

Data Analytics: The Next Wave in Health IT

**Big Data Conference
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Robert Wah, MD

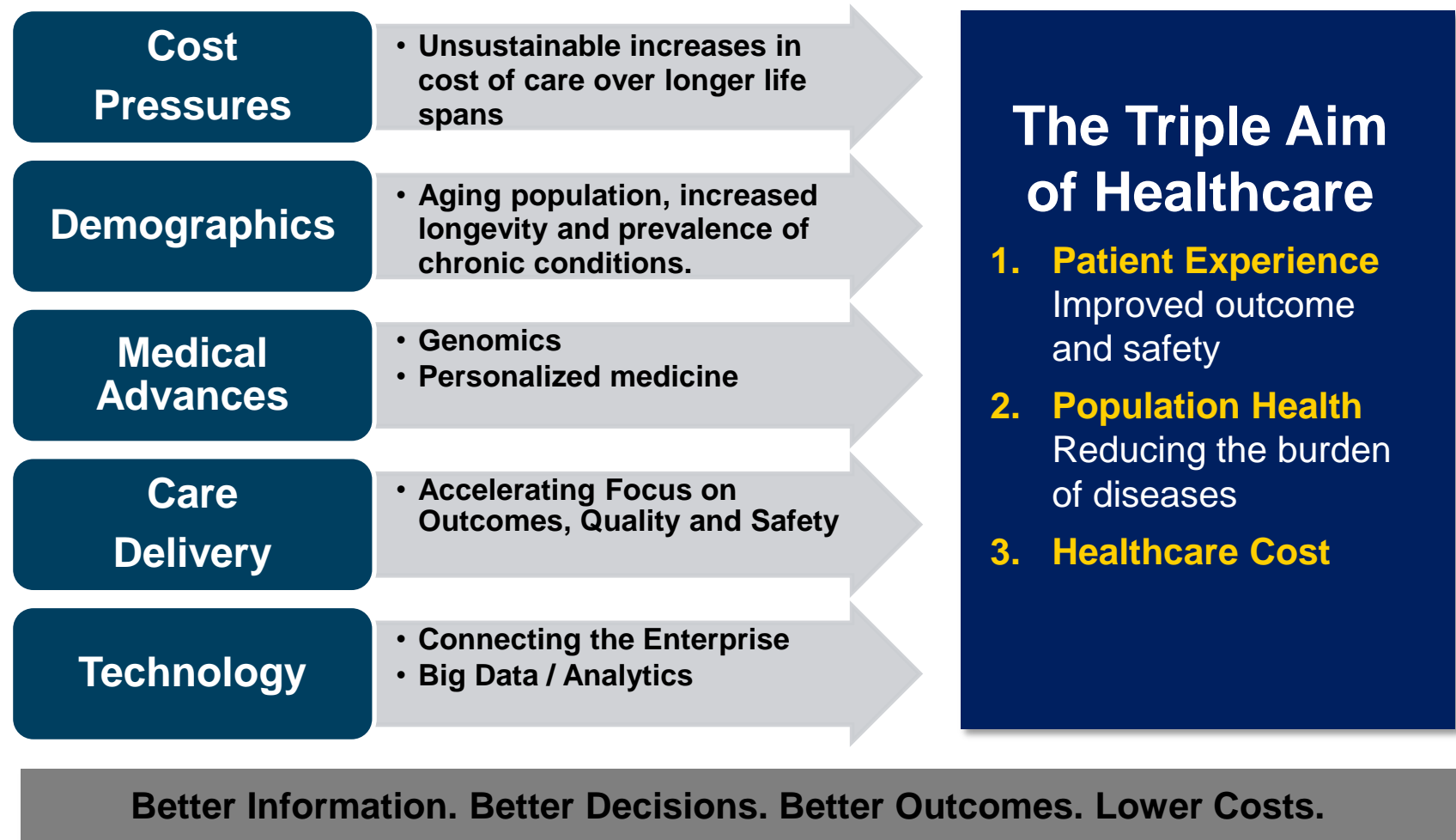
