

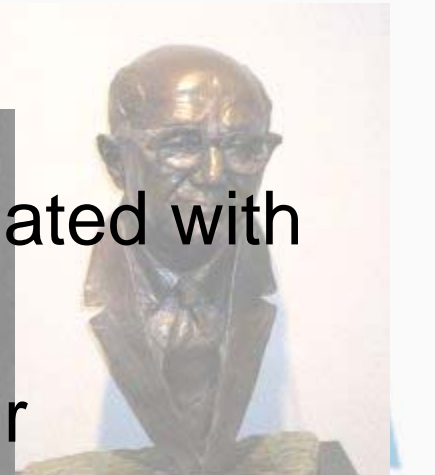
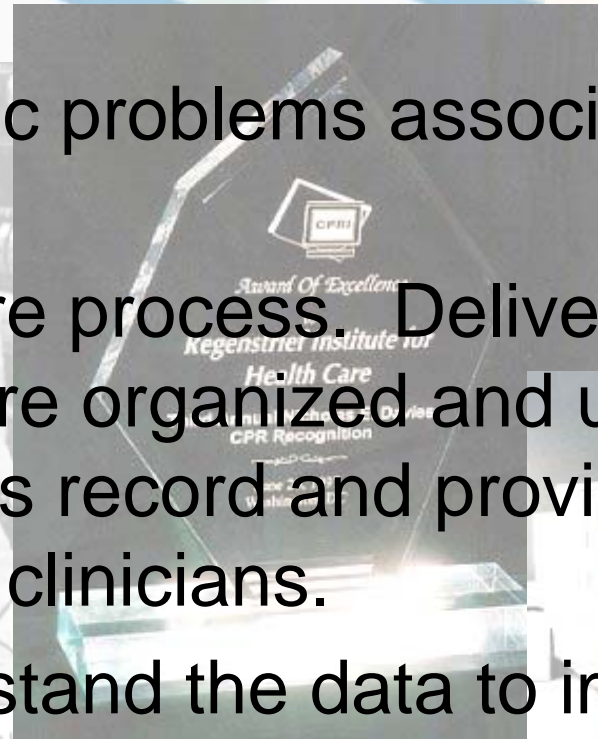
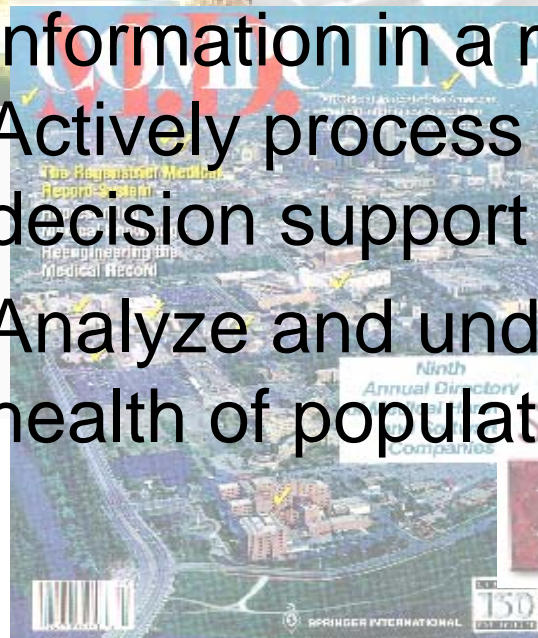
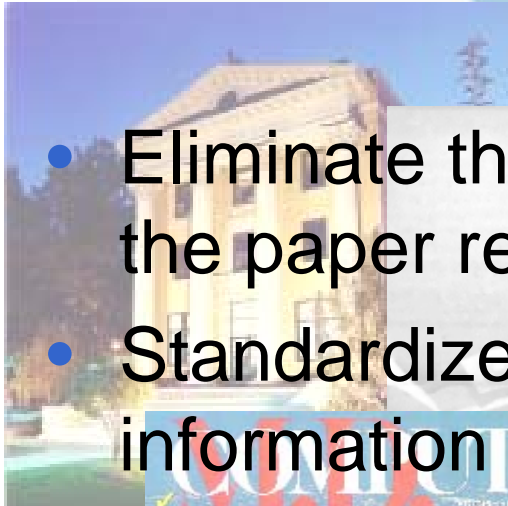
Indiana Network for Patient Care: Operational & Sustainable

J. Marc Overhage, MD, PhD, FACP, FACMI

President and CEO, Indiana Health Information Exchange
Professor of Medicine, Indiana University School of Medicine
Senior Investigator, Regenstrief Institute

Regenstrief Institute

- Eliminate the logistic problems associated with the paper record
- Standardize the care process. Deliver information in a more organized and useful way. Actively process this record and provide decision support to clinicians.
- Analyze and understand the data to improve the health of populations



INPC Project Goal

Demonstrate the feasibility, benefit and sustainability of a community wide electronic medical record system in patient care.



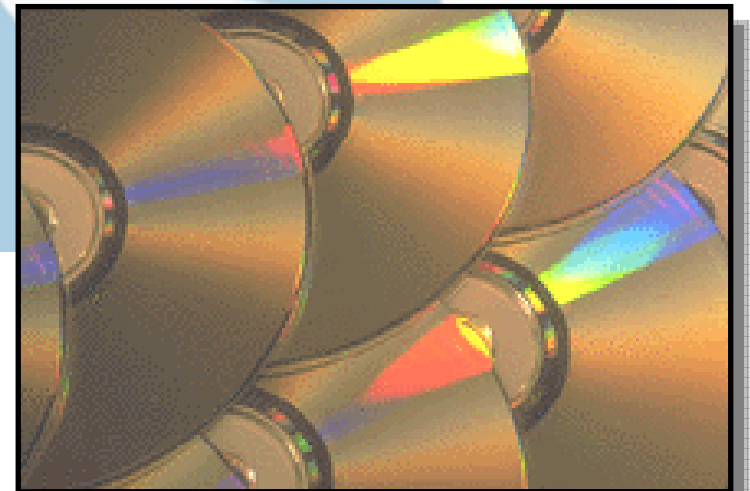
INPC Data sources

- 22 hospitals from the 5 major hospital systems (99% of non-office care) and community hospitals
- National and regional laboratories
- Local radiology centers
- All four homeless care systems
- Public health departments (county and state)
- Approximately 1/3 of ambulatory physicians



