MARYLAND

Health Information Technology State Plan

FY 2011 – FY 2014

MHCC | MARYLAND HEALTH CARE COMMISSION

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Introduction

The Maryland Health Care Commission (MHCC) is pleased to provide an updated State Plan for review by the Office of the National Coordinator for Health Information Technology (ONC) under the *State Grants to Promote Health Information Technology Planning and Implementation Projects*. The MHCC believes that its State Plan accurately reflects a strategic and operational plan that is consistent with the planning guidance. Efforts are currently underway to implement a private and secure statewide health information exchange (HIE) in Maryland. This ambitious plan for advancing health information technology (HIT) balances the need for information sharing with the need for strong privacy and security policies, while maintaining a judicious approach to funding the HIE. Establishing an HIE with sound interoperability will ensure that all health information is securely delivered electronically in real-time to individuals and their providers (an individual licensed in the State of Maryland to practice medicine) when needed, and that this information is available for analysis for continuous improvement in the delivery of care and research. The statewide HIE will also allow providers to maximize incentive funding under the *American Recovery and Reinvestment Act of 2009* (ARRA).

Maryland has moved into the implementation phase for the statewide HIE after several years of planning. The strategic approach consisted of the following key activities:

- ***Building trust and consensus.*** Maryland believes that broad agreement on key policy issues – particularly privacy, security, and data use – should precede the development of an HIE. The MHCC brought together a series of multi-stakeholder groups to discuss a range of policy issues and published a number of major policy reports based on these consensus-building deliberations. These deliberations formed the foundation for subsequent actions directed towards planning and implementing a statewide HIE.
- ***Planning the statewide HIE***. The MHCC funded two independent multi-stakeholder groups in 2008 to develop two competing approaches for the governance, architecture, privacy and security, access and authentication, financing, and establishment of a sustainable business model. These reports were evaluated and the best ideas from the two groups, and from a study of HIEs in various stages of development nationwide, were consolidated into a Request for Applications (RFA) released on April 15th of this year.
- ***Designating and funding Maryland's statewide HIE.*** The MHCC received four responses to the RFA. A technical panel consisting of internal and external reviewers recommended that the Chesapeake Regional Information System for our Patients (CRISP) receive $10 million in funding from Maryland's all-payor rate setting system to implement a statewide HIE. The Maryland Health Services Cost Review Commission approved the funding on August 5th. The MHCC also was awarded $9.3 million in March 2010 through the federally funded *State Health Information Exchange Cooperative Agreement Program*—a program funded through the *Health Information Technology for Economic and Clinical Health Act* (HITECH) and administered by the Office of the National Coordinator for Health Information Technology (ONC). CRISP is a particularly strong not-for-profit collaborative effort among the Johns Hopkins Health System, MedStar Health, University of Maryland Medical System, Erickson Retirement Communities, and Erickson Foundation, with notable support from two dozen major stakeholders across the state, including minority and safety net provider interests.

- ***Establishing a Policy Board with Strong Representation from the General Public.*** While a collaborative with strong provider representation is developing and operating the HIE, the Policy Board associated with the MHCC is establishing the policies governing the exchange. This separation of responsibilities assures a strong role for the public in both policy development and operational oversight. Members of the Policy Board have been selected to assure expertise, breadth of stakeholder representation, and a strong consumer voice in establishing the policies essential to building trust.

The statewide HIE is designed to deliver essential patient information to authorized providers at the time and place of care to help assure appropriate, safe, and cost-effective care; store and transmit sensitive health information privately and securely; provide patient access to important elements of an individual's clinical record to help engage patients in their own care; provide a means for the patient to exercise appropriate control over the flow of private health information, both as a matter of right and as a means of assuring trust; provide a secure method of transmitting administrative health care transactions; and gather information from the health care system to research efficiency and cost-effectiveness of care, to measure quality and outcomes of care, and to conduct biosurveillance and post-marketing surveillance of drugs and devices.

The State Plan appropriately reflects the high priority that Maryland places on advancing HIE and expanding the adoption of electronic health records (EHRs) while ensuring that the interest of consumers and the general public are protected. Maryland's planning efforts led to the development of a comprehensive design to facilitate and expand the secure, electronic movement and use of health information among providers according to nationally recognized standards. While the detailed implementation of the statewide HIE is entrusted to the knowledgeable experts and informed by a broad range of stakeholder input, the governance, policy, and technical infrastructure outlined in the State Plan make certain that the general public and the federal government have strong roles in the development of fundamental policies governing the information exchange. ARRA funding and collaboration with the ONC will accelerate and enhance the state's implementation of the statewide HIE, assuring more rapid dissemination of a broader range of Use Cases.

Strategic Plan for a Statewide HIE

General Topic Guidance

Environmental Scan

Maryland has a strong foundation and a number of special advantages above and beyond its convenient location for implementing a statewide HIE in collaboration with ONC. In 2009, the U.S. Census Bureau estimated Maryland's population at roughly 5.7 million. The state's collaborative nature and relatively small size have made it easy for stakeholders from around the state to meet regularly to plan a single statewide HIE. The state has a long tradition of hospital-hospital and hospital-government collaboration on projects, including the award-winning Maryland Patient Safety Center. Maryland is also home to a diverse health care community. Located in the state are three prominent regional medical systems (Johns Hopkins, MedStar, and the University of Maryland), several local hospitals belonging to national hospital systems, a number of independent community hospitals; three Veteran Affairs (VA) medical centers and five VA clinics; and numerous nursing homes, long term care facilities, and Federally Qualified Health Centers.

Hospital reimbursement is through the all-payor rate setting system that effectively shares the financial burden of uncompensated care across all hospitals. This system funds projects that are in the financial interest of the overall health care system, including the initial development of an HIE. Maryland has an extensive record of participation in numerous pilot projects; the most recent and relevant is that Maryland was selected as one of four states to participate in the Centers for Medicare and Medicaid Services' (CMS) Demonstration Project for EHR adoption in priority primary care provider practices. The state has renowned academic programs in clinical, public health, and health services research, and has state health care leaders with experience at the national level in health care foundations, federal agencies (including NIH, AHRQ, CMS, CEA, CBO, and NEC), and more specifically in national groups involved with health information technology (HIT), including ONC and the Markle Foundation's Connecting for Health Steering Group.

Market Readiness Assessment

Maryland has approximately 47 acute care hospitals equally spread throughout the state's urban, suburban, and rural areas. According to an annual Hospital HIT survey conducted in 2010,[1] EHR adoption in acute care hospitals in Maryland is reported at around 81 percent; nearly 68 percent of hospitals have computerized physician order entry (CPOE); roughly 78 percent of hospitals have electronic medication administration records; about 57 percent of hospitals have bar code medication administration; nearly 42 percent of hospitals use infection surveillance software; and almost 28 percent of hospitals e-prescribe to a community pharmacy. About 45 percent of the hospitals in Maryland have implemented technology to enable some electronic data sharing with appropriate authorized users outside the hospital. Maryland has roughly 13,712 physicians in active practice[2]. These physicians treat patients in approximately 6,851

[1]Maryland Health Care Commission, *Health Information Technology: An Assessment of Maryland Hospitals*, August 2010. Available at: http://mhcc.maryland.gov/electronichealth/2010_hospital_hit_report.pdf.

[2]Maryland Board of Physicians licensure survey, 2008-2009

practices[3]. The number of primary care physicians is nearly 5,030 and the number of primary care practices is around 2,919. Physician EHR adoption in Maryland parallels the nation, at approximately 23 percent.[4] However, many of these national EHR adoption figures do not include clinical decision support, CPOE, e-prescribing, or results receipt and delivery functionalities.

The number of service area health information exchanges (SAHIEs), or community data exchanges where a hospital acts as the technology hub, are increasing in numbers throughout the state. In 2009, the MHCC convened stakeholders to develop standard policies that will enable the exchange of data among SAHIEs. SAHIEs have the ability to expand data sharing to providers within their service area. Under the Stark Law revisions, hospitals statewide are closely exploring options that enable them to provide technology to providers in their service area. Many SAHIEs utilize these guidelines to establish policies with community providers located in bordering states.

Management Services Organizations (MSOs) provide an alternative to expanding EHR adoption. The software is accessed via the Internet and data is hosted offsite in secure network operating centers (NOCs). MSOs eliminate the costs associated with technology maintenance and the responsibilities assumed by the provider that accompany the private and secure storage of electronic health information. Remotely hosted EHRs enable providers to focus on practicing medicine rather than expending time and resources to support the software application and hardware. Maryland has taken several steps to promote the MSOs as an alternative to the traditional EHR adoption models. Under recent legislation, the MHCC is required to provide State Designation to one or more MSOs by the fall of 2012. The MHCC convened an Advisory Panel consisting of nearly 40 stakeholder organizations to develop the *MSO State Designation Criteria* (see Appendix A). The Panel established standards for privacy and confidentiality, technical performance, business practices, resources, security, and operations for MSOs seeking State Designation. Approximately 20 MSOs have applied for State Designation (see Appendix B for a list of MSOs in *Candidacy Status*). The MHCC envisions that these MSOs will offer a variety of certified EHR products for physicians to choose from, assist with the integration to the statewide HIE, and ensure that the technology is compliant with the standards for meaningful use.

Technology adoption is widespread throughout nursing homes, although their readiness for EHR adoption is variable. In July 2010, the Maryland Health Care Commission (MHCC) conducted an assessment of EHR planning and adoption activities among the approximately 76 independent and small multi-facility nursing homes statewide.[5] In general, the rate of EHR planning and adoption activity among independent nursing homes statewide is fairly consistent with the level of activity in other states. The findings indicate that nursing homes have increased adoption of EHRs by approximately 4 percent from the previous year with about 30 percent indicating they have an EHR. Almost 88 percent of nursing homes without an EHR expect to implement one in the near future. Nursing homes in suburban and rural areas have a higher percentage of EHR adoption than those located in urban areas; suburban and rural area nursing homes outnumber those in urban areas. Comparing bed size, medium sized nursing homes had a greater EHR adoption rate than all the other nursing homes. A facility type comparison indicates that independent nursing homes had a higher percentage of EHR adoption as compared to small multi-facility nursing homes.

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[3] Ibid.

[4] Ibid

[5] Maryland Health Care Commission, *Electronic Health Records: An Assessment of Maryland Nursing Homes*, December 2010. Available at: http://mhcc.maryland.gov/electronichealth/mhcc_ltc_survey_final.pdf

The MHCC has assessed market readiness for HIE based on technology adoption, market structure, project leadership, and provider readiness to adopt. During the planning process, the MHCC used the eHealth Initiatives Market Readiness Assessment Tool and determined that Maryland's market readiness index was about 56 percent. Generally speaking, conditions in Maryland during the planning process were relatively favorable for building a statewide HIE where significant interest from participants exists.

The environmental scan also revealed the importance of ensuring perceived fairness in the prices that providers are asked to pay for participation in the HIE. An HIE based on subscription fees that are appropriately priced by stakeholder value was a more appealing alternative than a one-size-fits-all pricing model. A transaction-fee based HIE was determined not to be a favorable option as it places the most burden on those who use the system frequently. The transaction fee approach encourages participants to carefully monitor and perhaps budget their use of the HIE, and such self-restriction contradicts the larger objectives of the HIE.

Statewide Readiness

After several years of planning and building stakeholder trust, Maryland has moved into the implementation phase for a statewide HIE. Through a competitive process, the MHCC selected CRISP to implement the statewide HIE in August 2009. The following listing provides an overview of the stakeholder participants; specifically the MHCC Policy Board and CRISP Board Member Affiliated organization, and other organizations involved in the planning and development process for the HIE.

Maryland HIE Stakeholder Participants

Maryland Health Information Exchange Policy Board Affiliations:

- AARP of Maryland
- ACLU of Maryland
- American Heart and Stroke Association Mid-Atlantic Affiliate
- Anne Arundel Medical Center
- Armstrong Enterprises
- Asian Pacific American Chamber of Commerce
- Baltimore Washington Medical Center
- British American Auto Care
- Brook Lane Health Services, Inc.
- CareFirst Blue Cross Blue Shield of Maryland
- Center on Health Disparities
- Chinese Culture and Community Service Center
- Community Health Integrated Partnership
- CRISP (*ex-officio)*
- Department of Health and Mental Hygiene
- Genesis Healthcare
- Hebrew Home of Greater Washington
- Higher Ground, Inc.
- HSCRC *(ex-officio)*
- Koss on Care
- The League for People with Disabilities
- M&T Bank
- Maryland Health Care Commission (*ex-officio)*
- Maryland Hispanic Chamber of Commerce
- Maryland Interfaith Legislative Committee
- Maryland State Department of Education (*ex-officio)*
- Mary's Center for Maternal and Child Care
- Mental Health Association of Maryland
- Mid-Atlantic Association of Community Health Centers
- Monumental City Medical Society
- Mosaic Community Services, Inc
- National Network to End Domestic Violence
- The National Society of Allied Health
- Open Society Institute-Baltimore
- Planned Parenthood of Maryland
- Primary Care Coalition of Montgomery County
- Washington County Health Systems

Chesapeake Regional Information System for Our Patients (CRISP)

Founding Board Member Affiliations:

- The Erickson Foundation
- Erickson Retirement Communities, LLC
- Johns Hopkins Health System Corporation
- Johns Hopkins Medicine
- MedStar Health, Inc.
- University of Maryland Medical System, Inc.
- Erickson Health Information Exchange

Advisory Board Member Affiliations:

- Access Carroll
- Adventist Healthcare
- Atlantic General Hospital
- Bon Secours
- Calvert Memorial
- CareFirst
- Carroll Hospital Center
- CFBS
- Children's National Medical Center
- Columbia Medical Practice
- Erickson Retirement Communities
- Family HealthCare
- Frederick Memorial Healthcare System
- Greater Baltimore Medical Center
- Genesis Physician Services
- Green Spring Internal Medicine, LLC
- Healthcare for the Homeless
- Holy Cross Hospital
- Howard County Health Department
- Johns Hopkins University
- Johns Hopkins HealthCare LLC
- Johns Hopkins Medicine
- LifeBridge Health
- Maryland Hospital Association
- MedChi, The Maryland State Medical Society
- MedStar Health
- Maryland Medical Group Management Association
- Peninsula Cardiology Associates
- Peninsula Regional Medical Center
- Peter M. Schissler M.D., P.A.
- Sellers Family Medicine
- Signature Breast Care
- St. Agnes Hospital
- St. Joseph Medical Center
- The Winkenwerder Company
- University of Maryland Medical System
- VIPMedRx, Inc.
- Western Maryland Health System

Institutional Affiliations of Additional Participants in the Maryland Planning Process

- APPTIS
- Advanced Radiology
- Advocates for Children and Youth
- Aetna
- AIDS Legislative Council
- American Cancer Society
- American Medical Informatics Association
- American Society of Consultant Pharmacists
- Atlantic General Hospital
- Audacious Inquiry
- Baltimore City Medical Society
- Baltimore Medical System
- Braddock Hospital
- Bravo Health
- Calvert Memorial Hospital
- Carroll Hospital Center
- Catonsville Diagnostic Imaging
- Center for Health Information and Decision Support, University of Maryland
- Chesapeake Eye Center
- Chester River Hospital Center
- Civista Medical Center
- Clinical Information Systems
- CMS - State Programs
- Constellation Energy Group
- CVS
- Darnell Associates, Inc.
- Delmarva Foundation
- Delta Dental Plans Association
- Dimensions Health System
- Doctors Community Hospital
- Dorchester General Hospital
- Edward W. McCready Memorial Hospital
- Emdeon Business Services
- EPIC Pharmacies and EPIC Pharmacy Network, Inc.
- Former Senator of Maryland & Privacy Advocate
- Franklin Square Hospital
- Frederick County Public Schools
- Garrett County Memorial Hospital
- Ginger Cove Retirement Community
- Good Samaritan Hospital of Maryland
- Harbor Hospital
- Harford County Medical Society
- Harford Memorial Hospital
- Health Care Information Consultants
- Health Improvement Network
- Healthcare for All
- Howard County General Hospital
- HR Anew, Inc.
- James Lawrence Kernan Hospital
- Johns Hopkins Bayview Medical Center
- Johns Hopkins Community Physicians
- The Johns Hopkins HIPAA Office
- Johns Hopkins Medical Institutions
- Johns Hopkins University & School of Medicine
- Johns Hopkins Urban Health Institute
- Kelly and Associates
- Kennedy Krieger Institute
- Kodak Dental Systems
- Laboratory Corporation of America
- Laurel Regional Hospital
- Legal Aid Bureau
- Maryland Community Health Resources Commission
- Maryland General Hospital
- Maryland Hospital Association
- Maryland Medicaid
- Maryland State Board of Pharmacy
- Maryland State Delegate
- Matria Health Care
- MedStar Health VNA
- Memorial Hospital & Medical Center of Cumberland
- Memorial Hospital at Easton
- Mercy Medical Center
- Mid-Atlantic LifeSpan
- Montgomery County Medical Society
- Montgomery Family Practice
- Montgomery General Hospital
- Montgomery Internal Medicine Association
- Mount Vernon Pharmacy
- Nachimson Advisors, LLC
- NAMI of Maryland
- National Institutes of Health
- Neighborcare/NHS
- Network Health Services
- Northwest Hospital Center
- Ober/Kaler
- Office of the Attorney General of Maryland
- Payerpath, Inc.
- Personal Touch Home Care
- Practicing Psychiatrist

Primary Care Coalition of Montgomery County
Prince George's Health Department
Prince George's Hospital Center
Provider Synergies
Quest Diagnostics
RxNT
Shady Grove Adventist Hospital
Shepherd's Clinic
Shepherd Pratt Health System
Sinai Hospital of Baltimore
Southern Maryland Hospital Center
Spiro Consulting, Inc.
St. Agnes Healthcare
St. Agnes OB/GYN Associates
St. Mary's Hospital
Suburban Hospital
Summerville at Westminster
Summit Health Institute for Research and Education, Inc.
The Neurology Center
Union Hospital of Cecil County
Union Memorial Hospital
United Healthcare Mid-Atlantic
University Physicians, Inc.
Upper Chesapeake Medical Center
VA Maryland Health Care System
Vermont Information Technology Leaders
Vindobona Nursing Home
Vulcan Enterprises, LLC
Walter Reed Army Medical Center
Washington Adventist Hospital
Washington County Health System
William Hill Manor
Xavier Health Care Service

HIE Development and Adoption

Vision, Goals, and Objectives

Four years ago the MHCC began the process of planning the implementation of a statewide HIE by engaging numerous stakeholders to address the fundamental policy issues and plan a course of action. State legislation passed in 2009 required the MHCC to designate a multi-stakeholder group to implement the statewide HIE; CRISP was selected based upon the breadth of stakeholders and their response to the state's RFA. The statewide HIE makes possible the appropriate and secure exchange of data, facilitates and integrates care, creates efficiencies, and improves outcomes. MHCC's efforts are targeted towards developing a widespread and sustainable HIE that supports the meaningful use definition that qualifies providers for CMS incentive payments. This strategy also supports state public health programs to ensure that public health stakeholders prepare for HIE and mobilize clinical data needed for consumer engagement and health reform in Maryland.

The statewide HIE will support high quality, safe, and effective health care; make certain that data is exchanged privately and securely; ensure transparency and stakeholder inclusion; support connectivity regionally and nationally; achieve financial sustainability; and serve as the foundation for transforming health care in Maryland. The HIE architecture will be capable of connecting approximately 47 acute care hospitals, 6,851 physician practices, 234 long term care facilities, community pharmacies, laboratories, radiology centers, and public health agencies throughout Maryland. The infrastructure will support the meaningful use requirements and eventually connect with other HIEs regionally and nationally. The governance of the statewide HIE will guide the development of the five domains that support the grant program, establish the policies governing the exchange, and determine Use Case implementation. The statewide HIE will provide a mechanism for authorized individuals to perform sophisticated analytics and reporting for public health, biosurveillance, and other appropriate secondary uses of data.

Statewide HIE Design Characteristics

The statewide HIE will utilize a hybrid technology approach, maintaining confidential health care data at the participating facilities and providers. The HIE will perform as a secure and trusted conduit rather than a centralized repository.

The statewide HIE will consist of a hybrid approach that combines a federated or distributed model, keeps the data at its source facilities or with providers, and uses the HIE as the conduit for sharing. In the proposed model for development in Maryland, a hybrid system is conceived of one that consists of a single core infrastructure vendor that serves as a platform for expanding functionality of the utility by adding different vendor applications to the core system. For instance, the core infrastructure selected may consist of an exchange utility with a master patient index (MPI). The MPI in most solutions lacks the robust features necessary to support advanced matching of consumer's to their health information. Available on the market are vendor solutions specific to MPIs that would serve as an alternative to MPI in a core infrastructure solution (i.e., Initiate). In general, the HIE provides a roadmap for properly routing information to the appropriate location. The HIE will maintain a central master patient index (MPI) and a separate registry (Registry) of the record's location within the system. The design also includes the use of a HRB/PHR that is controlled by the consumer, which does not

use MPI or Registry. The hybrid model also allows the centralization of records when directed by consumers. This does not constitute a centralized record, but rather directory information that allows records to be identified and located throughout the distributed system. The hybrid model used in Maryland is less threatening to participants and individual consumers because it is less disruptive to existing, trusted relationships between individuals and their care providers, and raises fewer regulatory issues in today's privacy and security focused regulatory environment. A disadvantage of a hybrid approach is the absence of a single database that can be queried for a variety of health services research, public health reporting, and post marketing surveillance purposes. This disadvantage can be minimized by efficient queries to the statewide HIE, long retention times on edge servers, and special purpose databases with privacy protections suspect to the statewide HIEs controls and data sharing policies. A single HRB associated with the statewide HIE can also deliver robust resource to monitoring capability together with consumer control.

The statewide HIE will deliver essential patient information to authorized providers at the time and place of care to help assure appropriate, safe, and cost-effective care. The statewide HIE will provide a secure method of transmitting administrative health care transactions.

Only authorized users will be able to access the statewide HIE. This will be ensured through a thorough registration, user identity proofing, and authentication process. Users of the statewide HIE will be authenticated at each attempt to access the statewide HIE. Authorized users will only be given access to patient information that is appropriate to their role within their provider organization. Once access is granted, users will have the ability to utilize specific services through the statewide HIE such as; laboratory and radiology results, orders, and delivery; e-prescribing and refill requests; discharge and clinical summary exchange; electronic eligibility and claims transactions; and electronic public health and quality reporting.

The statewide HIE will provide patient access to important elements of an individual's clinical record to help engage patients in their own care.

The statewide HIE will integrate with HRB/PHR applications that meet appropriate technology standards. Information in a PHR may be generated directly from the records of health care providers or entered by the patient. While records from a PHR may not be assigned the same value by providers as either a hospital or physician-generated record since consumers may add information to the record, PHRs allow individuals virtually complete control over their own information and how to share it. For many consumers, this will likely be an attractive option.

The statewide HIE will provide a means for the patient to exercise appropriate control over the flow of private health information, both as a matter of right and as a means of assuring trust. The statewide HIE will allow individuals the freedom to participate or not participate in the HIE.

The statewide HIE will enable individuals to have the right to be informed of their provider's access to and use of the HIE to access their data. Consumers will have the capability to opt-out of participation entirely. If a consumer elects to opt-out, providers will not have the ability to exchange that consumer's information. The HIE will inform individuals of their right not to participate through an intensive public awareness campaign and the consumer's rights related to it. A simple and visible opt-out process will be included at each point of care within the HIE.

The statewide HIE will use standards consistent with emerging national technology standards.

The statewide HIE will use federally-endorsed standards and integration protocols that bridge proprietary boundaries. Making this a core HIE principle will not only ensure that the HIE is not vulnerable to vendor selection issues and risks, but also compatible with HIEs developed by other states and the federal initiative.

The statewide HIE will gather information from the health care system to research efficiency and cost-effectiveness of care, to measure quality and outcomes of care, and to conduct biosurveillance and post-marketing surveillance of drugs and devices.

One of the many functionalities of the statewide HIE will be the ability of providers to report clinical quality measures and public health information. The statewide HIE will also be available for appropriate research purposes. These capabilities will expand health care knowledge; ultimately decreasing health care costs and improving quality of care and public health outcomes.

The statewide HIE will act now but build incrementally.

Growth of the statewide HIE will be based on an incremental strategy, building from individual Use Cases, with individual HIE services that have a demonstrated need and evident clinical value to consumers and care providers. The alternative, which is the implementation of an HIE that immediately seeks to provide widespread exchange of all health information to care providers, imposes significant challenges. The leading challenge is setting such high initial technological and user acceptance thresholds that the HIE misses the current window of opportunity. The HIEs incremental approach is already underway with the first Use Case, the provision of medication information to the emergency departments of participating facilities.

The statewide HIE will ensure focus on the medically underserved.

Amid the inherent challenges of HIE, underserved populations must not be overlooked. The MHCC will ensure that resources and focus remain directed to this particular component of the overall HIE effort, as it represents an important part of the solution and a key part of the quality, access, and cost challenges in health care. The success of the HIE will ultimately require that all constituents using the exchange engage in its development.

HIE Policy Development

The MHCC completed a series of policy reports that relate to implementing a statewide HIE. These policy reports provided the foundation for the multi-stakeholder group to implement an HIE in Maryland. The policy reports focused in part on formulating solutions and developing implementation plans that address organizational-level business practices affecting privacy and security policies, planning and implementing a statewide HIE, and developing community data sharing policies.

An Assessment of Privacy and Security Policies and Business Practices: Their Impact on Electronic Health Information Exchange

A workgroup that consisted of eight health care sector groups was convened to assess business policies and practices in general, and security policies and practices in particular that could impede the development of an effective statewide HIE. This assessment included an examination of each sector group's perception of HIE; concerns regarding the benefits, risks, and challenges impacting each group;

and various alternatives to address these issues. The report is located at: http://mhcc.maryland.gov/electronichealth/assess_privacy_security.pdf.

Privacy and Security Solutions and Implementation Activities for a Statewide Health Information Exchange

The MHCC assembled a multi-stakeholder workgroup to develop solutions and recommend activities to develop guiding principles and evaluate the privacy and security barriers for HIE implementation. The workgroup proposed a number of solutions that would guide efforts to establish a statewide HIE. They also assembled a list of implementation activities that they believed would guide HIE to a desired future state in Maryland. This report is located at: http://mhcc.maryland.gov/electronichealth/solutions_implement_rpt0908.pdf.

Planning for a Statewide Health Information Exchange

Building a successful HIE requires considerable planning in order to implement a business model that creates incentives for use, and recognizes the need for funding from those stakeholders that derive value and benefits for using technology to share health information. The MHCC brought together two distinct groups of diverse stakeholders to address complex policy and technology issues from somewhat different perspectives. The two multi-stakeholder groups selected to participate in the planning phase were: the *CRISP* and the *Montgomery County Health Information Exchange Collaborative (MCHIE)*. These teams focused specifically on addressing issues related to governance; privacy and security; role-based access; user authentication and trust hierarchies; architecture of the exchange; hardware and software solutions; costs of implementation; alternative sustainable business models; and strategies to assure appropriate consumer engagement, access, and control over the information exchange. Final reports, submitted by each group on February 20, 2009, are located at: http://mhcc.maryland.gov/electronichealth/statehie.html.

