Data Analytics: The Next Wave in Health IT

Big Data Conference
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Robert Wah, MD
Global Chief Medical Officer CSC
Building a New Health Care System
Healthcare is an industry in transition. Healthcare leaders are managing in an environment of uncertainty and continuous change.

- **Cost Pressures**: Unsustainable increases in cost of care over longer life spans
- **Demographics**: Aging population, increased longevity and prevalence of chronic conditions.
- **Medical Advances**: Genomics, Personalized medicine
- **Care Delivery**: Accelerating Focus on Outcomes, Quality and Safety
- **Technology**: Connecting the Enterprise, Big Data / Analytics

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**The Triple Aim of Healthcare**

1. **Patient Experience**
   Improved outcome and safety
2. **Population Health**
   Reducing the burden of diseases
3. **Healthcare Cost**

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Three Waves of Health IT Investment: Health Information Exchanges (HIEs), Electronic Health Records (EHRs) and Tools for Health Analytics

Health IT Investment Over 10 Years: $150B

- Ongoing Regulatory and Policy Changes
- Implementation of EHRs
- Population-Based Analytics
- Health Information Exchanges
- Standards
- Pilots

Health IT Investment Timeline:
- 2008-2010: HIEs
- 2010-2014: EHRs
- 2014-2018: Population-Based Analytics

Population Analysis and Decision Support
The Way Forward – Coordinated Care

Care Coordination

Transitions of Care
Integration and Edge Adapter Services
HIE capabilities for Data Exchange

Population Health/Care Mgmt
- Collaboration and Communication Bridge
- Rules based surveillance
  - Chronic Disease Mgt
  - Coordination of Care Mgt
  - Disease Specific Dashboards
- Care Coordinator Workspace

Patient Engagement
- TeleHealth, TeleCoaching
- In-Home Device Integration and Monitoring
- Video Conferencing
- Encounter Documentation

Analytics

BI/DW
- Enterprise Data Warehouse
- BI Tools Reporting
  - Descriptive Analytics

Big Data
- Advanced Alerts and Care Coordination
- Near-Real time Patient Surveillance
- Predictive Analytics
- Advanced Rules Engine

The Way Forward – Coordinated Care
**Organizational Alignment**

- People
- Assets
- Locations
- Technology Choices
- Care Delivery Operating System
- Patients
- Care and Business Processes
- Operations Policies

**LEVEL 5: PREDICTIVE COORDINATION**
- Patient and provider behavior change achieved
- Outcomes improved
- Big data and predictive analytics

**LEVEL 4: COORDINATION**
- Outcomes impacted
- Communication and collaboration bridges adopted
- Coordinated Care Program matured, part of organizational DNA
- Workflows socialized
- Patients engaged in their health
- Analytics impacting outcomes

**LEVEL 3: COLLABORATION**
- Robust coordinated care program — care coordination workflow/workspace established
- Coordinated Care record
- Increased patient engagement (teleservices)

**LEVEL 2: COMMUNICATION**
- Provider workflow (care transitions and notifications)
- Message and data exchange (DIRECT, CCD)
- Basic reporting program initiated

**LEVEL 1: INFRASTRUCTURE**
- Technical infrastructure
- Data ingestion
- Information exchange
- Base lifetime EHR
- Begin workflow process changes
- Program planning
- Organizational alignment
- Governance

**CURRENT STATE**
- Traditional approaches to case and disease management
Intersection of Health IT, Cloud Computing and Cybersecurity with the Patient in the Center
Access functionality from Any Place, Any Time and Any Device

Stop thinking of the mobile as a device, and begin thinking of it as a means to Access a Service.

As you move between devices and/or locations, your functionality is always available.
Health Care Industry Is A Primary Target for Thieves and Regulators

• Represents one of the largest global repositories of sensitive personal information

• All services targeted
  – Health Care Providers
  – Health Services
  – Life Sciences
  – Health Insurance

• Regulators require
  – Controlling access to patient medical and personal data
  – Transaction accountability
71 percent of health care organizations suffered a data breach in the last year

Data breaches in US alone Cost between $4.2 billion and $8.1 billion a year, or an average of $6.5 billion

Most breaches were the result of employees losing or having their IT devices stolen or other unintentional, but ill-advised, employee action according to 49 and 41 percent of respondents

Shoddy security from partners and providers, including business associates, according to 46 percent of participants, was another significant reason

