

**Strategic and Operational Plan
For Health Information Exchange
In the State of Indiana**



CONTACT:

Andrew VanZee
Statewide Health IT Director
Indiana Family and Social Services Administration
402 W. Washington Street W 451
Indianapolis, Indiana 46204
(317) 232-1165 (office)

STRATEGIC PLAN TABLE OF CONTENTS

S.1.	Introduction to the Strategic Plan.....	S-1
S.2.	Environmental Scan	S-3
	S.2.1. Environmental Scan Introduction	S-3
	S.2.2. Administrative HIE Readiness.....	S-6
	S.2.3. Clinical HIE Readiness.....	S-7
	S.2.4. Electronic Prescribing HIE Readiness.....	S-23
	S.2.5. Public Health HIE Readiness	S-24
	S.2.6. Quality Reporting Readiness	S-28
	S.2.7. Other Statewide Readiness	S-30
S.3.	HIE Development and Adoption.....	S-32
	S.3.1. HIE Vision, Mission, Goals and Objectives.....	S-35
	S.3.2. HIE Strategies.....	S-36
S.4.	Health Information Technology (HIT) Adoption across Indiana	S-43
	S.4.1. EHR Adoption	S-43
	S.4.2. E-Prescribing Adoption	S-46
S.5.	Medicaid Coordination	S-49
S.6.	Coordination of Medicare and Federally Funded, State Based Programs.....	S-53
S.7.	Participation with Federal Care Delivery Organizations	S-54
S.8.	Coordination of Other ARRA Programs	S-56
	S.8.1. Beacon	S-56
	S.8.2. HIT Regional Extension Center.....	S-58
	S.8.3. Workforce Development Initiative.....	S-59
	S.8.4. Broadband Mapping and Access	S-61
	S.8.5. Medical Informatics Research	S-62
S.9.	Governance.....	S-64
	S.9.1. State Designated Entity.....	S-64
	S.9.2. Indiana HIT Coordinator.....	S-69
	S.9.3. Governance Model Description	S-70
	S.9.4. HIO Coordination and Collaboration.....	S-72
	S.9.5. Accountability and Transparency	S-73
S.10.	Finance	S-75
	S.10.1. Finance Model for IHIT.....	S-75
	S.10.2. Sustainability.....	S-75
	S.10.3. Financial Oversight and Control	S-80
S.11.	Technical Infrastructure	S-81
	S.11.1. Technical Approach	S-81
	S.11.2. Technical Architecture	S-86
	S.11.3. Interoperability	S-109
	S.11.4. Statewide Shared Services and Directories	S-111

S.11.5. Technical Relationships	S-112
S.12. Business and Technical Operations	S-113
S.12.1. Implementation	S-113
S.12.2. Project Management Resources	S-114
S.12.3. Leverage Existing HIE Capacities and Services.....	S-117
S.13. Legal and Policy	S-118
S.13.1. Privacy and Security	S-118
S.13.2. State Laws	S-122
S.13.3. Policies and Procedures	S-124
S.13.4. Trust Agreements	S-125

OPERATIONAL PLAN TABLE OF CONTENTS

O.1.	Introduction	O-1
O.2.	Operational Plan: General Requirements	O-1
O.2.1	Gap Analysis.....	O-1
O.2.2	Project Resource Planning.....	O-7
O.2.2.1	Connectivity Matching Grant Program Project Plan	O-8
O.2.2.2	HIO to HIO Connectivity Project Plan	O-12
O.2.2.3	Data Mapping and Normalization Project Plan.....	O-15
O.2.2.4	Privacy and Security Policy Project Plan	O-18
O.2.2.5	Web Communications Tool Project Plan.....	O-21
O.2.2.6	CHIRP Bi-direction HIO/EMR Interface Development Project Plan..	O-23
O.2.3	Health Plan Survey	O-30
O.2.4	Coordinate with ARRA Programs	O-32
O.2.5	Coordination with Other States	O-38
O.3.	Governance.....	O-40
O.3.1	Governance and Policy Structures	O-40
O.3.2	Organizational Structure and Staffing.....	O-51
O.4.	Finance	O-57
O.4.1	IHIT Operating and Project Budgets.....	O-58
O.4.2	IHIT Staffing Plan.....	O-68
O.4.3	Controls and Reporting	O-68
O.4.4	Evaluation Process	O-69
O.5.	Technical Infrastructure	O-70
O.5.1	Standards and Certifications	O-70
O.5.2	Technical Architecture	O-71
O.5.3	Plans for Protection of Health Data	O-75
O.5.4	Technology Deployment	O-89
O.6.	Business and Technical Operations	O-92
O.6.1	Current HIE Capacities	O-92
O.6.2	State-Level Shared Services and Repositories	O-93
O.6.3	Standard Operating Procedures for HIE.....	O-94
O.7.	Legal/Policy	O-95
O.7.1	Establish Requirements	O-96
O.7.2	Privacy and Security Harmonization.....	O-98
O.7.3	Policies and Procedures	O-99
O.7.4	Enforcement Mechanisms.....	O-102

APPENDIX TABLE OF CONTENTS

Appendix A:	Glossary of Terms.....	A-1
Appendix B:	Indiana Health Information Technology, Inc. ByLaws.....	A-3
Appendix C:	Charter of the Data Provision and Use Council	A-14
Appendix D:	Charter of the Patient Advocacy Council.....	A-17
Appendix E:	Charter of the HIE Policy and Technical Advisory Council	A-19
Appendix F:	Charter of the Research and Education Council	A-22
Appendix G:	Charter of the Executive Committee.....	A-24
Appendix H:	IHIT Nondiscrimination Policy	A-26
Appendix I:	Biography- Andrew VanZee	A-28
Appendix J:	Biography Jay McCutcheon	A-29
Appendix K:	Biography Robert Petersen.....	A-30
Appendix L:	Biography Emily Styron.....	A-31
Appendix M:	Biography Sandra Sumner.....	A-32
Appendix N:	IHIT HIE Project Solicitation Announcement	A-33
Appendix O:	Letter from Governor Mitch Daniels naming IHIT as Indiana's HIE SDE	A-35
Appendix P:	Support Letter from Indiana's state Medicaid office.....	A-36

STRATEGIC PLAN

S.1. Introduction to the Strategic Plan

The State of Indiana has made significant progress during the last 15 years in establishing an effective sustainable network of health information exchange (HIE) to support healthcare providers and enhance the quality of the state's healthcare system. The Governor of Indiana has established Indiana Health Information Technology, Inc. (IHIT) as the state designated entity to build on this early work of the five successful private sector health information organizations (HIOs) (HealthBridge, HealthLINC, Indiana Health Information Exchange (together with its partner the Regenstrief Institute), Medical Informatics Engineering, and Michiana Health Information Network), and has named a Statewide HIT Director to lead this effort. Together with healthcare stakeholders across the state, IHIT has developed this Strategic and Operational Plan to achieve the following important objectives and outcomes.

Objectives

- Develop an effective strategy for increasing HIE adoption in rural and underserved areas across the state, leading to statewide HIE coverage;
- Expand and develop additional health information exchange services necessary for achieving "meaningful use" of health information technology;
- Establish a governance structure that achieves broad-based stakeholder collaboration with transparency, buy-in and trust;
- Identify a path to continued sustainability by managing financial resources necessary to fund the State's HIE Strategic and Operational Plan;
- Expand the technical infrastructure capabilities that physically enable health information exchange in a secure and appropriate manner; and
- Facilitate the adoption of appropriate privacy and security frameworks for health care information on behalf of consumers, patients and providers.

Outcomes. This approach will generate four critical outcomes that will advance the quality of Indiana's health care delivery system:

- The expansion of HIE services to underserved areas;
- Demonstrative improvement in the continuity of care through statewide electronic access to patient health care information by various providers in the health care delivery system;

- Lower health care costs and improved patient safety through better care coordination, improved healthcare provider workflow efficiency, and the reduction of redundant clinical tests, paper-based administrative activity, and results reporting.

S.2. Environmental Scan

Indiana Health Information Technology (IHIT), the State of Indiana designated entity for the development of health information exchange (HIE) services, conducted an in-depth environmental scan to understand better the current readiness to expand HIE services in Indiana. The scan discusses the readiness of Indiana's highly developed HIE network of five health information organizations (HIOs) to provide clinical and administrative HIE services to Indiana health care providers. This includes the degree to which Indiana health care providers have connected to the clinical network and any geographic patterns and barriers to their HIE service adoption. The scan also describes the financial sustainability achieved by the five HIOs.

The subsections below discuss the degree to which the HIE services provided by the five HIOs and other specialized HIE organizations (e.g. SureScripts) are utilized, and the readiness of the HIE network to support and foster clinical summary exchange for care coordination and improvement, clinical laboratory ordering and results delivery, public health reporting (i.e., immunizations and notifiable laboratory results), quality reporting; electronic prescribing and medication fill history utilization, and the status of clinical data repository development and interoperability initiatives. The scan also evaluates the readiness of the administrative network of providers, payers, and state agencies to support eligibility and claims transaction processing, human capital development, and other statewide HIE initiatives. Health Information Technology (HIT) resources that are currently being used in Indiana are discussed more thoroughly in the HIT Adoption section of the Strategic and Operational Plan.

S.2.1. Environmental Scan Introduction

Indiana has developed one of the strongest and most robust health information technology sectors in the United States. Extensive research, conducted by the Regenstrief Institute at Indiana University and other leading research university programs, together with early research and development leadership from five private sector Health Information Organizations (HIOs- HealthBridge, HealthLINC, IHIE, Med-Web, and MHIN), have led to the establishment of successful health information exchanges that have emerged as nationally recognized models. Indiana's exchanges have been built to provide services that create value for a defined group of Indiana healthcare providers that is willing to provide financial compensation. As a result, the five Indiana HIOs, while diverse in many aspects of their organizational structures, focus, and operations, all offer defined services to Indiana's health care community that provide long-term sustainability and growth for the HIOs individually and the State collectively.

Through these five exchanges: (1) more than 6.3 million clinical messages are exchanged every month; (2) more than 15,000 physicians statewide are part of Indiana's HIE networks; and (3) more than 12 million patient records are part of Indiana's HIE networks. Due to this innovative

approach, Indiana is the only state in the nation with multiple organizations awarded a Nationwide Health Information Network State/Regional contract, a Nationwide Health Information Network trial implementation contract, a Medicaid Transformation Grant, an HIE Bio-surveillance contract from the Centers for Disease Control, two Regional HIT Extension Center grants, a Beacon Communities Cooperative Agreement Program grant, a competitive award for the training of an HIT skilled workforce, and a grant to train nurses and allied health professionals in HIT, in addition to the State HIE Cooperative Agreement Program grant.

Key Elements of Health Information Exchange in Indiana

As the five Indiana HIOs have developed and implemented their sustainable business models, they have expanded their services beyond simple routing of health information. Three key elements of HIE have emerged: 1) providing applications for specific uses of health information, 2) routing of health information between healthcare providers, and 3) storage of information for utilization by providers and other healthcare system participants. A fourth element, financial sustainability, has also been achieved by these five HIE organizations.

1. Providing Applications. Physician practices, hospitals, clinics, and other patient care providers have adopted a range of tools to receive electronic information as they have evolved their participation in electronic HIE. HIOs have adapted to the various capabilities and now deliver results either by fax, into an electronic “inbox” from which results can be printed, through a HIO-provided application (EMR-Lite web portals such as Axolotl or DOCS4DOCS for clinical messaging), or through an electronic interface with the various electronic medical record (EMR) systems. Other examples of HIO-provided applications include ambulatory order entry capability using Atlas technology and RXNT medication history tools interfaced with SureScripts.

2. Routing Health Care Information. Each HIO has developed standards and methods to ensure secure efficient information exchange, including a provider directory and master patient index. All five HIOs have developed the capability to route discrete data as well as reports and other structured and unstructured summary results, and some of them can route images as well. The HIOs route the data from data source institutions that generate or capture data about patients in the routine course of care, such as hospitals, laboratories, pharmacies and provider practices. While there is a wide diversity of clinical data that could potentially be exchanged, the five Indiana HIOs have focused on high-value data categories: (i) encounters, (ii) laboratory results, (iii) radiology results, and (iv) transcribed reports and dispensed medications. These data categories have been identified based on their importance in supporting clinical care and quality improvement. These data come from a variety of sources. Laboratory results, for example, are generated by national laboratories like Quest and LabCorp, by regional organizations like the South Bend Medical Foundation and DCL Laboratories, local laboratories, hospital outpatient laboratories, physician office laboratories and other sources. Integrating

data sources requires capabilities to semantically normalize structured data provided by the data sources, translate local code systems to national standards and manage exceptions that are generated. The HIOs deliver the data to physician practices and clinics such as rural health clinics, federally qualified health centers (FQHCs), and community health centers. The HIOs originally began these routing operations in geographically disparate areas of the state (HealthBridge in southeast Indiana around the Cincinnati metropolitan area, HealthLINC in Bloomington, IHIE in Indianapolis, Med-Web in Fort Wayne, and MHIN in South Bend), and have continued to expand their service offerings more broadly in Indiana and in other surrounding states. This expansion has increased the need for interoperability between HIOs, and several of the Indiana HIOs have established the necessary interoperability. All of the Indiana HIOs have established Nationwide Health Information Network gateways using Mirth or other technology. However, a need has developed to establish more extensive interoperability between Indiana HIOs and with other HIE systems, and issues such as common interoperability formats and standards, nomenclature normalization, common provider directories and master patient indexes need to be addressed. Additionally, lack of uniform distribution of HIE services to all providers in the state remains an opportunity to be understood and acted upon.

3. Storing Information in Repositories. As the use of electronic web portals, EMRs, and HIE has expanded, greater use of patient level and population data has become available. Two of Indiana's HIOs, Indiana Health Information Exchange and Michiana Health Information Network, have large patient data repositories and provide public health reporting, quality reporting, patient point of care clinical decision support, and overall disease-specific population management and case management services. Other HIOs have service-specific smaller repositories. Leveraging these capabilities on a statewide basis remains to be achieved.

Financial Sustainability Models

While the Indiana HIOs pursue separate business strategies, have differing organizational capabilities, and offer different services, they all have developed successful and fairly similar financial sustainability models that are not reliant on continuing grants to maintain operations. Primarily, the HIOs collect fees from healthcare providers that are primary data sources, such as acute care and critical access hospitals, laboratories, radiology centers, etc., so that the data can be converted, processed, and routed to physician practices, rural health clinics, federally qualified health centers (FQHCs), and other recipients of the data. Secondly, physicians and these clinics, even though they also generate data from patient care visits and their own testing, are charged for the services they receive in only a few HIOs. HIE financial charges to the data source providers include one-time installation charges and ongoing service fees. As services have been developed for health plans, such as eligibility checking, the promotion of treatment guidelines, and patient sub-population analysis, they have also begun to compensate HIOs for these services.

To date, the five Indiana HIOs have focused on high-volume data sources because the value is greater for the same effort when compared to lower-volume data sources. Significant costs to the HIOs are associated with integrating data sources, which requires capabilities to semantically normalize structured data provided by the data sources, translate local code systems to national standards and manage exceptions that are generated. Not only are the high volume providers more likely to afford HIO fees that cover these costs of HIE adoption, they are also more financially able to adopt the institutional and practice-based information management and EMR systems necessary for state-of-the-art HIE. The result of this financial sustainability focus has been a concentration of HIE adoption in the most financially rewarding large volume urban and suburban population centers of the state, and relatively less adoption in the more rural parts of the state.

S.2.2. Administrative HIE Readiness

The U.S. health care system is a highly fragmented and paper-based, with critical information about the patient stored in a variety of formats across facilities and settings. Indiana maintains a variety of public and private initiatives working to address administrative inefficiencies inherent to our nation's current health care delivery system. The information below describes some of the statewide efforts underway for building HIE administrative capacity including electronic eligibility and claims transactions.

The **Quality Health First (QHF)** program is a collaborative initiative among Indiana Health Information Exchange, the Employers Forum of Indiana, physicians, hospitals, major health plans, government and other health care organizations. It combines information from a health information exchange with a multi-carrier pay-for-performance program.

QHF is a community-wide program that uses claims and clinical information to produce credible reports at the level of the individual practitioner. It aggregates information to provide physicians with reports, alerts and reminders to help monitor patients' health and wellness, and to improve the care of their patients, including the management of common, chronic diseases.

Participating payers use this information to differentiate their payments to providers based upon the quality and value of the services provided. Participating health insurers may also use these reports to provide meaningful incentives based primarily on the physician's high performance and significant improvement of the overall health of their patient population.

Currently, 1,200 providers in Indiana participate in the Quality Health First program. In addition to IHIE's QHF program, health plan eligibility inquiry services are provided for 114 physician practices through HealthBridge, HealthLINC and MHIN. In the future, HIE initiatives would like

to further engage employers and health plans in the exchange as funders, as well as engage health plans as data providers and users.

The **Employers' Forum of Indiana** is a statewide collaborative that seeks to develop solutions to challenges inherent in the local healthcare marketplace. The Employers' Forum membership includes large public and private employers, physicians, hospitals, public officials, insurers, health plans and other stakeholders. They aim to solve the following questions.

- Quality. How can our community significantly improve the quality and consistency of care provided to our employees/patients?
- Efficiency. Can we develop a reimbursement system that promotes efficiency and consistently rewards health professionals and institutions for providing superior value?
- Employee involvement. How can we create a system in which employees act as value-conscious and informed consumers?
- Community participation. How to create a system that meets the diverse needs of employers, providers and health plans so that common action is possible?

RealMed, an Indiana company, has been ranked the #1 Claims and Clearinghouse Service in the 2009 Top 20 Best in KLAS Awards: Software & Professional Services report. RealMed provides advanced, online, automated transactions processing between healthcare providers and all payers. RealMed and other national clearinghouse organizations provide eligibility checking and claims processing to virtually all Indiana providers, allowing HIOs to develop higher value added administrative HIE services.

S.2.3. Clinical HIE Readiness

The advanced state of sustainable HIE in Indiana provides a unique opportunity to other states in understanding how sustainable HIE can be achieved, and how complex dynamics between HIT participants need to be managed to establish uniform statewide coverage and the achievement of wide scale meaningful use of HIT. A summary of the capabilities of each HIO follows, as does an analysis of the geographic adoption of HIE and the utilization of HIE services throughout the state.

The Indiana Health Information Organizations (HIOs)

HealthBridge has offered operational health information exchange since 1998. Its mission is to build a collaborative network of organizations and technology to improve the quality and efficiency of health care delivery. With 33 full-time employees, HealthBridge serves a primary

service area in the Greater Cincinnati tri-state area that includes four Indiana counties. HealthBridge has more than 10,000 physicians in its provider directory and 2.5 million patient records in a population area of 2.2 million people. HealthBridge serves approximately 5,500 physicians in the tri-state area, of which 250-300 physicians (with an estimated 80,000 patients) practice in Southeast Indiana and the surrounding counties. HealthBridge also serves as a consultant and collaborative partner to many other HIEs around the country, including HealthLINC in a multi-county area centered in Bloomington, Indiana, and operates the Tri-State HIT Regional Extension Center (REC) serving 19 counties in Indiana, 37 counties in Kentucky, and 11 Ohio counties. HealthBridge is the nation's leader in sustainability, with less than 3% of its operating revenues over 10 years coming from grants or charitable sources. For the last 5 years, HealthBridge has recorded revenue exceeding expenses while growing its operations and service area significantly and making key investments and upgrades in its technology infrastructure. HealthBridge's accomplishments include:

- Achieving a remarkable 85% subscription rate among physicians and hospitals participating in HIE in the tri-state region.
- Offering a broad range of services, including clinical messaging and electronic results delivery, community EHR interface library for results delivery, ambulatory order entry, electronic disease reporting and public health alerts, and web-based eligibility and claims status checking. In limited production are pilots for e-Prescribing, disease registries, quality reporting and improvement tools.
- Planning several service expansions, such as immunization information, summary record exchange, and personal health record integration/patient communication tools.

HealthLINC is a four-year old, community-based organization that has offered operational health information exchange since 2007 to healthcare stakeholders in Lawrence, Monroe, Orange and Owen counties. Headquartered in Bloomington with 4 full-time employees, HealthLINC is proud to have more than 200 South Central physicians actively using the system; 175,000 patient records in a population area of 367,000 people; and 130,000 exchange results per month. HealthLINC has developed expertise in running a self-governed HIE that benefits from outsourced technology infrastructure and selected business operations in a pre-franchise model. This model gained national attention when it received an award (with its partners HealthBridge and CCHIE) from the e-Health Initiative in 2008. This approach is beginning to demonstrate that semi-rural communities can operate and sustain an HIE based upon regionally generated revenue. HealthLINC has:

- Achieved a rapid level of adoption and growth in HIE services in South Central Indiana with more than 90% of physicians participating in HIE.

- Established a highly cost-effective and award winning Collaborative Communities Model which facilitates self-governance in the context of ASP hosting with HealthBridge.
- Offered clinical messaging and electronic results delivery, EMR interface results delivery, public health alerts, and e-Prescribing.
- Planned service expansions that include immunization information, summary record exchange, and personal health record integration/patient communication tools, and quality reporting via partnerships.

Indiana Health Information Exchange (IHIE) is a tax-exempt, nonprofit corporation founded in 2004 by a unique collaboration of 13 institutions representing Indiana hospitals, healthcare providers, researchers, public health organizations, and economic development groups. Now a 38-employee organization, IHIE is a leading provider of scalable health information exchange services with demonstrated and sustainable technologies and processes. IHIE's vision is to use information technology and shared clinical information to: (i) improve the quality, safety, and efficiency of health care; (ii) create unparalleled research capabilities for health researchers; and (iii) exhibit a successful model of health information exchange for the rest of the country. In recognition of this success, the Office of the National Coordinator for HIT (ONC) awarded IHIE a \$16 million Beacon Community Cooperative Agreement Program grant to build and strengthen central Indiana's HIT infrastructure and exchange capabilities. Through this cooperative agreement program IHIE will demonstrate the vision of a future where hospitals, clinicians, and patients are meaningful users of HIT, and together the community achieves measurable improvements in health care quality, safety, efficiency, and population health. IHIE's many programs include:

- DOCS4DOCS, a self-sustaining, community-wide clinical messaging service being used by over 15,000 physicians in Indiana within a network of 39 hospitals, delivering over 5 million messages per month. This provides a single source for clinical results including laboratory, radiology reports, transcriptions, pathology and admission, discharge and transfer information.
- The Indiana Network for Patient Care (INPC), the nation's largest inter-organizational clinical data repository, which currently is in use at over 130 sites in Indiana, storing data on over 6 million patients and utilized by approximately 15,000 active users. Each data source organization maintains control over its own data while IHIE and its technology partner, the Regenstrief Institute, manages and administrates the databases.
- Quality Health First (QHF), which allows for robust reporting to providers on their patients, focusing on chronic disease management. QHF incorporates the use of claims information from participating payers with real-time clinical data. In addition, QHF provides reports to the payers on how well physicians are supplying quality care for all

patients for whom they have responsibility. Payers in turn reimburse those physicians at higher levels based on their quality measures.

Michiana Health Information Network (MHIN) was formally established in 1999 with the mission to provide single source, secure access and delivery of medical information leading to the care and quality of a person. Today MHIN has a team of 18 staff members that serve over 1,000 physicians and 400,000 patients across northern Indiana and southwestern Michigan with a variety of products and services which include but are not limited to:

- MHIN CDR – A community data repository service which securely stores clinical information from all sources into one longitudinal patient record.
- MHIN Messenger – The community-wide, web-based clinical messaging and results communication platform for sending, receiving and managing clinical information (Powered by Axolotl).
- MHIN Interface – A single interface that delivers discrete digitized results from all participating institutions to any physician office or institutional EHR. The MHIN Interface engine is also used to connect disparate systems within physician practices.
- MHIN EHR – A fully integrated electronic health record that comes pre-populated with patient information and provides seamless electronic communication and clinical messaging with other healthcare providers (Powered by Cerner).

In addition, MHIN has significant technical resources in the areas of database administration, in particular Oracle and MS-SQL networking and technology planning. MHIN's management team has experience in building operations for large-scale capabilities to deliver service to the ambulatory environment, consolidated to support over 20,000 ambulatory sites. MHIN also offers national scale in product and market planning and business modeling. With nearly 10 years of historical results, the MHIN community data repository is deeply threaded into all aspects of care in the medical community and will continue to grow as MHIN continues to work with other HIOs in both Indiana and Michigan to facilitate the exchange of medical information across medical service areas.

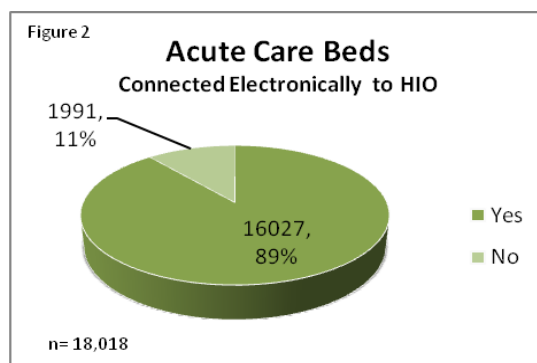
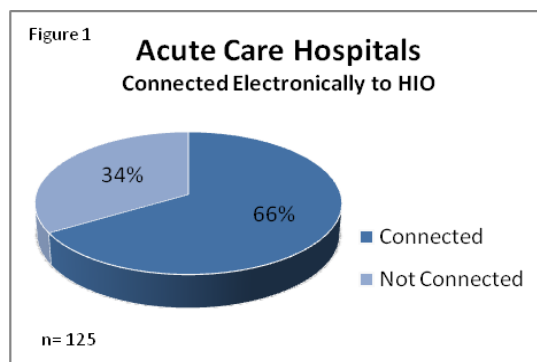
The Med-Web, created in 1995 by Medical Informatics Engineering, delivers approximately 1.5 million secure clinical messages each month, including more than 225,000 monthly diagnostic reports and nearly 15,000 radiology studies. The Med-Web includes a directory of participating stakeholders, and intelligently delivers information in the format required by each provider. The success of this network led to MIE development of a full portfolio of electronic health record products – including EMR, Document Management and RIS/PACS solutions. This “Minimally Invasive” EHR portfolio is used by physician practices and clinics, as well as Fortune 500

companies operating on-site employee clinics including Google and The Dow Chemical Company. An overview follows below:

- Northeast Indiana Healthcare Access Program (HAP) - MIE leveraged the Med-Web and its EHR portfolio to support the Northeast Indiana HAP. This innovative approach connects safety-net care providers including neighborhood clinics, hospital emergency rooms and others providing care to the uninsured and underinsured, including immigrant populations. Each provider uses an EHR solution configured to fit their clinical workflow, and each contributes selected data to a central repository based on agreed upon data sharing rules and patient consent. As patients are seen by safety net providers, information such as lab results, medication lists and other critical information can be accessed. HAP is improving care coordination and clinical outcomes, while reducing duplicate tests and unnecessary costs.
- NoMoreClipboard.com - Formed in 2003 by the founders of MIE, NoMoreClipboard.com is a separate legal entity formed to make personal health record solutions available to consumers. NoMoreClipboard licenses MIE's clinical architecture, resulting in a robust, interoperable PHR designed to integrate patient information into existing provider workflow. The NoMoreClipboard solution is deployed with hospitals and health systems, physician practices, employers and universities. An Indiana University branded version of the PHR was launched earlier this year, and 40 percent of the 2009 incoming freshman class voluntarily created an account prior to commencement of the school year.

Adoption of HIE by Indiana Providers

Indiana providers of patient health care have chosen to adopt HIE services and connect to the five HIOs at a significant, although geographically variable, level. Sixty six percent (83 of 125) of acute care hospitals, representing 89% (16,027 of 18,018) of the state's acute care beds, and a significant percentage of laboratories servicing Indiana healthcare providers are connected to a HIO and are able to send high-value data in categories such as encounters (admission, discharge, transfer (ADT) records), laboratory results, radiology results, and transcribed reports and dispensed medications (Source: IHIT Survey of HIE Adoption, May 2010).



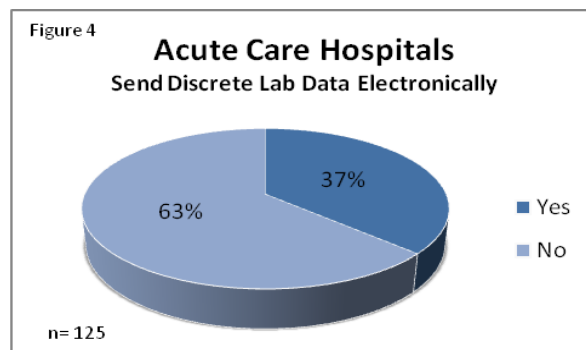
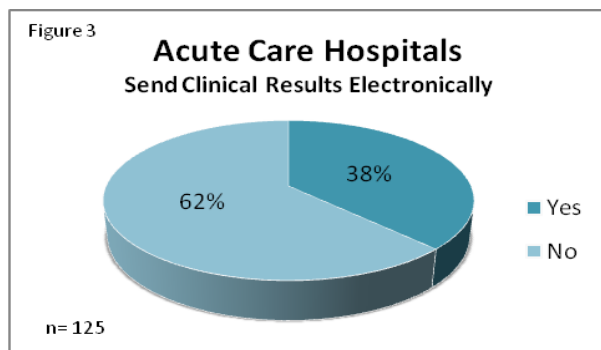


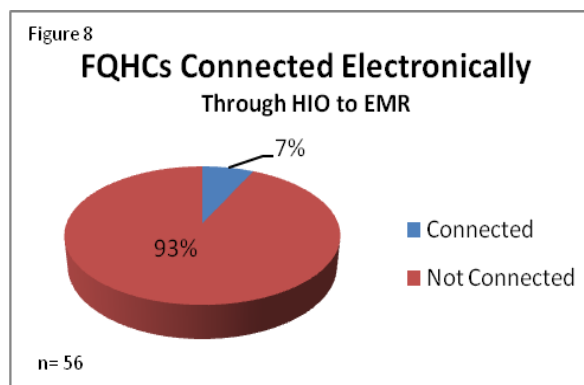
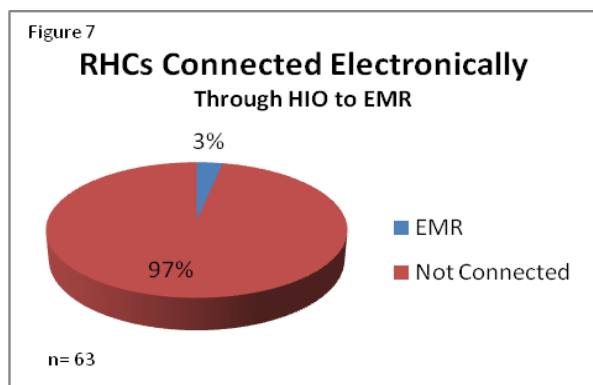
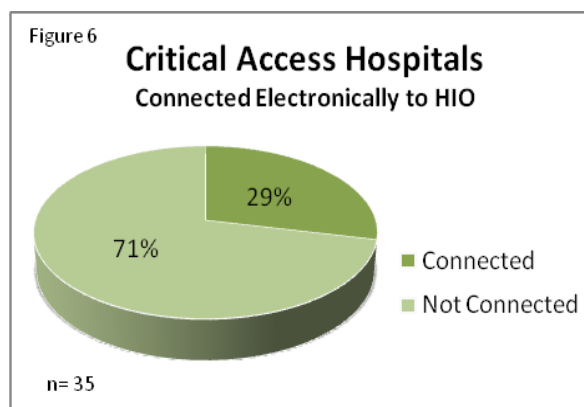
Figure 5: Indiana Acute Care Hospitals Connected to HIE (Blue)



63) through web portal/electronic inbox and 3% (2 of 63) through EMR) of rural health clinics and 11% of 56 FQHCs (4% (3 of 56) through web portal/electronic inbox and 7% (4 of 56) through EMR) are connected electronically to a HIO. Seventeen percent of rural health clinics

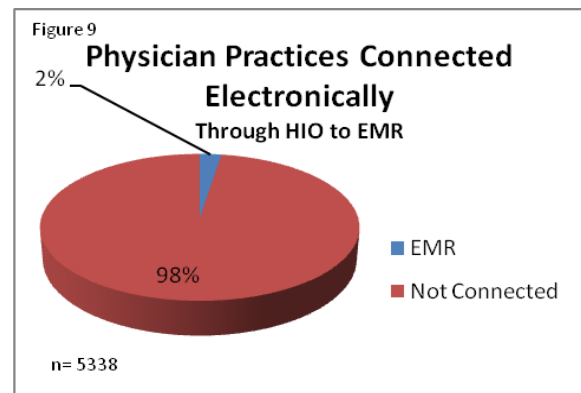
However, a map of acute care hospitals demonstrates that those connected are concentrated in the largest population centers, with most of the unconnected acute care hospitals occurring in rural portions of the state (see Figure 5- Map of Indiana Acute Care Hospitals connected to HIE). Additionally, only 29% (10 of 35) of critical access hospitals are connected (46% (16 of 35) contracted) to HIE services and are able to send high value data, further demonstrating this trend.

A focus on Indiana providers who primarily receive high value data through HIE also illustrates a similar geographic connection imbalance. Just 5% (2% (1 of

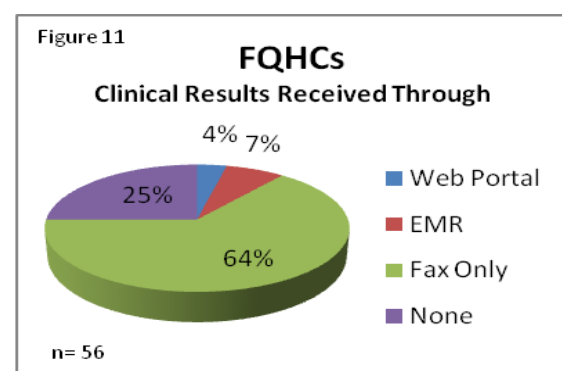
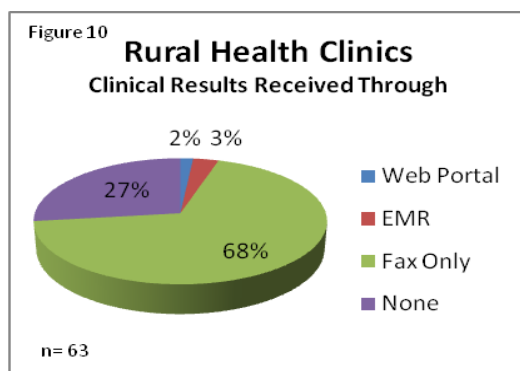


and 32% of FQHCs are contracted to receive additional services, mainly through EMR, also illustrating that these provider groups are making progress toward EMR and advanced HIE adoption. Additionally, the HIOs reported HIE adoption statistics for 5,338 Indiana physician practices, and just 32% of these practices were receiving HIE services through an electronic connection (30% (1,604 of 5,338) through web portal/electronic inbox, 2% (133 of 5,338) through EMR) (Sources: IHIT Survey of HIE Adoption, HIO Interviews, May 2010).

These low percentages mirror the geographic adoption imbalance of acute care and critical access hospitals, but also illustrate the various methods through which providers receive HIE services from the five Indiana HIOs. HIE services in the state have pre-dated the development of EMR systems, and most of the providers in the state receive clinical results information via fax or through HIO-provided electronic web portals or electronic inboxes:



- Rural Health Clinics- Fax: 68% (43 of 63), Web Portal/Inbox: 2% (1 of 63), EMR: 3% (2 of 63), None: 27% (17 of 63);
- FQHCs- Fax: 64% (36 of 56), Web Portal/Inbox: 4% (3 of 56), EMR: 7% (4 of 56), None: 25% (14 of 56);
- Physician Practices Reported- Fax: 68% (3,606 of 5,338), Web Portal/Inbox: 30% (1,604 of 5,338), EMR: 2% (133 of 5,338).



A concerted effort will need to be made to understand the barriers to HIE adoption, and to develop strategies to address the reduced rural acceptance of HIE compared to urban/suburban adoption.

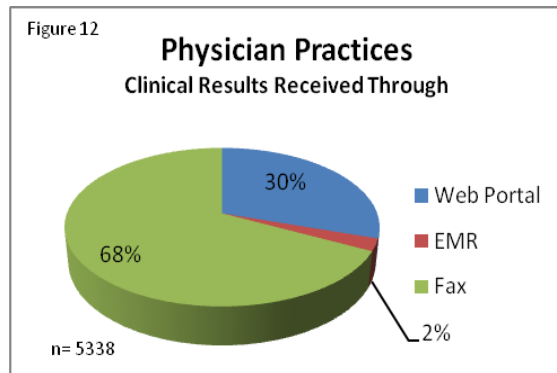
Barriers to HIE Adoption

Healthcare providers in Indiana have an opportunity to demonstrate meaningful use of HIT through establishing a connection to a HIO and using electronic health information exchange services such as the receipt of structured laboratory data, providing clinical summary exchange for care coordination, and electronically reporting quality measures. However, significant numbers of providers have experienced challenges and issues regarding adopting HIE services and at this time do not electronically exchange health information or

only use unsophisticated fax methodologies. The five HIOs have generally followed a community or medical trading area-oriented strategy of promoting HIE adoption to hospitals, laboratories, and radiology centers first, followed by promotion to physician practices and associated clinics and health centers. They have concentrated first in establishing services in urban and suburban areas of the state where the volume of information per provider is the highest. The HIO's financial sustainability models also have motivated large-scale institutions and related providers to adopt HIE connectivity sooner, as they are more likely to afford the one-time costs associated with electronic institutional/practice management system and EMR system adoption, HIE interface connections, and T1 telecom charges, as well as ongoing fees. On the other hand, following these same models in rural settings creates primarily economic barriers to connecting data source and data receiving providers, as the typical returns on investment seen in larger, more concentrated health care markets are more challenging to achieve in rural settings.

In interviews conducted by IHIT in May 2010, HIOs reported several barriers to adoption, particularly in medical trading areas of 45,000 or fewer inhabitants:

- **Lack of Up-to-Date Institutional Medical Information and EMR Systems.** All acute care and critical access hospitals in Indiana, as well as rural health clinics, FQHCs, and physician practices, have been approached by one or more HIOs to be sold on adopting HIE services. A common reason given by those not adopting is that they do not have up-to-date information systems that would easily enable the HIO to establish the electronic interfaces necessary to route health information to other providers. Some hospitals report that they have many individual information systems, and have not yet purchased an integrated comprehensive single-sourced hospital-wide system. While some HIOs have convinced such hospitals to let them integrate these disparate systems through their HIE capabilities, thereby sourcing and routing the hospitals' data, most remain unconnected. Similar arguments are made by rural health clinics, FQHCs, and



physician practices that do not have EMR systems. Rather than adopt the web portal based method to receive HIE services, they prefer to wait or to accept external health information by fax only.

- **One-time Costs of HIE Adoption.** Non-adopting providers report that one-time costs are significant deterrents to EMR and HIE adoption. They believe they cannot afford the cost of selecting and integrating an EMR system, paying one-time costs charged by the EMR vendor and the HIO to establish an electronic interface to let information flow between providers, broadband installation charges, and human resources costs for the IT professionals who install the systems. Even though HIOs offer less costly web portal access to HIE services, non-adopting providers see added cost and loss of productivity in changing institutional and practice workflow, and changing it to a web-based flow means changing work flow twice when the provider ultimately adopts EMR. Without incentives offered by the HIO or other interested parties, these providers indicate that adopting HIE services is unaffordable.
- **Ongoing Costs to Maintain HIE.** In addition to one-time costs, non-adopting providers list ongoing costs as a barrier to adoption. They view ongoing broadband charges and fees to the HIO as not easily affordable. Additionally, some EMR vendors charge maintenance fees for the interface with a HIO that some providers find difficult to afford.
- **Limited Access to Qualified Health IT Professionals.** The adoption of HIE services is a sophisticated activity that requires information technology skill and significant amounts of time. Many projects last a year. Many acute care hospitals, critical access hospitals, and other healthcare providers in rural areas of the state are independent and do not have access to qualified health IT professionals to coordinate with HIT vendors and HIOs and run the necessary projects.
- **Work Flow Productivity Loss.** Interim loss of productivity while employees learn new work flow is a significant barrier for smaller hospitals, clinics, and practices. Decision makers in these non-adopting institutions are concerned that their staff may make mistakes or work more slowly, and that this could be a permanent change, not just a transitional experience while converting to electronic records and work flows. Some also report that adoption of HIE services results in a significant increase in information that is difficult to manage without additional staff. Such real or perceived risks of lower productivity and reduced care quality contribute to a perceived lack of value in adopting new institutional or practice management EMR systems and accompanying HIE services. Even if the provider chooses to accept these risks, they view the risk mitigation steps of more thorough training or increased staff as undesired costs.

- **Lack of Access to Medicaid Data.** In many of the low-adopting areas of the state, providers have a high concentration, sometimes a majority, of Medicaid patients in their care. Non-adopting providers report to HIOs that Indiana Medicaid has, to-date, not provided sufficient electronic access to claim data or other health record information through HIE services. Without this data, the providers indicate they cannot leverage the full functionality of EMR systems and HIE services, whether web based or through EMR interface connection, for the majority of their patients, making HIE and EMR unjustified expenses.
- **Lack of EMR Outbound Interface.** Many healthcare providers have adopted EMR systems without planning to connect to a HIO for HIE services. Consequently, some have chosen EMR systems that do not have a two-way interface capability to leverage the full set of current and future HIE services necessary to establish all stages of Meaningful Use. If a healthcare provider has purchased such a system, extensive costs must be incurred to establish this capability. The HIOs report that RECs or others assisting providers' EMR decision making should ensure that EMRs with both inbound and outbound interface capabilities are selected so that lower-cost HIE services can be adopted.

Despite the barriers to HIE adoption that exist in Indiana, some rural areas of the state, particularly in southern Indiana, have overcome them and enjoy the benefits of sophisticated HIE services. In some rural counties, 54% to 76% of physicians are using EMRs or HIO web portals to access HIE services (Source: IHIT Survey of HIE Adoption, HIO Interviews, May 2010). The healthcare providers in these rural areas, including hospitals, critical access hospitals, clinics, and physicians, coordinated their consideration and adoption of the necessary computer systems. They obtained a HRSA Rural Health Network grant which paid for a large percentage of the one-time associated costs, and they shared IT professionals across organizational lines. These experiences can serve as a model for other low-adopting areas of the state. Furthermore, close collaboration with the Regional Extension Centers, which will focus largely on promoting EHR adoption and meaningful use in rural communities, will help to identify HIE opportunities in these underserved geographies.

Table 1: Level of HIE Services Adopted in Indiana

Service	Adoption Level Among Providers*
Laboratory ordering	1
Laboratory results delivery	4
Clinical messaging and results delivery for care coordination (HL7)	5
Clinical summary exchange for care coordination (CCD/CCR)	1
Clinical repository services	2
Electronic prescribing and refill requests (SureScripts or HIO)	4
Queries for medication fill history	2
Electronic Public health reporting	3
Quality reporting	2
Eligibility and claims transactions	5

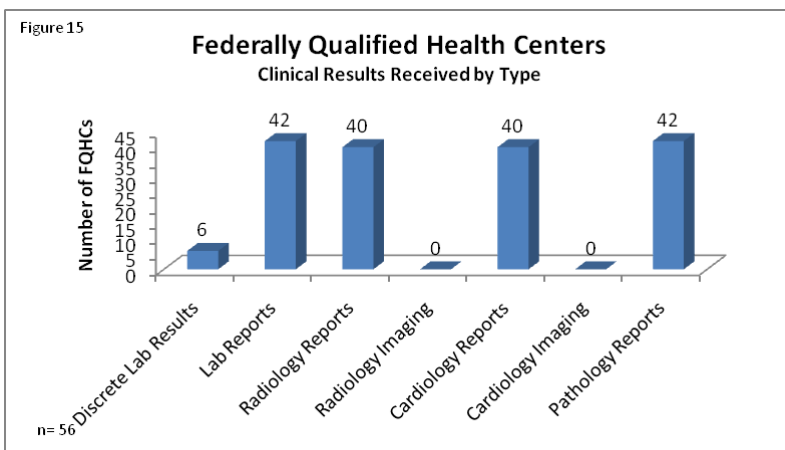
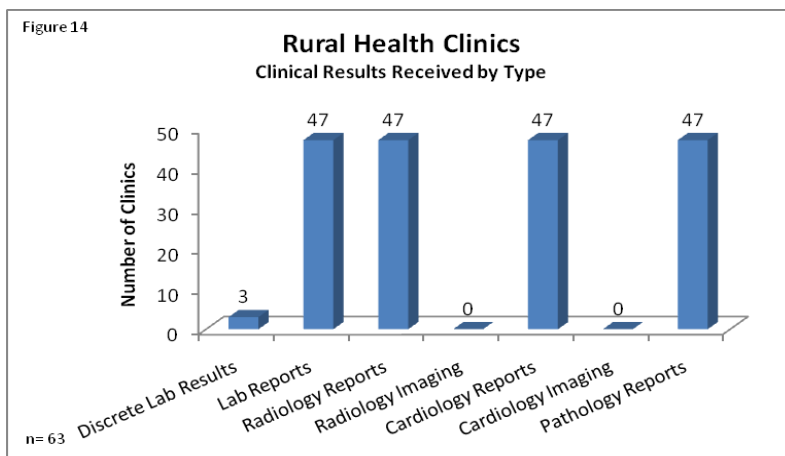
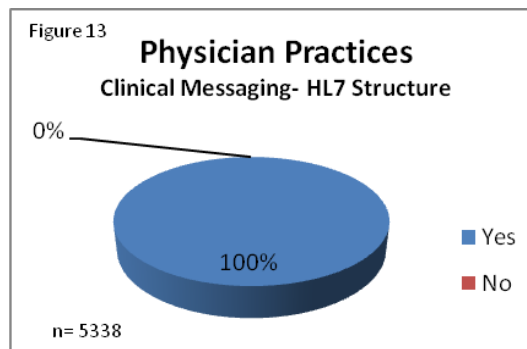
*Adoption Scale: 1=Low, 5=High

Utilization of HIE Services

The five HIOs operating in Indiana have developed an extensive set of standards-based (HL7, LOINC®, or other) HIE services and provide these services to many healthcare providers across the state (See Table 1, Level of HIE Services Adopted in Indiana). This standards-based principle allows for a decentralized approach that is supportive and inclusive of each HIO's existing technology infrastructure, operations and services, and allows for a flexible innovative approach to exchange. The extent of service utilization depends on the set of services an individual HIO provides, and includes:

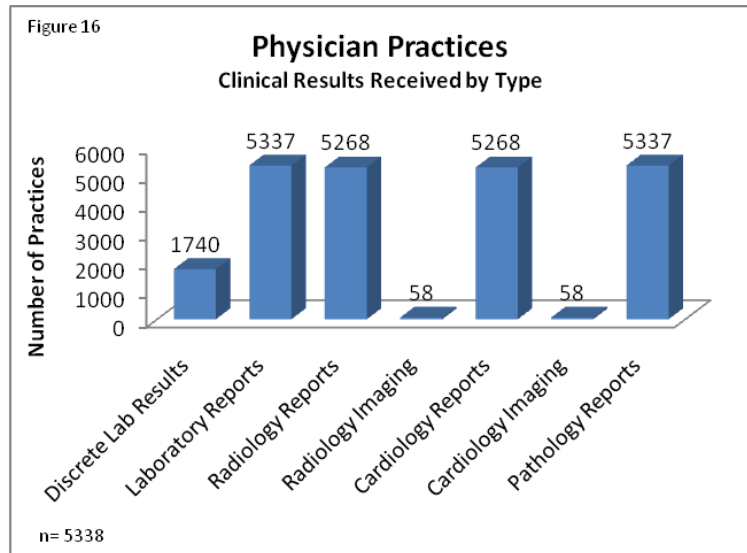
- **Clinical Messaging and Electronic Results Delivery (HL7 Standard).**

All Indiana HIOs provide clinical messaging services and can send clinical information using Axolotl or Docs4Docs technology to virtually all Indiana physician practices (5,338 reported) through fax, their HIO web portal or electronic inbox, or into an EMR (Figure 13). Deliverable results include structured and unstructured data for hospital ADT, transcribed and electronic progress notes, consult results, discrete laboratory test results and reports, radiology and cardiology reports and imaging (some HIOs), and endoscopy and pathology reports (see Figures 14-16). The acute care and critical access hospitals, as well as laboratories, radiology centers, and other data source providers that are connected to HIE services in Indiana send these clinical results to their respective HIO for exchange with other healthcare providers. Some of the five HIOs operating in



Indiana also provide clinical messaging services to providers in Ohio and Michigan (interstate HIE), and also have established interoperability to fully exchange clinical information between providers using different HIE systems. This interoperability has not been established comprehensively in the state, however.

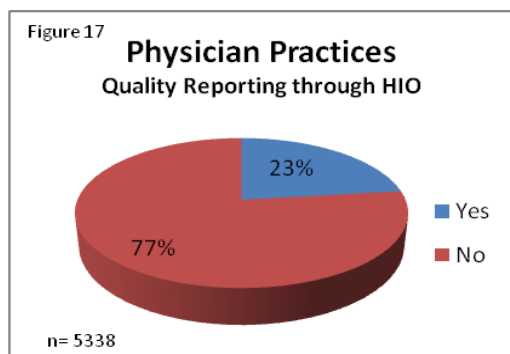
- **Clinical Summary Exchange for Care Coordination (CCD/CCR Standards)**. All five HIOs have pilots to develop the capability to exchange the information that they currently provide in HL7 format in the CCD and CCR formats. The increased importance of these



formats has post-dated the HIO implementation of clinical messaging, but most HIOs will be able to routinely exchange CCD and CCR records later in 2010.

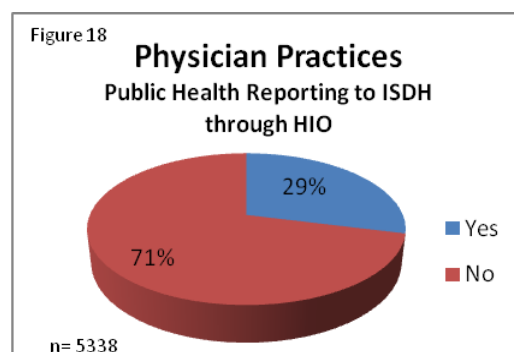
- **Electronic Order Entry**. Electronic clinical laboratory ordering services are technologically challenging, since complete order compendia for every possible laboratory need to be loaded and maintained in each HIO system. A few of the Indiana HIOs are developing pilot projects for hospital or ambulatory order entry through their HIE services. However, electronic order entry hosted by laboratory and radiology service providers continues to be developed outside the HIOs' HIE web portals or EMR interfaces, so healthcare providers are beginning to have electronic order entry options by using a laboratory's order entry web portal system.
- **ePrescribing and Refill Requests**. SureScripts has continued to enable widespread ePrescribing services by Indiana physicians through connections with standalone software and EMR systems, and now has a significant service offering to all physicians in the state. As of December 2009, 96% of Indiana community pharmacies were activated for ePrescribing, 23% of Indiana physicians were prescribing electronically, and 68% of Indiana patients have their health plan prescription benefit information available online (Source: SureScripts 2010 Indiana Progress Report on ePrescribing). SureScripts also offers additional services that are being adopted in Indiana (see Section S.2.4, Electronic Prescribing HIE Readiness, for more information).

- **Quality Reporting.** Existing quality measurement and reporting functionality is in place that utilizes clinical data augmented by claims reports to deliver quality information to providers and payers. (See Section S.2.6, Quality Reporting Readiness for more information).

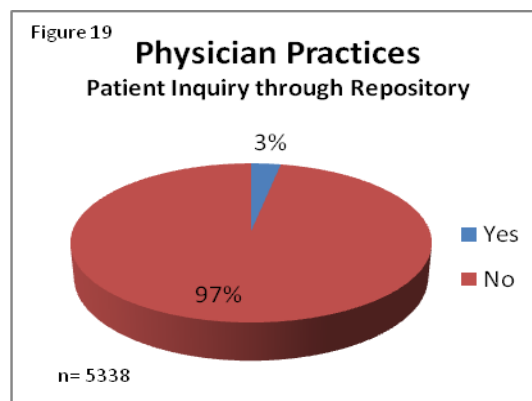


- **Electronic Public Health Reporting.** Indiana has established services for public health reporting including syndromic surveillance based on chief complaints, diagnosis-based surveillance and electronic reporting for reportable conditions. (See Section S.2.5, Public Health HIE Readiness for more information).

- **Patient Engagement.** One Indiana HIO, the Med-Web, has worked together with a now separate legal entity, NoMoreClipboard.com, to make personal health record (PHR) solutions available to consumers. NoMoreClipboard licenses Medical Informatics Engineering's clinical architecture, resulting in a robust, interoperable PHR designed to integrate patient information into existing provider workflow. The NoMoreClipboard solution is deployed with hospitals and health systems, physician practices, employers and universities. On a statewide basis, however, patient access to and use of PHR services is limited.



- **Repository Services.** Currently, two Indiana HIOs offer large patient data repositories (INPC and MHIN CDR) that collect and store discrete data and other health information from all providers in patient records. A patient summary record can be accessed either through the provider's EMR or through a web based viewer, and can be viewed at the point of care. These repositories collect and store discrete data from clinical messaging and results documents and, in some cases, data from ePrescribing (med list and prescription fill histories) and health plan data sources. These repositories have the potential to provide the physician true clinical decision support, health plan eligibility checking, quality reporting, and disease management capabilities. However, only 163 (3%) of the 5,338 physician practices reported in the May 2010 Environmental Scan survey have the immediate inquiry capability



through their practice EMR or dedicated web based viewer. Greater access to the INPC repository records is available in the hospital setting. The HIOs offering these repositories are developing additional functionality to be implemented over time. Additionally, the five Indiana HIOs all favor the adoption of some kind of repository system for all the state's patients to provide this ultimate patient care functionality. They believe it would not be practical for each HIO to develop a competing large scale repository, and are looking to IHIT for direction on clinical repositories.

- **Interoperability / Shared Provider Directories / Master Patient Indexes.** IHIE maintains a statewide provider directory that contains detailed information on 15,000 physicians statewide and on all data source providers (hospitals, labs, public health depts., etc) that send information to these physicians. IHIE conducts a thorough reconciliation and validation process at least once monthly in which providers submit their updates and from which IHIE provides feedback to the health systems to assist updating their own directories. IHIE also runs an integrated record locator and patient identification process along with their statewide provider directory. HealthBridge maintains a thorough provider directory that includes 10,000 physicians and 2.5 million patients. The directory is updated very frequently, including using automatic feeds from hospital systems. HealthBridge maintains this directory and the complementary record locator and patient identifier systems for themselves, and does this also for HealthLINC in Indiana as well as for other HIE organizations in Ohio and northern Kentucky. MHIN conducts similar provider directory and patient locator processes with 9,000 physicians and related patients and data source providers. The Med-Web maintains provider directories and patient identifier/locator systems based on the records of physicians using their EHR systems and also maintains a directory supporting indigent patients in the Fort Wayne area. The HIOs also have established all necessary data privacy and legal agreements to operate these services in a secure and private manner, and are legally liable for errors and violations of these agreements. Since each HIO operates these services for the data source and data using providers in their medical trading areas, most all referral-related clinical messaging and structured data delivery needs are met within the operations of each HIO. Additionally, Indiana HIOs have begun establishing interoperability with each other individually, and have developed nomenclature standards, provider and patient matching services, and other functionality to make these individual connections happen. Business reasons, including the need to exchange clinical summaries and structured data for patient referrals across the geographic operating areas of the HIOs (such as for Riley Children's Hospital and the Indiana University Hospital System in Indianapolis), have driven the establishment of interoperability between IHIE and HealthBridge/HealthLINC and between IHIE and MHIN. Additionally, the Indiana HIOs have established Nationwide Health Information Network gateways and are familiar with, support, and use/will use national standards consistent with the Standards Final Rule to enable interoperable services between themselves and with

interstate HIOs and organizations. All of the HIOs generally see further establishing statewide interoperability between them as a strategic necessity to enable as many providers as possible to establish timely meaningful use of HIT, and they are ready to contribute ideas and proposals that leverage their individual technical capabilities. They also see EMR vendors and other providers of individual services trying to develop their own national HIE networks centered around their individual expertise (the SureScripts model), and view this as a negative for the patient as local or regional information of different types will likely not be exchanged in a HIE world of this type. More importantly, while the five HIOS see further interoperability between themselves as important to establish, they generally see the need to connect rural and other underserved data source and data receiving providers as an equal or higher priority. They also generally do not see an immediate need for IHIT to operate a separate statewide provider directory, record locator, and master patient index since they already operate these services, have begun to establish effective patient and record matching functionality between HIOs, and envision significant legal complexities should a separate entity want to establish the necessary additional patient privacy and security agreements with the providers they service.

- **Eligibility and claims.** The ability of healthcare providers in Indiana to check patient health plan eligibility and process claims is well established through practice management systems and EHRs working in conjunction with traditional commercial clearing houses. Additionally, at least one Indiana HIO offers added-value HIE services to providers by combining clinical information with administrative data (See Section S.2.2, Administrative HIE Readiness, for more information).

As indicated in the Environmental Scan introduction, the five HIOs operating in Indiana have established financial sustainability through delivering these value-added services to Indiana healthcare providers. Table 2 describes each HIO's revenue percentages according to the services provided, and illustrates the advanced state of readiness in Indiana for additional strategies to improve further HIE in the state.

Table 2: Services Inventory and Corresponding Revenue

	HealthBridge		HealthLINC		Indiana Health Information Exchange		Med-Web		Michiana Health Information Network	
Service	Status	% of Rev.	Status	% of Rev.	Status	% of Rev.	Status	% of Rev.	Status	% of Rev.
Laboratory Ordering	Live	5%	Planned	0.0 %	Planned	0%			Live	2%
Result Delivery / Clinical Messaging (HL7)	Live	75%	Live	92%	Live	39.2 %	Live	100%	Live	26%
Clinical Summary Exchange for Care Coordination (CCD)	Live	0%	Prototype	0%	Live	0%	In Place *		Pilot	<1%
Clinical Repository Services	Live	0%	Evaluating	0%	Live	5.6%			Live	19%
ePrescribing & Refill Request	Live	0%	Live	3.0 %	Live	0%			Live	5%
Queries for Medication Fill History	Planned	0%	Live, Surescripts	0%	Live	0%			Pilot	<1%
Electronic Public Health Reporting	Live	0%	Available	0%	Live	0%			Live	0%
Quality Reporting	Pilot	<1%	Evaluating	0%	Live	53.8 %			Pilot	2%
Eligibility & Claims Transactions	Live	0%	Live, eligibility lookup	0%	Planned	0%			Planned	0%
Other	Live	20%	EMR Interfaces	5%		1.4%			Live	34%
									Live	12%
Total		100%		100 %		100%		100%		100%

*In place for safety net patients

S.2.4. Electronic Prescribing HIE Readiness

Meaningful use of electronic prescribing consists of three critical steps (Source: State Progress Report on Electronic Prescribing- Indiana, <http://www.surescripts.com/about-e-prescribing/progress-reports/state.aspx?state=in&x=74&y=15>):

- **Prescription Benefit:** The ability to electronically access a patient's prescription benefit from payers/PBMs.
- **Prescription Routing:** The ability to electronically route the prescription to the patient's choice of pharmacy. When the patient runs out of refills his or her pharmacist can electronically send a renewal request to the physician's office for review and approval.
- **Prescription History:** The ability to electronically access that patient's prescription history from payers and community pharmacies.

As indicated in Section S.2.3, SureScripts offers extensive ePrescribing services to virtually all physicians in Indiana through standalone software and EMR systems that the prescriber installs. As of December 2009, 96% of Indiana community pharmacies were activated for ePrescribing and 68% of Indiana patients have their health plan prescription benefit available for prescriber query. Adoption of ePrescribing is clearly growing significantly, but is still at a relatively low level. Twenty three percent of Indiana physicians were e-prescribing at year end and prescribed 13% of all prescriptions electronically in 2009. 2009 ePrescribing data is available from SureScripts for 14 Indiana metropolitan statistical areas (MSAs) , and show in aggregate that the number of e-prescriptions written grew 316% (Source: SureScripts 08-09 Indiana MSA Analysis, June 2010). Additionally, 34% of Indiana patient visits had a prescription benefit request and 83% of these had a successful benefit response in 2009. State level medication history response data is available for the first time, and Indiana had 965,863 patient visits during which there was a medication history response, which represents approximately 6% of patient visits.

These data show that, while significant positive trends in ePrescribing adoption are occurring, the overall levels are still low and suggest that physicians are still adapting to the SureScripts standalone software and EMR based methods of prescribing, querying the Rx benefit, and accessing a patient's Rx history. As more prescribers adopt EMR systems or standalone ePrescribing software, additional changes in practice workflow will be necessary. Some Indiana experts suggest that a fully integrated patient record provided through HIE repository services to the prescriber's EMR and accessed immediately before the patient encounter may be the most effective vehicle to improve physician/patient dialogue, the diagnostic process, and overall patient care.

An significant obstacle to progress is the lack of a complete patient medication list. While Surescripts provides a helpful aggregation of PBM data and supports services to retrieve

medication histories, important local sources are not well represented, including, for example, the Indiana State Medicaid program and large hospital systems. The Regenstrief Institute, with its partner, IHIE, has access to Medicaid pharmacy claims and hospital data and can augment Surescripts' meds list to support ePrescribing for those practices using IHIE's services.

In addition, while Surescripts can deliver prescriptions to the vast majority of pharmacies, Surescripts does not route to some important pharmacies in Indiana, such as HealthNet (a large system of community health centers) and Marsh (a widespread supermarket chain). Some of the HIOs have an existing service in the State that addresses some of these deficiencies of Surescripts by supporting the NCPDP transaction standards and augmenting Surescripts data with medication histories from local sources and delivering to additional pharmacies.

There is significant opportunity to enhance electronic medication management by combining the services of SureScripts with repository-based HIE services. . However, until statewide repository coverage is achieved through expanded repositories at all Indiana HIOs or statewide interoperability, these benefits will be enjoyed only by those prescribers serviced by their participating HIO.

S.2.5. Public Health HIE Readiness

Increasingly, effective public health depends on access to timely and accurate healthcare data. Indiana has implemented several innovative applications of information technology to monitor and to respond to public health needs.

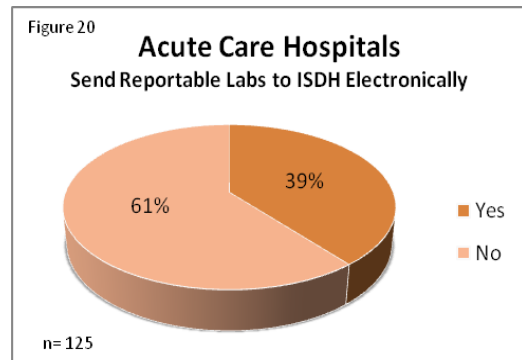
Public health can benefit from HIE as evidenced by more timely and complete disease reporting, improved case management and care coordination (e.g., communicable diseases, newborn screening), improved analysis of patterns of care and gaps in delivery of preventive services (e.g., immunizations), and analysis of the geographical appearance and spread of disease (e.g., syndromic surveillance). Furthermore, the demonstration of public health value may help sustain HIE initiatives.

In recent years, biosurveillance has emerged as an area of acute interest and need. Biosurveillance systems focus on the use of early disease indicators to identify outbreaks before definitive diagnoses are made. One example is the Indiana Public Health Emergency Surveillance System (PHESS) created by the Indiana State Department of Health (ISDH) in partnership with the Regenstrief Institute. PHESS has been in place since 2004 and today electronically links 75 Indiana hospital emergency departments to the ISDH to create a statewide, standards-based public health surveillance system.

In addition to biosurveillance, HIEs can also play an indispensable role in communication of communicable disease lab results, physician notification of newborn screening results, community health needs assessment, and other data-dependent public health activities.

