Big Data Analytics Government HealthCare

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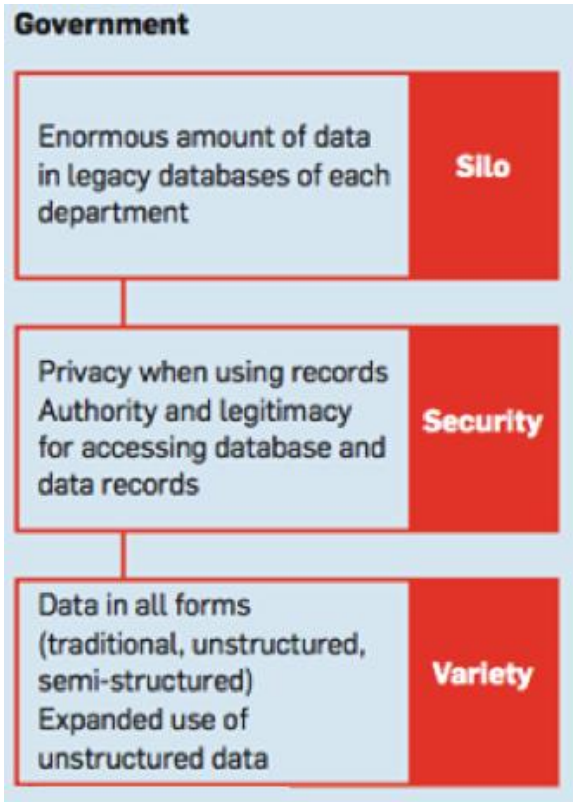
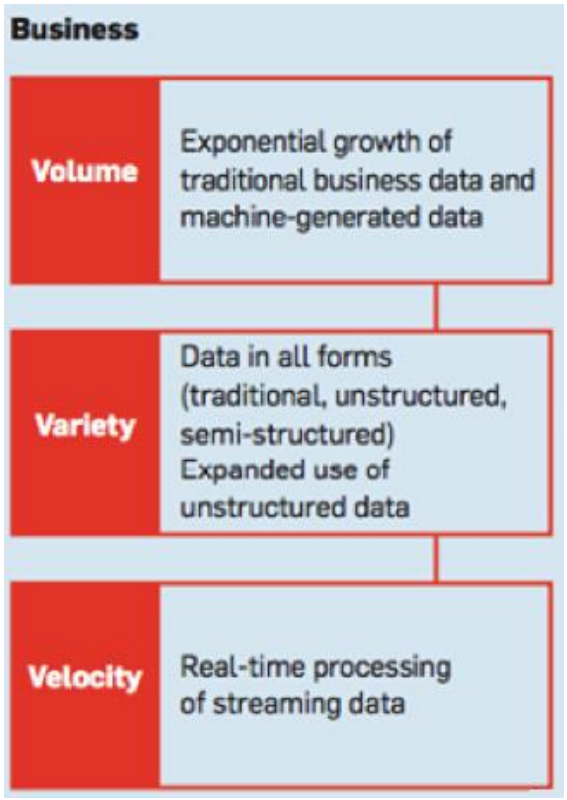
Agenda

- Big Data in Government
- Challenge for Government healthcare
- The roles of government (include healthcare)
- Case Study:
  - The Electronic Health Records Incentive Program
    - Meaningful Use of Data
    - Core Measure
- The future: connecting health to care