Once a breach is discovered, 83 percent of hospitals reported it taking one to two months to notify affected patients. Nearly a third, or 29 percent, admitted that breaches lead to cases of identity theft, up 26 percent from the previous year

Source, Dec. 2011, Second Annual Benchmark Study on Patient Privacy and Data Security conducted by the Ponemon Institute and sponsored by ID Experts.
Security Enables Healthcare
Increasingly Healthcare Companies Are Viewing Security and Privacy as Technologies that Enable Better Patient Outcomes

- Security enables integration
- Security enables information analysis
- Security enables interoperability
  - With other institutions
  - With pharmacies and pharmaceutical manufacturers
  - With payment systems
  - With regulators and licensors
- Security enables mobility
- Security enables patient access
- Security enables regulatory compliance
- **Security is NOT just a cost**
ABOUT THE 1000 GENOMES PROJECT

Project Overview
Project Design
Use of the Project data and samples
Samples Included in the project
Publications and project documents

PROJECT OVERVIEW

Recent improvements in sequencing technology (“next-gen” sequencing platforms) have sharply reduced the cost of sequencing. The 1000 Genomes Project is the first project to sequence the genomes of a large number of people, to provide a comprehensive resource on human genetic variation.

As with other major human genome reference projects, data from the 1000 Genomes Project will be made available quickly to the worldwide scientific community through freely accessible public databases. (See Data use statement.)

The goal of the 1000 Genomes Project is to find most genetic variants that have frequencies of at least 1% in the populations studied. This goal can be attained by sequencing many individuals jointly. To achieve a person’s genome, many copies of the DNA are needed.

What is FoundationOne?

FoundationOne is a fully informative genomic profile that helps physicians make treatment decisions for patients with cancer by identifying the molecular growth drivers of their cancers and helping oncologists match them with relevant targeted therapeutic options.
Discover your ancestral origins and lineage with a personalized analysis of your DNA.

- Learn what percent of your DNA is from populations around the world.
- Contact relatives across continents or across the street.
- Build your family tree and enhance your experience with relatives.

$99

Reg4ALL gives you a way to share your health info with the medical and research community... to whatever extent you feel comfortable.

Sharon Terry
President & CEO, Genetic Alliance
Coalition of Genetic Families
Mother of two children with genetic conditions

Respecting Your Wishes is Our Priority
To help us protect your individual privacy in accordance with rules that you yourself establish, we harness the power of Private Access with the specific goal of helping you make your health information available to top researchers for your condition—under your own terms.

patientslikeme

Join now

(it's free)

Learn from others
Compare treatments, symptoms and experiences with people like you and take control of your health

Connect with people like you
Share your experience, give and get support to improve your life and the lives of others

Track your health
Chart your health over time and contribute to research that can advance medicine for all
The Future
Interconnected, Private, Secure Health Information Exchange

Patient
- Patient Health Record

Secure and Private Exchange

Payer
- Payer System

FDA/CDC
- Adverse Event Database
- Bioterrorism Surveillance

Service Company
- Disease Management

PMS, EMR
- Patient Health Record
- Routine Care

Primary Care Physician/Nurse

Specialist
- Specialty Care

Hospital
- CPOE, EMR, ERP PACS

Lab
- Lab System
- Lab Testing

Professional Society
- Treatment Guidelines

Manufacturers
- Pharma/Medical Devices/Surgical

Grand Healthcare Platform
- Domain Expertise

Preventive Care
- Claims, Eligibility, Formulary

Chronic Care Registries

Product Performance and Evidence

Disease Management

Acute Care

Manufacturers

Chronic Care Registries

Product Performance and Evidence

Payer System

Payer

Self Care

Specialist

PMS, EMR

Self Care

Routine Care

Specialty Care
Transforming Healthcare with Better Information for Better Decisions

Quality of care is improved with better information — saving lives and money

- Patients make better decisions about their care, their physicians, and their health
- Physicians make better decisions for their patients
- Government makes better decisions about quality of care, biosurveillance, Medicare utilization and integrity, and transparency
- Payers make better decisions about benefits, features and services to offer plan members, promoting wellness and better care, controlling costs, and developing new outcomes-based reimbursement models
- Life Science workers make better decisions to produce more useful clinical trials and laboratory findings
CSC — Transforming Healthcare with Better Information for Better Decisions

http://www.youtube.com/watch?v=ndZod_yI0Yc
Or CSC Healthcare IT on YouTube.com
Thank You!

Robert Wah, MD

Rwah@CSC.com

@RobertWahMD