

National Web-Based Teleconference on Health IT and Underserved Populations Health IT Adoption in Rural Clinical Settings

August 27, 2010

Moderator:

Angela Lavanderos

Agency for Healthcare Research and Quality

Presenters:

Maggie Gunter

Paul Gorman

John Kravitz

**AHRQ National Resource Center
for Health Information Technology**



AHRQ

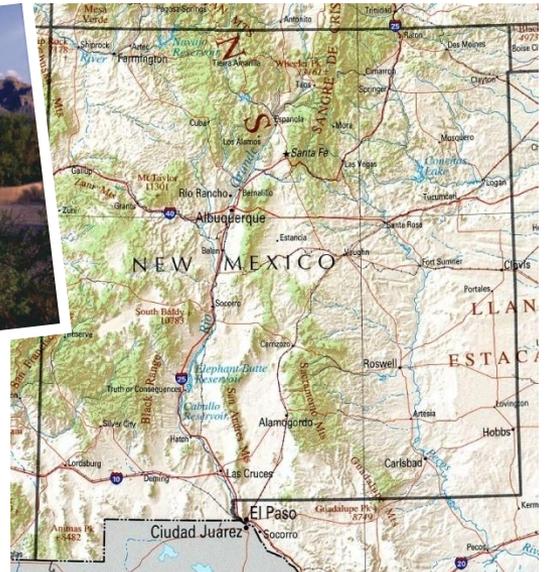
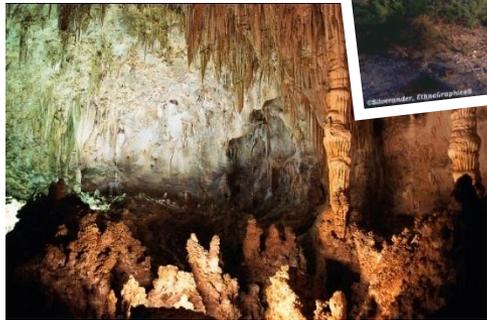
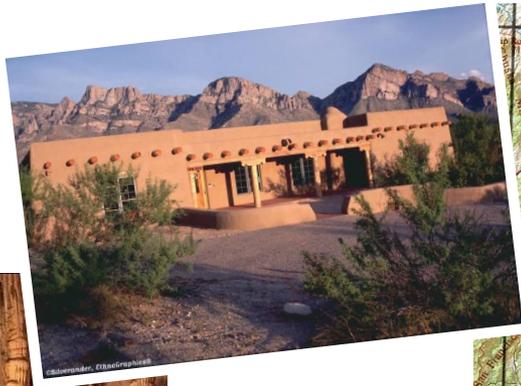
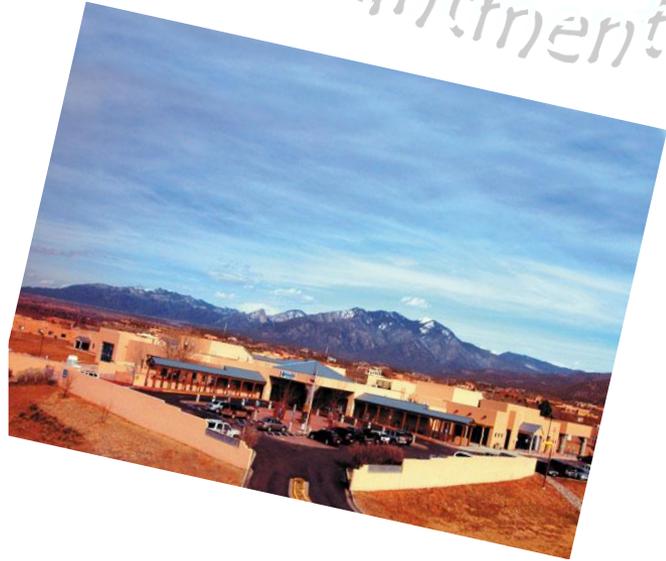
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Issues in HIE Building and HIT Coordination in New Mexico

Maggie Gunter, PhD
President and Executive Director
LCF Research

AHRQ Webinar
August 27, 2010

Land of Enchantment



Overview

- Demographics of New Mexico
- Who is LCF Research?
- Evolution of New Mexico Health Information Collaborative (NMHIC)
- Rural HIE pilots
- Coordination with telehealth and Project ECHO
- Barriers and facilitators for HIT in a rural state
- Lessons learned

New Mexico Demographics

- Predominantly rural
- Albuquerque 4-county MSA—majority of state's 2 million population
- Only 2 other cities with 50,000+--Santa Fe and Las Cruces
- One metro area and one health sciences center (University of New Mexico)

New Mexico Demographics

- High poverty: very high Medicaid rate—50+% of NM's children on Medicaid
- 2nd highest uninsured rate among U.S. states
- But—history of innovation in health care—3 major integrated systems dominate the Albuquerque market



PCPs in service area	2,906
Priority PCPs in service area	1,593
Priority PCPs to be served	1,035
Total Population (2008 Census)	1,984,356



Who is LCF Research?

- Created in late 1990 as Lovelace Clinic Foundation—led by Maggie Gunter since inception
- Non-profit, 501 (c) (3) applied health research and medical education institute—later added health information technology focus
- Created by the integrated Lovelace Health System to foster involvement of medical group in health care delivery research and medical education

Who is LCF Research?

- Early pioneers in disease management and translational research
- LCF-always interested in **both research and innovation-** design, develop, implement, and evaluate
- Recent **name change to LCF Research** to reflect broader, more neutral statewide leadership role in HIT and applied research

Evolution of New Mexico Health Information Collaborative (NMHIC)

- LCF created NMHIC in 2004 with AHRQ 3-year grant plus 100% community match
- **Purpose:** create a health information exchange network to collect electronic patient information across health care organizations to provide complete information at point of care
- **Result:** increased care coordination, quality, efficiency—decreased medical errors and costs.
- Led by 33-member stakeholder Steering Cmte., now by large community **LCF Board of Directors.**
- Primarily **federal** and limited state funding
- One of first 9 HIEs to receive a Nationwide Health Information Network Trial Implementation awards

Evolution of New Mexico Health Information Collaborative (NMHIC)

- First state HIE to receive **federal State HIE implementation funding** (March, 2010)
- LCF leads the **NM HIT Regional Extension Center** to help primary care providers in small and rural practices implement EHRs and exchange data to qualify for federal meaningful use incentives.
- Most urban and numerous rural providers provide data for **NMHIC—13 hospitals, two largest labs, two largest medical groups, and Department of Health**
- 1,330,000 unique patients in Master Patient Index (majority of state's 2 million people)
- **E-reporting of notifiable conditions** to DOH underway—live production with clinical users in late 2010.

Rural Pilots for HIE

- Early AHRQ objective: **establish a rural test site for the health information exchange**
- Holy Cross Hospital in Taos—early innovator and rural test site
- 3 pilot demonstrations—2 at Taos (2006-2007)
 - Creation and testing of early Master Person Index-4 million patient identities from 8 New Mexico orgs.
 - Taos providers used NMHIC to coordinate medication, education, and dietary care for diabetes patients (Nov., 2006)
 - Taos staff demonstrated NMHIC use to report abnormal newborn hearing screening test to DOH (2007)
- Early pilots not sustained, but created important foundation for later progress

Coordination of HIE and Telehealth

- From NMHIC inception, **emphasis on community collaboration and coordination** among HIT efforts—essential given NM’s limited resources
- Two AHRQ HIT grants in state—NMHIC and Project ECHO at University of NM (Dr. Sanjeev Arora)
- Funded by AHRQ, NM Legislature, and RWJF
- **Goal:** enable rural primary care providers to interact with specialists via telehealth links

Coordination of HIE and Telehealth

- **Pilot disease:** Hepatitis C
- Model for managing other complex diseases in rural communities—**empowerment of rural practitioners**
- Numerous national presentation and awards—notably, **\$5 million from RWJF as one of three top “Disruptive Innovation” programs**
- Current discussions to integrate NMHIC into Project ECHO efforts to improve information sharing for rural and urban providers.
- **Project HOPE rural telemonitoring initiative**—intent to link telemonitoring with the information exchange to improve rural care

Barriers to HIT Development in Rural New Mexico

- **Barriers**

- Poverty
- Insufficient Internet infrastructure
- Lack of financial, clinical, and IT resources to implement EHRs and telemedicine
- Clinician resistance to change
- Inadequate reimbursement
- Privacy and security concerns regarding data disclosure

Facilitators to HIT Development in Rural New Mexico

- **Facilitators**

- Insufficient specialists
- Need for workforce extenders
- Stakeholders know each other—improved collaboration
- Only one medical school—less competition than in more urban states
- History of innovation in healthcare
- Close collaboration among HIT initiatives
- Inclusion of rural health providers in NMHIC governance

Lessons Learned in the HIT Trenches

- “**It is less about the technology, than the sociology.**” (Dr. Carolyn Clancy)
- Actually, both the technology AND sociology are hard.
- Know upfront that **innovation is always messy and challenging.**
- Be prepared to be resilient—“**persistence beyond all reason**” is key to success

Lessons Learned in the HIT Trenches

- **Privacy concerns** are paramount for patients and providers—never underestimate them—and work to address them
- Assure a **balance of rural and urban** stakeholders
- **Collaboration is essential**—competition in this arena is deadly—hire accordingly
- Don't suppose that you know what your community values in HIT services—**ask them repeatedly—and LISTEN!**
- **Always—always—keep your sense of humor**

Thank You!

An aerial photograph of a coastal town, likely Cannon Beach, Oregon. The town is built on a hillside overlooking a wide, sandy beach. The ocean waves are breaking onto the shore. In the background, there are rolling hills and mountains under a cloudy sky.