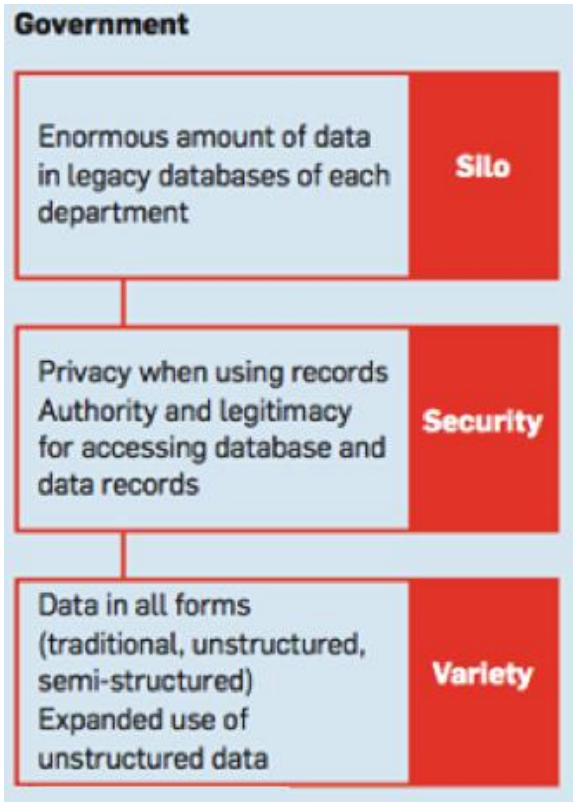
Government Big Data





http://cacm.acm.org/magazines/2014/3/172509-big-data-applications-in-the-government-sector/abstract

Government Big Data



Challenges

Breaking silos
Control tower
Regulation and technologies

Better understanding
Provide sustainable solutions (enhancing government transparency, balancing social communities)

http://cacm.acm.org/magazines/2014/3/172509-big-data-applications-in-the-government-sector/abstract

Big Data in Government

Attributes of business- and government-sector projects.

Attribute	Business Firm	Government
Goal	Profit to stakeholders	Domestic tranquility, sustainable development
Mission	Development of competitive edge, customer satisfaction	Security of basic rights (equality, liberty, justice), promotion of general welfare, economic growth
Decision Making	Short-term decision-making processes for maximizing self-interest and minimizing cost	Long-term decision-making processes for maximizing self-interest and promoting the public interest
Decision Actors	Limited number of decision actors	Diverse decision actors
Organizational Structure	Hierarchical	Governance
Financial Resources	Revenue	Taxes
Nature of Collective Activity	Competition and engagement	Cooperation and checking

http://cacm.acm.org/magazines/2014/3/172509-big-data-applications-in-the-government-sector/abstract

EHR Incentive Program

The Medicare and Medicaid Electronic Health Records (EHR) Incentive Programs will provide incentive payments to eligible professionals and eligible hospitals as they demonstrate adoption, implementation, upgrading, or meaningful use of certified EHR technology. These incentive programs are designed to support providers in this period of Health IT transition and instill the use of EHRs in meaningful ways to help our nation to improve the quality, safety, and efficiency of patient health care.

http://medicaleconomics.modernmedicine.com/medical-economics/content/tags/ehr-incentive-program/financial-penalties-nearing-physician-incentive?page=full

