
HIPAA	Healthcare Information Portability and Accountability Act (part of ARRA)
HITECH Act	Health Information Technology for Economic and Clinical Health Act
PBM	Pharmacy Benefits Manager
PCP	Primary Care Physician
PHI	Protected Health Information
PICU	Pediatric Intensive Care Unit
PII	Personal Identifiable Information

Executive Summary

The healthcare industry spending in the U. S. in 2012 was almost $2.7 trillion, accounting for 17% of the GDP. Healthcare costs over the past 20 years have increased 2 to 4 times annual inflation rate. The root causes are inefficiencies, unnecessary tests, too many players, outdated technologies, and more attention to disease *management* and *maintenance*, rather than *cure*. However, technological innovations and consumer demands will drastically change the way healthcare is delivered following the implementation of ACA, and the landscape will look very different in 2020. Innovative devices and methods being deployed in developing countries to meet local needs will strongly influence how global conglomerates will develop their products in developed nations.

Health 2.0: Definition

What is Health 2.0? It once was user-generated healthcare—convergence of Web 2.0 and social networks. One example is ACOLN—Affiliated Cancer Online Network. Then came eHealth to get better healthcare information. Why? The average American has 6-7 doctor visits per year and spends about 12 minutes each time. Can the number and duration of visits be reduced with better information?

What is Health 2.0 now? It is (i) adaptable technology, (ii) better user experience, and (iii) data-driven decisions. The U. S. Department of Veterans Affairs Blue Button, for instance, creates value by enhancing Veterans' access to personal health information from the VA EHRs and other key data sources to foster patient engagement, encourage activation, and support patient-centered care. A variation of Blue Button, iBlueButton, is offered by Humetrix.

a

© IT Newswire 2013. All Rights Reserved.

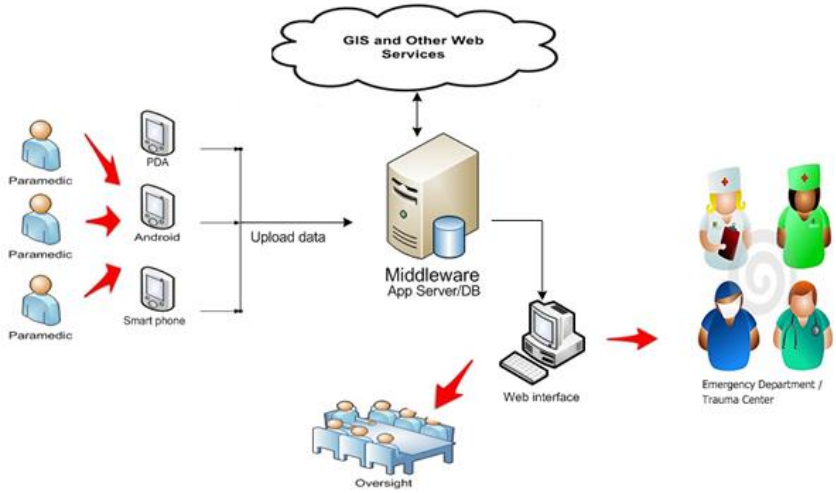
There are about 2,600 companies healthcare in the consumer-facing area. Funding has grown to $1.84 billion in 2013 from $1.03 billion in 2011.

Health Geoinformatics

What is Geoinformatics? As far as healthcare is concerned, it's providing geographic-based information about toxins, poisons, chemicals, and other undesirables in your neighborhood. So, it answers such questions as:

- Not just where am I, but how good am I?
- Why does just 1% of people living in Camden, N. J., account for 30% of hospital costs; watch Dr. Hotspot on PBS for answers.

It is also called Spatial Analytics; see, for instance, the timeline of rise of obesity from CDC in the U. S. Crashhelp is an example of using a mobile device and cloud-based data for ER even before a patient arrives there, so attending physicians have complete medical history of the patient in advance.



GeoHealth is a data-driven, evidence-based healthcare applications platform to conduct health geoinformatics.

Big Data Analytics in a Post-Health Care Reform World

There are many opportunities and challenges for payers using big data analytics in the context of the passing of the ACA and HITECH Act. These include insurance exchanges, pricing, member-targeting, and value-based program designs.

8,000 people reach the age of 65 every day in the U. S.; we have the highest per capita healthcare expense. Last year's healthcare spending of almost $2.7 billion would be the world's 5th largest economy—just ahead of France's GDP! It's tragic for children and fatal for companies. Can Big Data cure healthcare? Possibly.

- The late, great Jim Grey did pioneering work on data-intensive scientific discovery, often called the Fourth Paradigm.
- The ACA is driving unprecedented innovation, exposing weaknesses in our system, and creating new players.

Your most important data may be the data you don't have! The problem is we don't pay attention to the things we think we already know. Real evidence comes from beyond simply gathering data; it's pursuing measurement. Read *Competing on Analytics* by Tom Davenport published in the *Harvard Business Review*. We have to move from *What do we think?* to *What do we know?* It's not about instrumentation, it's about implementation.