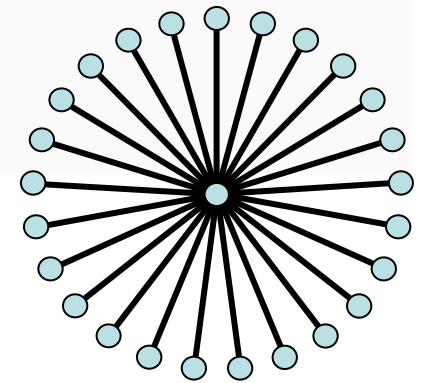
INPC Data

- In the system:
 - 7 million registration “events”
 - 48 million orders
 - 900 million coded results
 - 12 million dictated reports
 - 8.8 million radiology reports
 - 25 million prescriptions
 - 480,000 EKG tracings
 - 45 million radiology images



Data shared by all institutions

- All ED and outpatient visits
- All hospital discharges (dx, procedures)
- All inpatient laboratory results
- All outpatient laboratory results
- Immunizations
- All discharge summaries/admissions summaries
- All operative notes
- All radiology reports
- All surgical pathology reports
- Inpatient medications
- Tumor registry data



Consolidating the Silos



Public Health

Jane Doe's Immunizations:

3/1/04	DipTetaPur	30936-9
3/1/04	HemInfB	30938-5
3/1/04	PolioVir	33555-4
3/1/04	HepaB	30937-7

DTaP Dose Count:	30936-9
HIB Dose Count:	30938-5
IPV Dose Count:	33555-4
VZV Dose Count:	30943-5
MMR Dose Count:	30940-1
HepB Dose Count:	30937-7



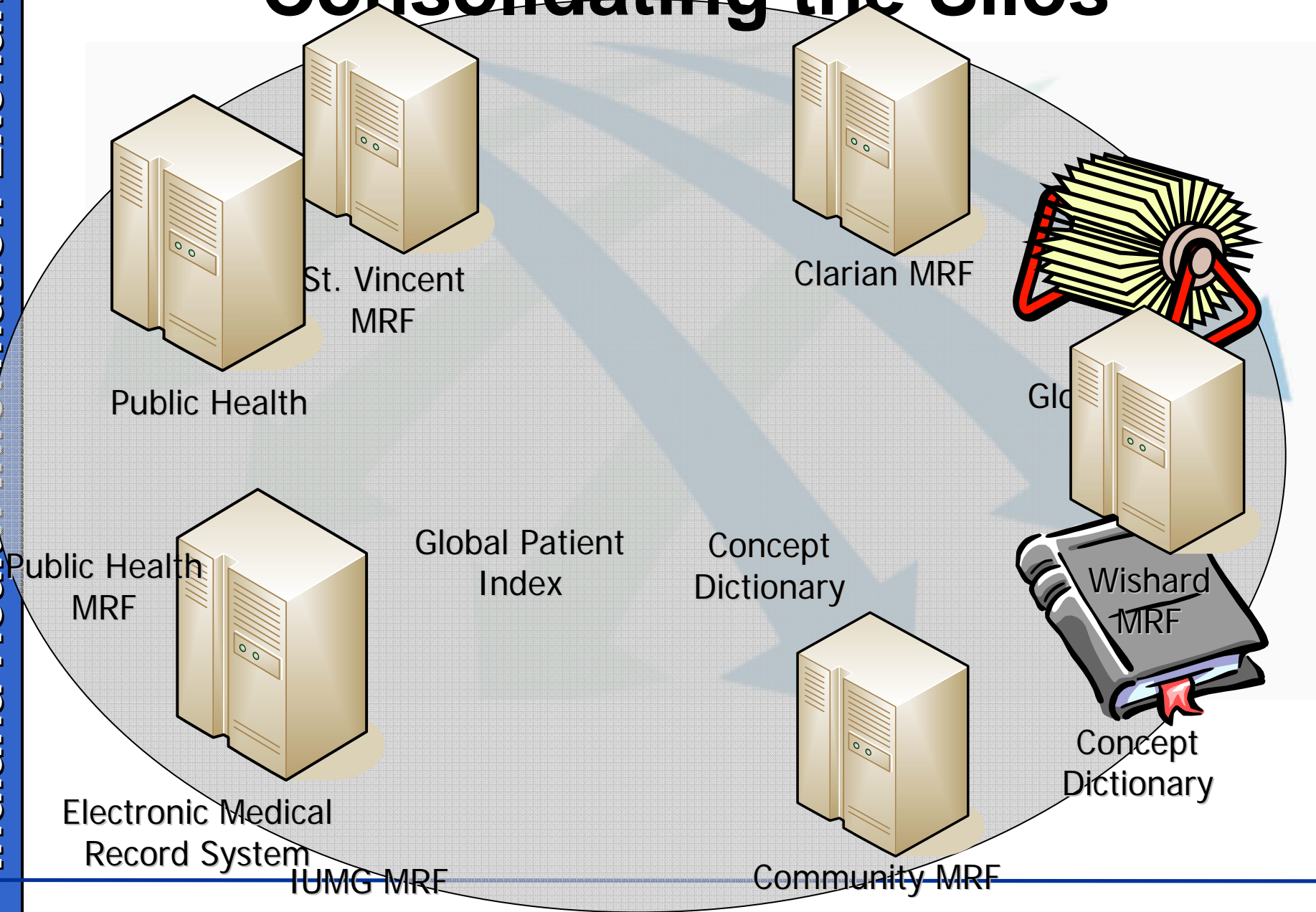
Hospital Electronic
Medical Record

Jane Ellen Doe's Shots:

5/1/04	DTaP Imm	30936-9
5/1/04	HIB Imm	30938-5
5/1/04	IPV Imm	33555-4
7/9/04	DTaP Imm	30936-9
7/9/04	IPV Imm	33555-4

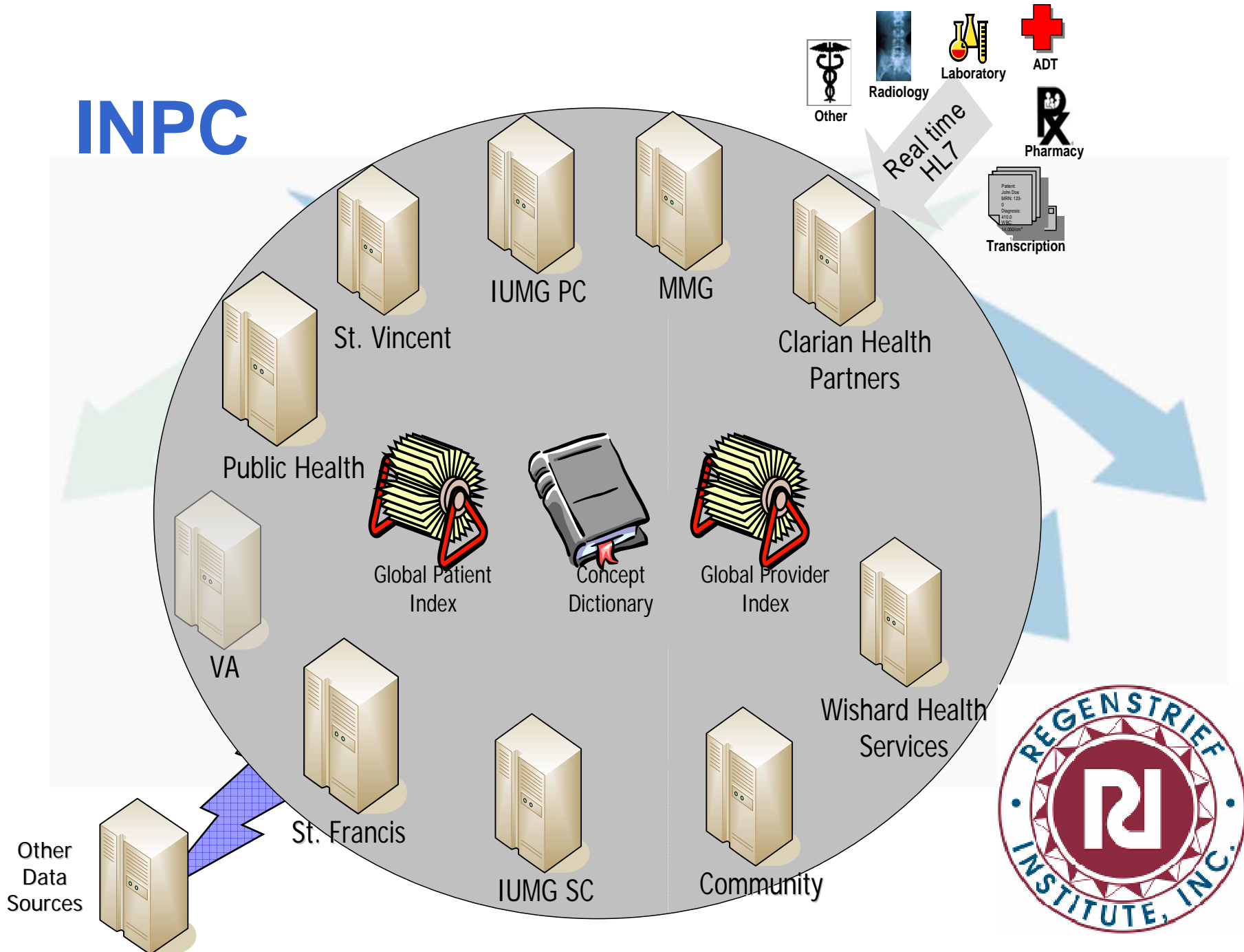
Global ID:	456356
Name:	Jane Ellen Doe
Lots of Demographics..	
MRF1 ID:	OU81247
MRF2 ID:	4564356
PH MRF ID:	123LMNOP
MRF3 ID:	6789XYZ

The Indiana Network for Patient Care Consolidating the Silos



Indiana Health Information Exchange

INPC



Sustainability



Founded in 1969 by Sam Regenstrief
Affiliated with IU School of Medicine
~\$12M annual budget largely from federal grants
Pioneers in medical informatics
Standards: HL7, LOINC
EMRs: RMRS, INPC