Global Chief Medical Officer CSC

Building a New Health Care System



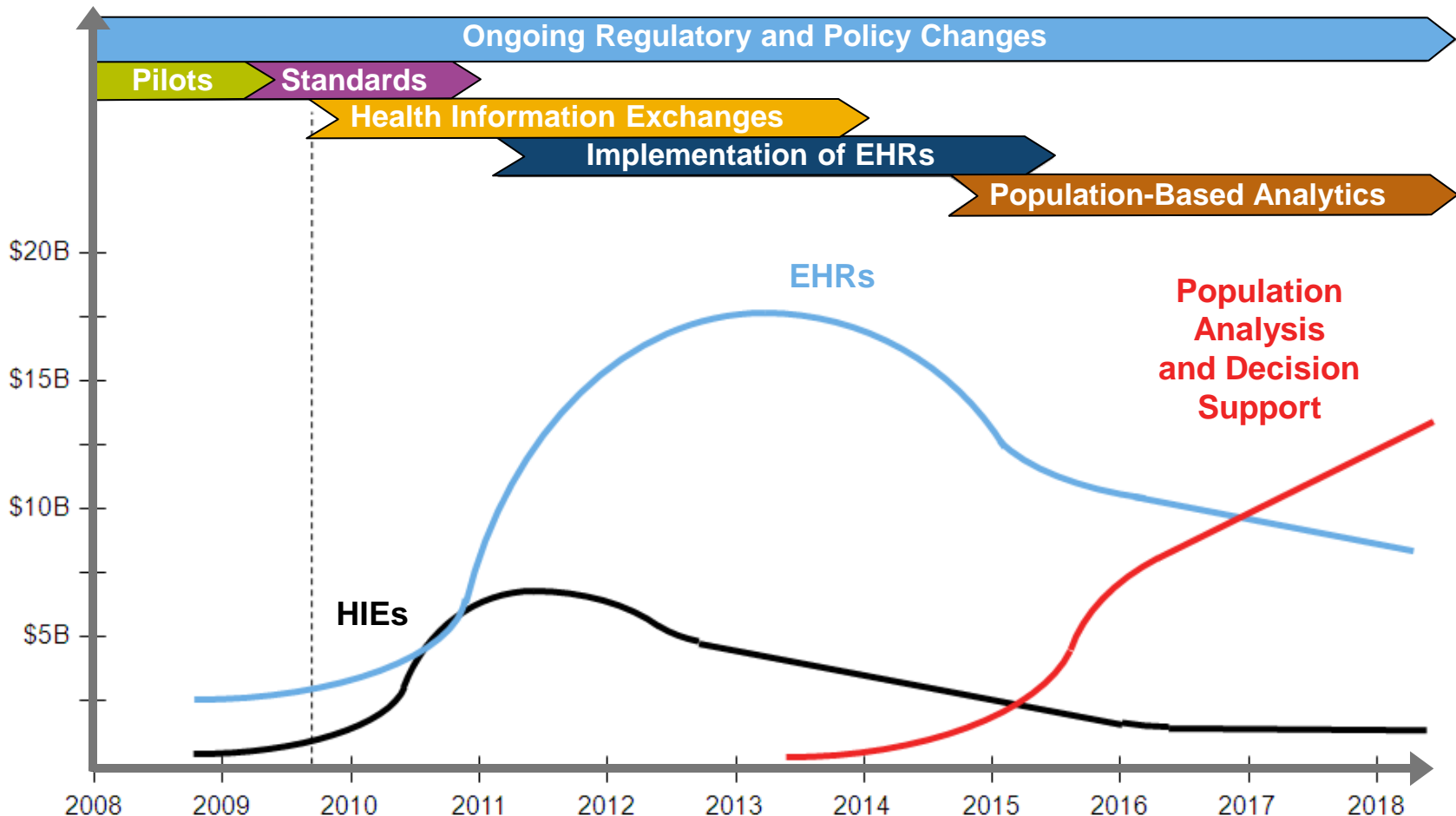
Healthcare is an industry in transition.