Service Area Health Information Exchange

Providers throughout the state are beginning to exchange limited amounts of electronic patient information. SAHIEs are emerging and are typically made up of providers in a select geographic area that share the same patients across practices and settings. These providers must address challenges related to privacy and security, business practices, and technology. The MHCC convened a workgroup of chief information officers, privacy officers, and various other health care stakeholders to develop a resource guide that includes the policies relating to patient rights to their health information and control of this information; range of business practices for access, authentication, authorization, and audit; technical requirements for standards and process workflows; communication mechanisms and outreach initiatives; key community-level financial, organizational, and policy challenges; and alternate community data uses. The *Service Area Health Information Exchange: A Hospital Data Sharing Community Resource Guide* is located at: http://mhcc.maryland.gov/electronichealth/SAHIE_03-06-09-WEBFinal.pdf.

HIT Adoption

The MHCC has implemented a number of strategic initiatives to bolster the adoption of EHRs in Maryland. The MHCC's strategy has been to accelerate the adoption of EHRs in the state. These efforts focused on increasing the provider's use of this technology. Among other things, the strategy has focused on increasing adoption through education and awareness activities. For the last several years,

the MHCC has conducted presentations on HIT at annual practice administrator meetings, professional society conferences, and has engaged providers on a one to one basis. The MHCC has included meaningful use education and awareness presentations and resources as part of its HIT adoption activities. Effective data sharing depends largely on the ability of providers to access and maintain patient information electronically. Key HIT adoption initiatives include the following.

Task Force to Study Electronic Health Records

The legislatively established Task Force to Study Electronic Health Records (Task Force) consisted of 26 members, including 20 appointees of the Governor. The Task Force was formed in 2005 and charged with studying EHRs; the current and potential expansion of their utilization in Maryland, including electronic transfer, e-prescribing, computerized provider order entry CPOE; and the cost of implementing these functions. The Task Force also studied the impact of the current and potential expansion on school health records and patient safety and privacy. The Task Force presented 13 recommendations to facilitate EHR adoption among providers. The Final Report was released in 2007 and is located at: http://mhcc.maryland.gov/electronichealth/presentations/ehr_finalrpt0308.pdf.

The Task Force reconvened in April of 2009 to review the impact of The American Recovery and Reinvestment Act (ARRA) of 2009 on the original recommendations. The Task Force proposed modest updates to the original recommendations. The report of the proposed modifications is located at: http://mhcc.maryland.gov/electronichealth/EHRTaskForceSummaryFinal061909.pdf.

EHR Product Portfolios

The MHCC developed an EHR Product Portfolio (Physician Portfolio) to provide physician practices with evaluation and comparison information on EHRs. The Physician Portfolio contains a core set of product information to assist physicians in assessing EHRs. Vendors that have offered discounts to Maryland providers are included in the Physician Portfolio and have provided details regarding product information, pricing, privacy and security policies, and user references that were developed into a consumer reference report. EHR products that have been certified by an ONC Authorized Testing Certification Body (ATCB) are also indicated on the Physician Portfolio. The Physician Portfolio is updated semi-annually to ensure that providers have state-of-the-market information available. The Physician Portfolio is located at: http://mhcc.maryland.gov/electronichealth/ehr/ehrvendors.html.

In an effort to offer tailored EHR resources to other provider groups, the MHCC developed a Nursing Home EHR Product Portfolio (Nursing Home Portfolio). EHR products sought by nursing homes differ from those utilized by individual physician practices. The Nursing Home Portfolio contains similar evaluation and comparison information as the Physician Portfolio and serves as a customized resource for nursing homes by highlighting EHR products appropriate for these types of facilities. The Nursing Home Portfolio is also updated twice a year. The Nursing Home Portfolio is located at: http://mhcc.maryland.gov/electronichealth/nursing_home/nursinghomeehr.html.

The MHCC will update these EHR product portfolios to provide information on EHR vendors' connectivity to the statewide HIE and associated costs and EHR products' capability to identify and keep confidential sensitive health information. An additional portfolio that will highlight the services provided by State Designated MSOs, including those providing services through the Regional Extension Center (REC), is under development.

Centers for Medicare & Medicaid Services EHR Demonstration Project

Maryland is one of four states participating in the CMS five year EHR demonstration project (project) to encourage small to medium sized primary care physician practices to use EHRs. The project aims to improve the quality of patient care by improving the way health care information is managed. The Maryland/DC Physician EHR Demonstration Collaborative (EHR Collaborative) was formed to assist CMS in its efforts to increase EHR adoption. The EHR Collaborative is comprised of The Maryland State Medical Society (MedChi), the MHCC, the Medical Society of the District of Columbia, and other stakeholders. Over 250 physician practices in the Maryland/DC area were selected to participate in either a control or treatment group. Participating practices that are part of the treatment group must complete an annual Office System Survey (OSS) that CMS will use to determine the amount of incentive payments paid to practices. These practices are eligible to earn up to $290,000 over a five-year period for adopting EHRs and reporting to CMS on select quality measures. Practices participating in the project, in the control group will receive a payment in years two and five for completing the OSS. CMS and the MHCC use the findings from the annual OSS to develop programs aimed at helping practices become meaningful users of EHRs. Details of the demonstration project can be found at: http://mhcc.maryland.gov/electronichealth/cmsdemo/index.html.

Electronic Health Records – Regulation and Reimbursement

The Maryland General Assembly passed legislation titled *Electronic Health Records – Regulation and Reimbursement*, which was signed into law on May 19th of 2009 by Governor Martin O'Malley. The law aims at expanding the adoption of EHRs through incentives from state-regulated payers to providers who use certified EHRs that are capable of connecting to an HIE. In September 2009, the MHCC convened a public meeting where approximately 22 stakeholder organizations, including payers and providers, gathered to discuss ideas related to developing the EHR incentive regulations. Feedback from the public meeting and additional input from various stakeholders over a six-month timeframe were used in drafting the regulations. COMAR 10.25.16, *Electronic Health Record Incentives,* was published in the July 30, 2010 issue of the *Maryland Registry*. The MHCC received public comments from 18 organizations and has made recommendations based on these comments to the Senate Finance Committee and the House Health and Government Operations Committee. These committees will provide their review prior to a final vote by the Commissioners in March of 2011.

Specialty Provider EHR Adoption Initiative

Specialty care providers are an important part of the health care community and the MHCC is making efforts to increase EHR adoption among this provider group through customized outreach activities.

Long Term Care EHR Adoption Initiative

The MHCC is working with the Health Facilities Association of Maryland and LifeSpan Network, the two long term care (LTC) associations in Maryland, to advance EHR adoption among independent LTC organizations. LTC administrators participated in several meetings to explore options for implementing EHRs. The MHCC completed an EHR adoption environmental scan and found that EHR adoption in independent LTC organizations increased by approximately 4 percentage points over the

last year to around 30 percent.[6] These findings will be used by the MHCC to develop EHR adoption programs in collaboration with the two LTC associations.

Management Services Organizations

MSOs are considered a viable alternative to the traditional stand-alone EHR client-server model, which requires practices to individually negotiate pricing and maintain the technology required to support the software. MSOs are capable of supporting multiple EHR products at reduced costs through economies of scale and bulk purchasing. The MSO approach uses hosted solutions of one or more EHR systems through the Internet. MSOs often provide (24/7/365) product support through a Network Operation Center (NOC).

In accordance with legislation, the MHCC is required to designate one or more MSOs as State Designated MSOs. The MHCC's vision of designated MSOs is one that offers choices of EHR products, meets national certification requirements, and uses an NOC that, at a minimum, complies with the *Health Insurance Portability and Accountability Act of 1996* (HIPAA), Administrative Simplification Provisions. Approximately 20 MSOs have applied for State Designation (see Appendix B for a list of MSOs in *Candidacy Status*).

Regional Extension Center Program

CRISP received $6.4M in funding from the ONC under the HITECH Act to establish a regional extension center (REC) in Maryland. The goal of the REC is to help 1,000 priority primary care providers (PPCPs), as defined by the ONC, in Maryland with adopting EHRs and achieving the meaningful use requirements. The statewide HIE worked with the MHCC to develop a sustainable business model that utilizes State Designated MSOs to enable the REC to meet the ONC requirements, expand EHR adoption, and provide other EHR-related services to all providers. The MHCC State Designation is a core component for an MSO to participate with the REC. The REC has partnered with roughly 15 MSOs that are currently in Candidacy status for State Designation. These MSOs offer assistance to all providers in Maryland and will receive subsidies under the ARRA for assisting priority primary care providers to meet established milestones, which include: provider enrollment, EHR implementation and utilization, and meeting meaningful use. At the end of 2010, approximately 311 PPCPs have signed a participation agreement with MSOs and roughly 45 percent of these PPCPs will adopt EHRs for the first time.

School Health Records

The Task Force included school health records in its study of EHRs and recommended the encouragement of EHR adoption in school-based health centers. The MHCC is acting upon this recommendation and has completed a market scan on the use of EHRs in public schools, and has identified EHR vendors in the industry that may be helpful in the adoption of EHRs in public schools. The Task Force noted that the laws governing protect health information and the laws governing education records are not always consistent and need further attention. The MHCC intends to convene a workgroup of stakeholders, such as school officials and vendors, to develop an outreach and education program to help increase the adoption of EHRs in Maryland's public schools. The MHCC will

[6] Maryland Health Care Commission, *Electronic Health Records: An Assessment of Maryland Nursing Homes*, December 2010. Available at: http://mhcc.maryland.gov/electronichealth/mhcc_ltc_survey_final.pdf

engage these stakeholders to assist in the development of a Portfolio that assists schools in the assessment and selection of EHRs.

Medicaid Coordination

Medicaid Information Technology Architecture Initiative

The Maryland Department of Health & Mental Hygiene, Office of Systems, Operations, and Pharmacy (DHMH OSOP) assessed the current State of the Maryland Medicaid Management Information System (MMIS) along with the current Medicaid processes used by the State of Maryland and developed a transition plan to align with the federally mandated Medicaid Information Technology Architecture (MITA) requirements and state HIT and HIE initiatives. The new system will modernize existing system functions and significantly enhance the goals of the MMIS ensuring that eligible individuals receive the health care benefits to which they are entitled, and that providers are reimbursed promptly and efficiently. Coordination between DHMH and the MHCC is in place to ensure that opportunities for data sharing and the HIE are maximized.

DHMH intends to replace its legacy MMIS claims processing system with a new MMIS system based on MITA 2.0 principles that will include imaging and workflow management, and a robust business rules engine to aide in creating and managing flexible benefit plans. The implementation of a new MMIS is expected to be in place by September 2013. The new MMIS will process all Medicaid claims and eliminate the duplicative adjudication of the Mental Hygiene Administration (MHA), Developmental Disabilities Administration (DDA), and dental claims. The new MMIS system will also support coordination of benefits, surveillance and utilization review, federal and management reporting, case management, and the statewide HIE. In conjunction with the MMIS replacement, DHMH intends to add a Decision Support System (DSS); implement a Service Oriented Architecture (SOA) Integration Framework to provide a platform for the system that will enable better interoperability with existing legacy applications; and develop a Member and Care Management portal. These enhancements will help eliminate manual processes and will improve general population health by targeting individuals by cultural, diagnostic, or other demographic indicators to ensure that appropriate and cost-effective medical or medically-related social and behavioral health services are identified, planned, obtained, and monitored for individuals identified as eligible for care management services under programs such as:

- Medicaid Waiver Program Case Management;
- Home and Community-Based Services;
- Employed Individuals with Disabilities (EID);
- Primary Adult Care (PAC);
- Breast and Cervical Cancer;
- Rare and Expensive Case Management (REM);
- Traumatic Brain Injury (TBI);
- Disease Management;
- Catastrophic Cases; and
- Healthy Start Program.

The SOA Integration Framework will enable a bi-directional real-time interface with the State's Client Automated Resources Eligibility System (CARES) and the statewide HIE to facilitate better access to the complete eligibility record, resolve data integrity issues across systems, improve claims payment accuracy by capturing the most current eligibility information, and support inter-agency coordination to provide appropriate and cost effective medically necessary care management services. The SOA Integration framework will eventually support an evolutionary approach to information sharing and integration for the Medicaid enterprise and the statewide HIE to allow the creation of a single source of a recipient's demographic, financial, socio-economic, and health status information.

The desired system will have the ability to support EHR initiatives and provide enough flexibility to respond to the changing needs of these initiatives. The system will also allow for required system modifications made by the HIE and to access and utilize data from other state HIEs, EHRs, and PHRs, as permissible. The desired system will also have an indicator mechanism on the electronic claim to measure provider participation in the statewide HIE.

Medicaid Health IT Planning Project

The Maryland Medical Assistance Program (Medicaid) is working in consultation with the MHCC to develop a program for Medicaid to administer the EHR adoption and meaningful use incentives under the ARRA HIT incentive program. Under this program, providers can qualify for 100 percent of Federal incentive funding for adoption and meaningful use of certified EHR technology. The program also authorizes a 90 percent Federal Financial Participation (FFP) for reasonable administrative expenditures to support state efforts to administer this program. In order to receive these funds, Medicaid, along with the MHCC, developed and submitted to CMS the *Health Information Technology Planning-Advanced Planning Document* (HIT P-APD). Included in the HIT P-APD is a high level description of a series of planning tasks pertaining to: provider education and awareness; development of the *State Medicaid Health IT Plan* (SMHP); development of the HIT Implementation Planning Advance Planning Document (HIT I-APD) to implement activities identified in the SMHP; and the development of an Request for Proposal (RFP) for a vendor to provide operational support and program audit services.

The Maryland Medical Assistance Program received around $1.3 million from CMS to proceed with the planning tasks outlined in the HIT-APD. In particular, the MHCC is working closely with Medicaid to develop the SMHP. The SMHP outlines the strategic HIT vision for Medicaid. The SMHP establishes the groundwork for achieving this vision by describing the "As-Is" HIT landscape of the current status of HIT, the desired "To-Be" HIT vision for 2014, a Roadmap Plan that serves as the strategic pathway to move from the "As-Is" landscape to the "To-Be" vision, and a five year implementation and oversight plan to support the incentive payments under Section 4201 of the ARRA. The goals and vision of the SMHP are expected to reflect those in the State Health HIT Plan. The SMHP was submitted to CMS in January 2011.

Coordination of Medicare and Federally Funded, State Based Programs

The successful development and implementation of the statewide HIE will be defined by how beneficial health information is in improving quality, reducing health care costs, and improving health outcomes. Achieving these benefits is dependent on much more than just technology. The statewide HIE will

work collaboratively with DHMH to develop reporting capabilities that will allow DHMH to report required data to the Centers for Disease Control and Prevention and immunization registries. Discussions with DHMH are already underway to develop a Use Case for testing in 2011. Data from the Medicaid long term care population will be made available through the HIE as part of the collaboration with DHMH on the MITA initiative. Demonstrated improvements in public health require access to patient eligibility and clinical information from the Medicaid program. The statewide HIE will utilize many of the resources and tools developed by the Agency for Healthcare Research and Quality to assist Medicaid and the Children's Health Insurance Program in improving the delivery and coordination of care through exchanging electronic patient information. Maryland's goal is to maximize coordination efforts with Medicaid and Medicare on relevant federally-funded state programs to advance robust interoperable HIE as quickly and strategically as possible.

The Advisory Board of the statewide HIE will work with CMS to identify the challenges in exchanging electronic health information. The Advisory Board is responsibility for providing oversight into the development of the technology to support data sharing with federal programs. Current funding from the unique all-payor hospital rate setting system in Maryland includes the development of Use Cases to support exchanging data with Medicare and other federally-funded programs. The Exchange Technology Committee, a subgroup of the Advisory Board, is in the preliminary stages of identifying the architecture, hardware, and software along with network configuration to connect with all publically funded programs. The Exchange Technology Committee will also evaluate process design, functionality, and system maintenance requirements necessary to support the electronic exchange of health information. Policies essential to exchange data with publically funded programs will be developed by the Policy Board, which is an independent policy making committee under the direction of the MHCC.

Participation with Federal Care Delivery Organizations

The Veterans Affairs (VA) Maryland Health Care System is a dynamic and progressive health care organization dedicated to providing quality, compassionate, and accessible care and service to Maryland's veterans. The Baltimore and Perry Point VA Medical Centers, the Baltimore VA Rehabilitation & Extended Care Center, and five community-based outpatient clinics all work together to form this comprehensive health care delivery system. The VA has successfully implemented a system-wide EHR in a health care system that serves nearly 6 million patients in more than 1,400 hospitals, clinics, and nursing homes (Department of Veterans Affairs, 2008). Connecting the statewide HIE with the VA is of high importance to the MHCC. The statewide HIE will explore data sharing with the VA in 2011. Implementation is expected to occur on a Use Case basis.

Most of the physicians who work for the VA hold dual appointments at the University of Maryland, School of Medicine. The University of Maryland, School of Medicine is part of the University of Maryland Medical System, which is an active participant in the planning and implementation of the statewide HIE. The MHCC plans to reach out to the VA in Maryland to assess EHR implementation and capacity to interface with the statewide HIE.

Coordination with the Nationwide Health Information Network

The proposed infrastructure of the statewide HIE will be designed to ensure flexibility so that the organization can respond to market changes and eventually support data sharing with the Nationwide Health Information Network (NHIN). The technological design of the statewide HIE is based on

federally endorsed standards and integration protocols that bridge proprietary boundaries. Building the statewide HIE consistent with national standards mitigates a wide range of technology challenges for providers in Maryland and establishes the framework for eventual connectivity to the NHIN. Stakeholders agreed that a statewide HIE must build upon approved standards to not only avoid vulnerability to vendor selection issues and risks, but to ensure compatibility with other HIEs and federal initiatives. Participants of the statewide HIE, along with the MHCC; have been engaged in conversations with staff of the Federal Health Architecture (FHA) under the ONC. The MHCC and the statewide HIE anticipate beta testing of select use cases with the NHIN architecture in 2011. Previous discussions with Mr. Vish Sankaran, Program Director of the FHA, have resulted in his support of preliminary testing in late 2011.

Coordination of Other ARRA Programs

Regional Extension Center Program

The statewide HIE received $6.4M in funding from the ONC under the *Health Information Technology Extension Program: Regional Centers Cooperative Agreement Program*. The REC aims to reach 1,000 priority primary care providers through a sustainable business model that utilizes State Designated MSOs to expand EHR adoption and assist providers in meeting the meaningful use requirements. Given that State Designated MSOs must also provide connectivity to the statewide HIE, the statewide HIE has an advantage in leveraging the work of the REC to outreach, educate, and connect physician practices to the HIE. The MHCC is providing strategic guidance to the statewide HIE in executing the deliverables of the grant.

Workforce Initiatives

Two educational institutions in the state of Maryland are participants in three out of the four ONC HIT Workforce Development Programs. The Community College of Baltimore County (CCBC) in Region E is working with Tidewater Community College under the *Community College Consortia to Educate Health IT Professionals in Health Care Program.* Johns Hopkins University was selected as one of five institutions of higher education to be award approximately $1.8 million under the *Curriculum Development Centers Program.* In April 2010, Johns Hopkins University was also selected to increase the availability of qualified health IT professionals by creating university-based training programs under the *Information Technology Professionals in Health Care: Program of Assistance for University-Based Training*. The MHCC sits on the advisory boards of both institutions' programs.

Broadband Access

Broadband access is essential to achieving increased EHR adoption and connecting practices to the statewide HIE. Relative to most states, Maryland has a fairly extensive broadband infrastructure. Nearly all physician practices have access to broadband and roughly 94 percent of the state's populations are covered by broadband. Generally speaking, the lack of broadband coverage in rural areas of the state is considered to be minimal. In November 2009, the Department of Commerce's National Telecommunications and Information Administration announced that Maryland was one of seven states to receive funding under HITECH. Maryland received about $1.5 million for broadband data collection and mapping activities over a two-year period and almost $480,000 for broadband planning activities over a five-year period, bringing the total grant award to approximately $2 million.

The maps below outline broadband capabilities in the state and include physicians, physician practices, primary care physicians, and primary care physician practices.