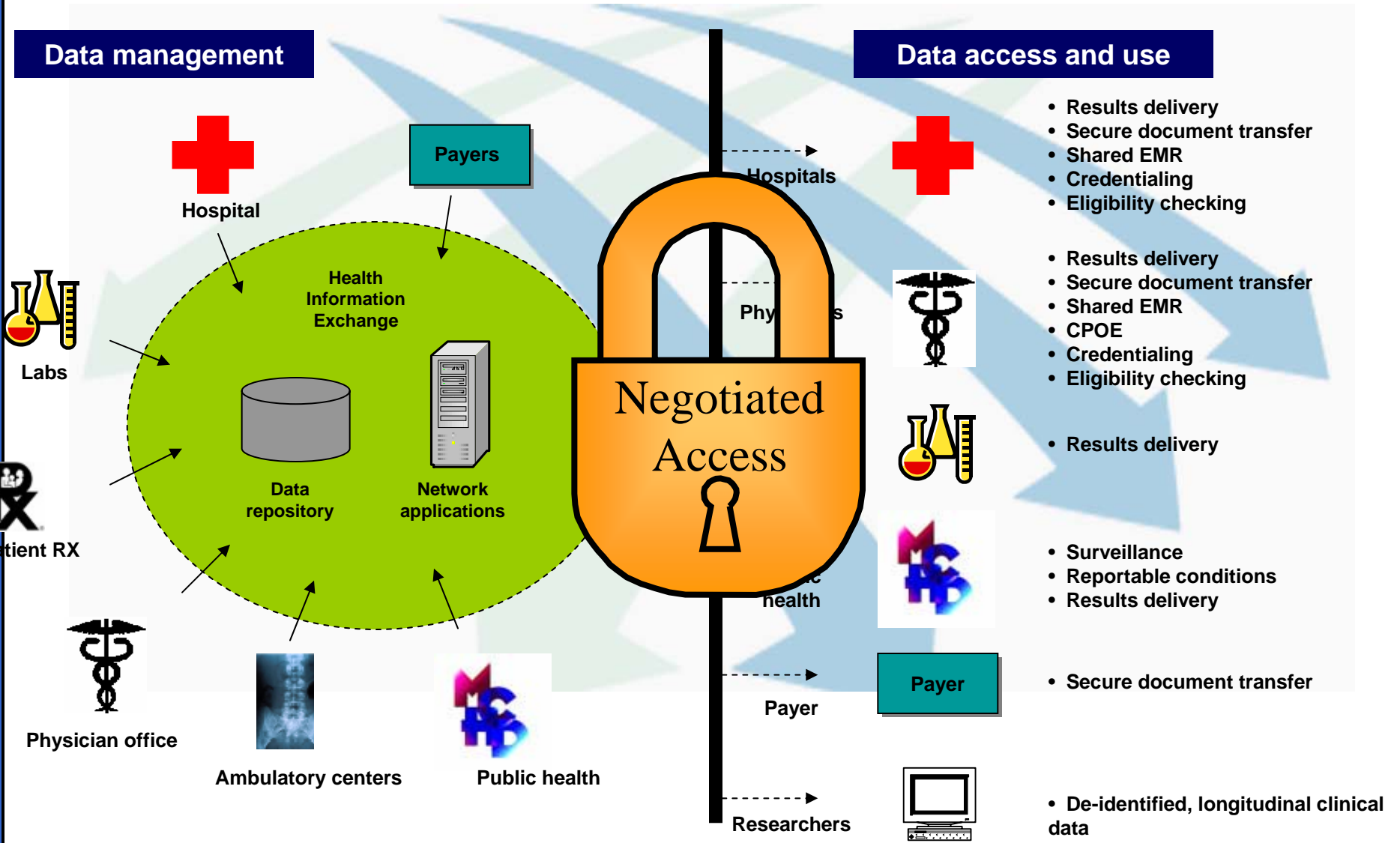


Founded in 1999 by 50 community physicians – Central Indiana Coalition to Reinvent Health Care
Early seed funding from Health & Hospital Corporation of Marion County
Initiated community clinical messaging concept



Founded in 2002 by the Central Indiana Corporate Partnership
Economic development organization promoting academic/industry collaboration in life sciences

Data Reuse



Services (Data Re-use)

- Clinical abstracts
- Results review
- Clinical messaging
- Medication history/Medication reconciliation
- Clinical quality data services
- Research
- Electronic laboratory report for public health
- Syndromic (statistical) surveillance
- Adverse Drug Event (ADE) detection
- Integration efficiencies





**Clinical Abstract &
Results Review**

DEMO,JOHNATHAN DOE

#99999999-8 Phone:925-1443 Age:54yr Race:B Sex:M

EMERGENCY CARE ABSTRACT

ER CHIEF COMPLAINT

VOMITING/DIARRHEA/BACK PAIN/HEADACHE 06-MAY-98

HISTORY & PHYSICAL

DX & COMPLAINTS
 diabetes mellitus
 TB active
 anemia othr
 foot ulcer[s]
 urine retention
 decubitus ulcer

E.R. DIAGNOSIS
 hyperglycemia
 otitis media
 crush injury

BLOOD TYPE

PRENATAL ABO RH
 INDIRECT AGT NEGATIVE
 Rh positive
 ABO GROUP AB
 ANTIBODY SCREEN neg

VITALS

OUTPATIENT VITALS
 WEIGHT LBS 98 LBS
 SYS BP SITTING 116 MM HG
 DIAS BP SITTING 81 MM HG
 PULSE 71 /MIN
 TEMPERATURE 98.7 (a) DEG F
 (a) From MEDICINE

INPATIENT VITALS
 WEIGHT AUTO 91.6 LBS
 TEMP AUTO ORAL 97.5*L DEG F
 PULSE AUTO 80 /MIN
 RESP RATE AUTO 20

CHEMISTRY (continued)

14-JAN-97 CHEM 16
 SGPT (ALT) 28 UNITS
 CK 109 UNITS
 AMYLASE <30*L UNITS
 GGT 40 IU/L

HEMATOLOGY

BLOOD CELL PROFILE
 24-APR-97 WBC 3.5*L THOU/CU MM
 RBC 3.88*L MILL/CU MM
 HGB 12.5*L (a) G/DL
 HCT 37.3*L %
 MCV 95.9*H fL
 MCH 32.2*H PG
 MCHC 33.6 G/DL
 RDW 15.5*H %
 (a) From IUMC Lab

DIFFERENTIAL
 24-APR-97 PLT EST DECREASED

COMMON HEMATOLOGY STUDIES
 24-APR-97 PLT CT 82.0*L THOU/CU MM
 RETIC CT 5.7*H %
 VITAMIN B12 LVL 1013 PG/ML
 FOLATE LVL 6.0 NG/ML
 IRON-SATURATION 38*H %