RxSafe Project: Improving Medication Safety for Rural Elders

Paul Gorman, MD
Oregon Health & Science University

Supported by
AHRQ awards HS014928 and HS017102

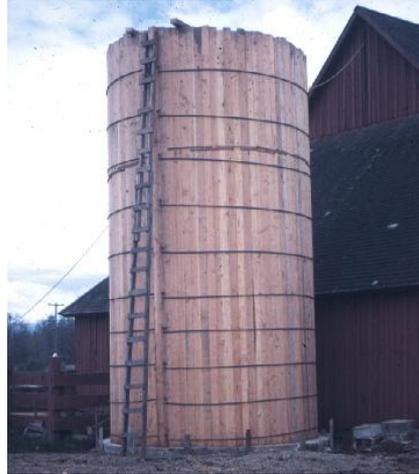
Not on same page about insulin

All too typical case

- 69 year old woman
 - bright, functional
 - diabetes
 - complex insulin Rx
 - HTN
 - betablocker
 - Cognitive dysfunction
 - severe memory loss
 - moved to foster care
 - Blood sugar 29
 - 29 pm, over 400 am
- What is her regimen?
 - What should change?
 - How to communicate?
 - Simple: check record:
 - Foster care - fax
 - Primary care - EHR
 - Daughter - notebook
 - Diabetologist - phone
 - Others: hospital?
pharmacy?

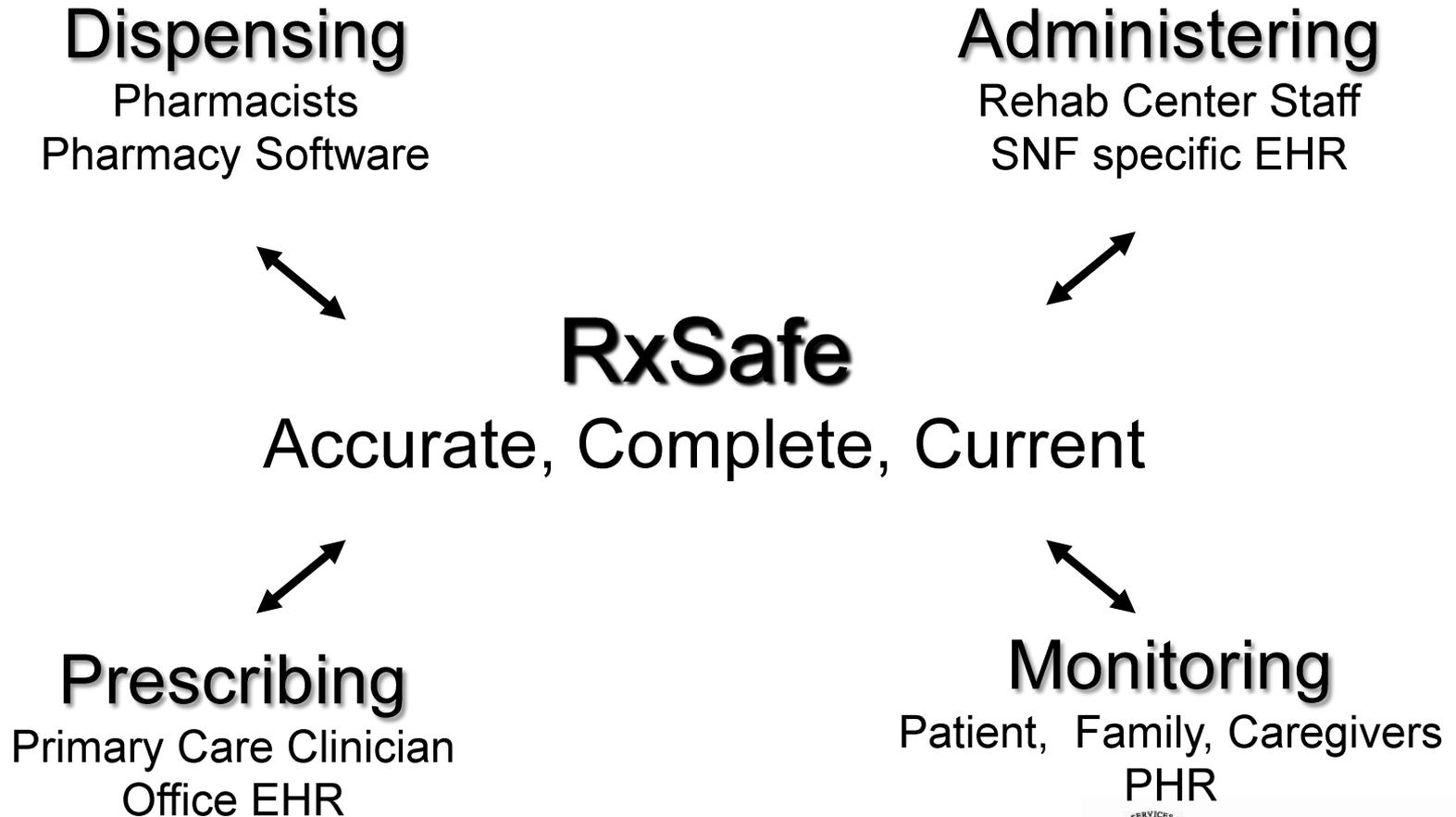


Silos of Data



- Specialized HIT
 - hospital
 - doctors
 - pharmacies
 - patients
- Missed benefits
 - decision support
 - interaction check
 - duplication