Figure 1: 2008 Estimated Broadband Coverage and Physicians

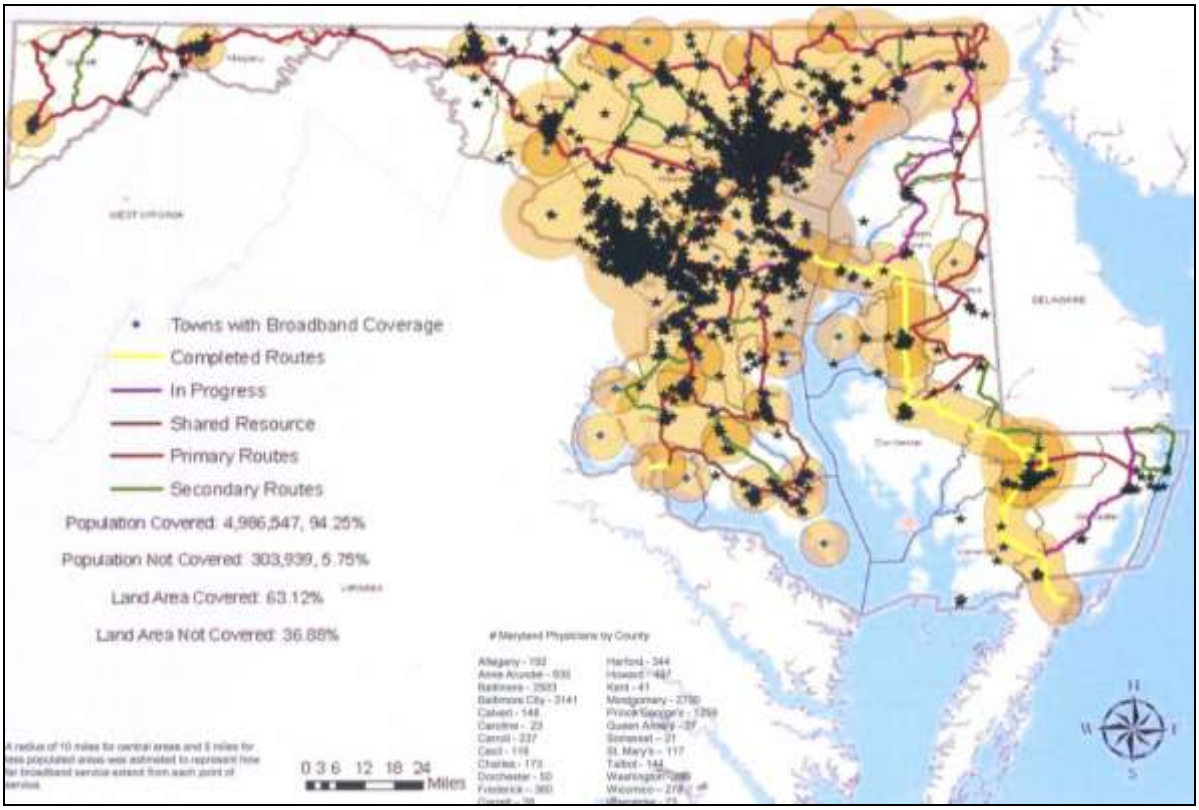


Figure 2: 2008 Estimated Broadband Coverage and Physicians Practices

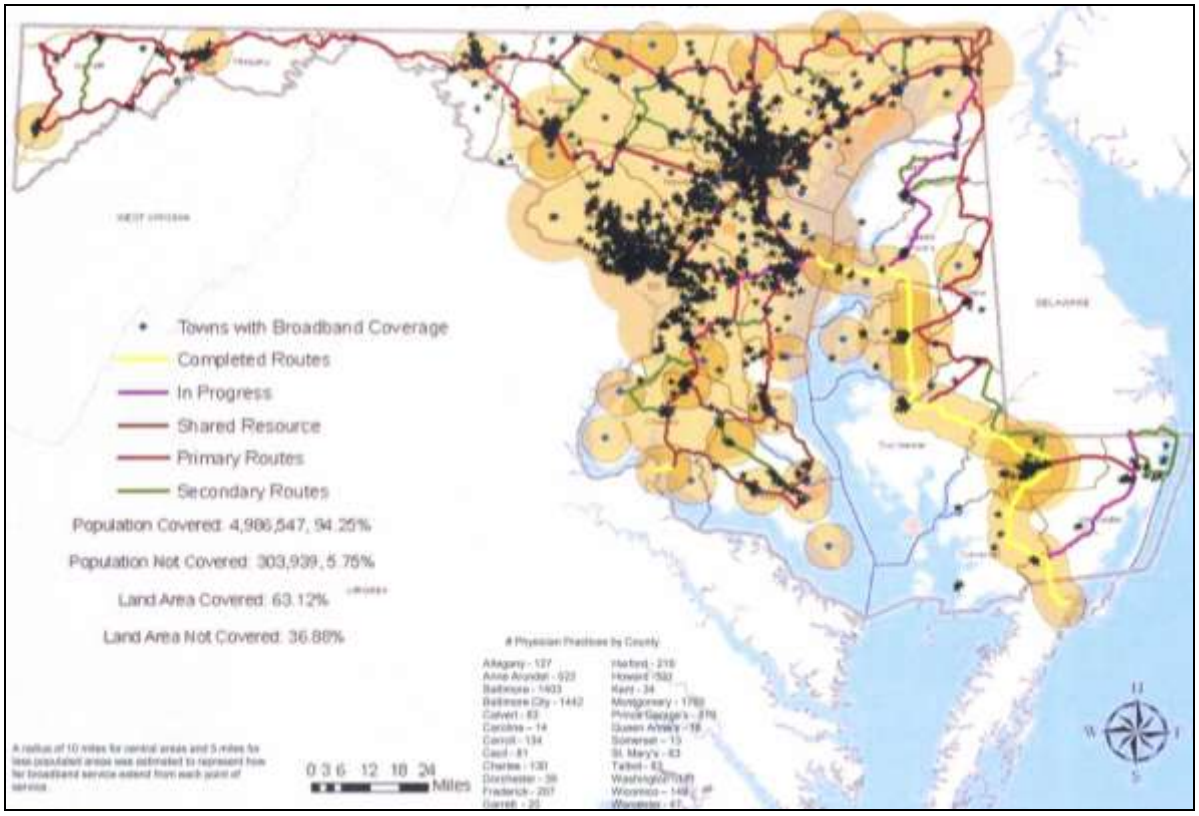


Figure 3: 2008 Estimated Broadband Coverage and Primary Care Physicians

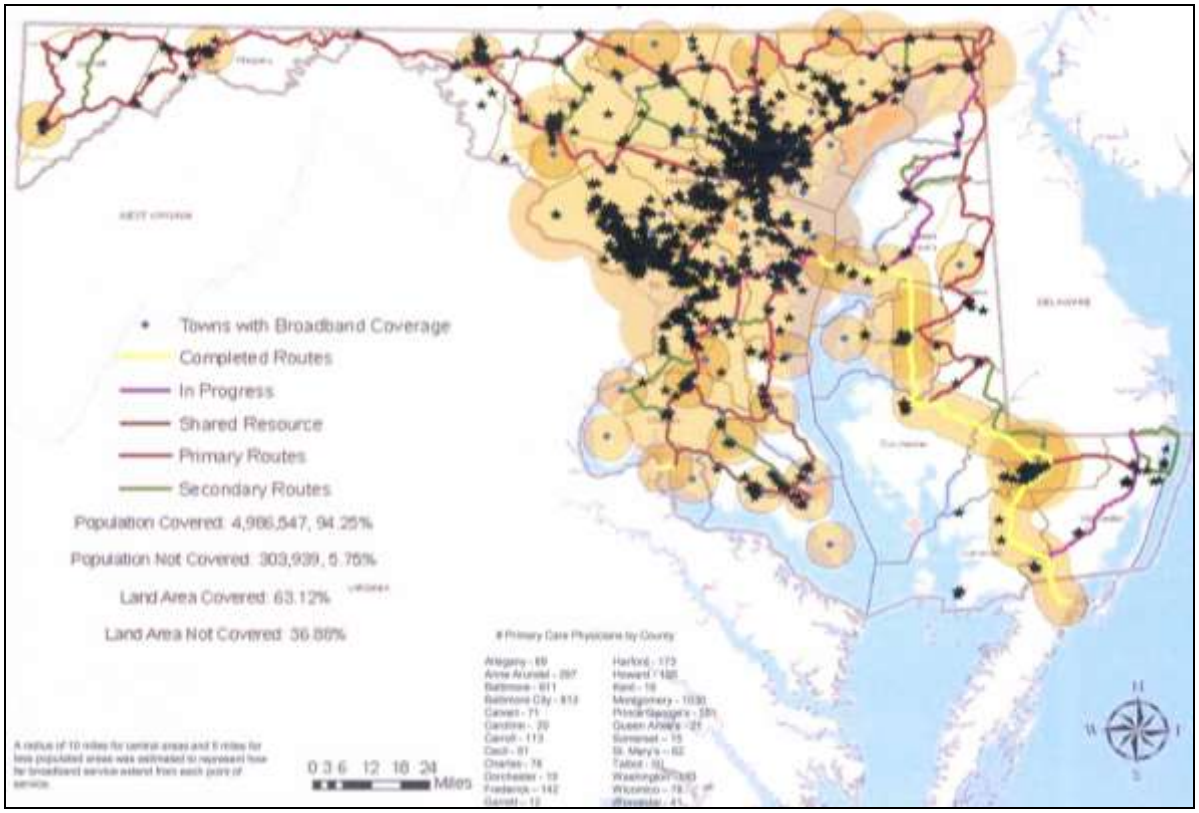
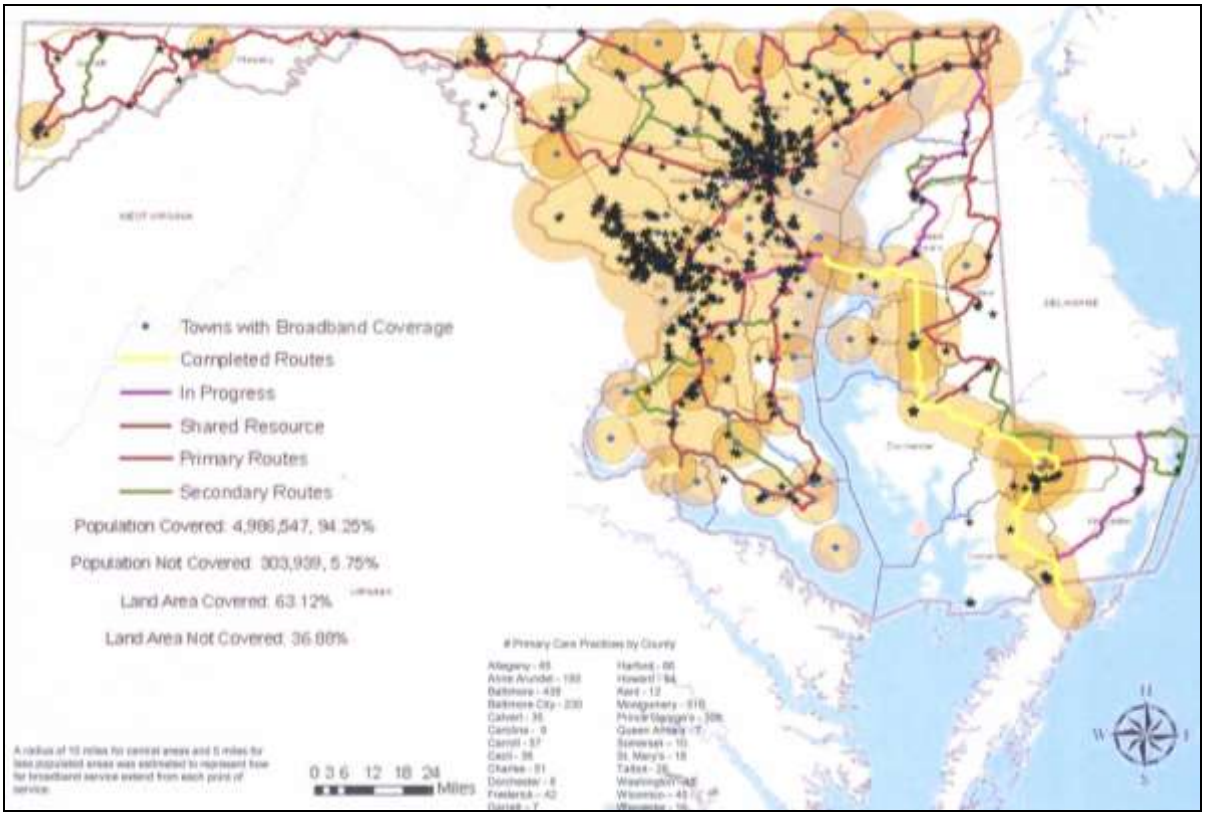


Figure 4: 2008 Estimated Broadband Coverage and Primary Care Practices



HIE Challenge Program

The MHCC received $1.6M to address one of the four challenge themes of the HIE Challenge Program. The goal of this project is to pilot the electronic exchange of clinical documents between LTC centers and proximate hospital emergency departments. The pilot will center on six large LTC facilities across Maryland, with some services being offered to every facility in the state. Erickson Retirement Communities, Lorien Health Systems and Genesis Healthcare, three leading operators of LTC facilities in the state, have committed to this project. Each participating facility is paired with a hospital in its immediate medical service area. New scalable technology will be implemented to enable and measure the exchange. The targeted outcomes include: 1) an increase in the number of transitions of care within the pilot populations that are accompanied by electronic summary of care information compared to a baseline; 2) a reduction in the average time to transmit such information compared to the status quo; and 3) a measurable effect on hospital readmission rates for patients participating in the pilot versus a control group. In coordination with the state's Medical Orders for Life-Sustaining Treatments (MOLST) initiative, the project will work to ensure that advance directives are a component of the electronic summary of care by developing the required framework for storing and exchanging advance directives electronically in Maryland.

Domain Requirements

Governance

Collaborative Governance Model

The MHCC is responsible for implementing a statewide HIE in Maryland. The MHCC has oversight authority for the work of the state designated HIE and is an active participant in all phases of the work effort. In August 2009, the MHCC identified a multi-stakeholder consortium known as CRISP, the Chesapeake Regional Information System for our Patients, to implement the Health Information Technology State Plan (state plan). While the state plan intentionally refers to CRISP as the statewide HIE, the responsibility for implementing a statewide HIE rests with the MHCC. The MHCC's commitment to the state designated HIE is limited to three years. At the end of the three year period, the MHCC will evaluate the performance of CRISP and determine if an additional three year continuance is appropriate. The HIE consists of a diverse governance structure that promotes transparency and addresses the needs of various stakeholders. The governance is comprised of the Policy Board, Board of Directors, and the Advisory Board.

The CRISP Board of Directors is the authoritative entity overseeing the operations of the statewide HIE and consists of founding members from Johns Hopkins Health System, University of Maryland Medical System, MedStar Health, and Erickson Retirement Communities. The Board of Directors consists of 12 individuals with overall management and governance responsibilities. The Board of Directors will ensure that the policies developed by the Policy Board are implemented and will take the recommendations from the Advisory Board under consideration. The governance model is designed to be flexible to ensure the organization can respond to market changes and eventually support data sharing with the NHIN.

The Advisory Board is comprised of approximately 45 members who are divided into four committees: the Exchange Technology Committee, the Clinical Excellence and Exchange Services Committee, the Finance Committee, and the Small Practice Advisory Committee. The Advisory Board will routinely consult with Medicaid on policy and technology issues.

The MHCC convened Policy Board consists of approximately 35 diverse members selected based upon their expertise, with a strong emphasis on achieving both broad stakeholder representation and a strong consumer orientation. The Policy Board will provide oversight to the HIE, develop the policies related to privacy and security, and represent the public's interests. The Maryland Medical Assistance Program (Medicaid) holds an ex-officio seat on the Policy Board and will have active involvement with the development of the policies that govern the statewide HIE. The existence of a Policy Board that is separate from the administration of statewide HIE assures participation by the public in both policy development and operational oversight. The responsibilities of this Policy Board include, although are not limited to, the development of policies for the enforcement of privacy and security, auditing protocols, and other policies consistent with current laws. Moreover, the Policy Board will be charged with proposing additional requirements under the *Maryland Confidentiality of Medical Records Act* (MCMRA).

Oversight by the MHCC Convened Policy Board and the Commissions

The decisions of the Policy Board, when adopted by the MHCC, will be enacted and augmented by the governance structure of the HIE. Bi-directional communication between the Policy Board and the statewide HIE governance structure is important and will help ensure no disconnect between policy creation and that which is technically feasible or practical. Cross-membership between the Advisory Board and the Policy Board is an appropriate mechanism to facilitate that communication. Included on the Policy Board is a senior level representative from Medicaid. This individual actively participates on the Policy Board and is tasked with making recommendations that will impact the Medicaid program, in consultation with Medicaid's senior leadership. The statewide HIE and the executive leadership at Medicaid meet routinely to discuss the needs of Medicaid in the statewide HIE. The leadership of the statewide HIE meets with the leadership of state-based payers in Maryland, as well.

Enforcement

The statewide HIE Board of Directors are ultimately accountable for the accomplishments of the work effort. The Board of Directors, which consists of a number of stakeholders, have been actively involved in implementing data sharing projects within their communities, across their organizations, and at a state level. These individuals that constitute the Board of Directors are charged with ensuring that all aspects of the state plan have been implemented to the satisfaction of the MHCC. They have the authority to make any necessary changes within the CRISP organization to ensure that these goals are met. The Board of Directors also has enforcement of privacy and security and other policy issues. The Board of Directors has the authority to convene administrative hearings related to all aspects of the organization's activities in an effort to resolve issues. The MHCC has the authority to request action to be taken from the statewide HIE Board of Directors as deemed necessary by the event.

State Government HIT Coordinator

The MHCC's Center for Health Information Technology (Center) Director, David Sharp, will serve as the Maryland Government HIT Coordinator. The Center Director is actively involved in HIT and HIE in Maryland and previously participated on the national Health Information Security and Privacy Collaboration, Adoption of Standard Policies Collaborative. The Center Director is currently working with Medicaid to explore data sharing opportunities under the MITA transformation project and is actively involved with CMS as part of its EHR Demonstration Project.

As the HIT Coordinator for Maryland, the Center Director also sits on the Steering Committee for the Community Health Integrated Partnership's (CHIP) Electronic Patient Record System Implementation project. CHIP provides roughly nine community health centers with the business expertise to achieve the shared goal of quality improvement in the care they deliver, and is a recipient of HIT funding from the Health Resources and Services Administration. The Center Director is an ex-officio member on the CRISP Advisory Board, a participant on the state Policy Board, and is actively involved with the state's medical society and hospital association.

Accountability and Transparency

The basic framework for building consumer trust, collaboration with stakeholders, and transparency necessary to achieve HIE sustainability is attributed to the vast policy discussions that have occurred over the last several years. The MHCC required the statewide HIE to have a diverse governance

structure. A group of core members representing the major stakeholders, consisting of hospitals, health systems, government entities, and large ancillary service providers, with rotating membership among other ancillary stakeholders and the public, are important components of the statewide HIE. The statewide HIE formulated bylaws that avoid domination or coercive pressure by any one stakeholder. All members have real input and influence over policy formation. All Policy Board meetings are open to the public and have received increased public participation. CRISP and the Policy Board maintain websites where essential information is posted for public view. The MHCC submits monthly progress reports to the governor and yearly reports to legislative committees as per statute. The $10 million in funding through Maryland's all-payor rate setting system and $9.3 million in federal funding is based on the statewide HIE meeting specific deliverables identified in MHCC's specifications for a statewide HIE and also in the Memorandum of Understanding. MHCC has entered into a three year agreement with CRISP to implement the statewide HIE. CRISP submits monthly status reports to the MHCC detailing specific HIE efforts including, education and outreach, technology implementation, provider connectivity, etc.

Privacy and security policies and practices provide the virtual locks and enforcement tools made possible by technology, and can make it more difficult for violators to access electronic health information and help ensure that when there is a breach that the perpetrators will be detected and punished. Enacted in 1990, the MCMRA long predated the HIPAA Privacy Rule and is generally not preempted by it. This law applies to any medical record, a term that includes any oral, written, or other transmission in any form or medium of information that identifies a patient, is entered in a patient's record, and relates to the health care of the patient [HG §4-301(h)]. Although medical records in electronic form may have been uncommon when the Act became law, the definition's comprehensive phrasing ("any form or medium of information") means that the Act encompasses paper records themselves, the electronic embodiment of paper records after scanning or some other imaging process, and records initially created in electronic form. A recent opinion letter from the State's Attorney General indicated that electronic health information is governed by the MCMRA. Individuals who violate the MCMRA are subject to criminal penalties, private right of action, and civil penalties.

Finance and Sustainability

Federal funding from the *State Health Information Exchange Cooperative Agreement Program* is expected to speed implementation of the statewide HIE. These funds are used in conjunction with the funding approved through Maryland's all-payor rate setting system to expand the number of Use Cases implemented over the four year performance period. Initial funding by the state is limited and is not expected to enable full deployment of the statewide HIE. The incremental approach to building the statewide HIE ensures sustainability within about five years. The Finance committee of the statewide HIE Advisory Board will refine and modify assumptions associated with the CRISP revenue model, evaluate how federal funding requirements impact existing revenue planning, analyze how federal funding opportunities tie into CRISP financing, and assess specific HIE services with regards to financial sustainability.

The strategy for identifying revenue sources was formed by considering a number of factors, including:

- State monies should be leveraged to achieve a sustainable business model;
- The participants in the statewide HIE will be willing to pay fees relative to the value they gain from using the exchange;

- The value of EHR adoption and HIE participation by physicians has been markedly increased by the Medicare and Medicaid payment incentives for meaningful use;
- The financial model should not rely on grant funding, even though grants may be available for future projects and expansions;
- Revenue should not be sought disproportionately from any one stakeholder or group of stakeholders; and
- Properly developed subscription fee models that incentivize higher utilization of HIE services can provide stability in revenue planning.

To arrive at reasonable revenue estimates that meet all of these criteria, the statewide HIE followed a model established by eHealth Initiative (eHI) entitled *Health Information Exchange: From Startup to Sustainability* and the accompanying toolset released by the U.S. Department of Health and Human Services and Health Resources and Services Administration on May 22, 2007. These materials, developed under a grant from the Office for the Advancement of Telehealth, provide a template for planning and implementing HIEs that includes sustainability over the long-term. The eHI report draws on the experience of several organizations and projects, including:

- Health Bridge of Cincinnati, Ohio, which implemented an HIE for order entry, eligibility verification, portal services, and clinical messaging;
- IHIE of Indiana, which implemented an HIE for clinical messaging; and
- THINC of the Hudson Valley in New York, which implemented an HIE for hosted EHRs.

Technical Infrastructure

The statewide HIE was designed for sufficient flexibility and the capability of growing and adapting over time. Attracting and retaining both private and public stakeholders, creating a level playing field, and caring for the needs of those with limited resources are critical elements to a statewide HIE. The architecture was specifically developed using national standards. Implementation of a standards-based solution will offer immediate value that supports connectivity to the NHIN. As part of the technology evaluation and procurement process, the statewide HIE completed an assessment of the technology for compliance with the standards endorsed by the Secretary of the Department of Health and Human Services (HHS), and will only integrate technology that meets these requirements. The statewide HIE will monitor the work of ONC's Health IT Policy Committee and the Health IT Standards Committee to ensure that the technical infrastructure includes those standards endorsed by HHS. The statewide HIE anticipates using CONNECT to interface with the NHIN late 2011. The MHCC is expected to annually engage an independent audit team that will audit the financial, operational, and technical components of the statewide HIE. As part of the audit process the audit team will be required to validate that HHS published standards are in place by the statewide HIE. The accountability for addressing concerns identified by the audit team rests with the statewide HIE Board of Directors.

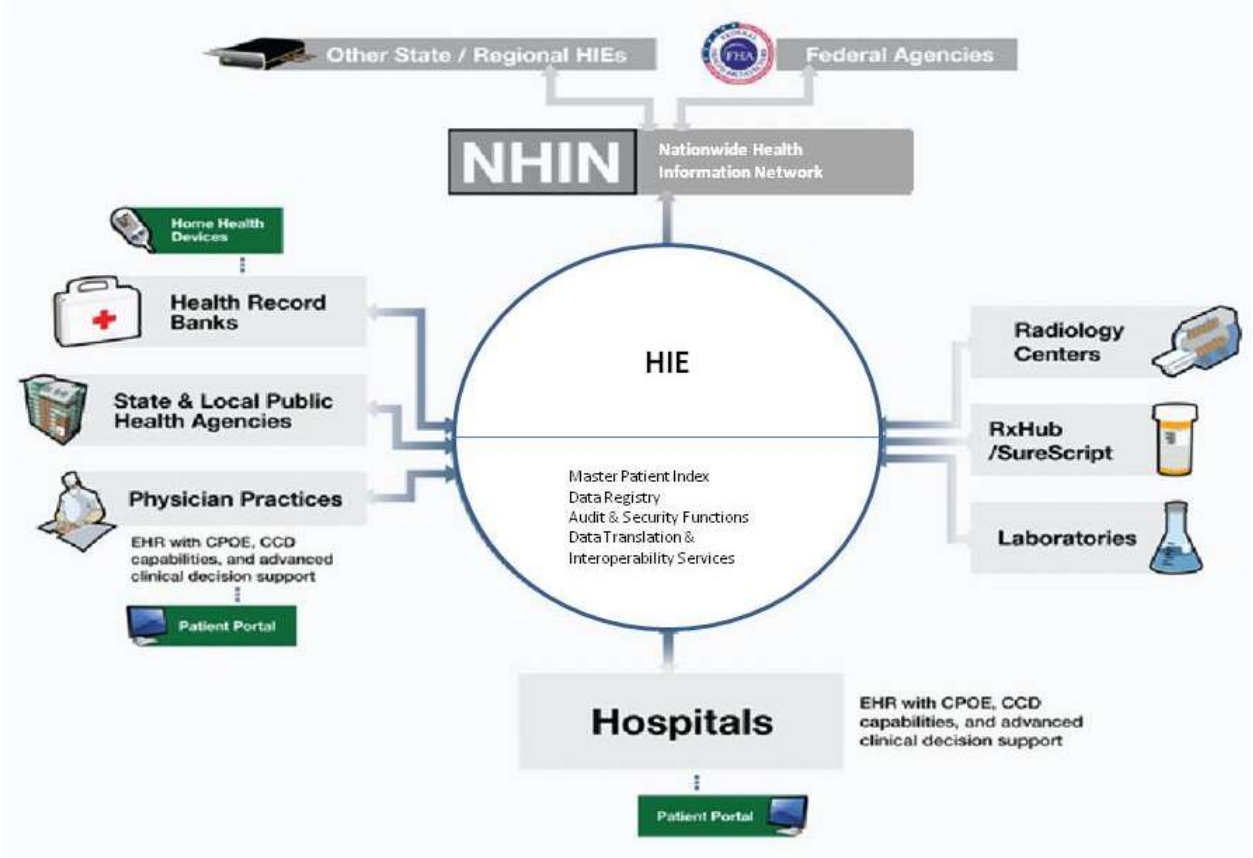
The statewide HIE is a hybrid, standards-based model. The model in Maryland is a hybrid system consisting of a single core infrastructure vendor that serves as a platform for expanding functionality of the utility by adding different vendor applications to the core system. Through a competitive process and with the approval of the MHHC, CRISP selected Axolotl's technology, Elysium Exchange, as the core infrastructure for the statewide HIE in April of 2010. The core infrastructure selected consists of the following solutions: Provider/Network participant Identity Management, Document Registry,

Document Repository, Edge Device Software, Integration and Adapter Frameworks, Authentication and Authorization Services, Consent Management, Subscription Management, Logging and Audit, Network Monitoring, and Nomenclature Normalization. The MPI in most solutions lacks the robust features necessary to support advanced matching of consumer's to their health information, therefore CRISP has selected Initiate Systems to serve as the MPI solution, which will integrate with Axolotl's technology. The exchange will operate using Healthcare Information Technology Standards Panel (HITSP)-endorsed XDS (cross-enterprise document sharing) infrastructure that is appropriate for supporting both distributed data and HRB. This flexible approach will accommodate the planned distributed data model, such as envisioned by the Markle Foundation, with an MPI and Registry. The distributed model ensures that data will be held where it is created, which avoids the negative perceptions and potential privacy and security consequences of storing all patient information in a centralized health information repository. The implications of a decentralized model include capacity monitoring, system availability, storage and retrieval, and security response time. Technology performance goals and standards will be established for providers connecting to the statewide HIE. For research and public health reporting the Policy Board is expected to conclude on data repositories as part of the statewide HIE or whether the statewide HIE can connect to independent repositories.

The flexible, standards-based, hybrid infrastructure will allow for the secure transfer of a defined set of clinical information between participating entities. The core infrastructure will leverage a distributed model developed in adherence to generally accepted specifications and standards. The design will ultimately drive towards the technical capability that allows providers to access distributed repositories, also known as HRBs, of consumer-controlled health information where it is deemed appropriate or in the interest of the consumer. The HRB serves the same functions as a PHR in this model. While clearly there are distinctions in the industry about HRBs and PHRs, in the model conceived of for Maryland there is considerable overlap in functionality. Primarily, both allow for consumer control and in this model the HRB also acts as a permissions portal for sharing patient information. The statewide HIE will support health records to ensure that consumers have the ability to create an HRB account where they will have control over the flow of their health information within the HIE. The statewide HIE will enable consumers to grant their health care provider(s) access to specific information in their HRB/PHR. Access to the HRB/PHR through the statewide HIE will be for viewing purposes only and the data will not be integrated into the clinical record of the provider. The MHCC anticipates that the HRB/PHR vendors that are selected by the consumer will have established authentication procedures for consumers when accessing their data.

A fiscally sound incremental approach to implementing the statewide HIE represents the vision for what the exchange will aim to achieve. In the near-term, clinical data sharing will leverage portions of the functionality that will be deployed in the full-scale HIE. Figure 5 below illustrates foresight by positioning Maryland's HIE infrastructure to account for market development.

Figure 5: Maryland HIE Fundamental Design



Public Program Connectivity

The statewide HIE expects to work closely with public agencies to establish connectivity for the exchange of electronic health information. Collaboration with Medicaid has already begun, as well as discussions with the Department of Veterans Affairs (VA), Department of Defense, and other state and federal agencies. The statewide HIE will connect to the existing MMIS as a first step in connecting with public programs and will work with Medicaid to implement technology to support the MITA transformation. Efforts to connect with the VA are expected to overlap with activity related to connecting Medicaid to the statewide HIE. The Baltimore and Perry Point VA Medical Centers, in addition to the Baltimore VA Rehabilitation & Extended Care Center, and five community-based outpatient clinics all work together to form a comprehensive health care delivery system for Maryland veterans. Connecting public programs to the statewide HIE is an essential part of demonstrating the vision and future of meaningful use to achieve measureable improvements in health care quality, safety, and efficiency. Discussions of public program connectivity have evolved and have produced a strategy to integrate data exchange capability between the statewide HIE and publically funded programs. Specific details regarding an implementation plan are expected to be developed in the 3rd quarter of 2011. The strategy that will be deployed consists of utilizing the statewide HIE's system architecture and equivalent individuals connected with these public programs to perform a detailed evaluation of the technology that is in place and required to support data sharing. These recommendations will be presented to the Advisory Board for decision-making that is required to support connectivity with these public programs.

Integrating the Healthcare Enterprise Overview

Integrating the Healthcare Enterprise (IHE) represents an approach to developing a statewide HIE that is standards-based, which will allow Maryland to achieve cross-organizational interoperability. IHE has defined specific profiles aimed at constraining existing standards to define implementation guides. IHE profiles organize and leverage the integration capabilities achieved by coordinated deployment of communication and security standards. They provide precise definitions of how standards can be implemented to meet specific clinical needs. HITSP has endorsed a number of the IHE profiles that will enable broad HIE implementation. In addition, many EHR vendors have begun to build functionality into their products that can enable interoperability from the native EHR system, in some cases negating the requirement for the installation of an edge device that would allow a participant to trade data with the HIE.

Master Patient Indexing

For an HIE to function, providers need a reliable way of matching their patients with available records in the network. This is no trivial task, and even within a single enterprise, matching a person with his or her past records is not always easy. The statewide HIE will follow the IHE Patient Identity Cross-Reference (PIX) approach to patient matching. At a high level, the PIX manager is a layer on an MPI that is operated within the exchange. Each record in the PIX contains cross-references to medical record numbers (MRN) located at participating institutions. In essence, the PIX can translate the MRN of one provider to the MRN of another provider. The initial link of an MRN to an existing PIX record is initiated through statistical matching. That matching will be tuned to avoid errors and final linking can be resolved through either probabilistic or deterministic matching.

The statewide HIE Use Cases will not require providers who are consuming/receiving data to write PIX feeds to the exchange MPI. Instead, receiving providers will send demographic data to the exchange that is matched probabilistically to the MPIs of data suppliers/senders (e.g., RxHub's Initiate Systems MPI) to obtain available data. It is only when an institution becomes a supplier/sender of data to the HIE that their MPI will need to be linked to the PIX.

MPI Discussion

The objective of the MPI strategy is to maximize the positive identification of subject patients while minimizing both false positives and false negatives. The recommended approach will use the IHE PIX Manager integration profile accounting for demographic data variation (i.e., first name John vs. Jonathan) and human data entry error (e.g., zip code or birthday number transposition) with weighted scoring assignments to each data element based on those variations. The MPI will run algorithms against the existing demographic information to preprocess the database to determine the frequency of every attribute and score the match according to the discriminating ability of the specific attributes of that database. The limits of acceptance and rejection will be tailored to the size of the population and the risk tolerance of both false negatives and false positives.

Comparing Probabilistic and Deterministic PIX Record Linking

Significant challenges and risks are inherent in maintaining an accurate MPI rooted in statistical matching techniques. Effectively mitigating those risks is possible. An understanding of the difference between probabilistic and deterministic record linking within a PIX/MPI is critical in evaluating the overall risk of false-positive and false-negative linking. Relying on a completely automated

probabilistic record matching and linking approach requires an extremely high threshold for accuracy to limit the potential for false-positives, thereby increasing false-negative outcomes.

An effective PIX/MPI solution will require some degree of manual intervention and ongoing attention to linking. Deterministic matching includes manual intervention by escalating MPI matching events that do not meet the threshold requirements set by the exchange operators. A resource in the HIE support center would then look at the records and try to determine whether or not they in fact refer to the same person. They will use a combination of intelligence, common sense, and investigation to make this determination. The support resource will determine that the records match and that the numbers were likely transposed. The resource will then manually merge the records. If the matching issue is not as straightforward as a transposition, the resource may need to do some more investigation by perhaps calling the organization where the record originated to see if it has more information on the patient that could help them make a determination. The statewide HIE will implement a deterministic matching approach in an effort to build trust in the accuracy and effectiveness of the exchange MPI.