ROUTINE COAG
 24-APR-97 PT CONTROL 12.0 SEC
 30-JUL-87 PROTINE (ISI1) 17.8*H SEC
 24-APR-97 INR 1.4*H
 APTT PATIENT DUPLICATE (a) SEC

URINE STUDIES (continued)

COMMON URINE STUDIES
 27-JAN-91 CREAT:URN 47 MG/DL
 14-AUG-90 CREAT-TM:URN 0.56*L G/TV
 16-DEC-89 CREAT CLR RATE NO SPECIM(a) ML/MIN
 24-APR-97 CREAT SER 0.6 MG/DL
 16-DEC-89 CREATININE:URN 19.0*L MG/DL
 (a) NO SPECIMEN RECEIVED IN LAB

THYROID STUDIES

05-JAN-90 THY T3 UPTAKE RATIO 0.78*L

PULMONARY

BLD GAS PANEL 1
 24-APR-97 TEMPERATURE 98.7 (a) DEG F
 HGB 12.5*L (b) G/DL
 (a) From MEDICINE
 (b) From IUMC Lab

CARDIOVASCULAR

CARDIAC ECHO
 22-NOV-89 cardiomegaly mod
 LV motion nml
 EKG 30-MAR-98
 normal sinus rhythm, normal ECG

RADIOLOGY/NUCLEAR MED

11-FEB-91 CHEST PA & LATERAL
 HOSP right
 fluid NOS

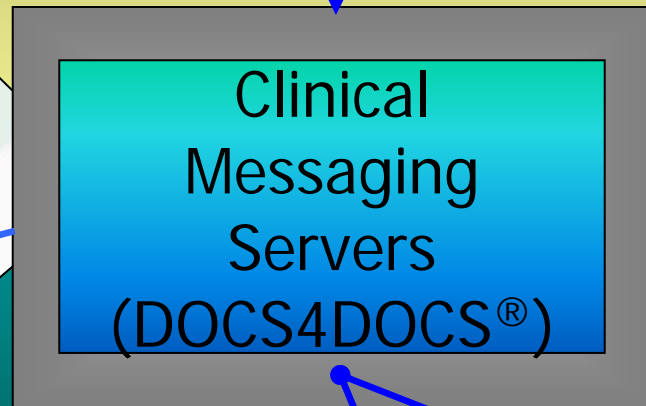
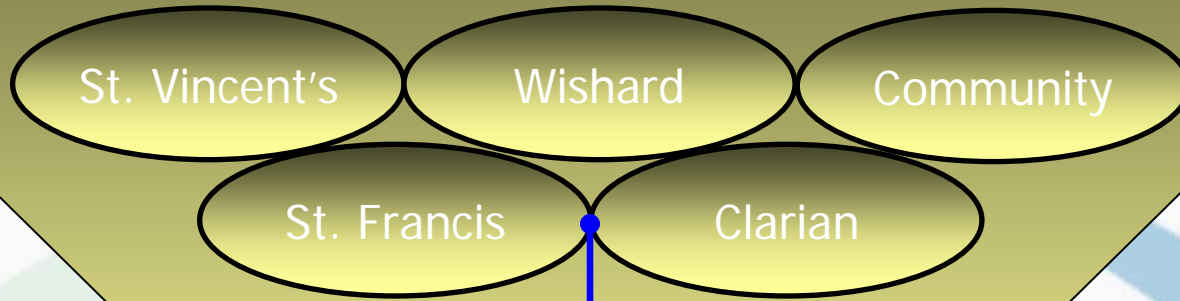


Clinical Messaging

IHIE Clinical Messaging System Overview

HEALTH SYSTEMS – 21 HOSPITALS

Lab Results, Radiology Reports, Transcribed Reports, EKG Reports, ADT Transactions



ANCILLARY DATA SOURCES



PUBLIC HEALTH



Indiana Health Information Exchange

COMMUNITY STANDARDS

- HL-7 Data
- Provider Index
- Patient Index
- Access Audit

LEGACY RESULT DELIVERY



Facsimile Web-based Inbox EMR

PHYSICIAN ACCESS TO CLINICAL RESULTS

Community Health Network - Microsoft Internet Explorer provided by Community Health Network

File Edit View Favorites Tools Help

Address <http://portal.chi.ecommunity.com/secure/CBIprofile/FinishLogin.jsp>

Community Business Innovations

InComm NETWORK INTRANET

Hide Menu Quick Mail Quick Links Dashboard Logout

- Clinical Applications
 - Centricity CIS
 - Centricity CIV
 - Sovera HIM
 - CV Web
 - IDX / Stantor
 - IHIE**
 - Logon
 - SoftMed
 - Tandem
 - Tandem Census
 - Tandem Telnet
- Applications
- Clinical Reference
- Directories
- Reports
- On-line Forms & Documents
- Communities
- Departments
- Network Reference
- Downloads
- News & Information

AROUND THE NETWORK

PHONE DIRECTORY

for Last Name

ADVANCED SEARCH

INGEMM SEARCH/FAQ

What is this?

Don't know where to find something? Enter a question or search term here:

Go!

Once authenticated, the user access's clinical messaging through a link on a provider's portal or IHIE's community portal

IHIE Portal

Welcome to the Indiana Health Information Exchange portal.

Please enter your username and password, then press "Log in".

Username:

Password:

Destination: Go directly to D0CS4D0CS® Edit my IHIE portal profile

[Forgot your password?](#)

2004 Fire & Safety

2004 Hazard Communication

2004 NRCF Training

DOCS4DOCS®

Smiley, Amanda (Docs4Docs/ASMILEY)
Iumg - Pc Family Practice Center

General

- [Inbox](#)
- [Inbox History](#)
- [Report Search](#)
- [Change Password](#)
- [System Messages](#)
- [Help](#)
- [Logout](#)

Document INBOX

Holds all new documents.