Forty-nine acute care hospitals out of 125 are reporting notifiable laboratory reports to ISDH (39%) and within this, 9 critical access hospitals out of 35 are reporting (26%).

Approximately 1,500 physicians are reporting either immunizations or notifiable lab reports to the Indiana Department of Health through HIE services provided by Indiana HIOs.



HealthBridge offers the capability to generate public health alerts. In addition, they are able to filter lab reports for key diseases and route reportable disease information to local health departments in Kentucky and Ohio. Because HealthBridge's physician client base includes Indiana doctors affiliated with hospitals in Ohio and Kentucky, there are no Indiana physicians utilizing HealthBridge's public health reporting capability for the state of Indiana.

MHIN operates an Oracle-based repository that collects patient data. For public health reporting, they have two-way exchange from their registry to the CHIRP registry. With regard to biosurveillance, they do not provide this information to ISDH because it is understood that this information comes directly from the laboratories.

The majority of operating HIE initiatives offer clinical results delivery as one of their services, while a few of the "advanced" HIE initiatives are implementing public health uses of health information exchange.

Mandated Reporting of Laboratory Results and Medical Diagnoses. Through this effort reportable diseases are automatically identified through laboratory results or a diagnoses and the HIO can electronically transmit reportable results to the appropriate agency. The Regenstrief Institute's Indiana Network for Patient Care (INPC) includes an active surveillance component built around real-time electronic laboratory reporting. Public health has traditionally relied on voluntary reporting of reportable conditions such as communicable diseases, birth defects and cases of cancer. Voluntary reporting is known to have a low sensitivity for these conditions.

Under a Memorandum of Understanding with the Indiana State Department of Health (ISDH), the Regenstrief system compares laboratory data with the Public Health Information Network

(PHIN) Notifiable Condition Mapping Tables¹. The INPC receives data, most as real-time HL7 messages, from each participant over a secure extranet. The system standardizes the message format and codes and stores the data in the INPC database in real time. When the system identifies reportable results, it adds patient demographics and provider data such as office telephone numbers, addresses, and information about previous related results to the reportable disease database. The system replicates the database to the Marion County Health Department (MCHD) and ISDH each night. In addition, the system sends several public health officers and the investigators a de-identified aggregate e-mail summary of new cases each morning including a flow sheet showing recent trends.

Syndromic Surveillance. Syndromic surveillance systems are being developed locally, regionally, and nationally – this technical work can be performed, at any of these levels, by any number of entities, including the HIE initiative. Syndromic surveillance uses real-time, pre-diagnostic data (e.g., ED chief complaints) tied to statistical algorithms that provide real-time outbreak alerting, disease trends, and tracking of non-specific symptoms or health events. The term “syndromic surveillance” is used because cases are identified based on self-reported symptoms that correspond to a particular syndrome, in contrast to traditional surveillance that identifies cases through confirmed lab tests. Syndromic surveillance reporting is mandated per Indiana state law (410 IAC 1-2.4-8). By Jan 1, 2011, all hospital emergency departments will be required to report this information.

Two examples of public health disease surveillance are the Real-time Outbreak and Disease Surveillance (RODS) system and the previously mentioned, Public Health Emergency Surveillance System (PHESS).

The RODS system is a computer-based public health surveillance system for early detection of disease outbreaks². The hospitals send real time RODS data from clinical encounters over virtual networks using the Health Level 7 (HL7) message protocol. RODS automatically classifies the registration chief complaint from the visit into one of seven syndrome categories using standard classifiers. It aggregates the data for analysis using data warehousing techniques, applies statistical detection algorithms to the data, and alerts users of when the algorithms identify anomalous patterns in the syndrome counts. RODS was used during the 2002 Winter Olympics and currently operates in several states—Pennsylvania, Utah, Michigan, and Ohio. It has been and continues to be a resource for implementing, evaluating, and applying new methods of public health surveillance.

PHESS is the statewide infrastructure used to analyze data from Indiana hospital emergency departments to protect the health of Indiana’s residents from acts of bioterrorism, disease

¹ http://www.cdc.gov/phinf/data_models/index.htm

² “Technical Description of RODS: A Real-time Public Health Surveillance System.” *J Am Med Inform Assoc.* 2003;10:339-408.

outbreaks and other public health emergencies³. The system monitors “primary complaints” from Indiana emergency departments. A very important aspect of syndromic surveillance is its use of real-time, or near real-time data. Often, as outbreaks occur, those affected may not receive a definitive diagnosis from a health care provider or may try to self-medicate symptoms associated with an outbreak of illness. In addition, the early symptoms of exposure to agents most likely to be used for bioterrorism are similar to those of the common cold and influenza. The sooner an outbreak or other public health emergency is detected, the more rapidly a response can be initiated, ultimately reducing morbidity and mortality.

Population-level Quality Monitoring. There has been concern over the growing numbers of chronic diseases and public health has become increasingly involved in campaigns aimed at their prevention. Monitoring chronic diseases and the quality of the preventative care delivered on a community-wide level across different providers and payers is very difficult. To the extent that an HIE system transcends the barriers of institutionally “siloes” data, the HIE might be able to provide an enhanced ability to monitor quality metrics across an entire community for these diseases (e.g. rates of colonoscopy or mammograms for cancer screening, or hemoglobin A1C levels for diabetes control)⁴.

As HIE initiatives become increasingly sophisticated and additional electronic, integrated data is available to the HIE initiative, there will be concomitant improvements in public health services that will yield improved population health outcomes. Another initiative that will help to understand HIE value to Public Health is from The Centers for Disease Control and Prevention (CDC). The CDC has awarded three contracts (Science Applications International Corporation; Health Research Inc., New York; and The Indiana University School of Medicine) to health information exchange initiatives with the aim of advancing information-sharing operations between public health authorities and clinical care stakeholders. Specifically for Indiana, the funding will allow researchers from the Regenstrief Institute Inc. to build upon their groundbreaking work in health information exchange and surveillance to develop innovative public health informatics solutions to improve public health outcomes.

Indiana State Department of Health (ISDH)

The Indiana State Department of Health (ISDH) developed a technical environment reflective of the different divisions which comprise the organization. This “silo” technical structure established barriers to sharing information electronically, both within the organization as well as

³ Grannis SJ, Wade M, Gibson J, Overhage JM. *The Indiana public health emergency surveillance system: ongoing progress, early findings, and future directions.* AMIA Annu Symp Proc. 2006:304–8.

⁴ Mostashari. *Population health monitoring in regional health information networks.* S57 Panel; AMIA Annu Symp Proc. 2006.

with customers and constituents outside of the organization. In many situations, the same data is requested and collected in more than one ISDH system.

At present, there are nearly a dozen systems that store a variety of public health data. Duplicated data is often stored in these multiple systems. There are limited data sharing capabilities found in the system.

Additionally, the operating costs for maintaining these systems is high, and the personnel costs (both for local and state public health employees and providers reporting statutory incident data) is high due to multiple data entry requirements.

ISDH has a vision to transform their information systems environment to better facilitate information exchange between health care providers and public health authorities. Reduced system redundancy and improved bidirectional data flow with community providers, local health departments and hospitals can result in improvements in public health policy-making resulting from better availability of integrated data. Significant opportunities exist for leveraging Indiana's HIE infrastructure to support achieving these public health reporting goals.

S.2.6. Quality Reporting Readiness

Indiana's statewide Health Information Exchange strategic planning efforts recognize that expanding the state's quality reporting capabilities to demonstrate meaningful use of HIT through the electronic delivery of quality measures is important to Indiana's eligible providers and hospitals.

At present, more than 1,200 physician practices in Indiana utilize quality reporting tools through a HIO's existing HIE quality reporting services. This represents approximately 25% of the physicians practices engaged in HIE activities as reported in the IHIT Survey of HIE Adoption and HIO Interviews, May 2010. The quality measurement and reporting functionality in place utilizes clinical data found on claims reports to deliver quality information to providers and payers.

Clinicians often do not have access to comprehensive information about the patient at the point of care or have information necessary for coordinating the care of patients with serious chronic conditions. In the future, the quality measures captured will need to cover all the federal government requirements established by ONC and CMS for quality reporting. Expanding quality reporting capability through Indiana's HIE statewide network will increase the capacity for physicians and hospitals all across the state to meet the requirements established by the ONC and CMS.

A future need identified in the environmental scan is to implement statewide exchange capabilities that enhance connectivity and interoperability while continuing to preserve the flexibility for health care providers to utilize the EMR system of their choice. The information below describes ways that existing HIE assets currently increase quality reporting capacity for providers in the state.

The **Indiana Network for Patient Care (INPC)** is the nation's largest normalized, inter-organizational clinical data repository. It is currently in use at over 130 sites in Indiana, storing data on over 6 million patients and utilized by approximately 15,000 active users. Each data source organization maintains control over its own data while IHIE and its technology partner, the Regenstrief Institute, manages and administrates the databases. It can provide point of care summary for each patient record. If use of INPC extends beyond a regional level to cover the state, or if the MHIN CDR repository (MHIN CDR) is expanded in combination with INPC, or some other statewide repository solution can be established, the value it can deliver to the health care system increases considerably.

Quality Health First (QHF), which allows for robust reporting to providers on their patients, focuses on chronic disease management. QHF incorporates the use of claims information from participating payers with real-time clinical data. In addition, QHF can provide individual patient reporting for case management and aggregated population reporting as well. Furthermore, QHF provides reports to the payers on how well physicians are supplying quality care for all patients for whom they have responsibility. Payers in turn can reimburse those physicians at higher levels based on their quality measures.

Central Indiana is one of 17 communities participating in the Robert Wood Johnson Foundation's, **Aligning Forces for Quality (AF4Q)** initiative, which applies a wealth of resources, expertise and training to effect real results in health care quality. This project is led by the Central Indiana Alliance for Health (CIA4H) in partnership with Health Care Excel, a leader in objectively evaluating the delivery of quality health care. CIA4H is a multi-stakeholder coalition consisting of nonprofit organizations, hospitals, health plans, primary care physicians, nurses, consumers, employers and the state of Indiana all working together to drive health care quality. The coalition is working across organizations and nine counties to improve health care systems and outcomes for residents of central Indiana.

HealthBridge, an Indiana HIE, is participating in the Aligning Forces for Quality Greater Cincinnati Health Measures reporting project. Through this effort, nearly 100 practices report diabetes quality measures. HealthBridge is supporting this work and has established a disease registry and data integration capabilities to assist practices with quality reporting for AF4Q in this area.

S.2.7. Other Statewide Readiness

Historically, Indiana's five HIOs have principally operated with self-determined service offerings around loosely defined geographic territories and limited levels of coordination and collaboration. However, since 2007 a number of initiatives have helped to promote greater collaboration and coordination across the various HIE stakeholder groups.

Indiana Health Informatics Corporation (IHIC) is a public instrumentality created under statute by the State of Indiana to guide and promote health information exchange within the State. More specifically, the corporation has been established to "...encourage and facilitate the development of a statewide health information exchange system; and the ongoing operation of the statewide health information exchange system, including monitoring the performance, quality and security of the statewide health information exchange system." (Indiana Code 5-31-6-1) Under this charter, IHIC acts as a strong advocate for education, development, and promotion for health information exchange within Indiana. In addition, IHIC helps to promote greater statewide coordination and collaboration of HIE efforts. By law, the nine-member board of IHIC must comprise: (i) the secretary of the State's agency for family and social services; (ii) the State health commissioner; and (iii) seven individuals appointed by the Governor, of whom at least one must be a licensed physician actively engaged in the practice of medicine; and one individual engaged in hospital administration. (Indiana Code 5-31-4-2)

IHIC is expressly authorized to "[p]repare and modify, as necessary, a plan to create the statewide health information exchange system." (Indiana Code 5-31-6-1(2)) IHIC's current role has consequently encompassed statewide planning and visioning, awareness-building, and convening collaboration opportunities involving providers, HIOs, public health, and other stakeholders. In September 2008, IHIC approved a series of statewide HIE visions that were created after a year-long planning effort (described in Table 3). IHIC has spent the last year publicly communicating these visions and convening work groups to recommend actions to be taken to move Indiana toward their accomplishment. The work groups' efforts resulted in important contributions to the Strategic and Operational Plans that are being submitted with this CAP proposal.

Table 3: IHIC Visions

Year	Vision
By 2010	75% of the insured population of Indiana will be members of commercial or government payers who are participants in a program with publicly available outcomes-based reporting.
By 2011	All healthcare markets in Indiana greater than 50,000 people will have a community health record system with aggregated clinical data available to providers for treatment of patients.
By 2012	30% of physicians in all healthcare markets in Indiana greater than 50,000 people will have access to relevant, high-priority electronic clinical information to address needs of patients being served (including those referred for care).
By 2012	A mechanism for electronic asynchronous physician-to-physician communication to enable the exchange of necessary supplemental information to coordinate care on co-managed patients will be available.

The Indiana HIE Collaboration was created in late 2008 by the leadership of Indiana's individual private-sector HIOs as well as representatives of the State of Indiana, including the Chief Information Officer of the Family and Social Services Administration and the Director of Indiana Medicaid. These regular meetings to pursue collaborative opportunities have been highly productive, and have helped to drive the development of frameworks for dealing with interoperability, privacy and security. These frameworks have also helped to facilitate the electronic delivery of clinical results among three different Indiana HIOs: HealthBridge, HealthLINC and IHIE. This "live in production" hand-off of clinical results began in August 2009, following several months in development and testing. In addition, IHIE and Med-Web have been actively pursuing collaboration in Northeast Indiana, with the intent of offering expanded services to area healthcare providers.

ExibHIT Indiana (www.exibHITindiana.com) is a website launched in 2009 by BioCrossroads, Indiana's public-private collaboration for development of the State's life sciences and healthcare assets, as a portal to enable better access to information, resources, and initiatives in Indiana to a broad spectrum of HIE stakeholders.

S.3. HIE Development and Adoption

Indiana Health Information Technology (IHIT) recognizes that statewide development and adoption of health information exchange significantly improves Indiana providers' ability to deliver higher quality care while simultaneously reducing the costs of maintaining and tracking records, increasing efficiency and reducing errors and duplication. Today, Indiana's health information exchange environment includes both mature and emerging HIOs that are exchanging a wide variety of data within and between significant geographic service areas. IHIT has formally convened the major stakeholders interested in HIE across the state who are actively involved in this planning process. National leaders in the field of HIT and HIE are engaged as stakeholders and active participants in planning and future implementation projects. Furthermore, the state offers a sophisticated teaching, research and delivery environment to enable the efforts described in this plan to grow far into the future. This collaborative stakeholder participation model encourages innovation, diversity and real-world solutions.

Some of the activities undertaken by IHIT and Indiana's HIE working groups over the last 18 months include:

- Articulate a statewide HIE vision, mission, and goals.
- Identify statewide HIE strategies such as how to expand HIE adoption to include underserved rural communities.
- Determine core infrastructure requirements for a core statewide HIE system.
- Determine network requirements to cover entire state
- Determine hardware or hosting fees
- Determine core infrastructure needs for priority statewide HIE services, such as a provider directory, record locator, and master patient index.
- Prioritize statewide HIE services required to meet meaningful use criteria.
- Determine value-added HIE services in the public interest, such as public health and quality reporting
- Determine implementation resources required to support deployment, testing and training.
- Scope final projects for procurement documents.

Guiding Principles for HIE Development and Adoption

Using health information exchange increasingly improves patient care. As providers have greater access to clinical data about their patients, they can utilize this information to educate patients about self-care and monitoring. Providers can monitor prescription adherence and evaluate impact of the treatment plan. Over time, providers are able to track a longitudinal patient history to determine if conditions are improving. The ability to improve care by providing comprehensive health information exchange services to every health care provider across the

state is important and is a guiding principle and central goal of IHIT's HIE development and adoption plans.

As providers and payers begin to consistently monitor efficacy of treatment plans, overall healthcare costs decrease as a result of this continuum of care. Insurance and administrative costs decrease as the system migrates away from a paper-based claim process to connected data exchange.

Leverage Strengths of Existing HIE System Statewide

As reflected in Section S.2 Environmental Scan, a history of HIE advancement and achievement currently exists in Indiana. The state is fortunate to have five independent, regionally-based HIOs, each of which has been operational and sustainable for at least five years. The goals and objectives outlined in this Strategic and Operational Plan extend the existing strengths present in Indiana's health information exchange landscape. Indiana Health Information Technology plans to leverage the resources and services available through the existing HIOs wherever possible. Many of the projects and activities described accelerate participation in the existing system in the areas of the state that have been slow to adopt HIE.

Achieving Meaningful Use of Health Information

The IHIT vision, mission, goals, objectives, and strategies are designed to assist Indiana healthcare providers to demonstrate meaningful use of HIT as described in the HHS Meaningful Use Final Rule, and in particular to ensure that all eligible providers in the state have at least one option available to them to meet the HIE requirements of meaningful use in 2011 (see figures 22 and 23). IHIT will concentrate its resources, efforts, and dashboard tracking systems to enable and measure the three HIE focus capabilities for 2011:

1. E-Prescribing
2. Receipt of Structured lab results
3. Sharing patient care summaries across unaffiliated organizations

Additionally, IHIT collaborates closely and is aligned with Indiana Medicaid and the Indiana State Department of Health in the design of the strategies, programs, and projects described in this section. The governance structures and processes include these important constituencies, ensuring that the policies and technical infrastructure of the Indiana HIE Program reflect the needs of a broad range of stakeholders and will adapt as needed to meet any changes to meaningful use requirements.

Figure 22: Moving Toward Meaningful Use of HIT

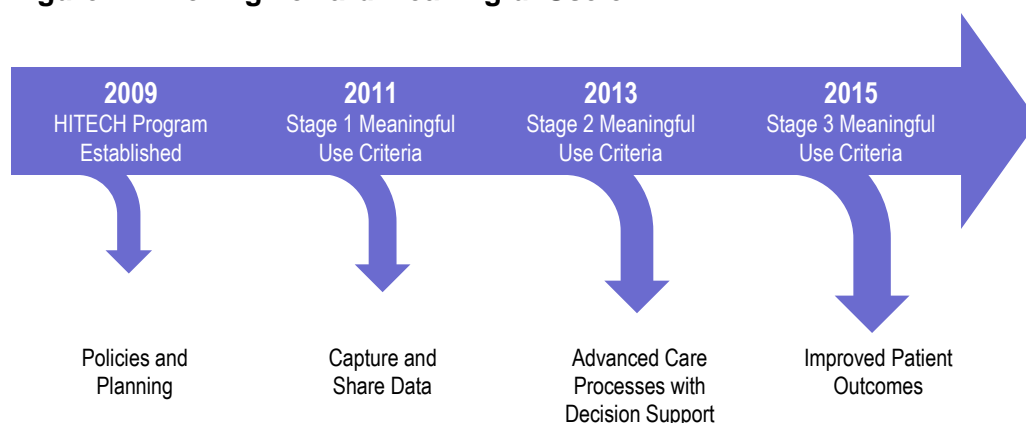


Figure 23: Progression of HIE Functionality Required for Meaningful Use

2011	Electronically capture health information in a coded format
	Use that information to track key clinical conditions
	Communicate that information for care coordination purposes
2013	Encourage the use of HIT for continuous quality improvement at the point of care
	Exchange HIT information in the most structured format possible.
2015	Promote improvements in quality, safety and efficiency
	Focus decision support for national high priority conditions
	Enable patient access to self management tools
	Access to comprehensive patient data
	Improving population health

Obstacles to HIE Adoption

As covered in greater detail in Section S.2.3 Clinical Readiness, there are a number of barriers to HIT/HIE adoption IHIT has uncovered in rural areas in particular. These obstacles include:

- Lack of Up-to-Date Institutional Medical Information and EMR Systems
- One-time Costs of HIE Adoption
- Ongoing Costs to Maintain HIE
- Limited Access to Qualified Health IT Professionals
- Work Flow Productivity Loss
- Lack of Access to Medicaid Data
- Lack of EMR Outbound Interface

Provider incentives available through quality reporting and demonstrating meaningful use of health information technology will reduce some of the barriers to adoption. IHIT has carefully considered these obstacles in designing strategies to increase the speed of adoption of health information exchange throughout the state.

S.3.1. HIE Vision, Mission, Goals and Objectives

Vision. Indiana Health Information Technology's **vision** for health information exchange is a transformed health care delivery system that demonstrates higher quality care, improves patient safety, protects patient privacy, delivers via an efficient and sustainable business model, enhances public health, and is accessible statewide.

Mission. Indiana Health Information Technology's **mission** is to improve the quality, safety, and efficiency of patient care by advancing Indiana's position as a leader in sustainable, secure, standards-based health information exchange.

Goal and Objectives. Indiana Health Information Technology's **goal** is to build upon the strengths of the health information exchange capacity at work in the state today by extending the reach of patients and providers served by the network and increasing the types of health information exchanged on a statewide basis. Indiana will use the Cooperative Agreement Program (CAP) funding to achieve this goal by fulfilling the following **objectives**:

- Develop an effective strategy for reducing the obstacles to HIE adoption in rural and underserved areas across the state;
- Expand and develop health information exchange services necessary for achieving "meaningful use" objectives statewide, with particular emphasis on enabling ePrescribing, receipt of structured lab results, and sharing patient care summaries across unaffiliated organizations in 2011 as described in the July 2010 Program Information Notice (PIN); and
- Establish a governance structure that achieves broad-based stakeholder collaboration with transparency, buy-in and trust;
- Identify a path to continued sustainability by managing financial resources necessary to fund the State's HIE Strategic Plan and Operational Plan;
- Expand the technical infrastructure capabilities that physically enable health information exchange in a secure and appropriate manner; and
- Facilitate the adoption of appropriate privacy and security frameworks for health care information on behalf of consumers, patients and providers.

Outcomes. This approach will generate four critical **outcomes** that will advance the quality of Indiana's health care delivery system:

- The expansion of HIE services to underserved areas;
- Demonstrative improvement in the continuity of care through statewide electronic access to patient health care information from various providers in the health care delivery system;
- Lower health care costs through the reduction of administrative paperwork, redundant clinical tests and results reporting, and,
- Statewide infrastructure for policy-making and project support of state and federal HIE initiatives.

S.3.2. HIE Strategies

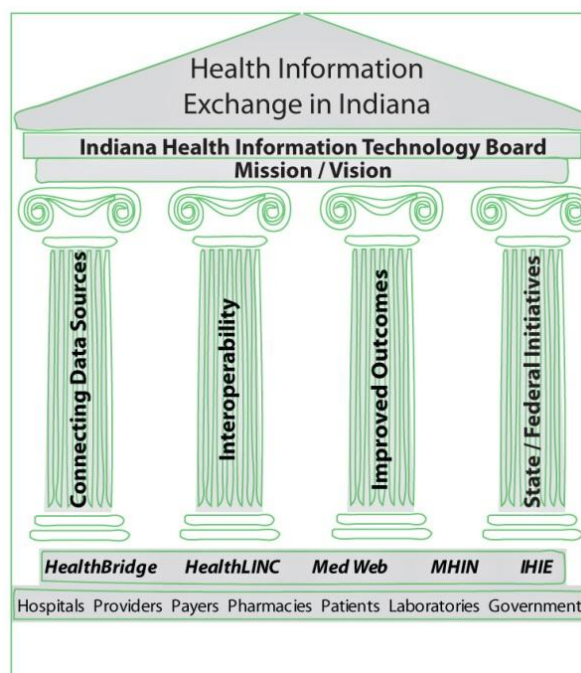
As described, the goals and objectives of the Indiana HIE Cooperative Agreement Program aim to take advantage of opportunities in the existing HIE environment to expand development and adoption in areas of the system that currently underutilize HIT. The four strategies outlined

below are intended to reduce the barriers to adoption as well as expand development of HIE services and build on the existing strengths inherent in Indiana's mature HIE system. They are also designed to facilitate Indiana healthcare providers in meeting the meaningful use of HIT requirements for 2011 and beyond. Together, these four strategies serve as key strategic pillars upon which health information exchange in Indiana will expand in the years to come (as characterized in Figure 24).

Strategy 1: Connecting Data Sources

Indiana Health Information Technology will support projects and initiatives through authorizing and funding projects, coordination, and advocacy that facilitate the installation of electronic interfaces or access infrastructure to allow providers to connect with HIOs operating in Indiana. Specific HIE adoption and development objectives and activities associated with this strategy are described in the following subsections.

Figure 24: IHIT Strategic Pillars



Objectives

As demonstrated in the environmental scan, an HIE service participation gap exists with acute care hospitals, critical access hospitals, rural health clinics, FQHC's, laboratories, and physician practices in rural settings and other areas with a medical trading area population of less than 45,000. To address this fundamental problem, IHIT's objectives for this strategy are:

- Increase rural acute care hospital, critical access hospital, and rural laboratory HIE connectivity with the HIO of their choice for all such institutions that are currently not connected;
- Improve broadband coverage in the target areas;
- Expand data capture and sharing with rural health centers, FQHCs, and physician practices;
- Provide access to Indiana Medicaid claims, medication history, and encounter data.

The timeline for these objectives appears below in Table 4.

Table 4: Connect Data Sources

Date	Implementation	Provider	Other Organizations
2011	Hospital Information System/EMR Broadband Access HIO Selection Electronic Interface	15 Acute Care Hospitals and Critical Access Hospitals	50 Rural Health Clinics, FQHCs, and other health centers, 25 Laboratories and imaging centers
	Medicaid Claims and Encounter Data	All Providers	Indiana Medicaid
2012	Hospital Information System/EMR Broadband Access HIO Selection Electronic Interface	15 Acute Care Hospitals and Critical Access Hospitals	50 Rural Health Clinics, FQHCs, and other health centers, 25 Laboratories and imaging centers

Activities/Projects

IHIT has implemented a public project idea generation process and has received 111 proposed project ideas from constituent organizations, HIT vendors, HIOs, and other interested parties. Some of these projects are consistent with the Connecting Data Sources strategy. The IHIT Board of Directors and State HIT Coordinator, with the advice of the HIE Policy and Technical Advisory Council, have selected projects from those proposed that will implement the Connecting Data Sources strategy and have developed additional projects from analysis of the

environmental scan. The projects go into a formal RFP process to select the vendor(s)/organization(s) with the best qualifications for development and implementation. These projects include:

- Connectivity Match Grant Program
 - Rural Hospitals
 - Critical Access Hospitals
 - Federally Qualified Health Centers
 - Rural Health Clinics

The Connectivity Matching Grant project will help address the barrier that exists for access to HIE infrastructure in rural areas of Indiana. This project will incentivize eligible organizations to develop the interface infrastructure to link organization to established Health Information Organizations. Incentive payments will include \$40,000 for hospitals and \$10,000 for health centers or other health information entities as defined in the project scope. Hospitals that are eligible are rural hospitals that have the designation of Critical Access Hospital (CAH) or Sole Community Hospital (SCH). Community Health Centers that are eligible must be located in or serve a documented high-need community in at least one of three Designation Categories: Medically Underserved Areas (MUAs), Medically Underserved Populations (MUPs), and Health Professional Shortage Areas (HPSAs). Other Health Information Entities that are eligible are imaging centers and laboratories that are not entities defined elsewhere in the project.

Strategy 2: Interoperability

As described in the Environmental Scan Clinical HIE Readiness Section (Section S.2.3), some Indiana HIOs have established interoperability to enable the full exchange of health information through their HIE service offerings. Indiana Health Information Technology will support projects and initiatives through authorizing and funding projects, coordination, and advocacy that develop standards and infrastructure to allow health information to flow freely between intrastate and interstate providers serviced by Indiana HIOs. Specific HIE adoption and development objectives and activities associated with this strategy are described in the following subsections.

Objectives

- Route clinical messages, CCD/CCR summaries, and structured lab and radiology reports rapidly regardless of originating exchange network;
- Establish an aggregated global patient care summary from multiple sources to give a complete picture of the status of the patient. Would be accessed by the physician prior

to an encounter as a pull. This is a query service and would require data to be stored in in a federated set of repositories;

- Patient data stored in repositories would be accessible by authorized providers in unaffiliated organizations that are served by all HIOs in the state;
- HIOs operate using statewide HIE standards consistent with Nationwide Health Information Network and the HIT Standards Final Rule;
- Expand participation in Nationwide Health Information Network.

Activities/Projects

- HIO to HIO Connectivity

The HIO to HIO connectivity project will develop the infrastructure and contracting necessary to deliver a consolidated patient care summary to providers with which the HIO's have existing relationships. . This will be achieved by expanding message routing using the CCD/CCR formats between all Indiana HIOs using similar methodologies to what is currently deployed between IHIE and HealthBridge, and will require a shared HIO-entity database (database that shows which HIO has a direct connection to which providers). The routed messages will be extracted and stored in the repositories operated by the HIOs. A patient record locator service will be established using a federated query model and will be used by any HIO wishing to query the repositories to gain other information. A record assembler will utilize the record locator service to find and combine all patient data available in the repositories and deliver the message to the intended entity in a discrete format. The consolidated patient care summary will be provided in a format that is compatible with the provider's EMR and workflow. The transfer of clinical summaries will utilize (where available) national standards for transport, security, and message structure.

- Data Mapping and Normalization

The data mapping and normalization project will adopt, publish and maintain a preferred set of standards-based nomenclature in conjunction with the national standards for all HIE transactions. The adoption and comprehensive use of these standards will facilitate the goal of achieving 100 percent adoption by HIOs and other state HIE participants. This project will conclude with the development of a data nomenclature change process for future development or revisions of data element standards. The focus will be on the data elements currently exchanged between HIO to HIO and HIO to stakeholder. These data elements will include at a minimum, patient demographics, radiology, laboratory, discharge summaries, and other clinical documents created at the point of care.

Strategy 3: Improved Outcomes

Indiana Health Information Technology will support projects and initiatives through coordination, advocacy and potential budget/staff support that enable the timely use of health information exchange to improve clinical decisions from the provider, payer, and patient perspective. Specific HIE adoption and development objectives and activities associated with this strategy are described in the following subsections.

Objectives

- Support Personal Health Record development and acquisition
- Expand Care Coordination Programs
- Introduce Advanced Clinical Processes into HIE
- Develop statewide medication profile
- Provide integrated clinical information about a physician's patients from all internal and external care sources to the physician's certified EHR .
- Support patient-level clinical decision support tools

Activities/Projects- Current

- Privacy and Security Policy Development
The Privacy and Security Policy Development Project will allow the IHIT Board and Council to explore current state regulations and statute as they compare to federal privacy and security statutes. A gap analysis will be performed to determine best course of action to remove any barriers to HIE activities both intrastate and interstate.

Activities/Projects- Future

- Patient Health Record Availability
- Medical Imaging Exchange
- Quality Reporting

Strategy 4: State/Federal Initiatives

Indiana Health Information Technology will support projects and initiatives through coordination, advocacy and potential budget/staff support that develop the use of HIE to meet federal and state public health initiatives. Specific HIE adoption and development objectives and activities associated with this strategy are described below.

Objectives

- Expand Public Health Surveillance
- Simplify Quality Reporting Mechanisms
- Privacy & Confidentiality

- Enable “meaningful use” data compilation for incentive provision.
- Support provider and health plan population management tools

Activities/Projects

- CHIRP Bi-direction EMR Development

The Indiana State Department of Health (ISDH) Immunization Registry, CHIRP, (Children and Hoosiers Immunization Registry Program) will partner with Electronic Medical Records (EMR) and Electronic Health Records (EHR) vendors to implement bi-directional HL7 messaging between medical providers and CHIRP. This exchange would enable Indiana vaccination providers to electronically submit the required immunization records to the registry using existing (or new) EMR systems in place without needing to utilize the CHIRP web-based interface as an additional workflow for the collection of immunization data. More importantly, providers will receive thorough immunization histories for patients within their EMR as well as a suggested immunization schedule.

One of the main barriers of the registry is “Double Data Entry,” which is entering vaccine data in both an EMR and CHIRP. A bi-directional connection would allow a provider to enter data into their EMR, connect to CHIRP for an update, and then receive the data back into their own system, making a match between the two. This project will benefit all CHIRP providers who have an EMR but no connection to the registry, or that only have an import connection (from the EMR to CHIRP). This project will also provide the same benefit to providers who are considering an EMR rollout and would like to have this bi-directional connection.

Resources identified for this project will work hand in hand to develop bi-directional exchange mechanisms within EMR/EHR vendor applications and provide assistance to providers to implement new technology

- Web Based Communications Tool

This project will lead to the development of a web-based communications tool (ie. Web portal/blog) to allow for transparency and timely distribution of HIE activities. This communications tool will be able to be utilized to distribute HIE communications by multiple entities involved in HIE activities occurring within the state of Indiana (ie. SHIE-CAP, Beacon, and REC's). This website will be modeled after the ONC web page functionality.

Strategy Summary

Indiana Health Information Technology, Inc. has developed an Indiana HIE Strategic Plan that leverages the existence of five health information organizations that deliver a wide range of HIE services to Indiana healthcare providers. The strategic plan addresses barriers to adoption of HIE services and gaps identified in the Environmental Scan. First, IHIT will expand statewide data source connectivity through grants provided to rural acute care hospitals, critical access hospitals, and community health centers, thereby bringing needed HIE connectivity to underserved areas of Indiana. Second, IHIT will invest in standards based infrastructure and systems to connect all HIOs in the state. This full HIO to HIO interconnectivity will be combined with a patient clinical information repository system to enable authorized healthcare providers statewide to query the system and receive a longitudinal consolidated care summary of all healthcare the patient has received, thereby improving point of care clinical decision support. Third, IHIT will invest in projects that will improve the outcomes of patient care, concentrating first on refining statewide privacy and security policies. And fourth, IHIT will invest in federal and state initiatives by collaborating with the Indiana State Department of Health to implemented bi-directional messaging between Indiana healthcare providers and the state immunization registry.

IHIT will develop the operational projects and programs, award contracts to third parties to conduct the projects, and ensure that the projects are conducted according to the requirements of the CAP. Effective implementation of the strategic plan will bring many underserved areas of the state into the HIE network, and will enable Indiana healthcare providers to achieve and demonstrate meaningful use of Health Information Technology (HIT) to enhance delivery, quality, and value of health care.

S.4. Health Information Technology (HIT) Adoption across Indiana

S.4.1. EHR Adoption

A significant percentage of Indiana acute care hospitals (66%, representing 89% of the state's acute care beds) and laboratories have adopted institutional medical record systems to enable communication of patient-oriented clinical information (admission, discharge, transfer (ADT) records, laboratory results, radiology results, transcribed reports, and dispensed medications) through health information exchange (HIE). Recipients of this clinical information include primary care physicians, specialists, and practitioners in rural health clinics, FQHCs, and other community health centers. These physicians in Indiana have also begun to adopt health information technology (HIT) in the form of electronic health record (EHR) systems to capture clinical information generated within their practices, and to accept clinical information from other sources through HIE.

The Indiana Healthcare Information Technology Extension Center (I-HITEC) at Purdue University has the mission to advance the adoption and meaningful use of EHRs among Indiana providers, with an emphasis upon serving priority primary care providers in small-group practices or practices that treat rural, uninsured, underinsured, underserved, or other at-risk populations. They have identified 8,000 primary care physicians (PCPs) in their service area, including 6,500 Priority PCPs, and have a goal of serving a minimum of 2,200 PCPs in their assessment and adoption of a certified EHR system. I-HITEC has estimated that, while a larger percentage of Indiana PCPs have adopted some type of EHR system, only about 5% of their priority primary care providers have EHRs with the necessary functionality to achieve meaningful use. I-HITEC is currently assisting priority PCPs through education, coordination of vendor selection and group purchasing, practice and workflow design, and on-site training increase the adoption of certified EHRs in their service area.

The HealthBridge Tri-State Regional Extension Center serves primary care physicians in a three state area (southwest Ohio, northern Kentucky, and 19 counties in southeast Indiana). Their goal is to assist 1,740 target PCPs in small rural practices and community health centers to implement EHRs, achieve meaningful use, and qualify for incentives. The Tri-State REC estimates that 14% of the priority primary care providers physicians in their 19-county Indiana service area have adopted EHR systems in their practices, demonstrating that, like in the other Indiana counties, progress is being made but significant opportunities still exist for certified EHR systems to be implemented.

The Michiana Health Information Network (MHIN) reported 2009 EHR adoption statistics (Source: April 2010 Adoption Rate Report) suggesting a higher adoption rate of EHR systems in its service area of 10 Indiana counties surrounding South Bend.

Table 5: EHR Adoption in 10 Northern Indiana Counties End of Year 2009

Category	Total	Percent
Total Target Physician Population	856	
Providers who have purchased an EHR	578	68%
Providers who have completed Implementation	497	58%
Providers who have a Unidirectional Interface (Receiving Electronic Results)	300	35%
Providers who have a Bi-Directional Interface (Receiving and Sending Electronic Results)	141	16%
Providers ePrescribing (From Surescripts)	365	43%

Other Indiana HIE organizations report additional pockets of higher physician HIT adoption. HealthLINC reports that in Bloomington (Monroe County) 54% of the physicians have adopted EHR systems, and in Paoli (Orange County) there is a 76% adoption rate. In Northeast Indiana, Med-Web and EHR vendor MIE have worked collaboratively to achieve more than 65 percent EHR penetration. While these adoption rates of EHR systems are impressive, the new extensive meaningful use requirements and the need for certification will require early adopters to implement new features to enable the full suite of meaningful use functions.

The Indiana Primary Health Care Association (IPHCA) conducted a survey of Community Health Centers (19 FQHCs and 29 state-funded) on EHR adoption in May 2010. Of the 17 centers responding, 65% had gone live with an EHR system and 24% were implementing an EHR system. About half of the centers that used an EHR reported that they received HIE information delivered directly into the EHR. While there were a significant number of non-responding health centers, the data nonetheless suggests a concentrated movement in this healthcare provider group to adopt EHR systems in anticipation of establishing meaningful use of HIT.

The Indiana Rural Health Association (IRHC) conducted an online survey of 35 critical access (22 responded), 7 rural (6 responded), and 6 urban (3 responded) hospitals in the fall of 2009 to understand the trends in HIT adoption. "The survey was developed by the Indiana Rural Health Association, in cooperation with the Indiana Telehealth Network (ITN) and the Indiana State Rural Health Network (InSRHN), to gather information regarding the existing level of implementation of health information technology and to assist us in understanding how we can best help our provider community achieve Meaningful Use and qualify for the available financial incentives." (Source: 2009 HIT Survey Summary, Indiana Rural Health Association). Information from the survey on EHR adoption in the hospitals and the ambulatory physician practices owned by the hospitals appears in the following tables:

Table 6: Do you use an EMR in your hospital now?

	Yes	No
Critical Access Hospitals	66%	33%
Rural Hospitals	80%	20%
Urban Hospitals	100%	0%

Of those hospitals currently using an EMR, the most popular systems are CPSI (29%), Meditech (29%), HMS (10%) and Healthland (10%).

Table 7: Do you use an ambulatory EMR in your hospital-owned medical practices now?

	Yes	No
Critical Access Hospitals	50%	50%
Rural Hospitals	80%	20%
Urban Hospitals	75%	25%

Of those hospitals currently using an ambulatory EMR in their hospital-owned medical practices, the most popular systems are Allscripts (21%), Misys (21%), and Meditech (14%).

When asked to describe their organizations' near-term priorities (1 to 3 years) for acquiring new information technology, the survey respondents mentioned:

- Achieve Meaningful Use
- Connections to HIEs
- CPOE
- EMRs
- E-Prescription
- HIPAA regulations
- Patient and Physician Portal
- Single Sign On
- Wireless networking

The data from Indiana's HIT regional extension centers (RECs), the HIOs, the IPHCA, and the IRHA all describe a statewide community of healthcare providers in transition from paper-based health care record systems to electronic systems. All the major healthcare community organizations are assisting and encouraging their constituent members to adopt HIT to enable meaningful use achievement and improve healthcare quality. The adoption of EMR systems is accelerating, particularly where hospital affiliation, REC support, or other factors cause various participants in a medical trading area to work together in sharing resources and overcoming issues. The data suggest that delivery of HIE services directly into the EMR lags behind the implementation of EMR systems, partly because of the widespread availability of HIE information through HIO-provided web portals, electronic inboxes, and fax services, and partly because of resource and technical challenges in establishing interfaces with individual EMR systems. Even though much progress has been achieved, significant opportunities and resource needs remain for IHIT to address in its HIE adoption strategy.

S.4.2. E-Prescribing Adoption

As indicated in Section S.2.4, SureScripts offers extensive ePrescribing services to virtually all physicians in Indiana through certified standalone software or EHR systems

Table 8: Active Prescribers in Indiana by MSA Y/E 2008 and 2009

	Y/E 2008	Y/E 2009	% Growth
Indianapolis IN MSA	810	1,343	66%
South Bend IN MSA	73	312	327%
Fort Wayne IN MSA	133	282	112%
Chicago-Gary-Kenosha IL-IN-WI CMSA	62	213	244%
Evansville-Henderson IN-KY MSA	46	200	335%
Lafayette IN MSA	21	183	771%
Terre Haute IN MSA	2	137	6750%
Louisville KY-IN MSA	67	98	46%
Bloomington IN MSA	60	91	52%
Elkhart-Goshen IN MSA	37	59	59%
Muncie IN MSA	32	47	47%
Kokomo IN MSA	4	26	550%
Cincinnati-Hamilton OH-KY-IN CMSA	2	12	500%
UNKNOWN	197	466	137%
Grand Total	1,546	3,469	124%

Source: SureScripts 08-09 Indiana MSA Analysis, June 2010

(Source: State Progress Report on Electronic Prescribing- Indiana,
<http://www.surescripts.com/about-e-prescribing/progress->

reports/state.aspx?state=in&x=74&y=15). As of December 2009, 96% of Indiana community pharmacies were activated for ePrescribing and 68% of Indiana patients have their health plan prescription benefit information available for prescriber query. Physicians across the state are continuing to accelerate electronic prescribing, as evidenced in a SureScripts 2008-2009 Analysis of Indiana ePrescribing by metropolitan statistical area (MSA) (Tables 8 and 9).

The number of electronic prescribers in Indiana (Table 8) grew 124% between year end 2008 and year end 2009 to a total of 3,469, or approximately 23% of Indiana prescribers. Significant triple digit growth in e-prescriber numbers occurred in MSAs in the northern half of the state, with more modest double digit growth in Indianapolis (the largest number of e-prescribers) and MSAs in the southern half of the state.

The total number of ePrescriptions in Indiana (Table 9) grew from just over one million in 2008 to over 4.5 million in 2009, a growth rate of 316%. All MSAs grew at triple digit rates, especially the larger more populous northern half of the state compared to the more rural southern half of Indiana. Lafayette and Terre Haute stand out as the biggest percentage gainers at 2,296% and 4,489% respectively, while Indianapolis added almost 1.2 million ePrescriptions, the most of any

Table 9: Prescriptions in Indiana by MSA 2008 and 2009 (New and Renewal)

	2008	2009	% Growth
Indianapolis IN MSA	345,076	1,507,904	337%
Lafayette IN MSA	17,020	407,796	2296%
South Bend IN MSA	59,483	361,597	508%
Fort Wayne IN MSA	99,002	298,528	202%
Chicago-Gary-Kenosha IL-IN-WI CMSA	35,015	230,581	559%
Louisville KY-IN MSA	71,034	187,104	163%
Terre Haute IN MSA	3,600	165,210	4489%
Bloomington IN MSA	75,448	161,073	113%
Evansville-Henderson IN-KY MSA	51,118	118,007	131%
Muncie IN MSA	25,163	110,740	340%
Elkhart-Goshen IN MSA	20,216	100,670	398%
Kokomo IN MSA	6,411	19,778	209%
Cincinnati-Hamilton OH-KY-IN CMSA	3,052	9,370	207%
UNKNOWN	280,490	868,530	210%
Grand Total	1,092,128	4,546,888	316%

Source: SureScripts 08-09 Indiana MSA Analysis, June 2010

MSA. While the percentage growth of ePrescribing in Indiana is impressive, the total number of prescriptions electronically routed still represents less than 10% of the total prescriptions written in the state.

The growth in ePrescribing comes in part from focused ePrescribing initiatives such as with the Employers Forum of Indiana. This partnership of large employers, hospital systems, state and local government, health plans, and research universities began developing ePrescribing initiatives in 2008 to encourage physicians throughout Indiana to prescribe electronically (Source: <http://sites.google.com/site/erxindiana/home>). The Forum developed education materials that the various members used to educate physicians and other healthcare providers, pharmacists, and employees on the efficiencies and quality benefits of ePrescribing. These widespread efforts by informed stakeholders led to significant adoption of SureScripts as a preferred ePrescribing vehicle, and to the use of ePrescribing modules in EMR systems.

An additional measure of the impact on patient care quality is the number of patient visits in which the prescriber evaluated the patient's health plan benefits and consulted the prescription history. By using these SureScripts online services, the physician can assess the therapeutic and cost benefits of other possible pharmaceuticals that are covered in the patient's health plan. Additionally, the physician can determine the patient's adherence rate if they see any gaps in prescription refills. By seeing this information during the patient encounter, the caregiver can ask more informed questions of the patient and improve care quality. In 2008 (update with 2009 data when available in July 2009), 8% of Indiana patient visits had a prescription benefit request (8% nationally) and 3% had a successful benefit response in 2008 (Sources: SureScripts Indiana 2008 Progress Report, 2009 National Progress Report). This represented just a 15% increase in the number of benefit requests over 2007. Nationally in 2009, 30% of patient visits had a benefit request. While state level prescription history data is not available, nationally the number of patient visits in which a prescription history was delivered (done through a SureScripts-licensed vendor's software) grew fivefold from 1.7% in 2008 to 8.2% in 2009.

These trends show that Indiana prescribers are adapting to new practice flow processes and accessing information in real time that was unavailable just a few years ago. Still, the overall levels suggest that over 90% of patient visits occur without the physician electronically accessing this important data. HIOs may be able to influence these numbers upward by offering a patient record query service through which a summary care record, including a prescription history and clinical data, would be delivered from a repository to the physician's EMR or through the HIO web portal. If the physician accessed this record immediately before the patient encounter, he or she would be better equipped to manage their dialogue with the patient, the resulting diagnostic process, and the patient's treatment plan.

There is significant opportunity to leverage the ePrescribing benefits of SureScripts and HIE services, thereby improving electronic medication management, enhancing care quality, and reducing costs. However, until statewide repository coverage is achieved through statewide interoperability and a centralized repository, or expanded repositories at some or all of Indiana HIOs, such enhanced benefits will be enjoyed only by those prescribers serviced by the two Indiana HIOs that operate large patient record repositories.

S.5. Medicaid Coordination

The Indiana Office of Medicaid Policy & Planning (OMPP) has engaged in several initiatives designed to advance health information exchange across the state.

Health Information Technology Adoption

OMPP supports the increased use of electronic health records, e-prescribing and electronic billing throughout the state. Through a \$1.3 million Center for Medicare and Medicaid Services (CMS) Medicaid Transformation Grant, OMPP contracted with IHIE to establish the HIE services by extending existing infrastructure and capabilities to the southwest Indiana region. This project will enable major healthcare providers in Evansville, Indiana, a mid-sized market within the state, to share clinical information at the point of care. These providers will become part of the larger statewide health information exchange envisioned in this document.

Additionally, in response to storms and flooding that took place in June 2008, FSSA created the Indiana Flood Victims eHealth Support Center. This center provided doctors with medical information to assist flood victims and help ensure that necessary medical treatment was available.

Indiana Medicaid accepts and responds to eligibility requests, claim status requests, and claims submission transactions through HIPAA standard transactions from providers. Indiana Medicaid also provides a web portal which providers can use for each of these purposes.

Since the inception of Quality Health First, OMPP has worked collaboratively with IHIE and Quality Health First (QHF) to provide measurements of patient outcomes and quality improvements. OMPP provides Medicaid claims data to QHF. This information will also be available to physician practices who implement EMRs to meet meaningful use reporting requirements funded through the HIT Extension Program discussed in the following section, contingent upon the implementation of necessary infrastructure through an IHIT-resourced project.

Indiana Medicaid's has also implemented telemedicine reimbursement to improve access to rural members. This program policy change is critical to working with the private industry to address access to specialty care issues in rural areas.

Indiana Medicaid HIE and HIT Goals and Objectives

At present, OMPP is developing a formal Health Information Technology (HIT) plan. The Medicaid HIT planning process is closely aligned with the federal requirements for meeting meaningful use.

Members of the leadership team responsible for developing and implementing the state's Medicaid HIT plan are also members of the HIE coordination team. These efforts are working in parallel to ensure that all requirements established by CMS and ONC are promulgated through Indiana's rollout of its statewide HIE and HIT plans.

Currently, the state provides claims data to Indiana's largest HIO, IHIE. Some health care information is included such as diagnosis and the treatment procedures undertaken, but it is important to understand that claim data contains information necessary to receive payment instead of report health information. The capability to exchange health information necessary for program analysis and coordination of care will be implemented in the future. The current data can also be made available to additional HIOs assuming implementation of the proper data agreements and interface connections.

Indiana OMPP plans to extend the health information exchange achieved through their collaboration with IHIE and the Regenstrief Institute through Quality Health First to all the HIO's operating in the state. Specifically, the state plans to provide claims information to a statewide health information exchange to support eligible providers and hospitals reporting requirements for meaningful use. In addition, the organization plans to offer more data elements outside the claims processing transaction to facilitate improved coordination of care for Medicaid beneficiaries.

Indiana Medicaid understands the advantages health information exchange offers to the state in terms of reduced program costs as well as to its beneficiaries in terms of improved quality of care. In the future, HIE would enable providers to query individuals at the point of care to assess Medicaid disability determination. Not only would this speed the process for determining benefits for which the patient is eligible, it would also shift the process away from a largely paper-based exchange to an HIE saving the state nearly a million dollars in records management costs currently paid today.

Medicaid serves a constituency that includes those who are chronically sick and disabled for life. The care associated with this population is costly. Managing the effectiveness of care for these patients with substantial and ongoing medical needs is important to Indiana Medicaid. With improved health information exchange, OMPP can conduct longitudinal patient history analysis to determine if patient's conditions are improving.

For example, tracking uncontrolled glucose levels of participants enrolled in a diabetes management training program can determine the impact of the program. If 1000 people enroll in this Medicaid-sponsored program and 20% of the population sees improvement in their HbA1c levels, then the trend indicates a reduced cost of care for those learning how to better control their glucose levels. Trends can be determined for non-intervention patients and for alternate programs. The MMIS and Decision Support Systems are enhanced as trend data supports

better program analysis for Medicaid, which can ultimately translate into better managed care for populations with chronic conditions and controlling the long term costs associated with their care.

The strategies Indiana Medicaid (OMPP) will employ to achieve these goals and objectives include:

1. Coordinate the planning and implementation efforts associated with MMIS and Medicaid HIT planning efforts.
2. Participate actively in the state's HIE planning and implementation efforts through IHIT.
3. Leverage health information technology and exchange capacity that exists currently in the OMPP throughout the state.
4. Identify Coordination of Care Management (CCM) as well as (Coordination of Benefits (COB) opportunities with private payers to enhance funding options available to the state in support of HIT/MMIS integration.
5. Ensure that clinical data is integrated into the MMIS to allow for program analysis such as trending of financial costs for treatment plans and efficacy of treatment.
6. Allow access to clinical patient data in HIO databases or in HIO supported EMRs by Medicaid Case/Care Managers to facilitate better ongoing health treatment counseling and monitoring of prescription adherence and results.
7. Participate actively in adopting statewide standards for HIT/HIE implementation and inter/intra-state interoperability.
8. Interoperability: Interface with Indiana's HIE infrastructure through the existing standards. Additionally, OMPP will implement the operating rules for standards as required in the Patient Protection and Affordable Care Act (PPACA).
9. Inter/Intra-state issues: *OMPP will collaborate with Medicaid programs from other states, especially those states with geographic proximity, to exchange information and ideas for the mutual benefit of all programs.*
10. *OMPP also anticipates implementing advanced models for identification of cases for disease management programs which is critical to the successful management of quality care and both state and federal spend in the Medicaid program.*
11. OMPP will establish web pages providing quality of care information on Medicaid providers for Medicaid members and consumers. These pages will also identify

providers who are participating in the advancement of quality care through HIT. OMPP believes that public awareness is critical in moving the market forward through encouraging a demand from consumers for providers to meet.

Meaningful Use

To achieve meaningful use Indiana's health information exchange capabilities must align with the elements and timeframes required to support meaningful use. OMPP staff and the Indiana HIT Coordinator will work collaboratively to prepare the Medicaid program to provide incentives for meaningful use. The state, through IHIT, will keep its plans and policies consistent with OMPP in regard to the implementation of meaningful use.

OMPP is currently developing its State Medicaid Health IT Plan (SMHP). OMPP is planning for the following stage 1 activities as part of the Indiana Medicaid Incentive Program:

- OMPP will develop an interface with the National Level Repository (NLR) to receive information on providers who have registered for incentive payments with the Indiana Medicaid Program and to communicate incentive payments from Indiana Medicaid to the NLR.
- OMPP will allow providers to self-attest to meaningful use for the first year of incentive payments. OMPP anticipates utilizing the current MMIS to track these attestations.
- For future years, OMPP will develop a repository for the reporting of Stage 1 clinical quality measures required for meaningful use. OMPP intends to interact with the Health Information Exchange infrastructure established by our state's designated entity. The clinical quality measures will assist OMPP in increasing MITA maturity in the Program Management and Care Management MITA business processes.
- OMPP will also utilize claims and health record data in addition to establishing an auditing process to monitor appropriate payment of incentive payments to providers.

S.6. Coordination of Medicare and Federally Funded, State Based Programs

The Indiana HIT Coordinator will facilitate the coordination of activities between the Indiana Health Information Technology and other State and Federal programs and agencies. This coordination will extend to Medicaid and Medicare as it relates to verification efforts and payments to compliant Medicaid providers as contemplated under ARRA. The Indiana HIT Coordinator will work with relevant federally funded state programs to promote health information exchange, as well as among Indiana's regional extension centers, workforce development initiatives and broadband mapping and access.

IHIT will work with stakeholders to identify and address technical, financial and legal challenges in exchanging health information electronically. The IHIT Coordinator will work to address gaps that exist in the coordination with other federal programs. The Coordinator will work to identify issues of common concern and devise coordination plans that promote shared HIE goals and objectives.

As stated previously, Indiana is home to multiple organizations awarded a Nationwide Health Information Network State/Regional contract, a Nationwide Health Information Network trial implementation contract, a Medicaid Transformation Grant, an HIE Bio-surveillance contract from the Centers for Disease Control, a Regional HIT Extension Center grant, a Beacon Communities Cooperative Agreement Program grant, a competitive award to for the training of an HIT skilled workforce, and a grant to train nurses and allied health professionals in HIT.

These important ongoing projects with ONC and other federal agencies such as the Nationwide Health Information Network cooperative facilitates development of production-level exchange under the Nationwide Health Information Network grant activities. The Nationwide Health Information Network project offers Indiana a unique opportunity to build capacity to share information electronically with federal agencies using a national network. Both HealthBridge and IHIE are two of the six private sector members of the Coordinating Committee for the Nationwide Health Information Network. HealthBridge and IHIE have been selected as two of the three HIOs to participate in the Centers for Medicare and Medicaid Services (CMS) C-HIEP project to test sending quality of care data to CMS using Nationwide Health Information Network connectivity. HealthBridge and the Regenstrief Institute are participants in the Social Security Administration's electronic disability determination project called MEGAHIT that uses Nationwide Health Information Network standards for exchange.

S.7. Participation with Federal Care Delivery Organizations

There are two federal organizations with care delivery operations in the state of Indiana with which IHIT and the five Indiana HIOs can coordinate activities. In addition, the HIOs have extensive experience with the federal Nationwide Health Information Network.

Richard L. Roudebush VA Medical Center and Outpatient Clinics. The Richard L. Roudebush VA Medical Center in Indianapolis, Indiana, is a part of the Veterans in Partnership integrated healthcare network delivery system that improves the health of the Veteran population by providing primary care, specialty care, extended care, and related services. The medical center also provides an environment that promotes high-quality medical affiliate education and training, research, and DoD services in support of the Veteran. The medical center serves 196,000 veterans in a 45 county area of Indiana and Illinois, and also operates two outpatient treatment facilities- one in Bloomington, Indiana, and one in Terre Haute, Indiana. The Bloomington and Terre Haute community-based outpatient clinics provide primary care and mental health services, laboratory services, and specialty referral services to the Roudebush VA Medical Center in Indianapolis.

Historically, decision making about VA participation in HIE services has been done at the central level beyond Indiana, but plans are underway to exchange health information between The Roudebush VA Medical Center and other Indiana health care providers where veterans seek treatment. This pilot project between the US Department of Veteran Affairs and IHIE will utilize the Nationwide Health Information Network gateway to share health information electronically. Veterans who receive medical care both at Roudebush and at private health care providers around central Indiana will be encouraged to sign up for this voluntary service.

“Dr. Stephen Ondra, the VA's senior policy adviser for health affairs, said the VA plans to use the Indiana pilot program in its efforts to create a national program to link VA and non-VA medical records by the end of 2012.” (Daniel Lee. Indianapolis Star. August 26, 2010.)

Camp Atterbury Medical Treatment Facility. The second federal facility operating in Indiana is the Camp Atterbury Medical Treatment Facility (MTF) at Camp Atterbury near Edinburgh, Indiana. Camp Atterbury is Department of Defense (DoD) training facility and mobilization post and houses this small MTF. "MTF" has come to be used as shorthand for all uniform services hospitals, clinics, and medical centers.

As priorities allow, IHIT will engage both the Roudebush VA Medical Center and the Camp Atterbury MTF to understand their needs and plans for HIE services in Indiana. IHIT will also encourage the five HIOs operating in Indiana to continue to offer HIE services to these two federal care delivery facilities based on their developing needs and future plans for exchanging healthcare information. Several of the HIOs will be able to leverage their capabilities through

their Nationwide Health Information Network gateway connections established in Nationwide Health Information Network pilot projects.

Nationwide Health Information Network. Three Indiana HIOs, IHIE, HealthBridge, and HealthLINC, participate in several production pilot projects using Nationwide Health Information Network gateways to the Nationwide Health Information Network Limited Production Exchange (Nationwide Health Information Network Exchange), including the Social Security Administration (SSA) disability adjudication project and the CMS CHIP State Demonstration Project to promote the use of HIT for the delivery of care for children covered by Medicaid/CHIP. These HIOs have built the capability to participate in the Nationwide Health Information Network Exchange to exchange specialized information with federal agencies. A separate Nationwide Health Information Network effort, called Nationwide Health Information Network Direct, which will establish standards and interoperability guidelines for more mainstream HIE activities, is now underway to facilitate local, regional, and national exchange of healthcare information. Four Indiana HIOs, including the three listed above plus Medical Informatics Engineering (operator of Med-Web), are represented on key Nationwide Health Information Network and other federal HIT committees such as the HIT Standards Committee, the HIT Standards Committee Clinical Quality Work Group, the Nationwide Health Information Network Coordinating Committee, the Nationwide Health Information Network Work Group, the Nationwide Health Information Network Security and Trust Workgroup, the Nationwide Health Information Network Direct Implementation Group, and various HITSP committees. They are in a position to influence the development of national standards for interoperability, security, implementation, and other aspects of HIE important to establishing complete HIE coverage of the state of Indiana. This experience will help IHIT accelerate the development and implementation of HIE interoperability between the 5 Indiana HIOs and with other healthcare organizations outside the state.

S.8. Coordination of Other ARRA Programs

Indiana Health Information Technology will actively collaborate with the Beacon Communities program, the Regional Extension Center program, the HIE Workforce Development initiatives and the Broadband Access program described below to ensure that services and support are compliant and consistent with the statewide HIE goals, policies and projects.

Since the federal care delivery is an important source of care for the Indiana population, Indiana Health Information Technology will also need to ensure the coordination of HIT in collaboration with the Regional Extension Center Program for these providers. Indiana Health Information Technology will coordinate with Medicaid and Medicare so that, as meaningful use is defined and revised, providers can be identified and certified for appropriate reimbursement as contemplated under the ARRA.

The form of the coordination and interaction is still under development. As a State-funded employee, however, the Indiana HIT coordinator is well-positioned to engage the various stakeholders as appropriate. One suitable and likely mechanism for managing the coordination of activities will be through monthly stakeholder program coordination meetings. This forum will be chaired by the Indiana HIT Coordinator and supported by the IHIT staff. This forum will enable “shared engagement” and facilitate dialog among the programs and agency representatives about cross program priorities, concerns, and issues.

S.8.1. Beacon

In May 2010, Indiana received \$16 million in grant funding the Beacon Communities Cooperative Agreement Program administered by ONC. Through the support of this program, a wide range of hospitals, physician groups and patients across Central Indiana will see enhanced information connectivity, reductions in unnecessary tests and hospital visits, and improved preventive care for such chronic conditions as diabetes and coronary artery disease through the meaningful and secure use of electronically communicated and privacy protected patient information.

Indiana’s Beacon Communities grant was awarded to a consortium led by the Indiana Health Information Exchange (IHIE). Success under the Beacon Communities grant program will be measured by ambitious, quantitative milestones and will advance Indiana as a national model for health information exchange. Initiatives undertaken through the Beacon Communities grant program will be closely aligned with the projects supported through the SHIECAP program.

The Indiana Beacon Community encompasses the Indiana cities of Anderson, Bloomington, Carmel, Columbus, Fishers, Indianapolis, Kokomo, Noblesville, Plainfield and Richmond. The

Indiana Beacon Community's 36- month long program will be tackled through three main activities:

1. A focus on connecting, accessing, or capturing additional clinical data sources. Currently, the exchange securely captures a rich set of clinical data, but patient information from physician practices has historically been difficult to capture. This information from physicians could include vital signs and point-of-care testing like cholesterol levels that are 'siloe'd' in physician offices. This agreement will enable these kinds of data to be included in the exchange for an even more robust - and relevant - patient record.
2. By securely capturing additional information at the physician level, IHIE will be able to broaden and deepen its Quality Health First® Program (www.qualityhealthfirst.org) by adding new disease and wellness measures and functionality, while broadening provider participation in order to more fully address the challenges of efficiency, quality and public health.
3. IHIE will work with providers and Indiana's federally funded HIT Regional Extension Centers with a special focus on rural physicians to devise and implement initiatives aimed at achieving electronic health record adoption and meaningful use in at least 60% of primary care providers in the Indiana Beacon Community area.

These activities will help the collaborative achieve the specific goals outlined below:

- Reduce the number of preventable hospital admissions and emergency department visits that are related to ambulatory care by 3%,
- Reduce the number of ambulatory care re- admissions by 10%,
- Reduce the number of redundant radiologic studies by 10%,
- Increase the proportion of patients screened for colorectal and cervical cancer by 5%,
- Increase the data available for adult immunizations by 5%,
- Improve by 10% the proportion of patients whose diabetes is under control, as evidenced by HbA1C levels below 9%; and
- Improve by 10% the proportion of diabetic patients whose cholesterol is controlled, as evidenced by achieving risk- adjusted LDL targets.

IHIE plans to work with other community partners, like Purdue's Indiana Healthcare Information Technology Extension Center, which recently received \$12 million in ARRA funds to help

health- care providers adopt and use health information technology, such as electronic records and e- prescribing. IHIE believes the \$10.3 million grant to the State of Indiana from the ARRA's State Health Information Exchange Cooperative Agreement Program (CAP) can be leveraged to further enhance the quality and reach of the state's existing health information exchange infrastructure to improve health outcomes for Hoosiers and reduce costs across the continuum of health care.

S.8.2. HIT Regional Extension Center

Two HIT regional extension centers, the Indiana Healthcare Information Technology Extension Center at Purdue University and the Tri-State Regional Extension Center operated by HealthBridge, provide HIT adoption services to primary care physicians in Indiana.