Storage of Clinical Information

Each node on the statewide HIE will store data locally in either their own, or shared, edge devices that are in turn made available to the requestor via the statewide HIE if an allowable request is received. Since the current level of EHR adoption is around 20 percent, the statewide HIE will offer a provider portal to allow for early access to the HIE. HRBs will connect to the statewide HIE in a manner similar to any other provider, enabling consumers the ability to control data in consumer oriented edge devices separate from the central exchange infrastructure.

Registering Clinical Information with the Exchange

The central Registry will capture the metadata of any information being stored locally on an edge device. The intent of the document Registry is to maintain information about the location and type of documents that exist on the network. When a participant uploads a document to the edge device, a standard transaction is initiated to register the document and sends the necessary document identification information to the centralized Registry.

Data Request, Exchange, and Publishing

The statewide HIE operates with an agreement, amounting to the consent, of the consumer whose information is being exchanged. As a baseline process, consumers will be notified about the existence of the statewide HIE and will have a choice to opt-out of all exchange participation, whereby they will be able to choose to disallow any of their health information from flowing through the statewide HIE. The consumer notification describes the statewide HIE, its purpose, and its functions. In effect, opting-out is the equivalent of being placed on a do-not-call or global suppression list. Depending upon the Use Case and associated data, additional opt-in patient consent protocols are employed over and above the opportunity to opt-out completely. In practice this means all patients will be included in the statewide HIE by default, unless they ask not to be. For those consumers that participate, the statewide HIE is available for a variety of purposes, some of which will require additional consumer consent or authorization under HIPAA and Maryland law, and some of which will operate without explicit consumer approvals.

Persistence of information in edge devices highlights the concept of control over health information and the ability for the information to be updated or deleted. Information in edge servers does not

necessarily need an expiration/auto-delete date. If data were to be deleted from an edge device, the data in the originating system will still exist, and all logs of access to the previous data will persist in the statewide HIE audit log.

For primary clinical uses of the information, ancillary data will be routed from the processing facility (i.e., laboratory or imaging center) through the statewide HIE to the ordering physician. The statewide HIE will initially leverage SureScripts/RxHub as a source of medication information derived from both pharmacy data (SureScripts) and claims data (RxHub). This data will be accessed by routing provider requests through the HIE to SureScripts/RxHub and locating the patient using that company's MPI service. As the statewide HIE evolves, the ability for consumers to maintain medication history information in their own PHR/HRB will be possible.

Figure 6 and 7 below illustrates the high-level process by which the statewide HIE participant will submit, store, and register patient health information privately and securely with the HIE.

Figure 6: HIE Message Exchange Process

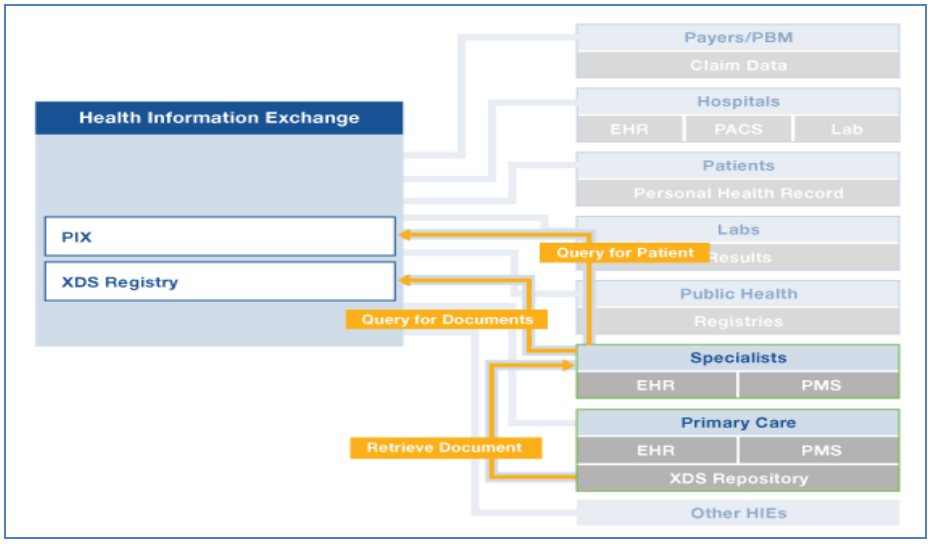
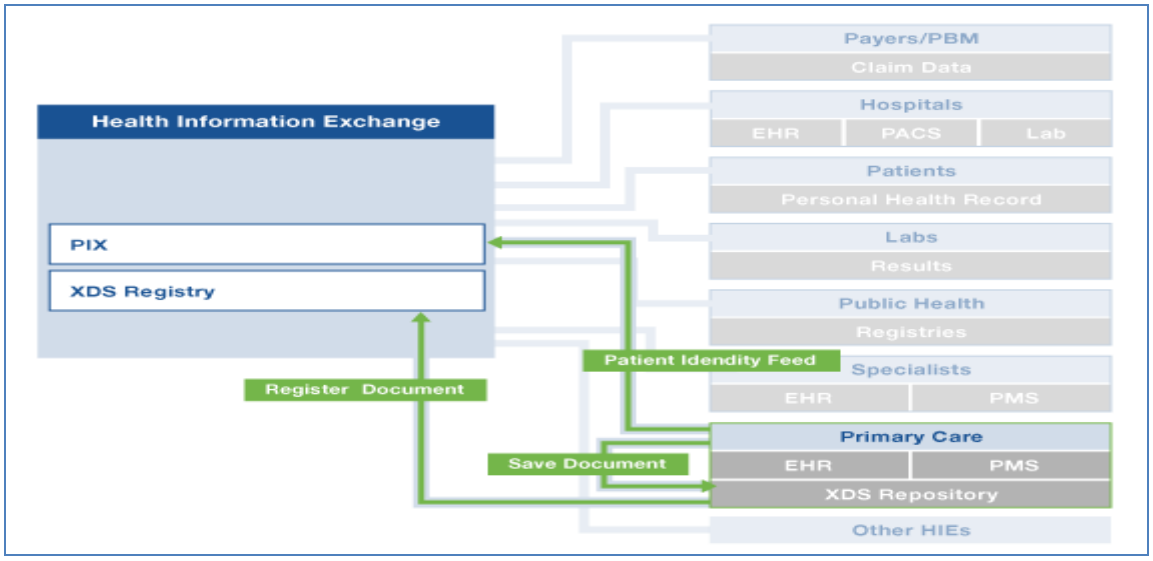


Figure 7: HIE Document Exchange Process



HIE Services Implementation Timeline

Table 1 below provides a timeline of the HIE milestones and associated services that will be offered in a phased approach:

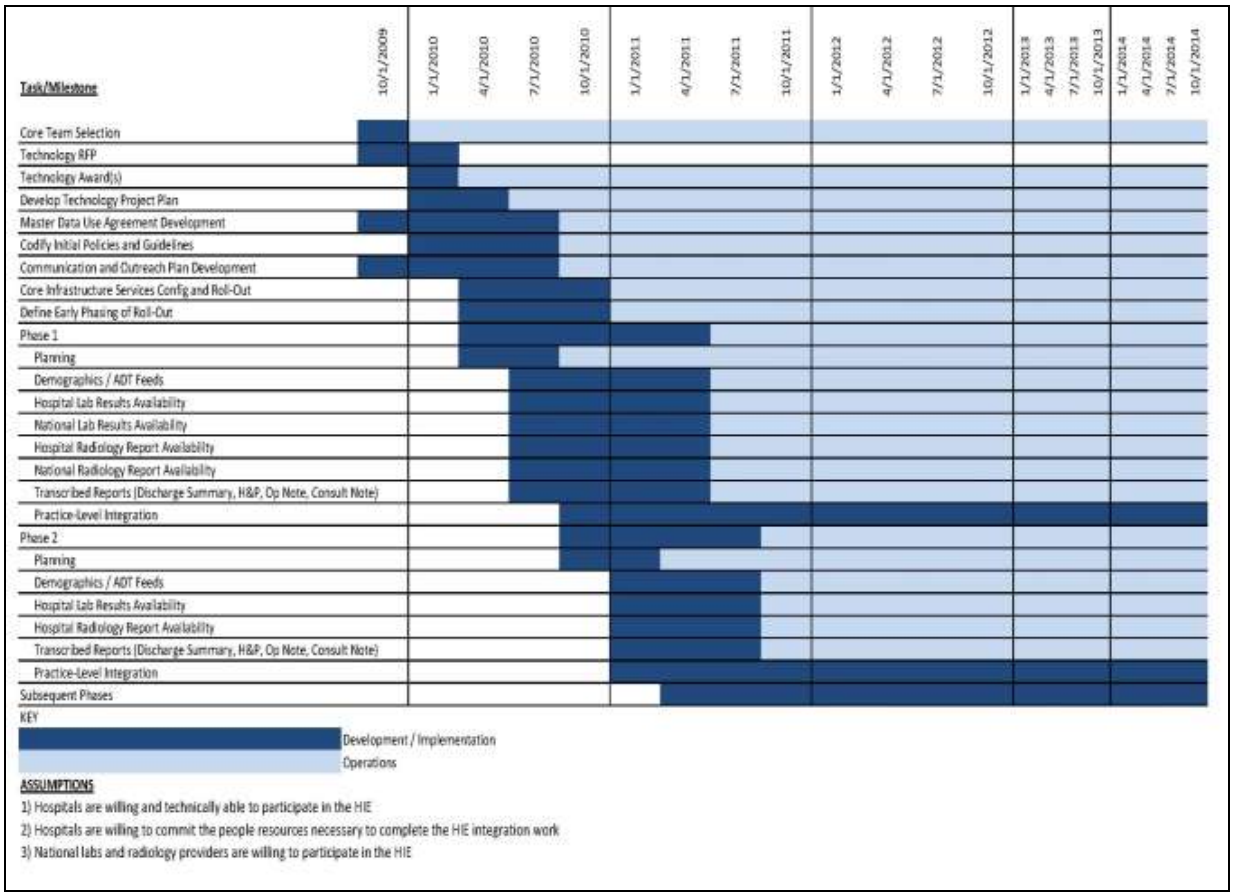


Table 1: HIE Services Implementation Timeline

HIE Services

When fully implemented, the statewide HIE architecture will enable connections between Maryland's approximately 47 acute care hospitals and 6,851 physician practices.[7] The statewide HIE will provide a mechanism that enables appropriately authorized individuals to perform select analytical reporting. The statewide HIE will also allow secondary uses of data for public health, biosurveillance, and other appropriate secondary uses of data. Below is a brief discussion regarding the statewide HIE's implementation schedule for the required Use Cases.

Electronic Eligibility and Claims Transactions

Administrative health networks (networks) are required to be certified by the MHCC to operate in Maryland. Select networks are expected to collaborate with the statewide HIE to implement this Use

[7] Maryland Board of Physicians licensure survey, 2008-2009.

Case. Preliminary discussions are underway between the statewide HIE and a network that is used by one of the state's largest payers, CareFirst. The statewide HIE intends to engage in further discussions with a number of networks and to involve CareFirst in developing this Use Case. Though electronic eligibility and claims transactions was not an initial Use Case, the statewide HIE will use any potential funds from the grant opportunity to fully develop this Use Case.

Electronic Prescribing and Refill Requests

In Maryland, physician usage of e-prescribing is slightly more than twenty five percent and around 75 percent of the 1,628 pharmacies are capable of accepting some form of electronic prescription.[8] This Use Case will improve the adoption of e-prescribing among the more than 5,030 primary care practices in Maryland.[9] This Use Case will be aligned with the EHR incentives available under the *American Recovery and Reinvestment Act of 2009* (ARRA) and will be implemented accordingly.

Electronic Clinical Laboratory Ordering and Results Delivery

The implementation of this Use Case is currently underway and has connected with major laboratory and radiology companies including, Quest Diagnostics, LabCorp, RadNet, and American Radiology. The statewide HIE is expected to implement connectivity with local and hospital laboratories as well.

Electronic Public Health Reporting

Maryland has specific regulations governing public health reporting for a number of infectious or communicable diseases, such as meningitis, measles, mumps, and smallpox, to name a few. Currently, providers are required to submit information to public health officials for monitoring and reporting purposes with variable requirements on the reporting timeframe. Initial discussions regarding the implementation process for this Use Case are underway.

Quality Reporting Capabilities

Quality reporting is essential to inform and educate stakeholders, and it is an important component for achieving meaningful use. Interest in quality reporting continues to grow; however, a consistent mechanism for reporting does not exist. The statewide HIE is expected to make available quality reporting, as deemed appropriate, for use by authorized stakeholders.

Clinical Summary Exchange

The Clinical Summary Exchange Use Case allows for the sharing of summary clinical data, such as a discharge summary, Continuity of Care Document (CCD), or Continuity of Care Record (CCR), to assure that health information is shared among authorized providers. The information contained in this Use Case is constrained by EHR system capabilities. This Use Case will ensure that data or an appropriate image is available to participating providers. Portions of this Use Case will be operational mid 2011.

Support for HIE Services

The statewide HIE will provide technical support to providers for each Use Case through the establishment of a technical vendor managed help desk. The help desk is responsible for resolving

[8] Maryland Board of Physicians licensure survey, 2008-2009.

[9] Ibid.

technical and operational issues, including connectivity and performance. The help desk will resolve the majority of provider inquiries within one business day, or escalate the more complex issues to the statewide HIE for resolution. The statewide HIE will be responsible for tracking and monitoring performance of the help desk.

Safeguarding Data

The statewide HIE will maintain the confidentiality of patient information by implementing policies related to securing the integrity and ensuring the availability of electronic patient information. The statewide HIE will comply with the 18 broad standards under the HIPAA Security Rule and the policies approved by the HIE Policy Board and adopted by the MHCC. The Advisory Board will define the security procedures that must be implemented. Vendor technology partners will be required to demonstrate that their solutions meet or exceed the security requirements. Participation agreements will stipulate that users comply with the HIPAA requirements. The statewide HIE will maintain a log of activity for auditing purposes.

The statewide HIE will document the security policies, procedures, and decisions, which the Board of Directors will review. The statewide HIE will mitigate risk through a routine systematic and analytical approach that identifies and assesses these problems. The risk analysis will develop appropriate and reasonable protections, and anticipate risks and implement security measures. The statewide HIE is well positioned to verify the accuracy of information through audit logs and conduct annual penetration testing to identify vulnerabilities and determine the adequacy of the security protections. The statewide HIE will comply with all aspects of the Security Rule on an ongoing basis.

The statewide HIE will provide security of PHI through a number of leverages. The physical locations, networks, platform, and application technologies that will support data sharing are expected to provide ample security on all levels. The statewide HIE will deploy the following hosting and network practices for any systems related to PHI. First, there is physical machine security and servers operating in Tier 4 data centers that can pass the internationally recognized SAS 70-II standard requirements. This includes physical precautions such as HVAC units, fire retardant measures, strict host and guest authentication/sign in policies, and more. Next, network security must be addressed. Servers will be installed behind multiple firewalls configured for high availability and minimal vulnerability. All servers will be installed with the latest versions of Windows 2003 Server and Symantec Antivirus Corporate Edition. OS security and virus definition updates will be performed regularly. Finally, network transfer security will be established. For web services, secure network transport will be provided using components such as SAML, the X.509 token profile, XML encryption, and XML digital signature.

Credentialing

The statewide HIE will develop a participation agreement that will codify the relationship with various participants. Providers interested in participating in the statewide HIE will have the ability to review the terms and conditions of the participation agreement on the statewide HIE's website. The logic behind arriving at a consistent participation agreement that is entered into by each participant without substantial or material modification is to ensure that "transitive trust" can be maintained across the entire exchange. Transitive trust is the mutual trust between HIE participants rooted in the knowledge that each participant has entered into a consistent participation agreement that defines appropriate usage and requirements for participation, thereby avoiding the participant-to-participant need to

know every individual provider and employee accessing the exchange. This approach acknowledges understanding on the terms and conditions in a participation agreement for a future state, establishment of a robust electronic exchange (including any potential data types), and gaining community-wide agreement by each participant. The statewide HIE is expected to complete the credentialing process for providers participating in the statewide HIE.

Business and Technical Operations

The statewide HIE will require that EHRs connecting to the utility meet the technical requirements for certification. Among other things, EHR systems will need to be able to report on quality measures, and providers will need to demonstrate that they are fully utilizing the functionality of the system. Providers connected to the statewide HIE will need to complete an attestation to use the system in a manner that is consistent with the meaningful use standards. Compliance with the meaningful use standards serves the public interest by transforming a largely paper-based system into a private and secure electronic, interconnected system that is transparent, earns public trust, and helps address health challenges facing Maryland, including preventable medical errors, disparities in the quality of care, high costs, administrative inefficiencies, and the lack of care coordination among providers.

Maryland's ambitious plan for advancing HIE balances the need for information sharing with the need for strong privacy and security policies, and includes a judicious approach to funding. Today, Maryland is home to approximately 5,030 primary care providers that provide care in about 2,919 practices.[10] The statewide HIE will eventually be capable of computable semantic interoperability; thus ensuring that all health information is securely delivered electronically in real-time to individuals and their providers when needed, and that this information is available for analysis for continuous improvement in care delivery and research. The strategy to implement HIE in physician practices will initially target priority primary care practices participating with the REC.

Statewide, approximately 45 percent of acute care hospitals reported in 2009 having initiatives in place to share some data electronically with providers in their service area.[11] These hospitals typically host the technology that enables a one-way transfer of a limited amount of data with a high speed Internet connection. In 2009, the MHCC convened a meeting of hospital chief information officers and various other stakeholders to reach consensus on a range of standards and policies to ensure that hospitals that embark on data sharing initiatives implement similar policies. Acute care hospitals are also well positioned to operate as MSOs and host one or more EHR solutions. They are appropriately situated to provide a consistent way of managing privacy and security and ensuring the existence of robust physical and technical safeguards of electronic health information. MSOs are of particular interest to priority primary care providers related to the benefits of bulk purchasing and dedicated technical support. Currently, three Maryland hospitals are operating as an MSO; offering hosted EHR solutions to providers in their community.

The statewide HIE will work closely with the Maryland Hospital Association (MHA) to target hospitals in urban and suburban areas of the state for HIT awareness and education initiatives aimed at increasing EHR adoption among providers in their service area and conveying the advantages of implementing data sharing technology. Hospitals in urban and suburban areas are typically smaller in

[10] Maryland Board of Physicians licensure survey, 2008-2009.

[11] Maryland Health Care Commission, *Health Information Technology: An Assessment of Maryland Hospitals*, August 2010. Available at: http://mhcc.maryland.gov/electronichealth/2010_hospital_hit_report.pdf.

scale and with the least amount of dollars to invest in HIT. The statewide HIE expects to be compatible with the standards deployed in the NHIN and capable of connection once the infrastructure for the NHIN is in place.

During the first two years of implementation, the statewide HIE anticipates hiring only several regular employees. Systems integrators and management agreements will provide the bulk of statewide HIE's capacity in this startup phase. In years three and beyond, the statewide HIE expects to transition towards regular employees to support the ongoing operations of the exchange. This strategy will allow the statewide HIE to engage higher-caliber talent during the critical implementation period, without incurring the long-term expense of those resources when we reach sustainability.

Project Plan Risk Assessment and Mitigation

Approach

Implementing a statewide HIE is a complex project consisting of integrating multiple systems that need to work together to ensure the success of the HIE. Many different types of evaluation tools exist and were considered for tracking the performance of the statewide HIE implementation activities. The majority of methods, techniques, and tools place particular emphasis on quantification. In an effort to accurately assess the impact of systems on systems, the statewide HIE will evaluate performance through a technique known as systems thinking. Ample evidence exists that suggests complex initiatives are better managed by the application of systems thinking. This will enable the statewide HIE to seek out new and diverse perspectives when solving problems in a manner that considers complexity, environmental influences, policy, change, and uncertainty.

The statewide HIE will use systems thinking to self-evaluate and determine the appropriate measurement of success with regard to implementation and interdependencies. As a strategic simulation tool, systems thinking evolved from a variety of tools aimed at mapping and modeling the global interaction of processes, information feedback, and policies across sectors. Viewing the statewide HIE from a very broad perspective that includes structures, patterns, and events, rather than limiting the assessment to just the events, allows for rapid detection and identification on the true cause of any issue and helps in determining specific areas that need attention to address these issues. The evaluation process will focus on input, processes, outputs, and outcomes pertaining to the implementation and interdependencies of the statewide HIE. The data will be used to balance the processes that control change and help maintain stability.

Tools

The statewide HIE will use a number of systems thinking design tools in conducting ongoing evaluations of the implementation and interdependencies of the HIE. These tools will increase the understanding and analyses of the statewide HIE and the conditions that create or affect the interdependencies. Key assessment tools include:

- Causal loop diagrams;
- Behavior-over-time graphs;
- Systems archetypes; and
- Flow diagrams.

A combination of these tools will accurately depict a particular system or core system to the infrastructure of the statewide HIE. Systems thinking will encourage the statewide HIE to look at issues through a broad range of evaluation tools that provide a realistic measurement of performance, and to identify changes necessary to deliver sustainable and comprehensive process improvements.

Techniques

The statewide HIE will evaluate each Use Case prior to deployment and then monitor and assess the progress of implementation and interdependencies from a technical and operational perspective. Systems thinking will be applied to each Use Case during the implementation phase and as appropriate on an ongoing basis. The Advisory Board will develop any process modifications that are identified from the analysis. The statewide HIE will maintain all systems thinking evaluations as a permanent record, and is subject to annual audits by an independent reviewer.

Vendor Risk Management

The statewide HIE will rely on vendors to provide services necessary to implement the exchange of electronic patient information, which can be a risky proposition. This approach can expose the statewide HIE to greater risk relating to delivery disruption or vendors' inability to deliver services for which they are contracted. The statewide HIE will develop a vendor management plan to identify and mitigate any potential risks. The statewide HIE will also develop a contingency plan to support and avert disruptions in business operations should the worst happen and the vendor supporting the exchange fails to provide contracted services. The statewide HIE will develop a vendor risk management plan that includes an assessment of the organizational risk, financial risk, support risk, and strategy risk.

Disaster Recovery

The MHCC has a comprehensive Disaster Recovery Plan on file, which is tested during an annual audit. This information is proprietary in nature and is not available for publishing.

Legal/Policy

Privacy and Security

Maryland's ambitious plan for implementing a statewide HIE balances the need for information sharing with the need for strong privacy and security policies. The HIE is designed to deliver essential patient information to authorized providers at the time and place of care to help assure appropriate, safe, and cost-effective care; store and transmit sensitive health information privately and securely; provide patient access to important elements of an individual's clinical record to help engage patients in their own care; provide a means for the patient to exercise appropriate control over the flow of private health information, both as a matter of right and as a means of assuring trust; provide a secure method of transmitting administrative health care transactions; and gather information from the health care system to research efficiency and cost-effectiveness of care, to measure quality and outcomes of care, and to conduct biosurveillance and post-marketing surveillance of drugs and devices.

Health Insurance Portability and Accountability Act

The Health Insurance Portability and Accountability Act of 1996 (HIPAA) was used as a guide for the design of the statewide HIE. It is clear that HIPAA does not require any patient consent or authorization for the exchange of an individual patient's health information among health care providers for treatment purposes. A patient's consent to such exchanges is viewed as implicit in the patient's consent to receive medical care. Certain other exchanges are also permitted without either consent or authorization under both HIPAA and the MCMRA, generally for payment purposes and for certain health care operations constituting quality assurance, reviewing provider qualifications, and fraud and abuse monitoring or response. HIPAA does permit disclosures to government agencies for a number of lawful purposes, including public health surveillance without patient consent or authorization. The consensus among the legal community is that other disclosures, as further Use Cases are adopted, will require patient specific authorization, which the patient can withhold, in a form that meets the requirements of HIPAA.

In December of 2008, the Office of Civil Rights under the HHS and HHS' HIPAA civil enforcement arm issued a series of related papers on the HIPAA Privacy Rule and Health Information Technology (the Guidance). The Guidance constitutes an overview of HHS positions on the application of the HIPAA Privacy Rule to HIEs. In general the Guidance is consistent with, and supportive of, the type of HIE under construction in Maryland. The Guidance deals with a model of HIE that is, in operational terms, the same as the Maryland model for the statewide HIE. While recognizing that patients' consent to the exchange of their information among health care providers for treatment purposes is implied in the general consent to be treated and does not require specific affirmation by the patient, the Guidance favors allowing individuals the opportunity to opt-in or to opt-out of having their information flow through the HIE. The Guidance refers in this regard to the option providers are given in the HIPAA Privacy Rule to seek patient consent for treatment uses and disclosures, even in the absence of a requirement that providers do so. The Guidance affirms that an HIE, as a business associate, can maintain a MPI and a Registry for patients of participating providers, in advance of any actual treatment communications for those patients.

State Laws

The MCMRA is substantively consistent with HIPAA with regards to implicit consent and the other HIPAA issues discussed in the preceding section. Under the Act, an individual's health information may be exchanged among healthcare providers with only implicit consent for treatment purposes. In 2007, the Maryland Attorney General issued an opinion related to the MCMRA which addressed the requirement of a patient opt-in versus opt-out policy in an electronic health records system. According to the opinion, a patient does not have a right under the Act to opt-out of an HIE, to receive services from a health care provider while insisting that the medical records related to that service be excluded from the HIE. The Attorney General went on to conclude that the disclosure of medical record information solely for purposes of clinical care and payment and to the technical personnel needed to keep the system operational, as discussed above, is permitted without the authorization of the patient. The MCMRA does not prohibit an HIE from operating on the basis that participating health care providers must make all of a patient's medical records available through the HIE. However, because the law does not dictate appropriate policy, an important caveat to the interpreted allowance is that making a patient's medical records available does not imply those records are stored within the exchange.

In the opinion, the Attorney General concluded that the MCMRA would permit an HIE in which medical records are held by certain providers and referenced in the MPI facilitating other providers' access to the records as needed without the authorization of the patient. This indexing function is a critical element of the approach in Maryland. Provider workflow considerations and management of a patient's right to participate or to not participate are also of considerable concern in creating a consent policy. If patient participation rights were managed on a provider-by-provider, encounter-by-encounter basis, then providers would bear a significant, and potentially prohibitive, technical and workflow burden establishing processes for obtaining and tracking consent of their patients.

Policies and Procedures

The policies governing the exchange will be established by the Policy Board associated with the MHCC. This separation of responsibilities assures a strong role for the public in both policy development and operational oversight. Members of the Policy Board have been selected to assure expertise, breadth of stakeholder representation, and a strong consumer voice in establishing the policies essential to building trust. Policies developed by the Policy Board will enable and foster information sharing with the state and eventually across state boarders.

Service delivery of the statewide HIE will operate under the guidance of the Advisory Board. In general, services are rendered with the agreement, amounting to the consent of the patient whose information is being exchanged. As a baseline process, consumers will be notified about the existence of the HIE and their ability to opt-out of all exchange participation, meaning they will have a choice to disallow their health information from being transmitted to an authorized recipient. The notice will describe the HIE, its purpose, and its functions. In effect, opting out will be the equivalent of being placed on a do not call or global suppression list. For certain other Use Cases and associated data, opt-in patient consent protocols will be required in addition to the consent implied by not opting out.