RxSafe Goal: Everyone On the Same Page

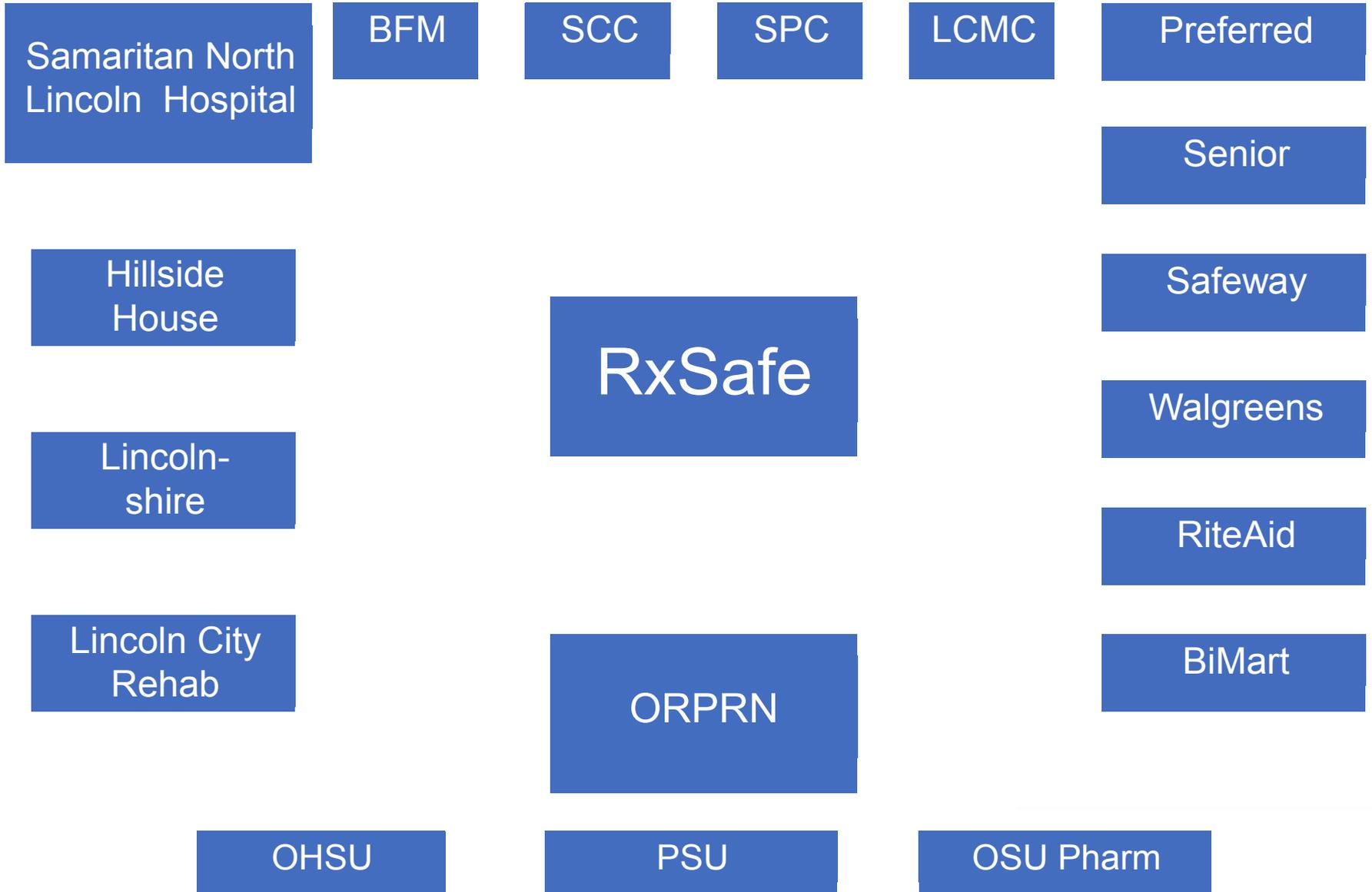


Three Requirements

- Collaboration
- Connection
- Integration

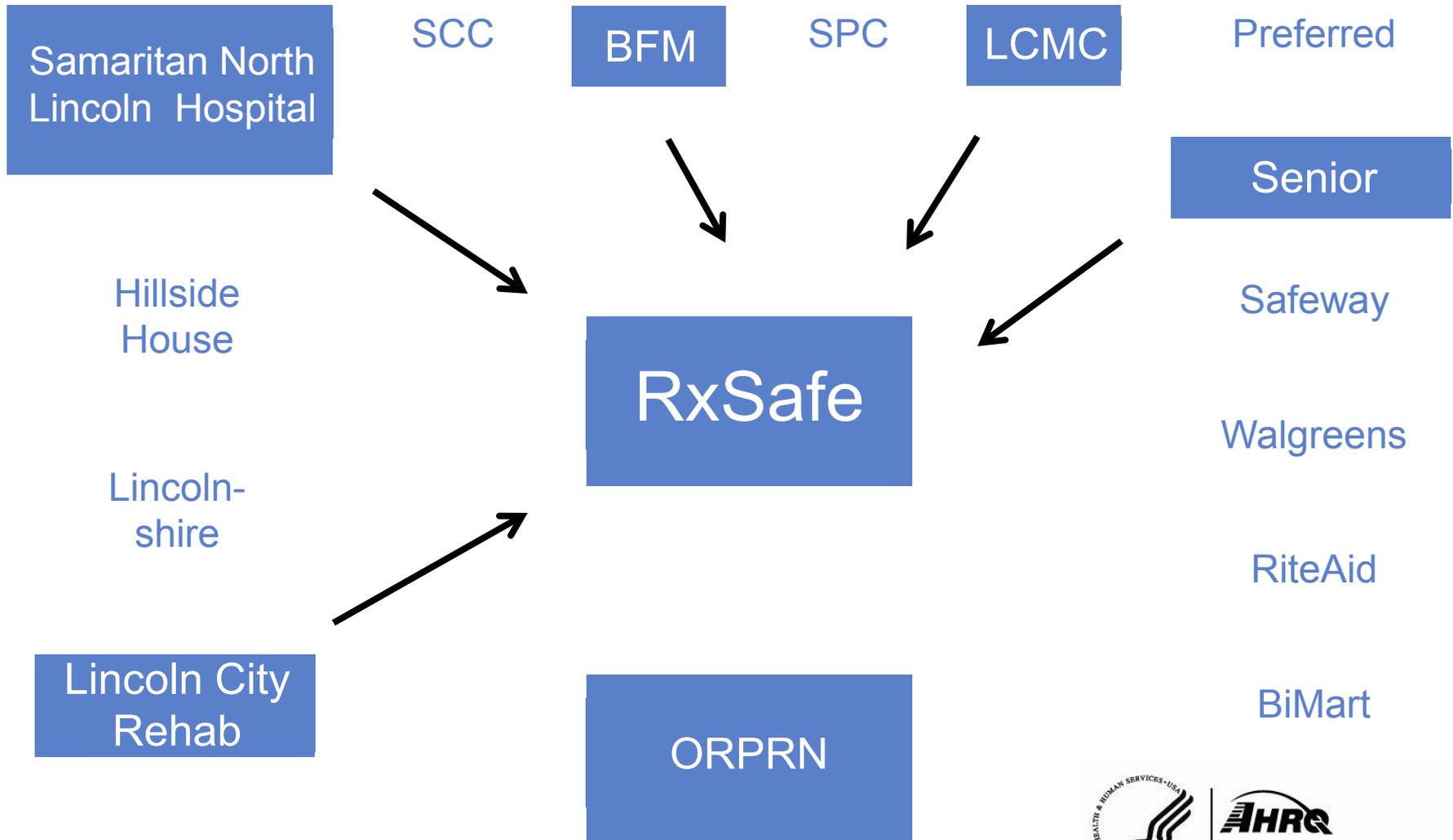


1: Collaboration - Proposed



Collaboration – Actual

Multiple distinct, competing, often national entities



Collaboration for HIE: Not so Easy

Failed Santa Barbara RHIO offers lessons learned

Health Imaging News | August 3, 2007 | Industry News

Business and Finance

August 10, 2007

Financial, Technology Issues Halt Oregon Health Data Exchange

A plan to create a citywide health information exchange in Portland, Ore., has stalled because of financial constraints and technological issues, the *Portland Tribune* reports.

The Portland area was seen as a possible leader in health data exchanges because 59% of physicians in the region have adopted electronic health records, the *Tribune* reports.

 [Print Article](#)

 [Email Article](#)

RELATED STORIES

08/03/2007
[Oregon Launches Hospital Price Comparison Web Site](#)

05/25/2007
[Sustainability and Privacy Top Concerns for Data Exchanges](#)

02/02/2006
[Oregon Patient Safety Commission Launches Error Reporting Program](#)

ge project in Santa Barbara
ns for future health information
railer, who helped develop the
national coordinator for health IT,
in *Technology Daily*.

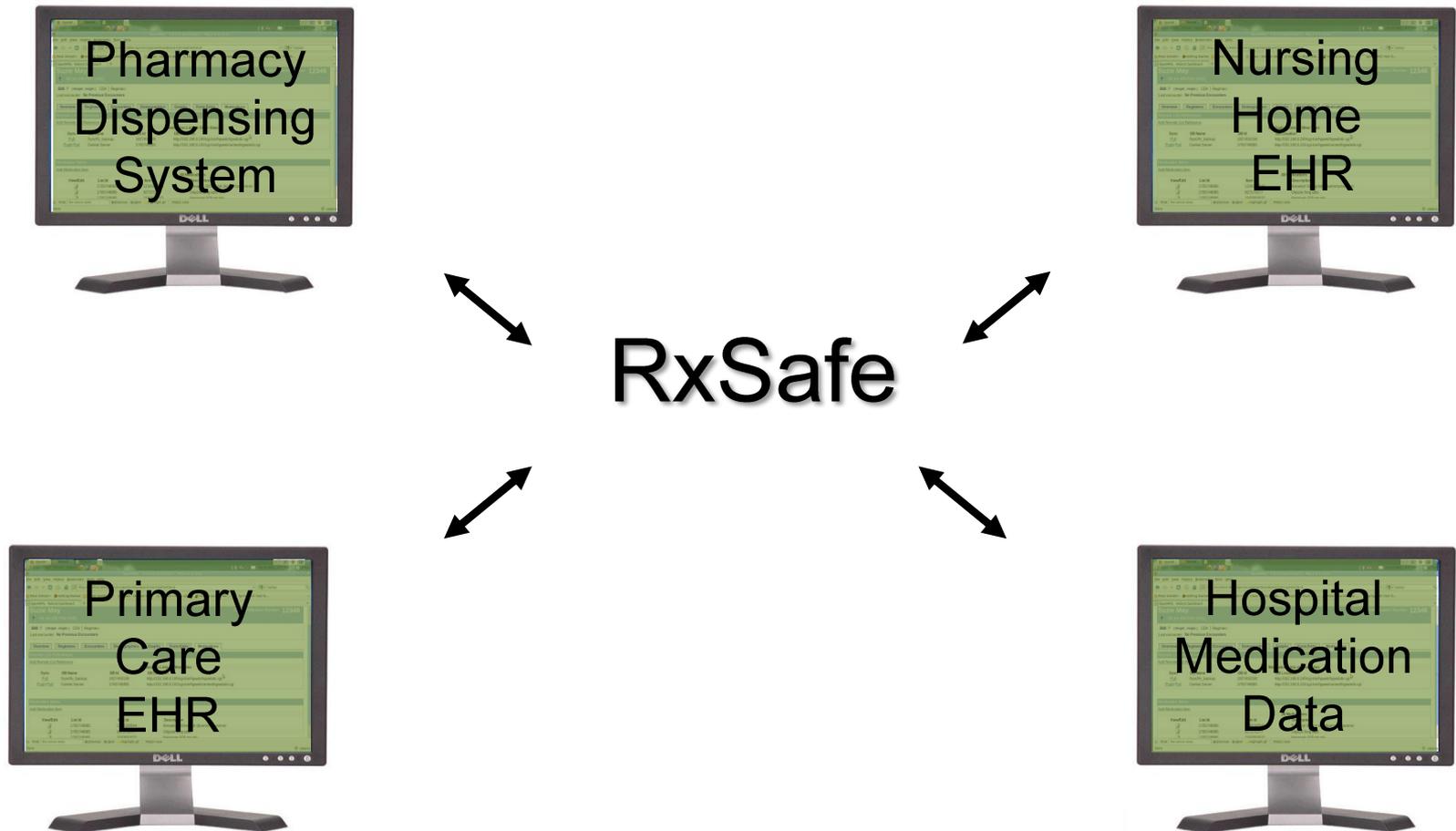
be one of the first successful
healthcare organizations in Santa
o securely share clinical and
king on the subject this week,
del is the "great limiting" factor for



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2: Connection

Ideal: standards-based, immediate exchange



Connection Issues

- One-by-one connections
 - unique organizational policies
 - unique EMR implementations
- Read-only
 - organizational ownership, responsibility for data
 - window into other med lists
 - benefit of review not shared
 - Recent, not current
 - nightly update



Actual Connection

“Status at a Glance, Details on Demand”

RxSafe

Compare Medication Lists by Facility

Patient Demographics

Med Verification Report

Site Med List

Med Comparison

Patient Name: MARVIN A MARTIAN Patient D.O.B: 10/15/1917 Patient Gender: M

Sort Start Date

Sort Drug Class

Sort Alpha

Group Drug Class

Lincoln City Medical

Recs: **9 Records**

Name & Dose
DULCOLAX SUPPOSITORIES
COMBIVENT
ATENOLOL 25MG
DIGOXIN 0.125MG
SENEKOT
ACIPHEX 20 MG
FOSAMAX 70MG
LEVOXYL 100MCG

Lincoln City Rehab

Recs: **23 Records**

Name & Dose
2 CAL MED PASS SUPPL 120CC
CRANBERRY TABS
DELCOLAX SUPPOS
FESO4 5 GR
FLEETS ENEMA
MOM 30CC
OYSTER SHELL CALCIUM 500MG
ROXINAL 20MG/ML

Bi-Rite Pharmacy

Recs: **5 Records**

Name & Dose
PHENOBARBITAL 60MG TABLET
SENNA 8.6MG TABLET
GUJATUSS 100MG 5ML SYRUP
NORCO 5/325MG
LEVOTHYROXINE 0.025MG TABLET

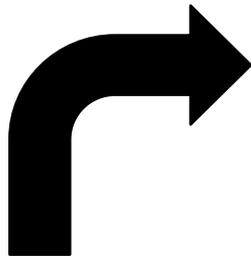
Senior Pharmacy

Recs: **25 Records**

Name & Dose
BISAC-EVAC SUPP 10MG
CALCIUM ANTACID 500MG TAB
CALCIUM ANTACID ASSTD 500MG TABLET
CITALOPRAM 20MG TABLET
CRANBERRY 425MG CAPSULE
DEPAKOTE SPRINKLE 125MG CAPSULE
DEPOKOTE SPRINKLE 125MG CAPSULE
DOCUSATE SODIUM 100MG CAPSULE