Indiana Healthcare Information Technology Extension Center (I-HITEC). I-HITEC's goal is to assist 2,200 priority primary care providers in all 92 Indiana counties meaningfully use EHR systems by 2012. Priority providers include physicians in small group practices or practices that treat rural, uninsured, underinsured, underserved, or other at-risk populations. I-HITEC staff offers educational opportunities for providers and their staff, coordinates EHR vendor selection and group purchasing, provides project management and implementation assistance, assists with practice and workflow design, supports providers with privacy and security best practices, provides on-site training to accelerate progress towards meaningful use, and provides one stop ongoing IT technical support. I-HITEC has partnered with 12 healthcare organizations in the state, including IHIT, to develop and deliver its services.

Tri-State Regional Extension Center. The Tri-State REC's goal is to assist 1,740 priority primary care providers (family practice, OB/Gyn, pediatric, and internal medicine physicians) in 19 Indiana, 37 Kentucky, and 11 Ohio counties identify and adopt EHR systems and establish meaningful use of HIT. They focus on practices with less than 10 prescribers, community health centers, rural clinicians, physicians associated with critical access hospitals, and practices and clinics that serve the underserved. The Tri-State REC works with over 17 partners, including IHIT, to assist practices and health professionals with basic educational resources on IT and meaningful use, coordination of EHR group purchasing and technology solution deployment, on-site consulting, and quality improvement support.

IHIT has established separate regular meetings between the State HIT Coordinator, I-HITEC leadership, and Tri-State REC leadership to communicate about and support the RECs' operations. The I-HITEC director and a representative of HealthBridge also participate in an IHIT-established Indiana HIE Working group together with representatives of the five HIOs operating in Indiana, the Regenstrief Institute, the Indiana Family and Social Services Administration, and the Indiana State Department of Health. IHIT conducts a weekly meeting

with this group to provide updates, enable shared learning and communication, and coordinate HIE adoption activities, including the selection of EHR systems with bi-directional interface capabilities.

S.8.3. Workforce Development Initiative

Indiana has several workforce initiatives underway working to train and deploy qualified professionals to support statewide health information exchange. These programs are described below.

Health Information Technology Training Collaborative (I-HITTC)

This spring, Indiana University received \$1.4 million in grant funding through one of four workforce development programs ONC has developed designed to rapidly and sustainably increase the availability of individuals qualified to serve in specific health IT professional roles requiring university-level training. The program created through this funding is called the Indiana Health Information Technology Training Collaborative (I-HITTC). This partnership between the Regenstrief Institute and the IU schools of Informatics and Nursing at IUPUI is dedicated to improving local human capacity for health informatics, public health and research in Indiana.

Physicians, nurses, nurse practitioners, pharmacists and other practicing clinicians; health care administrators; IT or computer science professionals; health researchers and informaticians; and others with interest and background in health care and IT and a four-year degree can apply for the accelerated program. Applicants may choose between five one-year graduate training programs and one two-year master's program. These training programs are designed to develop much-needed and qualified health IT leaders for private and public health care organizations. Many course are accessible online, and tuition support is available for the most qualified applicants.

The training programs include:

- Clinician Leader (one-year training program)
- Public Health Leader (one-year training program)
- Health Information Management and Exchange Specialist (one-year training program)
- Health Information Privacy and Security Specialist (one-year training program)
- Programmer and Software Engineer (one-year training program)

- Research and Development Scientist (two-year master's degree)

Community College Consortia to Educate Health Information Technology Professionals

The purpose of the Community College Consortia agreement is to “provide assistance to institutions of higher education, or consortia thereof, to establish or expand medical health informatics education programs to ensure the rapid and effective utilization and development of health information technologies.” Indiana’s statewide system, Ivy Tech Community College, is taking the lead for one of the five geographic districts identified in the grant proposal. This ten-state area (District C) includes 17 community college partners in addition to Ivy Tech. Each of the college partners brings to the consortium strong community partners who represent hospital associations, hospital and other medical practice systems, health information exchanges, research university partners and other HIT and bio-medical sector-based entities.

Over a two year period, the consortia agrees to train an average of 150 students per institution per year. There are six training roles identified and training must take no longer than six months to deliver. Any consortium member may train in one or more of the six roles. The training roles include the following:

- Practice workflow and information management redesign specialists
- Clinician/practitioner consultants
- Implementation support specialists
- Implementation managers
- Technical/software support staff
- Trainers

Other HIT Training Initiatives

The Indianapolis Public Industry Council (IPIC) received \$4.8 million for training nurses and allied health professionals in health information technology. IPIC received \$4.8 million to focus on strengthening the pipeline of workers in health-care fields, with an emphasis on elevating workers into critical-to-fill positions in registered nursing. Training will be provided through a nursing degree program taught on the campus of Clarian Health Partners. Simultaneously, the project will recruit dislocated and unemployed workers for credentialed education in various health-care sectors. The council expects to train 600 workers through the project.

S.8.4. Broadband Mapping and Access

Utilizing more than \$16 million from the Federal Communications Commission's (FCC's) Rural Health Care Pilot Program, the **Indiana Telehealth Network** aims to improve the health and well-being of Indiana residents, particularly those in rural areas, through the utilization of a dedicated broadband health network to deliver telehealth applications including but not limited to telemedicine, health information exchange, distance education and training, public health surveillance, emergency preparedness, and trauma system development.

The Indiana Telehealth Network (ITN) formed an FCC Rural Health Care Steering Committee (FCC Steering Committee), which is made up of representatives from healthcare providers, telecommunication companies, representatives from the Indiana Office of Community & Rural Affairs (OCRA), and representatives from the Indiana Rural Health Association (IRHA), the lead entity for the Indiana Telehealth Network.

There are 35 Critical Access Hospitals, 6 not-for-profit rural hospitals (under 100 beds) and 15 Urban Partner Hospitals that were included in the Telehealth Network RFP. Of these hospitals, 28 are participating in the Indiana Telehealth Network and are in the process of Phase I of the grant.

The Telehealth Network intends to build fiber optic cable directly in the hospitals and lighting the building with Gigabit Ethernet switches. Some healthcare participants may elect to connect to the public internet via their local POP. The connection speeds will be 10, 50, and 100 Mbps handed off via 10/100 Ethernet connections. Final bandwidth determinations have not been made by all hospitals. The Telehealth Network anticipates constructing approximately 125 miles of fiber with approximately 93% of that being buried cable.

Grant funding under the pilot program is used to support 85% of the costs of constructing the dedicated broadband network, the remaining 15% will be matched through participating critical access and rural hospitals. Construction for the initial projects is anticipated to begin in the 2nd quarter of 2010. The rollout will continue over a five year period.

Below is summary of the rollout for this project.

- Hospitals participating in Phase I of the creation of the Indiana Telehealth Network would receive the following benefits:
 - Reduced bandwidth costs
 - Reduced PRI costs
 - Double the speed of existing broadband connections
 - 85% funding for construction of fiber to their hospitals
 - Ability to transmit images

- Improved economic opportunities
- Administrative assistance
- Phase II
 - Ability to conduct Telehealth encounters over a dedicated health care network
 - Disaster Recovery
 - E-Learning
 - Internet Access
 - Videoconferencing
- Phase III
 - Seamless interfaces with the 5 HIOs in Indiana

S.8.5. Medical Informatics Research

Health information exchange in mobilizing clinical data is a relatively new field. As a result, HIE resides in a fluid and organic state as it evolves in tandem with new technology and changing healthcare practices. Every day the medical industry introduces a new medicine, a new therapy and a new surgical technique. New medical devices, EMR vendors and government regulations enter the system continuously. Standards of care and how that care is administered undergo rapid change in today's healthcare system. Knowing how to best manage HIE in an environment affected by nearly constant change demands cutting edge research and analysis in the domain of medical informatics.

Indiana is home to the Regenstrief Institute, a non-profit medical research organization founded in 1968. Regenstrief Institute's medical informatics research scientists comprise one of the largest medical informatics physician brain trusts in the United States. They conduct research to improve health care by improving the capture, analysis, content and delivery of the information needed by patients, their health care providers and policy makers. Institute research scientists also carry out intervention studies designed to measure the effect of the application of this research on the efficiency and quality of health care.

As the nation moves swiftly towards enabling HIE and requiring providers to demonstrate meaningful use, thought leaders in the area of medical informatics provide a vital role in determining how these steps affect the overall healthcare delivery system. In a national report commissioned by the U.S. Agency for Healthcare Research and Quality (AHRQ), the Rand Institute identified the Regenstrief Institute as the source of 40% of the top quality clinical reminder research. The report goes on to recognize Regenstrief as the source of nearly one-

fourth of the high quality evidence on the impact of information technology on the quality of health care.

Regenstrief Institute's experience in examining how implementation of system changes affect workflow and patient outcomes at both the micro and macro level inform Indiana's HIE efforts tremendously. Digitizing health care data is an important initial step toward improving patient outcomes. There are, however many steps that fall in between enabling HIE and seeing the benefit in the form of improved patient care. Medical informatics research will educate physicians in the ways to best utilize the clinical data HIE will make available to them. This critical field of study and evaluation plays an important role in the transformation of Indiana's healthcare system.

S.9. Governance

Indiana statewide HIE governance leverages a significant private sector infrastructure that is already operational in many of the required HIE services, while ensuring that these services are expanded and extended to every healthcare provider in the state. Indiana Health Information Technology, Inc. (IHIT) plays a strong governance role in guiding and facilitating secure HIE throughout the state through implementation of the state HIE strategy. By focusing and directing the efforts of the five Indiana HIOs and other HIT vendors on the four strategic pillars: Connecting Data Sources, Interoperability, Improving Outcomes, and Federal/State Initiatives, IHIT will enable all Indiana healthcare stakeholders to enjoy the benefits of secure intrastate and interstate health information exchange. IHIT has also built on the efforts of the Indiana Health Informatics Corporation (IHIC), a public instrumentality created in 2007 under statute by the State of Indiana to guide and promote health information exchange within the State, the State HIE Collaboration begun in 2008, and the ExibHIT Indiana initiative coordinated by BioCrossroads, to establish a convening and coordination structure and governance processes for generating multi-stakeholder buy-in and the trust necessary for effective public-private collaboration.

These governance structures and processes are led by Indiana Health Information Technology, Inc., the nonprofit corporation that serves as Indiana's state designated entity for HIE development. To achieve this outcome, Indiana has adopted a governance model that combines private sector electronic HIE with strong state direction and collaboration.

S.9.1. State Designated Entity

In October 2009, Mitchell E. Daniels, Jr., Governor of the state of Indiana, designated Indiana Health Information Technology, Inc. (IHIT) to be the state designated entity for the State HIE Cooperative Agreement Program. IHIT has developed the state HIE Strategic and Operational Plan and will implement four key strategies: Connecting Data Sources, Interoperability, Improving Outcomes, and Federal/State Initiatives, to establish secure statewide and interstate HIE with all health care providers in the state, particularly those in rural and underserved areas. To achieve this outcome, IHIT has developed a governance model that combines private sector electronic HIE with strong state direction and multi-stakeholder collaboration.

Board of Directors

The State of Indiana designed the membership of the IHIT Board of Directors and its four Councils to provide strong state government oversight through the senior leadership of key state agencies, and to represent all HIE stakeholder groups in Indiana. The Board of Directors consists of 12 directors, four of whom serve by virtue of their office (designated directors), and

eight of whom are appointed by the Governor (appointed directors) and represent various stakeholder groups and geographic areas (See Table 10):

Table 6: Indiana Health Information Technology (IHIT) Board of Directors

IHIT Board of Directors			
<i>Board Position</i>	<i>Member</i>	<i>Title</i>	<i>Location</i>
Secretary of the Indiana Family and Social Services Administration or designee	Anne Murphy	Secretary of Family and Social Services Administration	Indianapolis
Indiana Secretary of Commerce or designee	Mitch Roob	Secretary of Commerce- Indiana Department of Commerce	Indianapolis
Indiana State Health Commissioner or designee	Dr. Greg Larkin	Commissioner- Indiana State Department of Health	Indianapolis
Director of the Indiana office Management & Budget or designee	Chris Eckerle	Program Director- Office of Management and Budget	Indianapolis
(i) A representative of a statewide organization representing the interests of Indiana hospitals or a chairperson or chief executive officer of an Indiana based hospital;	Brian Bauer	Chief Financial Officer, Terre Haute Regional Hospital	Terre Haute
(ii) A physician licensed under Indiana Code § 25-22.5 (or any successor statute);	Dr. Michael Mirro	Cardiologist	Fort Wayne
(iii) A representative of an Indiana hospital that serves a disproportionate share of indigent or underinsured patients;	Phil Newbold	CEO, Memorial Hospital	South Bend

Table 6: Indiana Health Information Technology (IHIT) Board of Directors

IHIT Board of Directors			
<i>Board Position</i>	<i>Member</i>	<i>Title</i>	<i>Location</i>
(iv) A representative of a statewide organization representing the interests of rural health in Indiana or a chairperson or chief executive officer of a rural health entity;	Donna Nobbe	Director Information Systems, Margaret Mary Community Hospital	Batesville
(v) A patient/consumer representative;	Clance LaTurner	Self-employed	Indianapolis
(vi) A data privacy and security expert;	Stan Crosley	Co-director of the IU Center for Strategic Health Information Provisioning	Indianapolis
(vii) A research scientist with expertise in medical informatics;	Shaun Grannis	Research Scientist, Regenstrief Institute, Inc.; Assistant Professor of Family Medicine, Indiana University School of Medicine	
(viii) A representative of the interagency state council on black and minority health established under Indiana Code § 16-46-6 (or any successor statute).	Jamal Smith	Sr. Advisor Governor's Office	Indianapolis

The Board of Directors has elected to meet monthly to direct IHIT's activities in developing the HIE Strategic and Operational Plan, in identifying and contracting for the key projects that will implement the strategic elements of the plan, and in conducting the various governance activities described in Section S.9.3, Governance Model Description.

The Board has also formed four councils representing important groups of stakeholders to advise IHIT on its strategies and programs and to build a public-private partnership of collaboration in expanding HIE services to all healthcare providers in the state. These councils include:

HIE Policy and Technical Advisory Council. The HIE Policy and Technical Advisory Council (which is established and currently functioning) works with the Board of Directors and

the State HIT Coordinator to ensure that IHIT develops a broad-based stakeholder collaboration with transparency, shared commitment, and trust as it develops the State of Indiana's health information technology platform consistent with the requirements of the State HIE Cooperative Agreement Program administered by ONC. The HIE Advisory Council provides technical, strategic and operational recommendations to the Board of Directors in connection with all aspects of the development and implementation of the State of Indiana's HIT strategies and policies. The HIE Advisory Council includes the Chief Executive Officer (or equivalent position), or his or her designee, of each of the following organizations:

- Greater Cincinnati Health Bridge, Inc.
- HealthLINC, Inc.
- Indiana Health Information Exchange, Inc.
- Medical Informatics Engineering, Inc.
- Michiana Health Information Network, LLC
- Any other health information exchange organization that is agreed upon by each of the organizations then represented on the HIE Advisory Council
- Any other health information exchange organization that is selected by the Board of Directors

The HIE Advisory Council meets at the direction of the Board and the State HIT Coordinator and is currently advising IHIT on the selection and development of projects that will implement the State HIE strategy.

Data Provision and Use Council. The Data Provision and Use Council (which will be organized during the fall of 2010) analyzes and reports to the Board on matters relating to the provision and use of data in connection with statewide HIE activities. The Data Provision and Use Council also provides input to the Board of Directors regarding the provision and use of data as it relates to the development and implementation of the State's HIE strategic and operating plans. The composition of the Data Provision and Use Council reflects the views of the following groups, each of which is represented on the council by an individual elected by the Board of Directors:

- The Indiana Family and Social Services Administration Medicaid Director or the Director's designee
- Health care insurance providers

- Employers and other purchasers of health care insurance
- Health care providers
- Allied health professionals and workers, including the support and clerical staff of providers and others involved in the care coordination of patients
- Clinical laboratories
- Pharmacies
- Developers and manufacturers of pharmaceutical products and medical devices
- Suppliers of data security and privacy services
- Other suppliers of goods and services that support health information exchange

Specific organizations that are represented in this constituency were also invited to submit project ideas as part of the public project solicitation process that IHIT conducted in June and July 2010.

Patient Advocacy Council. The Patient Advocacy Council (which will be organized during the fall of 2010) analyzes and reports to the Board on matters relating to the safety and privacy of patients and the security of protected health information in connection with statewide HIE activities. The Patient Advocacy Council provides specific input to the Board of Directors regarding the safety and privacy of patients and the security of protected health information as it relates to the development and implementation of the State's health information exchange strategic and operating plans. The composition of the Patient Advocacy Council reflects the views of patients, consumers and statewide or local organizations that represent the interests of individual consumers of health care throughout Indiana. The members of the Patient Advocacy Council are elected by the Board of Directors.

Research and Education Council. The Research and Education Council (which will be organized during the fall of 2010) analyzes and reports to the Board on matters relating to the generation and use of data for biomedical research and health professional education in connection with statewide HIE activities. The Research and Education Council provides specific input to the Board of Directors regarding the generation and use of data for biomedical research and health professions education as it relates to the development and implementation of the State's HIE strategic and operating plans and related projects. The composition of the Research and Education Council reflects the views of the following institutions or groups, each of which shall be represented on the council by an individual that is elected by the Board of Directors:

- Indiana University School of Medicine
- Purdue University
- University of Notre Dame
- Regenstrief Institute, Inc.
- Such other health professional schools, research organizations, and individuals and representative groups as the Board of Directors shall determine from time to time

The advisory councils will enable IHIT to accomplish four critical functions: (i) facilitate broad-based stakeholder participation in Indiana's HIE efforts; (ii) create a mechanism for engaging and communicating with HIE stakeholders; (iii) establish a mechanism for Indiana Health Information Technology to solicit recommendations and counsel from stakeholders with the deepest technical expertise and most extensive experience relative to any given issue, e.g., technology, privacy, and security standards;⁵ and (iv) position Indiana Health Information Technology, when necessary, to help broker and coordinate efforts across various stakeholder groups.

S.9.2. Indiana HIT Coordinator

Andrew VanZee serves as the State of Indiana HIT Coordinator, and as the CEO of Indiana Health Information Technology, Inc. Mr. VanZee leads the IHIT organization in developing the State HIE strategies, programs, and projects to implement the State HIE Strategic and Operational Plan. As a key state official, he collaborates with the Secretary of the Family and Social Services Administration, the State Medicaid Director and the State Health Commissioner to ensure the coordination, integration, and alignment of HIE efforts with Medicaid and public health programs. The State HIT Coordinator also removes barriers and creates enablers for HIE, particularly those related to implementing the four strategic pillars of expanding HIE to all healthcare providers generating and using health information (data sources), achieving full intrastate and interstate interoperability, expanding HIE services to improving patient outcomes, and implementing key federal and state public health and other initiatives. The State HIT Coordinator also uses the State's convening, regulatory, procurement, and other policy tools to mobilize healthcare providers and other stakeholders to collaborate and coordinate their efforts to achieve comprehensive HIE services throughout the state.

⁵ It should be noted that due to Indiana's advanced state of HIE activity, there is a deep pool of content experts across various HIOs as well as among other stakeholder groups that are already actively engaged in HIE activities.

S.9.3. Governance Model Description

Indiana has adopted a public-private governance model that combines sustainable private sector electronic HIE, representation of healthcare providers and other HIE stakeholders, and strong state government direction and collaboration. The IHIT Board of Directors exercises decision making authority in regards to the implementation of the State HIE Strategic and Operational Plan and the related awarding and oversight of project contracts. The State HIT Coordinator, who also serves as the CEO of IHIT, leads this collaborative governance effort to achieve the goals related to the four strategic pillars: Connecting Data Sources, Interoperability, Improving Outcomes, and Federal/State Initiatives. In pursuit of these strategies, the State HIT Coordinator, together with the IHIT staff and contractors, conducts the following governance activities with the five Indiana HIOs, any other qualified HIE vendor, and healthcare providers and stakeholders:

Current/Short Term Activities

- Establish and strengthen further the collaborative governance processes, including board meetings, advisory councils, and working groups, through which Indiana HIE stakeholders express their needs and concerns about HIE activities in the state.
- Conduct a public HIE expansion idea generation process to identify project ideas and concepts for further development. To date, 111 projects have been proposed through this process and have served as the basis for developing the RFP process.
- Conduct a competitive RFP process to select qualified HIE organizations to conduct projects consistent with the HIE Strategic and Operational Plan
- Develop contractual agreements and financial payments to implement HIE connectivity and service expansion projects consistent with the four strategic areas or pillars
- Collaborate closely in public-private partnership with the leadership of Indiana's five HIOs and any HIT vendor under contract with IHIT to expand and develop HIE services and operate HIE in the state
- Support and participate in the development and use of appropriate electronic HIE interoperability, technology, privacy, and security standards that align with intrastate, interstate, and federal standards
- Establish accountability and oversight mechanisms via organizational and HIE practices to ensure that milestones for interoperability and service expansion are achieved across providers, thereby seeing that the public benefit is served and public trust is maintained

- Ensure that public programs and public health care delivery systems are appropriately represented and included in electronic HIE
- Monitor the HIOs to ensure that consumers are being protected and electronic HIE is developing in a fair and equitable manner
- Obtain matching financial resources through fundraising activities with HIE stakeholders and philanthropic sources as required by the collaborative agreement program
- Conduct financial management and oversight of Federal, State, and other matching funds that are deployed to advance statewide HIE efforts
- Implement a communications plan that reinforces the collaboration of all HIE stakeholders and ensures strong public-private partnership and public trust

Medium/Long Term Activities

- Review, monitor, and evaluate the development of expanded HIE interoperability and services and the operations of Indiana HIOs
- Conduct risk assessment and mitigation activities for ongoing HIE operations and projects
- Develop intervention strategies and regulatory options to address market failures should they occur
- Conduct additional project generation, contracting, funding, and oversight processes as needed to fully achieve IHIT's vision for universal participation in HIE by all Indiana healthcare providers and HIE stakeholders
- Foster public/private collaboration to achieve IHIT's health information exchange goals

In the Indiana governance model, the HIOs and other private sector organizations and entities exercise governing responsibility over their respective organizations and services, and implement governance practices such as:

- Creating rules of operation for the exchange and the collaborative, including effective surveillance, supervision, and enforcement powers over participants and stakeholders;
- Developing, offering and managing services as deemed appropriate;
- Influencing intrastate and interstate interoperability, security and privacy standards in collaboration with IHIT and the other HIOs;

- Coordinating and collaborating with other HIOs and other state HIE programs (e.g., the Regional HIT Extension Program) to advance required HIE services statewide;
- Creating a process for setting fees and charges to sustain the exchange and collaborative;
- Establishing an oversight process to protect the privacy and security of records in the exchange and a process for approving data requests for research purposes.
- Continuing to own and manage its direct “customer” relationships.

This governance approach ensures that the State’s vision of interoperable and secure intrastate and interstate HIE with all Indiana’s healthcare providers will be achieved, while at the same time allowing the advancement of market-based solutions that create value and long-term financial sustainability.

S.9.4. HIO Coordination and Collaboration

IHIT employs three mechanisms to ensure HIO coordination and collaboration: (i) HIO board observer participation; (ii) monitoring, collaboration and oversight; and (iii) arms-length grant and contract relationships, detailed below:

HIO Board Observer Participation – IHIT will participate, via invitation, on the Indiana HIOs’ Boards of Directors and advisory councils in a non-voting, observer role. Such presence will help to assure transparency and allow the State to have a mechanism for expressing its interests relative to specific matters such as the provisioning of statewide services, serving low-income or high-risk populations, or supporting specific public health programs. At the same time, the IHIT’s non-voting, observer status on the HIOs’ boards will assure that the State is not unduly or negatively affecting the organizations’ (or sector’s) existing governance, operational or competitive dynamics, and will avoid conflicts of interest that might arise from having IHIT in a voting HIO board position at the same time as IHIT is seeking to negotiate contracts with the various HIOs.

Consultation and Oversight – The HIOs are accountable for the implementation and management of their own services, operations, policies and standards. The State will regularly monitor, oversee, and consult with the HIOs to ensure statewide and national coordination of technology, interoperability, security and privacy standards. The State will ensure that specific standards and practices of interoperability, security, privacy, and coverage are included in the contracts or agreements contemplated to be entered into between Indiana Health Information Technology and each HIO, as more fully described below. Indiana Health Information Technology oversight will be carefully coordinated with federal agencies to avoid unintended consequences and administrative burdens that increase the overhead of HIO operations.

Contracting and Grants – The State, through Indiana Health Information Technology, will disburse CAP funding and, may, as a customer, directly “purchase” HIE services from HIOs. The disbursement of funds will be accomplished and administered through appropriate contracts resulting from a public RFP process.. In the event of non-performance, IHIT will work collaboratively with the affected HIO to address issues and support efforts to meet milestones. However, Indiana Health Information Technology will retain the right, as an integral term of any contract or grant, to terminate the contract or grant with any HIO and re-provision the desired service or deliverable through alternative private-sector parties.

Medicaid Reimbursement – The State, acting through the Office of Medicaid Policy and Planning, will provide reimbursement to physicians statewide based on their adoption of “state approved” HIT services and applications. The State, acting through the SDE, has the ability to deny certification to or “de-certify” a vendor’s service or application, and in so doing can create an enormous disincentive for the provider community to “purchase” the services or applications from an uncertified vendor, i.e., a vendor that is not compliant with the standards and policies that are being established by IHIT in coordination with the private sector through the advisory councils. This approach will be carefully harmonized with federal reporting initiatives and whenever possible will have identical requirements of providers to avoid unintended administrative burden.

S.9.5. Accountability and Transparency

Indiana HIE accountability and transparency practices include:

- Public solicitation of HIE project ideas to identify the best projects for inclusion in the public RFP project award process;
- Regular status reports to the IHIT Board of Directors, including reviews of:
 - Status of clinical HIE services provided by the HIOs operating in Indiana (clinical summary exchange for care coordination, lab orders and results, quality reporting, public health reporting, patient health record integration, and ePrescribing);
 - Status of projects authorized and funded by IHIT using cooperative agreement program and matching resources. IHIT will maintain and review with the Board dashboard metrics systems to monitor the progress of each project;
 - A summary of IHIT funding generated, project expenditures, and operating expenses

- A review of the Indiana HIE goals, objectives, and strategies, and the status of Indiana HIE progress to meet the goals and objectives
 - A review of Indiana HIE project and program challenges, risks, and risk mitigation activities.
 - These status meetings will be conducted on at least a quarterly basis. The Board has currently elected to meet monthly for the foreseeable future to ensure accountability and transparency to the State and the constituencies represented on the Board.
- Publication of periodic publicly available IHIT reports:
 - The Board of Directors will determine the scope and frequency of published reports.

S.10. Finance

S.10.1. Finance Model for IHIT

For Indiana, the strategy for pursuing HIE growth and adoption on a statewide basis falls further along a continuum of potential development initiatives. Indiana is home to multiple HIOs exchanging health information in urban and rural communities, across state lines, involving a diverse set of participants and illustrating a robust variety of use cases. As a result, the state SDE, Indiana Health Information Technology (IHIT), is not an organization that will create or deliver health information exchange services directly.

IHIT will use funding made available through the SHIECAP program to expand statewide access to HIE by reducing barriers to adoption, expand the capacity of existing infrastructure, funding the development of new use cases and addressing statewide policy, legal and communication issues that arise through health information exchange. Coordinating the funding available for Indiana through each of the ARRA programs addressing the statewide adoption of HIT and HIE will be a primary task undertaken through the HIT Coordinator.

The funding IHIT will require to sustain the activities outlined in the Operational Plan include the ARRA grant amount plus the necessary state matching funds as required through the SHIECAP program. IHIT is currently exploring options to secure the 10% match required for drawing down the funds needed to implement the SHIECAP projects. These include pursuing financial and in-kind contributions from the regional HIOs and other vendors to support statewide HIE efforts, including a vendor match requirement in the RFP process for IHIT projects, and soliciting grant funds through local foundations such as the Fairbanks Foundation and the Lilly Endowment. State funding may also be used to provide the 10% match for the SHIECAP program.

S.10.2. Sustainability

Regional HIO Sustainability

While the Indiana HIOs pursue separate business strategies, have differing organizational capabilities, and offer different services, they all have developed successful and fairly similar financial sustainability models that are not reliant on continuing grants to maintain operations. Primarily, the HIOs collect fees from healthcare providers that are primary data sources, such as acute care and critical access hospitals, laboratories, radiology centers, etc., so that the data can be converted, processed, and routed to physician practices, rural health clinics, federally qualified health centers (FQHCs), and other recipients of the data. Secondly, physicians and these clinics, even though they also generate data from patient care visits and their own testing, are charged for selected services they receive in only a few HIOs. HIE financial charges to the data source providers include one-time installation charges and ongoing service fees. As

services have been developed for health plans, such as eligibility checking, the promotion of treatment guidelines, and patient sub-population analysis, they have also begun to compensate HIOs for these services.

To date, the five Indiana HIOs have focused on high-volume data sources because the value is greater for the same effort when compared to lower-volume data sources. Significant costs to the HIOs are associated with integrating data sources, which requires capabilities to semantically normalize structured data provided by the data sources, translate local code systems to national standards and manage exceptions that are generated. Not only are the high volume providers more likely to afford HIO fees that cover these costs of HIE adoption, they are also more financially able to adopt the institutional and practice-based information management and EMR systems necessary for state-of-the-art HIE. The result of this financial sustainability focus has been a concentration of HIE adoption in the most financially rewarding large volume urban and suburban population centers of the state, and relatively less adoption in the more rural parts of the state.

Through the SHIECAP program, IHIT will engage in projects aimed to address the barriers for adoption that exist in the lower volume medical trading areas to make HIE viable statewide. For example, with the exception of the electronic delivery of clinical results (which occurs statewide), most of Indiana's HIOs have not demonstrated a sustainable economic model that supports large-scale service to the rural parts of the state. HealthLINC and HealthBridge have demonstrated the ability to effectively penetrate into smaller rural communities in Indiana, but much needs to be done to achieve statewide coverage.

Much can be learned through the HealthLINC-HealthBridge Collaborative Communities model and their experience with underserved rural providers. This experience is an asset that distinguishes Indiana's HIE capabilities. Key rural data sources, such as critical access hospitals and community health centers, need to be connected to the HIE infrastructure to send and receive data and participate in HIE services. The barriers to connecting these data sources are primarily economic, as the typical returns on investment seen in larger more concentrated healthcare markets are more challenging to achieve in rural settings. As a result, the critical access hospitals are less likely to have HIT core systems capable of connecting to HIE and lack a full complement of IT staff. Many of these obstacles can largely be overcome through one-time investments in data connectivity and infrastructure projects as outlined in this Strategic and Operational Plan.

Once these smaller markets are connected to a regional HIO, ongoing services received through HIE will be financially supported by the participants who derive value from those services – an operating model that all of the Indiana HIOs understand and in which they have shown proficiency, as illustrated by the following.

- Indiana's HIOs have collectively raised from various public, private, and philanthropic sources over \$52 million, which has been used for innovation and implementation of HIE infrastructure and services throughout the state to date.
- Indiana's HIOs have a clear track record of not only providing services, but also securing financial support for the provisioning of those services as depicted in Table 11.

Table 11: Indiana HIO Revenue by Source

	Health-Bridge	Health-LINC	IHIE	Med-Web	MHIN	Average
Tier 1 Providers ⁶	70.0%	51.0%	42.1%	10.0%	52.0%	41.2%
Tier 2 Providers ⁷	10.0%	6.0%	2.0%	5.0%	5.0%	4.8%
Other Providers	5.0%	8.0%	0.0%	85.0%	37.0%	27.6%
Payers	0.0%	0.0%	31.0%	0.0%	4.0%	7.0%
Government ⁸	0.0%	0.0%	9.7%	0.0%	0.0%	0.0%
Federal Grants	3.0%	30.0%	0.0%	0.0%	0.0%	13.9%
State Grants	0.0%	0.0%	5.5%	0.0%	0.0%	1.1%
Foundations	0.0%	0.0%	9.7%	0.0%	0.0%	1.9%
Consulting	12.0%	5.0%	0.0%	0.0%	2.0%	2.4%

Indiana SDE Sustainability

Designing a strategy for the long-term sustainability of statewide HIE initiatives will be an activity undertaken within this domain. Long-term sustainability can be separated into several different areas of focus. Funding for these long-term areas of “otherwise unfunded HIE services” will need to be identified by the IHIT Board and HIT Coordinator.

First, the ongoing viability of a private sector approach to the provision of HIE services within the state will be evaluated. Currently, this approach seems to be sustained in the private sector, however how will it be compromised or changed as more participants enter the system? How

⁶ Hospital, Laboratory, etc., greater than \$50

⁷ Critical Access Hospitals, Outpatient Radiology Centers, Outpatient Surgery Centers, etc.

⁸ Medicaid, Medicare, etc

will increased regulation arises from the need to protect consumers right to privacy and security impact the financial viability of HIOs operating in the state? What happens as technology changes and matures and more competition enters the landscape? These questions and more will be examined through this domain to determine if IHIT will need to step in and “purchase” HIE services that are required to advance the statewide HIE effort but otherwise would not be provided.

A second area of financial sustainability addresses state-mandated or sponsored HIE initiatives. Medicaid and the State and Local Departments of Health have ongoing active roles in HIE use cases. For example, can state government agencies such as FSSA or ISDH purchase HIE services from one of the Indiana HIOs in situations where the State is the primary beneficiary of those services (e.g., public health reporting and surveillance).

Finally, IHIT and the HIT Coordinator must determine the ongoing role it will play in HIE statewide initiatives beyond managing the projects funded through SHIECAP. These may include; policy setting, advocate, convener, use case development, grant making, project management, regulatory affairs and so forth. As these long-term roles become firm, IHIT will develop a business plan and a funding strategy to support them. IHIT will develop this business plan in the 4th quarter of 2010 and will further develop how the following mechanisms support statewide HIE activities.

Private Market Competition – One of many benefits of this model is that competition will help to drive innovation and appropriate risk that will lead to more HIE services being offered than might otherwise be the case. A nationally competitive market will be used to source viable HIE services in the event that Indiana Health Information Technology cannot find sustainable models for required HIE services locally.

Economies of Scale – In coordination with other initiatives contemplated under the HITECH Act such as the Regional Extension Center Program, the Grants Program, and Workforce Program, and in combination with the Medicare and Medicaid reimbursement changes contemplated in ARRA, a dramatic increase in HIE participation can undoubtedly be anticipated as more hospitals, providers and trading partners participate. As a result, a network effect will occur that should increase the value of any number of HIE services for HIE stakeholders. As stakeholder value increases, so will the willingness of these stakeholders to support these services financially. This cycle of development is likely, in turn, to make these services more viable – meaning that in more and more cases, the private sector, rather than the State, will be providing the financial support required for the State’s continued efforts to satisfy CAP requirements.

Medical Cost Savings –The State expects that through the implementation of statewide HIE services, significant cost savings will be achieved. For example, among many other benefits, the provisioning of statewide HIE services will increase adoption/use of medication

management and results management tools, further decreasing the costs to payers in both the public and private sectors. It is estimated that 10% of adverse events that occur in physician offices are related to medications and diagnostic errors.⁹ The resulting cost savings from eliminating some or all of these events will be significant. In addition, e-prescribing is seen as a key medication management tool that has been shown in a number of settings to reduce costs by lowering adverse drug events and increasing the use of generic and lower cost medications.¹⁰ The State's plan is to work closely with Medicare and Medicaid as well as with private payers to monitor and quantify medical costs savings. The State may re-capture a portion of these savings so that Indiana Health Information Technology can further support, invest as needed and purchase required HIE services.

IHIT will investigate the role major health plans operating in Indiana can provide in sustaining these efforts. The Employers' Forum of Indiana as described in the Administrative Readiness section will be engaged in the business planning process to help IHIT and the HIT Coordinator to identify the opportunities. Some of the questions that will be explored include the following.

- Recognizing that increased HIE reduces the costs of administering insurance claims, to what degree can payers operating in Indiana reinvest a portion of these cost savings into the statewide HIE initiatives?
- How will IHIT engage the major health plans operating in Indiana to invest in statewide HIE initiatives?
- What mechanisms need to be established to formalize an ongoing support function from the payer community in Indiana to IHIT?

Non-public Funding Sources – It should also be noted that Indiana Health Information Technology has been formed in such a way, i.e., not as a government agency or regulatory authority, that its status as a tax-exempt public charity will enable it to pursue non-public funds, e.g., from private foundations and other philanthropic sources, as may be required to meet the anticipated matching requirements contemplated by CAP. This will be an important strategic advantage of Indiana Health Information Technology, given that medical cost savings -- which will drive long-term sustainability and viability of the State's HIE efforts -- may take years to begin to materialize.

⁹ Weingart et al., BMJ 2000

¹⁰ Gandhi TK-N Engl J Med – 17-Apr-2003; 348(16): 1556-64

S.10.3. Financial Oversight and Control

All of the existing HIOs in Indiana have implemented the necessary policies and procedures to ensure compliance with Generally Accepted Accounting Principles (GAAP) and, where necessary for those HIOs that operate as nonprofit, tax-exempt entities, compliance with tax-exempt status under Section 501(c)(3) of the Internal Revenue Code and/or the audit requirements of the Office of Management and Budget. In addition, all have budgets that are reviewed regularly by the proper oversight councils.

The services and business models that are currently offered by the five Indiana HIOs appear to be structured and priced appropriately to support sustainability. Indiana Health Information Technology will monitor the service offerings, organizational sustainability and the service offering viability through its monitoring and oversight role when contracting statewide services with the HIOs.

S.11. Technical Infrastructure

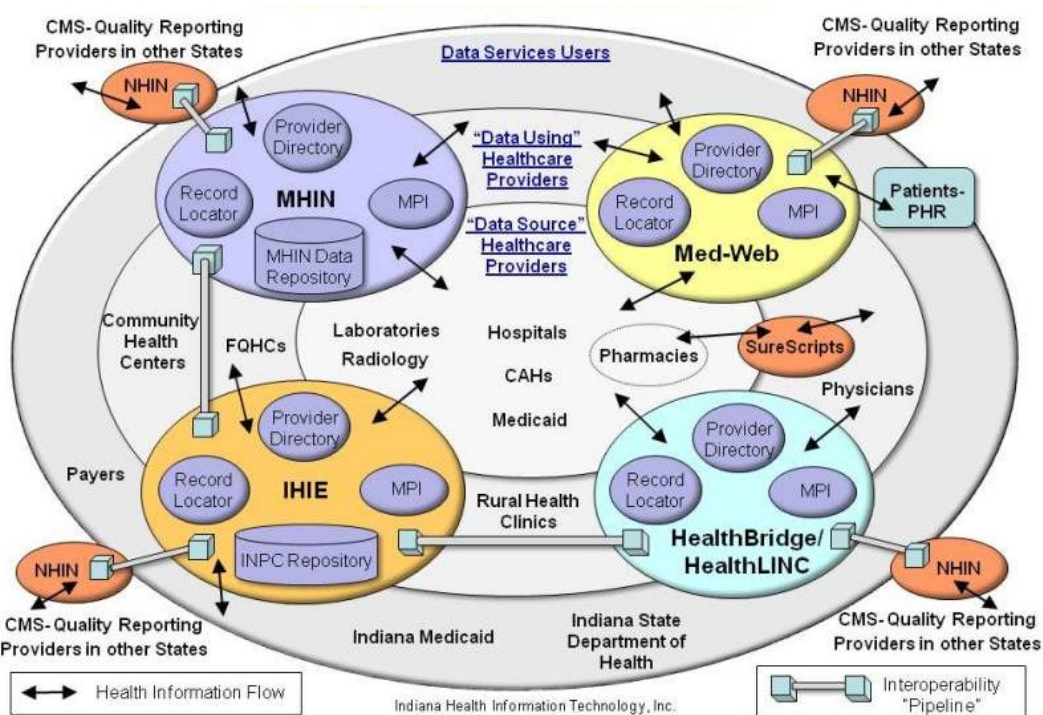
Indiana has one of the strongest and most robust health information exchange systems in the United States. The network of five HIOs already reaches every corner of the state, and will, once the Connect Data Sources strategy has been fully implemented, capture virtually all targeted clinical information generated in the state and deliver it to healthcare providers across unaffiliated organizations. The HIOs have extensive experience operating sustainable HIE systems, with three HIOs providing HIE services for 11- 15 years and two HIOs operating for 4- 6 years. Over this time they have introduced innovative services for which their customers have compensated them, thus establishing long term sustainability, and have implemented policies, procedures, and legal agreements to establish the security and privacy of the personal health information they exchange.

Indiana Health Information Technology's strategy, as described in the HIE Development and Adoption Section (S.3), is to leverage this established network by using project contracts, influence, and the State's regulatory capability to fill the gaps that currently exist to enable Indiana healthcare providers to establish meaningful use of HIT during the CAP's duration. Of primary importance is to provide resources and technical expertise to connect acute care hospitals, critical access hospitals, rural health clinics, federally qualified health centers, laboratories, and imaging centers. IHIT will take advantage of the already-existing network and its set of five functioning technical infrastructure systems to implement the strategy. This Technical Infrastructure section provides a description of the overall network of 5 HIOs and the services they provide, including a summary of the combined technical infrastructure elements, and more detailed information about the technical infrastructure of each individual HIO. It also addresses the status of interstate and intrastate interoperability and related activities such as provider directory, record locator, and master patient index services.

S.11.1. Technical Approach

The HIE network in Indiana consists of four major health information exchanges: Indiana Health Information Exchange (IHIE), Michiana Health Information Network (MHIN), the Med-Web (operated by Medical Informatics Engineering), and HealthBridge/HealthLINC. While HealthLINC is a separate non-profit organization and has its own Board, HealthLINC is listed together with HealthBridge in this diagram because HealthBridge is the HIE technology vendor for HealthLINC. Figure 25 shows the network in graphical form.

Figure 25: Indiana HIE Network Structure



IHIE is the largest HIO and provides HIE services to the most hospitals, laboratories, CAHs, RHCs, FQHCs, and physician practices in the state. IHIE has concentrated on contracting with the providers serving the greatest number of patients, and the largest multi-specialty medical centers in the state. Originally it concentrated geographically in central Indiana, but now provides services and has contracted to implement services in all areas of the state. IHIE's DOCS4DOCS clinical messaging service being is used by over 15,000 physicians in Indiana within a network of 39 hospitals and provides a single source for clinical results including structured laboratory data, radiology reports, transcriptions, pathology and admission, discharge and transfer information. IHIE also operates the Indiana Network for Patient Care (INPC), the nation's largest inter-organizational clinical data repository, which currently is in use at over 130 sites in Indiana, storing data on over 6 million patients and utilized by approximately 15,000 active users. Each data source organization maintains control over its own data while IHIE and its technology partner, the Regenstrief Institute, manage the databases. IHIE also provides the Quality Health First (QHF) service, which allows for robust reporting to providers on their patients, focusing on chronic disease management. QHF incorporates the use of claims information from participating payers, including six major health plans and Indiana Medicaid, with real-time clinical data. In addition, QHF provides reports to the payers on how well physicians are supplying quality care for all patients for whom they have responsibility. Payers in turn reimburse those physicians at higher levels based on their quality measures.

MHIN serves over 1,000 physicians and 700,000 patients across northern Indiana and southwestern Michigan with a variety of products and services which include but are not limited to: MHIN CDR – A community data repository service which securely stores clinical information from all sources into one longitudinal patient record, MHIN Messenger – The community-wide, web-based clinical messaging and results communication platform for sending, receiving and managing clinical information (powered by Axolotl), MHIN Interface – A single interface that delivers discrete, digitized results from all participating institutions to any physician office or institutional EHR. The MHIN Interface engine is also used to connect disparate systems within physician practices, and MHIN EHR – A fully integrated electronic health record that comes pre-populated with patient information and provides seamless electronic communication and clinical messaging with other healthcare providers (Powered by Cerner).

HealthBridge serves a primary service area in the Greater Cincinnati tri-state area that includes four Indiana counties. HealthBridge has more than 10,000 physicians in its provider directory and 2.5 million patient records in a population area of 2.2 million people. HealthBridge serves approximately 5,500 physicians in northern Kentucky, southwestern Ohio, and southeastern Indiana, of which 250-300 physicians (with an estimated 80,000 patients) practice in Indiana. HealthBridge also serves as a consultant and collaborative partner to many other HIEs around the country, and operates the HIE services for HealthLINC in a multi-county area centered in Bloomington, Indiana. HealthBridge operates the Tri-State HIT Regional Extension Center (REC) serving 19 counties in Indiana, 37 counties in Kentucky, and 11 Ohio counties. HealthBridge is the nation's leader in sustainability, with less than 3% of its operating revenues over 10 years coming from grants or charitable sources. For the last 5 years, HealthBridge has recorded revenue exceeding expenses while growing its operations and service area significantly and making key investments and upgrades in its technology infrastructure. HealthBridge offers a broad range of services, including clinical messaging and electronic results delivery, community EHR interface library for results delivery, ambulatory order entry, electronic disease reporting and public health alerts, and web-based eligibility and claims status checking. In limited production are pilots for e-Prescribing, disease registries, quality reporting and improvement tools. HealthBridge also is planning several service expansions, such as immunization information, summary record exchange, and personal health record integration/patient communication tools.

HealthLINC is a four-year old, community-based organization that provides operational health information exchange services to healthcare stakeholders in Lawrence, Monroe, Orange and Owen counties. Headquartered in Bloomington, HealthLINC has more than 200 South Central physicians actively using the system, 175,000 patient records in a population area of 367,000 people; and 130,000 exchange results per month. HealthLINC has developed expertise in running a self-governed HIE that benefits from outsourced technology infrastructure (operated by HealthBridge) and selected business operations in a pre-franchise model. This model gained national attention when it received an award (with its partners HealthBridge and CCHIE)

from the e-Health Initiative in 2008. This approach is beginning to demonstrate that semi-rural communities can operate and sustain an HIE based upon regionally generated revenue. HealthLINC has achieved a rapid level of adoption and growth in HIE services in South Central Indiana with more than 90% of physicians participating in HIE, established a highly cost-effective and award winning Collaborative Communities Model which facilitates self-governance in the context of ASP hosting with HealthBridge, and offers clinical messaging and electronic results delivery, EMR interface results delivery, public health alerts, and e-Prescribing. Together with HealthBridge, HealthLINC is planning service expansions that include immunization information, summary record exchange, and personal health record integration/patient communication tools, and quality reporting via partnerships.

The Med-Web, which is an operating unit of Medical Informatics Engineering (MIE), delivers approximately 1.5 million secure clinical messages each month, including more than 225,000 monthly diagnostic reports and nearly 15,000 radiology studies. The Med-Web includes a directory of participating stakeholders, and intelligently delivers information in the format required by each provider. The success of this network led to MIE development of a full portfolio of electronic health record products – including EMR, Document Management and RIS/PACS solutions. This “Minimally Invasive” EHR portfolio is used by physician practices and clinics, as well as Fortune 500 companies operating on-site employee clinics including Google and The Dow Chemical Company. MIE has leveraged the Med-Web and its EHR portfolio to support the Northeast Indiana Healthcare Access Program (HAP). This innovative approach connects safety-net care providers including neighborhood clinics, hospital emergency rooms and others providing care to the uninsured and underinsured, including immigrant populations. Each provider uses an EHR solution configured to fit their clinical workflow, and each contributes selected data to a central repository based on agreed upon data sharing rules and patient consent. As patients are seen by safety net providers, information such as lab results, medication lists and other critical information can be accessed. HAP is improving care coordination and clinical outcomes, while reducing duplicate tests and unnecessary costs. MIE also created NoMoreClipboard.com, now a separate legal entity formed to make personal health record solutions available to consumers. NoMoreClipboard licenses MIE’s clinical architecture, resulting in a robust, interoperable PHR designed to integrate patient information into existing provider workflow. The NoMoreClipboard solution is deployed with hospitals and health systems, physician practices, employers and universities.

As depicted conceptually in Figure 25, each HIO operates a separate health information exchange servicing the hospitals, critical access hospitals, laboratories, rural health clinics, FQHCs, community health centers, and physician practices with which they have contractual agreements. Each has concentrated on expanding its original geographical trading area, and has achieved success, although as discussed in the Environmental Scan section, there are significant sections of the state where each of these provider types have not contracted for any HIE services. Due to the nature of the participating healthcare institutions and practices, and

the prevailing patterns of physicians referring patients to specialists and hospitals in Indianapolis, IHIE and HealthBridge (together with partner HealthLINC) have developed interoperability agreements and have implemented interoperability services, including live, ongoing multi-region exchange of clinical results. These services are growing and leverage the existing provider directories, record locators, and master patient indexes of each HIO. Through using accepted national standards, these two organizations have developed and implemented nomenclature normalization and other technical processes to ensure secure interoperable exchange of health information between themselves for providers of unaffiliated organizations. IHIE and MHIN have also explored establishing interoperability between their two systems. This established interoperability will serve as a model for further IHIT investments and projects to establish greater interoperability between all of Indiana's HIOs using a similar approach as IHIE, HealthBridge, and HealthLINC have used. (See section S.11.3 Interoperability for greater detail).

Expanded Services

Indiana Health Information Technology will leverage the existing combined HIO technical infrastructure and use the project and program ideas submitted through its public HIE Project Idea solicitation process and developed through its RFP project identification and finalization process, together with its advisory councils' recommendations, to broaden the HIE services offered by individual HIOs to the other HIOs operating in the state. Since all the targeted HIE services are already provided by some of the HIOs, IHIT will concentrate on expanding the services across all of the HIOs so that every healthcare provider, regardless of which HIO it chooses, will over time have access to the full suite of HIE services envisioned in the CAP. IHIT will accomplish this consistent with ONC priorities. As communicated in the July 6, 2010 Program Information Notice (PIN), initial emphasis will be placed on the Stage 1 Meaningful Use priorities of ePrescribing, receipt of structured lab results, and sharing of patient care summaries using HL7 and CCD standardized messages across unaffiliated organizations. After achieving these initial priorities, IHIT will expand its projects and programs to the additional services of providing more complete clinical results, including radiology and cardiology reports and imaging, patient-centered clinical repository functionality, aggregating patient-level data using nationally accepted measures, providing public health information reporting (such as immunizations and syndromic surveillance) to the Indiana State Department of Health, expanded quality reporting to encompass the quality measures that CMS identifies in the definition of meaningful use requirements, electronic clinical laboratory ordering, and electronic eligibility and claims transactions.

ePrescribing

As discussed in Section S.4.2, E-Prescribing Adoption, the activities of SureScripts and RxHub, together with statewide initiatives such as that implemented by the Employers Forum of Indiana,

are greatly expanding the number of physicians using ePrescribing, the number prescriptions routed electronically, the number of patient visits in which a benefit lookup was made and in which a prescription history was obtained, and the number of refill authorizations obtained electronically. IHIT will encourage and support the efforts of these organizations to expand the adoption of ePrescribing further, but will not use CAP resources to invest in alternative HIE services to duplicate the capabilities already established. IHIT will use its influence through the State HIT Director and the Board of Directors, to obtain the commitment of Indiana Medicaid to provide benefit information through the SureScripts portal to expand the growth of benefit look up functionality.

S.11.2. Technical Architecture

The two tables below provide an overview of the technical architecture that is already utilized by the five Indiana HIOs. As these tables illustrate, Indiana's approach is not predicated on one defined infrastructure or architecture, but instead focuses on HHS approved standards for interoperability (as discussed in the next section) that allow the five Indiana HIOs to interface with one another, and on other national standards to provide coordinated services either individually (shared) or in collaboration with other HIOs to meet CAP HIE requirements.

The following two tables, Existing Technical Capabilities (Part I and Part II) summarize the general architecture, hardware, networking equipment and topology, software, database, user interface, and security infrastructure of the five Indiana HIOs. A more detailed discussion of the technical architecture of each HIO follows.

Table 12: Existing Technical Capacities (Part 1)

HIO	General Architecture	Hardware	Networking Equipment	Networking Topology
Health-Bridge	<p>Uses a hybrid federated model that includes:</p> <ul style="list-style-type: none"> distributed gateway components HIE central components (MPI, Provider Directory, etc.), and user interface components <p>Supports roughly 100,000 results per day or 3 million results per month</p>	<ul style="list-style-type: none"> HP server blade hardware and Windows OS connected to a Network appliance Disk Arrays (NetApp) VMWARE ESX virtual server infrastructure, running Windows-based hosts connected to the NetApp 	<ul style="list-style-type: none"> Uses dual Juniper SSL VPN devices for authentication HP servers, Network Appliance (NetApp) disk arrays; and CISCO communications equipment 	<ul style="list-style-type: none"> SSL based VPN for user access; SFTP, MLLP, IPSEC VPNs, Web Services; Direct private connections Maintain private WAN connecting all data providers using private lines, VPNs and MPLS technologies
HealthLINC	<ul style="list-style-type: none"> Has ASP relationship with HealthBridge which hosts its infrastructure HealthLINC sends 130,000 results/mo 	<ul style="list-style-type: none"> Has an ASP relationship with HealthBridge 		<ul style="list-style-type: none"> Has an ASP relationship with HealthBridge
IHIE	<ul style="list-style-type: none"> Relational DB's supporting data feeds from state providers through encrypted P-to-P VPN tunnels, data mapping engine Proprietary data mining processes Web-based applications presenting and delivering information to clients. Housed in secured, F5 tornado resistant facility with redundant power and cooling, 24x7 Network Ops Center, multiple data carriers 	<p>HP servers and HP server blades managed with VMWARE ESX running Windows and Linux OS, fiber connected to HP SAN's for storage</p>	<p>CISCO components: Firewalls, routers, switches, etc.</p>	<ul style="list-style-type: none"> TCP/IP over Switched Ethernet User access via HTTPS with user authentication and via VPN with IPSEC/UDP Transport and user authentication Encrypted point-to-point VPN tunnels with data providers
Med-Web	<ul style="list-style-type: none"> T1 and DS3 links connecting area hospitals and medical practices together in an open network format Multiple fiber DS3s to internet providers (IFN and US Signal) 	<ul style="list-style-type: none"> CISCO ONS 15454, CISCO 7206 VXR on backbone; CISCO 1800/2800 routers on interm. sites Custom Linux solutions 	<ul style="list-style-type: none"> CISCO HP Procurve; and Linux (Sangoma) 	<ul style="list-style-type: none"> Point-to-point and star topologies Open network architecture allows communication between any connected parties All standards supported
MHIN	<ul style="list-style-type: none"> Oracle-based relational database for regional/state data repository <ul style="list-style-type: none"> Supports over 500 users/day Web-based result delivery and clinical messaging platform Multiple scalable HL7 Interface Engines Supports roughly 1.8 Million transactions/month (60,000/day) 	<ul style="list-style-type: none"> HP 32-way server farm HP SANS <ul style="list-style-type: none"> Supports 16 TB production storage 25 Server Citrix Farm (Windows OS) Unix / Windows Servers 	<ul style="list-style-type: none"> CISCO Components <ul style="list-style-type: none"> Firewalls Routers / Switches Brocade Fiber Switches 3COM Switches 	<ul style="list-style-type: none"> TCP/IP IPSEC VPNs <ul style="list-style-type: none"> HTTPS for user authentication Direct connections via multiple fiber networks across svc area <ul style="list-style-type: none"> Metronet - Dark Fiber <p>Additional fiber networks</p>

Table 13: Existing Technical Capabilities (Part II)

	Software	Databases	User Interface	Network
HealthBridge	<ul style="list-style-type: none"> • Best of breed strategy with Axolotl, Atlas and Mirth tools in place • Internal development for HIE management portal. 	<ul style="list-style-type: none"> • MSSQL, PostgreSQL, IBM Domino 	<ul style="list-style-type: none"> • Axolotl Elysium UI, • HealthBridge HIE Management Portal 	<ul style="list-style-type: none"> • Infrastructure is housed in secure cage at the Harland Financial Services data center • The facility provides multiple layers of visitor identification and biometric authentication • The facility is connected to multiple Redundant Internet Providers, uninterruptible power supplies, dual power grids and a generator for prolonged power outages
HealthLINC	<ul style="list-style-type: none"> • HealthLINC uses Axolotl Elysium for clinical messaging, e-prescribing, and documentation • Mirth tools are used for EMR and other interfaces • Internal CCD development 	<ul style="list-style-type: none"> • MSSQL, PostgreSQL, IBM Domino 	<ul style="list-style-type: none"> • Axolotl Elysium UI, • HealthBridge HIE Management Portal 	<ul style="list-style-type: none"> • Has an ASP relationship with HealthBridge
IHIE	<ul style="list-style-type: none"> • Combination of internally developed and open source software (e.g., Mirth) 	<ul style="list-style-type: none"> • MSSQL, PostgreSQL, Oracle 	<ul style="list-style-type: none"> • Regenstrief/IHIE Management Portals 	<ul style="list-style-type: none"> • Infrastructure is house in secure cage at the LifeLine data center • Facility provides multiple layers of visitor ID • The facility is connected to multiple Redundant Internet Providers, uninterruptible power supplies, dual power grids and a generator for prolonged power outages
Med-Web	<ul style="list-style-type: none"> • Internally dvlpd software. • Integration with EHR software from Medical Informatics Engineering and PHR from NoMoreClipboard 	<ul style="list-style-type: none"> • MySQL 	<ul style="list-style-type: none"> • Browser-based 	<ul style="list-style-type: none"> • Fully staffed NOC with full monitoring of all critical systems • 80kVA UPS with on-site, natural gas powered backup generator
Michiana Health Information Network	<ul style="list-style-type: none"> • Commercial grade market leading product strategy <ul style="list-style-type: none"> ▪ Axolotl ▪ Cerner ▪ Mirth • Internal development 	<ul style="list-style-type: none"> • Oracle • MSSQL • MySQL • Domino 	<ul style="list-style-type: none"> • MHIN Web Portal • Axolotl Elysium UI • Cerner Millennium Suite 	<ul style="list-style-type: none"> • Secure Class 4 NOC, secure co-location <ul style="list-style-type: none"> ▪ Dual power grids, Fire Suppression, Climate Control, Backup on-site generators, 24 x 7 x 365 monitoring • Triple power grids (UPS & APS sources), FM-200 Fire Suppression, Redundant Climate Control Technology, Backup on-site generators, 24 x 7 x 365 monitoring

Technical Architecture- HealthBridge

I. Technical Architecture/Approach

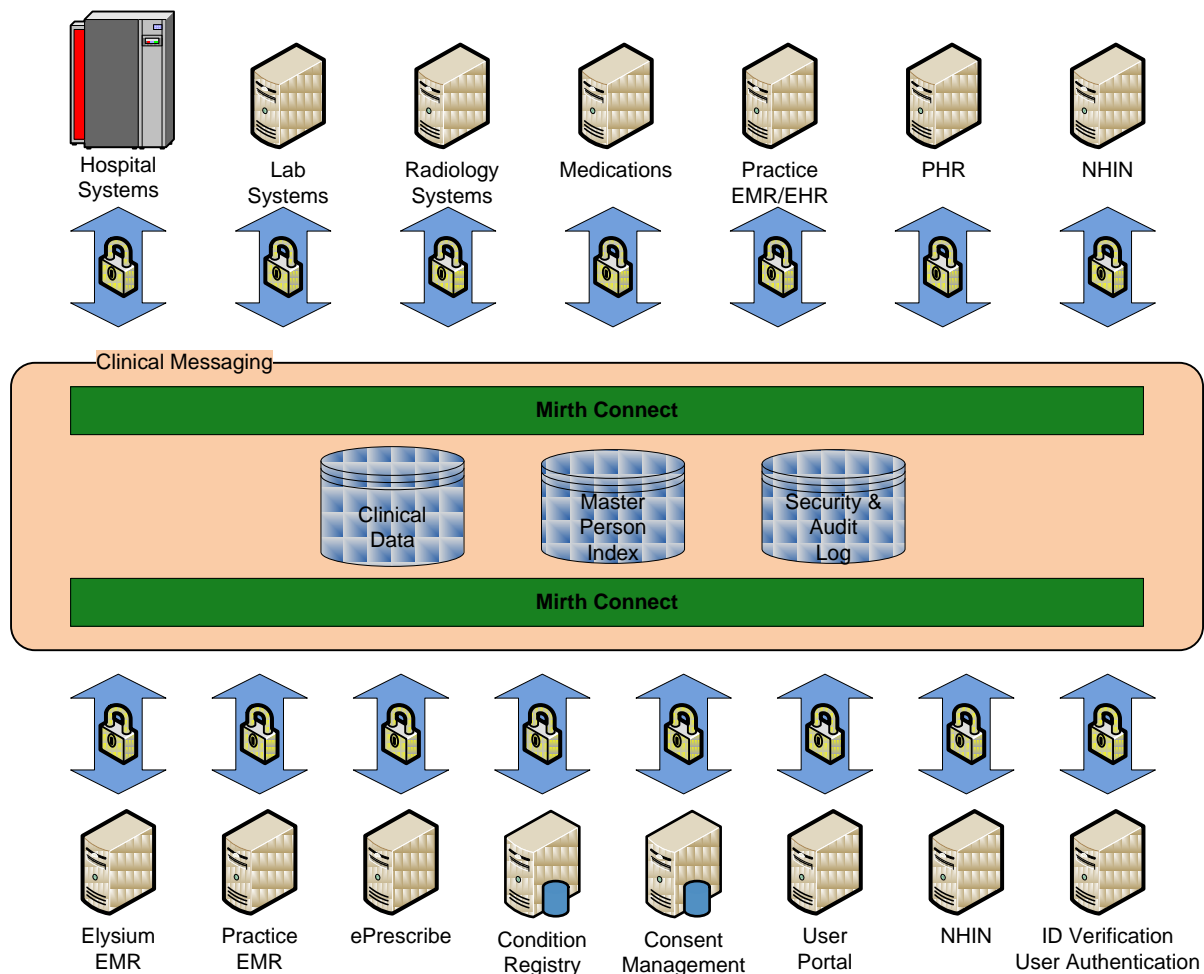
a. HealthBridge System Architectural Overview

HealthBridge is a health information exchange that has been in operation since 1997 and since that time has grown its operations to include a host of best-of-breed HIE technologies and applications. We employ a service oriented architecture (SOA) to connect providers. Planning is also underway to expand capabilities to connect patients to their health information as well.

The HIE platform is built on a combination of Commercial-off-the-Shelf (COTS) applications and open source custom built applications. Data is transmitted to and from the HIE using standard communication and message protocols. The message processing system is modular and can be enhanced to support evolving message profiles. We utilize the Mirth Results data store and Mirth Connect integration engine, which allows us to remain data and application agnostic. This is a 'plug and play' approach for offering all the functionality necessary for meaningful use such as EHR integration, electronic prescribing, disease management, and ordering to name a few. Mirth Results can collect, organize and aggregate clinical data from many different sources, which allows clinical data from disparate sources to be easily viewed and queried. Mirth CONNECT is an open source software gateway that connects an organization's health IT systems into health information exchanges using Nationwide Health Information Network conventions, agreements and core services. Mirth Connect is open source middleware that securely filters, maps, and routes messages between health information systems and supports numerous healthcare messaging standards and formats (e.g. CDA, HL7, X12, DICOM, delimited, and so on), various protocols and transports (e.g. LLP, HTTPS and web services), and connections to widely available databases (e.g. Oracle, MySQL, SQL Server, ODBC and Cache).

The clinical messaging system is a combination of Mirth Match, Mirth Results and Axolotl Elysium. This system is responsible for processing messages from the data providers and determining to which systems to route messages. Elysium also serves as a CCHIT certified EHR for practices that don't have an EHR.