In practice, this means all patients will be in the exchange by default, unless they request not to be included. For those consumers that participate, the exchange will be available for a variety of purposes, some of which will require additional patient consent or authorization under HIPAA and the MCMRA, and some of which will operate without explicit patient approvals. By way of example, specific consent would be required to provide identifiable patient information to a longitudinal research study of the natural cause for an illness in the community and the effects of treatment. On the other hand, a laboratory will not seek any additional patient consent before transmitting lab results across the HIE to an ordering physician.

Opt-Out as the Baseline Consent Process

The statewide HIE will function on an opt-out principle. By default, demographic information from any patient treated at a participating provider organization could be included in a MPI hosted by the exchange. Basic personal information such as name, gender, address, and birth date would be transmitted, captured, and stored in secure computers owned or contracted for use by the statewide HIE. A separate Registry database, which is core component of the HIE technology; will house information or metadata for what type of health information about a particular patient is in the exchange and where that information can be found. Both technical and privacy justifications drive the need for separate MPI and Registry databases, which is the preferable method, instead of keeping all patient identifying and record locating information in one database. This decision is a result of the work completed by the stakeholder workgroups during the *HIE Planning Phase*. A consumer's health

information will not be captured and stored by the statewide HIE, and will remain with the participating entities. The statewide HIE will only serve as the roadmap and transport mechanism to find and retrieve records.

Hospitals and other providers will allow consumers greater control of those records published to the statewide HIE. The statewide HIE will allow consumers the right to opt-out of the HIE and to be informed of a provider's access to and use of their health information at the point of care or through a web-based portal connected to the statewide HIE. If a consumer elects to opt-out, the statewide HIE will not have the ability to access that consumer's health information. However, some demographic data will likely be transmitted and stored in the MPI hosted by the HIE. Storing limited demographic data in the MPI is necessary in the event that the consumer decides to opt-in at another time. The statewide HIE will inform consumers of their participation rights through an intensive outreach campaign.

Trust Agreements

Any health information exchange will require the development of a participation agreement that will codify the relationship between the HIE organization and the various participants. The statewide HIE will enter into a Data Use and Reciprocal Support Agreement (DURSA) with the participants of the statewide HIE. The statewide HIE DURSA will be developed using the work from HITSP and will be used for harmonizing data sharing efforts with bordering states and the NHIN. One of the challenges in creating such an agreement is that multiple participants, each of whom may have its own in-house legal counsel, will have to agree on the components and structure of the document. The logic behind arriving at a consistent participation agreement that is entered into by each participant without substantial or material modification is to ensure that transitive trust can be achieved and maintained across the statewide HIE.

Oversight of Information Exchange and Enforcement

The appropriate use policy is a document that will be included in the participation agreement defining specific appropriate and inappropriate uses of the statewide HIE by individuals who have been granted access. The participation agreement will also articulate the consequence of misuse. It is impossible to completely eliminate the possibility of breaches and misuse of information. Though the statewide HIE itself is not necessarily a HIPAA-covered entity, any related business associate agreements would render the business associate responsible for adequately safeguarding protected health information. The Policy Board and the governance of the statewide HIE will mitigate the probability of breaches and misuse through appropriate policies, systems monitoring, and established security, training, and reporting procedures.

Pre-emptive measures must be taken to reduce the likelihood that health information is used for purposes other than those for which it was intended. Establishing policies and procedures and training personnel are two important actions that should be taken. All policies and procedures should be clearly written to enforce privacy standards and communicated to staff accordingly. As part of the anticipated work to be performed under the Regional Center grant by CRISP, physician practices will receive information related to best practices for workforce members with access to protected health information. The education material will focus on education to better understand privacy and security standards.

In the event that a breach does occur, appropriate sanctions will be in place and enforced against any workforce member who violated proper procedures. Additionally, attempts must be made to rectify the extent of harm caused. For example, the individual whose data was compromised will be informed of the breach so that he or she can take necessary protective precautions. However, excellent design coupled with breach reporting is not sufficient protections for personal health information. The statewide HIE will also employee penetration testing to assure that the robust security features function as designed and that other potential vulnerabilities are actively tested. Penetration testing will be performed by the core infrastructure vendor on a quarterly basis and an annual penetration test to be conducted by an independent third party.

Operational Plan for a Statewide HIE

General Topic Requirements

Coordinate with ARRA Programs

The MHCC will use funds from the *State Health Information Exchange Cooperative Agreement Program* to advance Use Case implementation throughout the statewide HIE. The statewide HIE will explore opportunities to collaborate with the recipients of ARRA funding related to workforce development initiatives, wellness and prevention programs, comparative effectiveness research, and grants to community health centers. Table 2 describes the ARRA HIT funding that has been received in Maryland.

Project	Amount	Awardee	Purpose
State HIE Cooperative Agreement Grant Program	$9.3M	*Maryland Health Care Commission*	Build capacity for exchanging health information across the health care system
Health Information Exchange Challenge Program	$1.6M	*Maryland Health Care Commission*	Improve long-term and post-acute care transitions by leveraging the HIE
HIT Extension Program: Regional Centers Cooperative Agreement Program	$6.4M	*Chesapeake Regional Information System for our Patients*	A regional extension center established in Maryland for EHR adoption assistance to physicians
Program of Assistance for University-Based Training	$3.7M	*Johns Hopkins University School of Medicine*	Offer training programs for highly specialized health IT roles
Expand Health IT Capacity	$2.9M	*Community Health Integrated Partnership, Inc.*	Expand EHR technology in Federally Qualified Health Centers
Curriculum Development Centers Program	$1.8M	*Johns Hopkins University School of Nursing*	Development of graduate level programs for health IT
HIT Planning-Advanced Planning Document	$1.3M	*Maryland Medical Assistance Program (Medicaid)*	An award from CMS for state planning activities to implement the EHR incentive
Community College Consortia Program	$634K	*Baltimore County Community College*	Create non-degree health IT training programs with completion in six months or less
TOTAL	**$27.6M**		

Table 2: ARRA HIT Funding in Maryland

Regional Extension Center

In Maryland, the statewide HIE is also the REC and encourages EHR adoption among Maryland providers. The model that is being deployed relies on State Designated MSOs to promote physician adoption of EHRs and meeting the meaningful use requirements. All combined, the MSOs must assist minimally 1,000 priority primary care providers with EHR adoption and provide support as they work

toward meeting each stage of meaningful use. At present time, roughly 15 MSOs are participating with the REC.

The REC relies on MSOs that have State Designation to address the challenges associated with provider adoption of EHRs. These challenges include the cost and maintenance required for the technology, and the responsibilities that accompany the storage of electronic data privacy and security. The MHCC provides State Designation to MSOs that meet stringent criteria for privacy and security and have received national accreditation. Unlike the traditional EHR client-server model where the data and technology is hosted locally at the provider site, MSOs offer EHRs hosted in a centralized secure data center.

The data is safeguarded through a network operating center that, by design, ensures high quality and uninterrupted service. MSOs enable physicians to access a patient's record wherever access to a high speed Internet connection exists. Remotely hosted EHRs enable providers to focus on practicing medicine rather than dedicating staff to support the application. The model in use in Maryland is expected to help all providers throughout the state meet the meaningful use requirements. The state anticipates modifying the State Designation criteria each year based on feedback it receives from the MSOs and evolving technology. Today, the criteria includes nearly 100 requirements that center around data protection, business practices, data center security, disaster recovery, and business continuity planning.

MHCC maintains a physician licensure database that contains practice level information that is updated annually through the state's physician licensure process. The data includes information related to HIT adoption, among other things, that will be used in developing specific initiatives for the Regional Extension Center. Although the statewide HIE will be involved broadly in education and support, the ARRA funded activities will focus specifically on improving and expanding HIE services to reach all health care providers in an effort to improve the quality and efficiency of health care.

Education and Outreach to Providers

The statewide HIE will work with faith-based organizations, safety net organizations, the state medical society, and the hospital association to complete the work of the REC. The MSOs will provide select assistance to providers in conducting an appropriate needs assessment, selecting and negotiating with system vendors or resellers, implementing project management, and instituting workflow changes to ultimately improve clinical performance and outcomes. More granular activities will be identified as the MSOs begin their field work. Provider education and outreach will be coordinated with the communications of the Maryland Medical Assistance Program.

The REC will coordinate with the Health Information Technology Research Center (HITRC) to participate in regional and national activities. Representatives of the REC will evaluate information from the HITRC and incorporate selected information into the REC's outreach, education, and technical assistance plan. Maryland plans to host regional meetings, as appropriate.

EHR Implementation

In collaboration with the REC, State Designated MSOs will assist providers in assessing their HIT needs, and in the selection of EHR systems, hardware, and software contracts. The business model that was developed by the REC to rely on the services of the MSOs to increase EHR adoption is based on free market principles. The MSOs can market hosted EHR solutions across the state and a variety of other

services that includes billing, workflow management, training, performance data monitoring, etc. Each time an MSO signs up a practice to participate with the MSO, they receive a milestone payment from the REC and from the practice. The MSOs have a milestone schedule that enables them to earn an additional incentive for meeting each of the three milestones. These requirements have been established in a way to ensure that practices meet the meaningful use requirements.

The State Designated MSOs will provide project management support for EHR implementations, including on-site coaching, consultation, troubleshooting, and other-related activities. These activities will assure that providers are able to assess and enhance organizational readiness for HIT, configure the software to meet practice needs and enable meaningful use, ensure adequate software training for all staff, and track and adhere to implementation timelines. The State Designated MSOs, in collaboration with the REC, will also provide consultative support for workflow redesign necessary to achieve meaningful use and assist providers in connecting to the statewide HIE, and NHIN as available.

Privacy and Security Best Practices

While a collaborative with strong provider representation will develop and operate the HIE, the MHCC Policy Board will be established as part of the governance to develop the policies governing the exchange of patient information. The policies will focus on consumer authorization and consent, minimum criteria for user authentication, minimum requirements for role-based authorization, security requirements, and audit trail requirements. The Policy Board will also review and comment on standard Business Associate trust agreements used by the statewide HIE.

Progress towards Meaningful Use

The REC will participate in program training offered by the HITRC and make available to providers effective assistance in attaining meaningful use. Through collaboration with other states and the HITRC, the REC will implement programs that are not duplicative of other meaningful use efforts. Information related to HIT adoption will be used from the physician licensure database each year to assess the level of adoption and use of clinical support features essential for meaningful use.

Workforce Development

The statewide HIE will continue to work with academic institutions to promote integration of HIT into the training of health professionals and support staff. The MHCC will continue to provide input to recipients of the HIT Workforce Program grantees, the Community College of Baltimore County and Johns Hopkins University, through participation on their Boards. The Maryland Association of Community Colleges (MACC) will be contacted to discuss the state's practical needs with regard to implementing an HIE. Each year, nearly 500,000 individuals attend one of Maryland's 16 community colleges, in both credit programs and in continuing education and workforce development courses. The statewide HIE will seek to employ trained professionals from workforce development programs under ARRA when available.

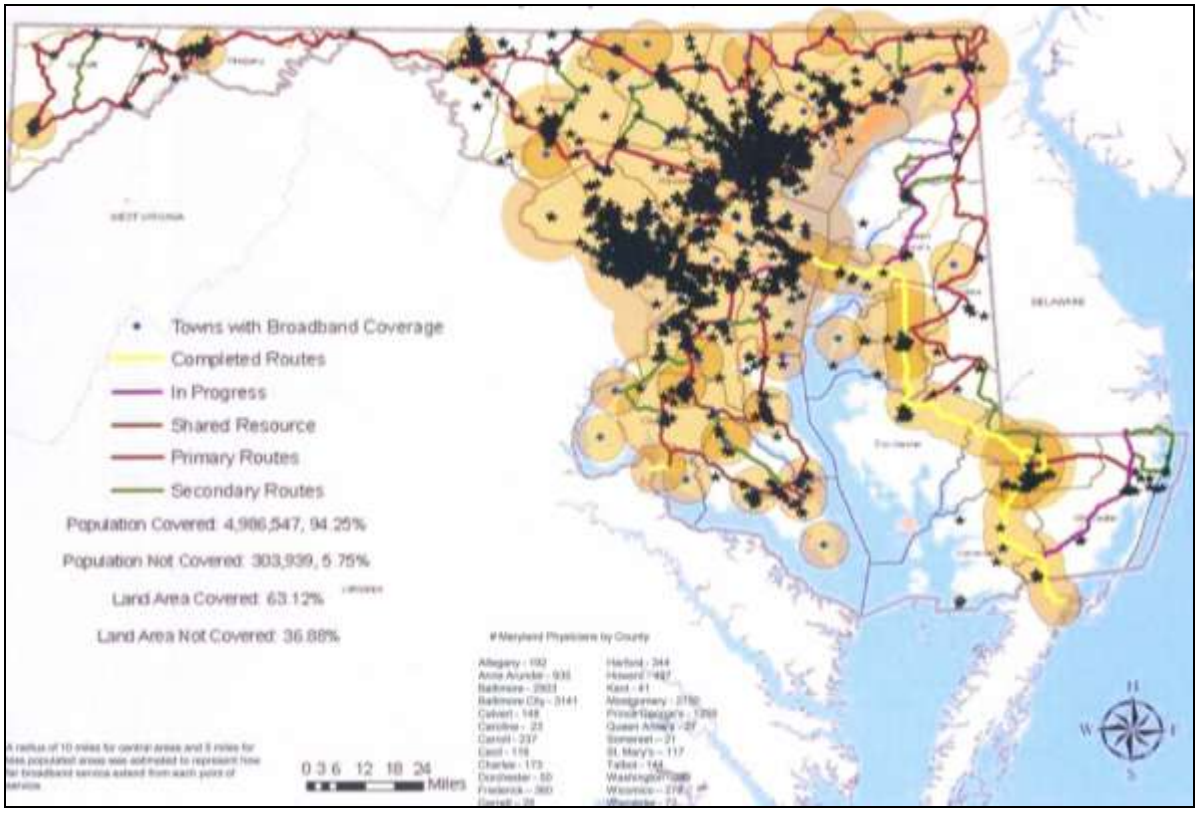
Broadband Mapping and Access

The statewide HIE will use broadband mapping data that includes physician and practice level locations in determining target areas for connecting providers to the HIE. Maryland is home to

approximately 5,030 primary care providers in about 2,919 practices that provide care.[12] The statewide HIE will be implemented across the state on an incremental basis. Eventually, data sharing will be on the level of computable semantic interoperability, which will ensure that all health information is securely delivered electronically in real-time to individuals and their providers when needed. All 47 acute care hospitals in Maryland have access to a high speed Internet connection. Statewide, approximately 45 percent of hospitals have implemented electronic data sharing initiatives with providers in their service area.[13] These hospitals typically host the technology that enables a one-way transfer of a limited amount of data with a high speed Internet connection.

The statewide HIE will initially connect and offer some form of technical assistance to priority primary care providers working with MSOs. By the end of the second year, all providers will be familiar with where they can find resource information regarding the HIE and additional information related to HIT. Connection will occur incrementally with roughly 25 percent targeted for the first year, and similar increments in subsequent years. The statewide HIE will work with the Maryland Department of Natural Resources, Office of a Sustainable Future to facilitate provider connections to statewide HIE in Western Maryland, Southern Maryland, and the Eastern Shore. It is anticipated that connections in these areas will begin in 2011. The figures below illustrate the estimated broadband coverage in the state of Maryland among physicians, physician practices, primary care physicians, and primary care practices.

Figure 8: 2008 Estimated Broadband Coverage and Physicians



[12] Maryland Board of Physicians licensure survey, 2008-2009.

[13] Maryland Health Care Commission, *Health Information Technology: An Assessment of Maryland Hospitals*, August 2010. Available at: http://mhcc.maryland.gov/electronichealth/2010_hospital_hit_report.pdf.

Figure 9: 2008 Estimated Broadband Coverage and Physician Practices

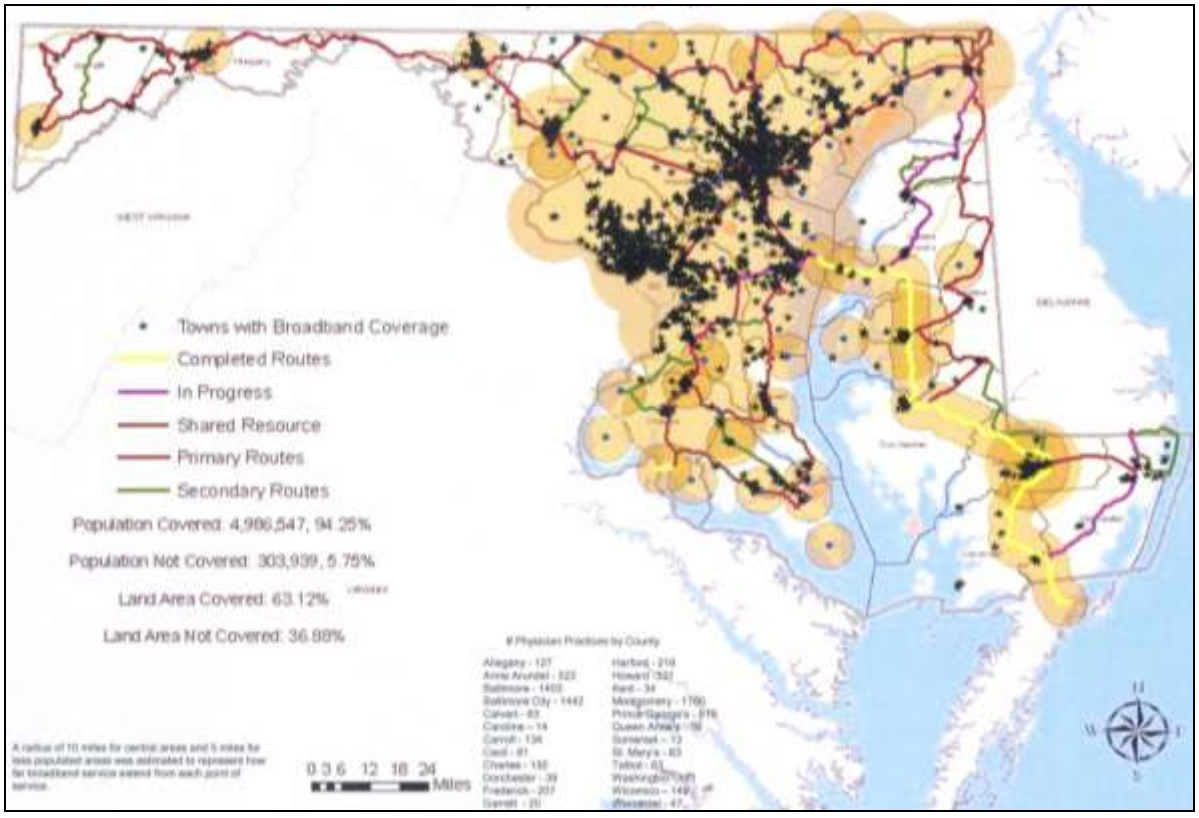


Figure 10: 2008 Estimated Broadband Coverage and Primary Care Physicians

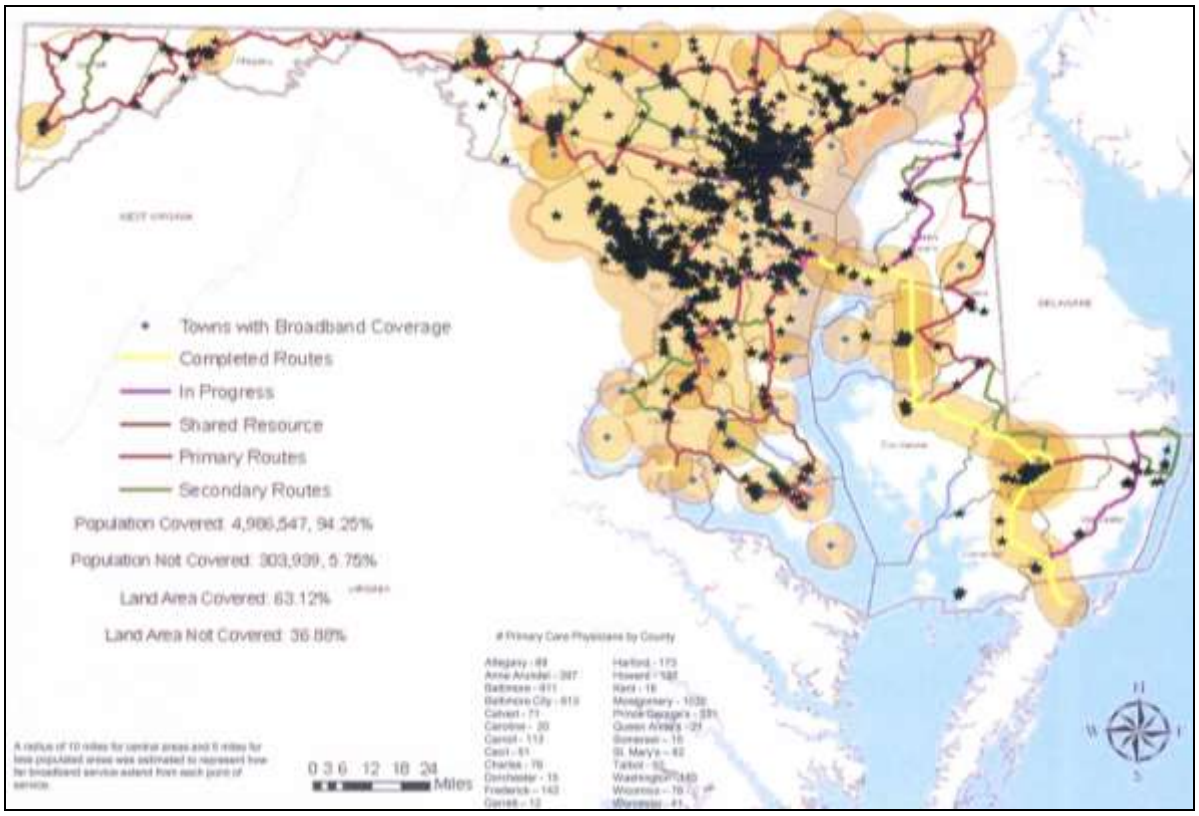
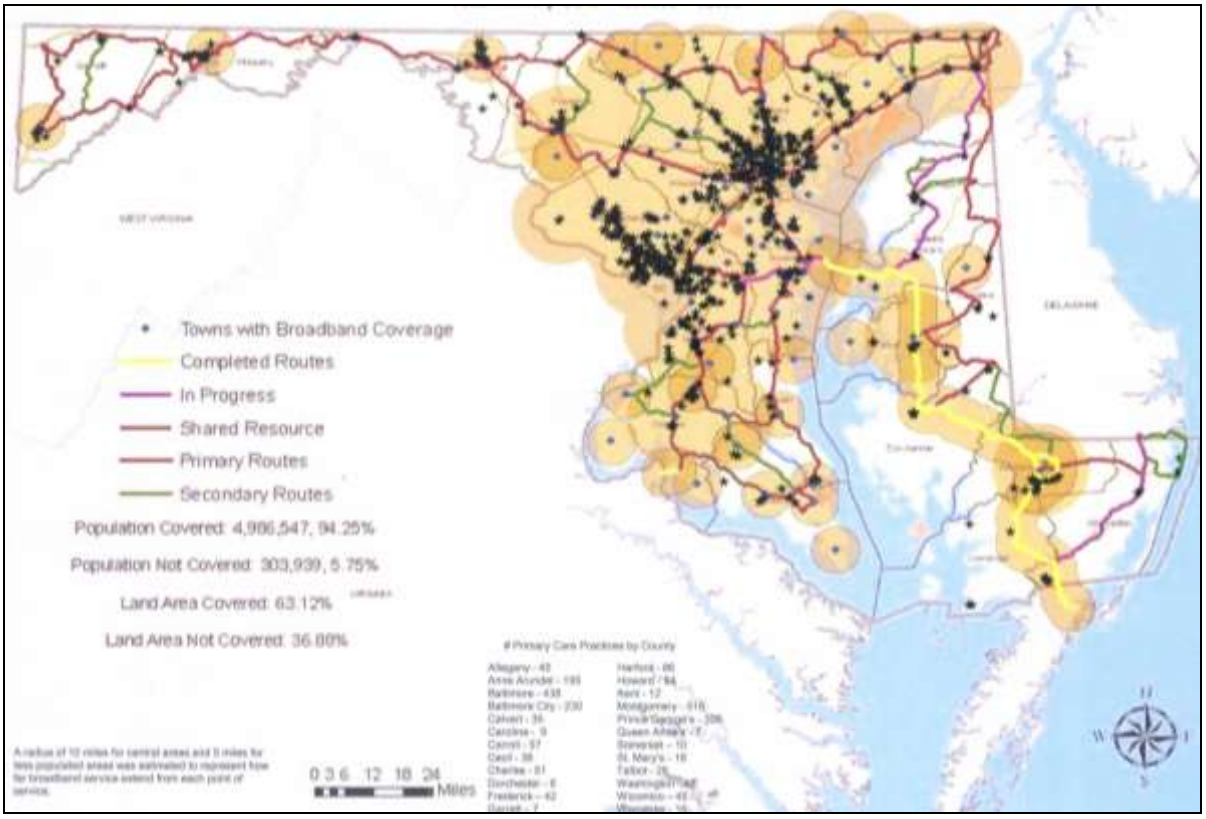


Figure 11: 2008 Estimated Broadband Coverage and Primary Care



HIE Challenge Program

The MHCC was awarded $1.6M under the HIE Challenge Program to improve long-term and post-acute care transitions by leveraging the HIE. In collaboration with the statewide HIE, the MHCC will pilot the electronic exchange of clinical documents between LTC centers and nearby hospital emergency departments. Six large LTC facilities; under the operation of Erickson Retirement Communities, Lorien Health Systems and Genesis Healthcare, will be paired with a hospital in its immediate medical service area. New scalable technology will be implemented to enable and measure the exchange. The program intends to increase the number of transitions of care within the pilot populations that are accompanied by electronic summary of care information compared to a baseline; reduce the average time to transmit such information compared to the status quo; and have a measurable effect on hospital readmission rates for patients participating in the pilot versus a control group. In coordination with the state's Medical Orders for Life-Sustaining Treatments (MOLST) initiative, the project will work to ensure that advance directives are a component of the electronic summary of care by developing the required framework for storing and exchanging advance directives electronically in Maryland.

Coordinate with Other States

MHCC has been in communication with the District of Columbia, Virginia, Delaware, Pennsylvania, and West Virginia to discuss the strategies they have used for implementing their HIEs. This collaboration has provided a mechanism for Maryland to share lessons learned, identify the challenges, and discuss various unique policy-related issues. Discussions around technology evaluation, selection, and implementation have also occurred. Most recently, MHCC participated in the National Governors Association Center for Best Practices State Alliance for e-Health Regional IT Consultation meeting.

Participating states explored challenges related to implementing HIE and established information sharing networks with other states. MHCC expects to continue building communications with other states over the next year and exploring opportunities to share lessons learned as it moves forward with implementing the statewide HIE. The MHCC will continue to participate in quarterly meetings with representatives from bordering states to discuss interstate HIE connectivity.