3: Integration

Facilitate Medication Reconciliation in ED



RxSafe

Compare Medication Lists by Facility

Patient Demographics Med Verification Report Site Med List Med Comparison

Patient Name: MARVIN A MARTIAN Patient D.O.B.: 10/15/1917 Patient Gender: M
 Sort Start Date Sort Drug Class Sort Alpha Group Drug Class

Lincoln City Medical	Lincoln City Rehab	Bi-Rite Pharmacy	Senior Pharmacy
# Recs: 9 Records	# Recs: 23 Records	# Recs: 5 Records	# Recs: 25 Records
Name & Dose DULCOLAX SUPP 0.6G	Name & Dose 2 CAL MED PAST SUPPL 1200C	Name & Dose PERICARBONAL 60MG TABLET	Name & Dose BISAC-ETAC SUPP 10MG
COMBIVENT	CRANBERRY TABS	SENA 8.6MG TABLET	CALCIUM ANTACID 300MG TAB
ATROLOL 2MG	DELOLAX SUPPOS	QUATUSS 100MG 2ML SYRUP	CALCIUM ANTACID ASSTD 300MG TABLET
EDOXON 0.125MG	ERSON 5GR	NORCO 5/325MG	CITALOPRAM 20MG TABLET
SENECOT	ELETS SENNA	LEVOTHYROXINE 0.025MG TABLET	CRANBERRY 420MG CAPSULE
AGIPHEX 20MG	MOM 300C		DEPAKOTE SPRINKLE 125MG CAPSULE
ECOSAMAX 30MG	OYSTER SHELL CALCIUM 300MG		DEPAKOTE SPRINKLE 125MG CAPSULE
LEPCOYL 100MG C2	RYOINHAL 20MG/5ML		DOUSATE SODIUM 100MG P/PHOS

HOME MEDICATION PROFILE <i>(List all of patient's medication including OTC and herbal preparations)</i>					PHYSICIAN MEDICATION ORDERS <i>(check one column)</i>		
Drug Name	Dose	Route	Freq	Last Taken Date/Time	CONTINUE (X)	CONTINUE With the Following Changes	DO NOT ORDER AT THIS TIME (X)
BISAC-ETAC SUPP	10MG	RECTALLY	every 3rd day				
CALCIUM ANTACID	500MG TAB	BY MOUTH	three time				
CRANBERRY	425MG CAPSULE	BY MOUTH	three time				
DEPAKOTE SPRINKLE	125MG CAPSULE	BY MOUTH	three time				
HUMALOG (LISPRO)	100U/ML	INJECT SUB	Sliding Scale				
LEVOTHYROXINE	0.025MG TABLET	BY MOUTH	everyday				
SENA	8.6MG TABLET	BY MOUTH	at bedtime				
QUATUSS	100MG/5ML SYRUP	BY MOUTH	every 4 hours				
<input type="checkbox"/> No Known Medications					<input type="checkbox"/> Pneumococcal Vaccine 0.5 ml IM if criteria met <input type="checkbox"/> Influenza Vaccine 0.5 ml IM if criteria met <input type="checkbox"/> The home medication review has been reviewed. Please see my written orders.		
Signature of Person Gathering Medication History: _____ Date/Time _____					Signature of Ordering Provider Date/Time _____		

Medications brought with patient: No Yes

Sent home, with whom: _____ Date/Time: _____

Sent to Pharmacy, by whom: _____ Date/Time: _____



ADM: MARTIAN, MARVIN A
 ATT: 1917-10-15
 PCP: Male

Integration Beyond ED

Katz' Diffusion by Contagion

- Spontaneous spread
 - other departments – Pre-op admitting, elsewhere
 - request from neighboring hospital
- Limited by critical mass of data, accuracy

	Adopter Aware	Adopter not Aware
Promoter Aware	Persuasion	Manipulation
Promoter not Aware	Imitation	Contagion



Challenges

- **Technical interoperability**
 - Enforced standards for system developers
 - Necessary but not sufficient
- **Organisational interoperability**
 - Commercial proprietary concerns
 - Regulatory and privacy fears
 - Need for “return on investment”
- **Misalignment of costs and benefits**
 - Those who benefit vs those who pay



RxSafe Observations & Issues

- Users liked RxSafe
 - spontaneous spread beyond ED
 - task integration, critical mass of data
- Medication lists are a mess
 - format, content, implementations
- Reconciliation is hard
 - would help to sort, highlight (e.g. duplicates)
- Existing 'systems' waste clinician effort
 - dyssynchronous processes, non-interoperable systems



Steps Toward Sustainability

“Don’t Take RxSafe Away!”

- Add patients: some is good, more is better
- Add systems: (Logician, Epic, NextGen)
- Add information: Allergies, Diagnoses
- Add functions (follow up project)
 - Meaningful presentation
 - Assisted reconciliation
 - Enhance collaboration
 - Web based information



Current Project: RxSafe CDS

- **Meaningful presentation.**
 - improve organization and presentation of lists
 - enhance cognitive performance
- **Assisted reconciliation.**
 - create list management tools
 - integrated into medication management tasks
- **Distributed decision support.**
 - shared medication management tools;
- **Web-based clinical decision support.**
 - link external, machine actionable information
 - information enhancement through web services
 - e.g. – ‘mashups’



Geisinger Health System

John Kravitz



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GEISINGER



Facilities

- 2 Acute Care Hospitals
- Children's Hospital
- Heart and Cancer Centers
- Women's Center
- Drug & Alcohol Tx Center
- 4 ambulatory surgery centers
- 30K Admissions & 800 in pt beds

Care Team

- 800+ physicians
 - Primary care
 - Specialists
 - Hospital based
- 40 Comm. Practice sites
- 1.5 Million Visits
- 220 Interns & Residents

Health Plan

- Over 227,000 members
- Diversified products commercial, Medicare, TPA
- 80 contracted hospitals
- 1000 contracted physicians