Healthcare leaders are managing in an environment of uncertainty and continuous change.



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



The Way Forward – Coordinated Care

Care Coordination

Transitions of Care

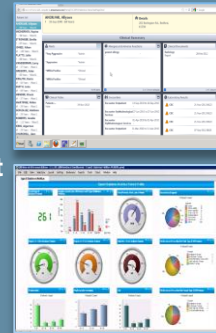
Integration and
Edge Adapter
Services

HIE capabilities
for Data Exchange

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Population Health/Care Mgmt

- Collaboration and Communication Bridge
- Rules based surveillance
 - ✓ Chronic Disease Mgt
 - ✓ Coordination of Care Mgt
 - ✓ Disease Specific Dashboards
- Care Coordinator Workspace



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Patient Engagement

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



CDR



Analytics

BI/DW



BI Tools
Reporting

Descriptive
Analytics

Big Data

Advanced Alerts and
Care Coordination

Near-Real time
Patient Surveillance

Predictive Analytics

BIG Data
Analytics

Advanced
Rules
Engine

Care Coordination Maturation

Organizational Alignment



LEVEL 5: PREDICTIVE COORDINATION

- Patient and provider behavior change achieved
- Outcomes improved
- Big data and predictive analytics

BIG DATA

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

Predictive

LEVEL 3: COLLABORATION

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

Analytics

LEVEL 2: COMMUNICATION

- Provider workflow (care transitions and notifications)
- Message and data exchange (DIRECT, CCD)
- Basic reporting program initiated

Business Intelligence

LEVEL 1: INFRASTRUCTURE

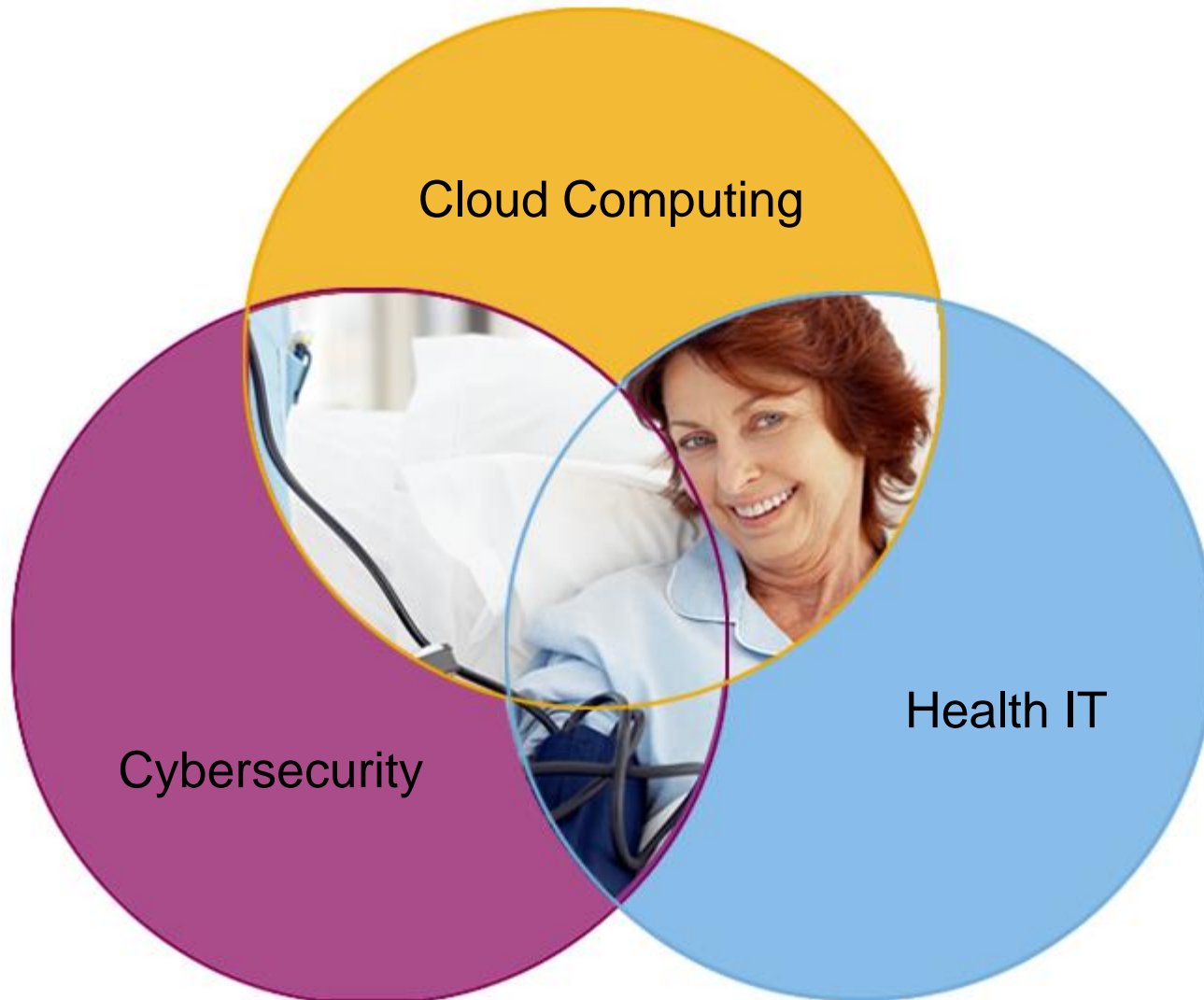
- Technical infrastructure
- Data ingestion
- Information exchange
- Base lifetime EHR
- Begin workflow process changes
- Program planning
- Organizational alignment
- Governance