Figure 26: HealthBridge System Architecture Overview



b. Components of HealthBridge system

The HealthBridge HIE offering is comprised of the following components and technology partnerships to support HIE:

- HIE User Portal – HealthBridge
- Results Data Store – Mirth Results
- Integration Engine – Mirth CONNECT*
- Nationwide Health Information Network Connect Gateway – Mirth CONNECT*
- Master Patient Index & Patient Registry Services – Mirth eMPI
- Record Locator Services – Mirth
- Public Health Alerts / electronic disease reporting - HealthBridge
- Clinical Messaging - Axolotl

- Electronic prescribing – Network Technology, Inc. – RXNT
- Disease Management & Quality Reporting – WellCentive
- Lab & Radiology Order Entry – Atlas Development Company

These HIE components are described in more detail below.

HIE Portal – the HealthBridge portal – called ‘hbConnect’ – is a web-based HIE management portal that provides a centralized, complete electronic platform for offering HIE users a variety of functions. hbConnect provides secure access to a variety of systems, including physician access the Clinical Messaging system, hospital information systems, the electronic prescribing solution, and billing company access to clinical information. In addition it offers secure, HIPAA compliant messaging between users, the ability to look up and change information in the provider directory, as well as a variety of identity management and security tools for practices.

Clinical Messaging – HealthBridge uses Axolotl’s Clinical Messaging product – which we market as ‘hbResults.’ hbResults is a secure, web-based clinical messaging platform that delivers a variety of clinical results to authorized physicians of record via:

- an electronic in-box with considerable workflow tools
- a physician’s electronic medical record (EMR)
- Outsourced fax with outsourced mail as an option.

A host of clinical information is available to physicians and other authorized users, including, Lab results, Radiology reports, Transcribed reports, Cardiology, Pathology, Microbiology, Admissions Notices, and Discharge Summaries.

EMR Interfaces – Physicians that participate in our HIE *who already have EMRs* want one place to view all their clinical information. To date there are 26 interfaces already developed. Once a hospital is connected to HealthBridge, they no longer need to create and maintain any interfaces.

Public Health Alerts (Electronic Disease Reporting) –HealthBridge offers hospitals, labs and other health care organizations the capability to fulfill mandated public health reporting requirements through its hbAlert system. We also provide the ability to send reportable diseases to ODH electronically.

Electronic Prescribing –HealthBridge offers electronic prescribing capability that is connected to its community patient and provider index and to the national e-prescription network to allow physicians access to a patient’s complete medication history as well as other critical clinical information. This solution is called ‘hbScript’, and uses the award-winning RxNT eprescribe platform. RxNT is the nation’s leading electronic prescription

provider(the only e-prescribing vender to be CCHIT certified), offering an integrated web and PDA product that arms healthcare providers of all sizes with a flexible and reliable electronic prescribing solution. hbScript offers a robust desktop solution, wireless Pocket PC and Palm OS functionality for mobile prescribers, a comprehensive drug database, real-time patient specific formularies and prescription claims medication history, drug and allergy interactions, FDA approved SIGs, a custom SIG creator for frequently prescribed drugs, access to more than 72,000 retail and mail order pharmacies nationwide and HIPPA compliant interfaces to many of the popular management systems.

Disease Management and Quality Reporting Tools - HealthBridge offers a set of technologies and tools that will assist physician practices with population measurement and quality improvement. We call this package hbQuality which is offered in partnership with Wellcentive. The hbQuality tools provides capabilities that will help practices meet requirements for performance measurement, quality improvement and reporting for meaningful use, pay for performance, and other quality programs such as Bridges to Excellence, and the Physician Quality Reporting Initiative, among others.

Order Entry – HealthBridge operates a community-based ambulatory order entry system allowing hospitals to receive lab orders from physician offices electronically with order management tools and manifests. The benefits of implementing order entry at a community level include use of a community Master Patient Index with accurate patient demographics, reduced cost of licensing, volume-based discounts, increased implementation speed, and HealthBridge expertise leveraged across the community. Currently more than 25,000 orders a month are sent electronically using this application in the Cincinnati community. This application is based on order entry software from Atlas.

Connection to other HIEs and Federal Entities. HealthBridge utilizes the Mirth CONNECT integration engine that allows us to connect in to other health information exchange networks. We have proven experience with connecting to other HIEs -- in fact, in 2007 the U.S. Department of Health and Human Services' Office of the National Coordinator awarded contracts to HealthBridge in Cincinnati, Ohio, Indiana Health Information Exchange (IHIE – Regenstrief Institute) in Indianapolis, Indiana and HealthLINC in Bloomington, Indiana to exchange data through the National Health Information Network (Nationwide Health Information Network). In addition, in September of 2009 these three HIEs started securely sending clinical test results, reports and other medical information among their health information exchanges using HL7 standards. HealthBridge tested CCD exchange capability under the Nationwide Health Information Network II initiative and has moved into production. HealthBridge is currently exchanging CCDs with the Centers for Medicare and Medicaid Services under its C-HIEP project. It is anticipated that this capability will expand under the Nationwide Health Information Network II and Social Security Administration MEGAHIT projects.

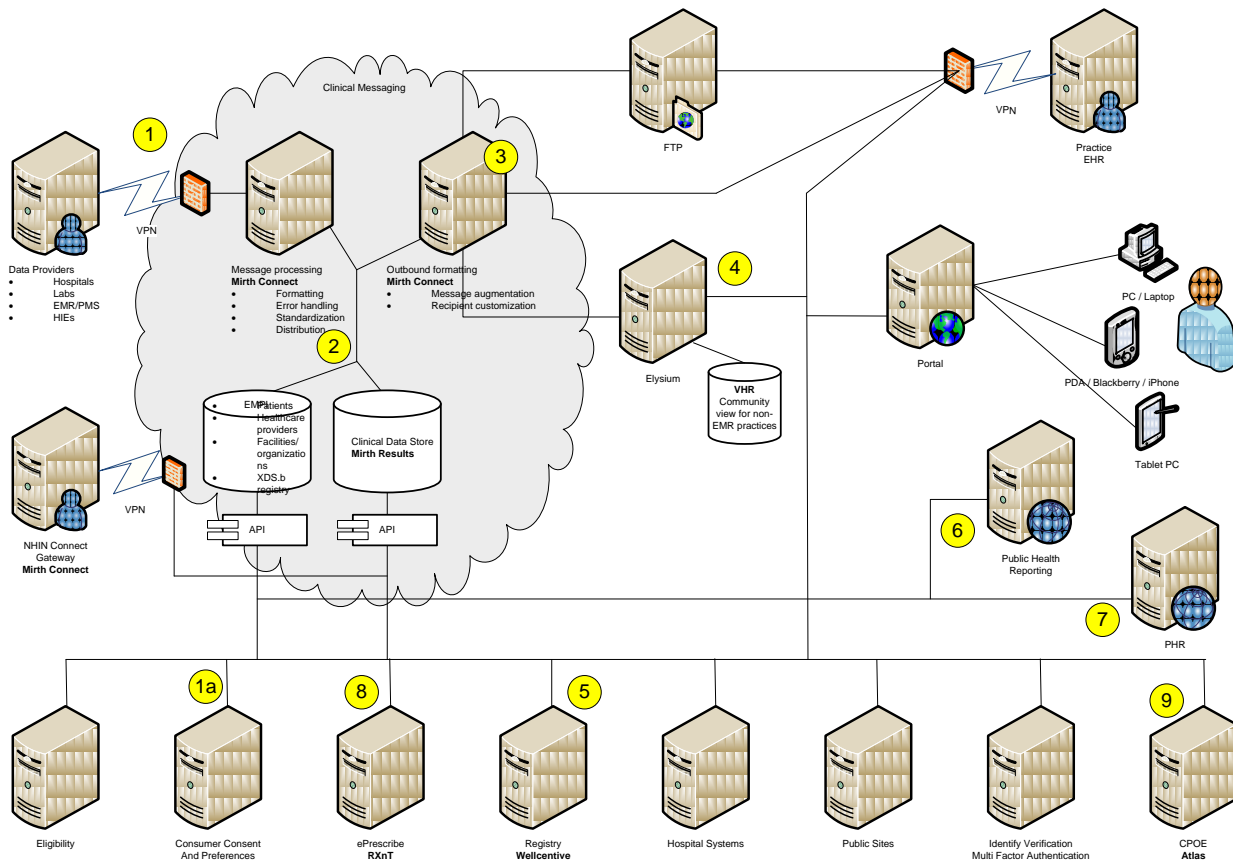
Summary Record Exchange – Using both the Nationwide Health Information Network II specifications HealthBridge has developed summary record (CCD) exchange capability. (see above description under Connection to other HIEs.)

c. HealthBridge System Data Flow

A description of the HealthBridge data flow is provided below:

1. Data is received from a data provider.
2. The contents of the message are placed in the Master Person Index and/or the Clinical Data Store as appropriate based on the type of message. The Clinical Data Store then determines how the message is to be routed.
3. The message may be modified to be acceptable to the receiving application and then is delivered to that application.
4. If the destination is Elysium the message will be stored in Lotus Domino databases.
5. If the patient's practice is participating in the Conditions Registry a copy of the message will be sent to the registry dependent on the type of message.
6. If the message is a lab result containing results that should be sent to the Public Health Reporting system a copy of the result will be sent by the clinical data store.
7. Under development currently is the capability to expand connectivity and data repository functionality. In the future HealthBridge plans to connect with a PHR if the patient has one selected. The MPI record will forward a copy of the message to a PHR from the clinical data store.
8. As healthcare providers prescribe medications for their patients and the patients have those prescriptions filled copies of that activity will be sent from the ePrescribing system and added to the clinical data store.
9. The lab order entry system sends a copy of the lab request to the clinical data store so that data from the order may be used to augment the result and tie results to the original order.

Figure 27: HealthBridge System Data Flow



d. Scalability

HealthBridge is one of the nation's largest, longest running and most financially self-sustaining collaborative HIEs. HealthBridge serves the HIE needs across a region of great size and diversity. We have implemented a flexible, service-oriented architecture to enable the successful exchange of health data within the Greater Cincinnati metro area of 2+ million people as well as replicating HIE services in several smaller markets, such as HealthLINC in Bloomington, IN and CCHIE in Springfield, OH.

II. Master Patient Index (MPI) Management

Our HIE MPI is Mirth Match – which is an open source SOA based EMPI product that is fully compliant with the Integrating the Healthcare Enterprise (IHE) Patient Identifier Cross-Reference HL7 V3 (PIXV3) and Patient Demographic Query HL7 V3 (PDQV3) profiles, as

well as the Healthcare Services Specification Project (HSSP) Entity Identification Service (EIS) specification.

III. Interoperability

a. Participation in Nationwide Health Information Network

Under the work for the Nationwide Health Information Network project, HealthBridge is testing and implementing new standards and specifications for exchange – including testing exchange of a summary patient record (CCD, C32) using Nationwide Health Information Network specifications established in conjunction with the federal government and various standards organizations. HealthBridge worked cooperatively with other Nationwide Health Information Network contractors and grantees in the Nationwide Health Information Network Trial Implementations and Demonstrations to refine and implement specifications for testing health information exchange between participants. HealthBridge served as a presenter and participant in both the September and December 2008 demonstration events. HealthBridge also participated and successfully passed two separate testing events in August and November 2008. These trial implementations and demonstrations specifically showcased HealthBridge's implementation of Nationwide Health Information Network specifications and core services. In addition, HealthBridge became a full member of the Nationwide Health Information Network Coordinating Committee in June 2010. HealthBridge's CIO also sits on the Nationwide Health Information Network Technical Board, a new advisory body responsible for reviewing and recommending action based on Nationwide Health Information Network technical standards and will use this work to stay current on developments in the field.

HealthBridge is one of three HIEs selected by the Centers for Medicaid and Medicare Services (CMS) to work as a subcontractor to IBM on a 14-month proof-of-concept project to develop exchange of electronic data with providers across the Nationwide Health Information Network. Standardized patient discharge data will be collected across seven different care settings, interfaced into the HIE data store, aggregated with information from other care settings, transformed in aggregate into a CDA document format, and submitted to CMS over the Nationwide Health Information Network gateway via Mirth CONNECT. HealthBridge went live with data exchange under this contract in June 2010.

Finally, HealthBridge has been selected by the Social Security Administration (SSA) for an SS A Nationwide Health Information Network MEGA HIT award. SAA's Nationwide Health Information Network MEGA HIT project is a project in which participants will send disability determination information in CCD format over the Nationwide Health Information Network to the SSA for the purposes of speeding disability determination. HealthBridge will use the Mirth Nationwide Health Information Network Connect product for data

transformation and routing via the Nationwide Health Information Network gateway. HealthBridge just received its notice to proceed from the SSA in July 2010 and anticipates it will be exchanging data within six months with the SSA using Nationwide Health Information Network standards and specifications.

b. HealthBridge Use of HHS Adopted Standards and Certifications

From its inception, HealthBridge has been an organization committed to using national standards when available and working with other organizations to stay ahead of the development curve. HealthBridge provides tremendous standards-based integration capability including the ability to connect to and share information among more than 40 different inpatient information systems and 25 different ambulatory electronic health records systems. HealthBridge provides this integration capability using HL7 data standards and industry standard transport protocols (MLLP, SFTP, etc.). Additionally HealthBridge utilizes the Mirth Interface engine for additional inbound and outbound data transport (Web Services, SOAP, HTTPS, SSH, SFTP, SQL, ODBC) and transformation capabilities. We use DICOM in image transfer for PACS, NCPDP for ePrescribing, HL7 V2.X for message delivery. Moreover, HealthBridge has pioneered work with our community partners to implement extensive LOINC coding for lab results, ensuring a high degree of coded data into EMRs.

Technical Architecture- HealthLINC

Since HealthLINC has an ASP relationship with HealthBridge through which HealthBridge provides the technical infrastructure, see HealthBridge above.

Technical Architecture- IHIE

I. IHIE Technical Architecture/Approach

a. System Architectural Overview (with graphic)

The DOCS4DOCS service is a pure JAVA application backed by a PostgreSQL database run on Intel-based servers running SuSE. The system is 3-tier architecture with flexibility to allocate tiers to multiple servers as performance demands dictate. The DOCS4DOCS service is being used by over 15,000 physicians in Indiana; and thirty-nine hospitals are part of our service network.

The Clinical Repository service is a set of federated, centrally managed repositories – one for each participating member organization – managed on behalf of the participants by a trusted third party (IHIE). The Clinical Repository service is an internally developed database. Federation is a key tenet of the architecture and management of our repository

services solution. In our repository services model, for each data source organization IHIE maintains a dedicated and distinct “data vault”; data source organizations maintain control over their data. Quality Health First leverages the architecture of the INPC but adds a clinical decision support engine, a quality measure and report generator, and patient registries.

b. Components of the IHIE infrastructure

At a high-level, IHIE’s HIE infrastructure can be broken down into the following components:

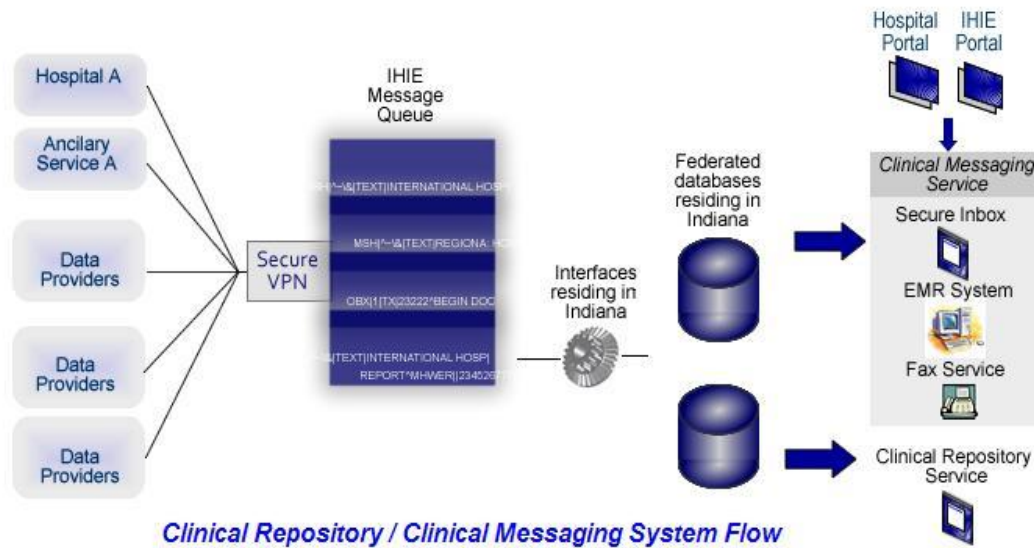
- Interface tools
- Normalization tools
- Clinical message routing (e.g. Results delivery, Public health, etc)
- Data repository
- Patient matching / MPI
- Provider matching
- Clinical decision support engine
- Patient registry
- Quality measure and report generator
- Nationwide health information network gateway
- Applications
- Consolidated viewer
- Clinical result entry
- Query tool
- CM in-box management application

c. IHIE System Data Flow (with graphic)

Clinical Messaging and Clinical Data Repository architecture and data flow

IHIE’s clinical messaging and clinical data repository services utilize the same interfaces and VPN from participating organizations. Messages in the HL7 data streams that need to be delivered to a physician for clinical messaging are processed by the DOCS4DOCS system and delivered to all physicians listed in the message. The method of delivery for each physician is according to their preference (EMR, web, or fax) as recorded in the IHIE physician directory. All messages from a given organization are then mapped to national standards (semantic normalization) and ultimately stored in the repository dedicate to that organization. A given patient’s data is likely to reside in many different repositories, reflecting where they have received care in the past. When the patient presents at a care setting with access to the INPC (e.g. a hospital emergency department), the patient’s registration data travels from the point of care to the INPC and the patient is matched to

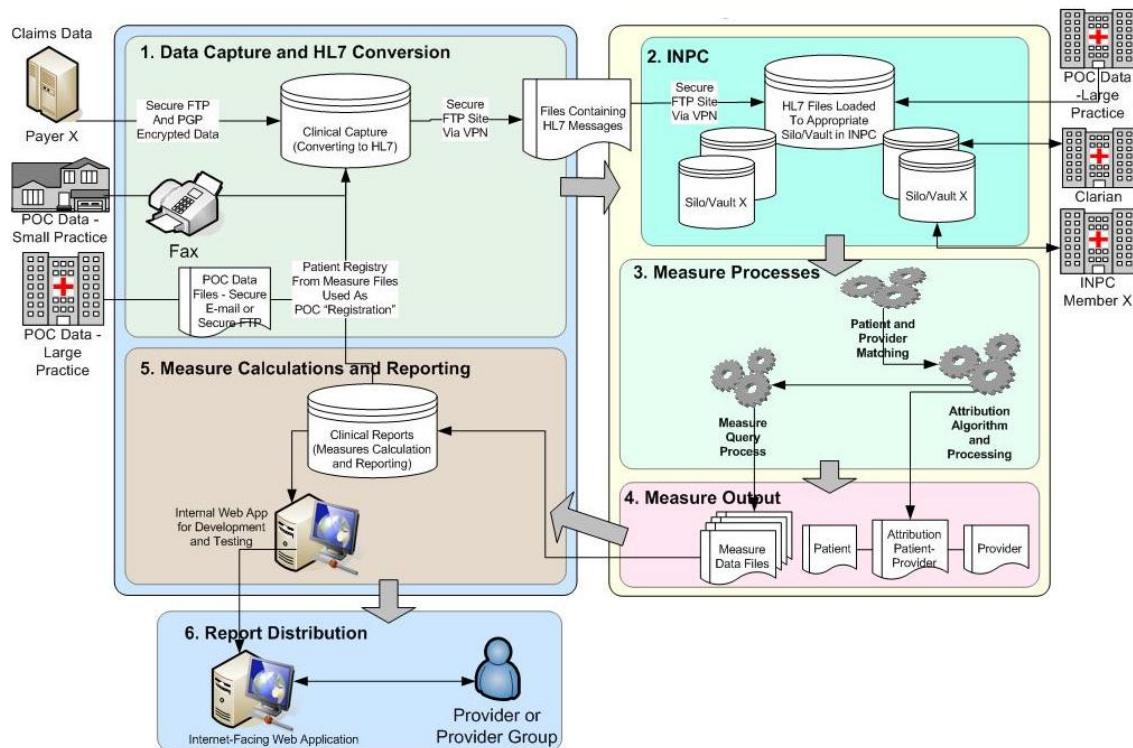
their data in each repository. From there, a summary of the patient's data is sent back to the point of care and, simultaneously, access to the patient's data with the INPC is opened up to the clinician (for a defined period of time only at the location where the patient has presented)



Quality Health First architecture and data flow

QHF relies on the clinical and claims data infrastructure of the INPC. QHF uses the data to attribute patients to their primary care physicians (PCPs), identify departures from evidence-based best practices, provide clinical decision support and measures data to physicians and payors. Two types of data flow to physicians: (1) Actionable, patient-level data and aggregated reports flow to PCPs to support improved patient care and (2) measure reports communicating how care delivered at the practice conforms to QHF program measures. Similar aggregated reports and data flow back to participating payors to support administration of their primary care incentive programs.

Figure 28: Quality Health First System Architecture and Data Flow



d. Scalability

IHIE's clinical information repository solution and clinical messaging service have proven to be scalable. The clinical messaging service handles over 6 million messages per month to over 16,000 physicians. The INPC membership includes 22 hospital systems (63 hospitals), as well as many other members representing payors, labs, imaging centers, long-term care, and public health. These members deliver over 60% of all inpatient and outpatient care in Indiana and are distributed across Indiana including northwest, west-central, southwest, central, and southern parts of the state. When all members are implemented, the INPC will be serving markets with well over half the population of the state.

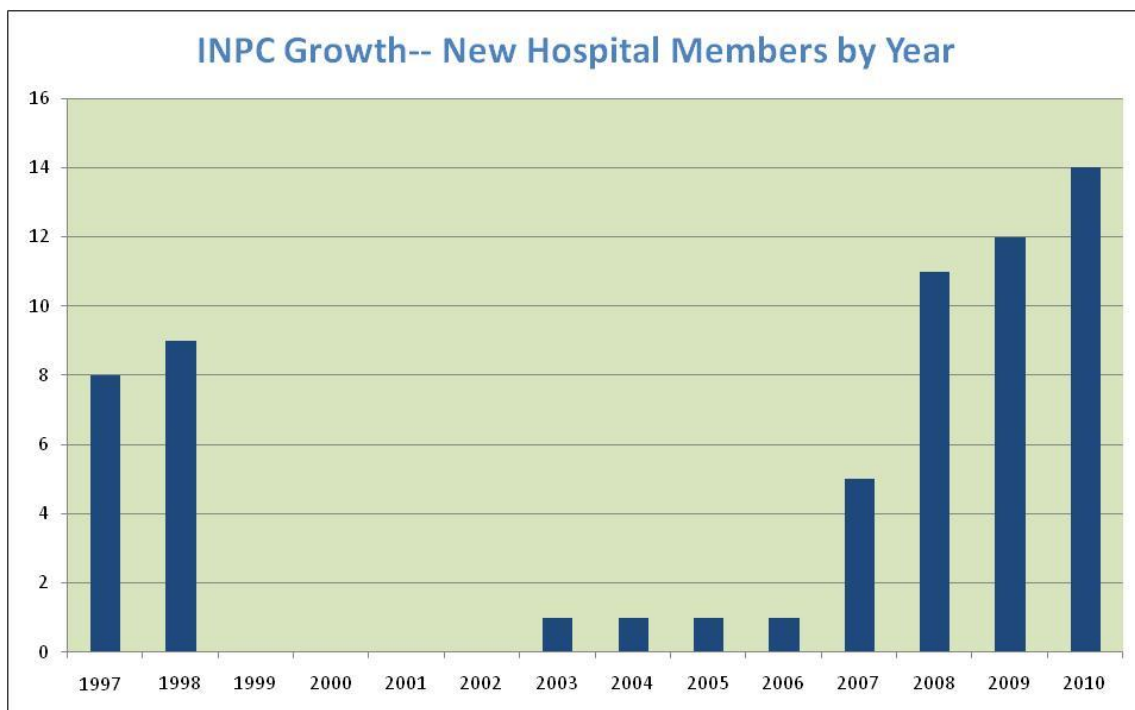
We have yet to reach an operational peak for a single deployment. The entire INPC is supported by a single instance of our system. The solution can be implemented incrementally by adding data source organizations (e.g. hospitals, commercial labs, imaging centers) and/or by adding individual interfaces to specific data sources (e.g. radiology, EKG, et cetera) within a data source organization.

Hardware is added periodically to support the additional CPU and data storage needs. We physically partition the database by institution, so the efficiency of accessing data for a

particular member institution is not affected by the volume or frequency of data updates for other institutions.

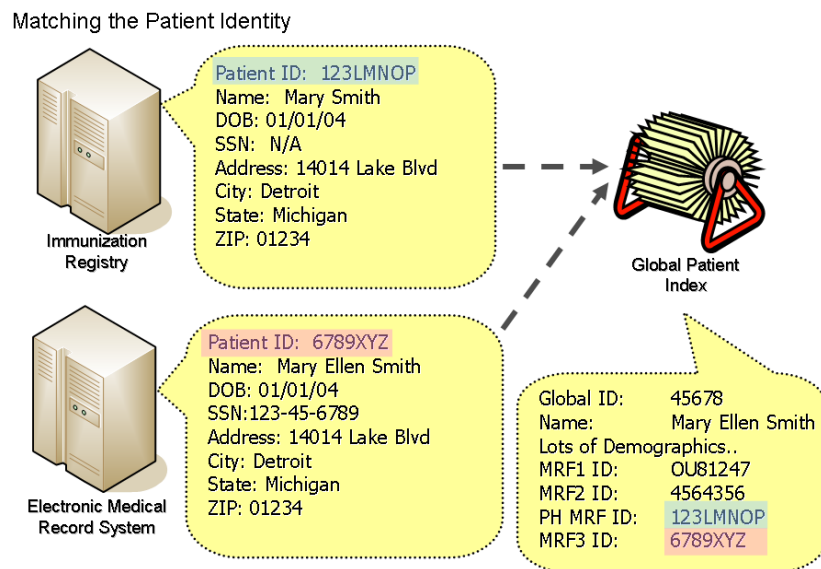
The INPC data includes access to:

- 10.75 million unique patients
- 20 million registration events
- 3 billion coded results
- 38 million dictated reports
- 9 million radiology reports
- 12 million drug orders
- 577,000 EKG tracings
- 120 million radiology images



II. Master Patient Index (MPI) Management (a.k.a. patient matching)

The Global Patient Index (GPI) is our version of the MPI (master patient index). It is a pure, sequentially generated long-integer. It is of consequence only when someone is requesting information from the system, although it is generated and referenced every time data is put into the system. As new patients are added to the repository, a new global patient index number is generated for them based on the last entry in the table. The demographic information, the institution(s) of reference and the local



institution record number are all stored together with the GPI. When a lookup is required (both for data storage and retrieval), this table provides the mapping. During the data storage process, a fuzzy match between participating institutions allows for cross-identification of the same patient across institutions and all of the local institutional record numbers are then co-located with the GPI. So at runtime it is trivial to figure out in which silo a patient's data resides and those silos are searched using the local record number stored with the GPI.

III. Interoperability

a. Participation in nationwide health information network

IHIE, with its partner the Regenstrief Institute, has been directly involved at the national level in both the early formative contracts to demonstrate the feasibility of a nationwide health information network (Nationwide Health Information Network).

In 2004, Regenstrief Institute worked with Connecting for Health and the Markle Foundation to connect HIOs in Massachusetts, Indianapolis and California in support of a Common Framework Prototype for a nationwide health information network (Nationwide Health Information Network).

In 2006, to support the Office of the National Coordinator for Health Information Technology's (ONC) effort to create a Nationwide Health Information Network, together with Computer Sciences Corporation (CSC) Regenstrief Institute worked (with two other health care markets – Boston, MA and Mendocino County, CA) to develop the architectural approaches and the software for the Nationwide Health Information Network prototype, and managed the integration in the Indianapolis market. The Nationwide Health Information Network prototype was created to allow communities and regional networks to connect and grow into a “network of networks.”

In 2007, ONC awarded contracts to 9 health information exchanges (HIEs), including to the Regenstrief Institute and IHIE, to begin trial implementations of the Nationwide Health Information Network. The Nationwide Health Information Network Trial Implementations awardees participated in a collaborative effort, the Nationwide Health Information Network Trial Implementations Cooperative, to further specify the common interfaces that Nationwide Health Information Network Health Information Exchanges (NHIEs) need to interoperate.

In 2010, Regenstrief was awarded a grant to use the Nationwide Health Information Network to exchange data with the Social Security Administration in support of improved disability determination.

With HealthBridge (www.healthbridge.org) IHIE is now able to exchange clinical messages for physicians between two HIOs. In other words, when the source hospital or lab is the customer of one HIO and the destination physician practice is a customer of the other, message deliver occurs – transparent to both customers.

b. IHIE's Use of HHS Adopted Standards and Certifications

IHIE services are standards-based. To communicate with our customers and deliver services, we rely heavily on HL7 and other standards. There are also other relevant standards with which we work with such as Digital Imaging and Communications in Medicine Committee (DICOM) and National Council for Prescription Drug Programs (NCPDP). We use a number of standardized code sets to translate and report results, including LOINC, CPT, ICD, etc. LOINC is being utilized to map these local system tests.

Over the past 25 years, the Regenstrief Institute's informatics group has pioneered international electronic message standards for medical records including the development of HL7. We have implemented and supported HL7 Versions 2.1 through 2.7 and have a few Version 3 prototypes.

The Regenstrief Institute also developed the Logical Observation Identifiers Names and Codes (LOINC®) system, a standard nomenclature (now over 45,000 observation terms) that enables the electronic transmission of clinical data from laboratories to hospitals,

physicians' offices and payers for clinical care and management purposes. Regenstrief mappers use the RELMA mapping tool to assist the manual effort to develop the mappings of laboratory test codes from each data source to the Clinical Repository Master Concept Dictionary and then to LOINC codes.

Technical Architecture- Michiana Health Information Network (MHIN)

Technical Infrastructure: Interoperability

Participation in Nationwide Health Information Network

MHIN is ready and willing to participate fully and comply with Nationwide Health Information Network. We have completed technical research and confident that we can meet or exceed all requirements. When our client council prioritizes this project we will enable the connection.

Adoption of HHS standards and certification for HIE

We have demonstrated the adoption of HHS interoperability standards by our ongoing successful integration of data within our community to a variety of vendors. We have determined that some of our local healthcare providers have not adopted HHS standards and in some cases do not have CCHIT certified EHRs in place. Our Cerner and Axolotl platforms are CCHIT certified.

Planning and accounting for meaningful use criteria

MHIN has thoroughly reviewed the recently final Meaningful Use regulations published in July, 2010. We have determined that we either already have or are in the process of implementing solutions to assist our clients in meeting all Meaningful Use core and menu requirements. Below is a table (Figure 1) that lists each requirement, with specific information about the product or service that is available to help providers comply.

- E-prescribing (core requirement #3):

We have a variety of products available to our clients that offer e-prescribing through the SureScripts network. Clients who utilize either the stand-alone e-prescribing solution or the integrated solution for e-prescribing services have been e-prescribing since early 2009. In addition, we offer interface connectivity services to enable our clients with third party EHRs to transmit their prescriptions via the SureScripts network.

- Receipt of Structured Lab Results (core requirement #17):

We are fully equipped to assist a variety of clients to meet this requirement. For our clients who utilize the MHIN EHR, discrete laboratory results have been electronically

incorporated into their EHR since inception in 2002. In addition, we have been transmitting structured laboratory results to our clients with third-party EHRs since 2006. For those who do not currently have an EHR, we are actively storing structured laboratory results in our clinical data repository on their behalf, and are prepared to deliver both current and historical results to their selected EHR upon implementation.

- Sharing Patient Care Summaries Across Unaffiliated Organizations (menu #23)

As an initial effort to meet this requirement, our current MHIN EHR clients are able to electronically exchange detailed patient histories across providers. Our clinical data repository also serves as a platform for all local providers to access the community patient record on demand. We have fully developed and are ready to deploy a continuity of care document via HL7 interface to any client who is ready to receive this type of document. This service can be automated based on trigger events. Our interface services are also capable of receiving and transmitting this type of document.

Figure 29: Analysis of Meaningful Use Requirements

			Health Information Exchange Solutions		MHIN Clinical Workflow Solutions	
Core Set Requirements	1 Use CPOE	For EP's, more than 30% of patients with at least one medication in their medication list have at least one medication ordered through CPOE.			✓	✓
	2 Implement drug-drug and drug-allergy interaction checks	The EP has enabled this functionality for the entire EHR reporting period.			✓	✓
	3 Generate and transmit permissible prescriptions electronically (eRX)	At least 40% of all permissible prescriptions written by the EP are transmitted electronically using certified EHR technology	✓ Electronically Route Prescriptions		✓	✓
	4 Record demographics • preferred language • gender • race • ethnicity • date of birth	At least 50% of all unique patients seen by the EP have demographics recorded as structured data		Community-wide patient demographic histories (ADT Interfaces)	✓	
	5 Maintain an up-to-date problem list of current and active diagnoses based on ICD-9 CM or SNOMED CT	At least 80% of all unique patients seen by the EP have at least one entry or indication of non recorded as structured data		Community-wide Problem List	✓	✓
	6 Maintain active medication list	At least 80% of all unique patients seen by the EP have at least one entry (or an indication of "none" if the patient is not currently prescribed any medication) recorded as structured data		Community-wide Medication List	✓	
	7 Maintain active medication allergy list	At least 80% of all unique patients seen, by the EP have at least one entry (or an indication of "none" if the patient has no medication allergies) recorded as structured data		Community-wide Allergy List	✓	
	8 Record and chart changes in vital signs: • height • weight • blood pressure • calculate and display: BMI • plot and display growth charts for children 2-20 years, including BMI	For at least 50% of all unique patients age 2 and over seen by the EP record blood pressure and BMI; additionally plot growth chart for children age 2-20			✓	
	9 Record smoking status for patients 13 years old or older	At least 50% of all unique patients 13 years old or older seen by the EP have "smoking status" recorded			✓	
	10 Implement clinical decision support rules relevant to specialty or high clinical priority, including diagnostic test ordering, along with the ability to track compliance with those rules	Implement 1 clinical decision support rule relevant to the clinical quality metrics the EP is responsible for as described further in section II(A) (3).		✓ Patient Registries & Case Management Tools	✓	
	11 Report ambulatory quality measures to CMS or the States	For 2011, provide aggregate numerator and denominator through attestation as discussed in section II(A) (3) of this proposed rule. For 2012, electronically submit the measures as discussed in section II(A) (3) of this proposed rule.	✓		✓	
	12 Provide patients with an electronic copy of their health information (including diagnostic test results, problem list, medication lists, allergies), upon request	At least 50% of all patients who request an electronic copy of their health information are provided it within 3 business days.	✓ Q1 2011		✓	
	13 Provide clinical summaries for patients for each office visit	Clinical summaries are provided for at least 50% of all office visits within 3 business days.	✓ Q1 2011		✓	
	14 Capability to exchange key clinical information (for example problem list, medication list, allergies, diagnostic test results) among providers of care and patient authorized entities electronically	Performed at least one test of certified EHR technology's capacity to electronically exchange key clinical information	✓		✓	
	15 Protect electronic health information created or maintained by the certified EHR technology through the implementation of appropriate technical capabilities	Conduct or review a security risk analysis per 45 CFR 164.308 (a)(1) and implement security updates as necessary			✓	
Menu Set Requirements (Choose 5)	16 Implement drug-formulary checks	The EP has enabled this functionality and has access to a access to at least one internal or external drug formulary for the entire EHR reporting period.			✓	✓
	17 Incorporate clinical lab-test results into EHR as structured data	At least 40% of all clinical lab tests ordered whose results are in a positive/negative or numerical format are incorporated in certified EHR technology as structured data	✓	Community-wide laboratory result view (structured data)	✓	
	18 Generate lists of patients by specific conditions to use for quality improvement, reduction of disparities, research, or outreach	Generate at least one report listing patients or the EP or eligible hospital with a specific condition.		✓ Patient Registries and Case Management	✓	
	19 Send reminders to patients per patient preference for preventive/follow-up care	Reminder sent to at least 20% of all unique patients seen by the EP that are age 65 or over or age 5 or under.	✓		✓	
	20 Provide patients with timely electronic access to their health information (including lab results, problem list, medication lists, allergies) within 4 business days of the information being available to the eligible professional	At least 10% of all unique patients seen by the EP are provided timely electronic access to their health information	✓ Q4 2010		✓	
	21 Use certified EHR technology to identify patient-specific education resources and provide those resources to the patient if appropriate.	More than 10% of all unique patients seen by the EP are provided patient-specific education resources.			✓	
	22 Perform medication reconciliation at relevant encounters and each transition of care	Perform medication reconciliation for at least 50% of relevant encounters and transitions of care		Community-wide Medication List	✓	✓
	23 Provide summary care record for each transition of care and referral	Provide summary of care record for at least 50% of transitions of care and referrals.	✓	Share and Access summary care records with providers across the community	✓	
	24 Capability to submit electronic data to immunization registries and actual submission where required and accepted	Performed at least one test of certified EHR technology's capacity to submit electronic data to immunization registries and follow up submissions if the test is successful.	✓		✓	
	25 Capability to provide electronic syndromic surveillance data to public health agencies and actual transmission according to applicable law and practice	Performed at least one test of certified EHR technology's capacity to provide electronic syndromic surveillance data to public health agencies (unless none of the public health agencies to which an EP submits such information have the capacity to receive	✓		✓	

Technical Architecture / Approach

MHIN System Architecture Overview:

A majority of our services are provided through commercial grade market leading product strategy utilizing the following platforms:

- Axolotl: Web-based result delivery and clinical messaging platform with a Domino platform
- Cerner: Oracle-based relational database for community data repository
 - Supports over 500 users/day via Citrix
- Mirth: Multiple scalable HL7 Interface Engines
 - Supports roughly 1.8 Million transactions/month (60,000/day)

In addition, some of our products are internally developed and supported.

Components of the MHIN System

Hardware:

- HP 32-way server farm
- HP SANS – 16 TB of production storage
- 25 Server Citrix Farm (Windows OS)

Network:

- Secure Class 4 Data Center
 - Dual power grids, Fire Suppression, Climate Control, Backup on-site generators, 24 x 7 x 365 monitoring
- Secure Co-Location

Triple power grids (UPS & APS sources), FM-200 Fire Suppression, Redundant Climate Control Technology, Backup on-site generators, 24 x 7 x 365 monitoring

Networking Equipment:

- CISCO Components
 - Firewalls
 - Routers / Switches
- Brocade Fiber Switches
- 3COM Switches

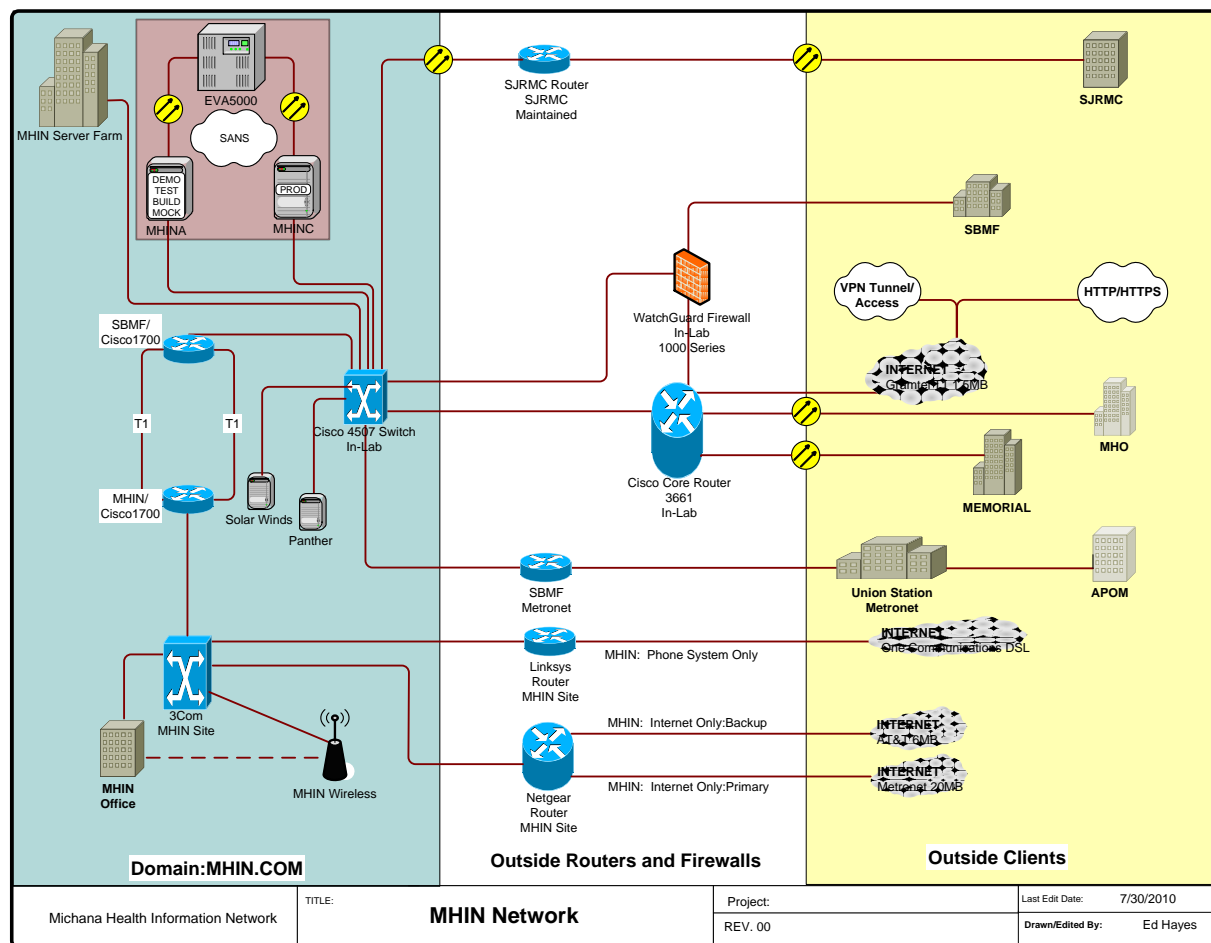
Networking Topology:

- TCP/IP
- IPSEC VPNs
 - HTTPS for user authentication
- Direct connections via multiple fiber networks across service area
 - Metronet - Dark Fiber
 - Additional fiber networks

Scalability

MHIN has built our Health Information Exchange for scalability in our community. We have the capacity to accommodate a high volume of concurrent users which allows us to add users without significant increased expense or effort. Our SAN infrastructure provides the foundation for years of growth.

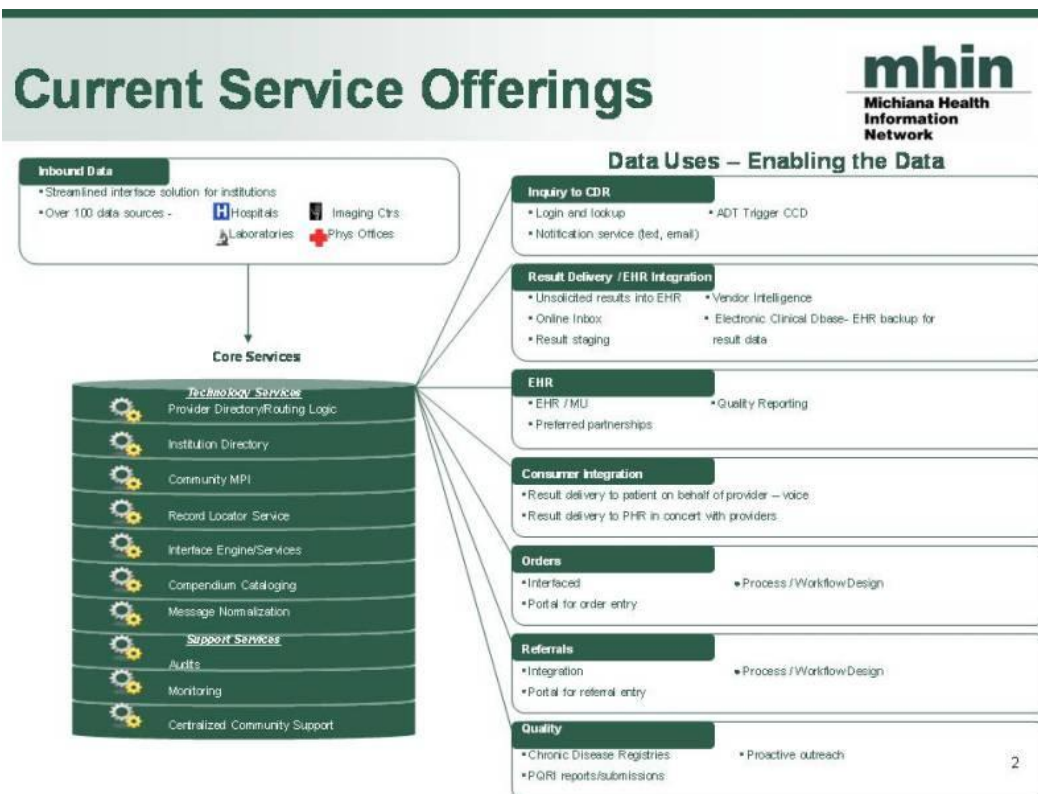
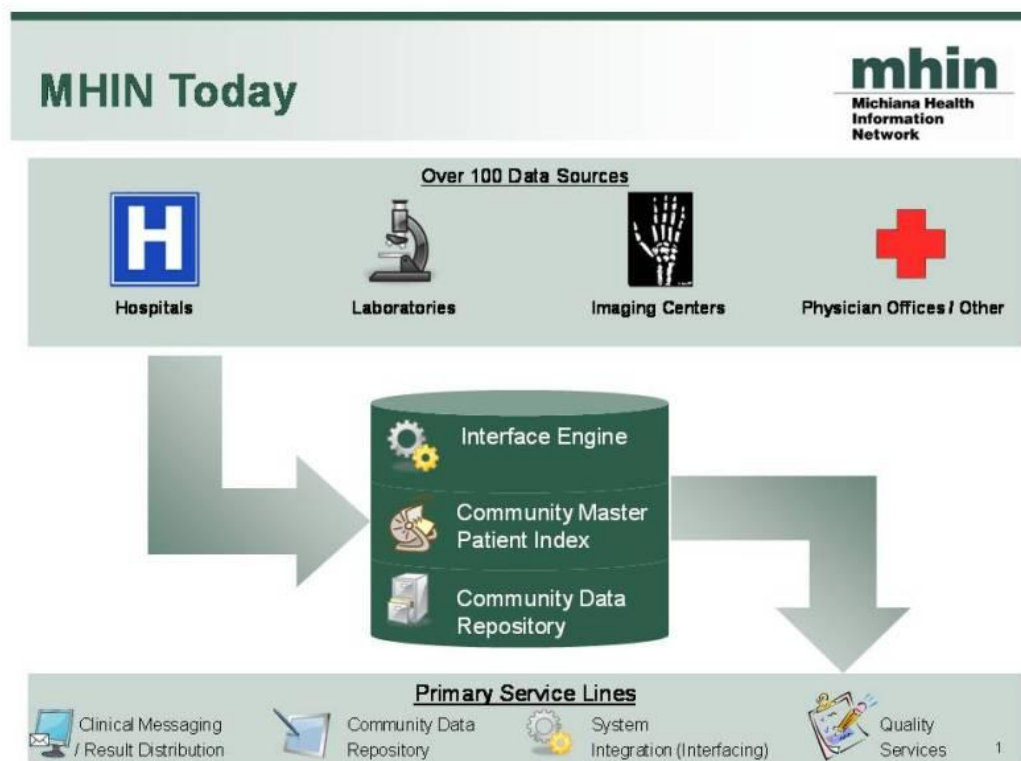
Figure 30: System Architecture



HIE Data Flow (see Figure 31)

Data from variety of sources comes inbound through our interface engine, is reconciled through our MPI and a copy of each transaction is stored in our community data repository. Based on the transaction type, and the provider relationships associated with the transaction, HL7 messages are created and routed to appropriate providers.

Figure 31: HIE Data Flow



Master Patient Index (MPI) Management

MHIN's clinical data repository utilizes Cerner's master patient index functionality. Results received into the repository through our inbound interfaces go through an extensive person match and reconcile process for automated matching of records. Each sending organization maintains key identifiers for their patients, such as medical record numbers and account numbers. Key identifiers from the sending organization are retained in the data repository and are delivered back to the home organization when results are interfaced outbound from the repository. In addition to the automated person match and reconcile, MHIN has 1.5 FTE's dedicated to reviewing automated reports of potential duplicate persons and combining those who are identified to be the same person.

Technical Architecture- The Med-Web

The Med-Web, which is an operating unit of Medical Informatics Engineering (MIE), delivers approximately 1.5 million secure clinical messages each month, including more than 225,000 monthly diagnostic reports and nearly 15,000 radiology studies. The Med-Web includes a directory of participating stakeholders, and intelligently delivers information in the format required by each provider. The success of this network led to MIE development of a full portfolio of electronic health record products – including EMR, Document Management and RIS/PACS solutions. To date, the Med-Web has not provided IHIT with a detailed description of its technical architecture.

S.11.3. Interoperability

Interstate Interoperability- Participation in Nationwide Health Information Network

Indiana HIOs have been involved in the Nationwide Health Information Network Trials and have successfully participated in demonstrations of summary record exchange through Nationwide Health Information Network gateways. Three Indiana HIOs, IHIE, HealthBridge, and HealthLINC, participated in several production pilot projects using Nationwide Health Information Network gateways to the Nationwide Health Information Network Limited Production Exchange (Nationwide Health Information Network Exchange), including the Social Security Administration (SSA) disability adjudication project, the CMS CHIP State Demonstration Project to promote the use of HIT for the delivery of care for children covered by Medicaid/CHIP, and the CMS C-HIEP project to test sending quality of care data to CMS using Nationwide Health Information Network connectivity. These HIOs now have established Nationwide Health Information Network gateways that can be used to implement further communication of healthcare information. These Nationwide Health Information Network projects have given

Indiana a unique opportunity to build capacity to share information electronically with federal agencies using a national network and accepted HHS standards and certifications.

The separate Nationwide Health Information Network Direct, which is establishing standards and interoperability guidelines for more mainstream HIE activities, is underway to facilitate local, regional, and national exchange of healthcare information. Four Indiana HIOs, including the three listed above plus Medical Informatics Engineering (operator of Med-Web), are represented on key Nationwide Health Information Network and other federal HIT committees such as the HIT Standards Committee, the HIT Standards Committee Clinical Quality Work Group, the Nationwide Health Information Network Coordinating Committee, the Nationwide Health Information Network Work Group, the Nationwide Health Information Network Security and Trust Workgroup, the Nationwide Health Information Network Direct Implementation Group, and various HITSP committees. They are in a position to influence the development of national standards for interoperability, security, implementation, and other aspects of HIE important to establishing complete HIE coverage of the state of Indiana. More importantly, they are learning from the standards development process and can use this experience to help all 5 Indiana HIOs understand the HIE Standards Final Rule and further develop and implement HIE interoperability. This is leveraging the IHIT Interoperability Strategy to build interoperability with the Med-Web, MHIN, and HIOs outside the state, beyond that already established between IHIE, HealthBridge, and HealthLINC. It will also accelerate the provision of HIE services to the Richard L. Roudebush VA Medical Center and Outpatient Clinics, should this organization enter into a contract with an Indiana HIO for such services.

Intrastate Interoperability- Expanding Interoperability between Indiana HIOs

As described previously, IHIE, HealthBridge/HealthLINC, and to some degree MHIN have established interoperability between themselves to facilitate HIE between providers who refer patients to tertiary care centers in Indianapolis such as the Clarian/Indiana University Medical Center hospitals and Riley Children's Hospital. This needs-based interoperability development has enabled the exchange of clinical summaries, ADT information, structured lab data, laboratory, radiology, and cardiology reports, and other healthcare information between the primary care providers and the hospitals and specialists providing advanced care. This standards-based collaboration between HIOs has placed the capability where it is currently most needed, but has not enabled the exchange of health information for all possible patients. IHIT will invest significant CAP resources in projects that will expand this interoperability capacity to the full set of Indiana HIOs and their participating hospitals, critical access hospitals, laboratories, physicians, health centers, and clinics. Since patients residing in Indiana also may be referred to healthcare providers outside the state (and therefore across unaffiliated organizations), this investment in standards-based interoperability capacity will also enable expanded interstate interoperability through the Nationwide Health Information Network gateways established at each Indiana HIO.

S.11.4. Statewide Shared Services and Directories

IHIE, HealthBridge, and HealthLINC have established through their pioneering efforts secure interoperable exchange of healthcare information between separate and distinct HIO systems. They have also done this by establishing record locator, provider directory and master patient index (MPI) probabilistic and deterministic matching processes to match patient records for exchange. These processes have included manual as well as automated processes that evaluate and mitigate the overall risk of false positive and false negative linking. The HIOs have leveraged their experience in locating and matching records within their systems and have applied this experience to build these matching capabilities across their separate organizations. This leveraging has included manual intervention and ongoing attention to linking to build trust in the accuracy and effectiveness of the linking activities. Great attention to these processes has been required given the legal responsibilities for patient information privacy and security held by each operating HIO.

IHIT will leverage this interoperability experience in expanding interoperability between all the Indiana HIOs through the HIO to HIO Connectivity and Data Mapping and Normalization projects. These projects will develop the infrastructure and contracting necessary to deliver a consolidated patient care summary across a fully interoperable statewide infrastructure to any provider connected to a HIO's HIE services. This will be achieved by expanding message routing using the CCD/CCR formats between all Indiana HIOs using similar methodologies to those currently deployed between IHIE and HealthBridge, and will require a shared HIO-entity database (database that shows which HIO has a direct connection to which providers). The routed messages will be extracted and stored in the repositories operated by the HIOs. A patient record locator service will be established using a federated query model and will be used by any HIO wishing to query the repositories to gain other information. A record assembler will utilize the record locator service to find and combine all patient data available in the repositories and deliver the message to the intended entity in a discrete format. The consolidated patient care summary will be provided in a format that is compatible with the provider's EMR and workflow. The transfer of clinical summaries will utilize (where available) national standards for transport, security, and message structure.

Expansion of interoperability through a HIO-based vs. centralized strategy will enable IHIT to leverage the significant interoperability and repository investments made by the Indiana HIOs and avoid investment in redundant IHIT-controlled shared services and repositories. This expansion in technical infrastructure and interoperability will also directly enable broad-based point of care clinical decision support, and will establish the foundation for expanded department of health reporting and quality of care assessment and reporting. IHIT will evaluate the success of this interoperability strategy through the effectiveness scorecards developed and maintained for these projects.

S.11.5. Technical Relationships

IHIT has established the strategic pillars described in Section S.3.3 and has conducted a public idea solicitation process to identify projects and programs to develop that will implement each strategy. The IHIT Board of Directors has also selected the project and program ideas to implement. IHIT will conduct an RFP in the fall of 2010 to select vendors and HIOs that will plan and implement the projects and programs. IHIT will develop technical relationships through a contracting process with each of the HIOs and vendors selected to establish technical requirements for the project and program systems and services identified in the contracts.

S.12. Business and Technical Operations

As indicated previously, Indiana Health Information Technology will not directly implement HIT in Indiana. Instead, Indiana Health Information Technology will coordinate and collaborate with private sector organizations to implement and manage sustainable HIT capabilities and services. Although it will operate at arms-length with the private sector, Indiana Health Information Technology has several mechanisms at its disposal to directly and indirectly influence private sector parties in connection with a number of implementation priorities such as standards compliance, service availability, and pricing. These mechanisms, as discussed in the governance section, include, but are not limited to: (i) HIO board observer participation; (ii) consultation and oversight; (iii) contracting and grants; and (iv) Medicaid reimbursement. Implementation of these mechanisms are discussed in this section.

S.12.1. Implementation

The State of Indiana's strategy for expanding intrastate and interstate health information exchange is to establish Indiana Health Information Technology, Inc. as the state designated entity for HIE. IHIT is implementing a delegated strategy that relies on the existing HIOs, any additional HIOs that may establish business operations in the state, and vendors that will provide incremental technology solutions, to expand the services HIOs provide to additional targeted health care providers. IHIT will coordinate the expansion of these HIE network service activities through implementation of the projects within the four strategic pillars: Connecting Data Sources, Interoperability, Improved Outcomes, and State/Federal Initiatives. IHIT will benefit from the public/private partnerships that are evolving through the HIE Policy and Technical Advisory Council and the Indiana HIE Working group (which has met since 2007) to ensure the technical viability and soundness of solutions implemented through the projects and programs.

The expansion of the HIE network services across the state will, as a first priority, concentrate on connecting the data source healthcare providers (acute care hospitals, critical access hospitals, and laboratories) that are not yet participating in HIE to the HIOs as technology infrastructure hubs. Since these remaining unconnected providers are primarily in rural and underserved areas of the state, Indiana HIOs will, for the first time, implement their HIE services on a fully statewide basis. IHIT will also leverage the experience of HealthLINC and other HIOs in coordinating these expansion activities across all providers in these rural communities, so that physicians will also be motivated to contract with the HIOs to take advantage of the new HIE services. IHIT will also leverage the cooperation and coordination it has established with the two regional extension centers, the Indiana Healthcare Information Technology Extension Center (I-HITEC) at Purdue University and the HealthBridge Tri-State HIT Regional Extension Center, to help priority physicians deploy EHR systems that will integrate with the HIE services of the HIO of their choice.

As a second priority, IHIT will implement Interoperability projects that will develop standards or infrastructure to allow health information to flow freely between providers. These include Data Mapping and Normalization and HIO to HIO Connectivity projects to expand beyond the interoperability already established between some of the state's HIOs. These interfaces will then enable the additional projects in the remaining two strategic pillars to be fully implemented. These will expand clinical messaging to support coordination of care and will also expand the transmission of reportable laboratory conditions and immunizations through integration with the Indiana Department of Health's immunization registry and other systems. This also includes implementation of a key project to develop privacy and security policy enhancements.

S.12.2. Project Management Resources

IHIT will require the HIOs and vendors with which it has contracted through the RFP procurement process to conduct rigorous project management activities based on industry best practices and Project Management Institute's (PMI) methodologies. This approach will include creating a comprehensive project plan including the project charter and identifying requirements such as a detailed work breakdown structure, a comprehensive schedule, scope and change control processes, risks and risk mitigation strategies, and definitions and the design of project processes. Requirements will also include functionality development, systems maintenance, help desk services, project evaluation, and reporting to IHIT. IHIT will participate in a project kick-off meeting and regular project status meetings, and will require monthly reporting of progress based on a detailed Microsoft Project schedule.

The management and implementation of the IHIT projects embedded in the Strategic Pillars will be a collaborative effort between IHIT, the Indiana HIOs and vendors with which IHIT has contracted through the RFP process, and the IHIT advisory councils. Through this collaboration Indiana Health Information Technology and the contracted HIOs and vendors will coordinate the individual projects and pan-HIE technical and operating issues (i.e., roles and challenges that are not solely the domain of either Indiana Health Information Technology or a contracted HIO or vendor). Examples of pan-HIE technical and operating issues include: (i) the coordination of technical assistance for non-HIO contractors; (ii) the coordination of technical assistance for health care providers; (iii) the remediation of HIO specific and non-HIO technology barriers and market failures; and (iv) the continued evaluation and compliance of meaningful use standards across the Indiana HIE community of providers, contractors, trading partners and other stakeholders. Table 14 provides an overview of how important roles and responsibilities will be divided up between the Indiana Health Information Technology and HIOs.

To develop the Strategic and Operational Plan and coordinate and manage the overall set of projects, IHIT has identified the following key project management resources (short biographies appear in Appendix XX):

Statewide HIT Director and CEO, IHIT, Andrew VanZee – Leadership for development and expansion of health information exchange and health information technology in the state of Indiana (primary responsibilities described in the Governance Section). Coordination with the IHIT Board, the IHIT Advisory Councils, the leadership of the Indiana HIOs, Indiana State Medicaid, the Indiana State Department of Health, other divisions of state government, and all health information exchange stakeholders in the state. Leadership and management of the IHIT staff, contractors, and consultants.

Contractor and Project Director, Robert Petersen – Overall leadership for writing the Strategic and Operational Plan, including coordinating with the Indiana HIE Working Group, the two regional extension centers, SureScripts, and with the other project management resources. Day to day project management, coordination, and project leadership in the planning phase.

Contractor and Project Director, Emily Styron – Writing the Strategic and Operational Plan, including coordinating all legal and finance consulting resources and coordination with operational resources in State Government, including Indiana Medicaid and the Indiana State Department of Health.

Consultant, Jay McCutcheon – Overall consulting, technical support and advice for the Strategic and Operational Plan.

Financial Management Consultant, Sandra Sumner – Overall management of IHIT financial resources, accounting, and financial reporting.

IHIT Board Assistant Treasurer, Michael Gargano – Oversight of IHIT financial resources

Project Manager (x2) – Manages and monitors all stages of project implementation with contractors, regional HIOs, IHIT working groups and staff. Ensures that industry recognized standards, federal laws and project management principles are utilized throughout the lifecycle of each project. Positions will be filled in the fall of 2010.

Project Coordinator - Coordinates IHIT operational support activities. Manages reporting requirements for IHIT including federal grant reporting and performance reporting. Assists with the collection, tracking and reporting of IHIT financial activities. Assists in the routine maintenance of IHIT website content. Prepares IHIT Board materials.

Individuals for the project management positions required to fulfill the roles and responsibilities outlined above and in **Table 14** will need to be identified and hired as the Strategic and

Operational Plan is submitted and approved. Many of IHIT's business functions, as outlined herein, are not anticipated to involve significant operational capacity until IHIT actively begins issuing contracts that expand service availability, by which time the organization will be more completely staffed. It should also be noted that by working through the five Indiana HIOs, all of which have been operational for at least five years, and contracted vendors, significant human resources already are in place and are accessible that can focus on service and capability development and deployment once the RFP process has been conducted and projects are secured.

Table 14: Overview of Roles and Responsibilities

Procurement	Indiana Health Information Technology will initially use CAP funding to procure or provision required HIE services and capabilities from private-sector parties in accordance with the State's strategic and operating plans. The contracted parties will oversee their own provisioning as it relates to all aspects of the services Indiana Health Information Technology has contracted with them to perform as long as the contracted parties meet the requirements of the contract.
Identifying Requirements	Indiana Health Information Technology will facilitate the development of technology and standards roadmaps through an advisory council that is comprised of representatives from each of the five Indiana HIOs.
Process Design	Indiana Health Information Technology will define its internal processes for contract administration, monitoring, and reporting. The private-sector contractors will have responsibility for process and operational management within their own organizations including design for innovation, implementation, management, and support processes.
Functionality Development	Private-sector contractors will assess their own requirements for functionality development based upon their current state and the activities that they have been contracted by Indiana Health Information Technology to provide. It is anticipated the technology roadmaps will provide a consensus with respect to which contractors are optimally positioned to provide additional capabilities and services based on their existing and operational capabilities and services. However, in many cases the contractors will need to further build and implement additional capabilities and services to fully achieve CAP requirements. The contracted parties are responsible for developing these functionalities as necessary.
Project Management	Indiana Health Information Technology will provide project management in relation to contracting, monitoring, and reporting. Contracted parties will provide project management over their internal operations including innovation processes, implementation, operations, and support.
Help Desk	Contracted parties will provide help desk services corresponding to the HIE services or capabilities they have been contracted to provide.
Systems Management	Contract parties will manage the systems for which they have been contracted to provide services.
Change Control	Contract parties will manage change control processes for the capabilities and services that they have been contracted to provide.

Table 14: Overview of Roles and Responsibilities

Program Evaluation	Evaluation of the State's efforts to achieve and comply with CAP requirements will be performed by Indiana Health Information Technology. In addition, it is anticipated that Indiana Health Information Technology will provide Help Desk functions in relation to its monitoring role in order to assess provider satisfaction and technology sufficiency related to the capabilities and services being provided by contracted parties. Indiana Health Information Technology will also rigorously manage private-sector partners to the expectations established during the contracting process. More information is provided in the Performance Measures and Evaluation sections of this plan.
Reporting	More information is provided in the Performance Measures and Evaluation sections of this plan. However, Indiana Health Information Technology will fulfill all reporting requirements as required by CAP and when necessary will incorporate reporting requirements into the private-sector contracts to ensure timely collection of service and capability level information.