Medicare Incentive Program

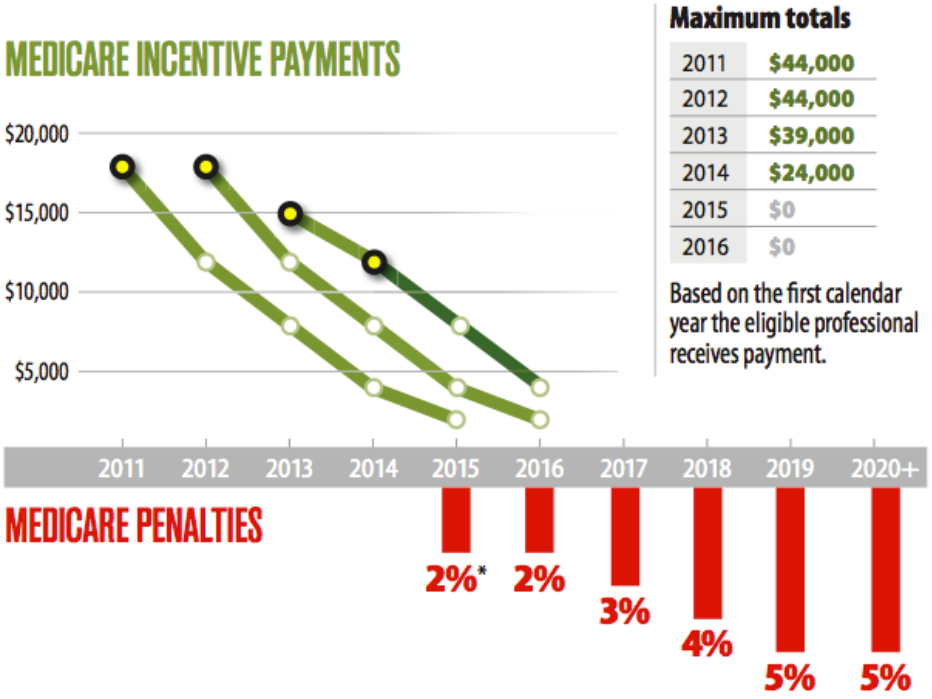
Medicare EHR Incentive Program

	2011	2012	2013	2014	2015+
2011	$18,000				
2012	$12,000	$18,000			
2013	$8,000	$12,000	$15,000		
2014	$4,000	$8,000	$12,000	$12,000	
2015	$2,000	$4,000	$8,000	$8,000	1% penalty**
2016	$0	$2,000	$4,000	$4,000	2% penalty**
2017	$0	$0	$0	$0	3% penalty**
TOTAL	**$44,000**	**$44,000**	**$39,000**	**$24,000**	**$0**

**Note: Years are calendar years* ***Penalties for non-participation*

http://www.physicianspractice.com/

MEANINGFUL USE



Maximum totals

2011	$44,000
2012	$44,000
2013	$39,000
2014	$24,000
2015	$0
2016	$0

Based on the first calendar year the eligible professional receives payment.

% Penalties assume less than 75% of eligible professionals are meaningful users.
*Eligible professional is subject to the penalty for the e-Rx in 2014

START DATE: Penalties will begin January 1, 2015

ANNUAL PENALTY: 1% per year, cumulative for every year eligible professional is not a meaningful user.

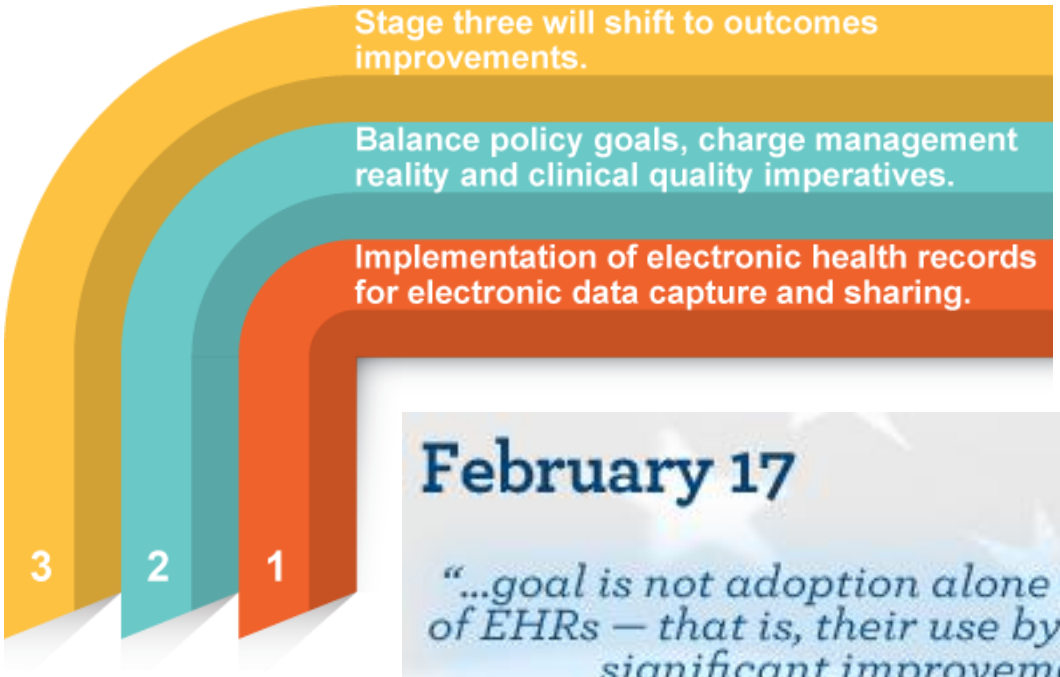
MAXIMUM CUMULATIVE PENALTY: 5% per year

Source: Centers for Medicare and Medicaid Services

http://medicaleconomics.modernmedicine.com/medical-economics/content/tags/ehr-incentive-program/financial-penalties-nearing-physician-incentive?page=full

Meaningful Use of Data

Meaningful Use is a Medicare and Medicaid program that awards incentives for using certified electronic health records (EHRs) to improve patient care. To achieve Meaningful Use and avoid penalties, providers must follow a set of criteria that serve as a roadmap for effectively using an EHR.



http://www.sfms.org/NewsPublication/SFMSBlog/TabId/467/PostId/1179/mu-audit-ca.aspx

Core Measure for MU

The goal of "core measures," is not to measure. Rather, it's to drive improved performance across health care organizations and depending on whom you ask, it's to police hospitals to ensure certain patients are treated in line with what has been determined to be standard and necessary based on their diagnosis.