Filters:

Actions:

	Provider	MRN	Patient Name	Arrival	Doc Type	Doc Details
<input type="checkbox"/>	Akosa Anthony N			2004 07/14 10:16 PM	Radiology (Clarian)	Xray Chest PA and Lateral
<input type="checkbox"/>	Akosa Anthony N			2004 07/14 10:16 PM	Radiology (Clarian)	Mammogram Screening Bilateral Digital DDI (Direct Digital Image)
<input type="checkbox"/>	Akosa Anthony N			2004 07/16 10:38 PM	Radiology (Clarian)	Xray Knee Standing
<input type="checkbox"/>	Akosa Anthony N			2004 07/16 10:38 PM	Radiology (Clarian)	Xray Foot 2 Views
<input type="checkbox"/>	Akosa Anthony N			2004 07/16 10:28 PM	Radiology (Clarian)	Xray Knee 3 Views
<input type="checkbox"/>	Akosa Anthony N			2004 07/14 10:16 PM	Radiology (Clarian)	Xray Chest PA and Lateral
<input type="checkbox"/>	Akosa Anthony N			2004 07/16 10:28 PM	Radiology (Clarian)	MR Brain - Head - Without then With Contrast
<input type="checkbox"/>	Akosa Anthony N			2004 07/08 03:11 PM	Radiology (Clarian)	Xray Abdomen KUB
<input type="checkbox"/>	Akosa Anthony N			2004 07/19 10:44 PM	Radiology (Clarian)	Xray Elbow
<input type="checkbox"/>	Akosa Anthony N			2004 07/13 10:26 PM	Radiology (Clarian)	Xray Hand Min 3 Views
<input type="checkbox"/>	Akosa Anthony N			2004 07/15 10:37 PM	Radiology (Clarian)	Xray Chest PA and Lateral
<input type="checkbox"/>	Akosa Anthony N			2004 07/16 10:27 PM	Radiology (Clarian)	Xray Wrist AP and Lateral
<input type="checkbox"/>	Akosa Anthony N			2004 07/09 03:36 PM	Radiology (Clarian)	US Renal
<input type="checkbox"/>	Allen Deborah I			2004 07/12 05:31 PM	Radiology (Clarian)	Xray Spine Scoliosis AP and Lateral

DOCS4DOCS XUE,JACK
 LAB AUDIT

- General*
- New Documents
 - Document Archive
 - Document Search
 - Change Practice
 - Change Password
 - Help
 - Logout
- Practice Admin*
- Add/Remove Users
 - Add/Remove Providers
 - Provider Subscriptions
 - Subgroup Management
- Administrative*
- Add User
 - Remove User
 - Edit User
 - Provider Master Entry
 - Add Practice
 - Edit Practice
 - Remove Practice
 - Email Reports
 - System Status
 - Intake Status
 - Exception Editor
 - Fax Status


Bookmark ▾

100%

Print, Copy, Paste, Undo, Redo, Home, Stop, Back, Forward, Refresh, Home, Search, Favorites, Media, History, Mail, Print

- Bookmarks**
- Providers
 - BAELE, JOSEP
 - DALY, ROBERT
 - ROUGRAFF, BF
 - ROUGRAFF, BF
 - ROUGRAFF, BF
 - ROUGRAFF, BF
 - ROUGRAFF, BF
 - ROUGRAFF, BF
 - ROUGRAFF, BF
 - (Table of Contents)
 - Patients
 - MKCHEMTEST1
 - MKFATPT1A,TE
 - MKFATPT1A,TE
 - MKHEMTEST1,
 - MKLABTEST1,T
 - MKNCH1,TESTM
 - MKROCHE,TES
 - MKROCHE,TES
 - (Table of Contents)
- Thumbnails**
- Signatures**

Methodist Hospital
 Department of Pathology and
 Laboratory Medicine
 1701 North Senate Boulevard
 Indianapolis, IN 46206



NAME: MKHEMTEST1,TESTMH
 MRN: 0072272030
 DOB: 09/10/1967 SEX: Female
 HOME: (457)348-9794

Copy For: ROUGRAFF BRUCE

Date: Mon 02/23/2004 01:23 PM Accession #04-054-000014 Account: 000100010321
 Ordered by: ROUGRAFF, BRUCE T Location: H RTP

*** Hemogram with Platelet Count ***

Procedure			Units	Ref Range
WBC	22.2	H	k/cumm	[4.5-11.5]
RBC	3.23	L	million/cumm	[4.00-5.40]
Hgb	9.8	L	gm/dL	[12.0-15.0]
Hct	30.7	L	%	[35.0-49.0]
MCV	95	H	fL	[80-94]
MCH	30.3		pg	[26.0-32.0]
MCHC	31.9	L	gm/dL	[32.0-36.0]
RDW	16.0	H	%	[11.5-14.5]
Platelet	298		k/cumm	[150-450]
MPV	9.0		fL	[6.3-9.6]

All lab performed at Clarian/Methodist Lab 1701 N Senate Blvd Indpls, IN 46202

7 of 9 8.5 x 11 in



Medication Reconciliation

Patient Medication History:

Date: 12/07/2004

Patient Id: 2222

Name: SCHNUR, BERT L

Address: 63050

DOB: 04/19/1945

Gender: Male

Medication History Date Range:

12/08/2003 - 12/07/2004

DISCLAIMER: Certain information may not be available or accurate in this report, including over-the-counter medications, low cost prescriptions, prescriptions paid for by the patient or non-participating sources, or errors in insurance claims information. The provider should independently verify medication history with the patient.