Medicaid Coordination

Medicaid Information Technology Architecture Initiative

The Maryland Department of Health & Mental Hygiene, Office of Systems, Operations, and Pharmacy (DHMH OSOP) assessed the current State of the Maryland Medicaid Management Information System (MMIS) along with the current Medicaid processes serves as the framework in the transition plan to align with the federally mandated Medicaid Information Technology Architecture (MITA) requirements. Existing DHMH OSOP plans outline the replacement of its legacy MMIS claims processing system. The replacement MMIS system is base on MITA 2.0 principles that will include imaging and workflow management, and a robust business rules engine to aide in creating and managing flexible benefit plans. The new MMIS will process all Medicaid claims and eliminate the duplicative adjudication of the Mental Hygiene Administration (MHA), Developmental Disabilities Administration (DDA), and dental claims. The new MMIS system will also support coordination of benefits, surveillance and utilization review, federal and management reporting, case management, and the statewide HIE. In conjunction with the MMIS replacement, DHMH intends to add a Decision Support System (DSS); implement a Service Oriented Architecture (SOA) Integration Framework to provide a platform for the system that will enable better interoperability with existing legacy applications; and develop a Member and Care Management portal. These enhancements will help eliminate manual processes under programs such as:

- Medicaid Waiver Program Case Management;
- Home and Community-Based Services;
- Employed Individuals with Disabilities (EID);
- Primary Adult Care (PAC);
- Breast and Cervical Cancer;
- Rare and Expensive Case Management (REM);
- Traumatic Brain Injury (TBI);
- Disease Management;
- Catastrophic Cases; and
- Healthy Start Program.

The SOA Integration Framework enables a bi-directional real-time interface with the State's Client Automated Resources Eligibility System (CARES) and the statewide HIE to facilitate better access to the complete eligibility record, resolve data integrity issues across systems, improve claims payment accuracy by capturing the most current eligibility information, and support inter-agency coordination to provide appropriate and cost effective medically necessary care management services. The SOA Integration framework will eventually support an evolutionary approach to information sharing and

integration for the Medicaid enterprise and the statewide HIE to allow the creation of a single source of a recipient's demographic, financial, socio-economic, and health status information.

Medicaid HIT Planning Project

The Maryland Medical Assistance Program (Medicaid) will continue to work in consultation with the MHCC to develop a program for Medicaid to administer the EHR adoption and meaningful use incentives under the ARRA HIT incentive program. Under this program, providers can qualify for 100 percent of Federal incentive funding for adoption and meaningful use of certified EHR technology. The program also authorizes a 90 percent FFP for reasonable administrative expenditures to support state efforts to administer this program. In order to receive these funds, Medicaid, along with the MHCC, developed and submitted to CMS the HIT P-APD. Included in the HIT P-APD is a high level description of a series of planning tasks pertaining to: provider education and awareness; development of the SMHP; development of the HIT I-APD to implement activities identified in the SMHP; and the development of an Request for Proposal (RFP) for a vendor to provide operational support and program audit services.

Around $1.3 million was received by Medicaid from CMS to proceed with the planning tasks outlined in the HIT-APD. In particular, the MHCC will continue to work closely with Medicaid in the developing the *State Medicaid Health IT Plan (SMHP)*. The SMHP outlines the strategic HIT vision for the Maryland Medical Assistance Program. The SMHP establishes the groundwork for achieving this vision by describing the "As-Is" HIT landscape of the current status of HIT, the desired "To-Be" HIT vision for 2014, a Roadmap Plan that services as the strategic pathway to move from the "As-Is" landscape to the "To-Be" vision, and a five year implementation and oversight plan to support the incentive payments under Section 4201 of the ARRA. Maryland submitted its SMHP to CMS in early January 2011.

Collaboration between Medicaid and the MHCC in gathering information to assess the "As-Is" landscape will be performed. Specifically, an EHR assessment of Medicaid providers will be conducted to measure the current EHR adoption rate among Medicaid providers and their readiness to meet the requirements under the EHR incentive program. Surveys and focus groups with providers will be utilized in conducting this evaluation. In addition, a technical feasibility assessment will be performed to assess the impacts, risks, benefits, and barriers associated with implementing a State Medicaid Health Information Technology program. Focus groups will leading Maryland Medical Assistance Program staff will also be utilized in this assessment. Objectives associated with this assessment include: identifying barriers to acceptance of HIT by providers, identifying barriers to acceptance of HIT by Medicaid beneficiaries, providing a foundation for identifying future goals and available resources by assessing the status of the current program and HIT environment; determining the interrelationships between Medicaid, Medicare and other populations as they relate to the adoption of HIT; and identification of policy issues where additional guidance from CMS may be required. The assessments of the "As-Is" HIT landscape will also be utilized in overall planning efforts of the state HIT strategy.

The Maryland Medical Assistance Program expects to develop a "To-Be" vision using HIT to improve health care quality and patient safety, promote care coordination and continuity, and assist in clinical decision making and the use of evidence-based guidelines. Consumer control over their health information and the development of sound policy related to access, authorization, authentication, and audit are essential components of the vision. The Maryland Medical Assistance Program will develop a Roadmap Plan with milestones and objectives that meets the meaningful use criteria in the Medicare

and Medicaid Programs; Electronic Health Record Incentive Program; Final Rule. The Roadmap Plan will include overseeing the Medicaid incentive payment to eligible providers and readying nearly all Medicaid physicians to participate in the ARRA EHR incentives.

The SMHP will consist of a five year strategy to implement a Roadmap Plan that will address the administration of provider incentive payments, including provider eligibility determination, issuance and tracking of incentive payments, and auditing of financials and meaningful use. Objectives associated with these activities include: identification of short-term and long-term goals for the project; development of recommendations to ensure cost-effective strategies to be realized as part of the "To-Be" vision; establishing measurable benchmarks, milestones, tasks, and timelines to guide project progress; and establishment of the framework for the development of I-APD tasks and activities. The Maryland Medical Assistance Program will bring together various stakeholder workgroups to address particular components of the Roadmap Plan and to identify appropriate measurable benchmarks.

The five year strategy will be aligned with the MITA transition. The "To-Be" vision and Roadmap Plan will provide direction in the development of the transition plan with the MITA requirements. The Maryland Medical Assistance Program assessed the current Medicaid Management Information System (MMIS) along with the current Medicaid processes. This information will be used to develop a transition plan as part of the SMHP to align with the federally mandated MITA requirements. MITA is expected to modernize existing system functions and significantly enhance the goals of the MMIS. Replacing the existing legacy MMIS claims processing system with a new MMIS system based on MITA is part of the "To-Be" vision and Roadmap Plan.

The Maryland Medical Assistance Program will develop a HIT Implementation Advanced Planning Document (HIT I-APD) with the guidance of CMS, establishing specific implementation activities necessary to support the SMHP. Stakeholder involvement is a critical component in developing the HIT I-APD. The Maryland Medical Assistance Program plans to assemble stakeholder workgroups to fully address the objectives associated with this activity, and to develop a detailed approach to the implementation of the plan and obtain supporting FFP. The HIT I-APD development will be an iterative process; development of the document is expected to occur throughout the planning phase of the project.

The SMHP is a component of the state's HIT State Plan and reflects the high priority that Maryland places on advancing HIT in the state Medicaid program. Maryland's planning efforts have led to a comprehensive design to expand the use of certified EHRs and to facilitate and expand the secure, electronic movement and use of health information among providers according to nationally recognized standards. The state has taken an ambitious approach to advancing HIT that balances the need for information sharing with the need for strong privacy and security policies, while maintaining a judicious approach to funding the initial development of a statewide HIE. The SMHP will serve as Maryland's five year strategic plan to expand EHR adoption among Medicaid providers and to ensure connectivity with the statewide HIE in a manner consistent with the existing HIT State Plan. Developing a SMHP that will become part of the HIT State Plan is an appropriate and timely next step to ensure that the state has a complete strategic and operational plan for a comprehensive HIT initiative in Maryland.

Coordination of Medicare and Federally Funded, State Based Programs

The statewide HIE is working with DHMH to develop reporting capabilities to allow DHMH to report required data to the Centers for Disease Control. Discussions with DHMH are already underway to develop a Use Case for testing in 2010. Data from the Medicaid long term care population will be made available through the HIE as part of the collaboration with DHMH on the MITA initiative. The statewide HIE will utilize many of the resources and tools developed by the Agency for Healthcare Research and Quality to assist Medicaid and the Children's Health Insurance Program in improving the delivery and coordination of care through exchanging electronic patient information. The statewide HIE will rely upon the Advisory Board to provide guidance to the work effort to implement data sharing with publically funded programs. The Advisory Board will provide monthly updates to the Board of Directors for the statewide HIE on the progress from implementing Use Cases with publically funded programs. The statewide HIE is expected to connect with the Veterans Affairs (VA) as an early Use Case in 2011. The Technology Infrastructure Committee, a subgroup of the Advisory Board, are currently considering the challenges related to an early Use Case with the VA. This includes mapping out the requirements for the technology and network configuration to support this Use Case. The Policy Board has begun deliberating on policies related to access and authorization as a general policy for a number of Use Cases, including the VA.

Participation with Federal Care Delivery Organizations

The statewide HIE will explore data sharing with the VA in 2010 and implementation will occur on a Use Case basis. The VA Maryland Health Care System is a dynamic and progressive health care organization dedicated to providing quality, compassionate, and accessible care and service to Maryland's veterans. The VA has successfully implemented a system-wide EHR in a health care system that serves nearly 6 million patients in more than 1,400 hospitals, clinics, and nursing homes. The Baltimore and Perry Point VA Medical Centers, the Baltimore VA Rehabilitation & Extended Care Center, and five community-based outpatient clinics all work together to form this comprehensive health care delivery system. Most of the physicians who work for the VA hold dual appointments at the University of Maryland, School of Medicine. The University of Maryland, School of Medicine is part of the University of Maryland Medical System, which is an active participant in the planning and implementation of the statewide HIE. The MHCC and the statewide HIE have had preliminary discussions around implementing a data sharing on select Use Cases in 2010. The Baltimore VA Medical Center given its close proximity to the University of Maryland School of Medicine will serve as a beta site for implementation of an early Use Case.

Coordination with the Nationwide Health Information Network

The technology specifications for the statewide HIE is based on federally endorsed standards and integration protocols that bridge proprietary boundaries. Using approved standards mitigates vulnerability to vendor selection issues and risks, and ensures compatibility with other HIEs and federal initiatives. The infrastructure of the statewide HIE is designed to enable flexibility while ensuring that the organization can respond to market changes and eventually support data sharing with the NHIN. The core infrastructure technology vendor that was selected by the statewide HIE and the MHCC is Axolotl. The President and Chief Executive Officer of Axolotl, Ray Scott, has committed verbally and contractually to supporting only those standards approved by HHS. While the system

currently includes some proprietary standards, a full migration to those standards supported by HHS is planned for the 3rd quarter of 2010. These modifications to the Axolotl system are expected to make it fully compatible with the Nationwide Health Information Network. Preliminary data sharing testing is scheduled to occur later in 2010.

Domain Requirements

Governance

The statewide HIE has established a governance structure that is inclusive of all stakeholders. The governance structure consists of the MHCC Policy Board, Board of Directors, and an Advisory Board with four committees: the Exchange Technology Committee, the Clinical Excellence and Exchange Services Committee, the Finance Committee, and the Small Practice Advisory Committee. Each committee has a specific set of objectives that they are charged with accomplishing. Policy recommendations that emerge from the Advisory Board will be forwarded to the Policy Board for deliberation. The Policy Board is convened by the MHCC and acts as an oversight body to ensure that public interests remain at the forefront in all decision-making. Policies developed by the Policy Board are forwarded to the Board of Directors for implementation. The Board of Directors provides oversight to the implementation of policies and operational activities. The Board of Directors is accountable for all aspects of the statewide HIE. The Advisory Board, Policy Board, and Board of Directors meet regularly.

The statewide HIE will operate under the oversight of an Advisory Board, which is accountable to the Board of Directors. The Advisory Board includes a diverse group of approximately 45 stakeholders to ensure that a breadth of interested organizations can make certain that the interests and perspectives of their respective constituencies are heard with respect to the HIE services. The statewide HIE's Board of Directors affirms their intentions and commitment to implement Maryland's HIE through their mission statement:

> *[CRISP's] mission is to advance the health and wellness of Marylanders by deploying health information technology solutions adopted through cooperation and collaboration. We will enable the Maryland healthcare community to appropriately and securely share data, facilitate and integrate care, create efficiencies, and improve outcomes.*

Enforcement

The statewide HIE Board of Directors are ultimately accountable for the accomplishments of the work effort. The Board of Directors, which consists of a number of stakeholders, have been actively involved in implementing data sharing projects within their communities, across their organizations, and at a state level. These individuals that constitute the Board of Directors are charged with ensuring that all aspects of the state plan have been implemented to the satisfaction of the MHCC. They have the authority to make any necessary changes within the CRISP organization to ensure that these goals are met. The Board of Directors also has enforcement of privacy and security and other policy issues. The Board of Directors has the authority to convene administrative hearings related to all aspects of the organization's activities in an effort to resolve issues. The MHCC has the authority to request action to be taken from the statewide HIE Board of Directors as deemed necessary by the event.

The MHCC Policy Board

The Policy Board is comprised of approximately 35 members selected based upon their expertise, the breadth of stakeholder representation, and a strong consumer voice, which is essential to building trust among stakeholders. Ex-officio members of the Policy Board consist of representatives from CRISP and state government including Medicaid, the MHCC, and the HSCRC. The responsibilities of this Policy Board primarily include the development of policies for privacy and security. The MHCC will consider the policies developed by the Policy Board; the statewide HIE is required to implement policies adopted by the MHCC.

The Policy Board is convened on a six-week schedule and over the past year has made notable progress in drafting key policies that will govern the statewide HIE. Approximately 21 policies (Appendix C) have been identified for development. The Policy Board establishes the prioritization of policy development with advisement from the statewide HIE and the MHCC.

Table 3: 2011 Policy Board Schedule

Date	Location	Time
January 11, 2011	Maryland Health Care Commission	1:00 p.m. to 4:00 p.m.
March 1, 2011	Frederick Memorial Hospital	1:00 p.m. to 4:00 p.m.
April 12, 2011	TBD	1:00 p.m. to 4:00 p.m.
May 24, 2011	Anne Arundel Medical Center	1:00 p.m. to 4:00 p.m.
July 12, 2011	Maryland Health Care Commission	1:00 p.m. to 4:00 p.m.
August 16, 2011	Frederick Memorial Hospital	1:00 p.m. to 4:00 p.m.
September 27, 2011	TBD	1:00 p.m. to 4:00 p.m.
November 8, 2011	Anne Arundel Medical Center	1:00 p.m. to 4:00 p.m.

Board of Directors

The statewide HIE Board of Directors is the authoritative entity overseeing the operations of the statewide HIE. The Board of Directors considers the recommendations of the Advisory Board and ensures that the policies developed by the Policy Board are implemented. The governance structure of the statewide HIE is consistent with those implemented by other HIEs nationally. The statewide HIE bylaws provide a mechanism to support changing the composition of the Board of Directors as long as these revisions do not have a significant impact on governance, best practices, or legal considerations, such as those for tax-exempt organizations.

Advisory Board

The statewide HIE operates under the oversight of an Advisory Board. The statewide HIE Advisory Board is organized into the following four committees - technology, finance, clinical excellence and exchange services, and small practice advisory; each committee is comprised of approximately 10 to 15 members. Members are identified through a nomination process and appointed by the Board of

Directors. Most of the work done by the Advisory Board is accomplished at the committee level. The Advisory Board is tasked with making recommendations on matters such as the technology to support the core infrastructure, early Use Case implementation, and sustainability models.

Committees

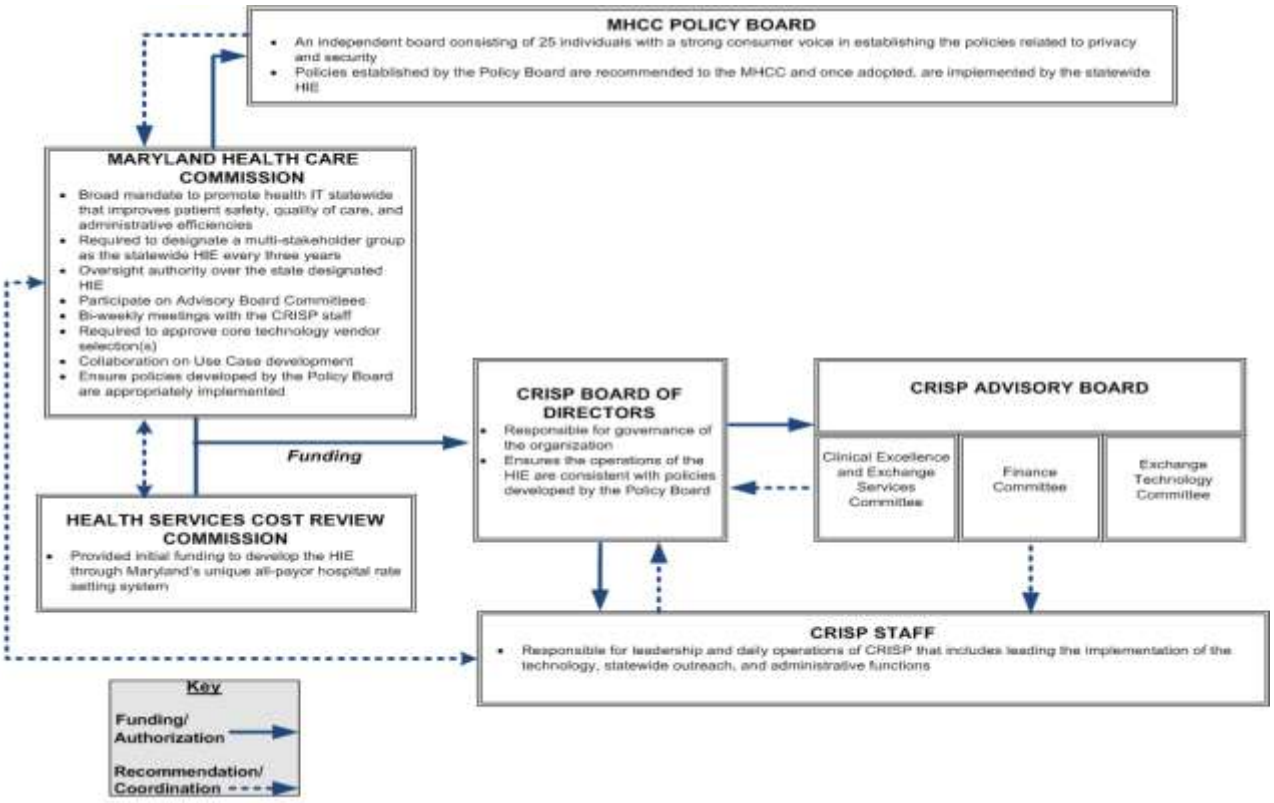
The statewide HIE Advisory Board is organized into four standing committees. Each committee has a chair, and most of the work done by the Advisory Board will be accomplished at the committee level. Certain members of the Advisory Board, such as the representatives of the MHCC, will sit on multiple committees, but most individuals will sit on just one. Any individuals beyond those positions listed in the RFA would be selected on the basis of deep subject matter expertise. The committees include:

1. Exchange Technology
2. Clinical Excellence and Exchange Services
3. Finance
4. Small Practice Advisory

Oversight by the MHCC Convened Policy Board and the Commissions

The decisions of the Policy Board will be enacted and augmented by the governance structure of the HIE. Bi-directional communication between the Policy Board and the statewide HIE governance structure is important and will help ensure no disconnect between policy creation and that which is technically feasible or practical. Cross-membership between the Advisory Board and the Policy Board is an appropriate mechanism to facilitate that communication. Included on the Policy Board is a senior level representative from the Maryland Medical Assistance Program (Medicaid). This individual actively participates on the Policy Board and is tasked with making recommendations that will impact the Medicaid program, in consultation with Medicaid's senior leadership. The statewide HIE and the executive leadership at Medicaid meet routinely to discuss the needs of Medicaid in the statewide HIE. The leadership of the statewide HIE meets with the leadership of state-based payers in Maryland, as well. Figure 11 illustrates the governance structure of the HIE.

Figure 12: HIE Governance Structure



Policy Board Members

Health Information Exchange Policy Board

	Name		Title	Organization	e-Mail
1	Doug	Abel	Vice President, Chief Information Officer	Anne Arundel Medical Center	dabel@aahs.org
2	Salliann	Alborn	Chief Executive Officer	Community Health Integrated Partnership	salborn@mdhealth.net
3	Barbara	Blount Armstrong	Consultant	Armstrong Enterprises	BArmstro5@aol.com
4	Kimberly	Burton	Director of Older Adult Programs	Mental Health Association of Maryland	kburton@mhamd.org
5	Beverly	Collins	Physician, Medical Director	CareFirst	Beverly.Collins@CareFirst.com
6	Melissa	Coretz Goemann	Legislative Director	ACLU of Maryland	goemann@aclu-md.org
7	Lee	Cotton	President	Higher Ground, Inc	lcotton@highergroundmd.com
8	Hoan	Dang	Member	Asian Pacific American Chamber of Commerce	hdang888@gmail.com
9	Steve	Daviss	Chairman of Psychiatry	Baltimore Washington Medical Center	drdaviss@gmail.com
10	Damien	Doyle	Physician, Medical Director	Hebrew Home of Greater Washington	doyle@hebrew-home.org
11	Brian	England	Owner	British American Auto Care	beengland@comcast.net
12	Gene	Gary-Williams	Executive Director	The National Society of Allied Health	ggarywilliams@gmail.com
13	Spencer	Gear	Chief Systems Officer	Mosaic Community Services, Inc.	spencer.gear@mosaicinc.org
14	Shannah	Koss	Consultant	Koss on Care	kossoncare@starpower.net
15	Mary	Kraaij	Retired Nurse Administrator	AARP-MD	mjkraaij@yahoo.com
16	Peggy	Leonard	Senior Director, Inpatient Systems	Genesis Healthcare	margaret.leonard@genesishcc.com
17	Carey	Leverett	Vice President, Information Systems	Washington County Health Systems	leverett@wchsys.org
18	Tom	Lewis	Physician, Chief Information Officer	Primary Care Coalition of Montgomery Co.	tom_lewis@primarycarecoalition.org
19	Ellen	Maltz	Business Medical Relationship Manager	M&T Bank	EMaltz@mtb.com
20	John	Miers	Member	Maryland Interfaith Legislative Committee	johngmiers@comcast.net
21	John	Nugent	President, Chief Executive Officer	Planned Parenthood of Maryland	John.Nugent@ppmaryland.org
22	Frances	Phillips	Deputy Secretary for Public Health Services	DHMH	fphillips@dhmh.state.md.us
23	Chris	Shea	Program Officer	Open Society Institute-Baltimore	chrismd104@gmail.com
24	Liza	Solomon	Consumer Member	Consumer Member	Liza_Solomon@Abtassoc.com
25	Sarah	Tucker	Technology Safety Specialist	National Network to End Domestic Violence	st@nnedv.org
26	Regan	Vaughan	Member	Maryland Interfaith Legislative Committee	rvaughan@catholiccharities-md.org
27	Kathryn	Whitmore	Principal, Strategic Technology Solutions	Enterprise Solutions Group	kathryn.whitmore@enterprisesolutionsgroup.com
28	Marisa	Wilson	Assistant Professor	University of Maryland School of Nursing	wilson@son.umaryland.edu
29	Jennifer	Witten	Director of Government Relations, MD-DC	American Heart and Stroke Association Mid-Atlantic Affiliate	Jennifer.Witten@heart.org
			Ex-Officio Members		
30	Scott	Afzal	Director	Audacious Inquiry	scott@audaciousinquiry.com
31	Rex	Cowdry	Physician, Executive Director	MHCC	rcowdry@mhcc.state.md.us
32	David	Horrocks	President	CRISP	david.horrocks@crisphealth.org
33	Mark	Luckner	Executive Director	Maryland Community Health Resources Commission	LucknerM@dhmh.state.md.us
34	Donna	Mazyck	School Health Services Specialist	Maryland State Department of Education	dmazyck@msde.state.md.us
35	Kurt	Olsen	Attorney	Klafter and Olsen	ko@klafterolsen.com
36	Steve	Ports	Principal Deputy Director	HSCRC	Sports@hscrc.state.md.us
37	Sarah	Posner	Privacy Rights Advocate	ACLU of Maryland	posner@aclu-md.org
38	Tricia	Roddy	Director of Planning	DHMH	RoddyT@dhmh.state.md.us
39	David	Sharp	Center Director	MHCC	dsharp@mhcc.state.md.us

Last updated 1/21/2011

Policy Board Meeting Schedule

Date	Location	Time
January 19, 2010	Community Health Integrated Partnership	2:00 p.m. to 4:00 p.m.
March 1, 2010	Anne Arundel Medical Center	2:00 p.m. to 4:00 p.m.
April 13, 2010	Maryland Health Care Commission	2:00 p.m. to 4:00 p.m.
May 25, 2010	Community Health Integrated Partnership	2:00 p.m. to 4:00 p.m.
July 13, 2010	Anne Arundel Medical Center	2:00 p.m. to 4:00 p.m.
August 17, 2010	Maryland Health Care Commission	1:00 p.m. to 4:00 p.m.
September 28, 2010	Community Health Integrated Partnership	1:00 p.m. to 4:00 p.m.
November 9, 2010	Anne Arundel Medical Center	1:00 p.m. to 4:00 p.m.
January 11, 2011	Maryland Health Care Commission	1:00 p.m. to 4:00 p.m.
March 1, 2011	Frederick Memorial Hospital	1:00 p.m. to 4:00 p.m.
April 12, 2011	Community Health Integrated Partnership	1:00 p.m. to 4:00 p.m.
May 24, 2011	Anne Arundel Medical Center	1:00 p.m. to 4:00 p.m.
July 12, 2011	Maryland Health Care Commission	1:00 p.m. to 4:00 p.m.
August 16, 2011	Frederick Memorial Hospital	1:00 p.m. to 4:00 p.m.
September 27, 2011	Community Health Integrated Partnership	1:00 p.m. to 4:00 p.m.
November 8, 2011	Anne Arundel Medical Center	1:00 p.m. to 4:00 p.m.

Statewide HIE Policy Board Operating Guidelines

Statewide Health Information Exchange

Policy Board Operating Guidelines

Purpose

The Maryland Health Care Commission (MHCC) has assembled a Policy Board with responsibility for general oversight of the state's health information exchange, including the authority to evaluate and recommend to the MHCC the policies that will govern the statewide health information exchange. The MHCC selected the members based upon their expertise, with a strong emphasis on achieving both broad stakeholder representation and a strong consumer orientation. The existence of a Policy Board that is separate from the administration of CRISP assures participation by the public in both policy development and operational oversight.

The purpose of these Operating Guidelines is to set forth succinctly how the Policy Board will function. The Operating Guidelines are effective when adopted by the Policy Board and may be changed by a vote of the majority of the Policy Board.

Responsibilities of the Policy Board

The responsibilities of this Policy Board include, although are not limited to, the development of policies for privacy and security, which the MHCC will adopt and the health information exchange will implement. In particular, the Policy Board will establish policies regarding consumer authorization and consent, user authentication, role-based authorization, security requirements, and audit trail requirements. In addition, further policies may include the architecture of the exchange, use case priorities and implementation, consumer access and control, provider access, financing, and secondary uses of data. The Policy Board will develop policies that ensure a high level of protections for the statewide health information exchange.

Although the Policy Board is formally an advisory body reporting to the MHCC, the expectation is that the MHCC, through its control of the federal and Maryland all-payer funding of the exchange, will assure that the policies developed and recommended by the Policy Board are implemented by CRISP. In the unlikely event that the MHCC reaches a preliminary decision not to implement a recommendation of the Policy Board, the Commission's concerns will be brought to the Policy Board for further discussion before any final decision is reached.