Core Measures

- Acute Myocardial Infarction (AMI) – Heart Attack
- Heart Failure
- Pneumonia
- Surgical Care Improvement Project (SCIP)
- Computerized Provider Order Entry (CPOE)

http://www.huffingtonpost.com/janet-dillione/easing-core-measure-pain-_b_1573695.html

Meaningful Use of Data

CPOE

Changes from Meaningful Use Stage 1:

	Stage 1	Stage 2
Objective	Use CPOE for medication orders directly entered by any licensed healthcare professional who can enter orders into the medical record per state, local and professional guidelines	Use computerized provider order entry (CPOE) for medication, ***laboratory and radiology orders*** directly entered by any licensed healthcare professional who can enter orders into the medical record per state, local and professional guidelines
Measure	***More than 30% of unique patients*** with at least one medication in their medication list seen by the EP have at least one medication order entered using CPOE	More than ***60% of medication, 30% of laboratory, and 30% of radiology orders*** created by the EP during the EHR reporting period are recorded using CPOE

***Note:** On August 23, 2012, CMS announced the Meaningful Use Stage 2 final rule which also impacted the Stage 1 CPOE measure. See the Stage 1 CPOE Changes as of August 2012 for more information.

Core Measure Top-Tier Performer

Mount Sinai Beth Israel

NMC
Northwestern Medical Center

AMI (Acute Myocardial Infarction)

What are we looking to improve?
Acute myocardial infarction (commonly known as heart attack) occurs when the arteries supplying blood to the heart become partially or completely blocked. This blockage then damages or results in the death of the heart muscle. By following Core Measure best practices, we look to improve patient outcomes and prevent future heart attacks.

What strategies/guidelines have we implemented for improvement?

- Administering Percutaneous Coronary Interventions (PCI) within 90 Minutes of Arrival: PCIs are procedures that use catheters to open blocked blood vessels. Delivering this treatment within a short timeframe has been shown to improve results for patients with certain types of heart attacks.
- Administering Aspirin within 24 Hours of Arrival: Aspirin can help prevent blood clots from forming as well as dissolve those that can cause heart attack.
- Prescribing Aspirin at Discharge: While aspirin is not appropriate for all patients, it may be beneficial for most heart attack patients to prevent future episodes.
- Prescribing ACE/ARB at Discharge for Left Ventricular Systolic Dysfunction: Angiotensin Converting Enzyme (ACE) inhibitors and Angiotensin Receptor Blockers (ARB) are medicines that have been shown to reduce blood pressure and strengthen the heart beat. Heart-attack patients typically have better results after taking them.
- Providing Smoking Cessation Counseling: Smoking is linked to heart attack, so quitting may help prevent future attacks.
- Prescribing Beta Blockers at Discharge: Beta Blockers are a type of medicine used to lower blood pressure, treat angina (chest pain) and heart failure, and help prevent heart attack. They also can help reduce damage to the heart muscle after an attack has occurred.

How do we score?
According to 2nd quarter data for 2012:

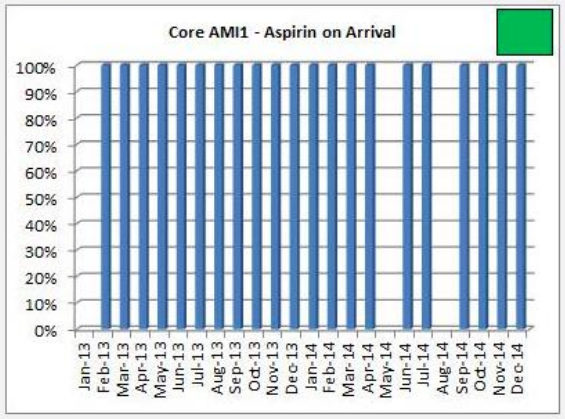
- 87.5% of eligible adult heart attack patients with a clogged heart artery received PCI within 90 minutes of arrival to the hospital.
- 100% of heart attack patients received aspirin within 24 hours of arrival at the hospital.
- 100% of the time, aspirin was prescribed to heart attack patients at discharge.
- 89% of eligible heart attack patients with Left Ventricular Systolic Dysfunction were prescribed ACEs/ARBs at discharge.
- 100% of eligible heart attack patients were prescribed Beta Blockers at discharge.