Summary:

Drug Name	Oldest Fill Date	Most Recent Fill Date	#of Fills
DIGITEK 250 MCG TABLET	08/01/2003	08/01/2003	1
DIGITEK 125 MCG TABLET	02/01/2003	07/01/2003	3
LANOXIN 50 MCG/ML ELIXIR	04/01/2003	05/01/2003	2

Pharmacies:

Key Reported Pharmacies	Pharmacy Phone
1 ADVANCERX.COM	877-831-1324
2 WAL-MART #2514	651-456-6325

Key Reported Prescribers

A JEFFRIES, RHONDA

Detail Information:

DIGITEK 250 MCG TABLET (DIGOXIN)

Fill Date	Qty	Days	Prescriber	Pharmacy	Source
08/01/2003	30	30	A	2	RXHUBPBM

DIGITEK 125 MCG TABLET (DIGOXIN)

Fill Date	Qty	Days	Prescriber	Pharmacy	Source
07/01/2003	30	30	A	2	RXHUBPBM
06/01/2003	30	30	A	2	RXHUBPBM
02/01/2003	30	30			RXHUBPBM

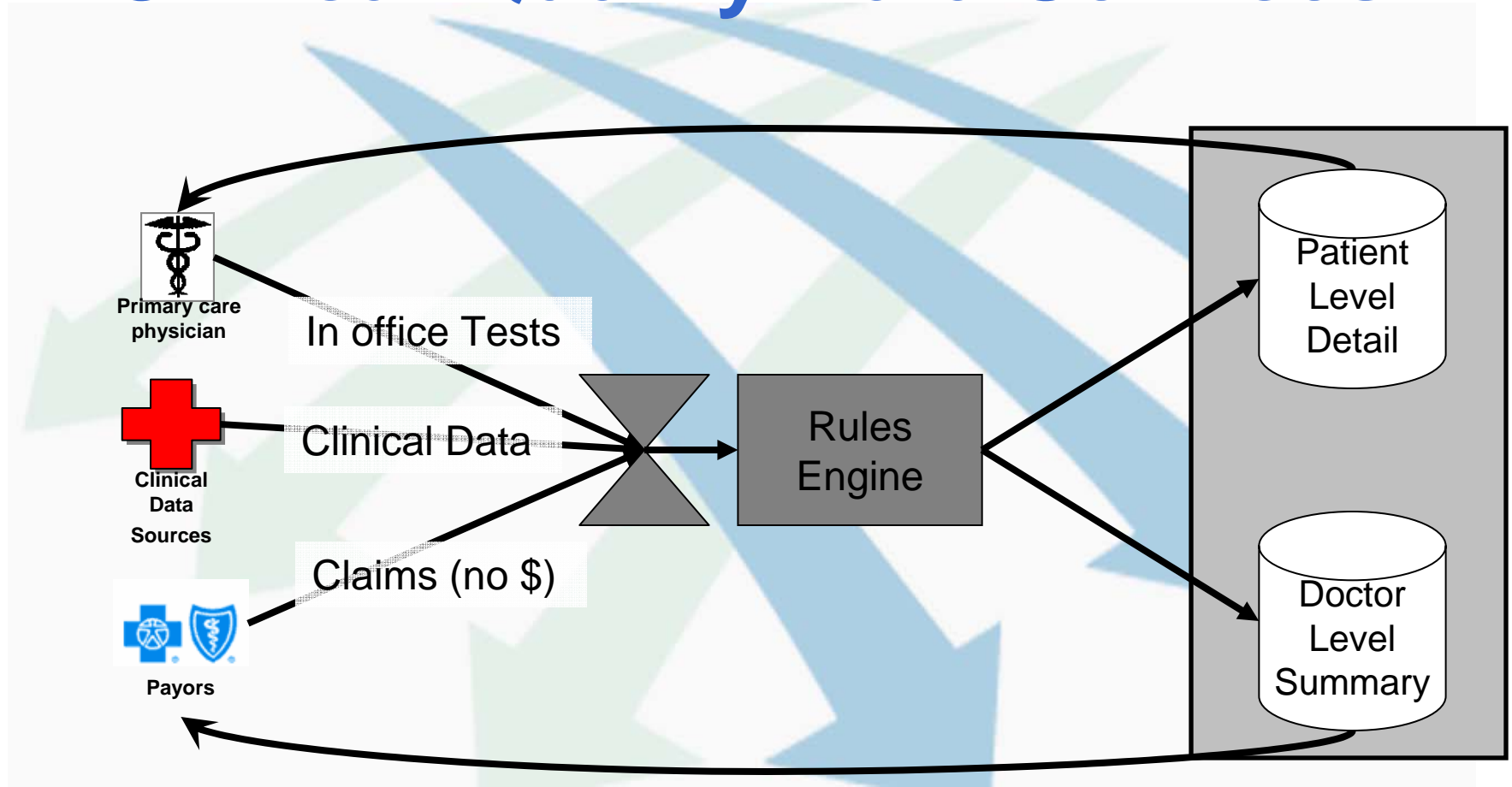
LANOXIN 50 MCG/ML ELIXIR (DIGOXIN)

Clinical Quality Data Services

- Pay-for-Value with common measures across payors including efficiency and participation
- Commercial, Medicaid and Medicare Payors (we have a number of payors) playing leadership role
 - 600,000 lives
- Combines clinical and claims data
- Initially focused on primary care
 - Cardiovascular and Oncology to follow

Coming Spring 2006!