Reporting

CURRENT STATE

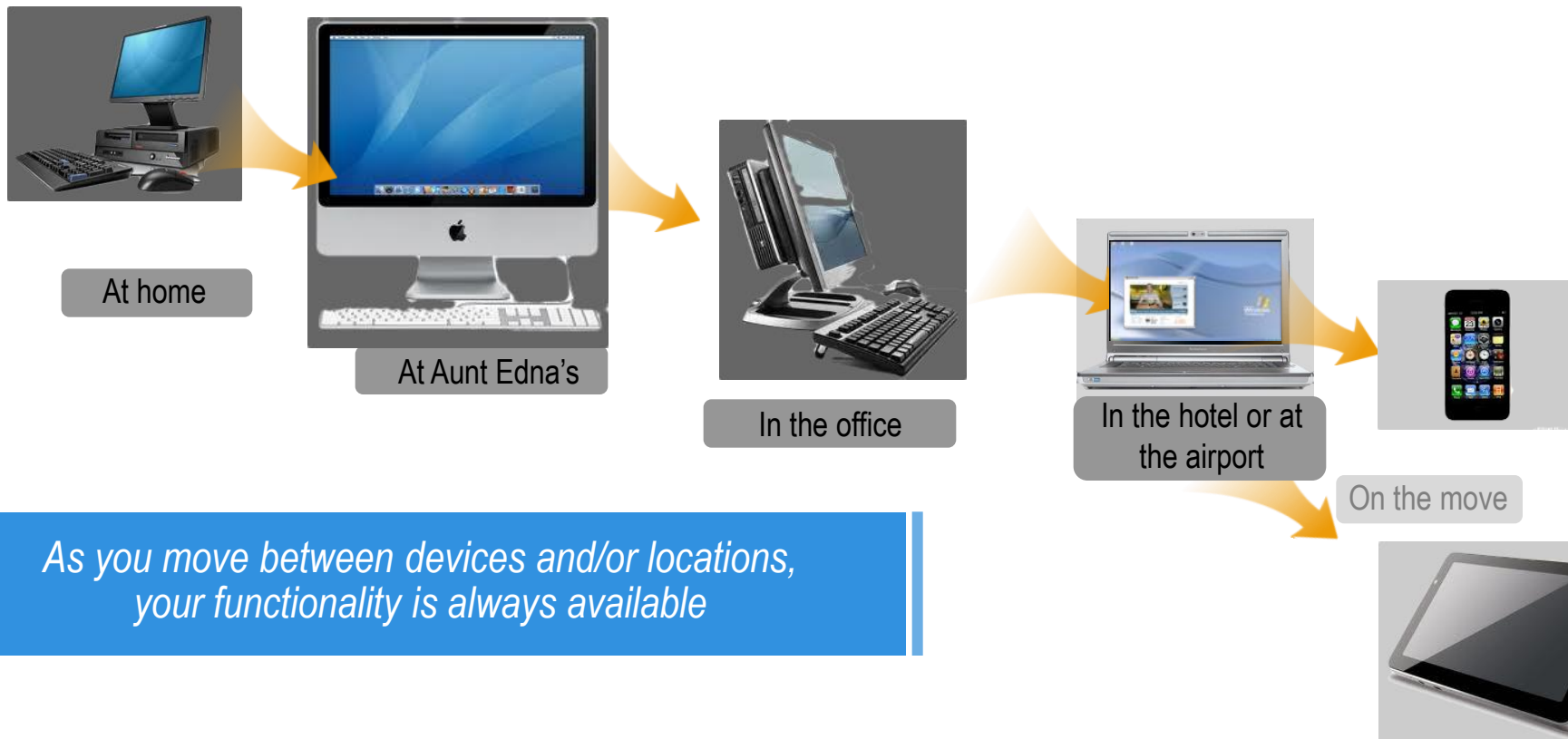
- Traditional approaches to case and disease management

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



Medical Data Breaches Cost Billions

- ***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



Graphic Courtesy World Privacy Forum, Aug. 2011, Based Upon Information from the U.S. Federal Trade Commission.

Source, Dec. 2011, Second Annual Benchmark Study on Patient Privacy and Data Security conducted by the Ponemon Institute and sponsored by ID Experts.

