Innovation and Technology for Healthcare

August 18th, 2010

Aneesh Chopra
U.S. Chief Technology Officer & Associate Director for Technology
White House Office of Science & Technology Policy
A Presidential Commitment to Technology

Healthcare.gov a Model for Simplifying Access to Information

“My Administration is committed to creating an unprecedented level of openness in Government...and establish a system of transparency, public participation, and collaboration.”

—President Barack Obama, Jan 21st, 2009

Source: www.healthcare.gov; www.whitehouse.gov/open
Invest in the Building Blocks of American Innovation

- Restore American leadership in fundamental research
- Educate the next generation with 21st century knowledge and skills; create a world-class workforce
- Build a leading physical infrastructure
- Develop an advanced information technology ecosystem

Catalyze Breakthroughs for National Priorities

- Unleash a clean energy revolution
- Support advanced vehicle technology
- Drive breakthroughs in health IT
- Address scientific “grand challenges”

Promote Competitive Markets that Spur Productive Entrepreneurship

- Promote American exports
- Support open capital markets that allocate resources to the most promising ideas
- Encourage high-growth and innovation-based entrepreneurship
- Improve public sector innovation and support community innovation

Health Innovation an Opportunity for Growth and Efficiency

- Health IT applications innovation that drive lower cost, higher quality, improved satisfaction

# Technology Approach to Spur Market Solutions

## Three Levers to Deliver on the Promise of Healthcare IT

<table>
<thead>
<tr>
<th>I</th>
<th>Provider Adoption</th>
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<tbody>
<tr>
<td><strong>#Meaningful Use Incentive Payments:</strong></td>
<td>Flagship Recovery Act initiative offering $20+BN provider reimbursement for HIT adoption</td>
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<tr>
<td><strong>#“Modular” Health IT Applications:</strong></td>
<td>Certification program encourages flexible, innovative approaches to EHR architecture</td>
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<tr>
<td><strong>#Privacy &amp; Security Provisions:</strong></td>
<td>Patient privacy protected by best-in-class electronic data security, and law</td>
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<thead>
<tr>
<th>II</th>
<th>Data Interoperability</th>
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<tbody>
<tr>
<td><strong>#NHIN Connect:</strong></td>
<td>Open source standards-based software to promote federal agency health data exchange</td>
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<td><strong>#NHIN Direct:</strong></td>
<td>Voluntary, consensus driven standards to govern simple, secure data transmission over the Internet</td>
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<tr>
<td><strong>#“Blue Button”:</strong></td>
<td>Simple standardized file format to allow consumers access to health data on federal websites (VA, Dept of Defense, CMS)</td>
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<th>III</th>
<th>Application Innovation</th>
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<tr>
<td><strong>#Community Health Data Initiative:</strong></td>
<td>Flagship open government initiative to spur “mash-ups” on health data to spur local improvement</td>
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<tr>
<td><strong>#Payment Innovation Center:</strong></td>
<td>Estimated $10BN CMS center focused on shifting provider payment based on quality</td>
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<tr>
<td><strong>#Advanced IT Infrastructure:</strong></td>
<td>Strategy to leverage ultra high-speed broadband, mobile broadband, and R&amp;D commercialization</td>
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Incentive Program Tied to “Meaningful Use”
Health Providers Eligible Based on Demonstrated Use, not Adoption

### Meaningful Use

**Five Pillars**

- Quality, safety, efficiency
- Patient and family engagement
- Coordinated care
- Improved public & population health
- Privacy & security

### “Deep Dive”

**Patient Engagement**

1. Timely access to an electronic copy of your data
2. Clinical summary after every visit
3. Alerts or reminders for preventive and follow up care
4. Electronic access to patient specific education resources

Source: Office of the National Coordinator for Health IT
Modular Applications Supported Through R&D
Open Development Framework to Spur Substitute-Able Apps

SHARP Grantee - SMArt Apps

Leadership Team

No Small Change for the Health Information Economy

Kenneth D. Mandl, M.D., M.P.H., and Isaac S. Kohane, M.D., Ph.D.