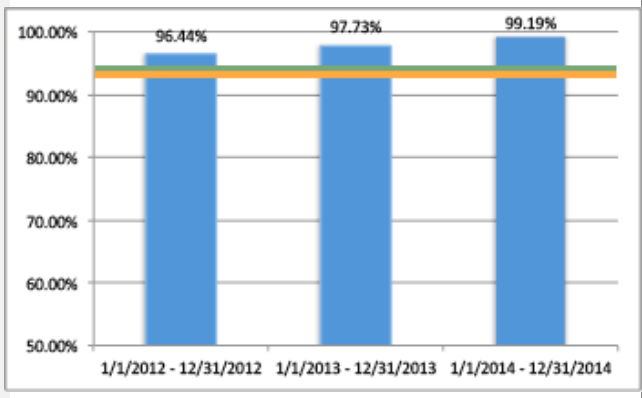
AMI Appropriate Care Measures:
Data current January 2013 through December 2014

ASPIRIN AT ARRIVAL

- * A higher number is better

What this means:
This measure shows the percentage of heart attack patients who receive aspirin within 24 hrs of arrival at hospital.
Why this is important:
Aspirin is a drug that can help reduce the severity of the heart attack and improve survival rates by lowering the tendency of blood to clot in the vessels.

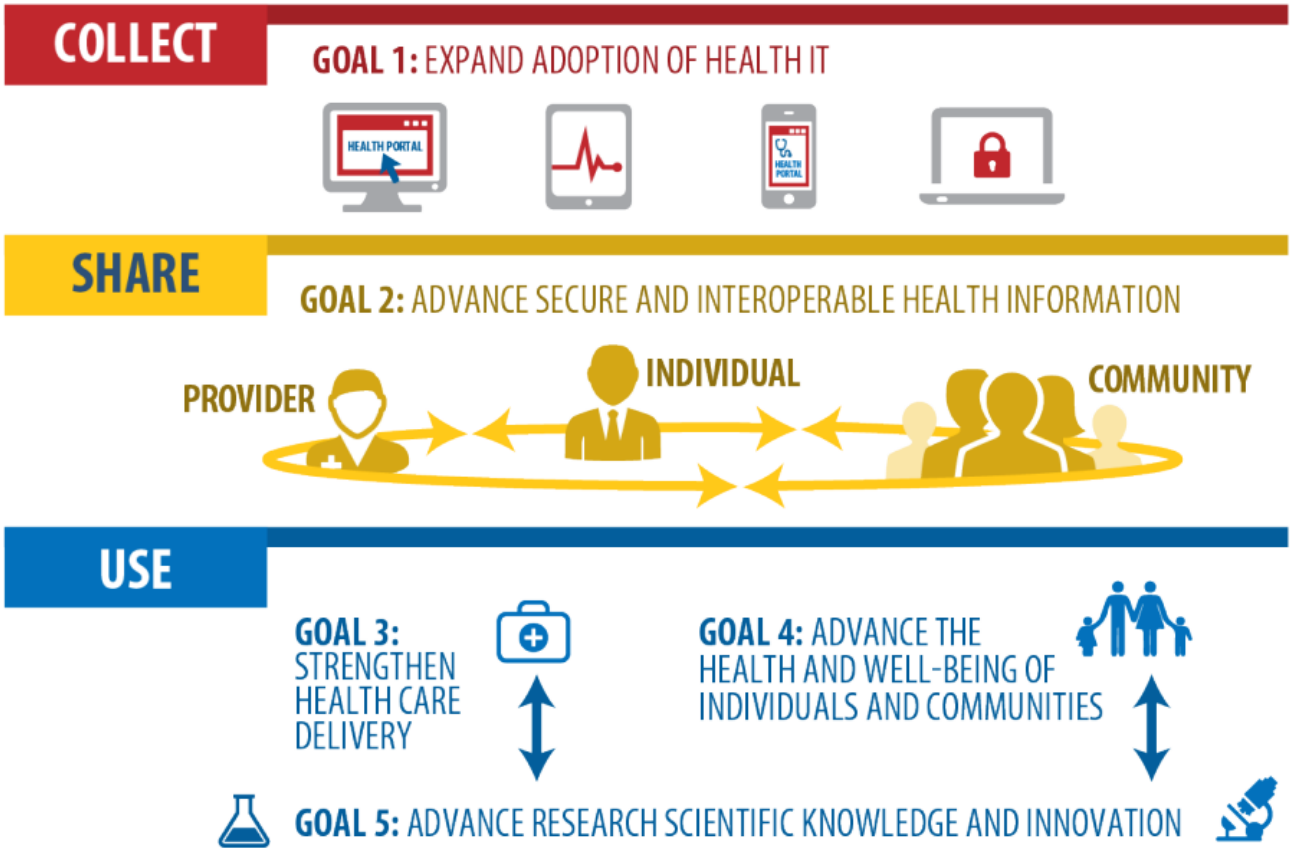