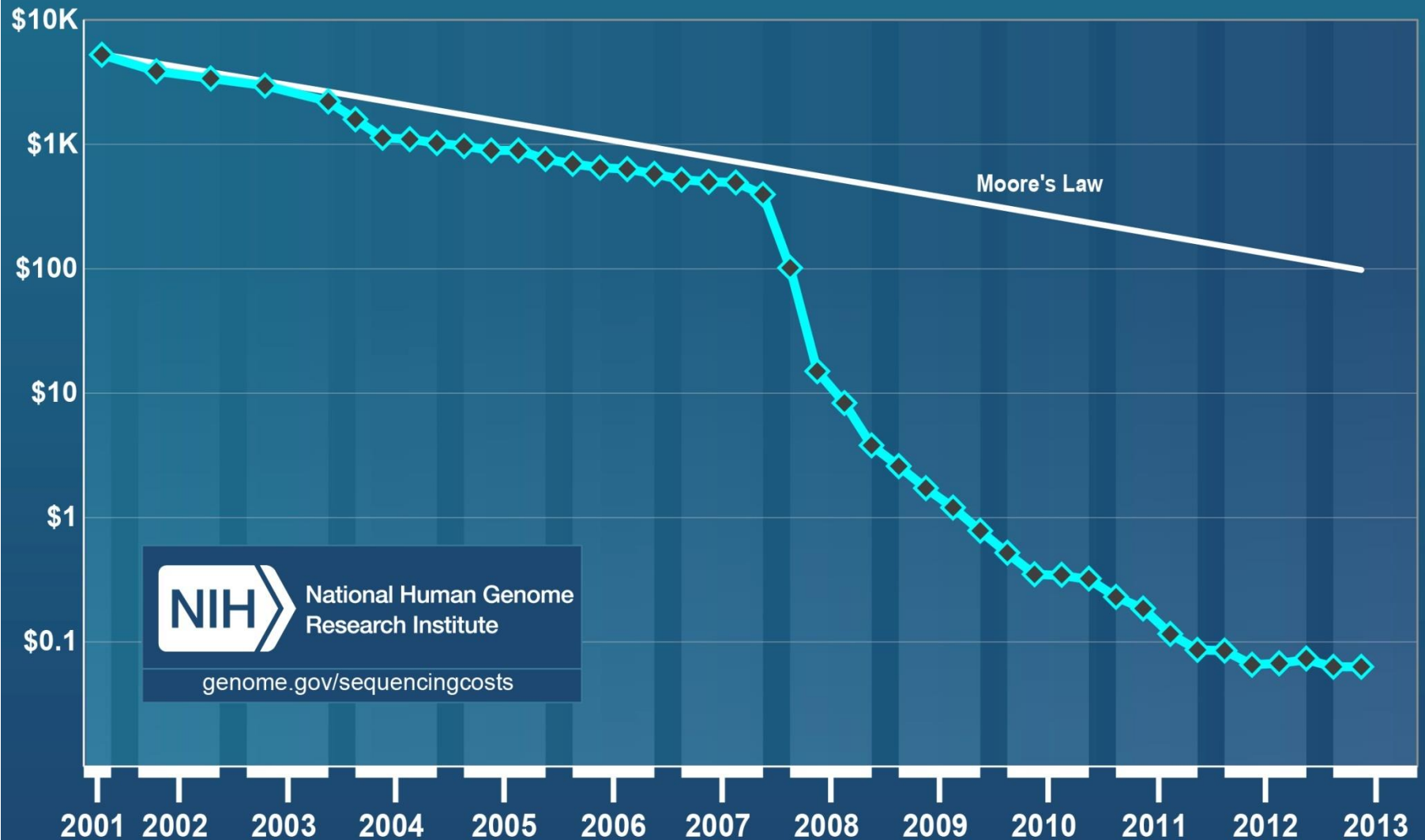
Security Enables Healthcare

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**

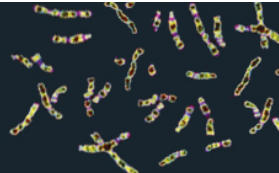
Cost per Raw Megabase of DNA Sequence





1000 Genomes

A Deep Catalog of Human Genetic Variation



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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 lightly. To sequence a person's genome, many copies of the DNA are broken

Million Veteran Program: A Partnership with Veterans



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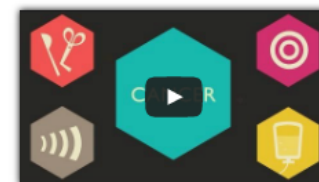
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What is FoundationOne?

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.

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Cancer and Treatment Options

Discover more about cancer and learn about available treatment options.

[Watch Now](#)



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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.

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A diagnosis of any condition can be scary... we can help!

SHARE... Answer as many questions as you would like, and control how and with whom that information may be shared. **CONNECT...** Find out how you compare to others and let support and helpful resources find you. **DISCOVER...** If you wish, let researchers access your information to help spark health innovation for all. [See how it works!](#)



“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
Chairperson, Coalition of Genetic Fairness
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.