Clinical Quality Data Services



Benefits

- Physicians
 - Full detail on their own patients
 - Summary comparisons
 - Overall
 - Population (commercial, Medicare, Medicaid)
- Health Plans and PHOs
 - Full detail on their own members
 - Summary information across all patients by:
 - Participating physician
 - Specialty
 - Population (commercial, Medicare, Medicaid)

Start Up and Operations Costs

- Start up costs
 - \$3 - \$4 million
 - being raised from foundations and grants
- Estimated operating costs
 - \$2 million per year
 - Does not include participation/performance incentives
 - Significant fixed costs that can be shared more widely as additional participants join

Operations Funding Model

- Assume only 500,000 out of 1,700,000 lives have a “sponsor”
- Total approximately \$0.33 PMPM for data services

Proposed Operations Funding

Physicians

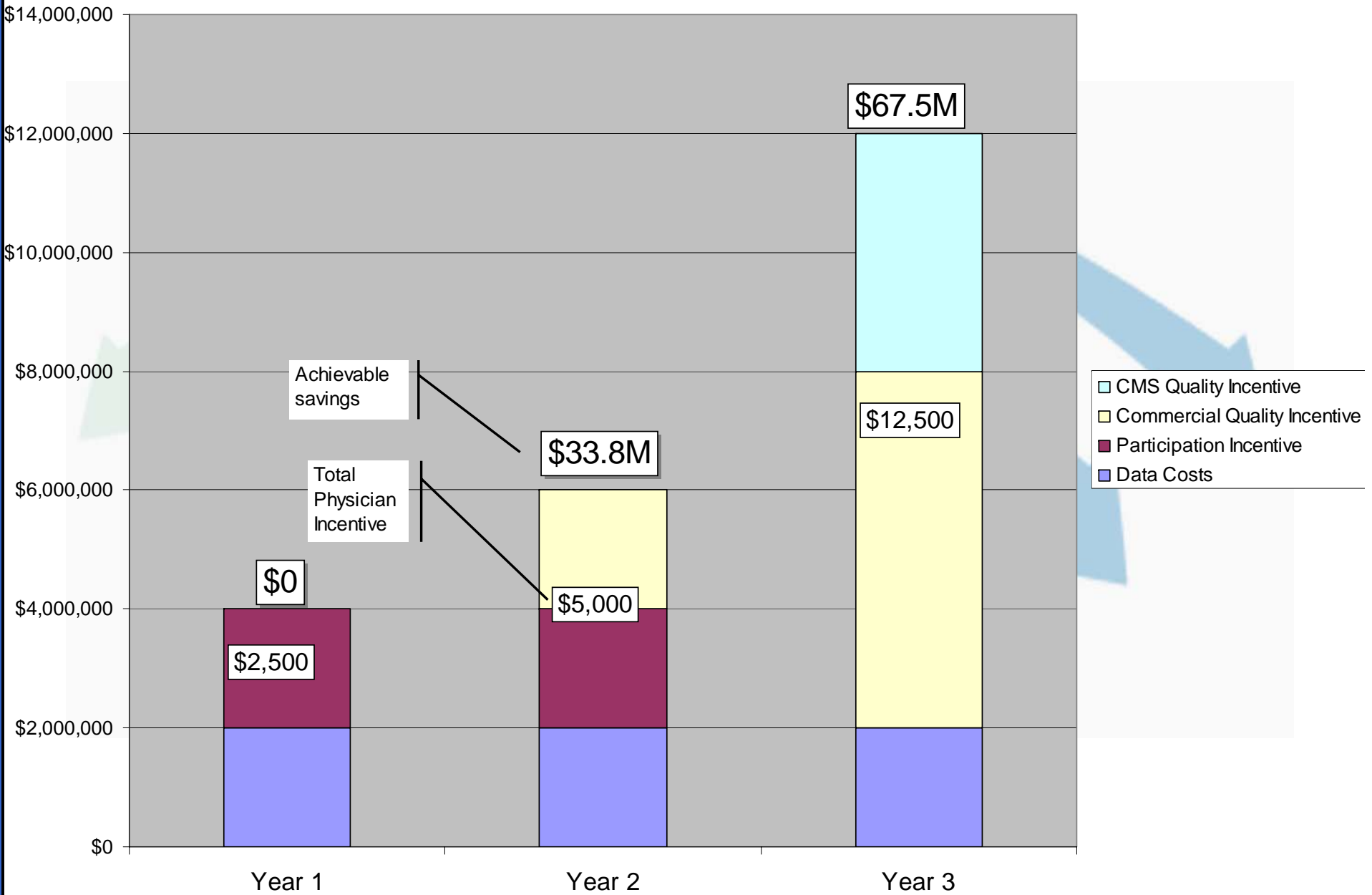
- Paid-to-play first and second year to
 - to use information to manage patient care
 - provide necessary information (lab values)
 - Target incentive \$2,500 per year per provider
 - depending upon proportion patients covered by program
- Participation Fee
 - \$1,000 per FTE
 - Provides incentive to actively engage
 - Ensures legitimate “seat at the table”)

Proposed Operations Funding

Health Plans and/or PHOs

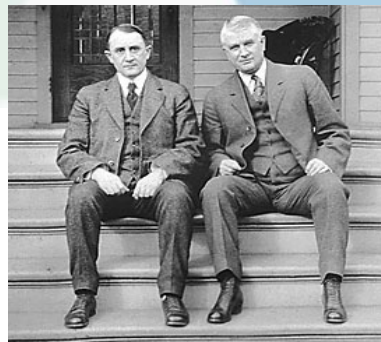
- Operations
 - \$0.21 to \$0.25 PMPM
 - depends upon total patient volume
- Participation incentives
 - pay to play first two years
 - \$0.15 to \$0.30 PMPM to participating physicians
 - 2.5% fee schedule increase
 - Pay for value begins in year 2 and grows in year 3
 - Medicare incentives appear in year 3

Indiana Health Information Exchange





It (has become) necessary to develop medicine as a cooperative science; the clinician, the specialist, and the laboratory workers uniting for the good of the patient. Individualism in medicine can no longer exist.



William James Mayo, M.D.,
Commencement Address,
Rush Medical College,
Chicago, IL (1910)

J. Marc Overhage, MD, PhD

Indiana Health Information
Exchange, Inc.

351 West 10th St., Suite 252
Indianapolis, IN 46202

Voice: 317-278-7423

Facsimile: (317) 278-4753

E-mail: marc.overhage@ihie.org

Web address: www.ihie.org