Geisinger Service Area



31 counties

**2.6 million
residents**

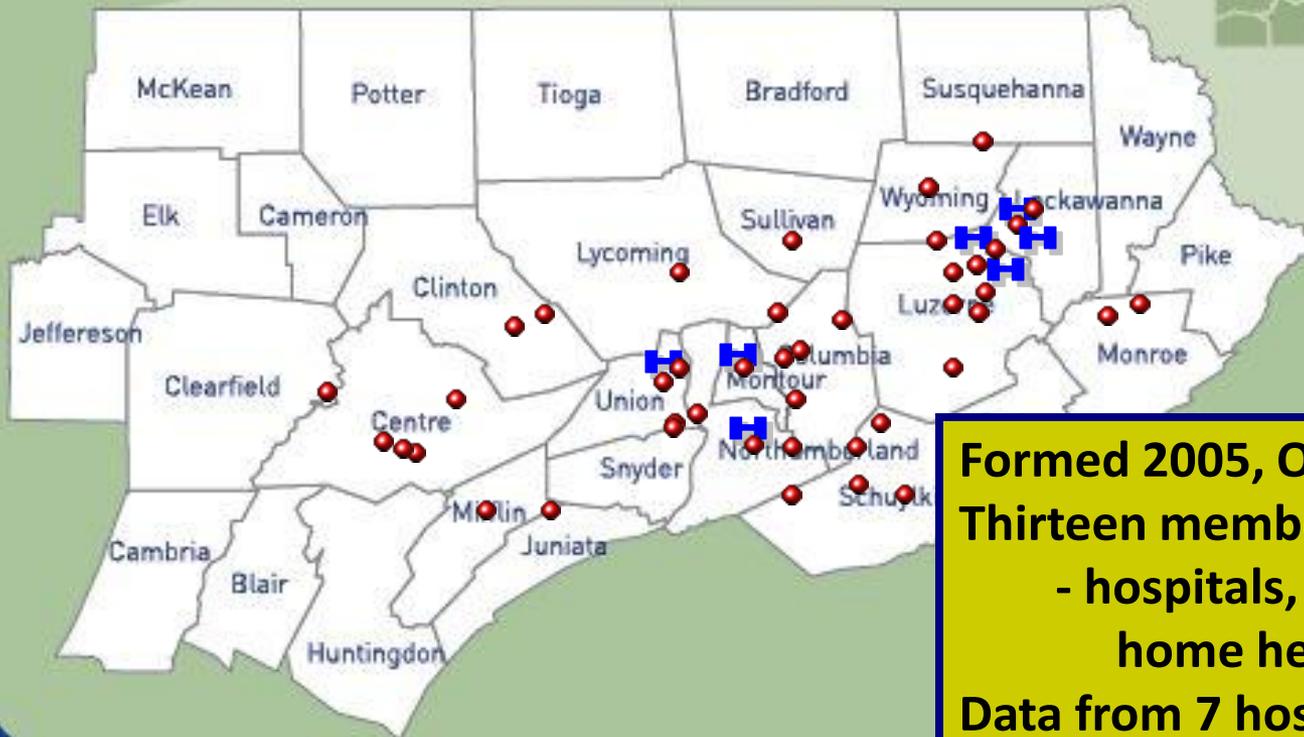
53 hospitals

9,000 physicians



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KeyHIE[®] August 2010

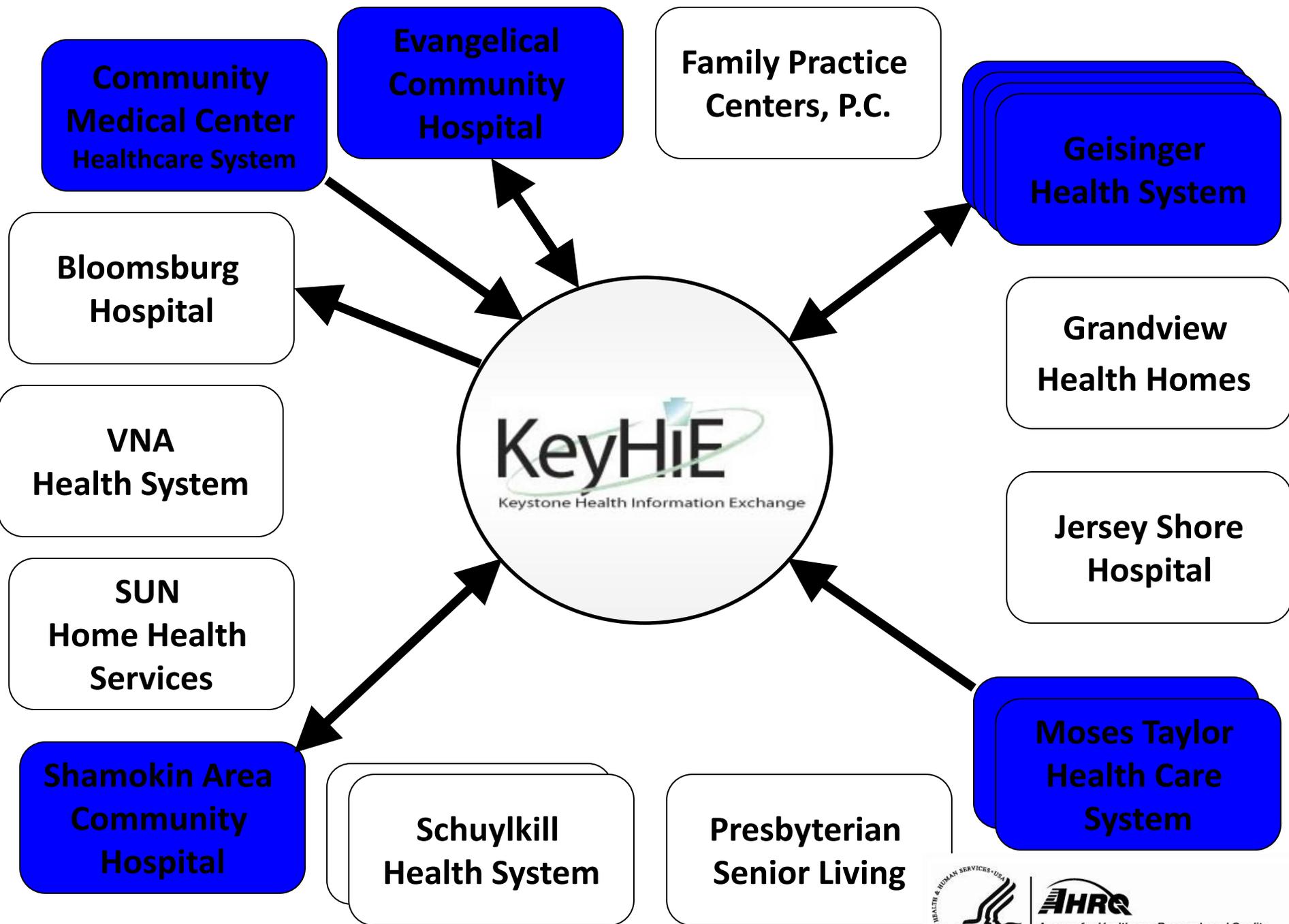


Formed 2005, Operational 4/2007
Thirteen member organizations
- hospitals, clinics, skilled care, home health, LTC
Data from 7 hospitals / 42 clinics
Used in four emergency departments
2.9+ million patient records in MPI
300+ Users
390,000+ Patient Authorizations

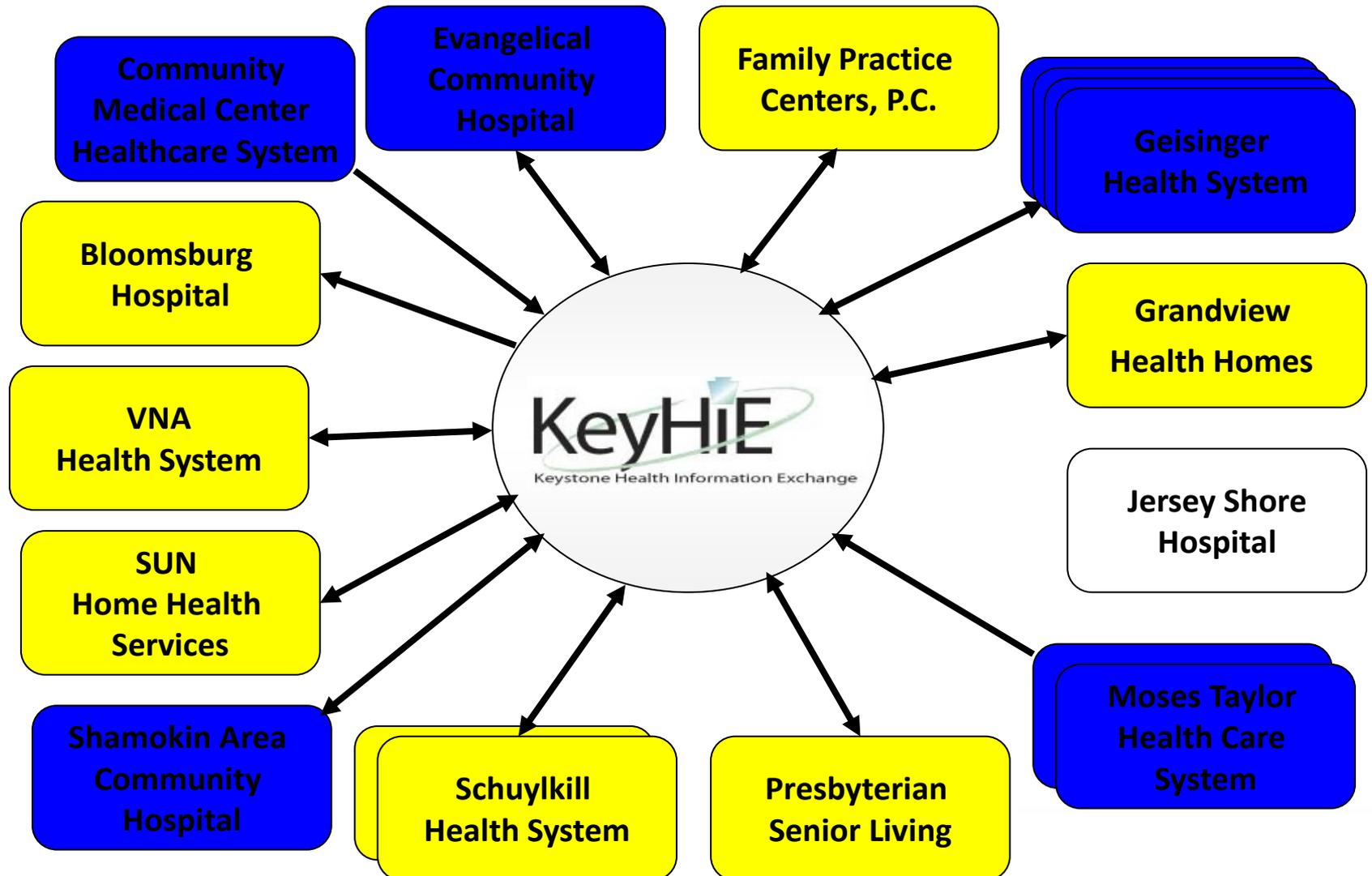
Funding Stream

- AHRQ Planning \$0.2 million
- AHRQ Implementation \$1.5 million
- PA DOH \$0.5 million - 2006
- AHRQ Extension grant \$2.3 million
2010 - 2015





KeyHIE[®] Extension



KeyHIE Expansion

Task	Year 1	Year 2	Year 3	Year 4	Year 5
YEAR 1					
Connect Schuylkill Health to KeyHIE (2 hospitals)	■				
Connect Family Practice Centers to KeyHIE (22 practice sites)					
Laboratory Results to KeyHIE Document Distribution					
YEAR 2					
Add - Sun Home Health to KeyHIE	■	■			
Add - CCD Documents and Medication Histories to KeyHIE					
Event notification to Case Managers and Primary Care Physicians					
YEAR 3 - 5					
Connect - Presbyterian Senior Living	■	■	■	■	■
Connect - Emergency Responders					
Connect - Grandview Health Homes					
Add - CCD Documents, Consult Reports, Electrocardiograms and Pathology Reports for all members					

The Case for HIE

- The current health care system is fragmented
- Health information is kept in silos
 - Radiology studies
 - 20% of hospital radiology tests are duplicates (CITL)
 - \$60 average cost for radiology tests
 - 20% of 912,000 annual KeyHIE radiology exams is 182,000 duplicates
 - \$10.9 million savings potential (182,000 * \$60)
 - Lab studies
 - 13%-20% duplicate laboratory tests (Indiana/Santa Barbara)
 - \$27.75 is the average cost per lab test
 - 13% of four million annual KeyHIE labs = 520,000 duplicates
 - \$14.4 million savings potential (520,000 * \$27.75)



The Case for HIE

- The current health care system is fragmented
- Health information is kept in silos
- Critical clinical information is not available to healthcare providers
 - 14% of PCP office visits
 - Emergency Departments
 - 15% of ED visits (47,250 / 315,000 annual ED visits to KeyHIE hospitals)
 - \$26 savings for 40% of ED visits
 - 40% of 315,000 annual ED visits to KeyHIE hospitals is 126,000
 - \$3.3 million in potential savings (126,000 * \$26)



The Case for HIE

- The current health care system is fragmented
- Health information is kept in silos
- Critical clinical information is not available to healthcare providers

- **Possible savings through KeyHIE**

(based on current KeyHIE membership)