Chair

The Executive Director of the MHCC or his designee will chair the Policy Board. The Chair, with the consent of the Policy Board, may establish special committees and appoint members to serve on the committees.

Frequency and Location of Meetings

The Policy Board will meet approximately eight times per year. The meeting schedule detailing the location and time of the meetings are available on the Policy Board webpage located on the MHCC website at: http://mhcc.maryland.gov/electronichealth/hie_policy_board/index.html.

Policy Board members will also receive meeting notification via e-mail approximately one week prior to the meeting date. The notification will include a reminder about the date, time, and location of the meeting, and instructions regarding any meeting materials posted on the Policy Board webpage. Policy Board members are encouraged to print out meeting materials and bring them to the meeting.

Members are requested to confirm their participation in meetings upon receipt of the meeting notification e-mail. Members are encouraged to schedule the designated days for Policy Board meetings on their calendars in advance for the entire 2010 year.

Committees will meet as determined by the Chair of the committee, commonly by conference call using numbers provided by the MHCC.

Communication

Communication with the Policy Board and among its members will be mostly through the listserv, hie@mhcc.state.md.us, and by posting of information on the webpage previously mentioned. Information related to Committee activities and recommendations will also be posted to the Policy Board webpage.

Agenda

The MHCC will develop an agenda for each meeting and post it on the Policy Board webpage approximately one week prior to the meeting. The agenda and any supplemental information to the meeting will be provided to the Policy Board members for discussion during the meeting. The agenda will also note the issues to be presented for decision, for discussion, or for information.

Minutes

The MHCC will electronically record each meeting of the Policy Board and may use the recording to identify key discussion items to include in the minutes when available. The MHCC will post the minutes on the Policy Board webpage approximately ten days following each meeting. Policy Board members may suggest revisions to the minutes at the beginning of each Policy Board meeting.

Decision Making Process

The Policy Board will use Roberts Rules of Order to guide decision making; however, a more informal process of discussion and deliberation may also be used if no objection is raised by a member of the Board, and decisions made by a more informal process will have the same force and effect. A quorum shall consist of the majority of Policy Board members in attendance. All formal policy actions must be proposed by a member of the Policy Board in the form of a motion and seconded by another Policy Board member. The motion will be discussed and a vote taken with a majority rule. Any motion not adopted unanimously will have the exact vote recorded in the minutes.

Policy Board members can nominate decision items as warranting greater consensus among board members due to their high sensitivity and impact to consumers. If a majority of members agree to the designation, decision-making will require a super majority vote, or approximately 75 percent agreement by the Policy Board.

Non-Agenda Items

Policy Board members may discuss matters and make recommendations on issues not on the agenda. Policy Board members introducing an issue may request that a decision on it be made during the meeting in which it is introduced. If any member requests time for further consideration, no action will occur until the item has been placed on the agenda for a subsequent meeting as a decision item.

Open Meetings

All meetings of the Policy Board are open to the public. The Policy Board may invite the public to present on specific topics, either on its own initiative or in response to a request from a member of the public. The time permitted for presentations from the public or members shall be decided by the Chair with the advice of the Policy Board, and such limits shall be reasonable and related to the agenda and the importance of the topic.

Tenure

The Policy Board assures a strong role for the public in both policy development and operational oversight of the statewide health information exchange. Policy Board members shall serve for a term of three years, and may be reappointed to serve one additional term. Continuity of the membership is essential to developing policies that will foster authorized, private, and secure information sharing within the state and eventually across state borders.

Statewide HIE Bylaws *(as provided by CRISP)*

BYLAWS
of

CHESAPEAKE REGIONAL INFORMATION SYSTEM FOR OUR PATIENTS, INC.

ARTICLE I
NAME

1.1. Name. The name of the Corporation is Chesapeake Regional Information System For Our Patients, Inc. (hereinafter "Corporation").

ARTICLE II
REGISTERED OFFICE AND AGENT

2.1. Registered Office and Agent. The registered office of the Corporation is at 701 Maiden Choice Lane, Baltimore, Maryland 21228. The registered agent in charge thereof is Gerald Doherty.

ARTICLE III
PURPOSES AND POWERS

3.1. Nonstock Corporation. The Corporation shall be a Nonstock Corporation under the laws of the State of Maryland.

3.2 Purposes and Powers. The Corporation is organized and will be operated exclusively for charitable and educational purposes, specifically to promote health through the development, ownership and operation of a health information exchange.

The affairs and activities of the Corporation shall be carried out at all times for the purposes and in accordance with the terms set forth in its Articles of Incorporation and these Bylaws, and in conformity with all applicable provisions of the Internal Revenue Code of 1986, as amended, (the "Code") affecting nonprofit organizations qualified for tax-exempt status as described in section 501 (c)(3) of the Code.

ARTICLE IV
MEMBERS

4.1. Members. The corporation shall have three (3) classes of members, Class A Members, Class B Members and Class C Members (collectively, the "Members").

4.2 Qualifications of Members.

4.2.1 Class A Members The Class A Members shall be the entities identified as Class A Members on Schedule A of these Bylaws, which schedule shall be updated as necessary by the Secretary of the Corporation.

4.2.2 Class B Members The Class B Members shall be the entities identified as Class B Members on Schedule A of these Bylaws, which schedule shall be updated as necessary by the Secretary of the Corporation.

4.2.3 Class C Members The Class C Members shall be the entities identified as Class C Members on Schedule A of these Bylaws, which schedule shall be updated as necessary by the Secretary of the Corporation.

4.2.4 Member Representatives The institutions comprising the Members shall have the authority and sole discretion to select the individuals who will represent such Members in attending meetings, taking action, or otherwise participating in the affairs of the Corporation. Each Member represents and warrants that any such individual duly selected by them shall have the requisite corporate authority to act on their behalf.

4.3 Member Rights.

4.3.1 Class A and Class B Member Rights In addition to those rights granted by law, the Articles of Incorporation, and the provisions of these Bylaws, each Class A and B Member shall have the following rights with regard to the Corporation:

(a) To vote on any matters before the Members;

(b) To appoint and remove two (2) Directors as provided in Section 6.3;

(c) To select one or more representatives who may attend and speak at meetings of the

Members and receive a copy of any materials made available to the Members but who shall not have the right to vote as a Member.

4.3.2 Class C Member Rights In addition to those rights granted by law, the Articles of Incorporation, and the provisions of these Bylaws, each Class C Member shall have the following rights with regard to the Corporation:

(a) To vote on any matters before the Members;

(b) To appoint and remove one (1) Director;

(c) To select one or more representatives who may attend and speak at meetings of the Members and receive a copy of any materials made available to the Members but who shall not have the right to vote as a Member.

4.4 Member Financial Support. The Members have contributed or will contribute to the capital of the Corporation in such amounts as described in Schedule B of these Bylaws. The Members shall not be required to contribute any additional capital to the Corporation, except as provided in Section 6.16 of these Bylaws.

ARTICLE V
MEETINGS OF MEMBERS

5.1. Annual Meeting. The annual meeting of the Members shall be held during the month determined by the Board by resolution for the transaction of any business that comes before the Members.

5.2. Special Meetings. Special meetings of the Members may be called by the Chair, the Board of Directors, or a majority of the Members.

5.3. Place of Meetings. Meetings may be held at any place specified by the Board of Directors or the Members. If no designation is made for any meeting, the place of meeting shall be the principal office of the Corporation.

5.4. Notice of Meetings. Written notice, or electronic notice to the extent permitted by law, stating the place, date, and hour of any meeting of the Members shall be given to each of the Members no fewer than ten (10) days before the date of the meeting, either personally or by mail (or e-mail if electronic), at the direction of the Board Chair or the Secretary. In the case of a special meeting, the notice shall state the purpose or purposes for which the meeting is called.

5.5. Waiver of Notice. The Members may waive any notice requirement by signing a written waiver of notice and delivering it to the Secretary of the Corporation for inclusion in the minutes or filing with the corporate records. Attendance at a meeting shall constitute waiver of notice unless the Member, at the beginning of the meeting, objects to holding the meeting or transacting business at the meeting. Attendance at a meeting also waives objection to consideration of a particular matter at a meeting that is not within the purposes described in the notice, unless the Member objects to considering the matter when it is presented.

5.6. Quorum. The presence of a majority of the Members in person or represented by proxy shall constitute a quorum at a meeting of the Members. If a quorum is not present at any meeting, the Members at the meeting shall have the power to adjourn the meeting to another time or place without further notice.

5.7. Vote Required. When a quorum is present at any meeting, the affirmative vote of a majority of Members who are present at the meeting or represented by proxy and entitled to vote on the matter shall be the act of the Members, unless by express provision of any applicable statute, the Articles of Incorporation, or these Bylaws, a different vote is required, in which case that express provision shall govern and control the vote. The Board shall adopt procedures for the use of proxy voting which may include electronic proxies if permitted by applicable law.

5.8. Informal Action by Members. Any action required by law or which otherwise may be taken at a meeting of the Members may be taken without a meeting and without prior notice if all of the Members entitled to vote on the matter consent in writing to the action. The Secretary shall file the written consent with the records of the meetings of the Members. Such consent shall be treated for all purposes as a vote at a meeting of the Members at which a quorum was present and voting.

ARTICLE VI
BOARD OF DIRECTORS

6.1. Powers. The Board of Directors shall exercise all corporate powers and manage the business and affairs of the Corporation, except as otherwise provided by law, the Corporation's Articles of Incorporation, or these Bylaws.

6.2. Initial Director. Upon the adoption of these Bylaws by the initial Director designated in the Articles of Incorporation at the organizational meeting of the Corporation, the initial Director shall resign as the initial Director and the members shall appoint new Directors as provided in Section 6.3 (which may include, if appointed, the initial Director).

6.3. Appointment and Removal of Directors. Each Class A and Class B Member shall appoint two (2) Directors and each Class C Member shall appoint one (1) Director. Each Member shall provide notice to the Corporation of any removal or appointment of Directors. The Member appointing a Director shall have the exclusive right to remove such Director unless such removal is required by applicable law. Directors shall serve without regard to term limits.

6.4 Qualifications. The Board of Directors shall be representative of the Corporation's Members and have the requisite knowledge, skill and experience to further the Corporation's mission and purposes.

6.5. Number. The number of Directors of the Corporation shall be nine (9) not including the president of the Corporation who shall serve as an ex-officio Director, without vote, or such other number approved by the Members.

6.6. Resignation. Any Director may resign at any time by giving written notice to the Board of Directors, the Chair, or the Secretary of the Corporation. A resignation shall be effective when the notice is given unless the notice specifies a future date. in which case the future date shall be the effective date of resignation. The pending vacancy may be filled before the effective date in accordance with Section 6.3 and 6.7. but the successor shall not take office until the effective date.

6.7. Vacancies. Any vacancy occurring in the Board of Directors may be filled by a replacement appointed by the Member who appointed the departed Director.

6.8. Regular Meetings. An annual meeting of the Board of Directors shall be held, without other notice than these Bylaws, at the same place as the annual meeting of the members shall be held. The Board of Directors may provide by resolution the time and place for the holding of additional regular meetings of the Board of Directors without notice other than the resolution.

6.9. Special Meetings. Special meetings of the Board of Directors may be called by or at the request of either of the Chair or any two (2) Directors. The person or persons authorized to call special meetings of the Board of Directors may designate the meeting's location.

6.10. Notice of Special Meetings. Three (3) days notice of any special meeting of the Board of Directors shall be given. If mailed, the notice will be deemed to be delivered when deposited in the United States mail in a sealed envelope, with postage thereon prepaid, addressed to the Director at his or her address as shown by the records of the Corporation. If notice is given by facsimile or electronically (if permitted by applicable law), the notice will be deemed to be delivered upon an effective transmission of the facsimile or electronic notice. Neither the business to be transacted at, nor the purpose 04 any special meeting of the Board of Directors need be specified in the notice of the meeting.

6.11. Waiver of Notice. A Director may waive any notice requirement by signing a written waiver of the notice and delivering it to the Secretary of the Corporation for filing with the minutes or the corporate records. Attendance of a Director at any meeting shall constitute a waiver of notice of the meeting except when a Director attends the meeting for the express purpose of objecting to the transaction of any business because the meeting is not lawfully called or convened, and does not thereafter vote for or assent to action taken at the meeting.

6.12. Manner of Voting. A majority of the votes of the Directors who are present in person at a meeting at which a quorum is present shall be necessary for the adoption of any matter voted upon by the Board of Directors, unless the vote of a larger number is required by law, by the Articles of Incorporation, or by these Bylaws.

6.13. Quorum. A majority of the entire Board of Directors shall constitute a quorum for the

transaction of business at any meeting of the Board of Directors. If less than a majority of the Directors are present, a majority of those present may adjourn the meeting to another time.

6.14. Informal Action. Any action required by law to be taken at a meeting of the Directors, or any action that may be taken at a meeting of the Directors, may be taken without a meeting, if consents in writing, setting forth the action so taken, are signed by all of the Directors and the written consents are included in the minutes of the proceedings of the Board of Directors or filed with the corporate records. The consents shall have the same effect as a unanimous vote of the Board of Directors for all purposes.

6.15. Participation By Means of Communication Equipment. A member of the Board of Directors may participate in a meeting by conference telephone or similar communication equipment by means of which all persons can hear and speak to each other. Participating in a meeting by such means constitutes presence in person at the meeting.

6.16. Major Decisions. Notwithstanding anything to the contrary in these Bylaws, the following actions of the Corporation shall require the affirmative vote of at least one Director appointed by each Class A Member and at least one Director appointed by either the Class B or the Class C Member: (i) Admission of new Members; (ii) an amendment to the Articles of Incorporation of the Company or these Bylaws that affects the rights of any Member or the mission or purpose of the Corporation; (iii) the sale of all or substantially all of the Corporation's assets; (iv) the merger, consolidation or dissolution of the Corporation; (v) the license to a third party (including an affiliate of a member) of any material intellectual property owned by the Corporation; or (vi) the making of capital calls.

ARTICLE VII OFFICERS

7.1. Officers. The elected officers of the Corporation shall consist of the Chair, Vice Chair, Secretary, Treasurer, President, and Vice President. The Board may also appoint such other officers as, in its judgment, are necessary to conduct the affairs of the Corporation.

7.2. Duties of Chair. The Chair shall be designated from among the Directors. The Chair shall be the chief elected officer of the Corporation. He or she shall preside at all meetings of the Board of Directors and the Executive Committee. The Chair will determine the regular agenda of all meetings of the Board of Directors and the Executive Committee. The Chair shall present a report at the Annual Meeting, appoint the chairs and members of committees (unless otherwise specified herein) authorized by the Board of Directors, act as liaison between the Corporation's staff and the Board, and perform such other duties as are inherent in the office of Chair or as authorized by the Board of Directors.

7.3 Duties of Vice Chair. The Vice Chair shall act in place of the Chair in the event of the absence of the Chair and shall exercise such other duties as may be delegated to the office by the Board. The Vice Chair shall serve as the Board's parliamentarian.

7.4 Duties of Secretary. The Secretary shall:

(a) certify and keep at the principal office of the Corporation the original or a copy of the Articles of Incorporation and these Bylaws, as amended, to date;

(b) keep, or cause to be kept, at the principal office of the Corporation or at such other place as the Board of Directors may order, a book of minutes of all meetings of the Members and the Board of Directors, and any committees having any of the authority of the Board of Directors, recording therein the time and place of holding, whether annual, regular, or special, how notice of the meeting was given, the names of those present at the meetings, and the proceedings thereof;

(c) be custodian of the records of the Corporation and see that all documents of the Corporation, the execution of which on behalf of the Corporation is authorized by law or by these Bylaws, are properly and duly executed;

(d) exhibit at all reasonable times to the Members, a Director, or proper designee, upon request, the Bylaws, and the minutes of the proceedings of the Members, Board of Directors and the committees of the Corporation; and

(e) perform any and all other duties incident to the office of Secretary and other duties as may be prescribed by law, the Articles of Incorporation, these Bylaws, or the Board of Directors.

7.5 Duties of Treasurer. The Treasurer shall:

(a) keep, or cause to be kept, adequate and correct accounts of all the properties and financial transactions of the Corporation;

(b) deposit, or cause to be deposited, all monies and other valuables in the name of and to the credit of the Corporation, with such depositories as may be designated by the Board of Directors;

(c) cause all the funds of the Corporation to be disbursed as ordered by the Board of Directors;

(d) render to the Board of Directors, upon request, an accounting of all financial transactions of the Corporation and a statement of the financial condition of the Corporation, and, after consultation with the Corporation, cause an annual audit of the Corporation's financial affairs to be conducted; and

(e) perform any and all other duties incident to the office of Treasurer and other duties as may be prescribed by law, the Certificate of Incorporation, these Bylaws, or the Board of Directors.

7.6 Duties of President. The President shall have the necessary authority and responsibility to operate the Corporation in all its activities subject only to the policies and directions of the Board of Directors or any of its committees. The President shall act as the duly authorized representative of the Corporation in all matters in which the Board of Directors has not formally designated some other person to so act. The President shall report periodically to the Board of Directors. The President is charged with continuous responsibility for the management of the Corporation, commensurate with the authority conferred on him or her by the Board of Directors and consistent with the expressed aims and policies of the Board of Directors. The President is responsible for the application and implementation of established policies in the operation of the Corporation. The President shall be an ex-officio member of the Board of Directors without vote. The President shall keep appropriate records, and prepare or cause to be prepared all necessary reports, returns, and filings, and shall prepare an operating budget and financial statements. Expenditures shall be made in accordance with policies approved by the Board of Directors. The Board of Directors shall authorize reasonable compensation for the President. The Board may contract with a qualified firm to provide the services of a President; however, the choice of individual to provide such services shall be subject to the approval of the Board.

7.7. Vice President. The Vice President shall act in place of the President in the event of the absence of the President and shall exercise such other duties as may be delegated to the office by the Board.

7.8. Election of Officers. All of the elected officers of the Corporation shall be ejected by the Board of Directors every year at the Annual Meeting, provided, however, that the initial Chair shall serve a term of one (1) year and each subsequent Chair shall serve a term of two (2) years. An officer may be elected to serve more than one term in any office. Each officer shall hold his or her office until his or her successor shall be elected and qualified, unless he or she shall sooner resign or be removed or otherwise become disqualified to serve. Elections of all officers shall be by an affirmative vote of the majority of the votes of the entire Board of Directors.

7.9. Resignation. Removal. and Disqualification. Any officer may resign at any time by giving written notice of his or her resignation to the Board of Directors of the Corporation. Any resignation shall take effect upon receipt of the notice or upon any later time specified in the notice. The Board of Directors may remove any officer whenever *in* its judgment the best interests of the Corporation will be served thereby. Such removal shall be without prejudice to the contract rights, if any, of the persons so removed, but election or appointment of an officer or agent shall not of itself create contract rights. Vacancies among the officers shall be filled by the Board of Directors.

ARTICLE VIII
COMMITTEES

8.1. Committees. The Board of Directors may designate from among its members one or more committees, each committee to consist of two or more Directors. The Board may also from time-to-time appoint one or more persons as consulting members of a Board committee to serve at the pleasure of the Board and such persons need not be Directors. The Board of Directors shall establish

procedures for meetings, action without meetings, notice and waiver of notice, and quorum and voting requirements for each committee.

Each committee shall exercise the authority of the Board of Directors to the extent authorized by resolution or other express delegation of authority by the Board of Directors. However, a committee may not:

(a) approved action that requires member approval;
(b) fill vacancies on the Board of Directors or any of its committees; or
(c) approve major Decisions set forth in Section 6.16 of these Bylaws.

There shall at all times be, at a minimum, an Audit Committee.

8.2. Audit Committee. The Audit Committee shall be directly responsible for the appointment, compensation, and oversight of the work of any accountant or accounting firm employed by the Corporation for the purpose of preparing or issuing an audit report or related work, and each such accountant or accounting firm shall report directly to the Committee. The Committee shall establish procedures for: (a) the receipt, retention, and treatment of complaints received by the Corporation regarding accounting, internal accounting controls, or auditing matters; and (b) the confidential, anonymous submission by employees of the Corporation of concerns regarding questionable accounting, auditing or other financial matters.

ARTICLE IX
CONTRACTS, CHECKS, AND DEPOSITS

9.1. Contracts. The Board of Directors may authorize any officer or officers, agent or agents of the Corporation, in addition to the officers so authorized by these Bylaws, to enter into any contract or execute and deliver any instrument in the name of and on behalf of the Corporation. Such authority may be general or confined to specific instances.

9.2. Checks, Drafts, and Notes. All checks, drafts, or other orders for the payment of money, notes, or other evidences of indebtedness issued in the name of the Corporation shall be signed by the officer or officers, agent or agents of the Corporation and in the manner determined by resolution of the Board of Directors. In the absence of a determination by the Board of Directors, those instruments shall be signed by the President of the Corporation.

9.3. Deposits. All funds of the Corporation shall be deposited from time to time to the credit of the Corporation in those banks, trust companies, or other depositories selected by the Board of Directors.

ARTICLE X
BOOKS AND RECORDS

10.1. Books and Records. The Corporation shall keep correct and complete books and records of account and shall also keep minutes of the proceedings of the Members, Board of Directors, and all committees, and shall keep at the principal office of the Corporation a record of the names and addresses of the Directors of the Member. All books and records of the Corporation may be inspected by the Members at any reasonable time.

ARTICLE XI
INDEMNIFICATION

11.1. Indemnification. The Corporation shall indemnify Directors, officers, employees, or other agents of the Corporation to the extent prescribed in the Articles of Incorporation and to the fullest extent permitted by applicable law, provided, however, that the person being indemnified acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interest of the Corporation, and with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful.

ARTICLE XII
CONFLICTS OF INTEREST

12.1. Loans. No loans shall be made by the Corporation to its Directors or officers. Any Director or officer who assents to or participates in the making of any such loan shall be liable to the Corporation for the amount of such loan until the repayment thereof.

12.2. Conflicts of Interest Policy. The Corporation shall adopt and abide by a conflicts of interest policy to protect the Corporation's interest when it is contemplating entering into a transaction or arrangement that might benefit the private interest of a Director, officer or other person with the ability to substantially influence the Corporation. The conflicts of interest policy is intended to supplement, but not replace, any applicable state and federal laws governing conflicts of interest applicable to nonprofit and tax-exempt organizations.

ARTICLE XIII
VOLUNTARY WITHDRAWAL OF MEMBERS

Any Member, except the sole remaining Member of the Corporation, may voluntarily withdraw from the Corporation (the "Withdrawing Member") by providing written notice to the Corporation and each other Member at least thirty (30) days prior to the proposed effective date of the withdrawal. The Company shall refund the Withdrawing Member's capital contributions to the Withdrawing Member (less all amounts owed to the Company by the Withdrawing Member and remaining unpaid as of the effective date of the withdrawal) no later than one hundred eighty (180) days after the effective date of the withdrawal. Upon the effective date of such withdrawal, the directors appointed by the Withdrawing Member shall be deemed to have resigned. Any Member withdrawal pursuant to this Article XIII shall not affect any other agreements between the Withdrawing Member and the Company and/or any other Member including, but not limited to, any agreement licensing intellectual property.

ARTICLE XIV
AMENDMENTS

14.1. Adoption of Amendments. The power to alter, amend, or repeal the Bylaws of the Corporation, or to adopt new bylaws, is vested in the Board of Directors, subject always to repeal or change by action of the Members. Such action shall be effectuated by the Board of Directors in accordance with Section 6.16.

14.2. Record of Amendments. Whenever an amendment or new bylaw is adopted, or the Bylaws are repealed and new Bylaws adopted, a record of the change shall be maintained in the records of the Corporation.

Financial Model and Sustainability

Cost Estimates and Staffing Plans

Revenue Sources

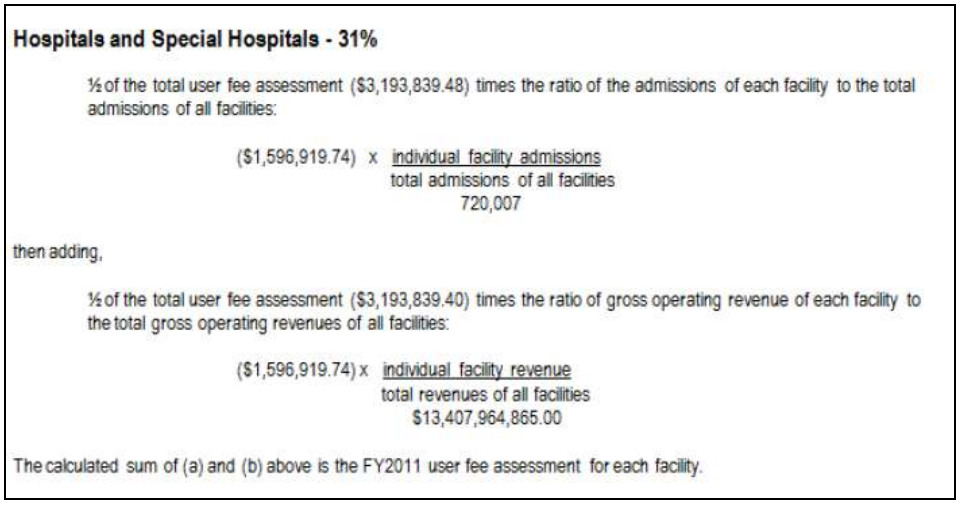
The state has committed $10 million in funding through its all-payor rate setting system for the implementation of a statewide HIE. These funds will be disbursed annually based upon a budget that reflects findings from an independent review and a defined set of deliverables. An incremental approach to Use Case implementation and provider connectivity balances the use of state funding along with revenue generated by the statewide HIE. Federal funding from the *State Health Information Exchange Cooperative Agreement Program* are not used to supplant state funding. Instead, these funds are used to expand Use Case implementation and accelerate connectivity of priority primary care providers. The $10 million in all-payor funding will provide the matching funds required by ARRA.

The development of a secure HIE poses special challenges. Trusted HIE requires the involvement of a broad range of stakeholders – patients, providers, payers, purchasers, and health agencies – and the consideration of a broad range of policies, principles, and designs. Identifying solutions to the following specific series of issues is essential: governance; privacy and security; role-based access; user authentication and trust hierarchies; architecture of the exchange; hardware and software solutions; cost of implementation; alternative sustainable business models; and strategies to assure appropriate patient engagement, access, and control over information exchange. Establishing an appropriate funding mechanism to support the development costs of the exchange and the daily operations until it becomes sustainable is a key issue related to the deliverable.

The implementation funding is intended to subsidize startup costs of the HIE. In order to operate after the startup funding is exhausted, continuing revenue must be collected in return for consistent value delivered by the state designated HIE. As part of the sustainability plan, the statewide HIE will rely on user and provider fees above and beyond seed grants. The plan calls for fees to fund completion of the rollout of the infrastructure as well as ongoing technical support for and maintenance of the HIE infrastructure. Annual fees for hospitals will be incrementally increased: zero in year one, 35 percent in year two, 65 percent in year three, and 100 percent in subsequent years.

After deliberation, the CRISP Finance Advisory Board recommended a hospital cost sharing model based on an average of the share of each hospital's acute care admissions and share of normalized operating revenues in the state (See Figure 14). This model is consistent with the MHCC and Health Services Cost Review Commission (HSCRC) practice for sharing costs among hospitals. This model was chosen over a model of sharing costs based on the number of each hospitals' acute care beds and over a model based on relative hospital expenses less bad debt as reported on audited hospital financial statements, as is consistent with the practice that the Maryland Hospital Association uses to share costs among members. A cost sharing model was chosen over a usage-based model for simplicity and because CRISP does not want to provide disincentive for utilization of HIE services.