http://hospitals.jefferson.edu/quality-and-safety/reports/pneumonia-care-measures/
http://www.wehealny.org/patients/BI_patientqty/measures.html

The future: connecting health to care

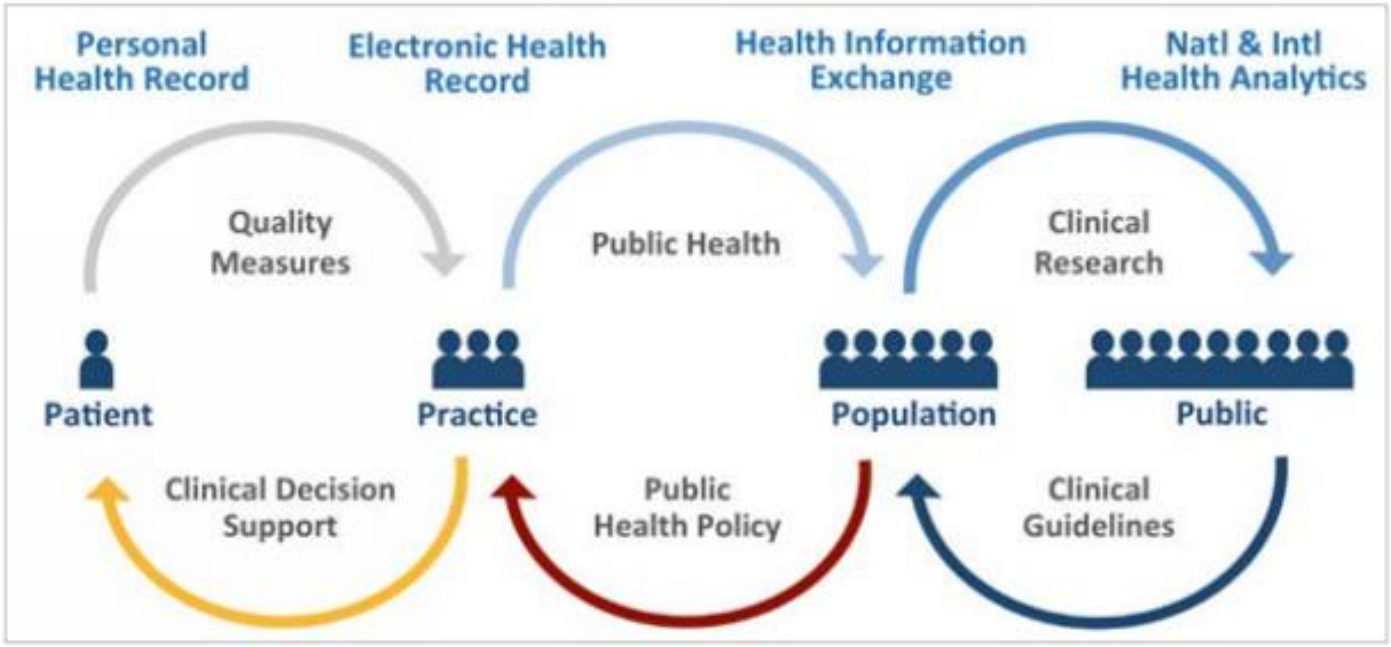
Nationwide Interoperability Roadmap



http://healthit.gov/sites/default/files/nationwide-c-roadmap-draft-version-1.0.pdf

The future: connecting health to care

Nationwide Interoperability Roadmap



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Questions?