S.12.3. Leverage Existing HIE Capacities and Services

As described in previous sections, Indiana has a substantial private sector-led HIE services infrastructure already deployed. This infrastructure and related services are not sufficient to meet the requirements under CAP; however, and will be expanded through implementing the strategies in this plan. Indiana's existing asset base substantially frames the nature of what Indiana will do over the coming years in order to meet the requirements and expectations under CAP. Indiana's primary task is not defining and building HIE assets and services from scratch, but instead building a collaborative model that ensures the aims and requirements of CAP including the appropriate coordination with state and federal programs and agencies, while at the same time leveraging through collaboration the existing, sustainable, private-sector led efforts. As a result, the most critical near term areas of focus for Indiana are (i) building an effective governance model and (ii) creating the management infrastructure that will enable effective and appropriate stewardship of the financial resources that the Federal government is providing through CAP.

S.13. Legal and Policy

S.13.1. Privacy and Security

The HIOs operating in Indiana today adhere to a set of policies, agreements and procedures formulated individually in response to federal and state law, industry best practices and interstate exchange requirements. The working relationship that exists between Indiana HIOs and Indiana Health Information Technology offer the state the opportunity to draw upon this experience in evaluating, recommending and promulgating statewide regulation, policy and oversight of health information exchange.

Statewide legal and policy activities pursued through the Indiana's Strategic and Operational Plan strive to achieve statewide health care information exchange, to protect the privacy and security of a patient's health information, and to maintain a regulatory environment that supports innovative service delivery from the state's HIOs. Furthermore, establishing privacy and security policies for exchanging health information across state lines will require increased interstate coordination.

Indiana will encourage intra- and inter-state exchange while protecting the privacy of individuals and validating that their health information is exchanged in a system that adheres to security standards and provides services that enable providers the ability to demonstrate meaningful use. Indiana consumers will have the confidence that all providers and participants involved with exchanging their health information will handle their information consistently and according to best practices.

Indiana Health Information Technology will address privacy and security issues related to HIE within Indiana, and between Indiana and other states. Indiana Health Information Technology will give special attention to federal and state laws and the privacy principles articulated in the HHS Privacy and Security Framework (the "Framework"), and any related guidance.

In so doing, Indiana Health Information Technology will develop, manage and implement several privacy and security related policy and legal activities, including development of a statewide privacy and security framework based upon federal and state laws and regulations and the Framework. The mechanisms and structures developed and used by Indiana Health Information Technology related to privacy and security will address legal and policy barriers and enablers to HIE, particularly those related to interoperability across hospitals, physicians, clinician offices, health plans, laboratories and other health information "trading partners." Some of the activities planned to undertake this goal include:

- Identify current federal and state legal and policy provisions that enable appropriate health information exchange.

- Identify privacy and security barriers to the exchange of health information.
- Formulate strategies to address those barriers, while protecting the privacy of patients.
- Design a legal framework for patient and provider participation in health information exchange.
- Advocate for the adoption of this framework through the appropriate state channels in order to better facilitate the exchange of health information across state lines.

Indiana Health Information Technology will work to build upon the current efforts and strengths already established by Indiana HIOs to safeguard the privacy and security of health information. Indiana Health Information Technology will identify factors that currently promote or limit the increased use of HIE, such as privacy and security requirements for system development and use. Indiana Health Information Technology will build upon these to develop HIE policies incrementally over time.

Privacy and security areas upon which Indiana Health Information Technology will focus include:

Individual Access

As provided in the Framework, individuals should be provided with a simple and timely means to access and obtain their health information in a readable form and format. Indiana Health Information Technology views this as an important element to establishing and maintaining the trust of patients and providers and will work to continue to advance this as a primary principle. Currently, a number of Indiana HIOs include terms in their agreements with healthcare data providers that establish the HIO's responsibility if an individual seeks access to, or desires to obtain, his or her health information. These provisions provide that the HIO will not respond directly to the requesting individual, but will direct the individual to the healthcare data provider so that the individual may access and obtain his or her health information. Indiana Health Information Technology will review options and consider alternatives for patients that will enable easier access to their health information when it resides at multiple providers who participate in the health information exchange.

Indiana Health Information Technology will analyze whether these policies further the goals of the Framework.

Correction

The Framework provides that individuals should be provided with a timely means to dispute the accuracy or integrity of their health information, to have erroneous information corrected, or to

have a dispute documented if their requests are denied. Indiana Health Information Technology will build upon the processes that are currently followed at a number of Indiana HIOs if an individual disputes the validity of, or desires to amend, his or her health information. These policies and processes involve referring the individual to the healthcare data provider to resolve the dispute.

Openness and Transparency

The Framework encourages openness and transparency about policies, procedures and technologies that directly affect individuals and/or their health information. Indiana HIOs have developed policies, procedures and technologies relating to individuals' health information. However, these policies, procedures and technologies are internal to the operations of the HIOs and are not made available to the public on a regular basis. Indiana Health Information Technology will evaluate how these policies and procedures can be harmonized to a best practice across Indiana HIOs and made open, available and transparent to the public.

Individual Choice

The Framework provides that individuals should be provided a reasonable opportunity and capability to make informed decisions about the collection, use and disclosure of their health information. Indiana HIOs currently operate in accordance with federal law and require healthcare data providers to obtain consents or authorizations from individuals, if legally required, before transmitting health information to the HIO.

Currently the state does not add state-level legal requirements to those federal requirements that provide for individual access or choice to opt in or opt out of HIE. Furthermore, there is no state law with respect to individuals seeking to make corrections to their electronic health record. Indiana Health Information Technology (IHIT) will address these issues through the operations of its Data Provision and Use Council and its Patient Advocacy Council. These groups, along with the full board of Indiana Health Information Technology, will determine how both the choice and access provisions should be established in Indiana to ensure trust from patients and providers, as well as enable the full potential of HIE.

Collection, Use and Disclosure Limitation

Also in accordance with applicable law and consistent with the Framework, all Indiana HIOs collect, use and/or disclose health information only to the extent necessary to accomplish legally permitted and/or specified purpose(s) and never to discriminate inappropriately. All Indiana HIOs limit access to healthcare data to employees who have a need to access the data. Access to health information is also limited to practitioners and other healthcare professionals who have a treatment relationship with the patient whose health information is being accessed, and to other individuals for the purposes specifically set forth in the HIPAA Privacy, Security and

Enforcement Rules and subsequent relevant Federal Rules. Indiana Health Information Technology will work to evaluate and analyze whether and how it should promulgate best practices in this area.

Data Quality and Integrity

Indiana Health Information Technology will assess current practices within Indiana HIOs regarding the steps that are taken to ensure that individually identifiable health information is complete, accurate and current in order to complete the purposes for which the data was collected. IHIT recognizes the importance of data quality and integrity to the long-term trust of HIE and will seek to identify a best practice that not only provides such assurance but also enables efficient HIE.

Administrative, Technical and Physical Safeguards

As required by law and the Framework, health information must be protected with reasonable administrative, technical and physical safeguards to ensure its confidentiality and integrity and to prevent unauthorized or inappropriate access, use or disclosure. A variety of industry standard security measures are in place at Indiana HIOs, such as Watchguard VPNs (IPsec), firewalls on each end user connection, point-to-point direct connections, state of the art encryption technology for data in transit, industry standard SSL VPN for access to clinical messaging services, and IPsec point-to-point VPNs for machine to machine communications.

Most Indiana HIOs store servers and other equipment at data centers that are monitored around the clock and utilize biometric scanners to restrict access. One Indiana HIO provides on-site training to providers to encourage best practices by system users in accessing and managing their user accounts. All Indiana HIOs have full audit trail functionality within their networks and follow standard monitoring and operating procedures.

Indiana Health Information Technology will analyze these safeguards and limitations to determine whether they should be harmonized across Indiana HIOs or whether certain best practices should be recommended by Indiana Health Information Technology.

Accountability

The primary purpose of the mechanisms and structures to be developed by Indiana Health Information Technology in the legal and policy domain is to create a common set of rules to enable intra-state and eventually interstate HIE while protecting consumer privacy and security interests. During the policy adoption process, Information Health Information Technology will analyze whether it should have (a) standard policies and procedures that participating HIOs must adopt; (b) model policies, procedures and guidelines that participating HIOs may adopt or use, and/or (c) minimum standards that participating HIOs must meet.

Indiana Health Information Technology will manage the implementation of enforcement mechanisms that ensure entities that implement and maintain HIE services in Indiana comply with federal and state laws and policies applicable to HIE. Indiana Health Information Technology will enforce consensus policies and frameworks as appropriate and required by the CAP, as well as state and federal law, and implement appropriate safeguards to ensure adherence to legal and policy requirements that protect health information and engender trust among HIE participants.

As indicated through ONC guidance, at a minimum, these mechanisms will address:

- monitoring for internal compliance including authentication and authorizations for access to or disclosure of individually identifiable health information;
- the ability to receive and act on complaints, including taking corrective measures; and
- the provision of reasonable mitigation measures, including notice to individuals of privacy violations or security breaches that pose substantial risk of harm to such individuals.

S.13.2. State Laws

Indiana Health Information Technology has initially identified ARRA, the HIPAA Privacy Rule, the HIPAA Security Rule, the Confidentiality of Alcohol and Drug Abuse Patient Records Regulations, the Framework, and Indiana Privacy and Medical Records Law as the federal and state legal and policy requirements relating to privacy and security applicable to HIE and HIOs in Indiana.

Indiana Health Information Technology (IHIT) and the HIT Coordinator will foster a statewide legal and policy environment that increases interstate health information exchange. In doing so, IHIT will work to harmonize federal, Indiana and contiguous states' policies and procedures for HIE. This will be undertaken through advocating for uniformity between existing federal and state laws and harmonizing privacy policies and consent laws with other states as appropriate and feasible. When appropriate, IHIT may seek formal legal opinions regarding the applicability of and compliance with privacy and security laws, rules and regulations.

The steps involved in this effort include:

- Identify, review and analyze applicable state legal and policy requirements, including those of contiguous states;
- Work to harmonize applicable Indiana and contiguous states' legal and policy requirements to enable appropriate HIE services;

- Develop and analyze possible legislative measures to ensure the protection and preservation of HIE; and
- Identify agencies and organizations in contiguous states with which to coordinate harmonization activities.

Indiana's laws related to HIE run closely parallel with HIPAA. IHIT may advocate for clarifying the state legislation as necessary to better facilitate HIE. Generally, Ohio, Indiana and Kentucky state provisions related to health information are very similar to HIPAA and state level licensing and medical records requirements (with a few notable exceptions, such as e-Prescribing) are also similar. There are some areas, however, where definitions are ambiguous between the federal and state laws. For example, Indiana Health Information Technology will recommend the Indiana State Medical Records statute be amended to reduce ambiguity when interpreting meaning and intent.

In addition, Indiana Health Information Technology will convene relevant stakeholders to identify strategies to exchange behavioral health care data within federal and state confidentiality and privacy regulations. The regulations in behavioral health are more stringent regarding the exchange of health care information between providers as compared to primary health. The goal for this project would be to determine options for data exchange that will protect confidentiality and privacy while mitigating barriers to appropriate health information exchange.

Interstate Health Information Exchange

Indiana Health Information Technology will build upon policies and procedures already developed by Indiana HIOs that enable inter-organizational HIE. For example, one Indiana HIO has adopted a policy to address intrastate HIE with other HIOs, and three Indiana HIOs are actively engaged in intrastate HIE with each other. Two Indiana HIOs operate both inside and outside of Indiana. One of these HIOs has adopted a policy to address interstate HIE with other HIOs, as well as other policies that address the management of health information across state lines. Indiana Health Information Technology will build upon these experiences to enable and foster HIE within Indiana and interstate.

This HIO does not exchange highly sensitive health information, such as drug and alcohol treatment or behavioral health information, which could create additional issues in interstate HIE. Indiana state agencies have not engaged in any communications or negotiations with other states to enable multistate HIE. However, Indiana has been an active member of the Health Information Security and Privacy Collaboration ("HISPC"), a project funded by HHS to examine the issue of interstate HIE. One HIO that operates in Indiana participated in the Ohio and Kentucky HISPC projects.

S.13.3. Policies and Procedures

Indiana Health Information Technology will play an important role, in coordination with its advisory councils, to unify, establish and enforce consensus policies and procedures as appropriate and required by the CAP, as well as state and federal law. Indiana's HIT Coordinator will address legal or policy issues to ensure the information may be shared securely and with appropriate privacy protections.

The policies and procedures the Indiana Health Information Technology Board of Directors will use to govern inter- and intra-state HIE activities will originate in the Board's Data Provision and Use Council. This Council has members with deep experience in data privacy and security, including Eli Lilly and Company's former Chief Privacy Officer and current Director of the IU Center for Health Information Privacy and Law, Stan Crosley.

The Data Provision and Use Council will work with the Technical and Policy and the Patient Advocacy Councils to convene the appropriate stakeholders, including security and privacy experts from academia, industry and healthcare, to discuss policies and procedures needed at the state level for health information exchange. Through these efforts, Indiana Health Information Technology will facilitate the development and adoption of policies and procedures necessary to enable:

- The delivery of essential patient health information to specific authorized providers at the appropriate time and place.
- The secure storage and transmission of health information through structured access, authorization, authentication, and audit policies that are administered through standard HIE credentials.
- Patients to understand and be transparently informed of the flow and utilization of health information including the accountability mechanisms governing such use and their rights of access and correction to their health information.
- The Identification of factors that currently promote or limit the increased use of HIE and develop policy and procedure frameworks with the goal of minimizing data sharing obstacles, for example, the development of policies and procedures to share risk and liability of HIE operations fairly among all trading partners.
- The development and implementation of non-discrimination and conflict-of-interest policies that demonstrate a commitment to transparent, fair and non-discriminatory participation by stakeholders.

S.13.4. Trust Agreements

The experience reflected in the Indiana HIOs demonstrates that health information exchange requires a legal process for establishing the relationship between an organization providing HIE services and the various participants routing information through the HIE. Indiana HIOs have entered into a number of trust agreements, including data sharing agreements, data use agreements and reciprocal support agreements, to enable the secure flow of health information. All Indiana HIOs have entered into agreements with healthcare data providers, such as hospitals, physicians, health plans and laboratories. These agreements include clinical messaging subscription agreements, data user agreements and business associate agreements. Furthermore, some Indiana HIOs require any vendors that will have access to health information to sign a privacy agreement or confidentiality agreement that is consistent with the HIO's business associate agreements and requires the vendor to comply with all applicable privacy laws.

In addition to establishing trust agreements between individual HIOs and their clients, Indiana HIOs demonstrate experience in establishing trust agreements between one another to enhance their service delivery. One Indiana HIO is able to leverage the experience of another through a service provider agreement into which they have entered. Under the agreement, one HIO provides the other a wide range of support services. A privacy agreement was developed by two Indiana HIOs and is currently being used as the basis for inter-HIO data exchange involving three Indiana HIOs.

Indiana Health Information Technology will build upon the successful use of trust agreements by Indiana HIOs. Indiana Health Information Technology, as part of its process of identifying factors that currently promote or limit the increased use of HIE, will evaluate existing trust agreements and create a recommendation with regard to the adoption of statewide standard trust agreements, including, but not limited to, data sharing agreements, data use agreement and reciprocal support agreements, business associate agreements, and other agreements to be used by participating HIOs to enable the secure flow of information.

It is intended that these policies will formally address the issues at the local level that are not affected by the anticipated Nationwide Health Information Network-DURSA policies that will be implemented across states according to federal regulation. Two Indiana HIOs have signed the National Health Information Network's ("Nationwide Health Information Network") test Data Use and Reciprocal Support Agreement ("DURSA") as part of their Nationwide Health Information Network cooperative grant work with ONC in 2008 and 2009 and intend to sign the final version of DURSA when it is developed. Indiana will leverage its involvement and familiarity with DURSA when crafting standard trust agreements. This statewide "DURSA" utilized by participants in the statewide network of HIE activities can be used to harmonize data sharing efforts with bordering states and the Nationwide Health Information Network.

In addition, Indiana Health Information Technology (IHIT) will identify agreements needed to guide technical services prioritized by the state or Indiana Health Information Technology and ensure they are implemented and evaluated as a part of annual program evaluation. Furthermore, IHIT will define procurement policies for the expenditures made through the SHIECAP to ensure compliance with ARRA federal grant requirements.

OPERATIONAL PLAN

O.1. Introduction

Indiana Health Information Technology, Inc. has developed an Indiana HIE Strategic Plan that leverages the existence of five health information organizations that deliver a wide range of HIE services to Indiana healthcare providers. The strategic plan will be implemented through this Operational Plan that outlines a corresponding and comprehensive set of activities to achieve statewide HIE. IHIT will develop the operational plan's projects and programs, award contracts to third parties to conduct the projects, and ensure that the projects are conducted according to the requirements of the CAP. The operational plan also describes the necessary general and domain activities to successfully conduct and complete the projects and programs. The effective execution of this plan will bring many underserved areas of the state into the HIE network, and will enable Indiana healthcare providers to achieve and demonstrate meaningful use of Health Information Technology (HIT) to enhance delivery, quality, and value of health care.

O.2. Operational Plan: General Requirements

O.2.1 Gap Analysis

The environmental scan conducted by IHIT in May and June 2010 identified critical barriers to the adoption and expansion of health information exchange in Indiana's otherwise well-established HIE network. (See Clinical HIE Readiness Section S.2.3 and Public Health Readiness Section S.2.5 of the Strategic Plan for additional information and statistics, including those on health plan eligibility and claims transactions and Indiana Department of Health immunization, syndromic surveillance, and notifiable laboratory results activity). These barriers are expressed as gaps and have corresponding strategies that are incorporated into the overall Indiana HIE strategic pillars. As summarized in Table 1, this Gap Analysis also serves as a baseline against which strategic progress can be measured, and focuses IHIT's priority on enabling Indiana healthcare providers to establish Stage 1 Meaningful Use in 2011 and higher stage Meaningful Use in future years.

Table 1: Gap Analysis and IHIT Strategies

Gap	Strategy
<p>EPrescribing. Over 96% of Indiana community pharmacies are activated for receiving electronic prescriptions and can generate electronic refill requests. Twenty three percent of Indiana physicians were e-prescribing at year end and prescribed 13% of all prescriptions electronically in 2009. The biggest gap to fill is to increase the number of eligible prescribers with EHR systems or stand alone ePrescribing software, thereby increasing the likelihood that they will prescribe electronically..</p>	<p>IHIT will support the efforts of the Indiana Healthcare Information Technology Extension Center (I-HITEC) at Purdue University and the HealthBridge Tri-state Regional Extension Center to assist priority prescribers' adoption of EHR systems. IHIT will encourage HIOs to offer/expand eRx services, and will also highlight the benefits of ePrescribing in its communication activities. Community health centers that adopt EHR systems through the Connectivity Match Grant Program will also contribute to increased ePrescribing.</p>
<p>Laboratory- Receipt of Structured Lab Results. The greatest factor in this gap is the limited number of connections between rural hospitals, critical access hospitals (CAHs), community health centers (including FQHCs), and rural health clinics (RHCs) and a HIO. While 66% of all acute care hospitals (representing 89% of acute care beds) are connected to a HIO, only 29% of CAHs are connected. Furthermore, only 7% of FQHCs and 3% of RHCs are connected. Since all HIOs in the state can exchange structured discrete lab data with all health care providers with whom they have electronic interfaces, increasing the number of connected data sources is a major priority</p>	<p>IHIT will increase the number of clinical laboratories connected to HIOs as data source providers through the Connectivity Match Grant Program. IHIT will provide grant funds to eligible Critical Access Hospitals, Sole Community Hospitals, Community Health Centers, laboratories, and imaging centers to enable them to contract with a HIO and install interfaces for two-way exchange of structured lab data and all other relevant clinical information. IHIT will also communicate with stakeholder organizations such as the Indiana Hospital Association, the Indiana Rural Health Association, the Indiana State Medical Association, and the Indiana Primary Health Care Association to encourage their constituents to take advantage of this program.</p>

Table 1: Gap Analysis and IHIT Strategies

Gap	Strategy
Sharing patient care summaries across unaffiliated organizations. Each HIO in Indiana operates an HL7 based clinical messaging service that can send patient care summaries across unaffiliated organizations within each HIO's operating area. Additionally, IHIE, HealthBridge, and HealthLINC are establishing interoperability to send these summaries to unaffiliated healthcare providers across their respective trading areas. Virtually all Indiana physician practices have the capability to receive these messages through EHR, Web Portal, or fax modalities. However, much of this capability is limited to a push of clinical messages containing information on the last patient visit or test. Only relatively few Indiana healthcare providers have access to longitudinal patient histories through the MHIN CDR and INPC repositories and can take advantage of a full set of clinical decision support tools.	While all Indiana HIOs currently push clinical messages of the last patient encounter through their clinical messaging services, IHIT will focus resources on the capability to create and exchange Clinical Care Summaries from multiple patient encounters, structured laboratory values and other test results, hospital ADT reports, medication histories, and other relevant clinical information. This capability, which will enable health care providers to achieve meaningful use of HIT in this category beyond Stage 1, will be achieved through the HIO to HIO Interoperability and Data Normalization projects. These projects will include establishing/expanding one or more clinical data repositories at Indiana HIOs. This full interoperability, combined with the repositories, will enable authorized healthcare providers in the state to query the HIE system and obtain full clinical care summaries and other data from the full patient care history.

Indiana HIOs are also independently expanding their capabilities to enable eligible providers to have at least one option for each of the priority 2011 Stage 1 Meaningful Use requirements.

HealthBridge/HealthLINC

E-prescribing. HealthBridge offers an electronic prescribing application that is connected to the HIE community patient and provider index and to the national e-prescription network to allow physicians access to a patient's complete medication history as well as other critical clinical information. We call this product hbScript – which utilizes the award-winning RxNT ePrescribe platform. RxNT is the nation's leading electronic prescription provider, offering an integrated web and PDA product that arms healthcare providers of all sizes with a flexible and reliable electronic prescribing solution. hbScript offers a robust desktop solution, wireless Pocket PC and Palm OS functionality for mobile prescribers, a comprehensive drug database, real-time patient specific formularies and prescription claims medication history, drug and allergy

interactions, FDA approved SIGs, a custom SIG creator for frequently prescribed drugs, access to more than 72,000 retail and mail order pharmacies nationwide and HIPAA compliant interfaces to many of the popular management systems. We also provide electronic medication reconciliation through RxNT for satisfaction of JAHCO requirements. HealthLINC uses the Axolotl ePrescribe no additional charge for its HIE users. In addition, as a Regional Extension Center, HealthBridge will assist Indiana providers with adopting certified electronic health records that must include ePrescribing embedded within the EHR.

Receipt of Structured Lab Results. HealthBridge provides a secure, web-based clinical messaging platform that delivers a variety of clinical results to authorized physicians of record via an electronic in-box, into an electronic medical record (EMR) or by fax machine or mail. HealthBridge has worked with our community partners to implement extensive LOINC coding for lab results, ensuring a high degree of structured/coded data flowing into EHRs.

Lab data as well as a host of other clinical information is available to physicians and other authorized users, including:

- Structured Lab results
- Radiology reports
- Transcribed reports
- Cardiology
- Pathology
- Microbiology
- Admissions Notices
- Discharge Summaries

Sharing Patient Care Summaries Across Unaffiliated Organizations. Under the work for the Nationwide Health Information Network project, HealthBridge has implemented exchange of a summary patient record (CCD, C32) using Nationwide Health Information Network specifications. For our CMS CHIEP Project and our SSA Nationwide Health Information Network MEGAHIT project HealthBridge will generate CCDs for exchange. HealthBridge is currently live with one large health system, including its hospitals and physician practices, sending patient summaries to CMS for the C-HIEP project. HealthLINC in Bloomington is also a participant in the SSA project and this will expand CCD exchange across HIEs as well. HealthBridge anticipates expanding that capability in the coming years to include more entities and HIEs and to enable cross-community exchange.

HealthLINC is a self-governed organization that has an ASP technology partnership with HealthBridge. This arrangement has facilitated highly cost-effective HIE services in rural and semi-rural communities. HealthBridge will also deploy their full range of technology solutions and improvements, such as these that address meaningful use, for HealthLINC.

Indiana Health Information Exchange (IHIE)

E-prescribing. IHIE does not offer an ePrescribing application today but has plans to do so in the future. IHIE has data on the medications patients are taking which can be made available to support ePrescribing transactions.

Receipt of Structured Lab Results. IHIE's clinical messaging service began delivering structured lab results in 2004 and, today, delivers about 4 million lab results per month to over 16,000 physicians in and around Indiana. While some of these are delivered via fax, 90% of all messages are sent via web portal or EMR delivery – both as structured data. For physician practices using the EMR delivery option, HL7 results are delivered directly into their EMR. For the web portal delivery option, structured data is delivered into the physician's online inbox.

Sharing Patient Care Summaries across Unaffiliated Organizations. The Indiana Network for Patient Care (INPC) is the nation's largest inter-organizational system of clinical data repositories. The primary function of the INPC is to provide patient care summaries (and access to detailed patient care data) at the point of care. Because the purpose of the INPC is to aggregate the patient's data from whatever sources it exists, this functionality is (by definition) across unaffiliated organizations which are members of the INPC. While there are still several organizations in implementation, the INPC membership today includes about half the hospitals in Indiana (from 22 different hospital systems), several commercial payors, independent labs and imaging centers, long-term care providers, and some public health agencies.

Michiana Health Information Network (MHIN)

E-prescribing. We have a variety of services available to our clients that offer e-prescribing through the SureScripts network. Clients who utilize either the stand-alone e-prescribing solution or the integrated solution for e-prescribing services have been e-prescribing since early 2009. In addition, we offer interface connectivity services to enable our clients with third party EHRs to transmit their prescriptions via the SureScripts network.

Receipt of Structured Lab Results. We are fully equipped to assist a variety of clients to meet this requirement. For our clients who utilize the MHIN EHR, discrete laboratory results have been electronically incorporated into their EHR since inception in 2002. In addition, we have been transmitting structured laboratory results to our clients with third-party EHRs since 2006. For those who do not currently have an EHR, we are actively storing structured laboratory results in our clinical data repository on their behalf, and are prepared to deliver both current and historical results to their selected EHR upon implementation.

Sharing Patient Care Summaries Across Unaffiliated Organizations. As an initial effort to meet this requirement, our current MHIN EHR clients are able to electronically exchange detailed patient histories across providers. Our clinical data repository, MHIN CDR, also serves as a

platform for all local providers to access the community patient record on demand. The MHIN CDR repository is the oldest and deepest repository in the United States. We have fully developed and are ready to deploy a continuity of care document via HL7 interface to any client who is ready to receive this type of document. This service can be automated based on trigger events. Our interface services are also capable of receiving and transmitting this type of document.

Med-Web (Medical Informatics Engineering)

In addition to operating the Med-Web HIE, MIE offers a full portfolio of web-based electronic health record products. This includes WebChart EHR Now, a SaaS electronic health record product configured specifically to help physician practices easily and affordably achieve meaningful use. When combined with a NoMoreClipboard practice-branded patient portal, the WebChart EHR Now application can help physicians meet all published meaningful use requirements.

E-prescribing: MIE offers E-prescribing services through its electronic health record applications which include a SureScripts certified E-prescribing module.

Receipt of Structured Lab Results: MIE applications are able to receive structured lab results through interfaces with national, regional and local labs. MIE also delivers lab results electronically and by fax throughout the Northeast Indiana community via the Med-Web. MIE has also embraced LOINC coding for lab results.

Sharing Patient Care Summaries Across Unaffiliated Organizations: The Med-Web offers a clinical messaging service that enables Northeast Indiana healthcare providers to share patient data. The Med-Web includes a provider directory and a routing engine that enables delivery to selected providers in their preferred formats. MIE also operates a data repository for safety net patients participating in the Northeast Indiana Healthcare Access Program. MIE electronic health record applications are able to produce and consume patient care summaries in CCR and CCD formats, and MIE is an active participant in the development of Nationwide Health Information Network Direct. NoMoreClipboard personal health record and patient portal applications are also able to produce and consume CCR and CCD summaries.

O.2.2 Project Resource Planning

IHIT will implement the four pillars of its Indiana HIE Strategy by initially conducting six projects and programs. These projects and programs are designed to fill gaps in the geographic adoption of HIE services and expand the types of intrastate and interstate HIE services utilized in Indiana. The IHIT Board of Directors selected these projects and programs from 111 project ideas proposed in the public solicitation process conducted in June and July of 2010. The projects and programs are summarized in Table 2.

Table 2: Indiana Health Information Technology (IHIT) Projects/Programs

Strategic Pillar	Project/Program	Funding (Intrastate/Interstate)
Connecting Data Sources	Connectivity Match Grant Program	\$2.65 million (\$2.65 million/\$0)
Interoperability	HIO to HIO Connectivity	\$5.0 million (\$2.2/\$2.8 million)
	Data Mapping and Normalization	\$750,000 (\$450,000/\$300,000)
Improved Outcomes	Privacy and Security Policy Development	\$200,000 (\$100,000/\$100,000)
State/Federal Initiatives	CHIRP Bi-direction EMR Development	\$1 million (\$600,000/\$400,000)
	Web Based Communications Tool	\$100,000 (\$100,000/\$0)
IHIT Operations	IHIT Operations	\$2,060,925 (2,060.925/\$0)
Total Funding		\$11.76 million (\$8.16 million/\$3.6 million)

The following sections provide a description of each project and program, including the scope, deliverables, project schedule, timeline, budget, communications plan outline, and risk management analysis.

O.2.2.1 Connectivity Matching Grant Program Project Plan

Project Overview

The Connectivity Matching Grant Program will help to address the barrier that exists for access to HIE infrastructure in rural areas of Indiana. This project will incentivize eligible organizations to develop the interface infrastructure to link organization to established Health Information Organizations. Incentive payments will include \$40,000 for hospitals and \$15,000 for health centers or other health information entities as defined in the project scope. The IHIT Board of Directors reserves the right to determine what entities will be eligible for the project defined herein.

Project Scope

Hospitals that are eligible are rural hospitals as if they have the designation of :

- Critical Access Hospital (CAH)
- Sole Community Hospital (SCH)

And

- Have **no** interface in place with an existing HIO that provides discrete lab values, clinical information exchange, e-prescribing, or other HIE activities. (PHESS Bio-surveillance interface is exempted)

This project will provide assistance to 30 additional rural hospitals.

Community Health Centers that are eligible are characterized by the following essential elements that differentiate them from other providers:

- They must be located in or serve a documented high-need community in at least one of the three Designation Categories. Designation Categories, each with its own specific criteria, include Medically Underserved Areas (MUAs), Medically Underserved Populations (MUPs), and Health Professional Shortage Areas (HPSAs).
- They must provide comprehensive primary care services, as well as supportive / enabling services such as translation and transportation that promote access to care;
- Their services must be available to all residents of their service areas regardless of income status, with fees formally adjusted for patients' ability to pay (sliding fee scale);
- They must be governed by a Community Board that includes at a minimum 33% of members who are Center patients ("consumers");
- They must meet specific performance and accountability requirements for governance, administrative, clinical, and financial operations. (Detailed CHC Standards were developed in conjunction with the Indiana State Department of Health, the Indiana Primary Health Care Association and community health centers and are available through ISDH or IPHCA); and,
- They must be a non-profit organization.

- Eligible health centers must have **no** interface in place with an existing HIO that provides discrete lab values, clinical information exchange, e-prescribing, or other HIE activities. (PHESS Bio-surveillance interface is exempted)

This project will provide assistance to 100 additional health centers.

Other Health Information Entities that are eligible are:

- Imaging Centers not part of entities defined elsewhere in the project.
- Laboratories not part of entities defined elsewhere in the project.

And

- Has **no** interface in place with an existing HIO that provides discrete lab values, clinical information exchange, or other HIE activities. (PHESS Bio-surveillance interface is exempted)

This project will provide assistance to 50 additional health information entities.

Project Requirements / Deliverables

ID #	Title	Description	Source
1	Communications Template	The development of a template to get program information to eligible organizations.	Project Manager, Project Template
2	Incentive Program Intent Form	The development of a form for eligible organization to complete for enrollment in incentive program.	Project Manager, Intent Form
3	Reimbursement Procedure	The development of procedures for reimbursement and auditing of financial incentives paid through project.	Project Manager, Project Procedures

Work Breakdown Structure (WBS)

Project Development (November 2010 – January 2011)

- Develop Incentive Eligibility (November 2010)
- Develop Intent Form (December 2010)
- Develop Payment Procedure (December 2010)
- Develop Tracking Process (December 2010)
- Develop Audit Process (January 2011)
- Develop Communication Template (January 2011)

Project Initiation (February 2011 – Dec 2012)

- Distribute Communication Template to Stakeholder Associations (February 2011)
- Accept Intent Forms (Feb 2011 – June 2012)
- Track Eligible Organization Progress (April 2011 – September 2012)
- Make Incentive Payments (May 2011 – Dec 2012)

Project Monitoring/Audit (July 2011 – March 2013)

- Monitor % Connected to HIO (July 2011 – Jan 2013)
- Report % Connected to Quarterly Board Dashboards (Quarterly starting July 2011)

- Audit on-going connections (July 2011 – March 2013)

Schedule / Milestones

Activity / Milestone	Estimated Date	Responsible Individual
Complete Policies/Procedures	Nov 2010	Project Manager, IHIT CEO
Complete Intent/Tracking Form	Dec 2010	Project Manager
Complete Communication Template	Jan 2011	Project Manager
Accept Letters of Intent	Feb 2011	Project Manager
Make First Incentive Payment	April 2011	Project Manager, IHIT CEO
Audit Incentive Payments	May 2011 ongoing	Project Manager
Measure % Established Org to HIO Interfaces	Quarterly ongoing	Project Manager, IHIT CEO

Costs / Budget

Purpose	Amount	Source
Rural Hospital Incentive	\$1,156,000	SHIE-CAP, private matching
FQHC/CHC/RHC Incentive	\$1,000,000	SHIE-CAP, private matching
Other Health Information Entity Incentive	\$500,000	SHIE-CAP, private matching

Communications Plan

Stakeholder	Information Needed	Source / Provider	Timing
<i>Eligible Hospitals</i>	<i>Eligibility Requirements, Intent Form, Procedures</i>	<i>IHA newsletter, IRHA newsletter, 5 Indiana HIO's, IHIT Website</i>	<i>Monthly after milestones defined in section 5</i>
<i>Eligible Health Centers</i>	<i>Eligibility Requirements, Intent Form, Procedures</i>	<i>IPCA, Indiana Dept of Health, 5 Indiana HIO's, IHIT Website</i>	<i>Monthly after milestones defined in section 5</i>

Risk Management

#	Description	Probability 1= low 5 = high	Impact 1= low 5 = high	Mitigation / Contingency Strategy
1	Eligible Organization Confusion	2	4	Clearly defined scope as developed by IHIT and sponsoring organizations (IHA, IRHA, IPCA)
2	Low Eligible Organization Intent	3	5	Monthly monitoring of intent forms, redefining of scope by IHIT Board if low adoption takes place
3	Lack of Communications	1	4	Utilization of key stakeholder associations to spread communications
4	Failure to comply with terms of program	2	3	Payment made after interface developed. Lower maintenance costs than upfront costs.

Procurement Plan

Item	Description	Need by Date	Procurement Strategy
N/A	N/A	N/A	N/A

O.2.2.2 HIO to HIO Connectivity Project Plan

Project Overview

The HIO to HIO connectivity project will develop the infrastructure and contracting necessary to deliver a consolidated patient care summary to providers in which the HIO's have existing relationships. The consolidated patient care summary will be provided in a format that is compatible with the providers EMR and workflow. The transfer of clinical summaries will utilize (where available) national standards for transport, security, and message structure.

Scope

The project scope will include all data that is available to the five existing Indiana HIO's (IHIE, Med-Web, MHIN, HealthLINC, and HealthBridge) and any other significant health information database. The message/data routing will be dependent on the deliverables from the data normalization project.

Project Requirements / Deliverables

ID #	Title	Description	Source
1	Data Standards	Data Policy Standards	Data Normalization Project
2	Data Use Agreement	HIO to HIO Data Use Agreements	HIO Entities, IHIT Councils

Work Breakdown Structure (WBS)

HIO Facilitation Meetings (February 2011 – March 2013)

- Initial Kick-off Meeting (February 2011)
- On-going Technical Support Meetings (March 2011 – March 2013)

Message Routing (March – December 2011)

- Development of Shared HIO-entity database (March – April 2011)
- Development of HIO to HIO data use contracts (March – April 2011)
- Routing of Clinical Results between HIO's using HL7 results delivery (May – August 2011)
- Routing of pushed CCD/CCR between HIO's using Nationwide Health Information Network standards focusing on transitions in care and Stage 1 meaningful use requirements for Summary records (August – December 2011)

Message Extraction (January – June 2012)

- Development of Process to Extract information from CCD/CCR messages to populate repositories (January – February 2012)
- Implement Extraction Process (March – June 2012)

Consolidated Care Summary Delivery (March 2012 – March 2013)

- Development of Patient Record Locator for Query service (March – June 2012)
- Development of Record Assembly Process (March – June 2012)

- Delivery of Consolidated Clinical Care Summary by implementation of a query and retrieve pilot among HIOs (July – September 2012)
- Delivery of Consolidated Clinical Care Summaries by push and query methodologies (October – December 2012)
- Brainstorm and develop process for delivery of discrete data from Consolidated Clinical Care Summary (December 2012 – March 2013)

Schedule / Milestones

Activity / Milestone	Estimated Date	Responsible Individual
Project Kick-off Meeting Held	February 2011	HIO's, IHIT CEO
Shared HIO-Entity Database	April 2011	HIO's, project manager
HIO to HIO Data Use Agreements	April 2011	HIO's, IHIT Councils
Routing of HL7 Messages between HIO's	August 2011	HIO's, project manager
Routing of CCD/CCR between HIO's	December 2011	HIO's, project manager
Message Extraction Occurring	June 2012	HIO's, project manager
Delivery of Consolidated Care Summaries	December 2012	HIO's, project manager

Costs / Budget

Purpose	Amount	Source
Message Routing	\$1,500,000	SHIE-CAP funds, private match
Message Extraction	\$500,000	SHIE-CAP funds, private match
Consolidated Care Summaries	\$2,250,000	SHIE-CAP funds, private match
HIO Time and Materials Cost	\$750,000	SHIE-CAP funds, private match

Communications Plan

Stakeholder	Information Needed	Source / Provider	Timing
<i>Providers, Hospitals, Clinical Entities</i>	<i>New Services being offered</i>	<i>HIO's that service the entities, share web portal</i>	<i>TBD</i>
<i>IHIT Board</i>	<i>Progress on the Project and HIO interaction</i>	<i>IHIT CEO, project manager</i>	<i>Monthly at Board meetings</i>

Risk Management

#	Description	Probability 1= low 5 = high	Impact 1= low 5 = high	Mitigation / Contingency Strategy
1	Entity refusal to provider data to other HIO's for summary purpose	3	5	Data use agreements between HIO's, education of entities over use of data within HIPAA constraints
2	Lack of data in repository format	2	4	Two repositories already in place. Will push other HIO's to develop or use existing repositories. Use of HIO to HIO contracts to control who has access to repository information

Procurement Plan

Item	Description	Need by Date	Procurement Strategy
<i>TBD based upon technical needs</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>

O.2.2.3 Data Mapping and Normalization Project Plan

Project Overview

This project will adopt, publish and maintain a preferred set of standards based nomenclature in conjunction with the national standards for all health information exchange transactions. Oversee the adoption and comprehensive use of the standards thus realizing the goal of achieving 100 percent adoption by HIOs and other state health information exchange participants. This project will conclude with the development of a data nomenclature change process for future development or revisions of data element standards.

Scope

This project will focus on the data elements currently being exchanged between HIO to HIO and HIO to stakeholder. Data elements include but are not limited to patient demographics, radiology, laboratory, discharge summaries, and other clinical documents created at the point of care.

Project Requirements / Deliverables

ID #	Title	Description	Source
1	Patient ID standard	Preferred set of standards for data elements for Patient ID and matching	Standards Document
2	Radiology Results Standard	Preferred set of standards for data elements for radiology results	Standards Document
3	Laboratory Results Standard	Preferred set of standards for data elements for laboratory results	Standards Document
4	Other Clinical Documents Standard	Preferred set of standards for data elements for other clinical documents .	Standards Document
5	Standards Change Process	Change Process for future development of data standards	Standards Policy

Work Breakdown Structure (WBS)

Information Discovery (February 2010 – April 2010)

- Facilitated Discussion with HIO organizations about Project and Needs (February 2010)
- HIO Data Collection Prep (March-April 2010)
- HIO Data Submission (April 2010)

Policy Preparation (April 2010 – July 2010)

- Consolidation of Data Elements (April-May 2010)
- Development of Initial Standards (May-June 2010)
- Review of Standards by Policy and Technical Council (June 2010)
- Revision of Standards (July 2010)

Policy Approval (July 2010 – August 2010)

- Final Standards recommended by Policy and Technical Council (July 2010)

- Approval by IHIT Board (August 2010)
- Policy Dissemination/Maintenance (July 2010 – September 2010)
- Development of Revision Policy (July-August 2010)
 - Delivery of Policies to Stakeholder Groups (August 2010)
 - Placement of Policies on Website (August-September 2010)

Schedule / Milestones

Activity / Milestone	Estimated Date	Responsible Individual
HIO Facilitation Meeting	February 2010	Facilitation Vendor, HIO Representatives, IHIT CEO
HIO Data Submitted	April 2010	Facilitation Vendor, HIO Representatives
Approved Standards Policies	August 2010	IHIT CEO/Board
Revision Policy Approved	August 2010	IHIT CEO/Board

Costs / Budget

Purpose	Amount	Source
Facilitation Policy Creation Vendor	\$500,000	SHIE-CAP Funds, private match
HIO Time & Materials Cost	\$250,000	SHIE-CAP Funds, private match

Communications Plan

Stakeholder	Information Needed	Source / Provider	Timing
HIO's	Data Needs, Final Policies, Updates	IHIT Council	Start and finalized project, on-going with changes
Hospital/Provider Community	Policies and Updates	IHIT Board	Upon approval of policies

Risk Management

#	Description	Probability 1= low 5 = high	Impact 1= low 5 = high	Mitigation / Contingency Strategy
1	Failure of HIO's to supply necessary information	2	3-4	Use of IHIT Board and Councils to obtain necessary information
2	Failure for provider community to adhere to data standards	3-4	3-4	HIO's to work with individual provider entities to remedy issues with data
3	Standards become out-dated	2-3	2	Use of Policy and Technical Council with Revisions Policy

Procurement Plan

Item	Description	Need by Date	Procurement Strategy
<i>Policy Facilitation</i>	<i>Facilitation of the data elements gathering phase.</i>	<i>January 2010</i>	<i>RFP</i>
<i>Web Site Publishing</i>	<i>The ability to publish updated policies to website</i>	<i>August 2010</i>	<i>Operating Funds/Website Project</i>

O.2.2.4 Privacy and Security Policy Project Plan

Project Overview

The Privacy and Security Policy Development Project will allow the IHIT Board and Council to explore current state regulations and statute as they compare to federal privacy and security statutes. A gap analysis will be performed to determine best course of action to remove any barriers to HIE activities both intrastate and interstate.

Scope

Primary focus will be given to the Indiana regulations and statutes. Secondary focus will include other surrounding states that Indiana HIO's intend to exchange clinical information.

Project Requirements / Deliverables

ID #	Title	Description	Source
1	Indiana Policy/Security Environmental Scan	Compilation of Indiana regulation and statute with respect to privacy and security	IHIT Data Use Council, IHIT Patient Advocacy Council
2	External State Policy/Security Environmental Scan	Compilation of other states' regulation and statutes with respect to privacy and security	IHIT Data Use Council, IHIT Patient Advocacy Council
3	Privacy/Security Gap Analysis	Gap analysis based upon privacy/security environmental scans	IHIT Board, Project Manager
4	Privacy/Security Policy Roadmap	Outline action plan for addressing privacy and security policy gaps	IHIT Board, Roadmap

Work Breakdown Structure (WBS)

Council Formation (Sept 2010 – Dec 2010)

- Creation of membership for Data Use Council (Sept 2010 – Oct 2010)
- Creation of membership for Patient Advocacy Council (Sept 2010 – Oct 2010)
- Council Education Sessions on Privacy/Security Topics (Nov 2010 – Dec 2010)

Privacy/Security Environmental Scan (Jan 2011 – June 2011)

- Compile State of Indiana Regulation/Statutes (Jan 2011 – Apr 2011)
- Compile Federal Regulation/Statutes (Jan 2011 – Apr 2011)
- Compile External States Regulations/States (Mar 2011 – May 2011)
- Create Comparison Grid (May 2011 – June 2011)

Gap Analysis (July 2011 – Nov 2011)

- Present Comparison grid to Councils (July 2011 – Aug 2011)
- Develop Strategies to Address Gaps (Sept 2011 – Oct 2012)
- Present Recommendations to IHIT Board (Nov 2011)

Security/Privacy Roadmap (Dec 2011 – Jan 2012)

- Develop Roadmap to Execute Policy Strategies (Dec 2011 – Jan 2012)

Schedule / Milestones

Activity / Milestone	Estimated Date	Responsible Individual
Councils Formed	Oct 2010	Council Chairs, IHIT CEO
Comparison Grid Completed	June 2011	Councils, Project Manager
IHIT Board Approves Gap Strategies	Nov 2011	IHIT Board, IHIT CEO
Strategy Roadmap Developed	Jan 2012	IHIT Board, IHIT CEO

Costs / Budget

Purpose	Amount	Source
SME Contracts	\$125,000	SHIE-CAP, private matching, in-kind
Project Execution Expense	\$75,000	SHIE-CAP, private matching

Communications Plan

Stakeholder	Information Needed	Source / Provider	Timing
<i>IHIT Councils</i>	<i>Status of Comparison grid, other council recommendations</i>	<i>Project Manager, Other Councils, Comparison Grid</i>	<i>Standing agenda item at council meetings</i>
<i>IHIT Board</i>	<i>Council Recommendations</i>	<i>Councils</i>	<i>Standing agenda report at monthly IHIT Board meetings</i>
<i>Associations (ie. IHA, IRHA, IMSA, etc.</i>	<i>Policy Roadmap</i>	<i>IHIT Board, IHIT CEO</i>	<i>Upon completion of deliverable</i>

Risk Management

#	Description	Probability 1= low 5 = high	Impact 1= low 5 = high	Mitigation / Contingency Strategy
1	Collection of pertinent regulations/statue	4	5	Utilize SME and paralegal support to help gather information
2	Failure to harmonize across state borders	2	5	HIT coordinator to work with counterparts to drive adoption strategies
3	Ability for IHIT to drive legislative process	2	3	Utilize legislative process developed in stakeholder associations

Procurement Plan

Item	Description	Need by Date	Procurement Strategy
SME Contracts	<i>The execution of subject matter experts to provide legal research and gap analysis advice</i>	Jan 2011	<i>Sole Source due to being contracts being under \$100K for Statement of Work</i>

O.2.2.5 Web Communications Tool Project Plan

Project Overview

This project will lead to the development of a web-based communications tool (ie. Web portal/blog) to allow for transparency and timely distribution of HIE activities. This communications tool will be able to be utilized to distribute HIE communications by multiple entities involved in HIE activities occurring within the state of Indiana (ie. SHIECAP, Beacon, and REC's). This website will be modeled after the ONC web page functionality.

Scope

This project will include the development of a web page that includes blogging, web forum, and calendar functionality. Web page management tool set creation will be within the scope of this project.

Project Requirements / Deliverables

ID #	Title	Description	Source
1	Web Page Creation	Creation of a web page with the functionality as described in the scope.	Web Design Firm
2	Web Management Tool Set	The availability of a web management tool set to assist with updating of the webpage.	TBD

Work Breakdown Structure (WBS)

Web Page Creation (Nov 2010 – Jan 2011)

- Secure Web Design Firm (Nov 2010)
- Develop Web Page Requirements (Dec 2010)
- Firm Designs Page (Jan 2011)

Web Page Deployment (Feb 2011)

- Identify Hosting Solution (Feb 2011)
- Secure Web Management Tools (Feb 2011)

Communication to Stakeholders (Feb 2011 – ongoing)

Schedule / Milestones

Activity / Milestone	Estimated Date	Responsible Individual
Web Page Deployed	Feb 2011	Project Manager, Web Design Firm

Costs / Budget

Purpose	Amount	Source
Web Design	\$90,000	SCHIE-CAP, private funds
Web Management Tool Set	\$5,000	SCHIE-CAP, private funds
Web Hosting	\$5,000	SCHIE-CAP, private funds

Communications Plan

Stakeholder	Information Needed	Source / Provider	Timing
<i>Association Groups</i>	<i>Web address for inclusion in monthly association newsletters and web site links</i>	<i>IHIT CEO</i>	<i>Upon publishing of website</i>

Risk Management

#	Description	Probability 1= low 5 = high	Impact 1= low 5 = high	Mitigation / Contingency Strategy
1	Lack of web traffic	2	4	Multiple groups used to get web address to individual stakeholders
2	Lack of a dynamic webpage	3	2	Use of web forum and blogging to allow end user driven dynamic content
3	Lack newsworthy information	2	4	Using multiple input groups (SHIE-CAP, REC's, and Beacon) to provide content

Procurement Plan

Item	Description	Need by Date	Procurement Strategy
<i>Web Design Firm</i>	<i>A company to develop initial designs and functionality</i>	<i>Nov 2010</i>	<i>Sole-source due to less than \$100K</i>
<i>Web Hosting Solution</i>	<i>A company to deploy and host the website</i>	<i>Feb 2011</i>	<i>Direct Contract not to exceed \$100K</i>

O.2.2.6 CHIRP Bi-direction HIO/EMR Interface Development Project Plan

Project Overview

The Indiana State Department of Health (ISDH) Immunization Registry, CHIRP, (Children and Hooiser's Immunization Registry Program) will partner with Health Information Organization's (HIO) to implement bi-directional HL7 messaging between medical providers and CHIRP. This exchange would enable Indiana vaccination providers to electronically submit the required immunization records to the registry using existing (or new) EMR systems in place without needing to utilize the CHIRP web-based interface as an additional workflow for the collection of immunization data. More importantly, providers will receive thorough immunization histories for patients within their EMR as well as a suggested immunization schedule.

One of the main barriers of the registry is "Double Data Entry," which is entering vaccine data in both an EMR and CHIRP. A bi-directional connection would allow a provider to enter data into their EMR, connect to their respective HIO to gain access to CHIRP for an update, and then receive the data back into their own system, making a match between the two.

Resources identified for this project will work hand in hand to develop bi-directional exchange mechanisms within HIO entities and EMR/EHR vendor applications and provide assistance to HIO's to implement new technology.

Scope

There are three elements that will be the focus of this project.

- Existing providers with an EMR that do not have any connection to CHIRP, developing a HL7 bi-directional connection
- Existing HIO/EMR vendors that have a one-directional connection, developing the bi-directional link
- New HIO/EMR vendors, testing and assistance with their HL7 development

This project will also focus on maximizing the number of providers using the registry by:

- Reaching out to providers to assess EMR/EHR capabilities and needs
- Connecting providers to other resources such as Regional Extension Centers to access CMS Incentive Program or other assistance.

Project Requirements / Deliverables

ID #	Title	Description	Source
	Provider summary of EMR/EHR	Contact all VFC (Vaccine for Children) providers to determine what EMR/EHR is in use, and what type of connection they have to the registry	Project Manager
	EMR/EHR Vendor outreach	Contact existing VFC EMR/EHR vendors and potential new vendors to access their ability to make a bi-directional connection	Project Manager, Technical Developer
	Bi-directional development	Work with EMR/EHR vendors and HIO entities to develop and approve their system for use with a bi-directional connection to CHIRP	Technical Developer

Work Breakdown Structure (WBS)

Project Development (May 2011 to July 2011)

- Develop CHIRP bi-directional standards for EMR/EHR approval process (May 2011)
- Develop EMR/EHR application process for contacting CHIRP (June 2011)
- Develop provider application process for submitting their information to CHIRP (June 2011)
- Develop project monitoring tools that will track and report provider input, vendor selection, and application rollouts, this will monitor steps taken in the project and keep tasks on their reported deadline (May 2011 to June 2011)

Project Initiation (August 2011 to November 2012)

- Provider contact to determine EMR/EHR type and connection needs (August 2011 to September 2011)
- Project presentation for EMR/EHR vendors and providers (August 2011 to October 2011)
- Accept Provider applications (September 2011 to February 2012)
- Accept EMR/EHR applications (September 2011 to November 2011)
- EMR/EHR HL7 bi-directional development (October 2011 to March 2012)
- Upgrading existing EMR/EHR interface to HL7 bi-directional connection (February 2012 to August 2012)
- New EMR/EHR HL7 bi-directional connection June 2012 to December 2013)

Project Monitoring/Audit (November 2011 to March 2012)

- Monitor and report number of providers with EMR/EHR programs to number of total applied (September 2011 to February 2012)
- Monitor and report number of EMR/EHR programs that can be upgraded or developed to use bi-directional message (September 2011 to March 2012)
- Monitor and report number of EMR/EHR vendors that have developed new HL7 bi-directional messages versus total number of that applied, keeping vendors accountable to the overall goal of the project (October 2011 to March 2012)

- Monitor and report number of bi-directional connections implemented (February 2012 to November 2012)
- Provide ongoing auditing of systems that have been upgraded and implanted as a result of this project to identify and document ROI (February 2012 to December 2013)

Schedule / Milestones

Activity / Milestone	Estimated Date	Responsible Individual
Identify and hire new resources for project management and technical development	May 2011	Immunization Director, Application Development Director
Detailed project timeline and scope of work by task, and by responsible individual	May 2011	Immunization Director, Immunization Programmer
Complete application process	June 2011	Project Manager
CHIRP HL7 bi-directional approval process	June 2011	Project Manager, Technical Developer
Project presentation to EMR/EHR and providers	October 2011	Project Manager
HL7 bi-directional development	March 2012	Technical Developer
First existing provider EMR/EHR upgraded to HL7 bi-directional	February 2012	Technical Developer
First existing or new provider EMR/EHR created as a HL7 bi-directional	June 2012	Technical Developer
Project monitoring	June 2011, monthly ongoing	Project Manager
Provider EMR/EHR type and connection needs	September 2011	Project Support

Costs / Budget

Purpose	Amount	Source
EMR/EHR bi-directional message development	\$300,000	IHIT - ARRA
HIO/EMR/EHR to CHIRP interface connection	\$500,000	IHIT - ARRA
Project personnel	\$200,000	IHIT - ARRA

Communications Plan

Stakeholder	Information Needed	Source / Provider	Timing
CHIRP VFC Providers	EMR/EHR information, and need of connection to CHIRP	Immunization Vaccine E-letter, direct contact through project resource	Monthly, January 2011
EMR/EHR vendors	Available connection type, current development cycle, and needs to future bi-directional connection	Direct contact through project recourse, provider application	January 2011, March 2011

Risk Management

#	Description	Probability 1= low 5 = high	Impact 1= low 5 = high	Mitigation / Contingency Strategy
1	EMR/EHR unwilling to develop bi-directional message	2	4	Select alternate vendor
2	Provider unwilling to implement connection to CHIRP	1	3	

Procurement Plan

Item	Description	Need by Date	Procurement Strategy

Issues, Risks and Dependencies

The major risks, probabilities, impacts, and mitigation/contingency strategies for each IHIT HIE project or program are detailed in the Project Plans above. Additional risks affecting the overall activities of IHIT, their potential impact, and how these risks will be addressed appear in Table 3.

Table 3: Indiana Health Information Technology (IHIT) Projects/Programs Risk Planning Overview

Risk	Level	Potential Impact	How Risk will be Addressed
Despite coordination and contact with community foundation, economic development, state government, and private sector stakeholders, a clear pathway to CAP matching funds has not yet been established	High	May affect ability to provide matching funds for 2011 and beyond, thereby delaying the start of key CAP projects	<p>Elements of the plan to address this risk:</p> <p>Will utilize in-kind services accrued by stakeholders as matching funds per instructions from ONC for implementation projects. IHIT has developed a tracking form to document all in-kind and cash contributions. Training stakeholders in its appropriate use began this summer.</p> <p>Explore the possibility of project contract recipient organizations contributing in kind human and/or physical resources as part of the matching requirement for each project</p> <p>Continue and expand communication and coordination with community and national foundations to describe the IHIT HIE program with the goal of receiving matching grant funding</p> <p>Pursue the possibility state government funding of the matching grant portions of IHIT projects</p> <p>Establish contacts with Indiana health plans that would potentially be interested in population health clinical information that would be of benefit to their population disease management activities. Investment of matching funds to enable the start of projects may be of interest as part of overall agreements between themselves and the HIOs or IHIT to gain timely access to such de-identified population clinical information</p>

Table 3: Indiana Health Information Technology (IHIT) Projects/Programs Risk Planning Overview

Risk	Level	Potential Impact	How Risk will be Addressed
The HIO to HIO Interoperability and Data Mapping and Normalization Projects require the cooperation of and coordination with all HIOs operating in the state. Current data use agreements may limit advancements in connectivity	Medium	Non-participation or delayed decision making may reduce the statewide participation in HIE services, particularly those related to the sharing of patient care summaries that include longitudinal care data and reports housed in HIO repositories	IHIT will continue to use the Data Use and Advisory Council and the Indiana HIE Working Group, and will proactively develop additional coordination vehicles to establish and ensure continuing full statewide HIO participation in these projects. Depending on the awardee(s) of these projects, additional coordination mechanisms between third party stakeholders will be established. IHIT will use these coordination vehicles to address issues such as those regarding data use agreements and others to bring about timely issue resolution.
Business or legal reasons preventing new data source healthcare providers (acute care hospitals and critical access hospitals) from agreeing with a HIO to install interfaces and participate in two-way exchange of healthcare information	Medium	Delays in decision making or continued decisions not to participate may reduce the expansion of HIE services to all providers in the state, thereby preventing full adoption of all key services and complicating physicians' ability to establish meaningful use of HIT	IHIT will establish full communication channels between all involved parties to ensure that all business and legal issues are identified and addressed. IHIT will also work with the involved healthcare providers in the rural communities where such issues develop as necessary to establish communication, coordination, and cooperation to increase the probability of data source providers agreeing to connect to a HIO.

Table 3: Indiana Health Information Technology (IHIT) Projects/Programs Risk Planning Overview

Risk	Level	Potential Impact	How Risk will be Addressed
<p>The IHIT HIE strategy is to leverage the mature sustainable Indiana HIE infrastructure and network through contracting for projects to expand HIE connectivity to rural and underserved parts of the state, and to develop and implement services that expand effective and safe HIE in the state. A core element of this strategy is to focus CAP and matching resources on key projects, and to keep the size of IHIT small and efficient.</p>	<p>Low</p>	<p>The size of the IHIT staff may not be sufficient to support all aspects of the key projects and the governance, legal, and security activities of the four strategic pillars</p>	<p>The CEO and the Board of Directors, as a part of the scorecard monitoring process, will assess the capabilities and size of the staff and its ability to conduct IHIT business. If necessary, IHIT will add an additional project manager or contractor to address the need. IHIT will continue to maintain a lean structure to find the right balance between effective expansion of HIE services and economic efficiency.</p>

O.2.3 Health Plan Survey

Indiana Health Information Technology will undertake a survey of the major health plans operating in Indiana to determine the extent of electronic eligibility and claims transactions processing taking place across the state. The information uncovered during IHIT's extensive environmental scan indicated that many of the major insurers support the exchange of this information electronically, however more hands-on survey work is required to determine the percentage of providers utilizing this capability. IHIT will conduct this study in September and October 2010. The results obtained through this effort will provide additional baseline measures for assessing the impact increased HIE activity statewide has on the overall health care delivery system. Table 4 provides some information about the major health plans operating in Indiana.

Table 4: Top Health Plans Operating In Indiana¹

Advantage Health Solutions	Advantage Health Solutions, Indianapolis, is a provider-owned company offering a comprehensive array of health-care benefits, including HMO, HMO/POS, self-funded and HSA plans to all employer groups. The company, which serves central and northeast Indiana, impacts more than 60,000 in group sizes ranging from two to more than 1,000. It has more than 3,500 health-care providers.
Aetna	Aetna, Fort Wayne, is a POS, PPO and indemnity company for insured and self-insured clients.
Anthem Blue Cross and Blue Shield	Anthem Blue Cross and Blue Shield, a subsidiary of WellPoint Inc., Indianapolis, offers HMO, PPO, POS and consumer-driven plans to its 1.5 million Indiana members. The plan includes 5000 primary-care physicians, 20,000-plus specialists and 120 hospitals.
Cardinal Health Alliance	Cardinal Health Alliance, Muncie, provides HMO and PPO products to east-central Indiana. The plan has 10 pharmacies, 34 ambulatory facilities, six urgent-care facilities and 10 hospitals.
CIGNA HealthCare of Indiana	CIGNA HealthCare of Indiana, Indianapolis, offers HMO, POS and PPO plans. Last year the company served approximately 41,989 HMO members in 21 counties, with 5,953 doctors and 51 hospitals; approximately 98,980 POS members in 91 counties with 7,470 doctors and 77 hospitals; and approximately 136,083 PPO members in 91 counties with more than 806 doctors and 82 hospitals.
CorVel Corp	CorVel Corp., Indianapolis, provides PPO services to 350,000 Hoosiers, with more than 13,000 health care providers and 120 hospitals.

¹ Source: To Your Health: A Look At The Major Health Plans In Indiana. Shari Held. **Indiana Business Magazine**. March 2007

Table 4: Top Health Plans Operating In Indiana¹

Deaconess Health Plans	Deaconess Health Plans, Evansville, is a PPO network servicing more than 175,000 members with 1000-plus physicians, 250 ancillaries and 16 hospitals.
Encore Health Network	Encore Health Network, Indianapolis, covers 656,740 Indiana members with 33,361 physicians, access to 2,092 ancillary providers and 176 hospitals. Employers with employees outside of Indiana can easily be covered through Encore's network partnerships. Its national, regional and travel networks offer a single point of contact for multi-state coverage needs.
LutheranPreferred Network	LutheranPreferred Network, Fort Wayne, owned by MedPartners, is a PPO network of 9,000 physicians, 63 hospitals and hundreds of ancillary providers at more than 15,000 locations. The network serves members in northeast Indiana and northwest Ohio. LutheranPreferred and Three Rivers Preferred, also owned by MedPartners and located in Fort Wayne, have a combined membership of 71,000.
M-Plan	M-Plan, Indianapolis, is a managed-care organization (MCO) serving more than 140,000 Indiana members through 2,111 primary-care physicians, 6,245 specialists and 62 Indiana hospitals.
Parkview Signature Care	Parkview Signature Care PPO network serves Indiana and northwest Ohio through more than 9,000 physicians, providers and hospitals. Signature Care is sponsored by Parkview Health in Fort Wayne.
Physicians Health Plan of Northern Indiana	Physicians Health Plan of Northern Indiana, Fort Wayne, is a physician-sponsored, not-for-profit health maintenance organization that provides members open access to more than 2,000 network providers. It offers fully insured HMO, POS and high-deductible health plans compatible with health savings accounts. Other services include wellness options, dental and vision products and third-party administration. PHP serves members in northern Indiana, southwest Michigan and northwest Ohio.
Private Healthcare Systems	Private Healthcare Systems has 105 general acute-care hospitals, 11,175 physicians and approximately 240,000 PPO members in Indiana.
Sagamore Health Network	Sagamore Health Network, Carmel, has been Indiana's largest rental preferred provider organization (PPO) network for over 20 years. It offers more than 200 hospitals and more than 40,000 physician locations. Sagamore offers URAC-accredited Medical Management Services, an Ambassador Care gatekeeper PPO product and a reduced-access PPO network called Select.