The economic stimulus package signed by President Barack Obama on February 17 included a $19 billion investment in health information technology. How can we best take advantage of this unprecedented opportunity to computerize health care and stimulate the health information economy while also stimulating the U.S. economy? A health care system adapting to the effects of an aging population, growing expenditures, and a diminishing primary care workforce needs the support of a flexible information infrastructure that facilitates innovation in wellness, health care, and public health.

Flexibility is critical, since the system will have to function under new policies and in the service of new health care delivery mechanisms, and it will need to incorporate emerging information technologies on an ongoing basis. As we seek to design a system that will constantly evolve and encourage innovation, we can learn lessons from large-scale technology successes in other fields. An essential first lesson is that ideally, system components should be not only interoperable but also substitutable.

The Apple iPhone, for example, uses a software platform with a published interface that allows software developers outside Apple to create applications; there are now nearly 100,000 applications that consumers can download and use with the common phone interface. The platform separates the system from the functional-
Privacy & Security Standards Atop the Agenda
Provider Incentive Payments Tied to Best-in-Class Protections

ONC Privacy & Security Tiger Team

- **Deven McGraw**, Center for Democracy & Technology, Co-Chair
- **Paul Egerman**, Co-Chair
- **Dixie Baker**, SAIC
- **Christine Bechtel**, National Partnership for Women & Families
- **Rachel Block**, NYS Department of Health
- **Neil Calman**, The Institute for Family Health
- **Carol Diamond**, Markle Foundation
- **Judy Faulkner**, EPIC Systems Corp.
- **Gayle Harrell**, Consumer Representative/Florida
- **John Houston**, University of Pittsburgh Medical Center; NCVHS
- **David Lansky**, Pacific Business Group on Health
- **David McCallie**, Cerner Corp.
- **Wes Rishel**, Gartner
- **Micky Tripathi**, Massachusetts eHealth Collaborative
- **Latanya Sweeney**, Carnegie Mellon University

Joy Pritts, Chief Privacy Officer for Health IT – supports “Tiger Team” with recommendations due 8/19/10

Topics include consumer choice or consent; sensitive data; interstate exchange

Source: Office of the National Coordinator for Health IT
Open Collaborative

NHIN CONNECT in Action

Quarterly 2-day workshops to build code, deliver interoperability solutions at your pace, interest

Early Results: mean case processing time savings of 42% as compared to the Virginia state average

Source: www.connectopensource.org; Using the Nationwide Health Information Network to Deliver Value to Disability Claimants: A Case Study of Social Security Administration and MedVirginia Use of MEGAHIT for Disability Determination, Feldman, Horan
Convening Stakeholders to Accelerate Exchange
Open Collaboration Delivers Technical Specs in 90 Days

NHIN Direct Project in Brief

“**A set of policies, standards and services** that enable the Internet to be used for secure and meaningful exchange of health information to improve health and health care”

Secure, Direct Communication

- **Doctor** ↔ **Consultant**
  - Clinical info & summary record exchange

- **Lab** ↔ **Doctor**
  - Receive lab results

- **Doctor** ↔ **Hospital**
  - Clinical info & summary record exchange

- **Doctor** ↔ **Patient**
  - Provide electronic clinical summary

SMTP-based specs for all providers; intended as a stepping stone to NHIN Exchange
“Blue Button” to Liberate Personal Health Data
Previewing New Tool for Veterans, Medicare Recipients this Fall

On The Go Report: John Owen

Personal Profile

Name: Nancy Hoyle  
Date of Birth: 1/23/46  
Part A Effective Date: 6/12/2009

Address: 1234 Main Street  
Baltimore MD, 21244

Gender: Female  
Part B Effective Date: 6/12/2009

Home Phone: 410-123-3450

Weight: 190 lbs

Email Address: sample@email.com  
Blood Type: AB+

Recent Plan Changes

Primary Insurance XYZ expired on 01/22/2010

Emergency Contacts

Name: Nancy Hoyle  
Address: 1234 Main Street  
Baltimore MD, 21244

Relationship: Sister  
Home Phone: 410-123-3450

Name: Nancy Hoyle  
Address: 1234 Main Street  
Baltimore MD, 21244

Relationship: Sister  
Home Phone: 410-123-3450

...veterans will be able to go to the VA website, click a simple “blue button,” and download or print your personal health records so you have them when you need them and can share them with your doctors outside of the VA.”