We were a bit disappointed at the lack of discussions on backend Big Data infrastructure necessary to support all the analytics and on gathering patient data in *motion*, not at just *rest*.

© IT Newswire 2013. All Rights Reserved.

Health 2.0 - A Global Perspective

This was an interesting session about innovations in health technology outside of the U.S.

- Seventy percent of coffee in the U. S. is consumed before 10 AM; in China it's just the opposite. In fact, China has beaten Canada as Starbucks's second largest market.
- Chinas is forcing its citizenry to move to urban areas and at the same time has passed a law requiring children to visit their aging parents left behind in rural areas every year; otherwise, they (children, not the poor parents) will be fined.
- China has the highest number of diabetics (~60 million) in the world, followed by India (~40 million). Healthcare spending in China is expected to reach $700 billion by 2015.
- Bangladesh is a highly immobile market, Saudi Arabia is the lowest.
- Saud Arabia provides free healthcare to ALL its citizens. (Thanks to the oil money we give them!) If a treatment can't be provided within Saudi Arabia, the patient is flown anywhere in the world—all at the government's expense. This may be called Free Medical Tourism!
- McLaren Automotive is working with GSK for remote health monitoring, the same technology it uses for its racecars and drivers.
- India-based mapmygenome provides genetic mapping and genetics-based cardiac health profile. fly2heal is a crowd-sourced medical tour planner. Globally, 8 million people, including 900,000 Americans, fly for treatments annually. Surgerica also provides similar services.
- Majority of Australia's population live near beaches and coastal towns, so the vast interior is not well-served. uHealth delivers remote health solutions using evidence-based solutions.
- Other companies worth mentioning are mytjacket (Singapore); medxpoint (Russia): Luminox (Israel); and Claimsync (Ghana, provides EHR/EMR services).

Keynote: Gavin Newsom

California Lt. Gov. Gavin Newsom discussed how public policy impacts health care. Backing up what he wrote in his book *Citizenville: How to Take the Town Square Digital and Reinvent Government*, he reminded the audience old-fashioned, one-way conversations are dead; it is two-way communication now. The world is hyper-connected; less than ten years ago, cloud was something in the sky, twitter was a sound, skype was a typo, facebook was a makeup. But Millennials are a generation bathed in bits, moved by mobile, soaked in social, clawing in cloud, craving for crowd, and love local. Don't wait for Washington, D. C. Cities and towns are labs. Forget hardware and move away from machine thinking to platform thinking. Separately, Mr. Newsom is a very likeable, ambitious politician. He rose from San Francisco to Sacramento; next stop, Washington, D. C. as Senator Newsom?

The New Environment for Better Health Care Decisions

From self-tracking to personalized medicine, consumers are taking their health care into their own hands more and more every day. This is both a threat and an opportunity for traditional players in the industry—payers, providers, PBMs, insurance companies, brokers, and many no-value-add middlemen—if they truly believe in quality *customer*, not *patient*, care.

Keynote: Indu Subaiya

The 7 deadly sins of healthcare are:

1. There is too much testing, testing, testing in America—CT scan, MRI, X-Ray…for pneumonia? Are physicians doing it to CYA?
2. Hospital costs are gooey, often varying 10 to 15 times from hospital to hospital:
    a. *Exhibit A*: A CT scan in San José costs $500 in a private lab; a hospital charges $7,500, and Medicare reimburses $235!
    b. *Exhibit B*: A leading university hospital in Silicon Valley charges $153.00 for a Tylenol pill. This may cure your headache, but gives you a heart attack!
    c. *Exhibit C*: It costs a well-known U. S.-based medical-device company $350 to manufacture a knee joint, but sells it to hospitals for $13,000, and hospitals in the U. S. charge between $30,000 and $50,000 for a typical knee-replacement surgery!
3. Intermediaries, who add no value, are bossy.

© IT Newswire 2013. All Rights Reserved.

4. No one understands PBMs. They were formed to help control costs, but the maximum allowable costs of drug are not disclosed by PBMs. Companies such as Truveris and GoodRx are creating transparency in prices.
5. EMRs aren't easily shared despite a plethora of standards that have been established to enable it.
6. "It's [not quite] my data." Many states don't allow lab results to be released to patients directly. In Silicon Valley , for example, one hospital requires you to download a Request Form in PDF, print it (you can't even fill it online, as even the U. S. Government lets you do), complete it, and then fax it back (not email, because most hospitals and doctors, except Kaiser Permanente, don't give out their email addresses) to the hospital or lab. Dude, this is Silicon Valley and 21st century; fax died here in the 20th century! This is a disgrace and an insult to Silicon Valley's intelligentsia, geeks, and freaks!!
7. "Don't go gentle into night," meaning let folks have a peaceful end of life; avoid futile treatments in ICUs, and prolonged stays in lonely and depressing nursing homes. Companies like myDirectives let you make your wishes known and create an advance medical directive.