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- 1 Register or sign in** [Start Now!](#)
- 2 Enter Health Information**
Click to sample some questions
- 3 Help Spread The Word!**

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patientslikeme™ [Sign in](#)

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Making healthcare better for everyone through sharing, support, and research

[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

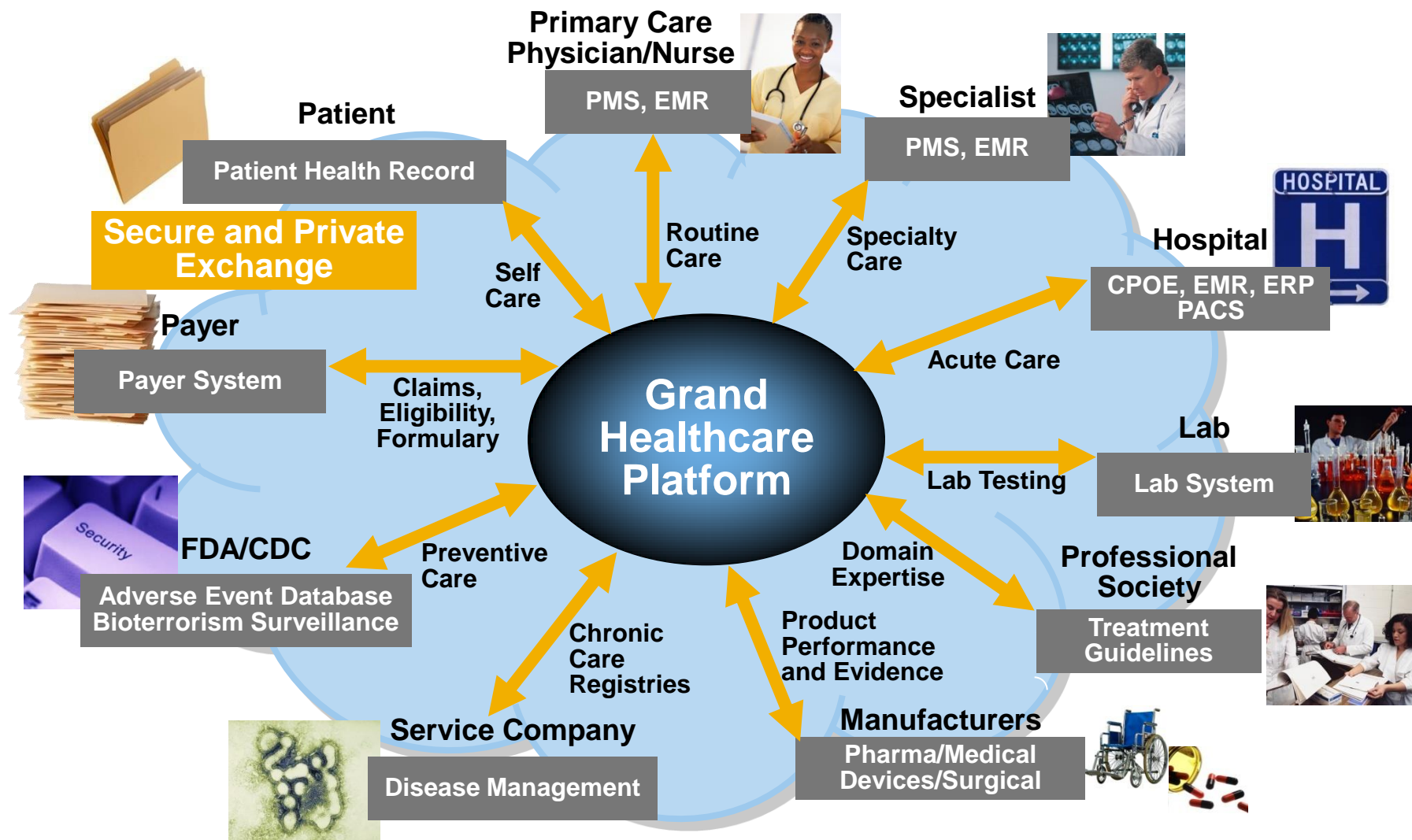


Track your health
Chart your health over time and contribute to research that can advance medicine for all



The Future

Interconnected, Private, Secure Health Information Exchange



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_yIOYc
Or CSC Healthcare IT on YouTube.com



Thank You!

Robert Wah, MD

Rwah@CSC.com

@RobertWahMD



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