—President Barack Obama, Aug 2nd, 2010
The Birth of an Open Government Ecosystem

HHS Launches Community Health Data Initiative (CHDI)

HHS launches CHDI June 2nd - demonstrating 20+ apps recently built or improved by innovators across the country using data HHS has made public (with much more to come)

Example: Microsoft announces Bing Health Maps and the incorporation of “Hospital Compare” data in search results – “bringing the data to you”

Source: Community Health Data Initiative, Department of Health & Human Services; www.hhs.gov/open
Helping Our Children Make Healthier Choices
Prizes Policy Spurs USDA to Reward Apps Developers

“The Apps for Healthy Kids competition challenges... the most creative, talented, and kid-savvy innovators across the country to build games that inspire and empower kids to get active and eat healthy.” — First Lady Michelle Obama, March 11th, 2010

Source: www.appsforhealthykids.com; http://www.healthgameschallenge.org; http://apps.usa.gov/myfood-a-pedia

Sample App: Smash Your Food™ lets children see foods explode - while learning how much sugar, salt and oil are in them

95 qualified apps built on data that feeds USDA site – judges include Zynga’s CEO, “Woz”, GE’s HealthyImagination lead
Delivery System Reforms Powered by Payment

“Pay for Value” Models Rely on More Robust Tech Infrastructure

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<th>Patient Centered Medical Homes</th>
<th>Community based; will drive greater organization of outpatient care, coordination and team-based approaches</th>
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<tr>
<td>2</td>
<td>Accountable Care Organizations</td>
<td>Shared savings (primary, specialty care); Redesign care processes for high quality, efficient delivery; vertical organization</td>
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<td>3</td>
<td>Bundled Payments</td>
<td>Pilot program for episodes of care; incentivizes reduced costs around eight conditions</td>
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<td>4</td>
<td>Readmission Reduction Programs</td>
<td>Motivates hospitals to engage with care coordinators and better organized delivery systems</td>
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Implications for Tech

Data Driven: Democratize access to data mining/analytics

Care Integration: Centralize patient data, track performance (cost and quality), and analyze case mix

Clinical Transformation: Provide physicians with standardized and timely data needed to make clinically effective decisions and reduce care quality variation

Capacity Building: Extend physician reach

“Pay for Value” Models Rely on More Robust Tech Infrastructure
Unleashing a Mobile Broadband Revolution

FDA-FCC Announce Collaboration on Wireless Medical Devices

FDA - FCC Joint Statement outlines five principles of collaboration to facilitate innovation while protecting patients

Innovations: Text4baby partnership serves 50,000+ moms since 02/10 launch; Secretary Clinton announces Russian collaboration

“[I] commit the Federal government to a sustained effort to make available 500 MHz of Federal and commercial spectrum over the next 10 years to foster investment, economic growth...”

–Presidential Memorandum, June 28th, 2010

R&D Tech Transfer Programs to Close “Lab Gap”
Commerce Department’s i6 Challenge to Find Next iRhythm

Commercialize University Research

DOC/EDA $6M

NIH $3M

NSF $3M

EDA grant program focused on community innovation ecosystems; winners announced 10/10

Spinoff Pursues Health IT

iRhythm, spun out of Stanford, designs low-cost device to enable cardiac rhythm monitoring and expand market access to care
“All Hands” - Health 2.0 Developer Challenge

A growing number of “challenges” leading up to Health IT Innovation Week – October 3-10\textsuperscript{th}, 2010

WWHI catalyzes innovation - $10K for a personalized wireless health ecosystem; sponsors “Innovation Day” – highlighting Veterans Healthcare (VAi2) – 10/12/10

Source: www.health2challenge.org