\$10.9 million – Reduction of duplicate radiology studies

\$14.4 million – Reduction of duplicate lab studies

\$3.3 million – ED visits

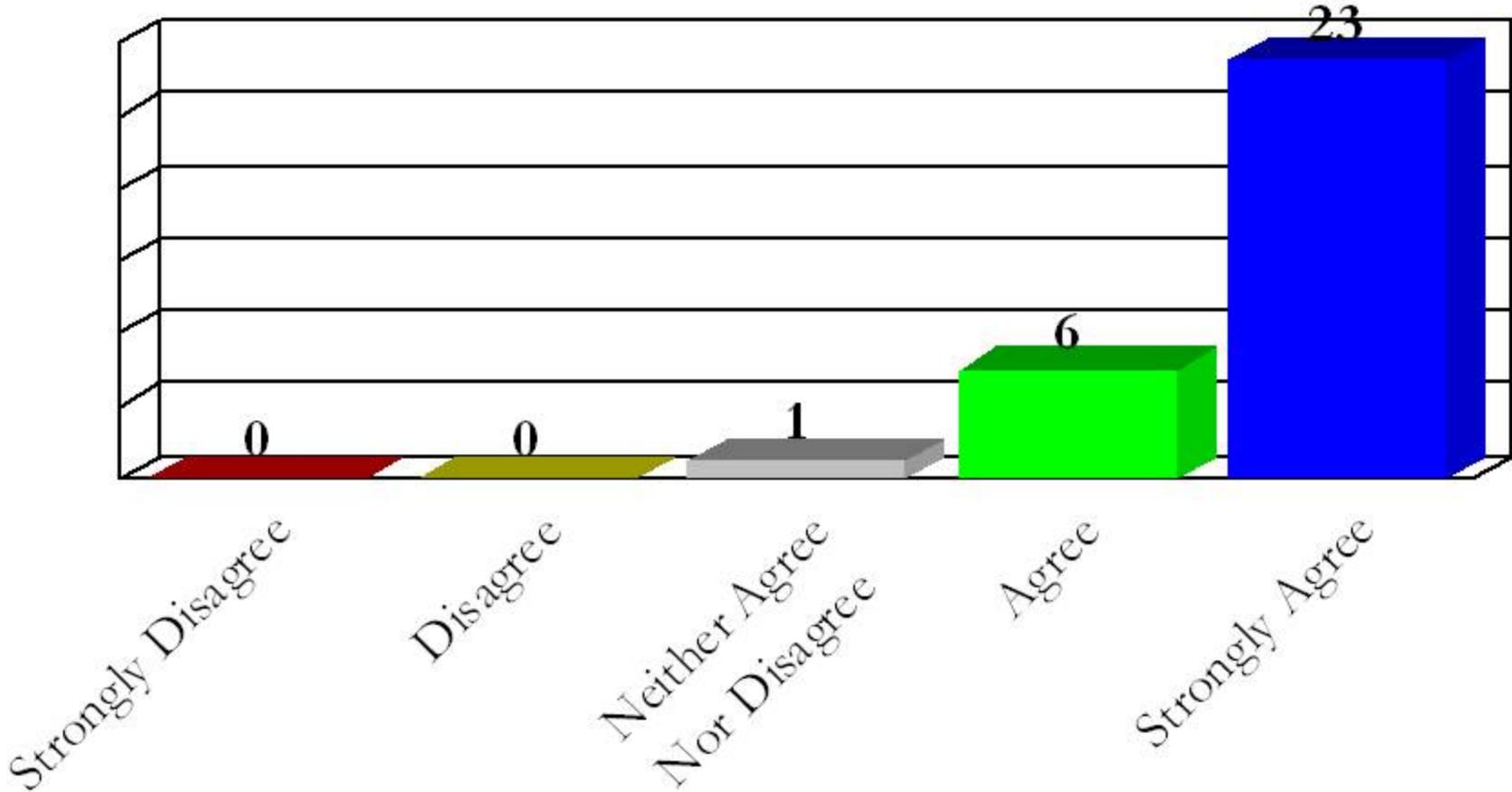
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\$28.6 million annual savings

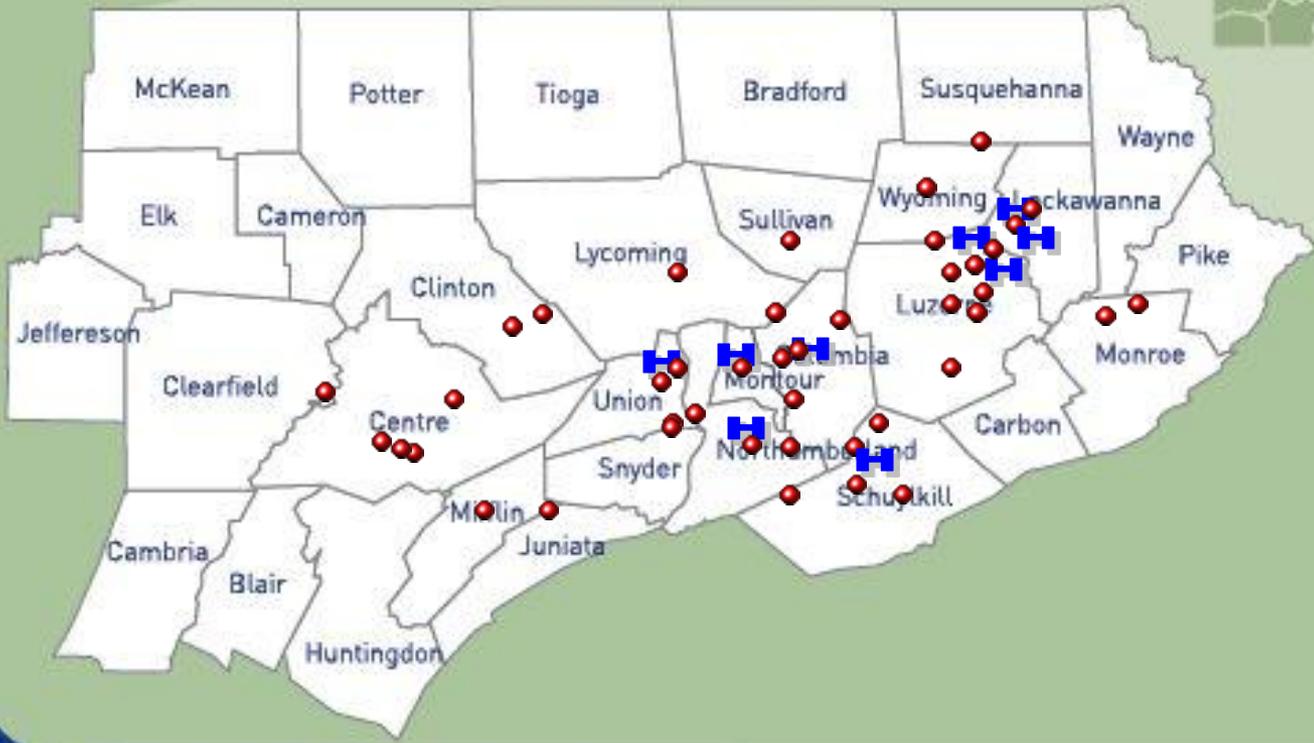


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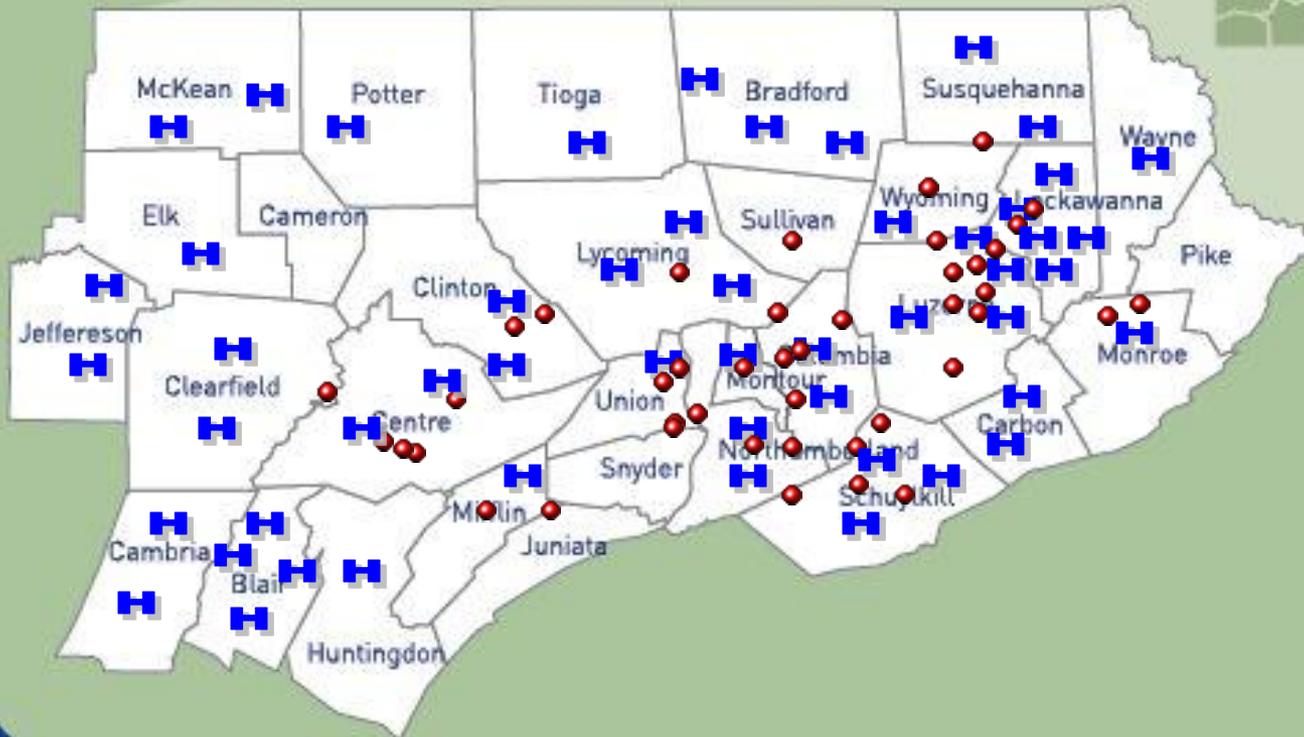
16. Patient information should be used to care for patients and not used as a competitive advantage.