Table 4: Top Health Plans Operating In Indiana¹

SelectHealth Network	SelectHealth Network, South Bend, is a PPO developed by St. Mary's Health System of America Inc. Two-hundred primary-care physicians, more than 400 specialists and three hospitals serve its members.
SIHO Insurance Services	SIHO Insurance Services, Columbus, provides HMO, PPO and consumer-driven self-funded health plan coverage. SIHO's 9,000 participating physicians and 65 hospitals serve 78,000 participants.
Unified Group Services	Unified Group Services, Anderson, is a full-service third-party administrator for self-insured group health plans. It provides administrative services to more than 95 Indiana employer groups and more than 47,000 covered lives.
UnitedHealth Group	UnitedHealth Group, Indianapolis--comprised of United HealthCare, Uniprise, Ovations, Arnett and Golden Rule--offers HMO, PPO and POS plans in Indiana. The company covers 344,528 Indiana residents in commercial plans, 125,123 Indiana residents in Medicare plans and 43,000 Indiana members in consumer-driven, high-deductible HSAs and HRAs through 118 hospitals and 8,567 physician/providers.
Welborn Health Plans	Welborn Health Plans, Evansville, is an HMO and POS provider serving more than 30,000 Indiana members in 10 southwestern Indiana counties. More than 700 primary-care physicians and specialists are available to members.

O.2.4 Coordinate with ARRA Programs

Indiana Health Information Technology recognizes that a vital element of ARRA funding is collaborating with related ARRA programs to maximize opportunities. Due to the transformative and expansive nature of the HITECH Act, it is important for Indiana Health Information Technology to collaborate closely with the state's Medicaid HIT Coordinator, HIT regional extension centers, broadband access projects and other ARRA-related organizations.

The Indiana HIT Coordinator has engaged the various stakeholders involved with HITECH programs in the state of Indiana in a bi-weekly HITECH program coordination meeting. This forum is chaired by the IHIT Coordinator and supported by the IHIT staff. At present, the project directors from the two HIT regional extension centers (the Indiana Healthcare Information Technology Extension Center at Purdue University and the Tri-State Regional Extension Center operated by HealthBridge) and the Medicaid HIT coordinator are active participants.

The goal of this forum is to enable "shared engagement" and facilitate dialog among the programs and agency representatives about cross program priorities, interdependencies,

concerns, and issues. The project team meets biweekly to stay connected in their respective implementation efforts and to identify and address technical, financial and legal challenges in exchanging health information electronically.

This collaboration is grounded in the common desire to improve patient health care quality, cost-effectiveness and portability by making Indiana a national model for a secure, standards-based health-information exchange. The project focus areas for the different participants illustrate the supportive structure under development. IHIT plans to use SHIECAP funding to support interoperability, provider connectivity, privacy and security and public health projects. The RECs are employed at the ground level working with providers to select an EHR product that will enable them to meet meaningful use. The Indiana HIT Coordinator will also keep in regular contact with the Indiana Telehealth Network, which is bringing dedicated broadband service to rural and other providers to support their health information exchange activities.

Throughout the duration of these initiatives, the IHIT Coordinator will work to address gaps that exist in the coordination with the ARRA funded initiatives. The Coordinator will work to identify issues of common concern and devise coordination plans that promote shared HIE goals and objectives. For example, this collaborative may explore opportunities to leverage purchasing power among the different initiatives to lower costs for health information technology and exchange wherever possible. Through this bi-weekly interaction, the IHIT Coordinator will work to leverage activities, expertise and resources to address risks in achieving meaningful use, to maximize opportunities for enabling statewide health information exchange, and to implement ONC program guidance. See Table 2 for more information.

In addition to this meeting directed specifically towards ARRA-funding coordination, the IHIT Coordinator participates in an IHIT-established Indiana HIE Working group together with representatives of the five HIOs operating in Indiana, the Regenstrief Institute, the Indiana Family and Social Services Administration and the Indiana State Department of Health. IHIT conducts a weekly meeting with this group to provide updates, enable shared learning and communication, and coordinate HIE adoption activities.

Workforce development is also a critical aspect of all ARRA grants. I-HITEC anticipates that within the next four years it may assist 2,000 Indiana healthcare providers improve healthcare delivery by installing or expanding HIT systems. IHIT recognizes that part of their coordination role is to ensure the availability of a sufficient and appropriately trained workforce to support health information exchange.

The IHIT Coordinator will track the job growth that stems from SHIECAP funding. All recipients receiving project funding through Indiana Health Information Technology will be required to provide workforce data with each disbursement. This information will be consolidated by Indiana

Health Information Technology every three months, coordinated with other State of Indiana agencies and submitted as part of the ARRA reporting requirements.

Table 5: Coordinating HIT/HIE Initiatives Across Indiana

Federal Requirements	HIT Coordinator/HIE Grantee	Regional Extension Center	Regional Extension Center	Medicaid Agency	Beacon
Cooperative Agreement	IHIT, Inc. Andy VanZee	I-HITECH Monica Arrowsmith	Tri-State David Groves	Jared Linder Project Lead	IHIE Tom Penno
Overall Objective	Expand HIE Utilization in Indiana through funding and removing barriers	Facilitate adoption and meaningful use of EHR among Priority Primary Care Providers in Indiana	Supporting 1750 Eligible Providers in adoption and meaningful use of EHR technology by 2012	Develop Incentive Payment program and State Medicaid HIT Plan	The Beacon Community Cooperative Agreement Program will provide funding to communities to build and strengthen their health information technology (health IT) infrastructure and exchange capabilities to demonstrate the vision of the future where hospitals, clinicians and patients are meaningful users of health IT, and together the community achieves measurable improvements in health care quality, safety, efficiency, and population health
Short term Goal 1	Connecting all acute care hospitals to an existing HIO	Select and contract with EHR and related vendor partners	Physician outreach and marketing	Completed IAPD	Program Launch (May 2010 thru mid-Aug 2010)
Short term Goal 2	Expand ability for existing HIO to HIO message exchange	Implement initial phase of staffing / training plan (in progress) necessary to facilitate EHR & MU installation.	EHR vendor selection and negotiation of group purchase terms	Complete SMHP	Implementation & Refinement (Aug-2010 to Dec-2012)
Short term Goal 3	Integration of public health reporting/registries	Secure TAA's through blast and ongoing outreach	Hiring and REC staff and development of service offerings	Begin Incentive Payments in May 2011	Evaluation & Dissemination (Jan-2013 to Mar-2013)

Table 5: Coordinating HIT/HIE Initiatives Across Indiana

Federal Requirements	HIT Coordinator/HIE Grantee	Regional Extension Center	Regional Extension Center	Medicaid Agency	Beacon
	w/ existing HIO's	events.			
Develop a Strategic/ Operational Plan	In process, submit end of August	Submitted/accepted by ONC.	Completed June, 2010	In process, submit by Dec 2010	In process...detailed operational plans complete by mid-Aug-2010
Vendor Relations/Management	Procurement policy being developed, contracts in place for current services <\$100K		Active RFQ underway for EHR solutions. Planned RFI for services companies	Follows State and Federal procurement guidelines	Service contracts in place. Vendor mgmt done through Beacon Program Executive Team
Oversight & Accountability	Statewide HIT Director and IHIT Board	ONC Project PI's	ONC	State Medicaid Director, CMS	ONC
Leveraging Resources			HealthBridge HIE and HealthLINC HIE		Program resource requirements called out within the overall Beacon budget
Communication	Development of blog/forum for all stakeholders to use		REC website and information resources under continuous development and deployment		Following reporting protocols prescribed by ONC
Education & Outreach	Use of blog, association meetings		Webinars and FAQs will be primary tools		Development of and adherence to program-wide communication plan
Privacy & Security	Project for workgroups of board		HIPAA privacy and security consulting services provided		
Evaluation	Dashboard to be developed based upon projects		ONC will track milestone achievement by		Formal evaluation process integrated into overall Beacon Program

Table 5: Coordinating HIT/HIE Initiatives Across Indiana

Federal Requirements	HIT Coordinator/HIE Grantee	Regional Extension Center	Regional Extension Center	Medicaid Agency	Beacon
			Provider site		
HIE Services Provided	Services being provided by 5 Indiana HIO's		REC support to connect to any HIE servicing Tri-State		Human capital in addition to existing IHIE offerings such as INPC, DOCS4DOCS, and QHF
Interoperability & Certification	Interoperability being developed for existing HIO's		Nationwide Health Information Network interoperability standards are primary and local HIE requirements secondary		Currently built into existing service offerings. Elements of offerings (TBD) will be enhanced throughout the Program
Technical Infrastructure	Development of standards and nomenclature		Secure EHR integration with HIE	Development of a "To Be" Architecture	Currently built into existing service offerings
Medicaid and Public Health Alignment	Providing consulting on IAPD and SMHP, DOH on Board		Public health and Medicaid specific consulting services provided	Working closely with SHIE-CAP grantee	Project team structure will integrate the necessary representation into Beacon Program efforts
Staffing	HIT Coordinator		8 Staff on board including Executive Director and Project Manager	Project Lead selected	A combination of existing IHIE resources, new FTEs, & contractors.

O.2.5 Coordination with Other States

Several of the projects Indiana Health Information Technology will undertake using SHIECAP funding will address enhanced coordination with other states. Barriers to health information exchange across state lines involve a variety of issues. Many of these have been described in different sections of Indiana's Strategic Plan.

At present, Indiana's HIO service areas overlap into three contiguous states, Michigan, Illinois, and Ohio. As a result, three Indiana HIOs, HealthBridge, IHIE, and MHIN, operate both inside and outside of Indiana. One HIO requires that a data sharing agreement be in place to enable interstate HIE with another HIO or healthcare organization. This contractual arrangement serves to ensure the privacy and security of health information they exchange. Policies and best practices such as this will be explored through the IHIT Coordinator and the Board's Data Provision and Use Council. In addition, IHIT will work to harmonize applicable Indiana and contiguous states' legal and policy requirements to enable HIE services.

The IHIT Coordinator will work with peers and HIT policymakers in Indiana and neighboring states to address the need for consistent policy guidance and rules in interstate HIE efforts. IHIT will engage in an open dialogue with other states to foster collaboration and share lessons learned to enable coordination of activities and interstate health information exchange. Through the projects outlined in the Operational Plan, these practices will be expanded to address both intra-state and inter-state interoperability to assist providers in achieving meaningful use.

The IHIT Coordinator and the members of IHIT's Data Provision and Use Council will monitor ONC guidance and other groups such as the National Governor's Association who are developing policy recommendations for advancing interstate health information exchange. Indiana's state Attorney General serves as one of twelve states serving on the NGA's State Alliance for e-Health board, a nationwide forum through which stakeholders work to further HIE. The IHIT Coordinator will work with the Attorney General and the Data Provision and Use Council to develop policies that facilitate interstate HIE.

Nationwide Health Information Network

The Nationwide Health Information Network model is building an experiential-based model for addressing interstate interoperability issues. Four Indiana HIOs, IHIE, HealthBridge, HealthLINC and Medical Informatics Engineering are represented on key Nationwide Health Information Network and other federal HIT committees such as the HIT Standards Committee, the HIT Standards Committee Clinical Quality Work Group, the Nationwide Health Information Network Coordinating Committee, the Nationwide Health Information Network Work Group, the Nationwide Health Information Network Security and Trust Workgroup, the Nationwide Health Information Network Direct Implementation Group, and various HITSP committees. They are in a position to influence the development of national standards for interoperability, security,

implementation, and other aspects of HIE important to establishing complete HIE coverage of the state of Indiana.

Several of the HIOs will be able to leverage their capabilities through their Nationwide Health Information Network gateway connections established in Nationwide Health Information Network pilot projects to improve HIT adoption and better patient care outcomes at a community level as well as across state lines. For example, through their participation on Nationwide Health Information Network Direct, Indiana will play a key role as this demonstration project works to establish standards and interoperability guidelines for more mainstream HIE activities and to facilitate local, regional, and national exchange of healthcare information.

Furthermore, three of these HIOs participate in several production pilot projects using Nationwide Health Information Network gateways to the Nationwide Health Information Network Limited Production Exchange (Nationwide Health Information Network Exchange), including the Social Security Administration (SSA) disability adjudication project and the CMS CHIP State Demonstration Project to promote the use of HIT for the delivery of care for children covered by Medicaid/CHIP. This experience will help IHIT accelerate the development and implementation of HIE interoperability between the Indiana regional HIOs and with other healthcare organizations outside the state.

Indiana Health Information Technology will encourage the continuation of multi-state commerce and coordination among states and will work in concert with Indiana's HIOs, ONC and other states to develop scalable solutions that can be leveraged to advance efforts in interstate and nationwide health information exchange.

O.3. Governance

O.3.1 Governance and Policy Structures

IHIT has established a governance structure that strives to include healthcare system stakeholders in decision-making and advisory capacities. The governance structure consists of the IHIT Board of Directors, the HIE Policy and Technical Advisory Council, the Data Provision and Use Council, the Patient Advisory Council, and the Research and Education Council. The IHIT CEO/Statewide HIT Director also regularly convenes three committees to coordinate the activities of and foster communication between IHIT and Indiana Medicaid, the Indiana State Department of Health, the Indiana Health Information Technology Extension Center at Purdue University (I-HITEC), the HealthBridge Tri-State Regional Extension Center, and the 5 HIOs operating in Indiana.

IHIT Board of Directors

The Board of Directors consists of 12 directors, four of whom serve by virtue of their office (designated directors), and eight of whom are appointed by the Governor (appointed directors) and represent various stakeholder groups and geographic areas. The following individuals serve on the IHIT Board of Directors.

Table 6: Indiana Health Information Technology (IHIT) Board of Directors

IHIT Board of Directors			
<i>Board Position</i>	<i>Member</i>	<i>Title</i>	<i>Location</i>
Indiana Secretary of Commerce or designee	Mitch Roob	Secretary of Commerce- Indiana Department of Commerce	Indianapolis
Secretary of the Indiana Family and Social Services Administration or designee	Anne Murphy	Secretary of Family and Social Services Administration	Indianapolis
Indiana State Health Commissioner or designee	Dr. Greg Larkin	Commissioner- Indiana State Department of Health	Indianapolis
Director of the Indiana office Management & Budget or designee	Chris Eckerle	Program Director- Office of Management and Budget	Indianapolis

Table 6: Indiana Health Information Technology (IHIT) Board of Directors

IHIT Board of Directors			
Board Position	Member	Title	Location
(i) A representative of a statewide organization representing the interests of Indiana hospitals or a chairperson or chief executive officer of an Indiana based hospital;	Brian Bauer	Chief Financial Officer, Terre Haute Regional Hospital	Terre Haute
(ii) A physician licensed under Indiana Code § 25-22.5 (or any successor statute);	Dr. Michael Mirro	Cardiologist	Fort Wayne
(iii) A representative of an Indiana hospital that serves a disproportionate share of indigent or underinsured patients;	Phil Newbold	CEO, Memorial Hospital	South Bend
(iv) A representative of a statewide organization representing the interests of rural health in Indiana or a chairperson or chief executive officer of a rural health entity;	Donna Nobbe	Director Information Systems, Margaret Mary Community Hospital	Batesville
(v) A patient/consumer representative;	Clance LaTurner	Self-employed	Indianapolis
(vi) A data privacy and security expert;	Stan Crosley	Co-director of the IU Center for Strategic Health Information Provisioning	Indianapolis
(vii) A research scientist with expertise in medical informatics;	Shaun Grannis	Research Scientist, Regenstrief Institute, Inc.; Assistant Professor of Family Medicine, Indiana University School of Medicine	

Table 6: Indiana Health Information Technology (IHIT) Board of Directors

IHIT Board of Directors			
Board Position	Member	Title	Location
(viii) A representative of the interagency state council on black and minority health established under Indiana Code § 16-46-6 (or any successor statute).	Jamal Smith	Sr. Advisor Governor's Office	Indianapolis

The Board members represent various stakeholder constituencies and have significant experience in government leadership, economic development, healthcare delivery, health information technology, and as consumers of healthcare, as evidenced by their short biographies:

E. Mitchell Roob, Jr.

Board position: Indiana Secretary of Commerce

Chairperson, IHIT Board of Directors

E. Mitchell Roob, Jr. (Mitch) is the Secretary of Commerce for the State of Indiana and Chief Executive Officer of the Indiana Economic Development Corporation (IEDC). As Secretary of Commerce, Roob is a member of Governor Mitch Daniels' cabinet and leads the state's economic development efforts.

Prior to joining the IEDC in January 2009, Roob served for four years as the Secretary of Indiana's Family and Social Services Administration (FSSA). FSSA is the health and social services branch of state government, including Medicaid, Food Stamps, programs for senior citizens, and services for people with mental illness, addictions and disabilities.

As secretary, he led a major transformation of FSSA including initiatives to install the first agency-wide accounting system and to reduce the long-standing waiting list for services to persons with disabilities and the elderly. Roob also was the principal architect of the Governor's innovative Healthy Indiana Plan to address the issues of high rates of smoking, low rates of childhood immunizations, and the growing number of uninsured Hoosiers.

Roob's prior experience includes serving as Director of the Indianapolis Department of Transportation, where he organized the city's "Building Better Neighborhoods" infrastructure program and worked with Mitch Daniels, then Chairperson of the Competition Initiative, to spearhead the promotion of public/private partnerships.

In 1994, Roob was named President of the Marion County Health and Hospital Corporation, responsible for the Health Department and Wishard Public Hospital. In 1998, he became Chief Operating Officer of the Indianapolis Water Company, then a privately owned utility. In 2000, Roob co-founded Netgov, specializing in Internet transactions for governmental agencies. The company was sold to Lockheed Martin, a Fortune 500 global security company, in 2001.

A native of Northbrook, Illinois, Roob is a graduate of DePauw University, and has a Master of Business Administration (MBA) from the University of Notre Dame. He and his wife, Sandy, live in Indianapolis with their two children.

Anne W. Murphy

Board position: Secretary of the Indiana Family and Social Services Administration

Vice Chairperson, IHIT Board of Directors

Anne Waltermann Murphy was appointed by Governor Mitch Daniels as Secretary of the Indiana Family and Social Services Administration (FSSA) in January of 2009. Prior to being appointed Secretary, she had been Deputy Secretary and Chief of Staff of FSSA since January 2005. As Chief of Staff, Murphy assisted in the implementation of an innovative, low-income health care plan, the Healthy Indiana Plan (HIP). She also worked to contain Medicaid cost growth to under five percent, while at the same time increasing the number of people receiving services.

From 1995 until joining FSSA, Secretary Murphy worked for nine years at the Health and Hospital Corporation of Marion County, which operates Wishard Hospital and the Marion County Health Department. While at the Health and Hospital Corporation, she held the positions of General Counsel and Vice President-Chief Operating Officer. She was instrumental in the implementation of projects such as Wishard Advantage, a health care plan for low-income and uninsured residents of Marion County.

Prior to entering the health care arena, she served as an Assistant Corporation Counsel for the City of Indianapolis and a law clerk for the Honorable George B. Hoffman, Jr. on the Indiana Court of Appeals.

Murphy earned her undergraduate and law degrees from Indiana University- Bloomington. She is married with two daughters.

Gregory Larkin

Board position: Indiana State Department of Health Commissioner

Secretary, IHIT Board of Directors

Dr. Larkin was appointed by Governor Mitch Daniels as the Indiana State Health Commissioner in March 2010. Prior to his appointment, Dr. Larkin served as the chief medical officer for the Indiana Health Information Exchange, which promotes health information technology for the advancement of quality patient and community care, since retiring from Lilly in 2007. He is a recognized leader in the promotion of health information and technology and will extend Indiana's recognized preeminence in that area.

Before joining the Indiana Health Information Exchange as its Chief Medical Officer, Dr. Larkin was the Director of Corporate Health Services for Eli Lilly and Company. He has been a member of the Healthy Indiana Plan task force, served as chairman of the board of the Indianapolis Medical Society and the Indiana Blood Center, and volunteered with many other medical and community organizations.

Prior to his work at Eli Lilly, Dr. Larkin practiced family medicine in Greencastle, Indiana from 1975-1986. He is a graduate of Indiana University School of Medicine and has been board certified in family medicine.

Dr. Larkin has received the following awards: C. Everett Koop National Award for Health Promotion, the 2002 National Award for Corporate Health Achievement (ACOEM), Profile in Progress Award from the National Breast Cancer Council, Health Care Hero Award from the

Indianapolis Business Journal, Excellence in Public Health Award from the Indiana Department of Health, Preventive Medicine Award from the Hulman Public Health Foundation.

Chris Eckerle

Board position: Director of the Indiana Office of Management & Budget or designee

Treasurer, IHIT Board of Directors

Chris Eckerle is a program director with the Indiana Office of Management and Budget. In this capacity, Chris serves as a resource to other state agencies by performing financial analysis for potential initiatives and ongoing programs. This includes analyzing activities of state agencies to determine if their programs are duplicative or wasteful and then formulating cost-saving solutions, such as opportunities for cross-agency collaboration. Chris focuses his efforts on the State's health and human services agencies, including the Department of Health and Family and Social Services Administration. He also has extensive experience managing performance metrics and has staffed the Distressed Unit Appeals Board for the past two years.

Prior to joining the Office of Management and Budget, Chris had a diverse professional background. Chris interned at BioCrossroads, where he worked with numerous businesses and state universities to help promote Indiana's life sciences industry. This included formulating the strategy and drafts of several sections of the Indiana CTSA grant application, a 45 million dollar National Institute of Health award focused on transforming national, clinical research. He also founded the company Eli Eck Partners to finance his professional golf career on both the Nationwide Tour and PGA Pro Golf Tour. Chris received his B.A. from Yale University, where he was a two-time NCAA Division I Academic All-American, and his M.B.A from the Krannert School of Management at Purdue University with a concentration in finance and strategic management.

Brian Bauer

Board position: Representative of a statewide organization representing the interests of Indiana hospitals or a chairperson of chief executive officer of an Indiana based hospital

Brian M. Bauer is Chief Executive Officer of Terre Haute Regional Hospital. Brian joined the hospital in 2005 as Manager of Managed Care, later serving as Controller and Chief Financial Officer before taking on the role of interim CEO in mid-February 2010. He came to the hospital from Crowe Chizek and Company, an accounting and consulting firm, where he served as Associate of Compliance and Trust Solutions.

Brian has deep roots in Indiana, earning a bachelor's of science degree in finance from Butler University in Indianapolis and an MBA in healthcare from Indiana Wesleyan University in Marion. He is a graduate of Leadership Wabash Valley and has been appointed to numerous community organizations, including the Vigo County Education Foundation, the Vigo County Redevelopment Commission, the Terre Haute Board of Public Works and the Terre Haute Chamber of Commerce, among others. Brian is married and has one son.

Philip A. Newbold

Board position: Representative of an Indiana hospital that serves a disproportionate share of indigent or underinsured patients

Philip A. Newbold has been President and CEO of Memorial Hospital of South Bend and Memorial Health System for the past 23 years. He led the organization to recognition as one of the Top 100 Hospitals and one of the top 5% safest hospitals in the United States in 2006.

Memorial has also become a consistent Consumer Choice Award recipient. Noted author and business consultant Tom Peters states that Memorial is “not your typical community hospital.... it offers a culture of innovation that can meet the many challenges, even the tough and thorny issues, of healthcare delivery and education.”

As one of the leading healthcare organizations in the United States, Memorial has been a pioneer in the healthy community movement, establishing quality and safety improvement methodologies. Memorial is also one of the first hospitals in the United States to establish an Innovation Policy. Phil's vision for innovation resulted in the creation of the country's first HealthWorks! Kid's Museum. This unique program and facility offers fun and interactive educational activities to help children learn to make healthy choices in life. To date, more than 500,000 children have toured HealthWorks! Thousands more have taken part in school programs presented by staff with a traveling HealthWorks! HUMMER.

He serves on the IUSB Advisory Board and the Northern Indiana Medical Education Foundation Board, an advisory group for the IU School of Medicine South Bend. His leadership and vision are also reflected in his service on the Gigot Center at Notre Dame Advisory Board and his membership in Innovation Park at Notre Dame. He is a member of the state and local Chambers of Commerce and chairs the local Project Future board which focuses on economic development. Phil was the recipient of the Community Service Award presented by The Hotchkiss School in 1998. More recently, he received the Exemplar Award from CONNECT (The Coalition for Educational Success). In 2004 Phil was inducted into the South Bend Community Hall of Fame.

Phil is a native Buckeye, a graduate of Ohio State University (BA and MS) and Miami University of Ohio (MBA). Prior to coming to Memorial, Phil was a senior executive at St. Luke's Hospital in Cleveland and the CEO of Baptist Medical Center in Oklahoma City.

Phil has many roles: husband, father of three children, active community leader, triathlete and frequent author and speaker on many emerging healthcare trends.

Michael J. Mirro

Board position: Physician licensed under IC 25-22.5 (or any successor statute)

Dr. Michael Mirro joined Fort Wayne Cardiology in 1981, transitioning from the University of Iowa, where he established a cardiac electrophysiology program. Dr. Mirro specializes in the field of cardiac electrophysiology and clinical research.

Some of Dr. Mirro's career highlights include Fellow of the American College of Physicians, the American College of Cardiology and the American College of Chest Physicians, founding board member of the Midwest Alliance for Health Education and founder and Medical Director of Parkview Research Center. Dr. Mirro is a recipient of the Sagamore Wabash Award and Distinguished Hoosier Award. From 2003-2009, he was a trustee of the American College of Cardiology (ACC) and has served on a variety of other boards and commissions in both his profession and the community at large.

Dr. Mirro earned his board certification in internal medicine, cardiovascular disease, cardiac electrophysiology, and geriatrics. He is a graduate of Loyola University and received his MD from Indiana University.

Shaun Grannis

Board position: Research scientist with expertise in medical informatics

Shaun Grannis is a Research Scientist, Regenstrief Institute, Inc. and Assistant Professor of Family Medicine, Indiana University School of Medicine. He received an Aerospace Engineering

degree from the Massachusetts Institute of Technology, and underwent post-doctoral training in Medical Informatics and Clinical Research at Regenstrief Institute and Indiana University School of Medicine. He joined Indiana University in 2001 and collaborates closely with national and international public health stakeholders to advance the technical infrastructure and data-sharing capabilities. Dr Grannis is a member of World Health Organization (WHO) Collaborating Center for the Design, Application, and Research of Medical Information Systems, where he provides consultancy on issues related to health information system identity management; implementing automated patient record matching strategies; and collaborating with WHO on the design, development, and implementation of enterprise medical record system architectures.

Dr. Grannis recently completed an analysis of automated regional electronic laboratory reporting that revealed substantial increases in the electronic capture rates for diseases of public health significance when compared to traditional, manual, paper-based procedures. With federal funding from the National Library of Medicine, Dr. Grannis developed methods to protect the privacy and confidentiality of protected health information used for public health syndromic surveillance. Dr. Grannis is project director for an ongoing initiative integrating data flows from over 120 hospitals across the state of Indiana for use in public health disease surveillance and clinical research. For the last 5 years this 24x7 system has received real-time data from participating hospitals amounting to more than 2 million transactions per year, and has detected public health outbreaks of gastrointestinal illness, carbon monoxide poisoning, and other events of interest to public health. Most recently this system was leveraged (and continues to be leveraged) to monitor H1N1 influenza disease burden across the state of Indiana.

He oversees the development of an operational standards-based laboratory data interfaces between public health clinical laboratories and an electronic clinical messaging application used by both public health officials and clinicians. This system, based on one of the nation's largest and longest-tenured Health Information Exchanges, adjudicates more than 50 million real-time clinical transactions from hundreds of data sources yearly to assess their reportability to public health. As co-chair of the U.S. Health Information Technology Standards Panel (HITSP) Population Health technical work group, Dr. Grannis helped lead development of technical Interoperability Specifications for nationally recognized public health IT use cases.

Dr. Grannis also serves as the Director of the Indiana Center of Excellence in Public Health Informatics, one of only four such centers of excellence in the United States. This center recognizes that public health practice is driven by a wide variety of data types, data sources, and data management techniques. Consequently a robust information infrastructure is required to support public health practice, and such an infrastructure exists in few places in the nation. The center of excellence is leveraging advanced technical architectures to demonstrate leading-edge public health informatics solutions that support public health practice.

Jamal Smith

Board position: Representative of the interagency state council on black and minority health

Jamal currently serves the State of Indiana as the Governor's Senior Advisor for Minority Affairs. Prior to his position with the State of Indiana, Jamal was the Director of Marketing and Business Development for United States Synchronized Swimming (USSS), the National Governing Body for the Olympic Sport of Synchronized Swimming.

Over the past 9-years, Jamal's professional experiences involve senior level management including procurement, as well as marketing, event management and business development. He has participated on sales teams that have generated an excess of \$16 million, developed and implemented organizational marketing plans, and led recruitment campaigns resulting in increases of more than 300%. In addition, Jamal has overseen more than twelve (12) international events including the selection and announcement of the 2008 Olympic

Synchronized Swimming Team. As one of the Governor's Senior Advisors, Jamal's focus has been the oversight and implementation of many of the State's programs and initiatives; ensuring the diversity and inclusion of its minority population. His collaborative efforts include both private and public sectors, state agencies, as well as community and faith based organizations.

Correspondingly, Jamal is recognized as a leader both professionally as well as throughout the community. He currently sits on a number of commissions, boards, and councils, including: the Indiana Cord Blood Bank Board of Directors, serving as Chair of the Board for the Coordination of Programs Serving Vulnerable Individuals and presiding as Chair of the Governor's Commission on Minority and Women's Business Enterprises. Mr. Smith also spends a great deal of time as a coach and mentor within the city of Indianapolis.

Jamal graduated from Wright State University in 1999 with a bachelor's degree in History; completing his MBA in 2000, also from Wright State University. His undergraduate tenure includes a successful career as an intercollegiate basketball player. As a student athlete, Jamal has received many awards and much recognition for both his performances on the court as well as in the classroom. Mr. Smith went on to continue his education at Purdue University where he graduated in 2002 with an MS Degree in Sports Management & Athletic Administration.

Stan Crosley

Board position: Data privacy and security expert

Stan Crosley is co-director of the IU Center for Strategic Health Information Provisioning and also operates a private law practice, Crosley Law Offices, LLC, specializing in principal, privacy and information management services. From 1998 to 2009, Stan was Chief Privacy Officer and Assistant General Counsel for Eli Lilly and Company. Prior to his tenure at Eli Lilly, Stan practiced law with Ice Miller in Indianapolis and Armstrong, Teasdale, Schlafly and Davis in St. Louis, Missouri.

Stan serves on a number of boards & committees, including the International Association of Privacy Professionals, The Privacy Projects, the Brookings Institute Experts' Committee on Active Medical Product Surveillance and the NIH-funded Privacy and Research Project at IU. He is a member of the International Association of Privacy Professionals.

As a frequent speaker on health information technology, Stan speaks specifically to the sociological barriers and aspects of HIT, including quality/safety of healthcare, privacy, ethics, intellectual property as well as topics including privacy and data protection, research and information utilization, HIPAA/HITECH, EU Data Protection, international privacy and data protection and information governance.

Donna Nobbe

Board position: Representative of a statewide organization representing the interests of rural health in Indiana or a chairperson of chief executive officer of a rural health entity

Donna Nobbe is the Director of Information Systems at Margaret Mary Community Hospital (MMCH) in Batesville, Indiana. MMCH services a community of 70,000 residents in multiple counties and generates gross revenues of approximately \$94 million. The hospital is known for its focus on quality care, a progressive medical staff, and its use of technology to improve both patient care and business processes. Since joining MMCH in 2007, Donna has lead many key strategic initiatives. One of Donna's key accomplishments at the hospital includes the implementation of a Health Information Exchange. Through the HIE partnership, the majority of physicians in the community receive their patient's results directly in their systems. The physicians receive results from MMCH as well as from hospitals in Cincinnati Ohio and Indianapolis. In 2008, MMCH was recognized with the "Most Wired, Most Improved" award.

Prior to joining MMCH, Donna was the Vice President of Operations and Information Technology at a financial services company that sold life insurance and bank products. Donna was a key member of the leadership team during the divestiture and sale of the business to a private equity group.

Donna's proven business acumen along with her technical expertise has been an asset to many companies in a variety of industries. She led the development of a \$5.3 million multi company data warehouse from development of the strategy to the implementation of the data warehouse. She has also worked at Fidelity Investments and Hill-Rom.

Donna has a unique prospective on how healthcare IT can improve the lives of patients having been the primary care provider for a loved one with cancer. Her approach to the use of technology is always focused on assisting the healthcare providers while improving the patient's experience.

Donna graduated Cum Laude from Southern Ohio College and plans to pursue her Master's degree in HIT. In 2009, Donna graduated from CHIME's CIO training and was a scholarship recipient of the CHIME-AHA Fellowship award.

Clance LaTurner

Board position: Patient/Consumer Representative

Clance LaTurner is a self-employed Communications Specialist, having worked in the Indianapolis area since 1985. A graduate of the University of Indianapolis (UIndy) and a Lugar Series scholar, Clance has served as an adjunct professor at both UIndy and Marian University, and currently serves as the consumer member on the Indiana State Board of Dentistry.

Clance's passion for God, country and community manifests itself through numerous philanthropic endeavors such as the Boys & Girls Club, Home-ward Bound, Julian Center, OMS/MFMI, and the World Police and Fire Games. She has brought original thinking to the media departments of FedEx and the Indianapolis Metropolitan Police Department to enhance their employee training programs and has worked as a trusted advisor to the United Way of Central Indiana since 1998.

The Director of Weddings at Center United Methodist Church for 12 years, she now leads seminars nationally to educate wedding advisors. A native of Vincennes, her determination, wit and balance are well reflected in the endeavors she supports.

The Board meets monthly on the third Tuesday to transact the business of the corporation. Decisions are taken by majority vote of the board as long as there are at least 7 board members in attendance. The breadth and depth of experience of the Board members has enabled IHIT to institute appropriate policies, develop an effective Strategic and Operational Plan and select projects and programs that will expand health information exchange to all corners of the state. Their guidance also has enabled IHIT to evaluate, select, and develop advanced projects that will establish statewide and interstate interoperability, improve outcomes in patient care, and implement key federal and state initiatives. Additional details about the IHIT Board of Directors and corporate processes can be found in Section O.8 Attachments, Appendix 1- Indiana Health Information Technology, Inc. Bylaws.

Advisory Councils

As described in the Strategic Plan Section S.9.1, the Board has also formed four councils representing important groups of stakeholders to advise IHIT on its strategies and programs and to build a public-private partnership of collaboration in expanding HIE services to all healthcare providers in the state. These councils are the HIE Policy and Technical Advisory Council, the Data Provision and Use Council, the Patient Advisory Council, and the Research and Education Council. Each council is led by a Board member, and meets on a regular basis to inform the Board on its particular area of focus and expertise. Such areas include technical, strategic and operational recommendations on HIE technology and services, the provision, flow and use of data through the HIE network, the safety and privacy of patients and the security of protected health information, and the generation and use of data for biomedical research and health professional education. Stakeholder groups represented on these councils include Indiana Medicaid, health care insurance providers, employers and other purchasers of health care insurance, health care providers, allied health professionals and workers, clinical laboratories, pharmacies, developers and manufacturers of pharmaceutical products and medical devices, suppliers of data security and privacy services, patients, consumers, Indiana's research universities, and health information exchange organizations. Three of the councils are currently in the organizational phase, while the HIE Policy and Technical Advisory Council has met regularly to advise IHIT on the evaluation of project ideas submitted in the public solicitation process and on the development of the Strategic and Operational Plan.

Additional information regarding these councils is found in Section O.8 Attachments, in Appendices 2-5: Charters for the Advisory Councils.

Management and Coordination Committees

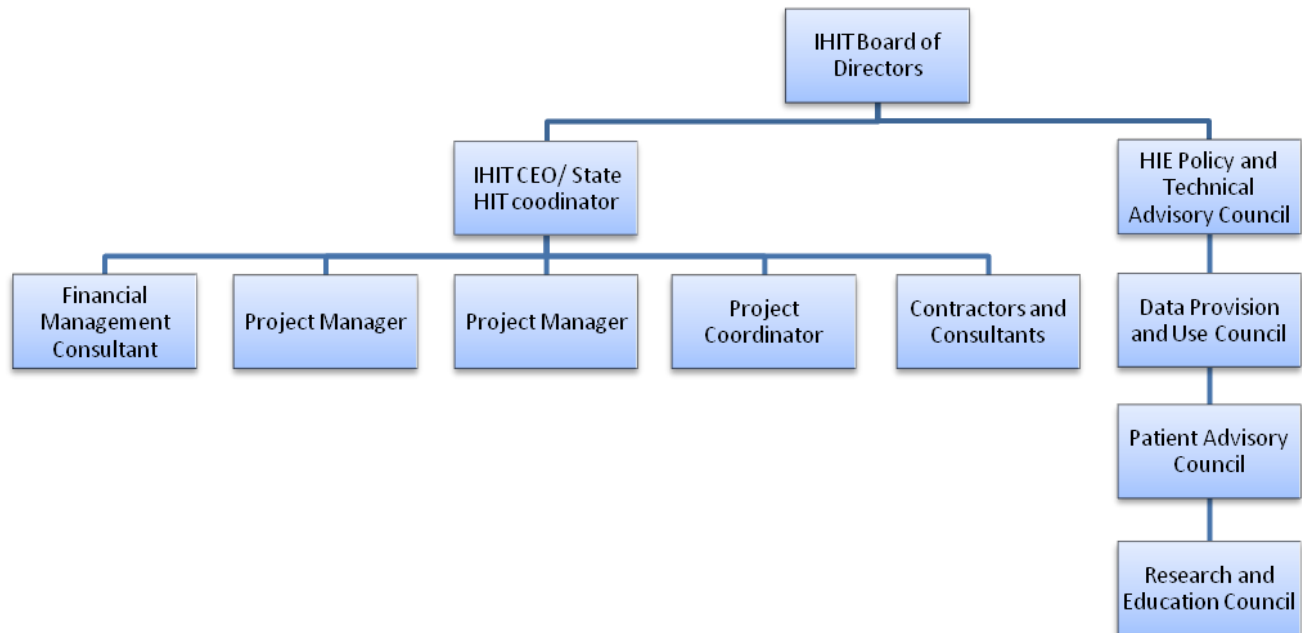
Andrew VanZee, State HIT Coordinator and IHIT CEO, has instituted and maintained three management coordination committees to establish stakeholder teamwork and shared trust, and to provide a regular forum for discussion of projects, programs, and issues. The IHIT HIE Steering Team is a weekly forum for coordination of projects, planning inputs, and implementation of shared learning. It is attended by the Chief of Staff, Indiana Family Social Services Administration (FSSA), the FSSA Director of IT Integration (representing Indiana Medicaid), the FSSA Chief Information Officer, Mr. VanZee, and IHIT staff, contractors, and consultants. This team manages the day to day operations of IHIT and maintains coordination with state government stakeholders. The Indiana HIE Working Group is a weekly forum to discuss and coordinate the planning and writing of the Strategic and Operational Plan, to gather input for the IHIT projects and programs, and to maintain coordination between the IHIT staff and contractors, the regional extension centers, Indiana Medicaid, the Indiana State Department of Health, and the HIOs. Finally, the Indiana HIT Coordinator has engaged the various leaders involved with HITECH programs in the state of Indiana in a bi-monthly HITECH Program

Coordination meeting. This forum is chaired by the IHIT CEO and supported by the IHIT staff. At present, the project directors from the two HIT regional extension centers (the Indiana Healthcare Information Technology Extension Center at Purdue University and the Tri-State Regional Extension Center operated by HealthBridge), the Beacon Grant recipient IHIE, and the Medicaid HIT coordinator are active participants. The goal of this forum is to enable “shared engagement” and facilitate dialog among the programs and agency representatives about cross program priorities, interdependencies, concerns, and issues.

O.3.2 Organizational Structure and Staffing

The IHIT organizational structure, descriptions, and staffing are described below.

Figure 1: IHIT Organization Chart



IHIT Chief Executive Officer / State HIT Coordinator

The IHIT CEO/State HIT Coordinator provides leadership and direction for the development and implementation of Indiana intrastate and interstate HIE policies, strategies, projects, and programs. The CEO/State HIT Coordinator also supports and coordinates HIT policies and programs with Medicaid, the Indiana State Department of Health, the two HIT regional extension centers, other states, and ONC. Andrew VanZee is the CEO of IHIT and the State HIT Coordinator. (See Section 8.0 Attachments, Appendix 6. Andrew VanZee Biography)

Financial Management Consultant

This position provides the financial expertise to ensure that financial aspects of the Strategic and Operational Plan are implemented effectively. This includes working with the CEO and project managers to develop contractual agreements, financial payments, and accountability audits, to implement HIE connectivity and service expansion projects consistent with the four strategic pillars. The financial controller also coordinates with the treasurer of the Board of Directors and necessary state agencies to submit all necessary ONC financial accountability reports.

Project Manager (x2)

This position is responsible for the development and management of the various detailed project plans and other project elements required for implementation of the Strategic and Operational Plan. The individuals in this role ensure that the projects follow good project management concepts and process. The project managers also organize the necessary coordination meetings with stakeholders, and will interact with the organizations with whom IHIT is contracted to ensure timely conduct and completion of each Strategic Pillar project.

Contractors and Consultants

The IHIT CEO contracts with companies and individuals for professional services and legal advice as needed. Such needs include the preparation of the Strategic and Operational Plan, the preparation and execution of legal contracts and other instruments, and obtaining expert advice on health information exchange tools, services, and organizations. Currently, Jay McCutcheon, Robert Petersen, and Emily Styron are under contract with IHIT for such services (See Section 8.0 Attachments, Appendices 7-9 for biographies of these individuals).

As the IHIT HIE projects are implemented, the IHIT CEO and Board may consider contracting for services to conduct outreach and marketing communications with healthcare community members as a part of the of the Connectivity Match Grant Program. The contractor in this position would spend significant time with healthcare providers and payers to explain the benefits of participation as a data provider and/or user. This person will raise awareness and enthusiasm for HIE with the target hospitals and health centers, and address issues. It would be beneficial for this contractor to be a physician who is highly knowledgeable in the national HIT and HIE initiatives.

Other Non-employee Resources Potentially Available

The IHIT Board of Directors and IHIT leadership have placed a premium on using CAP resources to fund the Strategic Pillars projects, to set policies for the safety and security of healthcare information as it is exchanged throughout the Indiana HIE network, and to measure and report results to Indiana stakeholders and to ONC. The IHIT organizational size emphasizes efficiency in both the number of employees and in budget allocation to implement this strategic approach. IHIT will use contractors and consultants when warranted vs. hiring permanent staff beyond the core described above.

IHIT will also mobilize significant resources and HIE leadership expertise through the contracting process for the six priority projects. For example, it is anticipated that some or all of Indiana HIOs will enter the competitive contracting process for the HIO to HIO Interoperability and Data Normalization projects. As IHIT awards contracts for this project, it could gain access to significant numbers of workers who are highly skilled in designing and operating sustainable

HIE systems in these HIOs or in other vendors who may become project contractors. A review of the following biographies of Indiana HIO leaders and the number of employees of these organizations illustrates the potential to leverage this expertise for IHIT projects.

HealthBridge – 33 Full Time Employees

Robert Steffel, Chief Executive Officer of HealthBridge - Prior to joining HealthBridge, Mr. Steffel served from 1995 to 1997 as Chief Information Officer for TriHealth, a large health system serving the Greater Cincinnati area. Mr. Steffel was also Senior Vice President of Medicus Systems Corporation from 1994 to 1997. Mr. Steffel joined Medicus in 1991 as a Senior Consultant and Account Manager. From the mid-70s to the early 90s, Mr. Steffel worked as an IT leader for home health companies and other health care organizations. Bob began his career in health care as a certified respiratory technician for a hospital. Mr. Steffel is seen as a national expert in health information exchange, serving as a consultant, advisor and speaker for a variety of organizations and events, including serving as an expert advisor to the ONC/National Opinion Research Center RHIO Sustainability Expert Panel and speaking for the World Healthcare Congress, HIMSS and numerous national and local meetings on health information exchange. Mr. Steffel serves on numerous boards and committees, including as a member of the Certification Commission for Health Information Technology's Health Information Exchange Work Group, a member of Cincinnati's Aligning Forces for Quality Initiative Steering Committee, a board member of Ohio KePRO, and a member of the governor-appointed Ohio Health Information Partnership Advisory Board. Bob's professional credentials include both a Bachelors and Masters of Science in Health Systems Engineering from Georgia Tech.

Trudi Matthews, Director of Policy and Public Relations - Prior to joining HealthBridge, Ms. Matthews served as Senior Policy Advisor at the Kentucky Cabinet for Health and Family Services(CHFS) under Governor Ernie Fletcher. Ms. Matthews's primary responsibility was to coordinate Kentucky's statewide e-Health initiatives and work with the Kentucky e-Health Network Board, a state level public-private leadership group charged legislatively with developing and implementing a statewide e-Health Network. In her role as the state's e-Health coordinator, Ms. Matthews managed all of Kentucky's e-Health projects. Ms. Matthews also advised the Governor, the CHFS Secretary and other senior officials on health care reform, Medicaid, the uninsured, wellness, chronic disease management, and quality improvement efforts. Prior to joining the Commonwealth of Kentucky, Ms. Matthews served as Associate Director for Health Policy at The Council of State Governments' (CSG) national office. Ms. Matthews received her B.A. and M.A. in political science from Iowa State University. Ms. Matthews's previous work experience includes serving as Coordinator for the Board of Directors for Administrators in Medicine; Executive Officer at the Iowa Board of Medical Examiners; Information Analyst at the Iowa Board; and adjunct instructor teaching political science for Iowa State University and the Des Moines Area Community College.

HealthLINC – 4 Full Time Employees

Dr. Todd Rowland, Executive Director Of HealthLINC – Dr. Rowland has demonstrated leadership in national medical informatics arenas and stays current on issues being addressed across the country in regard to medical informatics. With over 15 years experience as a practicing physician, Dr. Rowland brings a practical understanding of health care and combines it with his knowledge of and enthusiasm for electronic solutions. He has provided expert advice to clients regarding IT enterprise planning, health care community planning, physician-hospital strategy development, and electronic health record implementation. Dr. Rowland currently

serves as the network director for several HIT/HIE grant projects with HRSA and HHS. He completed a post-doctoral fellowship in Medical Informatics at Harvard/MIT, Division of Health Sciences and Technology.

Michael Sullivan, M.D., Senior Technical Advisor for HealthLINC – In addition to his role at HealthLINC, Dr. Sullivan also serves as the Associate Director of Health Sciences for Internet2, the coalition of 300 leading universities and research institutes that operates an advanced nationwide fiber-optic network. Dr. Sullivan works with health care organizations and government agencies to advance networking and cyberinfrastructure support for clinical, research, and educational applications in the life sciences. Dr. Sullivan received his BA degree in biophysics from the Johns Hopkins University and his MD degree from the University of Kansas. He practiced emergency medicine for fifteen years and served as the CEO of an emergency physician group. He has 25 years experience in medical informatics as a medical software developer and health IT consultant. During the last four years he has contributed to the creation of several health networks, including the Indiana Telehealth Network, the HealthLINC Health Information Exchange, and the Nationwide Health Information Network. He is currently a member of workgroups of the Nationwide Health Information Network Specification Factory and the Indiana State HIE Cooperative Agreement Program (SHIECAP).

Med-Web / MIE / NoMoreClipboard.com – 58 Full Time Employees

William Cast, M.D., NoMoreClipboard.com Chief Executive Officer and MIE board member - Dr. Cast, a graduate of Indiana University Medical School, has practiced Otolaryngology in Fort Wayne since 1970. His service in medical organizations includes terms as Speaker of the House of Delegates of the Indiana State Medical Association, Trustee of the American Academy of Otolaryngology, and AMA Delegate. He was founding President of Tri-State Medical IPA and founding Chairman of DuPont Hospital in Fort Wayne. He is a Director of the Indiana University Foundation and Chairman of the Indiana University Board of Trustees. He currently runs www.nomoreclipboard.com, a personal health records company and is a board member of www.mieweb.com, a healthcare technology company.

Douglas Horner, Chairman and Chief Technology Officer of Medical Informatics Engineering and the Med-Web – Mr. Horner conceived the Med-Web network, one of the earliest commercially viable United States HIEs, as well as the WebChart product portfolio and NoMoreClipboard.com. As Chief Technology Officer and Chairman of the Board, Mr. Horner provides overall leadership across a broad range of activities including strategic planning, product development, and integration efforts. He is equally at home anticipating healthcare IT trends, participating in the development of interoperability standards, or working in the wee hours to architect innovative solutions that satisfy client needs. Mr. Horner has nearly two decades of software industry experience, building expertise in systems, networks, and management. His experience in healthcare technology has enabled MIE to predict the impact of the Internet, intranets and other new technology on healthcare provision. Previously, Mr. Horner served as senior software engineer for NBS Imaging, designing and implementing statewide systems for digital management of driver's license information, and as Chief Software Engineer of Medisys, Inc., a medical-office software provider. Mr. Horner and Eric Jones joined forces to launch MIE in 1995.

Jeff Donnell, President of NoMoreClipboard.com – Mr. Donnell is responsible for leading strategy development, operations, business development, product management, marketing and customer service at NoMoreClipboard. Mr. Donnell has more than 20 years of management consulting, marketing communications, business development and advertising experience,

including a stint as a principal at one of the top business-to-business marketing firms in the U.S. Mr. Donnell is a member of the board of directors for Maple Leaf Farms, the largest producer of duck in North America, and has taught advertising at the University of Indianapolis and lectured on business-to-business marketing at Indiana University's Kelley School of Business..

Michiana Health Information Network (MHIN) – 18 Full Time Employees

Thomas Liddell, Executive Director, Michiana Health Information Network – Mr. Liddell joined the Michiana Health Information Network as Executive Director in 2006, bringing with him over 20 years of executive and health information technology experience. Prior to joining the Michiana Health Information Network, Mr. Liddell served as the Senior Vice President of Marketing and Business Development and the Senior Vice President of Product Management at WebMD, where he was instrumental in developing and deploying the next generation of practice management and electronic health record solutions. Prior to WebMD, he served as President of Systems Management Inc. and held the position of Regional Vice President of Medical Manager Midwest, where he was responsible for acquisition and integration of over 20 private companies who also served the physician automation market.

Scott Kidder, Senior Director of Business Development, Michiana Health Information Network – Mr. Kidder joined the Michiana Health Information Network in 2005 and currently serves as the Senior Director of Business Development providing over 10 years of experience in business development and health care information systems. Mr. Kidder holds degrees in Business Operations, Economics and Business Process Management and, prior to joining the Michiana Health Information Network, he served as an Associate Vice President with Marsh & McLennan specializing in risk management and information technology.

Indiana Health Information Exchange (IHIE) – 55 Full Time Employees

Dr. Marc Overhage, President and CEO of IHIE – Dr. Overhage is director of medical informatics at the Regenstrief Institute, Inc., and a professor of medicine at the Indiana University School of Medicine. He has spent over 25 years developing and implementing scientific and clinical systems and evaluating their value. Working with Dr. Clement McDonald, one of the pioneers of medical informatics, he has created an electronic patient record (called the Indiana Network for Patient Care) containing data from many sources including laboratories, pharmacies and hospitals in central Indiana. The system currently connects nearly all acute care hospitals in central Indiana and includes inpatient and outpatient encounter data, laboratory results, immunization data and other selected data. In order to create a sustainable financial model, he helped create the Indiana Health Information Exchange, a not-for-profit corporation. Over the last five years, he has played a significant regional and national leadership role in advancing the policy, standards, financing and implementation of health information exchange. Dr. Overhage is also an expert in clinical decision support including inpatient and outpatient computerized physician order entry and the underlying knowledge bases to support them. Dr. Overhage is a fellow of the American College of Medical Informatics and the American College of Physicians. He received the Davies Recognition Award for Excellence in Computer-Based Patient Recognition for the Regenstrief Medical Record System. Dr. Overhage received his BA, with High Honors, in Physics from Wabash College and his PhD in Biophysics and MD from Indiana University School of Medicine. Dr. Overhage was a resident in internal medicine, a medical informatics and health services research fellow, and then chief medical resident at the Indiana University School of Medicine. After completing informatics fellowship training, he served as an information advisor at Eli Lilly and Company and then joined the Regenstrief Institute.

Tom Penno, Chief Operating Office of IHIE - Mr. Penno joined IHIE after spending nine years at Bangs Laboratories, Inc., a supplier of materials used in Life Science Research and Diagnostics manufacturing. As President, he led a successful change in direction from distribution to manufacturing. This effort led to the sale of the company to a leader in the industry. Prior to that, Mr. Penno spent 15 years in the Life Science and Biotechnology markets in various Sales and Marketing functions. Mr. Penno received his Bachelors in Biochemistry and an MBA from Purdue University and also did graduate work in Pharmacology.

O.4. Finance

The IHIT financing plan supports the state of Indiana's HIE initiatives described in the Strategic and Operating Plan. The financial processes, multi-year budgets and evaluation efforts necessary to implement the Plan are outlined in the following sections. The processes IHIT will manage and develop are designed to ensure sustainability of HIE activities throughout the state and to provide transparency and accountability to all stakeholders and participants involved in statewide HIE.

IHIT will utilize these funds to expand statewide access to HIE by reducing barriers to adoption, expanding the capacity of existing infrastructure, funding the development of new use cases and addressing statewide policy, legal and communication issues that arise through health information exchange. Where vulnerable and underserved populations are not currently participating, IHIT will apply funding towards the elimination of barriers to adoption. Coordinating the funding available for Indiana through each of the ARRA programs advancing the statewide adoption of HIT and HIE will be a primary task undertaken through the HIT Coordinator.

IHIT and its partners plan to achieve statewide HIE through a combination of public and private investments in HIT and HIE. This plan extends the existing revenue models employed successfully in the state's regional HIOs. Where applicable, the state will leverage its power as a purchaser to obtain favorable pricing of products and services.

Matching funds will come initially from in-kind donations from multiple stakeholders. Additional funding will come from philanthropic organizations that support information technology projects, and long term financing will be developed utilizing a combination of payer financing for access to clinical information, philanthropic, and in-kind contributions.

O.4.1 IHIT Operating and Project Budgets

Through fiscal year 2014, IHIT has estimated that \$11,760,925 will be required to achieve the objectives established in the Strategic Plan. An overview of the budget distributed by project or program is depicted in Table 7. This total budget consists of \$10.355M in SHIECAP funding, in addition to \$1.4M of matching funds. The project expenditures are further delineated by intra-versus inter-state initiatives.

Table 7: Indiana HIE Operational Budget (FY2010-2014)

Expense	FY2010	FY2011	FY2012	FY2013	FY2014	Totals
IHIT Operations						
Fed Share	\$460,500	\$372,386	\$406,875	\$387,500	\$195,600	\$1,822,861
Match Share	\$0	\$37,239	\$58,125	\$77,500	\$65,200	\$238,064
subtotal	\$460,500	\$409,625	\$465,000	\$465,000	\$260,800	\$2,060,925
Connectivity Incentive Program						
Fed Share	\$0	\$1,500,000	\$875,000	\$0	\$0	\$2,375,000
Match Share	\$0	\$150,000	\$125,000	\$0	\$0	\$275,000
subtotal	\$0	\$1,650,000	\$1,000,000	\$0	\$0	\$2,650,000
Data Mapping/Normalization						
Fed Share	\$0	\$236,811	\$219,383	\$198,987	\$0	\$655,181
Match Share	\$0	\$23,681	\$31,340	\$39,797	\$0	\$94,819
subtotal	\$0	\$260,492	\$250,724	\$238,785	\$0	\$750,000
HIO to HIO Connectivity						
Fed Share	\$0	\$935,829	\$2,187,500	\$1,225,490	\$0	\$4,348,819
Match Share	\$0	\$93,583	\$312,500	\$245,098	\$0	\$651,181
subtotal	\$0	\$1,029,412	\$2,500,000	\$1,470,588	\$0	\$5,000,000
Privacy & Security						
Fed Share	\$0	\$68,182	\$109,375	\$0	\$0	\$177,557
Match Share	\$0	\$6,818	\$15,625	\$0	\$0	\$22,443
subtotal	\$0	\$75,000	\$125,000	\$0	\$0	\$200,000
Web Communications						
Fed Share	\$0	\$86,625	\$1,094	\$1,042	\$939	\$89,700
Match Share	\$0	\$9,625	\$156	\$208	\$311	\$10,300
subtotal	\$0	\$96,250	\$1,250	\$1,250	\$1,250	\$100,000
Immunization Registry						
Fed Share	\$0	\$272,727	\$612,500	\$0	\$0	\$885,227
Match Share	\$0	\$27,273	\$87,500	\$0	\$0	\$114,773
subtotal	\$0	\$300,000	\$700,000	\$0	\$0	\$1,000,000
TOTAL INDIANA HIE BUDGET						
Fed Share	\$460,500	\$3,917,567	\$4,192,344	\$1,614,032	\$196,539	\$10,380,983
Match Share	\$0	\$392,719	\$598,906	\$322,806	\$65,511	\$1,379,942
Grand Total	\$460,500	\$4,310,287	\$4,791,250	\$1,936,838	\$262,050	\$11,760,925

Detailed budgets are provided for the general operations of IHIT as well as high level project budgets for the six primary initiatives IHIT described in the Operational Plan. The IHIT board solicited input for HIE projects from stakeholders and vendors in an informal RFI process. The Project solicitation package used is provided in Appendix O. More than 110 project ideas with estimated costs and outcomes were submitted. The projects were submitted by a diverse group of representatives in HIT and fell naturally into themes correlating with Indiana's strategic pillars for HIE.

The HIT Coordinator and IHIT's Chief Executive Officer, Andrew VanZee reviewed the project submissions received by IHIT summarized the proposed activities into a 56 page document. After reviewing this document with the HIE Working Group composed of the five HIOs in the state, as well as, the IHIT Board's Policy and Technical Advisory Council, Mr. VanZee compiled a short list of project recommendations for the IHIT Board's consideration. Relying upon input from Mr. VanZee, a variety of stakeholders and the needs and opportunities presented in the Environmental Scan, The IHIT Board selected the following projects for funding and implementation.

- Connectivity Match Grant Program
- Data Mapping and Normalization
- HIO to HIO Connectivity
- Privacy & Security Policy Development
- HIE Blog/Forum Development
- Immunization Registry Integration

Most of the projects IHIT will undertake will be put out to bid through an RFP process. As a result, many of the expenses identified are earmarked for contractual purposes. In the first quarter of FY2011, IHIT will release a request for information to a broad spectrum of stakeholders and vendors including all of those that participated in the informal project solicitation process described above. Following the federal law and ONC contractor requirements, IHIT will use the information obtained from the RFI respondents to craft a detailed scope of work for each project and a subsequent request for proposal. During the contracting process, final line item budgets will be developed for each project summarized on the following pages.

IHIT's procurement process will include:

1. Design a request for proposal for each project that includes scope of work and contractor requirements.
2. Establish an IHIT working group to review and manage the evaluation and selection process.
3. Review the RFP with various stakeholders and revise based on input.
4. Finalize the RFP and solicit responses.
5. Design an evaluation tool for committee selection process.
6. Working group reviews responses.
7. Schedule interviews with top responders and negotiated best and final offer.
8. Award contracts.
9. Oversee implementation and measure performance based on contractor requirements and scope of work identified in the final contract.

IHIT's Operations Budget funds activities such as project management oversight, monitoring of IHIT-funded projects, Medicaid Incentive Program coordination, and the federally funded HIE program coordination including ARRA-funded efforts. Furthermore, the ongoing governance, technical, business, legal, policy and financial activities identified by IHIT were considered when determining budget and staff levels.

Table 8: IHIT Operations Budget (FY2010-2014)

Expense	FY2010	FY2011	FY2012	FY2013	FY2014	Totals
Personnel						
IHIT Director	\$40,000	\$120,000	\$120,000	\$120,000	\$120,000	\$520,000
Project Coordinator	\$0	\$56,250	\$75,000	\$75,000	\$0	\$206,250
Project Coordinator		\$56,250	\$75,000	\$75,000	\$0	\$206,250
Project Support	\$0	\$30,000	\$40,000	\$40,000	\$40,000	\$150,000
Total Personnel	\$40,000	\$262,500	\$310,000	\$310,000	\$160,000	\$1,082,500
Total Positions	1	4	4	4	2	
Fringe Benefits @ 25%	\$10,000	\$65,625	\$77,500	\$77,500	\$40,000	\$270,625
Total Personnel and Benefits	\$50,000	\$328,125	\$387,500	\$387,500	\$200,000	\$1,353,125
Travel						
Staff Travel (out of town)	\$3,000	\$7,000	\$7,000	\$7,000	\$7,000	\$31,000
Total Travel	\$3,000	\$7,000	\$7,000	\$7,000	\$7,000	\$31,000
Supplies						
Office Supplies	\$1,100	\$2,100	\$2,100	\$2,100	\$2,100	\$9,500
Staff Equipment	\$3,000	\$5,000	\$1,000	\$1,000	\$1,000	\$11,000
Postage & Shipping	\$200	\$200	\$200	\$200	\$200	\$1,000
Printing	\$200	\$200	\$200	\$200	\$200	\$1,000
Total Supplies	\$4,500	\$7,500	\$3,500	\$3,500	\$3,500	\$22,500
Contractual						
Legal	\$80,000	\$10,000	\$10,000	\$10,000	\$10,000	\$120,000
Accounting	\$4,500	\$9,000	\$9,000	\$9,000	\$9,000	\$40,500
Audit	\$0	\$10,000	\$10,000	\$10,000	\$10,000	\$40,000
Project Mgmt and Planning	\$300,000	\$0	\$0	\$0	\$0	\$300,000
Total Contractual	\$384,500	\$29,000	\$29,000	\$29,000	\$29,000	\$500,500
Other						
Insurance	\$3,500	\$7,000	\$7,000	\$7,000	\$7,000	\$31,500
Office Space Rental and Utilities	\$14,000	\$28,000	\$28,000	\$28,000	\$14,000	\$112,000
Training and Conference Fees	\$1,000	\$3,000	\$3,000	\$3,000	\$300	\$10,300
Total Other	\$18,500	\$38,000	\$38,000	\$38,000	\$21,300	\$153,800
Total Expenses	\$460,500	\$409,625	\$465,000	\$465,000	\$260,800	\$2,060,925
Revenue						
SHIECAP Funding Allocation	\$460,500	\$372,386	\$406,875	\$387,500	\$195,600	\$1,822,861
State of Indiana In-kind Match	\$0	\$37,239	\$58,125	\$77,500	\$65,200	\$238,064
State of Indiana Cash Match						
Stakeholder In-kind Match						
Stakeholder Cash Match						
Other Funding						
Total Revenue	\$0	\$37,239	\$58,125	\$77,500	\$65,200	\$238,064

IHIT's **Connectivity Match Grant Program** for Rural Hospitals, Critical Access Hospitals and Federally Qualified Health Centers and Rural Health Centers. The Connectivity Matching Grant project will help to address the barrier that exists for access to HIE infrastructure in rural areas of Indiana.

This project will incentivize eligible organizations to develop the interface infrastructure to link organization to established Health Information Organizations. Incentive payments will include \$40,000 for hospitals and \$15,000 for health centers as defined in the project scope outlined in Section XX. The total budget of \$2,650,000 is designated for intrastate purposes. Project management, accounting and auditing expenses for this project is included in the IHIT Operations budget.