Big Data: Tools and Applications for Individuals

Data is everywhere. From an individual's physical environment, to the output from their new biometric tracker, all the way down to their genes – individuals are surrounded by millions of data points that can aide better health care decisions. There are many tools, devices, and apps that consumers are using to monitor their health conditions. Silica Labs uses Google Glass to enable remote surgery assistance; as discussed above, ESRI uses the concept of geomedicine to locate toxics; Moving Analytics generates therapy plans for patients; Treato uses data mining for treatments; Withings employs Wi-Fi-connected scale and widgets that can be purchased from Amazon to monitor vital signs; and MedHelp helps in early detection of metabolic stuff and get blood test results on a smartphone.

Risk Assessment and Care Delivery Optimized Using Big Data Analytics

This Panel Session discussed opportunities for providers and payers to leverage large volumes of clinical and financial data to (i) improve patient risk assessment for value-based contracts and population health initiatives; and (ii) achieve personalized care through detailed understanding of optimal care pathways for high value healthcare delivery. Most of healthcare IT systems today are not ready for technology revolution because they are still using decades-old infrastructure and modernizing them is expensive, unless they are dragged kicking and screaming to meet the ACA mandates. Dell is working with a Phoenix company on pediatric cancer using genomics and bioinformatics. Generating Big Data is easy; how to make it actionable is a challenge. We have to change the traditional *hub-and-spoke* model where the Big Guys rule to a *bus model* where the patient is the central player.

The Healthcare Network is the Platform

Secure adaptable networks are emerging as a critical enabler of healthcare reform. Big Data investments have demonstrated promise, but results are inconclusive and slow in coming. Many believe improvements in cost, quality, and patient experience will require a robust multifunctional network that can help coordinate care across the decentralized, heterogeneous system of payers, agencies, hospitals, labs, specialists, and primary care physicians. This session described a vision of the Healthcare Communications Network, built as a software platform, with multiple communications modalities ranging from real-time intervention to messaging to secure data file transfers.

- In 1952, the average U. S. consumer paid 52% of healthcare costs, today it is 12%. Hospitals are now acquiring PCP practices.
- Hospitals typically manage diseases, not cure them. The ACA is going to change it.
- Big Data today is Big Disappointment; it is necessary, not sufficient. The Big Challenge is to use what data we *already* have.
    - "*We have lots data. I would rather have less data in a more organized, distilled fashion*." – County Supervisor
    - "*My gut response is counties are drowning in raw data, and most [health] decisions are not being made based on data at all.*" (Country Director of Health Services)

© IT Newswire 2013. All Rights Reserved.

- Payers make money by refusing insurance to those who need it the most. In fact, the insurance industry in the U. S. spends over $80 billion annually studying how they can deny insurance coverage to their enrollees.
- Google and Microsoft did a horrible job of their healthcare portals.

Unmentionables

Presented by an almost all-women crew, this was probably one of the liveliest sessions discussing alcoholism, drugs, psychology, and sex as medical issues. The main takeaway was that professional women in the U. S., especially in the male-dominated tech sector, are delaying their marriages into their early 30s, so that when they bear kids in the mid-30s, they play multiple roles of a wife, homemaker, mother, caretaker, and caregiver to their spouses, aging parents, and growing children. This puts tremendous stress on them and they often turn to alcohol for relief. In fact, two-thirds of the wine consumed in the U. S. in 2012 was purchased by women! Pretty sad, eh!

Big Data: Tools and Applications for Transforming Care

How can data be used in the clinical setting for care transitions, patient-provider communication, workflow transformation and more? What are hospitals doing beyond just EMR to advance health management on a broader level? How are physicians integrating big data and how is that adjusting their work flow? May be Big Data can help answer some of these questions:

- Use claims data and Metabolic Syndrome – a combination of the medical disorders that, when occurring together, increases the risk of developing cardiovascular disease and diabetes – to predict the possibility of developing of diabetes.
- Go from retrospective analysis to predictive analysis using Big Data.
- Use next-gen diagnostics and continuous monitoring. A preemie in a PICU needs to be **constantly** monitored for the right amount of oxygen; any excess or insufficient (doctors aren't sure yet) amount can result in blindness.
- The sooner we get to the wrong conclusions, the better we get to the right decisions.
- How can we get better outcomes at a lower expense?
- How can we get the right info in a PCP's hands so she can administer a more effective treatment?

We need to build a business case and a moral case for change. Obama Care is forcing people to work together, all politics aside. Technology and innovation will make Obama Care a reality. Hospitals that refuse to embrace Obama Care and to change will see their margins go from 4%-5% to -10%-15%. The horse buggy of the past is going to be run over by the train of the future. Past attempts to derail Social Security, Medicare, and Civil Rights failed miserably. Similar attempts by its opponents to repeal Obama Care will be futile. It's a law, get over it!

© IT Newswire 2013. All Rights Reserved.