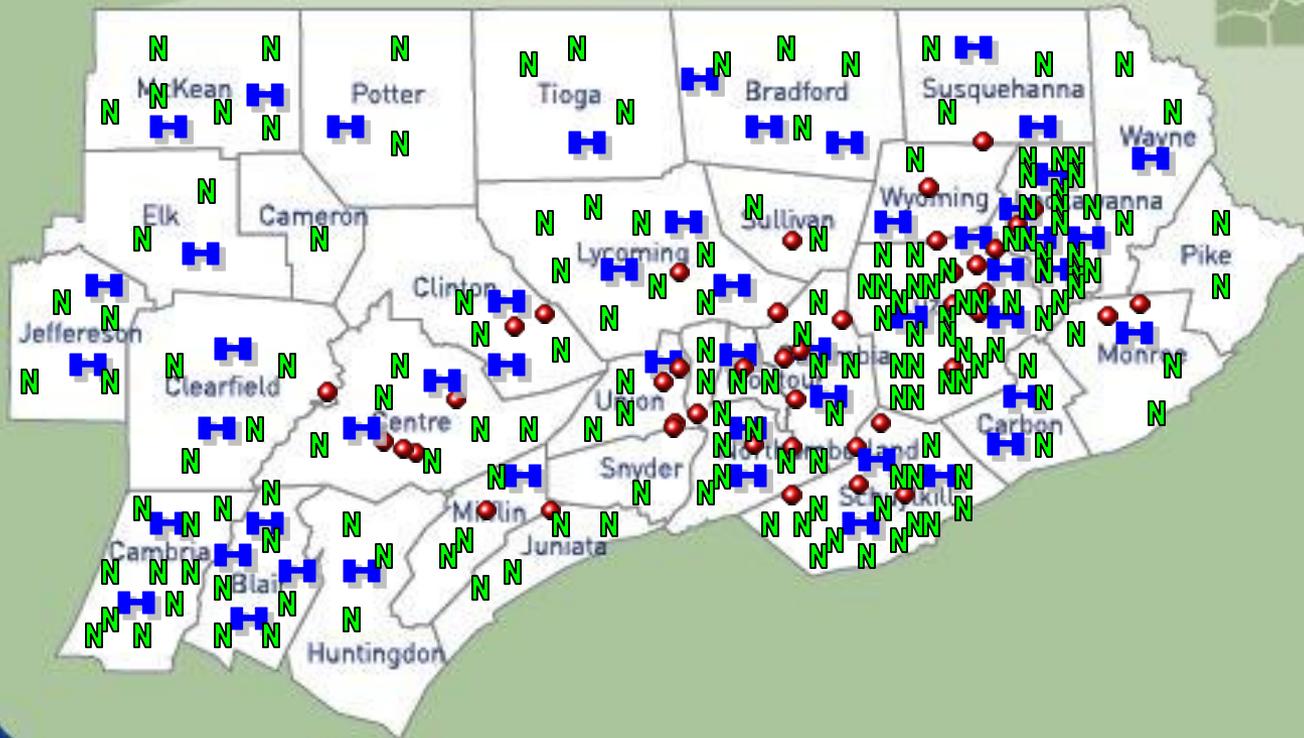
KeyHIE® April 2010



KeyHIE® April 2010



KeyHIE® April 2010



Geisinger Health System and Health Plan Presence



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Keystone Beacon Community

Practical Application of the Health
Information Exchange



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Keystone Beacon Community

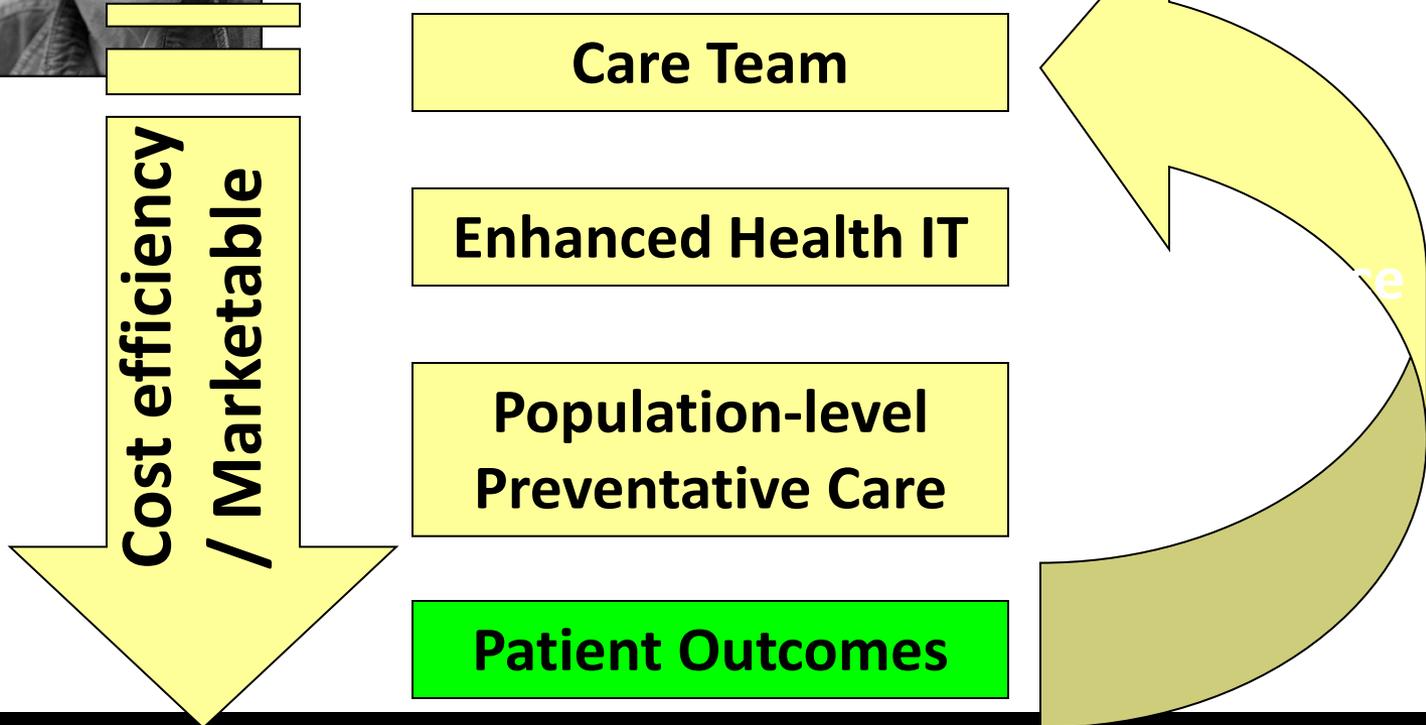
- **Care Management Model** focusing on chronic disease conditions
- **Focus:** Congestive Heart Failure, Chronic Obstructive Pulmonary Disorder and Post-Op Surgeries
- **Goal:** Eliminate re-admissions to acute care and emergency department for chronic care patients