Table 9: Connectivity Incentive Program Budget (FY2010-2014)

Expense	FY2010	FY2011	FY2012	FY2013	FY2014	Totals
Personnel						
Total Personnel	\$0	\$0	\$0	\$0	\$0	\$0
Total Positions						
Fringe Benefits @ 25%	\$0	\$0	\$0	\$0	\$0	\$0
Total Personnel and Benefits	\$0	\$0	\$0	\$0	\$0	\$0
Travel						
Total Travel	\$0	\$0	\$0	\$0	\$0	\$0
Supplies						
Total Supplies	\$0	\$0	\$0	\$0	\$0	\$0
Contractual						
Rural Hospital Incentive Grants	\$0	\$716,038	\$433,962	\$0	\$0	\$1,150,000
FQHC/CHC/RHC Incentive Grants	\$0	\$622,641	\$377,359			\$1,000,000
Other Health Information Entity Incentive	\$0	\$311,321	\$188,679			\$500,000
Total Contractual	\$0	\$1,650,000	\$1,000,000	\$0	\$0	\$2,650,000
Other						
Total Other	\$0	\$0	\$0	\$0	\$0	\$0
Total Expenses	\$0	\$1,650,000	\$1,000,000	\$0	\$0	\$2,650,000
Revenue						
SHIECAP Funding Allocation	\$0	\$1,500,000	\$875,000	\$0	\$0	\$2,375,000
State of Indiana In-kind Match						
State of Indiana Cash Match						
Stakeholder In-kind Match						
Stakeholder Cash Match						
Other Funding	\$0	\$150,000	\$125,000	\$0	\$0	\$275,000
Total Revenue	\$0	\$1,650,000	\$1,000,000	\$0	\$0	\$2,650,000

IHIT's **Data Mapping and Normalization** project will adopt, publish and maintain a preferred set of standards based nomenclature in conjunction with the national standards for all health information exchange transactions. IHIT will oversee the adoption and comprehensive use of the standards thus realizing the goal of achieving 100 percent adoption by HIOs and other state health information exchange participants.

This project focuses on the data elements currently being exchanged between HIO to HIO and HIO to stakeholder. Data elements include but are not limited to patient demographics, radiology, laboratory, discharge summaries, and other clinical documents created at the point of care. The project will conclude with the development of a data nomenclature change process for future development or revisions of data element standards.

The total budget of \$750,000 includes expenditures intended to address intrastate (\$450,000) and interstate (\$300,000) HIE issues.

Table 10: Data Mapping/Normalization Budget (FY2010-2014)

Expense	FY2010	FY2011	FY2012	FY2013	FY2014	Totals
Personnel						
Total Personnel	\$0	\$0	\$0	\$0	\$0	\$0
Total Positions						
Travel						
Total Travel	\$0	\$0	\$0	\$0	\$0	\$0
Supplies						
Total Supplies	\$0	\$0	\$0	\$0	\$0	\$0
Contractual						
Facilitation Policy Creation	\$0	\$500,000	\$0	\$0	\$0	\$500,000
HIO Time & Materials Cost		\$250,000				\$250,000
Total Contractual	\$0	\$750,000	\$0	\$0	\$0	\$750,000
Other						
Total Other	\$0	\$0	\$0	\$0	\$0	\$0
Total Expenses	\$0	\$750,000	\$0	\$0	\$0	\$750,000
Revenue						
SHIECAP Funding Allocation	\$0	\$681,818	\$0	\$0	\$0	\$681,818
State of Indiana In-kind Match						
State of Indiana Cash Match						
Stakeholder In-kind Match						
Stakeholder Cash Match						
Other Funding	\$0	\$68,182	\$0	\$0	\$0	\$68,182
Total Revenue	\$0	\$750,000	\$0	\$0	\$0	\$750,000

IHIT's **HIO to HIO Connectivity** project will develop the infrastructure and contracting necessary to deliver a consolidated patient care summary to providers in which the HIO's have existing relationships. The consolidated patient care summary will be provided in a format that is compatible with the providers EMR and workflow. The transfer of clinical summaries will utilize (where available) national standards for transport, security, and message structure.

The project scope will include all data that is available to the five existing Indiana HIO's (IHIE, Med-Web, MHIN, HealthLINC, and HealthBridge) and any other significant health information database. The message/data routing will be dependent on the deliverables from the data normalization project.

The total budget of \$5,000,000 includes expenditures intended to address intrastate (\$2,200,000) and interstate (\$2,800,000) HIE issues

Table 11: HIO to HIO Connectivity Budget (FY2010-2014)

Expense	FY2010	FY2011	FY2012	FY2013	FY2014	Totals
Personnel						
Total Personnel	\$0	\$0	\$0	\$0	\$0	\$0
Total Positions						
Fringe Benefits @ 25%	\$0	\$0	\$0	\$0	\$0	\$0
Total Personnel and Benefits	\$0	\$0	\$0	\$0	\$0	\$0
Travel						
Total Travel	\$0	\$0	\$0	\$0	\$0	\$0
Supplies						
Total Supplies	\$0	\$0	\$0	\$0	\$0	\$0
Contractual						
Message Routing	\$0	\$337,500	\$712,500	\$450,000	\$0	\$1,500,000
Message Extraction		\$112,500	\$237,500	\$150,000		\$500,000
Consolidated Care Summaries		\$506,250	\$1,068,750	\$675,000		\$2,250,000
HIO Time and Materials Cost		\$168,750	\$356,250	\$225,000		\$750,000
Total Contractual	\$0	\$1,125,000	\$2,375,000	\$1,500,000	\$0	\$5,000,000
Other						
						\$0
Total Other	\$0	\$0	\$0	\$0	\$0	\$0
Total Expenses	\$0	\$1,125,000	\$2,375,000	\$1,500,000	\$0	\$5,000,000
Revenue						
SHIECAP Funding Allocation	\$0	\$935,829	\$2,187,500	\$1,225,490	\$0	\$4,348,819
State of Indiana In-kind Match	\$0					
State of Indiana Cash Match	\$0					
Stakeholder In-kind Match	\$0					
Stakeholder Cash Match	\$0					
Other Funding	\$0	\$93,583	\$312,500	\$245,098	\$0	\$651,181
Total Revenue	\$0	\$1,029,412	\$2,500,000	\$1,470,588	\$0	\$5,000,000

IHIT's **Privacy and Security Policy Development** project will allow the IHIT Board and Council to explore current state regulations and statute as they compare to federal privacy and security statutes. A gap analysis will be performed to determine best course of action to remove any barriers to HIE activities both intrastate and interstate. Primary focus will be given to the Indiana regulations and statutes. Secondary focus will include other surrounding states that Indiana HIO's intend to exchange clinical information.

The total budget of \$200,000 includes expenditures intended to address intrastate (\$100,000) and interstate (\$100,000) HIE issues.

Table 12: Privacy and Security Policy Development Budget (FY2010-2014)

Expense	FY2010	FY2011	FY2012	FY2013	FY2014	Totals
Personnel						
Total Personnel and Benefits	\$0	\$0	\$0	\$0	\$0	\$0
Travel						
Total Travel	\$0	\$0	\$0	\$0	\$0	\$0
Supplies						
Total Supplies	\$0	\$0	\$0	\$0	\$0	\$0
Contractual						
Legal Counsel	\$0	\$46,875	\$78,125	\$0	\$0	\$125,000
Project Management		\$28,125	\$46,875			\$75,000
Total Contractual	\$0	\$75,000	\$125,000	\$0	\$0	\$200,000
Other						
Total Other	\$0	\$0	\$0	\$0	\$0	\$0
Total Expenses	\$0	\$75,000	\$125,000	\$0	\$0	\$200,000
Revenue						
SHIECAP Funding Allocation	\$0	\$68,182	\$109,375	\$0	\$0	\$177,557
State of Indiana In-kind Match						
State of Indiana Cash Match						
Stakeholder In-kind Match						
Stakeholder Cash Match						
Other Funding	\$0	\$6,818	\$15,625	\$0	\$0	\$22,443
Total Revenue	\$0	\$75,000	\$125,000	\$0	\$0	\$200,000

IHIT's **Web-based Communication Tool** project will lead to the development of a web-based communications tool to allow for transparency and timely distribution of HIE activities. This communications tool will be utilized to distribute HIE communications by multiple entities involved in HIE activities occurring within the state of Indiana (e.g., SHIECAP, Beacon, and REC's). This website will be modeled after the ONC web page functionality and will include the development of a web page that includes blogging, web forum, and calendar functionality. Web page management tool set creation will be within the scope of this project.

The total budget of \$100,000 is designated for intrastate purposes.

Table 13: Web Communications Tool Budget (FY2010-2014)

Expense	FY2010	FY2011	FY2012	FY2013	FY2014	Totals
Personnel						
Total Personnel	\$0	\$0	\$0	\$0	\$0	\$0
Total Positions						
Fringe Benefits @ 25%	\$0	\$0	\$0	\$0	\$0	\$0
Total Personnel and Benefits	\$0	\$0	\$0	\$0	\$0	\$0
Travel						
Total Travel	\$0	\$0	\$0	\$0	\$0	\$0
Supplies						
Total Supplies	\$0	\$0	\$0	\$0	\$0	\$0
Contractual						
Web Design	\$0	\$90,000	\$0	\$0	\$0	\$90,000
Web Management Tool Set	\$0	\$5,000	\$0			\$5,000
Total Contractual	\$0	\$95,000	\$0	\$0	\$0	\$95,000
Other						
Web Hosting		\$1,250	\$1,250	\$1,250	\$1,250	\$5,000
Total Other	\$0	\$1,250	\$1,250	\$1,250	\$1,250	\$5,000
Total Expense	\$0	\$96,250	\$1,250	\$1,250	\$1,250	\$100,000
Revenue						
SHIECAP Funding Allocation	\$0	\$86,625	\$1,094	\$1,042	\$939	\$89,700
State of Indiana In-kind Match	\$0					
State of Indiana Cash Match	\$0					
Stakeholder In-kind Match	\$0					
Stakeholder Cash Match	\$0					
Other Funding	\$0	\$9,625	\$156	\$208	\$311	\$10,300
Total Revenue	\$0	\$96,250	\$1,250	\$1,250	\$1,250	\$100,000

IHIT's **Immunization Registry Integration** project will include the Indiana State Department of Health (ISDH) Immunization Registry, CHIRP, (Children and Hooiser's Immunization Registry Program) and EMR and EHR vendors to implement bi-directional HL7 messaging between medical providers and CHIRP. This exchange would enable Indiana vaccination providers to electronically submit the required immunization records to the registry using existing (or new) EMR systems in place without needing to utilize the CHIRP web-based interface as an additional workflow for the collection of immunization data. More importantly, providers will receive thorough immunization histories for patients within their EMR as well as a suggested immunization schedule.

The total budget of \$1,000,000 includes expenditures intended to address intrastate (\$600,000) and interstate (\$400,000) HIE issues.

Table 14: Immunization Registry Budget (FY2010-2014)

Expense	FY2010	FY2011	FY2012	FY2013	FY2014	Totals
Personnel						
Total Personnel	\$0	\$0	\$0	\$0	\$0	\$0
Total Positions						
Fringe Benefits @ 25%	\$0	\$0	\$0	\$0	\$0	\$0
Total Personnel and Benefits	\$0	\$0	\$0	\$0	\$0	\$0
Travel						
Total Travel	\$0	\$0	\$0	\$0	\$0	\$0
Supplies						
Total Supplies	\$0	\$0	\$0	\$0	\$0	\$0
Contractual						
EMR bi-directional message dev	\$0	\$90,000	\$210,000	\$0	\$0	\$300,000
EMR/EHR to CHIRP Interface		\$150,000	\$350,000			\$500,000
Project Management		\$60,000	\$140,000			\$200,000
Total Contractual	\$0	\$300,000	\$700,000	\$0	\$0	\$1,000,000
Other						
Total Other	\$0	\$0	\$0	\$0	\$0	\$0
Total Expenses	\$0	\$300,000	\$700,000	\$0	\$0	\$1,000,000
Revenue						
SHIECAP Funding Allocation	\$0	\$272,727	\$612,500	\$0	\$0	\$885,227
State of Indiana In-kind Match	\$0	\$27,273	\$87,500			\$114,773
State of Indiana Cash Match	\$0					
Stakeholder In-kind Match	\$0					
Stakeholder Cash Match	\$0					
Other Funding	\$0					
Total Revenue	\$0	\$300,000	\$700,000	\$0	\$0	\$1,000,000

O.4.2 IHIT Staffing Plan

IHIT will operate with a few key staff members phased in over a five-year period. These functional roles and a high level job description are described below. Because Indiana is not creating a statewide operational HIE, the staffing plan envisioned for the organization consists primarily of project management roles. The Business and Technical Operations section provides more detail regarding the involvement of contractors and vendors in implementing the core projects and shared services described in the Strategic and Operational Plan.

IHIT CEO/Indiana Statewide HIT Director: Provides strategic and operational leadership for IHIT and the state of Indiana's HIE initiatives. Provides executive level management for the organization and is responsible for financial oversight. Ensures that IHIT's efforts are coordinated with Indiana's regional HIO's, Indiana Medicaid, Indiana's REC programs, as well as other ARRA-funded initiatives. Serves as liaison with ONC. Works with stakeholders and IHIT working groups to advance Indiana's HIE Strategic and Operational Plan. Serves as the state's primary contact on statewide HIE policy, initiatives and general information.

Project Manager (x2): Manages and monitors all stages of project implementation with contractors, regional HIOs, IHIT working groups and staff. Ensures that industry recognized standards, federal laws and project management principles are utilized throughout the lifecycle of each project.

Project Coordinator: Coordinates IHIT operational support activities. Manages reporting requirements for IHIT including federal grant reporting and performance reporting. Assists with the collection, tracking and reporting of IHIT financial activities. Assists in the routine maintenance of IHIT website content. Prepares IHIT Board materials.

Financial Management Consultant: Provides overall management of IHIT financial resources, accounting, and financial reporting.

O.4.3 Controls and Reporting

All of the existing HIOs in Indiana have implemented the necessary policies and procedures to ensure compliance with Generally Accepted Accounting Principles (GAAP) and, where necessary for those HIOs that operate as nonprofit, tax-exempt entities, compliance with tax-exempt status under Section 501(c)(3) of the Internal Revenue Code and/or the audit requirements of the Office of Management and Budget. In addition, all have budgets that are reviewed regularly by the proper oversight councils.

The services and business models that are currently offered by the five Indiana HIOs appear to be structured and priced appropriately to support sustainability. Indiana Health Information Technology will monitor the service offerings, organizational sustainability and the service

offering viability through its monitoring and oversight role when contracting statewide services with the HIOs.

In addition, Indiana Health Information Technology will establish accounting, financial and reporting processes in support of the financial plan and budget presented for the State Health Information Exchange Cooperative Agreement program. These processes include but are not limited to administering and managing the grant and contract payments, setting financial reporting requirements for contract and grant recipients, and business planning as it relates to the development of the strategic and operational plans for the provisioning of statewide HIE services. All requirements and processes will adhere to Generally Accepted Accounting principles. In addition, IHIT will comply with OMB regulations Circular A-122 and Circular A-133 detailing the requirement to supply certified audits and reports of the IHIT accounting activities by engaging a CPA.

O.4.4 Evaluation Process

Indiana Health Information Technology will design an evaluation process for the State Health Information Exchange Cooperative Agreement program as a part of the procurement process in the 1st quarter of FY2011. To determine the effectiveness of the federal and state investments in HIE, IHIT will use the baseline metrics established through its extensive environmental scan/gap analysis. A management dashboard of performance measures will be produced for the IHIT projects outlined in the Strategic and Operational Plan. Monitoring and reporting related to these evaluation metrics will be ongoing throughout the duration of the five-year period. IHIT staff will conduct these evaluations.

O.5. Technical Infrastructure

O.5.1 Standards and Certifications

The HIOs that operate Indiana's health information exchanges deploy functionality that adheres to standards approved by the secretary of HHS. These standards are designed to enable HIE exchange between independent entities, including federal and state agencies and HIOs, and include:

Healthcare Messaging Standards and Formats

Health Level 7 (HL7) Versions 2.1 through 2.7, Version 3 prototypes, Continuity of Care (CCD) C32 v2.1, IS03 v3.0. Also CDA, X12, and DICOM for related functionality. (Regenstrief Institute's informatics group pioneered international electronic message standards for medical records including the development of HL7.)

Coding for Laboratory Results

Indiana HIOs have pioneered and adopted extensive Logical Observation Identifiers Names and Codes (LOINC®) coding for lab results, ensuring a high degree of coded data into EMRs. They use a number of standardized code sets to translate and report results, including LOINC, CPT, ICD, etc. LOINC is being utilized to map these local system tests. The Regenstrief Institute developed the LOINC® system, a standard nomenclature (now over 45,000 observation terms) that enables the electronic transmission of clinical data from laboratories to hospitals, physicians' offices and payers for clinical care and management purposes. Regenstrief mappers use the RELMA mapping tool to assist the manual effort to develop the mappings of laboratory test codes from each data source to the Clinical Repository Master Concept Dictionary and then to LOINC codes.

Master Patient Index Management

Open source SOA based EMPI product fully compliant with the Integrating the Healthcare Enterprise (IHE) Patient Identifier Cross-Reference HL7 V3 (PIXV3) and Patient Demographic Query HL7 V3 (PDQV3) profiles, as well as the Healthcare Services Specification Project (HSSP) Entity Identification Service (EIS) specification.

Terminology Standards

ICD, CPT, NDC, LOINC, RxNorm, and SNOMED, and HITSP constructs such as C32, C37

Inbound and Outbound Data Transport and Protocols

Various Interface engines for inbound and outbound data transport and transformation capabilities (Web Services, LLP, HTTPS, Standard Object Access Protocol (SOAP), HTTPS, SSH, SFTP, SQL, ODBC, IHE, electronic business Extensible Mark-up Language (ebXML), Secure Socket Layer (SSL), and Transport Layer Security (TLS).

Standards Based Integration Capability

The HIOs provide significant standards-based integration capability including the ability to connect to and share information among more than 40 different inpatient information systems and 25 different ambulatory electronic health records systems. The HIOs enable this using HL7 data standards and industry standard transport protocols (MLLP, SFTP, etc.).

Image Transfer Standards

Digital Imaging and Communications in Medicine Committee (DICOM) in image transfer for PACS,

ePrescribing Standards

National Council for Prescription Drug Programs (NCPDP, NCPDP SCRIPT v8.1, NCPDP Formulary and Benefit v1.0, NCPDP SCRIPT v8.1 RXHREQ, RXHRES)

EHR Standards and Certifications

Several HIOs provide CCHIT certified Cerner and Axolotl EHR systems for practices that don't have an EHR.

Database Connections

Connections to widely available databases (e.g. Oracle, MySQL, SQL Server, ODBC and Cache).

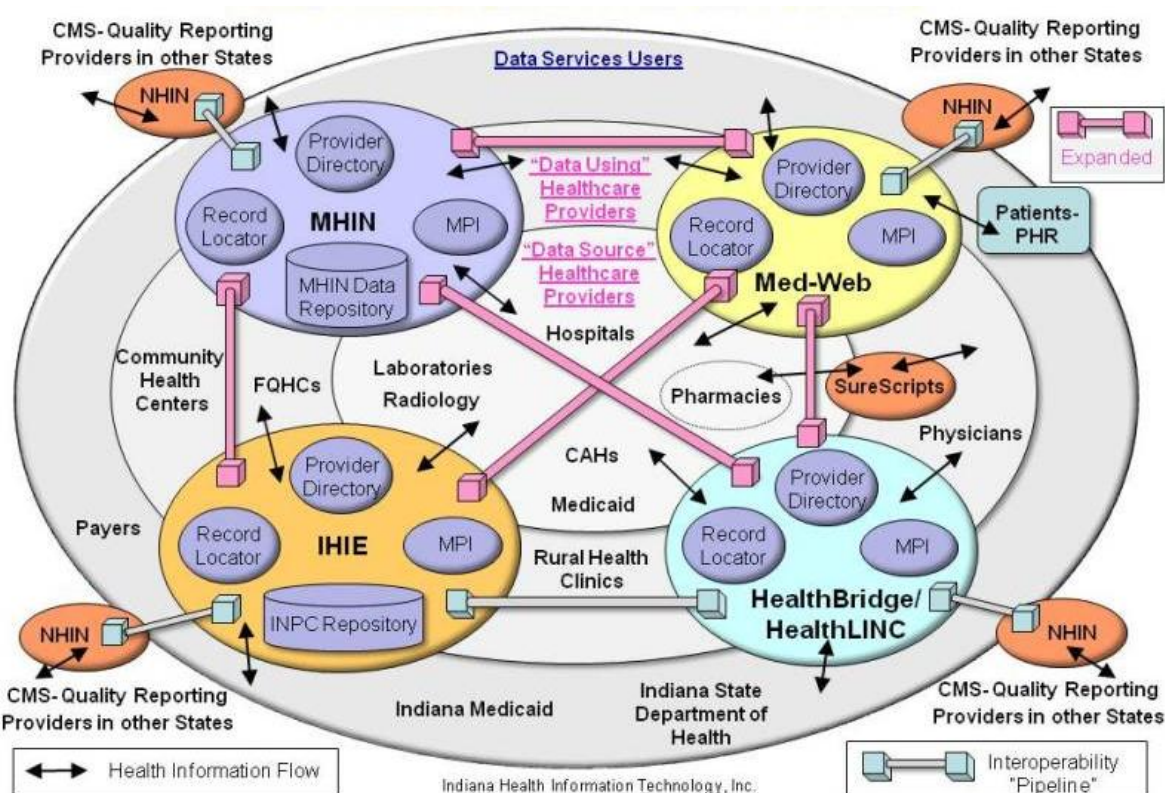
IHIT and the individual HIOs will continue to monitor the work of the ONC Health IT Policy and Standards Committees to ensure that Indiana's technical infrastructure includes only those standards endorsed by the Secretary of HHS.

O.5.2 Technical Architecture

The Indiana HIOs have deployed the technical architecture as described in detail in the Strategic Plan Sections S.11.1 and S.11.2 and have provided extensive standards based secure HIE services over many years. As IHIT implements the Connecting Data Sources and Interoperability strategies, additional HIOs will establish interoperability "pipelines" and will enable expanded clinical decision support, population disease management, and quality and public health reporting across all areas of the state, including areas currently underserved by

HIE providers. The HIO to HIO Connectivity project will develop the infrastructure and contracting necessary to deliver a consolidated patient care summary to providers with which the HIO's have existing relationships. The consolidated patient care summary will be provided in a format that is compatible with the provider's EMR and workflow. The transfer of clinical summaries will utilize (where available) national standards for transport, security, and message structure. This project will expand access to the existing clinical data repositories (MHIN CDR and the INPC) and/or create new repositories in which clinical data will be stored. Authorized healthcare providers will be able to query the HIE network for clinical information on a given patient, and the functionality will build the consolidated patient care summary using all available data on that patient in the various repositories and deliver it to the provider. MHIN and IHIE have significant experience in providing these services to community and hospital based providers respectively, and would be good resources for this project assuming their involvement once the contracting process has been completed. There may also be additional vendor expertise that becomes available through the contracting process. This capability will establish effective clinical decision support at the point of care, whether in the emergency room, specialist's office, primary care clinic, or in another healthcare setting.

Figure 2: Future Indiana HIE Network Structure



This project will also expand the interoperability between HIOs to the statewide level by funding interface development between the HIOs not yet connected. This expanded connectivity will be built using national standards for nomenclature normalization, transport, security, and message

structure. Since the existing HIOs have significant experience in building and using Nationwide Health Information Network “gateways,” and HealthBridge, HealthLINC, and IHIE have already established functional interoperability, IHIT anticipates that the awardees of this project contract will leverage this knowledge and expertise for effective and timely project execution. This statewide connectivity (depicted conceptually in Figure XX), will enable delivery of expanded clinical decision support to the point of care for all healthcare providers in the state, assuming they are connected to a HIO and are using HIE services.

With expanded statewide interoperability and a query capability established, expanded services for providing population level de-identified health data to health plans and Indiana Medicaid can be created. Additional capability for quality reporting, syndromic surveillance, and identifiable laboratory test reporting to the Indiana State Department of Health can be created in future IHIT projects or by the HIOs individually. Expansion of HIE services to the full set of connected Indiana health care providers will also support these providers’ ability to establish Stage 1 and future stage meaningful use of health information technology.

The Indiana HIE Network resulting from implementation of the Strategic Pillars projects will establish and expand an environment of flexible interoperable services that will meet the needs of Indiana healthcare providers and patients. The technical architecture deployed will leverage the existing HIE capability and leadership in the state, and will efficiently use CAP resources in an effective manner. The services and the status and timing of their availability are shown in Table 15.

Table 15: Timing of HIE Services in Indiana

Service	HealthBridge/ HealthLINC	Indiana Health Information Exchange (IHIE)	The Med- Web	Michiana Health Information Network (MHIN)	SureScripts (Serves Providers Directly)	National Clearing Houses (Serve Providers Directly)
Expanded Provider Connectivity (through Connectivity Match Grant Program)	2011	2011	2011	2011		
Laboratory ordering	Current (Atlas)					
Structured laboratory results delivery	Current (hbResults/ Axolotl)	Current (DOCS4DOCS)	Current	Current (MHIN Messenger)		
Clinical messaging and results delivery for care coordination (HL7)	Current (hbResults/ Axolotl)	Current (DOCS4DOCS)	Current	Current (MHIN Messenger)		
Clinical summary exchange for care coordination (CCD/CCR)	Current	2010	2010	Current		
Clinical repository services	Current (Mirth) Expanded in December 2012	Current (Indiana Network for Patient Care- INPC) Expanded in December 2012	December 2012	Current (MHIN CDR) Expanded in December 2012		
Electronic prescribing and refill requests	Current (RxNT/Axolotl)	Future	Current (through EHR)	Current (SureScripts)	Current	
Queries for medication fill history	Current (RxNT)	Current (INPC)	Current (through EHR)	Current (SureScripts)	Current	
Electronic Public health reporting	Current (hbAlert)	Current (Quality Health First-QHF)	Current (QRDA, Syndromic, HL7 immunization)	Q4 2010		
Quality reporting	Current (hbQuality/ Wellcentive)	Current (QHF)	Current (through MIE EHR)	Current (MHIN- Quality)		
Eligibility and claims transactions	Current	Current (Claims through 6 payers, Medicaid)		Current (Zermed)		Current
Personal Health Record	Future		Current (No More Clipboard)			
HIO to HIO Connectivity	Current Expanded in December 2012	Current Expanded in December 2012	December 2012	December 2012		
Connectivity to Federal Entities	Current	Current	Current	2010		

O.5.3 Plans for Protection of Health Data

Since the HIOs operating in Indiana have provided HIE services for a number of years, they have established effective policies, plans, and practices for the protection of health data. These plans are summarized below for each HIO.

HealthBridge Privacy and Security Features

As an operational HIE, HealthBridge is required to comply with data privacy and security concerns daily. HealthBridge takes precautions to comply with HIPAA and HITECH privacy and security laws and regulations and general IT best practice guidelines by enforcing strict oversight and control of networks, connections, and servers. Industry proven standards and policies are implemented as they are developed and established for continued, up to date security compliance.

Physical and Network Security

We utilize a combination of physical barriers and architectural barriers to maintain privacy and security of protected health information (PHI). These barriers include biometric access to our datacenter and offices, encryption of all data on portable media, destruction of PHI at end of use, encryption of all external interfaces and role based security to prevent access to PHI by unauthorized personnel.

HealthBridge servers are installed behind multiple firewalls configured for high availability and minimal vulnerability. HealthBridge uses secure VPN, SFTP and digital signature technology and encryption to secure patient data. Equipment is housed in a secure data center facility. Redundant grid, uninterruptible power supply (UPS) and generator backed power is available. Staff is available 24x7 and access is secured via biometric scanners to the datacenter and at the HealthBridge administrative offices. Around the clock closed circuit television camera surveillance and monitoring of the data center is performed and recorded.

User Authentication and Access

HealthBridge maintains a provider directory that gives a unique identifier to each physician and user on the network. During the registration process, HealthBridge staff work with site administrators and users to establish appropriate access for organizations and users. HealthBridge uses business associate agreements and data user agreements to govern security and access policies. Site administrators in the provider offices determine the level of access for users in their office.

Each component of the HIE system has role based authorities that define what actions the user may perform within that system. Our user store was developed using standard commercial tools

and employs SHA-1 encryption technologies that meet FIPS 180-1 requirements. Our user administration feature enables the direct verification of users requesting access. User Administrators also have the capability to create and manage user access and can customize the level of access based upon the role and level of the individual profiles. This allows for the ability to control a user's workflow responsibilities and access to specific features of the portal services. User administrators may also assign multiple profiles to those users who work in more than one role (for instance, serving as a resident at a hospital while also working as the lead physician at a free clinic). To reduce administrative overhead, users can modify their own basic information, such as addresses, phone numbers, passwords, and security challenge questions. A local practice administrator is forced to review and acknowledge their users and corresponding roles on a recurring basis to identify personnel changes that may have occurred and not been recorded.

A maximum number of login attempts allowed prior to forcing the individual who is attempting to login to validate their Personal Identity information and answer their Challenge Questions. Failure to enter the correct validation information or answers will cause the Account to be deactivated, and it will cause an Action Message to be sent to the appropriate User Administrator or System Administrator. After five invalid password attempts the user ID is suspended and the password reset procedures would occur. Any changes are logged, audited and approved by the HIE.

Indiana Health Information Exchange (IHIE)

Protection of Health Data

Indiana Health Information Exchange, Inc. (IHIE), has established a comprehensive approach to protecting health data that was developed with substantial input from IHIE participants (i.e., hospitals, labs, physicians and other healthcare stakeholders that transmit data to and receive data from IHIE). Through a combination of contracts with IHIE participants and administrative, physical and technical safeguards, IHIE's approach rigorously protects the privacy and security of health data that is received, transported and maintained by IHIE.

Contracts: All IHIE participants enter into one or more service agreements with IHIE under which IHIE provides services to its participants. IHIE and its charter participants collaboratively developed IHIE's services agreements to ensure that appropriate privacy and security measures were and continue to be implemented by IHIE. IHIE's service agreements form the foundation of the trust fabric between IHIE and its participants.

In the service agreements, IHIE and each participant agree to comply with all applicable laws, rules and regulations with respect to protecting health data, including, but not limited to, the Health Insurance Portability and Accountability Act's Privacy and Security Rules (together, "HIPAA") and the Health Information Technology for Economic and Clinical Health Act

("HITECH"). Each service agreement also contains a business associate agreement under which IHIE, as a business associate, agrees to maintain the privacy and security of the participants' health data in accordance with HIPAA and HITECH, as well as the standards for protecting health data agreed upon by IHIE and its participants. In many areas, the standards agreed upon by IHIE and its participants are more restrictive than HIPAA and HITECH. For example, the timeframe within which IHIE must notify an IHIE participant of an impermissible use or disclosure of health data is shorter than the breach notification requirements under HITECH.

Administrative Safeguards: IHIE has implemented a set of administrative policies and procedures to protect health data maintained by IHIE.

IHIE's administrative policies and procedures only permit members of IHIE's workforce access to the minimum amount of health data necessary for IHIE to provide services to its participants. IHIE's policies and procedures also mandate that a workforce member's access to health data is terminated when no longer necessary or upon termination of employment.

In addition to IHIE's administrative policies and procedures, all new IHIE employees and certain contractors receive in-person HIPAA training prior to accessing any health data, as well as ongoing updates and reminders related to protecting health data.

Physical Safeguards: Physical access to systems containing health data and the facilities that house those systems is limited to authorized employees and approved contractors. Physical access controls and validation procedures implemented by IHIE include multiple physical barriers and controlled key pad access to servers housed within IHIE's corporate office and off-site data centers that house IHIE's main servers and databases containing health data.

IHIE's data centers are hosted by LifeLine Data Centers, a Tier IV, SAS 70 Type II Certified data center facility provider. IHIE owns the equipment on which health data is stored at its data centers. Security measures at the data centers include 24x7 onsite personnel, video monitoring and recording, fire suppression, generator electrical backups, electronic FOB access, man traps and visitor and equipment logging procedures. Only authorized IHIE employees and contractors are allowed access to the IHIE's cage areas within the data centers, which are secured via combination lock. Individual cabinet doors within IHIE's cage areas are further secured with key locks.

Additional physical safeguards that IHIE has implemented to protect health data include: password-protected workstation timeout locks; policies and procedures regarding receipt and removal of hardware, electronic media and paper that contain health data; and designing an office layout that locates workstations where health data is regularly accessed in specific,

low-traffic areas of the office. IHIE is also implementing a physically separate, redundant data center to provide enhanced disaster recovery capabilities

Technical Safeguards: IHIE utilizes a robust set of technological solutions, policies and procedures to protect health data.

IHIE implements and maintains industry standard technological solutions, including: multiple Cisco firewalls; anti-virus and anti-malware software; SNORT intrusion detection, prevention and alerting; SSL certificates; Cisco encrypted virtual private networks (VPN) for connections with IHIE participants; encryption of data at rest; access control audit systems; daily backup and recovery procedures that include offsite, encrypted data storage; and operating system hardening solutions and techniques.

Medical Informatics Engineering (MIE)

MIE Summary of Security and Privacy Policies

Privacy and Security Officer

Medical Informatics Engineering (hereinafter referred to as "MIE") is committed to ensuring the privacy and security of their client's health information. In order to manage the facilitation and implementation of activities related to the privacy and security of protected health information, MIE will appoint and maintain an internal Privacy & Security Officer position.

Use and Disclosure of Protected Health Information

Permitted Uses and Disclosures

1. MIE may disclose protected health information only to an authorized individual who is the employee of the CE to whom the protected health information belongs.
2. MIE will not disclose PHI to an individual requesting access of their PHI outside the scope of the contract agreement between MIE and the CE.

Required Uses and Disclosures

1. MIE is required to disclose protected health information:
 1. to an authorized individual employed by CE who is requesting access to their protected health information maintained by MIE; and
 2. when required by the United States Department of Health and Human Services in connection with an investigation or review of MIE's or CE's compliance with the HIPAA Privacy & Security Regulations.

Other Uses and Disclosures

1. MIE may use or disclose protected health information in connection with a purpose and/or activity listed below; provided that, all of the specific requirements under the HIPAA Privacy & Security Regulations in connection with the applicable purpose and/or activity are satisfied and agreed upon by CE when applicable. Any use or disclosure of protected health information for any of the purposes and/or activities listed below must be coordinated in advance, and directed, by the Privacy and Security Officer or designee who shall be responsible for ensuring that all requirements of the HIPAA Privacy Regulations are satisfied in connection therewith.

1. Uses and disclosure required by law.
2. Disclosures for court-ordered judicial and administrative proceedings.
3. Disclosures for law enforcement purposes.
4. Uses and disclosures required or requested by CE.

Business Associates

1. CE may disclose protected health information to a business associate (as defined below) and may allow a business associate to create or receive protected health information on its behalf if a CE's Business Associate Agreement (or Addendum, as applicable) is executed by and between the CE and the applicable business associate.

2. A "business associate" of a CE is a person or other third party who or that:

1. on behalf of the CE (or an organized health care arrangement in which CE participates), other than in the capacity as a workforce member, performs, or assists in the performance, of a function or activity involving the use, access or disclosure of individually identifiable health information or that is regulated by the HIPAA Privacy & Security Regulations; or
2. provides, other than in the capacity as a workforce member, legal, actuarial, accounting, consulting, data aggregation, management, administrative, accreditation, IT support services or financial services to or for a CE (or to or for an organized health care arrangement in which CE participates), where the provision of the service involves the disclosure of individually identifiable health information from CE (or the organized health care arrangement in which CE participates) to the person or other third party.
3. Subject to applicable CE and/or CE's CEO approval and authorization and except as otherwise provided by other CE policies and procedures, the Privacy & Security Officer shall be responsible for determining all CE's business associates; negotiating and coordinating all Business Associate Agreements on behalf of the CE; and addressing

any other issues involving or concerning the CE's business associates or Business Associate Agreements.

4. Business Associate is obligated under the HITECH Act to inform any CE who fails to initiate a Business Associates Agreement between CE and MIE.

Minimum Necessary

Medical Informatics Engineering (hereinafter referred to as "MIE") is committed to ensuring the privacy and security of patient health information. While patient information may be available to MIE's professionals in the process of ensuring proper service, MIE should avoid disclosing more patient information than needed to perform its duties. To support our commitment to patient confidentiality, MIE will ensure that the appropriate steps are taken to disclose only the minimum amount of protected health information necessary to accomplish the particular use, disclosure or access, as required under the HIPAA Privacy & Security Regulations, and other applicable laws and regulations.

Verification of Individuals or Entities Requesting Use, Disclosure or Access of Protected Health Information

MIE will take necessary steps to verify the identity and legal authority of persons requesting access or disclosure of protected health information.

Safeguards - Protected Health Information

MIE will have in place appropriate administrative, technical, and physical safeguards to protect the privacy and security of protected health information and prevent the improper use or disclosure of such information in violation of the HIPAA Privacy and Security Regulations and MIE policies and procedures.

Procedures

1. MIE will utilize the following administrative, technical and physical safeguards to prevent the intentional or unintentional use or disclosure of protected health information that is in violation of the HIPAA Privacy & Security Regulations and MIE's policies and procedures:

1. Notice of Adherence to Privacy & Security to clients
2. Written Policies and Procedures to secure and protect health information
3. Designate a Privacy & Security Officer
4. Train workforce members on privacy, security and patients rights
5. Impose workforce sanctions for privacy and security breaches or violations
6. Implement a complaint process

2. Administrative

1. Risk Analysis and Management for Security
2. Activity Review
3. Access Criteria
4. Incident reporting and response
5. Contingency/Emergency Mode of Operations Plan
6. Data Backup Plan

3. Physical Safeguards

1. Facility Security Plan
2. Workstation Use and Security-Technical Resources Policy
3. Device and Media Control Plan

4. Technical Safeguards

1. Transmission Security
 1. Firewalls
 2. Virus protection
 3. Encryption of outside e-mail
2. Unique User Identification
3. CE or CE's employee authentication

Training of Workforce Members

MIE will provide training to all members of its workforce in connection with MIE's policies and procedures regarding protected health information as necessary and appropriate for such workforce members to carry out their respective MIE functions.

Complaints

MIE will provide a process for individuals to make complaints concerning MIE's policies and procedures regarding the use, access or disclosure of protected health information, or its compliance with such policies and procedures.

Except as otherwise provided in this policy and procedure, the Privacy & Security Officer will be MIE's designated contact for individuals to file complaints.

Mitigation of Harmful Effects Resulting from HIPAA Violations

MIE will mitigate, to the extent practicable, any harmful effect that is known to MIE arising out of a use, access or disclosure of protected health information in violation of the HIPAA Privacy & Security Regulations or MIE's policies and procedures by its workforce members, agents, contractors or business partners.

Sanctioning of Workforce Members, Agents and Contractors

MIE will apply appropriate sanctions against its workforce members, agents and contractors who fail to comply with the MIE policies and procedures. The type of sanction applied shall vary depending on the severity of the violation, whether the violation was intentional or unintentional, whether the violation indicates a pattern or practice of improper access, use or disclosure of health information, and similar factors. Violations of a severe nature by workforce members, agents, or contractors may result in notification to law enforcement officials as well as regulatory, accreditation, and/or licensure organizations. This policy and procedure does not apply to an MIE workforce member, agent or contractor who does any of the following:

- files a complaint with the United States Department of Health and Human Services;
- testifies, assists, or participates in an investigation, compliance review, proceeding, or hearing under Part C of Title XI;
- opposes any act made unlawful by the HIPAA Privacy & Security Regulations; provided the individual or person has a good faith belief that the act opposed is unlawful, and the manner of the opposition is reasonable and does not involve a disclosure of protected health information in violation of the HIPAA Privacy & Security Regulations;
- discloses protected health information as a whistleblower and the disclosure is to a health oversight agency, public health authority, or an attorney retained by the individual for purposes of determining the individual's legal options with regard to the whistleblower activity; or
- is a victim of a crime and discloses protected health information to a law enforcement official, provided that the protected health information is about a suspected perpetrator of the criminal act and the requirements of the HIPAA Privacy & Security Regulations are otherwise satisfied.

Prohibition on Retaliatory Action

MIE will not intimidate, coerce, discriminate against, or take other retaliatory action against:

- any individual for the exercise by the individual of any right, or for participation by the individual in any process, under the HIPAA Privacy & Security Regulations; or
- any individual or other person for:
 - filing a complaint with MIE or the Secretary of the United States Department of Human Services;

- testifying, assisting, or participating in an investigation, compliance review, proceeding, or hearing in connection with MIE's violation of the HIPAA Privacy & Security Regulations; or
- opposing any act or practice made unlawful by the HIPAA Privacy & Security Regulations, provided, that the individual or person has a good faith belief that the practice opposed is unlawful, and the manner of the opposition is reasonable and does not involve a disclosure of protected health information in violation of the HIPAA Privacy & Security Regulations.

Maintaining Appropriate Documentation Regarding Compliance with HIPAA Privacy & Security Requirements

Medical Informatics Engineering (hereinafter referred to as "MIE") will implement policies and procedures with respect to protected health information that are designed to comply with the standards, implementation specifications, or other requirements of the HIPAA Privacy & Security Regulations. MIE's policies and procedures will be reasonably designed to take into account the size and type of activities undertaken by MIE with respect to protected health information. MIE will maintain documentation, in written or electronic form, of policies, procedures, communications, and other administrative documents for a period of at least seven (7) years from the date of creation or the date when last in effect, whichever is later. MIE will incorporate into its policies, procedures and other administrative documents any changes in law. MIE will properly document and implement any changes to policies and procedures as necessary by changes in law.

State Law: Preemption Requirements

In the event that a standard, requirement, or implementation specification of the HIPAA Privacy & Security Regulations (as provided for in MIE's HIPAA policies and procedures or otherwise) is contrary (as defined below) to a provision of State law, the standard, requirement, or implementation specification pursuant to the HIPAA Privacy & Security Regulations shall preempt the provisions of applicable State law, except if one (1) or more of the following conditions is met:

- A determination is made by the Secretary of the United States Department of Health and Human Services that the provision of State law is necessary for reasons set forth in the HIPAA Privacy & Security Regulations.
- The provision of State law relates to the privacy & security of individually identifiable health information and is more stringent than a standard, requirement, or implementation specification under the HIPAA Privacy & Security Regulations.

Policy for User Identification (User ID) and Authentication

MIE requires all of its staff members to have effective and secure user IDs and passwords for access to MIE's computer system. The Privacy & Security Official or System Administrator will provide oversight of the process for administering and maintaining user IDs and passwords for Organization

Breach Notification Policy

In the event of a breach of unsecured PHI, Organization must notify CE whose unsecured PHI has been or is reasonably believed to have been breached. All work force members of the Organization have the responsibility to report a breach, a suspected breach or a potential breach to the Privacy/Security Officer immediately upon discovery.

HIPAA Enforcement Policy

It is the policy of Organization to comply with any and all regulation for the privacy and security of protected health information required for a Business Associate (BA).

Medical Records Maintenance, Retention & Destruction Policy

Records Maintenance

- The requirements for maintenance are as follows:
 - Maintain records for a minimum of seven (7) years from the date of service unless federal or state law or medical practice standards require a longer retention period;
 - Maintain the records in such a way that protects their integrity, ensures their confidentiality, proper use and their accessibility and availability to each CE as required by law.

Records Transfer

- If MIE sells or closes its facility or otherwise ceases to operate, MIE will send a written notice to the CE whose information MIE houses or maintains, that specifies who will have custody of the records and how a CE may obtain their records. MIE must also:
 - Transfer the records to:
 - The CE; or
 - Destroy the records at the direction of the CE whose information MIE houses or maintains. Destruction for records, less than 7 years old, is conditioned upon sending notice to and receiving authorization from each CE to whom services have been provided.

Records Destruction

- Records or any paper material containing PHI (name, address, phone, fax, e-mail address, any identifiable information) should be placed in the shred container for shredding conducted by an out sourced service. Paper may include chart information, but also may be paper used to take notes or post-it notes that contain PHI or other proprietary information. It is not appropriate to place paper containing PHI or proprietary information in the trash. PHI or proprietary information found in the regular trash containers through out the office will lead to a disciplinary action towards the staff member violating this policy. It is the obligation of MIE to protect the privacy, security and confidentiality of our CE's.
- Destruction of records less than seven (7) years old may occur when:
 - An electronic image has been created from a written original (scanned); or
 - A CE has authorized (in writing) the destruction of his or her own medical records.

Records Alteration

- It is the policy of MIE to not alter any record in any other means than a single line through the information to be corrected with the initials of the individual correcting the information and the date of the correction. Any other altering of a medical record will be construed as a violation of this policy and subject to a disciplinary action.

Michiana Health Information Network (MHIN)

MHIN Operational Plan for the Protection of Health Data

From inception, MHIN has rigorously protected all the health data that it transports and stores. MHIN requires all data contributors and interface clients to sign data use agreements as well as a Business Associate Agreement.

Physical Infrastructure

MHIN has the following infrastructure in place:

- Secure Class 4 NOC
 - Dual power grids, Fire Suppression, Climate Control, Backup on-site generators, 24 x 7 x 365 monitoring
- Secure Co-Location

Triple power grids (UPS & APS sources), FM-200 Fire Suppression, Redundant Climate Control Technology, Backup on-site generators, 24 x 7 x 365 monitoring

MHIN CDR Center

The main MHIN CDR center is physically located on the campus of South Bend Medical Foundation. Security measures include 24x7 guards and patrols, video monitoring/recording and fire suppression. Only authorized persons are allowed inside the data center.

MHIN's co-location is physically located at Union Station in South Bend. This facility offers Biometric finger scan access as well as key card access, man traps, and visitor and equipment logging procedures. Once inside the data center, only authorized persons are allowed access to the cabinet where MHIN's equipment is housed. Cabinet doors are secured with combination locks. The only persons who have access to this combination are authorized MHIN employees and data center personnel.

Network Infrastructure

MHIN maintain the latest technology solutions to prevent network and system attacks including firewalls, antivirus software, anti mal-ware software, SSL certificates and operating system hardening solutions and techniques. How these solutions are implemented to protect MHIN are discussed in greater detail below.

Firewalls

MHIN's uses Cisco firewalls that are configured to allow only the traffic necessary to perform the requested function by utilizing a 'whitelist' approach along with Stateful Packet Inspection which explicitly denies access to persons or organizations that have not been previously authorized to utilize the systems.

Anti-virus and Anti-malware

MHIN uses enterprise grade anti-virus and anti-malware programs that heuristically scan, identify, and quarantine malicious code and viruses. These scans are performed in realtime. Software is kept up-to-date according to vendor release schedule and industry best practices. When a potential virus or malware application is detected, the application takes immediate action to isolate the problem and notify administrators of the actions that have been taken and if any further actions are necessary.

Secure Socket Layer (SSL)

MHIN utilizes auto negotiated 256 Bit SSL certificates from Entrust, an authorized Certificate Authority (CA) to encrypt data in transit. Persons and organizations wishing to connect to MHIN must do so using a signed SSL certificate from an authorized CA or the connection will be refused. Likewise all connections instantiated by these systems are subject to the same policy.

Operating System Hardening

MHIN's operating systems are designed, implemented, configured and maintained by professional system administrators with intimate knowledge of enterprise operating systems. These administrator's perform initial configuration of the system which includes software firewall configuration, service analysis, username and password policy, application logging and access, file system permissions, encryption, patch management, and many other system functions to make the operating system as secure as possible.

Application Infrastructure

Below is a listing of applications utilized by MHIN:

- Commercial grade market leading product strategy
 - Axolotl
 - Cerner
 - Mirth
- Internal development
- Databases
 - Oracle
 - MSSQL
 - MySQL
 - Domino

Each of the commercial applications/database have strong security and privacy features that are utilized for the protection of health data within their application.

Other considerations include encryption, logging and auditing, and authentication and access control.

Secure Connectivity Using IPSEC/VPN and/or Direct Connections:

All data exchanged through MHIN flows through a secure connection using IPSEC/VPN industry standards and/or direct connections via fiber coupled with Cisco methodology.

Logging and Auditing

MHIN applications operate with robust logging and auditing features. Every system and user activity is recorded in a system event log. MHIN regularly monitors all access to the repository. Only authorized users are allowed to access clinical data. MHIN works with clients to determine authorized users, under both HIPAA and HITECH, for compliance with all federal and state privacy and security regulations.

Automated audit reports are routinely generated and reviewed by MHIN's internal Privacy/Security Officer, as well as client Security Officers. A trained technician reviews the logs from every part of the MHIN network each night to monitor activity and performance including inspecting the server logs, firewall logs, and other logs available within specific applications being utilized. In addition, automated alerts have been implemented using commercial software that includes SolarWinds and Panther.

Authentication and Access Control

MHIN uses a variety of third party authentication and access control solutions for each of the applications being utilized for health information exchange. (Microsoft Active Directory, Cerner, Axolotl, Oracle, etc.) Settings can be configured for such things as session timeout, password length requirements, password complexity requirements, password expiration requirements or failed attempt lock out.

All the data on the exchange – both in motion and at rest – is encrypted at or beyond levels set by federal guidelines. MHIN is not responsible for garbled transmissions. MHIN clients are responsible for their own employee behavior, just as they are in the paper/manual world. Use of MHIN CDR is limited to purposes of treatment, payment and healthcare operations pursuant to HIPAA and HITECH regulations.

O.5.4 Technology Deployment

IHIT will implement the Strategic Pillars projects as described in the Strategic Plan Section S.3.2 and Operational Plan Section O.2.2 and will leverage the technology and technical architecture employed by each HIO (as described in detail in the Strategic Plan Section S.11.2) or vendor that receives the contract for these projects. The resulting statewide services will be deployed according to the timetable for each project as described in the Operational Plan Section O.2.2.

IHIT has prepared these plans through a multi-stakeholder process to enable as many Indiana healthcare providers as possible to demonstrate the priority 2011 meaningful use measures. At the same time, IHIT created the project plans to leverage Indiana leadership in establishing advanced interoperability and a full set of HIE services that will enable early demonstration of Stage 2 and 3 meaningful use. The contract awardees will develop the exact technologies for the Strategic Pillars projects once the RFP process is complete. They will likely leverage the existing technology capabilities summarized in the following tables:

Figure 3: IHIT Strategic Pillars

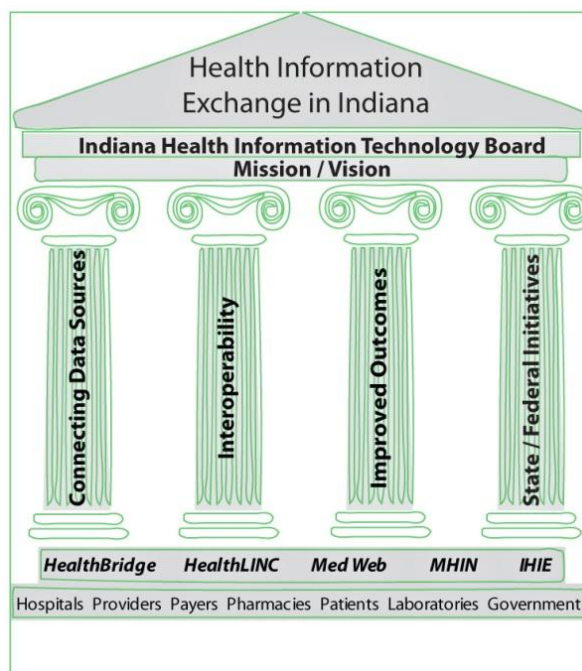


Table 16: Existing Technical Capacities (Part 1)

HIO	General Architecture	Hardware	Networking Equipment	Networking Topology
Health-Bridge	<p>Uses a hybrid federated model that includes:</p> <ul style="list-style-type: none"> distributed gateway components HIE central components (MPI, Provider Directory, etc.), and user interface components <p>Supports roughly 100,000 results per day or 3 million results per month</p>	<ul style="list-style-type: none"> HP server blade hardware and Windows OS connected to a Network appliance Disk Arrays (NetApp) VMWARE ESX virtual server infrastructure, running Windows-based hosts connected to the NetApp 	<ul style="list-style-type: none"> Uses dual Juniper SSL VPN devices for authentication HP servers, Network Appliance (NetApp) disk arrays; and CISCO communications equipment 	<ul style="list-style-type: none"> SSL based VPN for user access; SFTP, MLLP, IPSEC VPNs, Web Services; Direct private connections Maintain private WAN connecting all data providers using private lines, VPNs and MPLS technologies
HealthLINC	<ul style="list-style-type: none"> Has ASP relationship with HealthBridge which hosts its infrastructure HealthLINC sends 130,000 results/mo 	<ul style="list-style-type: none"> Has an ASP relationship with HealthBridge 		<ul style="list-style-type: none"> Has an ASP relationship with HealthBridge
IHIE	<ul style="list-style-type: none"> Relational DB's supporting data feeds from state providers through encrypted P-to-P VPN tunnels, data mapping engine Proprietary data mining processes Web-based applications presenting and delivering information to clients. Housed in secured, F5 tornado resistant facility with redundant power and cooling, 24x7 Network Ops Center, multiple data carriers 	<p>HP servers and HP server blades managed with VMWARE ESX running Windows and Linux OS, fiber connected to HP SAN's for storage</p>	<p>CISCO components: Firewalls, routers, switches, etc.</p>	<ul style="list-style-type: none"> TCP/IP over Switched Ethernet User access via HTTPS with user authentication and via VPN with IPSEC/UDP Transport and user authentication Encrypted point-to-point VPN tunnels with data providers
Med-Web	<ul style="list-style-type: none"> T1 and DS3 links connecting area hospitals and medical practices together in an open network format Multiple fiber DS3s to internet providers (IFN and US Signal) 	<ul style="list-style-type: none"> CISCO ONS 15454, CISCO 7206 VXR on backbone; CISCO 1800/2800 routers on interm. sites Custom Linux solutions 	<ul style="list-style-type: none"> CISCO HP Procurve; and Linux (Sangoma) 	<ul style="list-style-type: none"> Point-to-point and star topologies Open network architecture allows communication between any connected parties All standards supported
MHIN	<ul style="list-style-type: none"> Oracle-based relational database for regional/state data repository <ul style="list-style-type: none"> Supports over 500 users/day Web-based result delivery and clinical messaging platform Multiple scalable HL7 Interface Engines Supports roughly 1.8 Million 	<ul style="list-style-type: none"> HP 32-way server farm HP SANS <ul style="list-style-type: none"> Supports 16 TB production storage 25 Server Citrix Farm (Windows OS) Unix / Windows 	<ul style="list-style-type: none"> CISCO Components <ul style="list-style-type: none"> Firewalls Routers / Switches Brocade Fiber Switches 3COM Switches 	<ul style="list-style-type: none"> TCP/IP IPSEC VPNs <ul style="list-style-type: none"> HTTPS for user authentication Direct connections via multiple fiber networks across svc area <ul style="list-style-type: none"> Metronet - Dark Fiber

	transactions/month (60,000/day)	Servers		Additional fiber networks
--	---------------------------------	---------	--	---------------------------

Table 17: Existing Technical Capabilities (Part 2)

	Software	Databases	User Interface	Network
HealthBridge	<ul style="list-style-type: none"> Best of breed strategy with Axolotl, Atlas and Mirth tools in place Internal development for HIE management portal. 	<ul style="list-style-type: none"> MSSQL, PostgreSQL, IBM Domino 	<ul style="list-style-type: none"> Axolotl Elysium UI, HealthBridge HIE Management Portal 	<ul style="list-style-type: none"> Infrastructure is housed in secure cage at the Harland Financial Services data center The facility provides multiple layers of visitor identification and biometric authentication The facility is connected to multiple Redundant Internet Providers, uninterruptible power supplies, dual power grids and a generator for prolonged power outages
HealthLINC	<ul style="list-style-type: none"> HealthLINC uses Axolotl Elysium for clinical messaging, e-prescribing, and documentation Mirth tools are used for EMR and other interfaces Internal CCD development 	<ul style="list-style-type: none"> MSSQL, PostgreSQL, IBM Domino 	<ul style="list-style-type: none"> Axolotl Elysium UI, HealthBridge HIE Management Portal 	<ul style="list-style-type: none"> Has an ASP relationship with HealthBridge
IHIE	<ul style="list-style-type: none"> Combination of internally developed and open source software (e.g., Mirth) 	<ul style="list-style-type: none"> MSSQL, PostgreSQL, Oracle 	<ul style="list-style-type: none"> Regenstrief/IHIE Management Portals 	<ul style="list-style-type: none"> Infrastructure is house in secure cage at the LifeLine data center Facility provides multiple layers of visitor ID The facility is connected to multiple Redundant Internet Providers, uninterruptible power supplies, dual power grids and a generator for prolonged power outages
Med-Web	<ul style="list-style-type: none"> Internally dvlpd software. Integration with EHR software from Medical Informatics Engineering and PHR from NoMoreClipboard 	<ul style="list-style-type: none"> MySQL 	<ul style="list-style-type: none"> Browser-based 	<ul style="list-style-type: none"> Fully staffed NOC with full monitoring of all critical systems 80kVA UPS with on-site, natural gas powered backup generator
Michiana Health Information Network	<ul style="list-style-type: none"> Commercial grade market leading product strategy <ul style="list-style-type: none"> Axolotl Cerner Mirth Internal development 	<ul style="list-style-type: none"> Oracle MSSQL MySQL Domino 	<ul style="list-style-type: none"> MHIN Web Portal Axolotl Elysium UI Cerner Millennium Suite 	<ul style="list-style-type: none"> Secure Class 4 NOC, secure co-location <ul style="list-style-type: none"> Dual power grids, Fire Suppression, Climate Control, Backup on-site generators, 24 x 7 x 365 monitoring Triple power grids (UPS & APS sources), FM-200 Fire Suppression, Redundant Climate Control Technology, Backup on-site generators, 24 x 7 x 365 monitoring

O.6. Business and Technical Operations

O.6.1 Current HIE Capacities

Indiana is fortunate to have five independent, private-sector, regionally based HIOs, each of which has been operationally sustainable for at least five years. Through these five exchanges, more than 12 million patient records and 15,000 physicians statewide are part of Indiana's HIE networks. Sixty six percent of the State's acute care hospitals, representing 89% of the acute care beds in the State, are already participating as data sources in the HIOs' HIE networks. As IHIT implements the Connectivity Match Grant Program within the Connecting Data Sources strategic pillar, more rural acute care hospitals, critical access hospitals, and community health centers will choose to contract with a HIO and connect to HIE services. The HIOs in general have marketed their HIE services to all of the accounts not yet signed up, but have not been successful due to the barriers to adoption discussed in the Environmental Scan. The Match Grant program is designed to remove as many of the barriers as possible, so that the HIOs will be able to contract with these accounts. Given that the HIOs have sought these business relationships in the past, and that a majority of the hospitals (and beds) are already participating, IHIT is confident that there will be sufficient capacity in the state to accept all the new accounts. The pace of adoption will likely be at the level that, should extra capacity at a particular HIO be needed, the HIO will be able to implement the needed capacity in a timely way.

Indiana Health Information Technology and its advisory councils will also actively manage and provide coordination of pan-HIE technical and operating issues, i.e., roles and challenges that are not solely the domain of either Indiana Health Information Technology or a contracted HIO. Examples of pan-HIE technical and operating issues include: (i) the coordination of technical assistance for non-HIO contractors; (ii) the coordination of technical assistance for health care providers; (iii) the remediation of HIO-specific and non-HIO technology barriers and market failures; and (iv) the continued evaluation and compliance of meaningful use standards across the Indiana HIE community of providers, contractors, trading partners and other stakeholders. The IHIT CEO/State HIT Coordinator will manage the human resources of the organization effectively based on the timing of the contracting process, the implementation schedule of the approved projects, and the start up and ongoing schedule of the advisory councils. (See the Strategic Plan Section S.12.2 for more information).

O.6.2 State-Level Shared Services and Repositories

The five HIOs in Indiana have been operating sustainable HIE services for their client healthcare providers for anywhere from five to almost 15 years. Each system has established the necessary master person index, record locator service, provider directory, nomenclature normalization service, ID verification, user authentication, and consent management services to provide secure effective HIE to its clients. HealthBridge, HealthLINC, and Indiana Health Information Exchange (together with its partner the Regenstrief Institute), have also established interoperability through the Mirth Connect integration engine and other resources and are now routinely exchanging structured laboratory data, clinical information, and patient care summaries between healthcare providers in their different systems.

IHIT will leverage this interoperability experience in expanding interoperability between all the Indiana HIOs through the HIO to HIO Connectivity and Data Mapping and Normalization projects. These projects will develop the infrastructure and contracting necessary to deliver a consolidated patient care summary across a fully interoperable statewide infrastructure to any provider connected to a HIO's HIE services. This will be achieved by expanding message routing using the CCD/CCR formats between all Indiana HIOs using similar methodologies to those currently deployed between IHIE and HealthBridge, and will require a shared HIO-entity database (database that shows which HIO has a direct connection to which providers). The routed messages will be extracted and stored in the repositories operated by the HIOs. A patient record locator service will be established using a federated query model and will be used by any HIO wishing to query the repositories to gain other information. A record assembler will utilize the record locator service to find and combine all patient data available in the repositories and deliver the message to the intended entity in a discrete format. The consolidated patient care summary will be provided in a format that is compatible with the provider's EMR and workflow. The transfer of clinical summaries will utilize (where available) national standards for transport, security, and message structure.

Expansion of interoperability through a HIO-based vs. centralized strategy will enable IHIT to leverage the significant interoperability and repository investments made by the Indiana HIOs and avoid investment in redundant IHIT-controlled shared services and repositories. This expansion in technical infrastructure and interoperability will also directly enable broad-based point of care clinical decision support, and will establish the foundation for expanded department of health reporting and quality of care assessment and reporting. IHIT will evaluate the success of this interoperability strategy through the effectiveness scorecards developed and maintained for these projects.

O.6.3 Standard Operating Procedures for HIE

The long duration and sustained experience of Indiana's HIOs in operating secure HIE throughout Indiana have led these organization to develop effective policies and standard operating procedures for their organizations. The IHIT Board will, through the HIE Policy and Technical Advisory Council and other management committees, expect that the HIOs operating in Indiana continue to maintain these good standard operating procedures. The CEO of IHIT/State HIT Coordinator will also develop policies and standard operating procedures to be implemented by the IHIT staff, contractors, and consultants. These policies and procedures will establish and define IHIT's day to day operations, interactions with healthcare stakeholders, and strategic and business planning processes.

O.7. Legal/Policy

As described in the Strategic Plan, Indiana Health Information Technology will develop, manage and implement privacy and security related policies and legal activities to achieve statewide health care information exchange, to protect the privacy and security of a patient's health information, and to maintain a regulatory environment that supports innovative service delivery from the state's regional HIOs.

The Privacy and Security Policy Development Project funded through the SHIECAP will allow the IHIT Board and Council to explore current state regulations and statutes as they compare to federal privacy and security statutes. A gap analysis will be performed to determine the best course of action to remove barriers to HIE activities both intrastate and interstate.

The steps involved in this effort include:

- Identify, review and analyze applicable state legal and policy requirements, including those of contiguous states;
- Create a gap analysis based on the research;
- Outline an action plan for addressing privacy and security policy gaps, which may include the following;
 - Work to harmonize Indiana and contiguous states' legal and policy requirements as appropriate and feasible to enable appropriate HIE services;
 - Develop and analyze possible legislative measures to ensure the protection and preservation of HIE; and
 - Identify agencies and organizations in contiguous states with which to coordinate harmonization activities.