- CHF
- COPD
- Post-surgical

- Diabetes
- CAD
- Other Chronic Disease



Keystone Beacon Community

Keystone Beacon Community

Care Managers

Care summaries
Secure messages

Patients

Care summaries
Medication lists
Secure messages

Physicians

Care summaries
Clinical messages

KeyHIE[®]
Data Aggregation
Secure Messaging
Quality Reporting

Hospitals

Discharge summaries
H&Ps
Radiology reports
Lab results
Adm/Disch notices

Payers

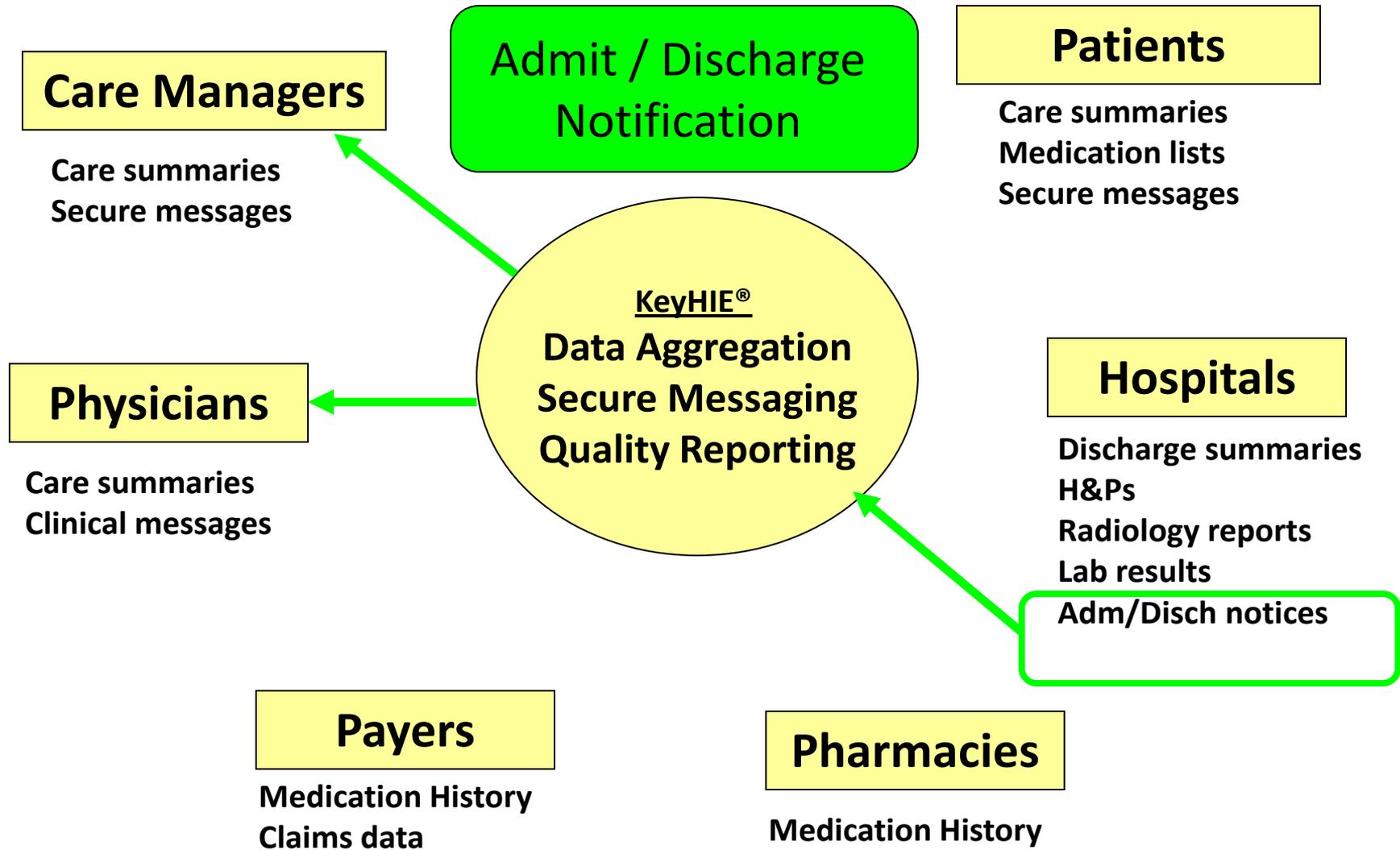
Medication History
Claims data

Pharmacies

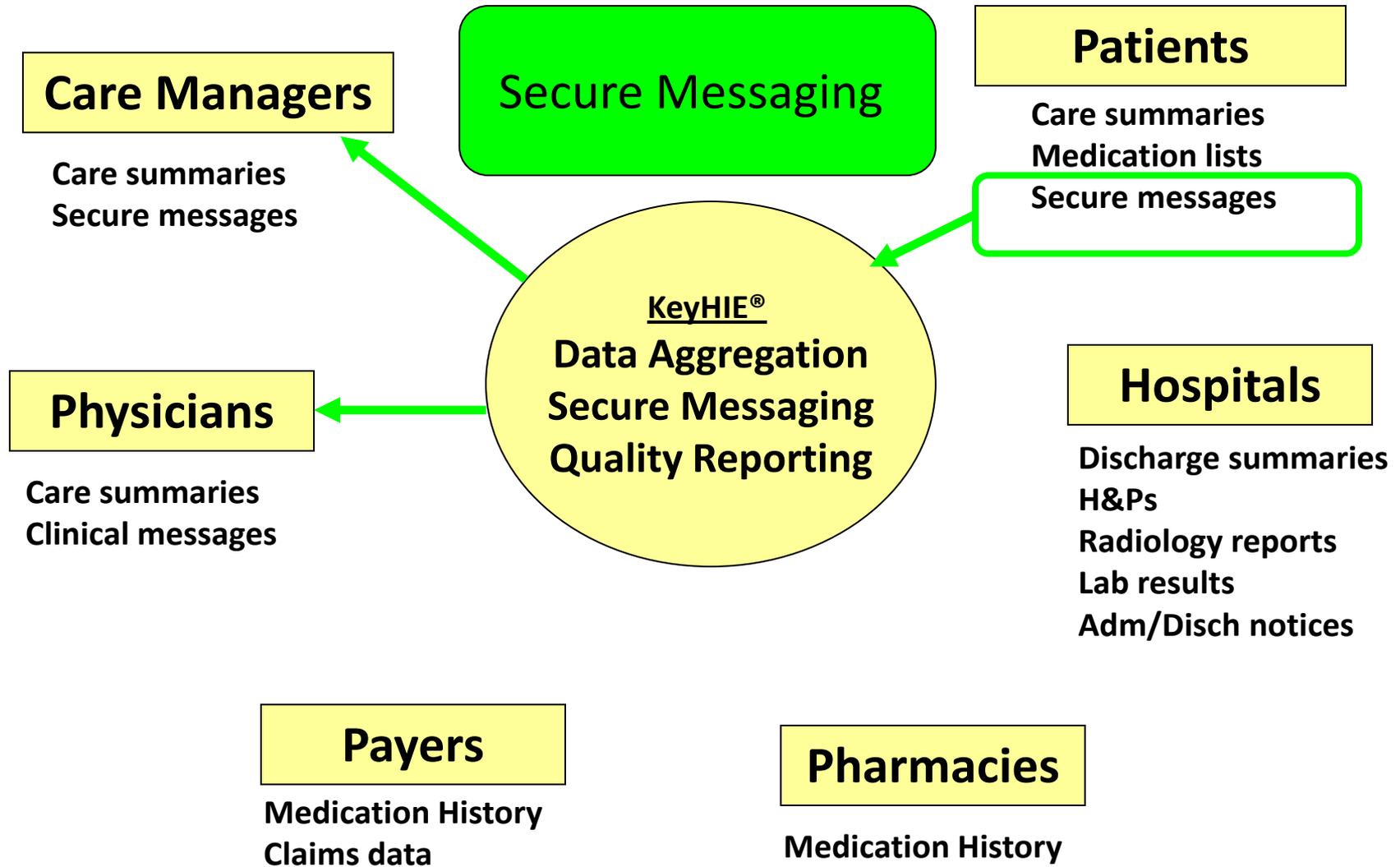
Medication History



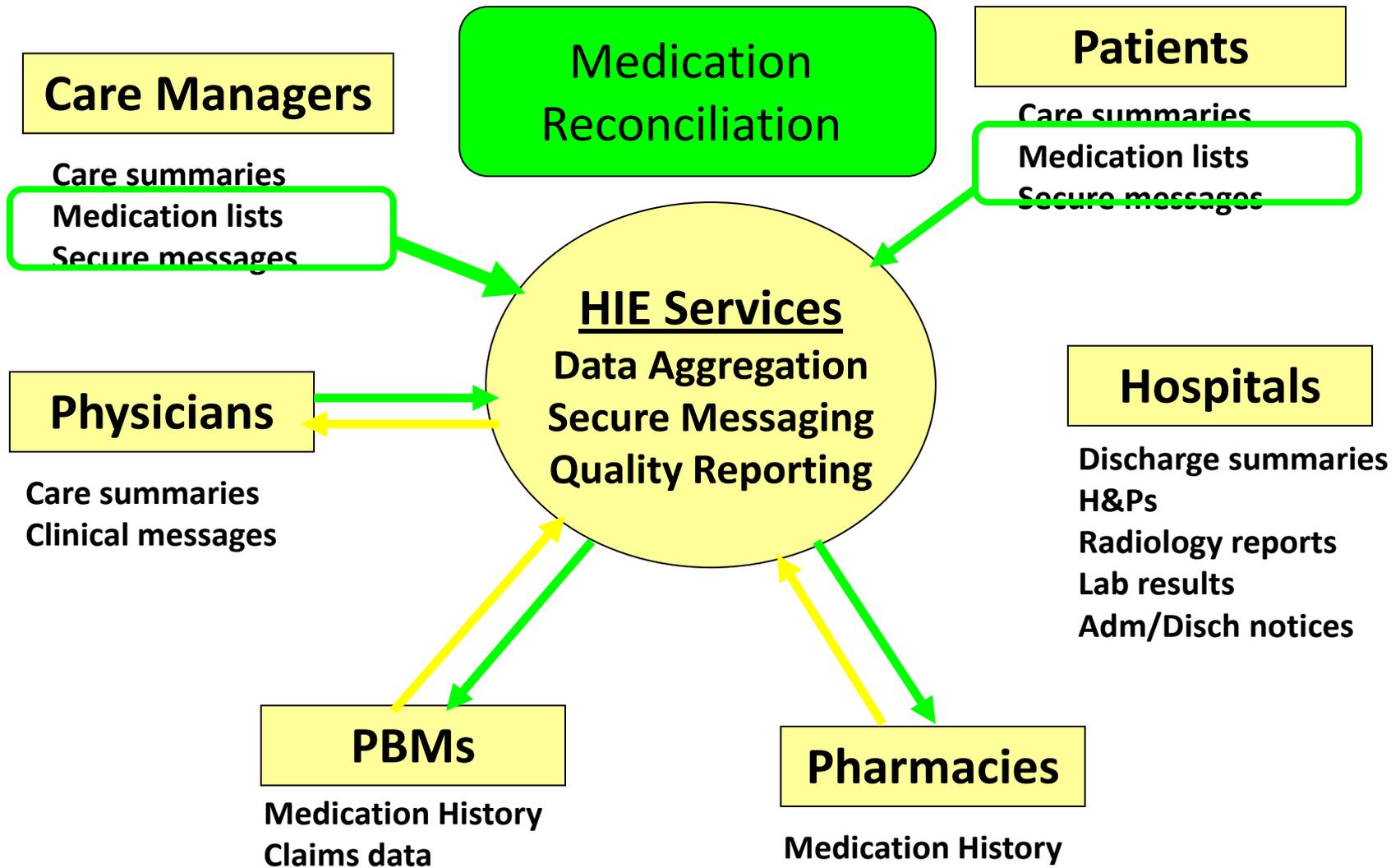
Keystone Beacon Community



Keystone Beacon Community



Keystone Beacon Community



Thank You!



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Questions & Answers

Our Panel:

Maggie Gunter, Ph.D., president and executive director of LCF Research

Paul Gorman, M.D., associate professor in the department of medical informatics and clinical epidemiology at Oregon Health Sciences University (OHSU)

John Kravitz, M.H.A., assistant vice president of information technology at Geisinger Health System located in Danville, PA

Coming Soon!

A teleconference sponsored by HRSA

Meaningful Use III: Grantee Tips for Implementation

Sept 17, 2010, 2:00-3:30pm EST

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Thank You for Attending

This event was brought to you by the
AHRQ National Resource Center for Health IT

The AHRQ National Resource Center for Health IT promotes best practices in the adoption and implementation of health IT through a robust online knowledge library, Web conferences, toolkits, as well as AHRQ-funded research outcomes.

A recording of this Web conference will be available on the AHRQ National Resource Center Web site within two weeks.

<http://healthit.ahrq.gov>

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