The timing for this project is envisioned to rollout as follows:

Council Formation (Sept 2010 – Dec 2010)

- Creation of membership for Data Use Council (Sept 2010 – Oct 2010)
- Creation of membership for Patient Advocacy Council (Sept 2010 – Oct 2010)
- Council Education Sessions on Privacy/Security Topics (Nov 2010 – Dec 2010)

Privacy/Security Environmental Scan (Jan 2011 – June 2011)

- Compile State of Indiana Regulation/Statutes (Jan 2011 – Apr 2011)
- Compile Federal Regulation/Statutes (Jan 2011 – Apr 2011)
- Compile External States Regulations/States (Mar 2011 – May 2011)
- Create Comparison Grid (May 2011 – June 2011)

Gap Analysis (July 2011 – Nov 2011)

- Present Comparison grid to Councils (July 2011 – Aug 2011)
- Develop Strategies to Address Gaps (Sept 2011 – Oct 2012)
- Present Recommendations to IHIT Board (Nov 2011)

Security/Privacy Roadmap (Dec 2011 – Jan 2012)

- Develop Roadmap to Execute Policy Strategies (Dec 2011 – Jan 2012)

In this section of the Operational Plan IHIT outlines many of the steps it will take as part of the gap analysis to develop privacy and security guidance for all stakeholders and participants involved in statewide HIE.

O.7.1 Establish Requirements

Indiana's HIT Coordinator and Executive Director of IHIT will have primary responsibility for directing the legal and policy efforts related to HIE and HIT for the state of Indiana. The policies and procedures the IHIT Board of Directors will use to govern inter- and intra-state HIE activities will originate in the Board's Data Provision and Use Council in collaboration with the Patient Advocacy Council and the Technical and Policy Council. This Council has members with deep experience in data privacy and security, including Eli Lilly and Company's former Chief Privacy Officer and current Director of the IU Center for Health Information Privacy and Law, Stan Crosley. These policies and procedures will address legal or policy issues to ensure the information may be shared securely and with appropriate privacy protections.

The development of a statewide privacy and security framework will be based upon federal and state laws and regulations including the HHS HIT Privacy and Security Framework, as well as the privacy and security provisions of the ARRA, HIPAA Privacy Rule, HIPAA Security Rule, and the Confidentiality of Alcohol and Drug Abuse Patient Records Regulations. The mechanisms and structures developed and used by IHIT related to privacy and security will address legal and policy barriers and enablers to HIE, particularly those related to

interoperability across hospitals, physicians, clinician offices, health plans, laboratories and other health information trading partners.

The Data Provision and Use Council will work with the Technical and Policy and the Patient Advocacy Councils to convene the appropriate stakeholders, including security and privacy experts from academia, industry and healthcare, to discuss policies and procedures needed at the state level for health information exchange. Through these efforts, IHIT will facilitate the development and adoption of policies and procedures necessary to enable:

- The delivery of essential patient health information to specific authorized providers at the appropriate time and place.
- The secure storage and transmission of health information through structured access, authorization, authentication, and audit policies that are administered through standard HIE credentials.
- Patients to understand and be transparently informed of the flow and utilization of health information including the accountability mechanisms governing such use and their rights of access and correction to their health information.
- Easier access for patients to their health information when it resides at multiple providers who participate in the health information exchange.
- The identification of factors that currently promote or limit the increased use of HIE and develop policy and procedure frameworks with the goal of minimizing data sharing obstacles, for example, the development of policies and procedures to share risk and liability of HIE operations fairly among all trading partners.
- The development and implementation of non-discrimination and conflict-of-interest policies that demonstrate a commitment to transparent, fair and non-discriminatory participation by stakeholders.

Through FY2011 and 2012, IHIT and the IHIT Board's Data Provision and Use Council will work with the state HIO's and other stakeholders to develop, promote and enforce policies to govern electronic health information exchange in Indiana (See Section O.5.3 Plans for Protection of Health Data for current details regarding Indiana HIO's privacy and security policies).

Some of the activities planned to undertake this goal include:

- Raise level of awareness of privacy and security issues by stakeholders statewide;
- Identify current federal and state legal and policy provisions that enable appropriate health information exchange;

- Identify privacy and security barriers to the exchange of health information.
- Formulate strategies to address those barriers, while protecting the privacy of patients.
- Design a legal framework for patient and provider participation in health information exchange.
- Advocate for the adoption of this framework through the appropriate state channels in order to better facilitate the exchange of health information across state lines.
- Work with stakeholders and the Indiana Attorney General to harmonize state and federal laws.

Indiana Health Information Technology will work to develop a statewide policy framework that achieves the following goals.

- Ensures privacy and security of protected health information.
- Establishes a statewide protocol for privacy and security that fosters trust among all participants and users.
- Protects individual confidentiality.
- Supports the integrity and availability of health information;
- Allows for incremental development of HIE policies over time;
- Enables appropriate, inter-organizational HIE; and
- Supports important state policy requirements, such as those related to public health and vulnerable populations.

O.7.2 Privacy and Security Harmonization

Indiana Health Information Technology (IHIT) and the HIT Coordinator will foster a statewide legal and policy environment that increases interstate health information exchange. In doing so, IHIT will work to harmonize federal, Indiana and contiguous states' policies and procedures for HIE.

This will be undertaken through advocating for uniformity between existing federal and state laws and harmonizing privacy policies and consent laws with other states as appropriate. When appropriate, IHIT may seek formal legal opinions regarding the applicability of and compliance with privacy and security laws, rules and regulations.

The steps involved in this effort include:

- Identify, review and analyze applicable state legal and policy requirements, including those of contiguous states;
- Work to harmonize applicable Indiana and contiguous states' legal and policy requirements to enable appropriate HIE services;
- Develop and analyze possible legislative measures that will protect confidentiality and privacy while mitigating barriers to appropriate health information exchange;
- Identify agencies and organizations in contiguous states with which to coordinate harmonization activities; and
- Ensure policies and legal agreements needed to guide technical services prioritized by Indiana Health Information Technology are implemented and evaluated as a part of its annual program evaluation process.

O.7.3 Policies and Procedures

The primary purpose of the mechanisms and structures to be developed by Indiana Health Information Technology in the legal and policy domain is to create a common set of rules to enable intra-state and eventually interstate HIE while protecting consumer privacy and security interests. During the policy adoption process, Information Health Information Technology will analyze whether it should have

- standard policies and procedures that participating HIOs must adopt;
- model policies, procedures and guidelines that participating HIOs may adopt or use, and/or
- minimum standards that participating HIOs must meet.

Some examples of the policies and procedures currently in place in Indiana HIOs include:

Employee practices

The regional HIOs operating in Indiana maintain employee policies and procedures related to the privacy and security of health information and HIE. These policies ensure that health information is only accessed by HIO employees who have a need to access health information. Indiana HIOs' employee policies also mandate that only the minimum amount of health information that is necessary to perform an employee's job function is accessed by employees. Background checks, drug testing and regular employee password changes are also required by

most Indiana HIOs' employee policies and procedures. Many Indiana HIOs require their employees to sign confidentiality agreements if they will have access to health information. All Indiana HIOs require employees to undergo training relating to the privacy and security of health information.

Safeguards and Limitations on Collection, Use and Disclosure

As required by law and the Framework, health information must be protected with reasonable administrative, technical and physical safeguards to ensure its confidentiality and integrity and to prevent unauthorized or inappropriate access, use or disclosure. A variety of industry standard security measures are in place at Indiana HIOs, such as Watchguard VPNs (IPsec), firewalls on each end user connection, point-to-point direct connections, state of the art encryption technology for data in transit, industry standard SSL VPN for access to clinical messaging services, and IPsec point-to-point VPNs for machine to machine communications. Several Indiana HIOs house servers and other equipment at data centers that are monitored around the clock and utilize biometric scanners to restrict access. One Indiana HIO provides on-site training to providers to encourage best practices by system users in accessing and managing their user accounts.

Also in accordance with the Framework, all Indiana HIOs collect, use and/or disclose health information only to the extent necessary to accomplish a specified purpose(s) and never to discriminate inappropriately. All Indiana HIOs limit access to healthcare data to employees who have a specific need to access the data and to practitioners who have a treatment relationship with the patient whose health information is being accessed. Similar privacy requirements will apply to other use cases, such as research and healthcare operations.

Data Quality and Integrity

Indiana HIOs take reasonable steps to ensure that health information is complete, accurate, and up-to-date, and that it has not been altered or destroyed in an unauthorized manner. One Indiana HIO has a quality-assurance process that includes extensive testing with representatives from healthcare data providers and a weekly clinical messaging workgroup meeting that includes the HIO's staff and staff from healthcare data providers. A number of Indiana HIOs have core operations teams or committees that govern or provide input to the clinical messaging process; these groups include representatives from healthcare data providers and other stakeholders. Most Indiana HIOs place the ultimate responsibility for data accuracy and integrity on healthcare data providers.

Indiana HIOs implement the Framework principles and assure adherence through appropriate monitoring and other means and methods to report and mitigate non-adherence and breaches. All Indiana HIOs have full audit trail functionality within their networks and follow standard monitoring operating procedures, which help to mitigate

breaches. Most HIOs maintain audit logs of data transmission, routing and retrieval, and they can investigate network access by account or by document.

O.7.4 Enforcement Mechanisms

Indiana Health Information Technology will identify enforcement mechanisms that ensure entities that implement and maintain HIE services in Indiana;

- comply with federal and state laws and policies applicable to HIE,
- have appropriate safeguards in place, and
- adhere to legal and policy requirements that protect health information.

Indiana Health Information Technology will enforce consensus policies and frameworks as appropriate and required by the CAP, as well as state and federal law, and implement appropriate safeguards to ensure adherence to legal and policy requirements that protect health information and engender trust among HIE participants.

As indicated through ONC guidance, at a minimum, these mechanisms will address:

- monitoring for internal compliance including authentication and authorizations for access to or disclosure of individually identifiable health information;
- the ability to receive and act on complaints, including taking corrective measures; and
- the provision of reasonable mitigation measures, including notice to individuals of privacy violations or security breaches that pose substantial risk of harm to such individuals.

Appendix A: Glossary of Terms

AHIC – American Health Information Community

ARRA – American Recovery and Reinvestment Act

CAH – Critical Access Hospitals

CAM – Comparative Analysis Matrix

CAP – Cooperative Agreement Program

CCD – Continuity of Care Document

CDC, CDCP – Center for Disease Control and Prevention

CHIRP – Children and Hooiser's Immunization Registry Program

DICOM – Digital Imaging and Communications in Medicine Committee

DURSA – (Data Use and Reciprocal Support Agreement) a comprehensive agreement that governs the exchange of health data across a diverse set of public and private entities.

EHR - Electronic Health Records

ESB - Enterprise Service Bus

FCC Rural Health Care Pilot – Project to connect rural health care providers in the state with high speed Internet

FQHC – Federally Qualified Health Centers

HHS - Department of Health and Human Services (Executive Department of US Federal Government)

HIT – Health Information Technology

HITECH - Health Information Technology for Economic and Clinical Health

HIE - Health Information Exchange

HIMSS – Healthcare Information Management Systems Society

HIO – Health Information Organizations – 5 operate in Indiana currently.

HIPAA – Health Information Portability and Accountability Act

HISPC – Health Information Security and Privacy Collaboration

HITSP - Healthcare Information Technology Standards Panel

HL7 - Health Level Seven, an all-volunteer, non-profit organization involved in development of international healthcare; this term is also used to refer to some of the specific standards created by the organization (e.g., HL7 v2.x, v3.0, HL7)

HPSA – Health Professional Shortage Areas

IHIT – Indiana Health Information Technology, Inc. (Indiana’s state designated entity for HIE)

I-HITEC – Indiana Healthcare Information Technology Extension Center, the Tri-state Regional Extension Center to assist priority prescribers’ adoption of EHR systems.

IHA – Indiana Medical Association

IHIE – Indiana Health Information Exchange, Inc.

INPC – Indiana Network for Patient Care

IPHCA –Indiana Primary Health Care Association

IRHA – Indiana Rural Hospital Association

ISDH – Indiana State Department of Health

IT – Information Technology

LOINC – Logical Observation Identifiers Names and Codes

MHIN – Michiana Health Information Network

MIE - Medical Informatics Engineering

MPI - Master Patient Index

MU – Meaningful Use

MUA – Medically Underserved Areas

MUP –Medically Underserved Populations

NGA – National Governor’s Association

OMB – Office of Management and Budget

ONC - Office of the National Coordinator for Health Information Technology

PHI – Protected Health Information

PHESS – Public Health Emergency Surveillance System

PIX - Patient Identity Exchange (a transaction type)

PIX -PDQ - Patient Identification Exchange - Patient Data Query

QHF – Quality Health First. A product/service of IHIE

REC – Regional Extension Center

RFI – Request for Information

RFP – Request for Proposal

RHC – Rural Health Centers

RHIO – Regional Health Information Organization

RHITEC – Regional Health Information Technology Extension Center

RLS – Record Locator Service

RODS – Real-time Outbreak and Disease Surveillance

SAML - Security Access Markup Language

SCH – Sole Community Hospital

SDE – State Designated Entity

SHIECAP – State Health Information Exchange Cooperative Agreement Program

SME – Subject Matter Expert

SOA - Service-Oriented Architecture

VFC – Vaccine for Children

**AMENDED AND RESTATED BYLAWS
OF
INDIANA HEALTH INFORMATION TECHNOLOGY, INC.**

ARTICLE I

Board of Directors

Section 1.1. Duties and Qualifications. The business and affairs of the Corporation shall be managed by the Board of Directors.

Section 1.2. Number, Term, Designation and Appointment. The Board of Directors shall consist of twelve (12) directors, with individual directors designated or appointed as follows:

- (a) The following individuals shall serve as directors by virtue of their office (the "designated directors"):
 - (i) The Secretary of the Indiana Family and Social Services Agency or the Secretary's designee;
 - (ii) The Indiana Secretary of Commerce or the Secretary's designee;
 - (iii) The Indiana State Health Commissioner or the Commissioner's designee; and
 - (iv) The Director of the Indiana Office of Management and Budget or the Director's designee.
- (b) The following individuals shall be appointed as directors by the Governor of the State of Indiana (the "appointed directors"):
 - (i) A representative of the interagency state council on black and minority health established under Indiana Code § 16-46-6 (or any successor statute);

- (ii) A representative of a statewide organization representing the interests of Indiana hospitals or a chairperson, chief executive officer or other senior executive of an Indiana based hospital;
- (iii) A physician licensed under Indiana Code § 25-22.5 (or any successor statute);
- (iv) A representative of an Indiana hospital that serves a disproportionate share of indigent or underinsured patients;
- (v) A representative of a statewide organization representing the interests of rural health in Indiana or a chairperson, chief executive officer or other senior executive of a rural health entity;
- (vi) A patient/consumer representative;
- (vii) A data privacy and security expert; and
- (viii) A research scientist with expertise in medical informatics.

Each director shall serve until a successor is designated or appointed.

Section 1.3. Vacancies. Any vacancy among the appointed directors caused by death, resignation, removal, or otherwise may be filled by the appointment of the Governor of the State of Indiana, provided the replacement director meets the requirements to fill the vacancy. Any vacancy among the designated directors shall be filled by the appointment of the designating agency.

Section 1.4. Removal. Any appointed director may be removed, with or without cause, by the Governor of the State of Indiana. Designated directors shall be automatically removed when the basis for the director's designation ceases. Where a director ceases to meet the qualifications of the director's respective position, such director shall be removed automatically.

Section 1.5. Annual Meetings. Unless the Board of Directors determines otherwise, the Board of Directors shall meet during the first quarter of each year, at the principal office of the Corporation, for the purpose of election of officers of the Corporation and consideration of any other business which may be brought before the meeting. No notice shall be necessary for the holding of an annual meeting.

Section 1.6. Other Meetings. Regular meetings of the Board of Directors may be held pursuant to a resolution of the Board to such effect, and shall be held whenever convenient for the Board of Directors. Unless otherwise provided by the Board of Directors, regular meetings shall be held at the Corporation's principal office. Special meetings of the Board of Directors may be held upon the call of the Chairperson, or twenty percent (20%) of the directors then in office and upon at least forty-eight (48) hours' notice specifying the date, time, place and purpose or purposes of the meeting, given to each director either

personally or by regular mail, electronic mail, facsimile transmission or telephone. A director may waive any required notice of an annual, regular, or special meeting. The waiver must be in writing, signed by the director entitled to the notice, and filed with the minutes or Corporate records. A director's attendance at or participation in a meeting waives any required notice to the director of the meeting unless the director at the beginning of the meeting, or promptly upon the director's arrival, objects to holding the meeting or transacting business at the meeting and does not vote for or assent to action taken at the meeting.

Section 1.7. Participation. A director may participate in an annual, a regular, a special or a committee meeting of the Board of Directors by or through the use of any means of communication by which all directors participating may simultaneously hear each other during the meeting. A director participating by this means is considered to be present in person at the meeting.

Section 1.8. Quorum; Voting. A majority of the directors in office when action is taken, but in no event fewer than seven (7) directors, shall be necessary to constitute a quorum for the transaction of any business at a meeting of the Board of Directors. If a quorum is present when a vote is taken, the affirmative vote of a majority of the directors present when the act is taken shall be the act of the Board of Directors, unless the act of a greater number is required by law, the Articles of Incorporation or these Bylaws.

Section 1.9. HIE Policy and Technical Advisory Council. The Corporation shall have a Health Information Exchange Policy and Technical Advisory Council (the "HIE Advisory Council"), the members of which shall have no voting rights with respect to the Corporation or its activities and shall not be considered "directors" for purposes of the Indiana Nonprofit Corporation Act of 1991, as amended (the "Act").

(a) Purpose. The HIE Advisory Council shall work with the Board of Directors to ensure that the Corporation develops a broad-based stakeholder collaboration with transparency, shared commitment, and trust as the Corporation develops the State of Indiana's health information technology platform consistent with the requirements of the State Health Information Exchange Cooperative Agreement Program administered by the U.S. Department of Health and Human Services' Office of the National Coordinator for Health Information Technology. As such, the HIE Advisory Council will provide technical, strategic and operational recommendations to the Board of Directors in connection with all aspects of the development and implementation of the State of Indiana's health information technology strategies and policies.

(b) Composition. The HIE Advisory Council shall include the Chief Executive Officer (or equivalent position), or his or her designee, of each of the following organizations:

- (i) Greater Cincinnati Health Bridge, Inc.;
- (ii) HealthLINC, Inc.;
- (iii) Indiana Health Information Exchange, Inc.;

- (iv) Medical Informatics Engineering, Inc.;
- (v) Michiana Health Information Network, LLC;
- (vi) Any other health information exchange organization that is agreed upon by each of the organizations then represented on the HIE Advisory Council;
- (vii) Any other health information exchange organization that is selected by the Board of Directors; and
- (viii) Any member of the Board of Directors may join the HIE Advisory Council in a nonvoting capacity.

Section 1.10. Data Provision and Use Council. The Corporation shall have a Data Provision and Use Council, the members of which shall have no voting rights with respect to the Corporation or its activities and shall not be considered "directors" for purposes of the Act.

(a) Purpose. The Data Provision and Use Council shall analyze and report to the Board on matters relating to the provision and use of data in connection with statewide health information exchange activities. The Data Provision and Use Council shall provide specific input to the Board of Directors regarding the provision and use of data as it relates to the development and implementation of the State's health information exchange strategic and operating plans.

(b) Composition. The composition of the Data Provision and Use Council shall reflect the views of the following groups, each of which shall be represented on the council by an individual that is elected by the Board of Directors:

- (i) The Indiana Family and Social Services Administration Medicaid Director or the Director's designee;
- (ii) Health care insurance providers;
- (iii) Employers and other purchasers of health care insurance;
- (iv) Health care providers;
- (v) Allied health professionals and workers, including the support and clerical staff of providers and others involved in the care coordination of patients;
- (vi) Clinical laboratories;
- (vii) Pharmacies;
- (viii) Developers and manufacturers of pharmaceutical products and medical devices;

- (ix) Suppliers of data security and privacy services;
- (x) Other suppliers of goods and services that support health information exchange; and
- (xi) Such other individuals or representative groups as the Board of Directors shall determine from time to time.

Section 1.11. Patient Advocacy Council. The Corporation shall have a Patient Advocacy Council, the members of which shall have no voting rights with respect to the Corporation or its activities and shall not be considered "directors" for purposes of the Act.

(a) Purpose. The Patient Advocacy Council shall analyze and report to the Board on matters relating to the safety and privacy of patients and the security of protected health information in connection with statewide health information exchange activities. The Patient Advocacy Council shall provide specific input to the Board of Directors regarding the safety and privacy of patients and the security of protected health information as it relates to the development and implementation of the State's health information exchange strategic and operating plans.

(b) Composition. The composition of the Patient Advocacy Council shall reflect the views of patients, consumers and statewide or local organizations that represent the interests of individual consumers of health care throughout Indiana. The members of the Patient Advocacy Council shall be elected by the Board of Directors.

Section 1.12. Research and Education Council. The Corporation shall have a Research and Education Council, the members of which shall have no voting rights with respect to the Corporation or its activities and shall not be considered "directors" for purposes of the Act.

(a) Purpose. The Research and Education Council shall analyze and report to the Board on matters relating to the generation and use of data for biomedical research and health professions education in connection with statewide health information exchange activities. The Research and Education Council shall provide specific input to the Board of Directors regarding the generation and use of data for biomedical research and health professions education as it relates to the development and implementation of the State's health information exchange strategic and operating plans.

(b) Composition. The composition of the Research and Education Council shall reflect the views of the following institutions or groups, each of which shall be represented on the council by an individual that is elected by the Board of Directors:

- (i) Indiana University School of Medicine;
- (ii) Purdue University;

- (iii) University of Notre Dame;
- (iv) Regenstrief Institute, Inc.;
- (v) Such other health professional schools as the Board of Directors shall determine from time to time;
- (vi) Such other research organizations as the Board of Directors shall determine from time to time; and
- (vii) Such other individuals or representative groups as the Board of Directors shall determine from time to time.

Section 1.13. Executive Committee. There shall be, and by the adoption of these Bylaws the Board of Directors hereby creates, an Executive Committee of the Corporation, which shall consist of the officers of the Corporation. During intervals between meetings of the Board of Directors, the Executive Committee shall have and exercise all of the authority of the Board of Directors in the management of the Corporation, except where prohibited by law. In addition, the Executive Committee, to the extent specified by the Board of Directors, may exercise the authority of the Board of Directors, except where prohibited by law. The Executive Committee shall cause minutes of its proceedings to be kept and filed with the minutes of the proceedings of the Board of Directors.

Section 1.14. Other Committees. The Board of Directors may from time to time create and appoint standing, special or other committees to undertake studies, make recommendations and carry on functions for the purpose of efficiently accomplishing the purposes of the Corporation. Committees, to the extent specified by the Board of Directors, may exercise the powers, functions or authority of the Board of Directors, except where prohibited by law; provided, however, that if a committee is to exercise board powers, functions, or authority, (a) all the persons serving on the committee must be directors, (b) there must be at least two (2) persons on the committee, and (c) the creation of the committee and the appointment of its members shall be by a majority of all directors in office when the action is taken.

ARTICLE II

Officers

Section 2.1. Officers and Qualifications Therefor. The officers of the Corporation shall consist of a Chairperson, a Vice Chairperson, a Secretary and a Treasurer. The officers shall be chosen by the Board of Directors.

Section 2.2. Terms of Office. Each officer of the Corporation shall be elected by the Board of Directors at its annual meeting and shall hold office for a term of one (1) year and until a successor shall be duly elected and qualified, or until resignation, removal or death.

Section 2.3. Vacancies. Whenever any vacancies shall occur in any of the offices of the Corporation for any reason, the same may be filled by the Board of Directors, and any officer so elected shall hold office until the expiration of the term of the officer causing the vacancy and until the officer's successor shall be duly elected and qualified.

Section 2.4. Removal. Any officer of the Corporation may be removed, with or without cause, at any time by the Board of Directors.

Section 2.5. Compensation. The officers of the Corporation shall receive no compensation for their services in such offices.

ARTICLE III

Powers and Duties of Officers

Section 3.1. Chairperson. The Chairperson, if present, shall preside at all meetings of the Board of Directors. At each annual meeting of directors, the Chairperson or the Chairperson's designee shall report on the activities of the Corporation.

Section 3.2. Vice Chairperson. Subject to the general control of the Board of Directors, if the Chairperson is not present, the Vice Chairperson shall discharge all the usual functions of the Chairperson and shall have such other powers and duties as these Bylaws, the Board of Directors or an officer authorized by the Board may prescribe.

Section 3.3. Secretary. The Secretary shall attend all meetings of the Board of Directors, and prepare, keep, or cause to be kept, a true and complete record and minutes of the proceedings of such meetings, and shall perform a like duty, when required, for all committees appointed by the Board of Directors. If required, the Secretary shall attest the execution by the Corporation of deeds, leases, agreements and other official documents. The Secretary shall attend to the giving and serving of all notices of the Corporation required by these Bylaws, shall have custody of the books (except books of account) and records of the Corporation, shall be responsible for authenticating records of the Corporation, and in general shall perform all duties pertaining to the office of Secretary and such other duties as these Bylaws, the Board of Directors, or an officer authorized by the Board may prescribe.

Section 3.4. Treasurer. The Treasurer shall keep correct and complete records of account, showing accurately at all times the financial condition of the Corporation. The Treasurer shall have charge and custody of, and be responsible for, all funds, notes, securities and other valuables which may from time to time come into the possession of the Corporation and shall deposit, or cause to be deposited, all funds of the Corporation with such depositories as the Board of Directors shall designate. At each annual meeting of the directors, the Treasurer, or the Treasurer's designee, shall report on the financial condition of the Corporation. The Treasurer, or the Treasurer's designee, shall furnish, at meetings of the Board of Directors or whenever requested, a statement of the financial condition of the Corporation, and in general shall perform all duties pertaining to the office of Treasurer.

Section 3.5. Assistant Officers. The Board of Directors may from time to time designate and elect assistant officers who shall have such powers and duties as the officers whom they are elected to assist shall specify and delegate to them, and such other powers and duties as these Bylaws or the Board of Directors may prescribe. An Assistant Secretary may, in the absence or disability of the Secretary, attest the execution of all documents by the Corporation.

ARTICLE IV

INDIANA HIT COORDINATOR

Section 4.1. Responsibilities. The Indiana HIT Coordinator shall serve as the chief executive officer of the Corporation. In this role, the Indiana HIT Coordinator shall be responsible for developing, implementing and managing the State of Indiana's Strategic and Operational Plans for health information exchange and for coordinating activities and ensuring compliance with the State of Indiana's Cooperative Agreement with the Office of the National Coordinator for Health Information Technology. In addition, the Indiana HIT Coordinator shall be responsible for carrying out such duties and responsibilities as shall be delegated or assigned by the Board of Directors.

Section 4.2. Selection. The Indiana HIT Coordinator shall be appointed by the Secretary of the Indiana Family and Social Services Agency or the Secretary's designee.

ARTICLE V

Miscellaneous

Section 5.1. Corporate Seal. The Corporation may, but need not, have a corporate seal. The form of any such corporate seal may be specified in a resolution of the Board of Directors. A corporate seal, however, shall not be required for any purpose, and its absence shall not invalidate any document or action.

Section 5.2. Execution of Contracts and Other Documents. Unless otherwise ordered by the Board of Directors, all written contracts and other documents entered into by the Corporation shall be executed on behalf of the Corporation by one or more authorized officers of the Corporation.

Section 5.3. Fiscal Year. The fiscal year of the Corporation shall begin on October 1 of each year and end on the immediately following September 30.

ARTICLE VI

Amendments

Subject to law and the Articles of Incorporation, the power to make, alter, amend or repeal all or any part of the Articles of Incorporation or these Bylaws is vested in the Board of Directors; provided, however, that any amendments to Section 3.1 (Purposes) of the Articles of Incorporation, Article IV (Distribution of Assets on Dissolution) of the Articles of Incorporation, or provisions relating to the composition of the Board of Directors in Article I of these Bylaws shall require the written approval of the Governor of the State of Indiana before such amendments are effective. The Corporation must provide notice to the directors of any meeting at which an amendment to the Articles of Incorporation or Bylaws is to be considered and voted upon.

Secretary's Initials

Date:

Appendix C: Charter of the Data Provision and Use Council

CHARTER OF THE DATA PROVISION AND USE COUNCIL OF

INDIANA HEALTH INFORMATION TECHNOLOGY, INC.

This is the Charter of the Data Provision and Use Council (the "Council") of the Board of Directors (the "Board") of Indiana Health Information Technology, Inc. (the "Corporation"), as created by the Corporation's Bylaws.

Purpose

The Council shall analyze and report to the Board on matters relating to the provision and use of data in connection with statewide health information exchange activities. The Council shall provide specific input to the Board regarding the provision and use of data as it relates to the development and implementation of the State of Indiana's health information exchange strategic and operating plans.

Powers and Authority

A Board resolution passed on April 28, 2010 adopted the Corporation's Bylaws. Section 1.10 of the Bylaws creates the Council. The Council shall be advisory in nature and shall not have the power to make decisions on behalf of the Corporation or the Board, and shall not have the authority to bind the Corporation. The members of the Council shall have no voting rights with respect to the Corporation or its activities, shall not be considered "directors" for purposes of the Indiana Nonprofit Corporation Act of 1991, as amended, and shall not be authorized to take official action on behalf of the Corporation as described in Indiana Code § 5-14-1.5-2(b)(3).

Functions

The Council shall hold regular meetings to analyze the provision and use of data in connection with statewide health information exchange activities. The Council shall develop recommendations to the Board regarding the provision and use of data as it relates to the development and implementation of the Corporation's strategic and operating plans.

Resources

The Council may, with the Board's consent, utilize the services of the Corporation's directors, officers, employees, consultants or volunteers as it may deem desirable in connection with the performance of its functions under this Charter.

Membership

Number; Qualifications: The Council shall reflect the views of the following groups, each of which shall be represented on the Council by an individual that is elected by the Board:

- (i) The Indiana Family and Social Services Administration Medicaid Director or the Director's designee;
 - (ii) Health care insurance providers;
 - (iii) Employers and other purchasers of health care insurance;
 - (iv) Health care providers;
 - (v) Allied health professionals and workers, including the support and clerical staff of providers and others involved in the care coordination of patients;
 - (vi) Clinical laboratories;
 - (vii) Pharmacies;
 - (viii) Developers and manufacturers of pharmaceutical products and medical devices;
 - (ix) Suppliers of data security and privacy services;
 - (x) Other suppliers of goods and services that support health information exchange;
- and
- (xi) Such other representative groups as the Board shall determine from time to time.

Resignation; Removal: Any member of the Council may resign from the Council upon notice to the Corporation given in writing or by electronic transmission. Such resignation shall take effect at the time specified therein, and unless otherwise specified therein, no acceptance of such resignation shall be necessary to make it effective. Any member of the Council or the entire Council may be removed, with or without cause, by the Board.

Procedures

Meetings: The Council shall meet upon the call of the Chairperson of the Council. Council members shall be given at least forty-eight (48) hours' notice specifying the date, time, place and purpose or purposes of the meeting, and such notice shall be given to each member of the Council either personally or by regular mail, electronic mail, facsimile transmission or telephone. The Council shall cause minutes of its proceedings to be kept and filed with the minutes of the proceedings of the Board.

Quorum; Voting: A majority of the Council members must be present at a meeting to establish quorum. Council members may establish quorum by participating by or through the use of any means of communication by which all members participating may simultaneously hear each other during the meeting. If a quorum is present when a vote is taken, the affirmative vote of a majority of the Council members present when the act is taken shall be the act of the Council, unless the act of a greater number is required by law, the Articles of Incorporation, or the Bylaws.

Board Member Participation: Any member of the Board may attend and participate in any Council meeting in a nonvoting capacity.

Chairperson: The Chairperson of the Council shall be appointed by the Board.

Council Rules

The Council may adopt, amend and repeal rules, policy statements or other provisions for the conduct of its business.

Appendix D: Charter of the Patient Advocacy Council

CHARTER OF THE PATIENT ADVOCACY COUNCIL OF

INDIANA HEALTH INFORMATION TECHNOLOGY, INC.

This is the Charter of the Patient Advocacy Council (the "Council") of the Board of Directors (the "Board") of Indiana Health Information Technology, Inc. (the "Corporation"), as created by the Corporation's Bylaws.

Purpose

The Council shall analyze and report to the Board on matters relating to the safety and privacy of patients and the security of protected health information in connection with statewide health information exchange activities. The Council shall provide specific input to the Board regarding the safety and privacy of patients and the security of protected health information as it relates to the development and implementation of the State of Indiana's health information exchange strategic and operating plans.

Powers and Authority

A Board resolution passed on April 28, 2010 adopted the Corporation's Bylaws. Section 1.11 of the Bylaws creates the Council. The Council shall be advisory in nature and shall not have the power to make decisions on behalf of the Corporation or the Board, and shall not have the authority to bind the Corporation. The members of the Council shall have no voting rights with respect to the Corporation or its activities, shall not be considered "directors" for purposes of the Indiana Nonprofit Corporation Act of 1991, as amended, and shall not be authorized to take official action on behalf of the Corporation as described in Indiana Code § 5-14-1.5-2(b)(3).

Functions

The Council shall hold regular meetings to analyze and discuss patient safety and privacy concerns that arise in connection with statewide health information exchange activities. The Council shall provide specific input to the Board regarding the security of protected health information and shall advise the Board on best practices to implement while developing the health information exchange strategic and operating plans.

Resources

The Council may, with the Board's consent, utilize the services of the Corporation's directors, officers, employees, consultants or volunteers as it may deem desirable in connection with the performance of its functions under this Charter.

Membership

Number; Qualifications: The composition of the Council shall reflect the views of patients, consumers and statewide or local organizations that represent the interests of individual consumers of health care throughout Indiana. The members of the Council shall be elected by the Board.

Resignation; Removal: Any member of the Council may resign from the Council upon notice to the Corporation given in writing or by electronic transmission. Such resignation shall take effect at the time specified therein, and unless otherwise specified therein, no acceptance of such resignation shall be necessary to make it effective. Any member of the Council or the entire Council may be removed, with or without cause, by the Board.

Procedures

Meetings: The Council shall meet upon the call of the Chairperson of the Council. Council members shall be given at least forty-eight (48) hours' notice specifying the date, time, place and purpose or purposes of the meeting, and such notice shall be given to each member of the Council either personally or by regular mail, electronic mail, facsimile transmission or telephone. The Council shall cause minutes of its proceedings to be kept and filed with the minutes of the proceedings of the Board.

Quorum; Voting: A majority of the Council members must be present at a meeting to establish quorum. Council members may establish quorum by participating by or through the use of any means of communication by which all members participating may simultaneously hear each other during the meeting. If a quorum is present when a vote is taken, the affirmative vote of a majority of the Council members present when the act is taken shall be the act of the Council, unless the act of a greater number is required by law, the Articles of Incorporation, or the Bylaws.

Board Member Participation: Any member of the Board may attend and participate in any Council meeting in a nonvoting capacity.

Chairperson: The Chairperson of the Council shall be appointed by the Board.

Council Rules

The Council may adopt, amend and repeal rules, policy statements or other provisions for the conduct of its business.

Appendix E: Charter of the HIE Policy and Technical Advisory Council

CHARTER OF THE HIE POLICY AND TECHNICAL ADVISORY COUNCIL OF INDIANA HEALTH INFORMATION TECHNOLOGY, INC.

This is the Charter of the HIE Policy and Technical Advisory Council (the "Council") of the Board of Directors (the "Board") of Indiana Health Information Technology, Inc. (the "Corporation"), as created by the Corporation's Bylaws.

Purpose

The Council shall work with the Board to ensure that the Corporation develops a broad-based stakeholder collaboration with transparency, shared commitment, and trust as the Corporation develops the State of Indiana's health information technology platform consistent with the requirements of the State Health Information Exchange Cooperative Agreement Program administered by the U.S. Department of Health and Human Services' Office of the National Coordinator for Health Information Technology. As such, the Council will provide technical, strategic and operational recommendations to the Board of Directors in connection with all aspects of the development and implementation of the State of Indiana's health information technology strategies and policies.

Powers and Authority

A Board resolution passed on April 28, 2010 adopted the Corporation's Bylaws. Section 1.9 of the Bylaws creates the Council. The Council shall be advisory in nature and shall not have the power to make decisions on behalf of the Corporation or the Board, and shall not have the authority to bind the Corporation. The members of the Council shall have no voting rights with respect to the Corporation or its activities, shall not be considered "directors" for purposes of the Indiana Nonprofit Corporation Act of 1991, as amended, and shall not be authorized to take official action on behalf of the Corporation as described in Indiana Code § 5-14-1.5-2(b)(3).

Functions

The Council shall hold regular meetings to bring together a broad spectrum of the stakeholders in the development of health information technology. The Council will develop recommendations regarding the technical, strategic, and operational activities of the Corporation.

Resources

The Council may, with the Board's consent, utilize the services of the Corporation's directors, officers, employees, consultants or volunteers as it may deem desirable in connection with the performance of its functions under this Charter.

Membership

Number; Qualifications: The Council shall consist of the following individuals:

(i) The Chief Executive Officer (or equivalent position), or his or her designee, of each of the following organizations:

(a) Greater Cincinnati Health Bridge, Inc.;

(b) HealthLINC, Inc.;

(c) Indiana Health Information Exchange, Inc.;

(d) Medical Informatics Engineering, Inc.;

(e) Michiana Health Information Network, LLC;

(f) Any other health information exchange organization that is agreed upon by each of the organizations then represented on the Council; and

(g) Any other health information exchange organization that is selected by the Board of Directors; and

(ii) One member of the Board, to be appointed by the Board to serve as a nonvoting liaison to the Council.

Resignation; Removal: Any member of the Council may resign from the Council upon notice to the Corporation given in writing or by electronic transmission. Such resignation shall take effect at the time specified therein, and unless otherwise specified therein, no acceptance of such resignation shall be necessary to make it effective. If an individual is removed from the office giving rise to his/her appointment to the Council, then he/she shall contemporaneously be removed from the Council. Any member of the Council or the entire Council may be removed, with or without cause, by the Board.

Procedures

Meetings: The Council shall meet upon the call of the Chairperson of the Council or the resolution of the Board. Council members shall be given at least forty-eight (48) hours' notice specifying the date, time, place and purpose or purposes of the meeting, and such notice shall be given to each member of the Council either personally or by regular mail, electronic mail, facsimile transmission or telephone. The Council shall cause minutes of its proceedings to be kept and filed with the minutes of the proceedings of the Board.

Quorum; Voting: A majority of the Council members must be present at a meeting to establish quorum. Council members may establish quorum by participating by or through the use of any means of communication by which all members participating may simultaneously hear each other during the meeting. If a quorum is present when a vote is taken, the affirmative vote of a majority of the Council members present when the act is taken shall be the act of the

Council, unless the act of a greater number is required by law, the Articles of Incorporation, or the Bylaws.

Board Member Participation: Any member of the Board may attend and participate in any Council meeting in a nonvoting capacity.

Chairperson: The Chairperson of the Council shall be elected by the members of the

Council Rules

The Council may adopt, amend and repeal rules, policy statements or other provisions for the conduct of its business.

Appendix F: Charter of the Research and Education Council

CHARTER OF THE RESEARCH AND EDUCATION COUNCIL OF INDIANA HEALTH INFORMATION TECHNOLOGY, INC.

This is the Charter of the Research and Education Council (the "Council") of the Board of Directors (the "Board") of Indiana Health Information Technology, Inc. (the "Corporation"), as created by the Corporation's Bylaws.

Purpose

The Council shall analyze and report to the Board on matters relating to the generation and use of data for biomedical research and health professions education in connection with statewide health information exchange activities. The Council shall provide specific input to the Board regarding the generation and use of data for biomedical research and health professions education as it relates to the development and implementation of the State of Indiana's health information exchange strategic and operating plans.

Powers and Authority

A Board resolution passed on April 28, 2010 adopted the Corporation's Bylaws. Section 1.12 of the Bylaws creates the Council. The Council shall be advisory in nature and shall not have the power to make decisions on behalf of the Corporation or the Board, and shall not have the authority to bind the Corporation. The members of the Council shall have no voting rights with respect to the Corporation or its activities, shall not be considered "directors" for purposes of the Indiana Nonprofit Corporation Act of 1991, as amended, and shall not be authorized to take official action on behalf of the Corporation as described in Indiana Code § 5-14-1.5-2(b)(3).

Functions

The Council shall hold regular meetings to analyze and discuss the generation of data from the statewide health information exchange activities. The Council shall further consider the potential uses of that data to improve biomedical research and health professions education. The Council shall develop specific recommendations to the Board on these subjects.

Resources

The Council may, with the Board's consent, utilize the services of the Corporation's directors, officers, employees, consultants or volunteers as it may deem desirable in connection with the performance of its functions under this Charter.

Membership

Number; Qualifications: The composition of the Council shall reflect the views of the following institutions or groups, each of which shall be represented on the Council by an individual that is elected by the Board:

- (i) Indiana University School of Medicine;
- (ii) Purdue University;
- (iii) University of Notre Dame;
- (iv) Regenstrief Institute, Inc.
- (v) Such other health professional schools as the Board shall determine from time to time;
- (vi) Such other research organizations as the Board shall determine from time to time; and
- (vii) Such other representative groups as the Board shall determine from time to time.

Resignation; Removal: Any member of the Council may resign from the Council upon notice to the Corporation given in writing or by electronic transmission. Such resignation shall take effect at the time specified therein, and unless otherwise specified therein, no acceptance of such resignation shall be necessary to make it effective. Any member of the Council or the entire Council may be removed, with or without cause, by the Board.

Procedures

Meetings: The Council shall meet upon the call of the Chairperson of the Council. Council members shall be given at least forty-eight (48) hours' notice specifying the date, time, place and purpose or purposes of the meeting, and such notice shall be given to each member of the Council either personally or by regular mail, electronic mail, facsimile transmission or telephone. The Council shall cause minutes of its proceedings to be kept and filed with the minutes of the proceedings of the Board.

Quorum; Voting: A majority of the Council members must be present at a meeting to establish quorum. Council members may establish quorum by participating by or through the use of any means of communication by which all members participating may simultaneously hear each other during the meeting. If a quorum is present when a vote is taken, the affirmative vote of a majority of the Council members present when the act is taken shall be the act of the Council, unless the act of a greater number is required by law, the Articles of Incorporation, or the Bylaws.

Board Member Participation: Any member of the Board may attend and participate in any Council meeting in a nonvoting capacity.

Chairperson: The Chairperson of the Council shall be appointed by the Board.

Council Rules

The Council may adopt, amend and repeal rules, policy statements or other provisions for the conduct of its business.

Appendix G: Charter of the Executive Committee

CHARTER OF THE EXECUTIVE COMMITTEE OF INDIANA HEALTH INFORMATION TECHNOLOGY, INC.

This is the Charter of the Executive Committee (the "Committee") of the Board of Directors (the "Board") of Indiana Health Information Technology, Inc. (the "Corporation"), as created by the Corporation's Bylaws.

Purpose

The Committee shall make decisions regarding Board level matters that arise between meetings of the Board and that require Board approval. The Corporation's Bylaws were adopted by resolution of the Board on April 28, 2010. Section 1.13 of the Bylaws creates the Committee and provides that the Committee shall have and may exercise all of the authority of the Board in the management of the Corporation, except where prohibited by law.

Powers and Authority

A Board resolution adopted on April 28, 2010 adopted the Corporation's Bylaws. Section 1.13 of the Bylaws creates the Committee and provides that the Committee shall have and may exercise the powers and authorities of the Board in regards to the management of the Corporation; provided, however, that the Committee shall not have the power or authority to take any action that the Committee is prohibited from taking by (a) the Indiana Nonprofit Corporation Act of 1991, as amended; (b) the Corporation's Articles of Incorporation or Bylaws; or (c) a written resolution of the Board.

Functions

The Committee shall oversee all matters related to the management of the Corporation that arise between meetings of the Board of Directors, and shall take such actions in connection therewith as the Committee may from time to time deem desirable.

Resources

The Committee may engage such inside or outside resources as it may deem desirable in connection with the exercise of its powers and authority under the Bylaws and the performance of its functions under this Charter.

Membership

Number; Qualifications: The Committee shall consist of the officers of the Corporation. The Committee shall not include any individual who is not a member of the Board of Directors.

Resignation; Removal: Any member of the Committee may resign from the Committee upon notice to the Corporation given in writing or by electronic transmission. Such

resignation shall take effect at the time specified therein, and unless otherwise specified therein, no acceptance of such resignation shall be necessary to make it effective. If an individual is removed from the office giving rise to his/her appointment to the Committee, then he/she shall contemporaneously be removed from the Committee. Any member of the Committee or the entire Committee may be removed, with or without cause, by the Board.

Procedures

Meetings: The Committee shall meet as often as the Committee shall determine to be necessary. Meetings of the Committee may be held upon the call of the Chairperson and upon at least forty-eight (48) hours' notice specifying the date, time, place and purpose or purposes of the meeting, given to each member of the Committee either personally or by regular mail, electronic mail, facsimile transmission or telephone. The Committee shall cause minutes of its proceedings to be kept and filed with the minutes of the proceedings of the Board.

Quorum; Voting: A majority of the Committee members must be present at a meeting to establish quorum. Committee members may establish quorum by participating by or through the use of any means of communication by which all members participating may simultaneously hear each other during the meeting. If a quorum is present when a vote is taken, the affirmative vote of a majority of the Committee members present when the act is taken shall be the act of the Committee, unless the act of a greater number is required by law, the Articles of Incorporation, or the Bylaws.

Chairperson: The Chairperson of the Board of Directors shall serve as the Chairperson of the Committee.

Committee Rules

The Committee may adopt, amend and repeal rules, policy statements or other provisions for the conduct of its business.

Appendix H: IHIT Nondiscrimination Policy

NONDISCRIMINATION POLICY of INDIANA HEALTH INFORMATION TECHNOLOGY, INC.

Indiana Health Information Technology, Inc. (the "Corporation") exists to serve its charitable mission and purposes. In accomplishing these objectives, the Corporation will receive contract funds under the State Health Information Exchange Cooperative Agreement Program created by the Health Information Technology for Economic and Clinical Health Act of 2009 (the HITECH Act). As the recipient of a Federal award, the Corporation is bound by Federal nondiscrimination laws, regulations, and standards. Accordingly, the Board of Directors adopts this Nondiscrimination Policy in order to affirm its commitment to abide by all applicable laws, regulations, and standards.

Stakeholder Participation

It is the policy of the Corporation to provide equal opportunities to all individual and company stakeholders, regardless of the race, religion, color, sex, national origin, age, veteran status, disability or any other legally-protected characteristic of the individual or the owners/officers of the company. The Corporation is committed to open, fair, and nondiscriminatory participation by stakeholders.

Contracts

It is the policy of the Corporation to provide equal opportunities to all individuals and companies to be awarded contracts with the Corporation, regardless of the race, religion, color, sex, national origin, age, veteran status, disability or any other legally-protected characteristic of the individual or the owners/officers of the company.

Employment

It is the policy of the Corporation to provide equal opportunities for employment and advancement for all individuals regardless of race, religion, color, sex, national origin, age, genetic information, veteran status, sexual orientation, gender identity, disability or any other legally-protected characteristic. The Corporation also prohibits harassment or discrimination against its employees based on these characteristics by another employee, contractor, subcontractor, vendor, stakeholder or anyone with which the Corporation interacts as part of its mission and purpose.

Reporting Complaints

Any stakeholder, employee, individual or representative of a company who believes that he or she (or his or her company) has been a victim of some form of harassment or discrimination should report the incident immediately to any officer of the Corporation.

Persons submitting complaints of harassment or discrimination are assured that a thorough investigation of such complaints will be conducted. Information collected during such an investigation will be treated confidentially, to the extent possible, and will only be disclosed, as necessary, to persons involved in conducting or participating in the investigation or persons involved in determining what action, if any, to take in response to the complaint. No adverse action will be taken against any employee due to a report of possible harassment or discrimination unless it is found that the report was made in bad faith.

If, following a complaint of harassment or discrimination, an investigation reveals that an act of discrimination has occurred, the Corporation will take appropriate action to correct the violation and prevent future violations. The appropriate action will depend on all circumstances, including the offending individual's prior work record (if applicable), the specifics of the violation and the amount of control the Corporation has over that person. An employee who violates this policy will be subject to sanctions or penalties, up to and including termination of employment.

Appendix I: Biography- Andrew VanZee

Andrew VanZee serves as the Statewide Health IT Director for Indiana Family and Social Services Administration (FSSA). VanZee is responsible for managing the allocation of the \$10.3 million ARRA HIT funding the state received in March 2010. VanZee works closely with Indiana's state designated entity, the Indiana Health Information Technology, Inc. (IHIT) and its Board of Directors to determine the best use for the HIT funding. He is responsible for working with local, state, federal and private partners to build collaboration with Indiana's other ARRA health information exchange (HIE) funding recipients such as Purdue's Regional Extension Center, Ivy Tech, and the recently announced Beacon Community grant awarded to the Indiana Health Information Exchange (IHIE). VanZee ensures that FSSA's Medicaid HIT efforts are properly coordinated and integrated with all statewide HIE / HIT initiatives.

Prior to joining FSSA, VanZee spent his entire professional career in hospital settings in a variety of roles and responsibilities. VanZee has over 10 years of experience most recently serving as Vice President of Provider Networks and Operations at Logansport Memorial Hospital (LMH) for seven years. During his tenure, LMH realized significant revenue growth, cost reductions and operational efficiencies within the outpatient departments.

VanZee has led several large information technology implementation projects including diagnostic imaging digital conversion and physician office electronic medical records. He has held positions in the quality resource department of a Health Maintenance Organization and as an emergency medical technician/emergency response technician. Additionally, he has had oversight responsibilities for physician services, radiology, laboratory, imaging, physical therapy, occupational therapy, speech therapy and cardiac rehabilitation.

Board certified in healthcare management, VanZee is a Fellow in the American College of Healthcare Executives. His affiliations include serving on the Board of Trustees for five community organizations, holding several advisory roles and mentoring youth through sports. VanZee received a bachelor's degree in biology from Knox College and a master's degree in healthcare administration from the University of South Carolina. He is currently pursuing a second master's degree in information systems from the University of Maryland-Baltimore County, which he plans to complete in December 2010.

Appendix J: Biography Jay McCutcheon

Jay McCutcheon has worked in healthcare information systems for more than thirty years and has served as a consultant to a national clientele of integrated delivery networks, hospitals, medical and health care management intermediaries, physician organizations, employers, managed care organizations, and information systems software vendors. As a partner at KPMG's Healthcare Consulting Group from 1983 through 1992 and with his own firm, Mr. McCutcheon has advised clients on business and information systems strategic planning, business model analysis and development, systems evaluation and implementation, emerging technologies evaluation and optimization, and other related areas. Since the early 1990's his primary focus has been the planning, formation, management and growth of health information exchange (HIE) utilities at the community, regional, or statewide levels.

SIGNIFICANT ACCOMPLISHMENTS

Mr. McCutcheon was instrumental in the formation of the Michiana Health Information Network (MHIN), a North Central Indiana HIE, including development of the business plan, contracts, and technical architecture design. He was a partner in HNS, the facilities management company that operated MHIN for its first seven years. Mr. McCutcheon has also served as a consultant in the planning and implementation of HIE's in Richmond, Virginia and Lansing, Michigan and is currently advising HIEs regarding the NHIN II project. He has assisted in the development of statewide HIE roadmaps in Arizona, Delaware, Michigan, Kansas, Illinois, Indiana, and Colorado.

Mr. McCutcheon recently assisted the Illinois Department of Healthcare and Family Services (HFS) in the development of a statewide HIE strategy and conducted the analysis to geographically subdivide the state into sixteen planning regions known as Medical Trading Areas (MTAs). He has been a principal advisor for three MTAs in Central and Southern Illinois in 2009 and 2010.

CURRENT APPOINTMENT

Mr. McCutcheon currently holds an appointment as the Executive Assistant to the Dean for Health Information Exchange at Southern Illinois University (SIU) School of Medicine in Springfield Illinois. His responsibilities include coordinating HIE development opportunities and collaborating with hospitals, community physicians, and SIU HealthCare clinics in Central and West Central Illinois.

EDUCATION

Mr. McCutcheon's educational background is in finance, marketing, and information systems.

- Akron University, BSBA
- University of Pennsylvania – Wharton School, MBA
- Education Programs in Technology, IBM Corporation

Appendix K: Biography Robert Petersen

Bob Petersen serves as a consultant and project director under contract with Indiana Health Information Technology, Inc. (IHIT) for the State Health Information Exchange (HIE) Cooperative Agreement Program (CAP). Bob provides project leadership for the development of Indiana's Strategic and Operational Plan to expand and deliver HIE services to health care providers throughout the state. He directs and coordinates other consultants and subject matter experts to contribute plan content and synthesize the input into a comprehensive plan that will receive approval from the Office of the National Coordinator for Health Information Technology (HIT) in Washington, DC. In this position Bob applies his skills in building teamwork and fostering collaboration with stakeholders from the Indiana Family and Social Services Administration, the Indiana State Department of Health, health information exchange organizations, the regional HIT extension centers, and other HIE vendors and experts. Bob serves in this role under the direction of Andy VanZee, the Statewide Health IT Director, and was named to the position in April 2010.

In 2009-2010, Bob led the early CAP project to organize Indiana's efforts to expand HIE as a BioCrossroads consultant and project director. His key achievements include leading the multi-organization team that wrote and submitted the CAP federal grant application that resulted in IHIT being granted \$10.3 million in federal ARRA funding to expand HIE to all health care providers in Indiana. Bob has also been active in consulting with BioCrossroads on another important Indiana life sciences project.

Prior to starting his consulting work, Bob concluded a 29 year career at Eli Lilly and Company. In his last position, he was Director of Diabetes and Depression Development in Lilly Research Laboratories (LRL). In this role, he organized internal governance and provided leadership and external outreach to support initiatives that address the unmet needs of patients with co-morbid diabetes and depression. He shaped collaborations within Lilly across the neuroscience and endocrinology therapeutic areas, developed a global community of diabetes, mental health, and primary care organizations, and facilitated scientific research that will contribute to better patient outcomes. Previously, he was an LRL Lean Six Sigma Champion, and launched the Lean Six Sigma process improvement methodology in Global Brand Development, Global Regulatory Affairs, Global Patient Safety, Project Management, and the LRL Quality organization. He also led the global growth hormone business at Lilly as Product Team Leader for Humatrope, Lilly's brand of biosynthetic human growth hormone. He led the global team to develop, obtain regulatory approval, and launch several new Humatrope uses and injection delivery systems. Bob also was the Primary Care and Neuroscience Business Unit director at Lilly Germany, and held human resources director, US Prozac and international diabetes care brand manager, new product planning, and various other positions.

Bob graduated from Brigham Young University in 1978 with a Bachelor of Arts degree in economics, and earned a Master of Business Administration degree in 1980, also from BYU.

Appendix L: Biography Emily Styron

With fifteen years of executive management experience, Styron has managed diverse workforces, project teams, administered multi-million dollar budgets and enabled numerous organizations to successfully achieve challenging goals. Utilizing a strong background in public program design, enterprise-wide project management, information technology and public finance, Styron has successfully led projects in economic development; innovation policy and promotion; STEM education initiatives; start-up organization consulting and leadership; events management; systems implementation; and business process re-engineering.

Since 2002, Styron has served as President of Performance Project Management, a professional services firm that understands the unique challenges faced by public and non-profit organizations when launching new programs. From conception to completion, Performance Project Management successfully manages each stage of project development and implementation working in collaboration with client project teams.

Select Prior Engagements and Employment

Project Management Consultant for the Indiana Science, Technology, Engineering and Mathematics (STEM) Network, a K-12 education initiative sponsored by BioCrossroads. Worked with Purdue University and BioCrossroads to launch this long-term initiative designed to increase Indiana's K-12 readiness in STEM education.

Project Director for the Indiana S4 Initiative, an 18-month pilot program designed to promote Indiana's participation in the federal Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) program on behalf of the Indiana University Research and Technology Corporation. Defined strategy, resource needs and implementation plan. Managed all elements of the pilot phase.

Event Project Manager for the Indiana Biosensor Symposium and the Indiana Biosensor Conference. Sponsored by BioCrossroads, both events targeted researchers, students, engineers, entrepreneurs, venture capitalists and technologies in the biosensor field.

As Chief Information Officer for the City of Indianapolis – Marion County, served as a member of the Mayor's senior executive cabinet responsible for all technology and telecommunications operations for more than 80 city and county departments. Chaired IT inter-departmental policy committee.

As Chief Financial Officer for the Department of Public Safety, managed the largest departmental budget (\$171M) for the City of Indianapolis consisting of nearly 2200 uniform and civilian personnel. Within two years, was promoted to Deputy City Controller responsible for the City's financial systems and special project technology initiatives.

Education

Indiana University, Bloomington, Indiana

Master of Public Affairs, Public Finance and Urban Policy, 1995

University of North Carolina at Charlotte, Charlotte, North Carolina

Bachelor of Arts, Political Science and English, 1990

Appendix M: Biography Sandra Sumner

Sandra Sumner, of The Sumner Group, is a consulting accountant with more than 30 years accounting experience and 15 years experience as a consulting accountant for both not-for-profit agencies and proprietary organizations.

Ms. Sumner numbers among her current not-for-profit clients The International Center of Indianapolis, Indiana Humanities Council, King Park Area Development Corporation, The Julian Center, Addictions Resource Network, Health Care Education and Training, People's Burn Foundation, Indiana Ready Mixed Concrete Association, Rebuilding the Wall, Pike Youth Soccer Club, Greater Indianapolis Progress Committee, Indiana Health Information Technology and The Mind Trust.

Ms. Sumner's for-profit clients include franchisees of Subway, Midland Arts & Antiques Market, Dr. Robert F. Lebow M.D., Academy House Inc., Hometowne Associates and Capital Cities Investments.

Her specific expertise lies in allocation of federal and other grants, budget reconciliation, appropriate recognition of revenues, adherence to GAAP and audit preparation.

Appendix N: IHIT HIE Project Solicitation Announcement



News Release



For Immediate Release

IHIT SOLICITING HEALTH INFORMATION PROJECT IDEAS

INDIANAPOLIS (June 23, 2010) – The board of directors of Indiana Health Information Technology, Inc. (IHIT) is soliciting project ideas for the \$10.3 million federal grant the Indiana Family and Social Services Administration (FSSA) received in March. The State of Indiana was awarded the funding to further expand the use of health information exchange under the State Health Information Exchange Cooperative Agreement Program. The submitted project ideas should fit within the strategic pillars as defined below:

- Connecting Data Sources - Development of interfaces or access infrastructure to allow providers to link to existing Health Information Organizations (HIOs).
- Interoperability - Development of standards or infrastructure to allow health information to flow freely between service providers.
- Improved Outcomes - Timely use of Health Information Exchange (HIE) to improve clinical decisions both from the provider, payer, and patient standpoint.
- Initiatives - Use of HIE to meet other federal/state initiatives.

Parties interested in submitting ideas for consideration should complete the project template posted online at <http://www.in.gov/fssa/4158.htm>. The deadline for submitting proposals is **Friday, July 9, 2010**. Please direct questions regarding IHIT and project submission to the Statewide Health IT Director Andrew VanZee at 317-232-1165 or Andrew.Vanzee@fssa.IN.gov.

Project submission deadline: Friday, July 9, 2010

Mail submission form to: Andrew VanZee, Statewide Health IT Director
Family and Social Services Administration
402 W. Washington Street W 461
Indianapolis, Indiana 46204

Or E-mail submission form to: Andrew.Vanzee@fssa.IN.gov

-30-

Media contact: Marcus Barlow, (317) 234-0197, marcus.barlow@fssa.in.gov

INDIANA HEALTH INFORMATION TECHNOLOGY– HIE PROJECT

CONSIDERATIONS FOR PROJECT SUBMISSION

IHIT's goal is to improve the quality, safety, and efficiency of patient care by advancing Indiana's position as a leader in sustainable, secure, standards-based health information exchange.

Project Submission Deadline: July 9, 2010

Project Submission Contact: Statewide Health IT Director
Indiana Family and Social Services
Administration
402 W. Washington Street W 461
Indianapolis, Indiana 46204
Andrew.Vanzee@fssa.IN.gov
(317) 232-1165

Organization Information (Contact Info):

Project Focus (Circle One):

1. Connecting Data Sources
2. Interoperability
3. Improved Outcomes
4. Federal/State Initiatives

Project Title:

Project Description (limit to ½ page):

Target Organizations/Users:

Benefits:

Estimated Project Timeframe/Length:

Estimated Costs:

- Total Cost:
- Services:
- Non-services costs (e.g., Hardware, equipment, etc.):
- Other (must describe):
- Number of person hours to complete project:

Appendix O: Letter from Governor Mitch Daniels naming IHIT as Indiana's HIE SDE



STATE OF INDIANA
OFFICE OF THE GOVERNOR
State House, Second Floor
Indianapolis, Indiana 46204

Mitchell E. Daniels, Jr.
Governor

October 14, 2009

David Blumenthal MD, MPP
National Coordinator for Health Information Technology
Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, DC 20201

Dear Dr. Blumenthal,

Enclosed with this letter is an application submitted on behalf of the State of Indiana (the "State") for funding for the formation and implementation of a State of Indiana Health Information Exchange Cooperative Agreement Program (the "Program"). In accordance with my letter to you dated September 4, 2009, the State has worked with various stakeholders and has now established Indiana Health Information Technology, Inc. ("IHIT"), a new not-for-profit entity to function as the state designated entity for the Program.

Michael Gargano, the Chief of Staff for the Indiana Family and Social Services Administration, will lead the State's efforts to develop the Program with IHIT until a permanent State Health Information Technology Coordinator is identified. His contact information is included with this letter.

We thank you in advance for your due consideration of the State's application for funding to establish, operate and implement the Program.

Sincerely,

M E Daniels, Jr.

Appendix P: Support Letter from Indiana's state Medicaid office



"People
helping people
help
themselves"

Mitchell E. Daniels, Jr., Governor
State of Indiana

Indiana Family and Social Services Administration
402 W. WASHINGTON STREET, P.O. BOX 7083
INDIANAPOLIS, IN 46207-7083

Anne Waltemann Murphy, Secretary

August 30, 2010

David Blumenthal, M.D., National Coordinator
Office of the National Coordinator for Health Information Technology
U.S. Department of Health and Human Services
200 Independence Avenue S.W.
Suite 729-D
Washington, DC 20201

Dear Dr. Blumenthal,

Indiana's Office of Medicaid Policy and Planning (OMPP) endorses and strongly supports the Indiana Health Information Exchange Strategic and Operational Plans to facilitate statewide HIE in Indiana. This Agency served as an integral part of the HIE statewide planning committee to submit a grant application to the Office of the National Coordinator for Health IT in response to the State Health Information Exchange Cooperative Agreement Program. Over the last six months, OMPP's involvement has continued as the state's designated entity, Indiana Health Information Technology, Inc. (IHIT), has worked with stakeholders to further develop the state's HIE Strategic and Operational Plans.

The Office of Medicaid Policy and Planning is the single state agency designation for all Medicaid funded programs in Indiana, including risk based and FFS programs, and also administers the State Children's Health Insurance Program (SCHIP). In this role, OMPP will direct the planning, assessment, implementation and administration of meaningful use as prescribed in federal legislation and guidance from the Office of the National Coordinator (ONC).

At present, OMPP is developing a formal Health Information Technology (HIT) plan. All efforts are working in parallel to ensure that requirements established by CMS and ONC are coordinated with Indiana's statewide HIE and HIT plans.

OMPP believes the collaborative efforts that exist between HIEs, IHIT, the state and regional extension centers will enhance health information exchange capacity within the state, enable "meaningful use" by providers statewide, provide clinical data for medical decision-making,

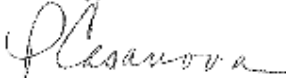
www.IN.gov/fssa
Equal Opportunity/Affirmative Action Employer



improve coordination of care, increase system efficiencies, control costs, and positively impact healthcare quality and health outcomes.

We look forward to continued involvement with this important initiative as the plans we have developed are implemented statewide.

Sincerely,

A handwritten signature in cursive script, appearing to read "P. Casanova".

Pat Casanova
FSSA Medicaid Director