Figure 13 - FY 2011 User Fee Methodology for Hospitals



Hospitals and Special Hospitals - 31%

½ of the total user fee assessment ($3,193,839.48) times the ratio of the admissions of each facility to the total admissions of all facilities:

$$(\$1,596,919.74) \times \frac{\text{individual facility admissions}}{\text{total admissions of all facilities}} \quad 720{,}007$$

then adding,

½ of the total user fee assessment ($3,193,839.40) times the ratio of gross operating revenue of each facility to the total gross operating revenues of all facilities:

$$(\$1,596,919.74) \times \frac{\text{individual facility revenue}}{\text{total revenues of all facilities}} \quad \$13{,}407{,}964{,}865.00$$

The calculated sum of (a) and (b) above is the FY2011 user fee assessment for each facility.

Budget

The budget is comprised of core infrastructure costs that include hardware and software costs that are not unique to a specific function but are required to support the statewide HIE as a whole, such as the cost of the data sharing platform and portal license, and the Master Patient Index. The budget also includes the cost of human resources to implement and maintain the statewide HIE. The Board of Directors provides oversight to the budget and will resolve issues related to the budget and determine appropriate financial risks. A combination of implementation resources and maintenance staff will be utilized in years one and two with three full-time employees as permanent staff. Implementation resources in expected to incrementally decrease as full-time staff assumes the maintenance responsibilities for the statewide HIE.

The estimated total costs are approximately $6.4 million for the second year of operation, with a slight increase to around $6.6 million in the third year and decrease to roughly $6.2 million in year four. In years four and five, licensing and hosting costs begin to decrease. As Use Case deployment expands and service fees increase, State and Federal revenue will decrease.

Table 4: FY2011 through FY2014 HIE Budget

Cost Components	2011	2012	2013	2014
Total Axolotl / Core HIE Licensing and Hosting	($2,155,303)	($2,896,619)	($3,236,966)	($2,897,079)
Total MPI License and Hosting Annual	($700,000)	($510,000)	($360,000)	($360,000)
Total HIE Implementation and Technical Support	($2,166,000)	($2,002,000)	($1,618,000)	($1,036,000)
Total Administration and Overhead	($1,210,000)	($985,000)	($810,000)	($745,000)
Total HIE Reserve	($200,000)	($200,000)	($200,000)	($200,000)
Total Costs	**($6,431,303)**	**($6,593,619)**	**($6,224,966)**	**($5,238,079)**
Revenue Components				
Maryland State Funding	$3,500,000	$3,000,000	$1,000,000	-
ONC Funding	$3,250,000	$3,313,920	$2,000,000	-
Revenue from HIE Services to Physicians	-	$192,000	$576,000	$1,152,000
Revenue from HIE Services to Hospitals	-	$512,340	$2,081,383	$4,300,000
Total Revenue	**$6,750,000**	**$7,018,264**	**$5,657,383**	**$5,452,000**
Surplus / Deficit	**$318,698**	**$424,645**	**($567,583)**	**$213,921**

Software purchase and maintenance

Software licenses are calculated at $1,500,000 in the first year; $1,000,000 for licenses in the second year; and $600,000 for the third year, with an anticipated increase of 3.5 percent in each successive year. The budget will be adjusted if open source software, such as that provided by the ONC's Federal Health Architecture group, is incorporated into the technology infrastructure.

Hardware purchase and maintenance

In the event that the statewide HIE must acquire computer hardware and incur installation and maintenance costs, a Maryland organization will be contracted for these services. Hardware will likely be leased through an agreement with the service provider. Approximately $500,000 has been budgeted in the first year for the contract to provide all hardware and supporting software for the exchange. The hardware and supporting software projected for the second year is $166,700, with an anticipated increase of 3.5 percent for each successive year.

Operating Costs Statement

Salaries

The statewide HIE will staff three positions with permanent/non-contractor resources at the outset of the implementation project: the President, the Director of Outreach, and an Administrative Assistant. The Board of Directors will negotiate with the candidate for the President's position. Compensation for the other positions will be negotiated by the President in consultation with the Board of Directors. Two positions are now funded 25% through the REC budget, while one planned position for an intern has been added. It is anticipated that the average salary of permanent resources will be approximately $113,000 in the first year; with an increase of 4 percent assumed for successive years. The implementation and integration resources will be procured from Maryland-based businesses and contracted at an average billable rate of approximately $115 per hour.

Benefits & Taxes

Benefits for permanent resources will include family medical insurance coverage. Benefits and taxes for permanent resources will amount to 25 percent of payroll or roughly $28,000 per resource in the first year, with an anticipated increase of 3.5 percent in each successive year. Payroll taxes borne by the HIE are estimated at approximately 9 percent of payroll. The statewide HIE has receive not-for-profit status. As a not-for-profit organization, the statewide HIE does not expect to have any obligation for income taxes. Contract positions are not eligible for benefits and taxes will be the responsibility of the individual contractor.

Overhead

Rent, Utilities, Office Expenses, and General Overhead

The budget for office expenses, rent, utilities, and other overhead expenses amounts to approximately 10 percent of human capital costs. The overhead budget is further broken down as follows:

Table 5: Overhead Cost Items

Overhead Items	2011	2012	2013	2014
Rent	$42,000	$42,000	$42,000	$42,000
Utilities	$24,840	$25,709	$26,609	$27,540
Outreach and Communication	$150,000	$150,000	$150,000	$150,000
Legal Services	$125,000	$125,000	$125,000	$125,000
Liability Insurance	$10,000	$10,000	$10,000	$10,000
Office Expenses/Other SG&A*	$192,940	$137,388	$135,757	$134,145
Total Overhead	**$544,780**	**$490,097**	**$489,366**	**$488,685**

Outreach and Communication Activities

Actual costs for year one for outreach, education, and technical services was approximately $330,000. The approximate budget for outreach, education, and technical services is anticipated at $150,000 for years two and three. The statewide HIE outreach, education, and technical assistance plan will:

- Position Maryland as a leader nationally with regard to state HIE efforts;
- Coordinate effectively with the constituents' marketing and communication departments to maximize exposure and streamline outbound messaging;
- Articulate the mission, vision, and value proposition to providers and consumers in simple, compelling terms through a range of channels;
- Provide transparency into the organization;
- Build public and constituent trust;
- Leverage grassroots support of champions among target providers and the consumer population; and
- Coordinate public-facing and provider outreach strategies.

Legal Fees

Legal counsel has been retained by the statewide HIE to provide support to the policy development framework, privacy and security requirements for system development and use, data sharing agreements, evaluation of existing laws and regulations, and assistance in multi-state policy harmonization activities. Actual costs for legal services for year one were approximately $193,833. Approximately $125,000 has been budgeted per year in years two and three for legal services.

Liability insurance

The statewide HIE has procured directors, officers, general liability, and workers compensation insurance. Actual costs for liability insurance for year one were approximately $6,005. Forecasted costs for years two and three assume a 50 percent increase to current premiums, for a cost of around $10,000 for years two and three. Insurance costs are expected to increase as live data connections are established..

Statement of Cash Flows

The model assumes that all of the services and infrastructure required to build the exchange are not acquired as assets, but rather leased or sourced as a service. The statewide HIE will consider lines of credit to fund certain aspects of the operations. This is not anticipated but, should it occur, there will be minor impact to this cash flow statement.

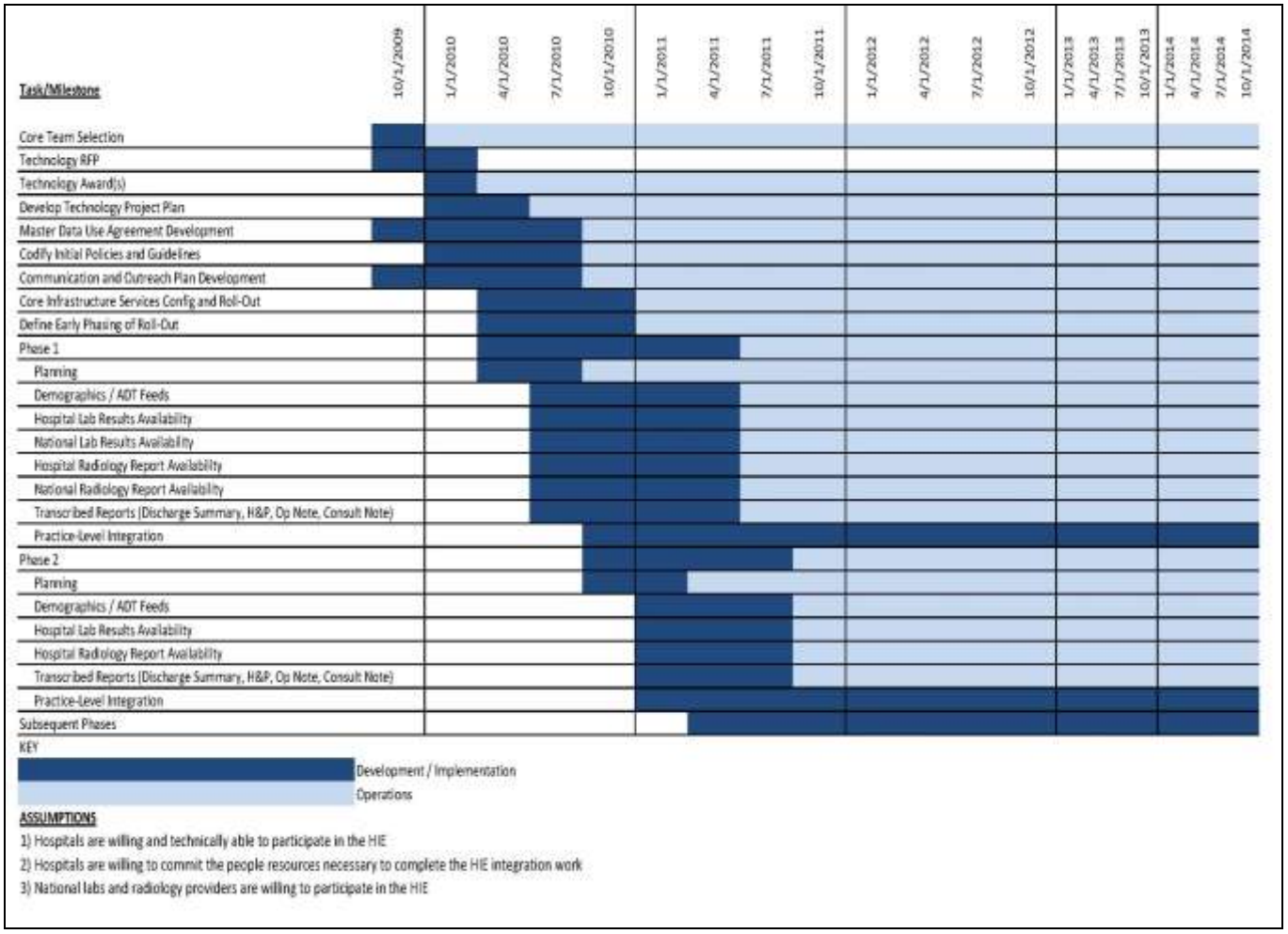
Table 6: HIE Revenue

Revenue	2011	2012	2013	2014
Maryland State Funding	$3,500,000	$3,000,000	$1,000,000	-
ONC Funding	$3,250,000	$3,313,920	$2,000,000	-
Revenue from HIE Services to Physicians	-	$192,000	$576,000	$1,152,000
Revenue from HIE Services to Hospitals	-	$512,340	$2,081,383	$4,300,000
Total Revenue	**$6,750,000**	**$7,018,264**	**$5,657,383**	**$5,452,000**
Total Costs	**($6,431,303)**	**($6,593,619)**	**($6,224,966)**	**($5,238,079)**
Surplus / Deficit	**$318,698**	**$424,645**	**($567,583)**	**$213,921**

Project Timeline

Efforts to connect providers to the statewide HIE have centered on hospitals through a phased approach, since hospitals are considered large suppliers of data. Connectivity efforts will proceed to connect ambulatory care practices. The Montgomery County hospitals were the first to begin connectivity to the statewide HIE; the five hospitals in Montgomery County as well as Quest Diagnostics, LabCorp, RadNet, and American Radiology are connected to the exchange. The statewide HIE anticipates connecting ambulatory care providers beginning in 2011 and expects to have all hospitals connected within two years. Providers connecting to the statewide HIE will be able to exchange data as specific services are made available through the exchange. The statewide HIE has an ambitious schedule to implement services over the next six months. (see Figure 15 for an illustration of the *HIE Services Implementation Timeline*).

Figure 14: HIE Services Implementation Timeline



HIE Services

The statewide HIE architecture enables connections between Maryland's approximately 47 acute care hospitals and 6,851 physician practices.[14] The statewide HIE provides a mechanism that enables appropriately authorized individuals to perform select analytical reporting. The statewide HIE also allows secondary uses of data for public health, biosurveillance, and other appropriate secondary uses of data. Below is a brief discussion regarding the statewide HIE's implementation schedule for the required Use Cases.

Electronic Eligibility and Claims Transactions

Administrative health networks (networks) are required to be certified by the MHCC to operate in Maryland. Select networks are in discussions with the statewide HIE to implement this Use Case. Preliminary discussions are underway between the statewide HIE and a network that is used by one of the state's largest payers, CareFirst.

[14] Maryland Board of Physicians licensure survey, 2008-2009.

Electronic Prescribing and Refill Requests

In Maryland, provider usage of e-prescribing is slightly more than twenty five percent and around 75 percent of the 1,628 pharmacies are capable of accepting some form of electronic prescription. This Use Case will improve the adoption of e-prescribing among the more than 5,030 primary care practices in Maryland.[15]

Electronic Clinical Laboratory Ordering and Results Delivery

The implementation of this Use Case is currently underway and has connected with major laboratory and radiology companies including, Quest Diagnostics, LabCorp, RadNet, and American Radiology. The statewide HIE is expected to implement connectivity with local and hospital laboratories as well.

Electronic Public Health Reporting

Maryland has specific regulations governing public health reporting for a number of infectious or communicable diseases, such as meningitis, measles, mumps, and smallpox, to name a few. Currently, providers are required to submit information to public health officials for monitoring and reporting purposes with variable requirements on the reporting timeframe. Initial discussions regarding the implementation process for this Use Case have occurred.

Quality Reporting Capabilities

Quality reporting is essential to inform and educate stakeholders, and it is an important component for achieving meaningful use. Interest in quality reporting continues to grow; however, a consistent mechanism for reporting does not exist. The statewide HIE is expected to make available quality reporting, as deemed appropriate, for use by authorized stakeholders.

Clinical Summary Exchange

The Clinical Summary Exchange Use Case allows for the sharing of summary clinical data, such as a discharge summary, Continuity of Care Document (CCD), or Continuity of Care Record (CCR), to assure that health information is shared among authorized providers. This Use Case will ensure that data or an appropriate image is available to participating providers.

Support of HIE Services

The statewide HIE will provide technical support to providers for each Use Case through the establishment of a technical vendor managed help desk. The technical vendor managed help desk will be procured through a competitive bid process by the statewide HIE. The vendor will resolve issues related to connectivity and performance. The statewide HIE will provide oversight to the help desk.

Controls and Reporting

The statewide HIE will use generally accepted accounting principles to prepare, present, and report financial statements. Each month the statewide HIE will provide the Board of Directors and the MHCC a report on its financial status and provide information related to the activities of the Advisory Board and the progress of implementation based on the established timeline. The MHCC has engaged Clifton

[15] Maryland Board of Physicians licensure survey, 2008-2009.

Gunderson to perform an independent audit of the statewide HIE. Clifton Gunderson is ranked as one of the nation's largest certified public accounting and consulting firms and provides a wide range of assurance, accounting, tax, and consulting services to clients in a variety of industries. The audit was completed in early 2011 and focused on internal accounting and financial reporting controls, and compliance with federal and state funding requirements, including adherence with contract provisions and ARRA requirements, and a security penetration testing analysis.

The Board of Directors is responsible for ensuring that appropriate financial controls are in place and that all relevant Office of Management and Budget circulars are addressed pertaining to potential funding under the *State Health Information Exchange Cooperative Agreement Program*. The Board of Directors will also provide oversight in the completion of reports due to ONC as it relates to the progress of the statewide HIE and use of any funding.

Project Manager

ID	Task Name	Duration	Start	Finish
1	**Planning for HIE**	779 days	Tue 9/5/06	Fri 8/28/09
2	**Assess Privacy and Security Policies and Business Processes**	**325 days**	**Mon 9/4/06**	**Fri 11/30/07**
3	Determine team members	325 days	Mon 9/4/06	Fri 11/30/07
4	Determine date for kick off meeting	325 days	Mon 9/4/06	Fri 11/30/07
5	Contact team members about meeting	325 days	Mon 9/4/06	Fri 11/30/07
6	Prepare agenda and purpose of meeting	325 days	Mon 9/4/06	Fri 11/30/07
7	Hold kickoff meeting	325 days	Mon 9/4/06	Fri 11/30/07
8	Determine workgroups	325 days	Mon 9/4/06	Fri 11/30/07
9	**Workgroup 1**	**325 days**	**Mon 9/4/06**	**Fri 11/30/07**
10	Hold meetings to discuss deliverables	325 days	Mon 9/4/06	Fri 11/30/07
11	Determine best practices	325 days	Mon 9/4/06	Fri 11/30/07
12	Write section report	325 days	Mon 9/4/06	Fri 11/30/07
13	**Workgroup 2**	**325 days**	**Mon 9/4/06**	**Fri 11/30/07**
14	Hold meetings of team members	325 days	Mon 9/4/06	Fri 11/30/07
15	Determine best practices	325 days	Mon 9/4/06	Fri 11/30/07
16	Write section report	325 days	Mon 9/4/06	Fri 11/30/07
17	**Workgroup 3**	**325 days**	**Mon 9/4/06**	**Fri 11/30/07**
18	Hold meetings of team members	325 days	Mon 9/4/06	Fri 11/30/07
19	Determine best practices	325 days	Mon 9/4/06	Fri 11/30/07
20	Write section report	325 days	Mon 9/4/06	Fri 11/30/07
21	**Workgroup 4**	**325 days**	**Mon 9/4/06**	**Fri 11/30/07**
22	Hold meetings of team members	325 days	Mon 9/4/06	Fri 11/30/07
23	Determine best practices	325 days	Mon 9/4/06	Fri 11/30/07
24	Write section report	325 days	Mon 9/4/06	Fri 11/30/07
25	**Workgroup 5**	**325 days**	**Mon 9/4/06**	**Fri 11/30/07**
26	Hold meetings of team members	325 days	Mon 9/4/06	Fri 11/30/07
27	Determine best practices	325 days	Mon 9/4/06	Fri 11/30/07
28	Write section report	325 days	Mon 9/4/06	Fri 11/30/07
29	**Workgroup 6**	**325 days**	**Mon 9/4/06**	**Fri 11/30/07**
30	Hold meetings of team members	325 days	Mon 9/4/06	Fri 11/30/07
31	Determine best practices	325 days	Mon 9/4/06	Fri 11/30/07
32	Write section report	325 days	Mon 9/4/06	Fri 11/30/07
33	**Workgroup 7**	**325 days**	**Mon 9/4/06**	**Fri 11/30/07**
34	Hold meetings of team members	325 days	Mon 9/4/06	Fri 11/30/07
35	Determine best practices	325 days	Mon 9/4/06	Fri 11/30/07
36	Write section report	325 days	Mon 9/4/06	Fri 11/30/07
37	**Workgroup 8**	**325 days**	**Mon 9/4/06**	**Fri 11/30/07**
38	Hold meetings of team members	325 days	Mon 9/4/06	Fri 11/30/07
39	Determine best practices	325 days	Mon 9/4/06	Fri 11/30/07
40	Write section report	325 days	Mon 9/4/06	Fri 11/30/07
41	Call entire group back together	325 days	Mon 9/4/06	Fri 11/30/07
42	Combine reports	325 days	Mon 9/4/06	Fri 11/30/07
43	Review combined report	325 days	Mon 9/4/06	Fri 11/30/07
44	Release report	325 days	Mon 9/4/06	Fri 11/30/07
45	**Privacy and Security Solutions and Implementation Activities for HIE**	**217 days**	**Sat 12/1/07**	**Tue 9/30/08**
46	Determine team members	217 days	Sat 12/1/07	Tue 9/30/08
47	Determine date for kick off meeting	217 days	Sat 12/1/07	Tue 9/30/08
48	Contact team members about meeting	217 days	Sat 12/1/07	Tue 9/30/08
49	Prepare agenda and purpose of meeting	217 days	Sat 12/1/07	Tue 9/30/08

ID	Task Name	Duration	Start	Finish
50	Hold kickoff meeting	217 days	Sat 12/1/07	Tue 9/30/08
51	Determine barriers for focus of group	217 days	Sat 12/1/07	Tue 9/30/08
52	**Barrier 1 - access to data**	**217 days**	**Sat 12/1/07**	**Tue 9/30/08**
53	Meetings to discuss types of barriers	217 days	Sat 12/1/07	Tue 9/30/08
54	Meetings to discuss solutions to each type	217 days	Sat 12/1/07	Tue 9/30/08
55	Draft section of report for barrier	217 days	Sat 12/1/07	Tue 9/30/08
56	**Barrier 2 - common patient identifier**	**217 days**	**Sat 12/1/07**	**Tue 9/30/08**
57	Meetings to discuss types of barriers	217 days	Sat 12/1/07	Tue 9/30/08
58	Meetings to discuss solutions to each type	217 days	Sat 12/1/07	Tue 9/30/08
59	Draft section of report for barrier	217 days	Sat 12/1/07	Tue 9/30/08
60	**Barrier 3 - concerns regarding the use of data**	**217 days**	**Sat 12/1/07**	**Tue 9/30/08**
61	Meetings to discuss types of barriers	217 days	Sat 12/1/07	Tue 9/30/08
62	Meetings to discuss solutions to each type	217 days	Sat 12/1/07	Tue 9/30/08
63	Draft section of report for barrier	217 days	Sat 12/1/07	Tue 9/30/08
64	**Barrier 4 - funding**	**217 days**	**Sat 12/1/07**	**Tue 9/30/08**
65	Meetings to discuss types of barriers	217 days	Sat 12/1/07	Tue 9/30/08
66	Meetings to discuss solutions to each type	217 days	Sat 12/1/07	Tue 9/30/08
67	Draft section of report for barrier	217 days	Sat 12/1/07	Tue 9/30/08
68	**Barrier 5 - interoperability**	**217 days**	**Sat 12/1/07**	**Tue 9/30/08**
69	Meetings to discuss types of barriers	217 days	Sat 12/1/07	Tue 9/30/08
70	Meetings to discuss solutions to each type	217 days	Sat 12/1/07	Tue 9/30/08
71	Draft section of report for barrier	217 days	Sat 12/1/07	Tue 9/30/08
72	**Barrier 6 - liability**	**217 days**	**Sat 12/1/07**	**Tue 9/30/08**
73	Meetings to discuss types of barriers	217 days	Sat 12/1/07	Tue 9/30/08
74	Meetings to discuss solutions to each type	217 days	Sat 12/1/07	Tue 9/30/08
75	Draft section of report for barrier	217 days	Sat 12/1/07	Tue 9/30/08
76	**Barrier 7 - stakeholder trust**	**217 days**	**Sat 12/1/07**	**Tue 9/30/08**
77	Meetings to discuss types of barriers	217 days	Sat 12/1/07	Tue 9/30/08
78	Meetings to discuss solutions to each type	217 days	Sat 12/1/07	Tue 9/30/08
79	Draft section of report for barrier	217 days	Sat 12/1/07	Tue 9/30/08
80	**Barrier 8 - technical and process infrastructure**	**217 days**	**Sat 12/1/07**	**Tue 9/30/08**
81	Meetings to discuss types of barriers	217 days	Sat 12/1/07	Tue 9/30/08
82	Meetings to discuss solutions to each type	217 days	Sat 12/1/07	Tue 9/30/08
83	Draft section of report for barrier	217 days	Sat 12/1/07	Tue 9/30/08
84	Convene entire team	217 days	Sat 12/1/07	Tue 9/30/08
85	Consolidate reports	217 days	Sat 12/1/07	Tue 9/30/08
86	Review consolidated report	217 days	Sat 12/1/07	Tue 9/30/08
87	Final report released	217 days	Sat 12/1/07	Tue 9/30/08
88	**Service Area Health Information Exchange**	**108 days**	**Wed 10/1/08**	**Fri 2/27/09**
89	Determine team members	108 days	Wed 10/1/08	Fri 2/27/09

ID	Task Name	Duration	Start	Finish
90	Determine date for kick off meeting	108 days	Wed 10/1/08	Fri 2/27/09
91	Contact team members about meeting	108 days	Wed 10/1/08	Fri 2/27/09
92	Prepare agenda and purpose of meeting	108 days	Wed 10/1/08	Fri 2/27/09
93	Hold kickoff meeting	108 days	Wed 10/1/08	Fri 2/27/09
94	Determine areas to address	108 days	Wed 10/1/08	Fri 2/27/09
95	**Patient rights to electronic health information**	**108 days**	**Wed 10/1/08**	**Fri 2/27/09**
96	Hold sub group meetings	108 days	Wed 10/1/08	Fri 2/27/09
97	Draft report	108 days	Wed 10/1/08	Fri 2/27/09
98	**Range of business practices**	**108 days**	**Wed 10/1/08**	**Fri 2/27/09**
99	Hold sub group meetings	108 days	Wed 10/1/08	Fri 2/27/09
100	Draft report	108 days	Wed 10/1/08	Fri 2/27/09
101	**Technical requirements**	**108 days**	**Wed 10/1/08**	**Fri 2/27/09**
102	Hold sub group meetings	108 days	Wed 10/1/08	Fri 2/27/09
103	Draft report	108 days	Wed 10/1/08	Fri 2/27/09
104	**Communication mechanisms**	**108 days**	**Wed 10/1/08**	**Fri 2/27/09**
105	Hold sub group meetings	108 days	Wed 10/1/08	Fri 2/27/09
106	Draft report	108 days	Wed 10/1/08	Fri 2/27/09
107	**Key community-level financial, organizational, and policy challenges**	**108 days**	**Wed 10/1/08**	**Fri 2/27/09**
108	Hold sub group meetings	108 days	Wed 10/1/08	Fri 2/27/09
109	Draft report	108 days	Wed 10/1/08	Fri 2/27/09
110	**Alternate community data uses**	**108 days**	**Wed 10/1/08**	**Fri 2/27/09**
111	Hold sub group meetings	108 days	Wed 10/1/08	Fri 2/27/09
112	Draft report	108 days	Wed 10/1/08	Fri 2/27/09
113	Reconvene members	108 days	Wed 10/1/08	Fri 2/27/09
114	Review each section of reports	108 days	Wed 10/1/08	Fri 2/27/09
115	Draft report	108 days	Wed 10/1/08	Fri 2/27/09
116	Review consolidated report	108 days	Wed 10/1/08	Fri 2/27/09
117	Finalize report	108 days	Wed 10/1/08	Fri 2/27/09
118	**Multi-stakeholder workgroups**	**276 days**	**Fri 2/1/08**	**Fri 2/20/09**
119	Obtain financing from HSCRC	53 days	Fri 2/1/08	Tue 4/15/08
120	Develop RFP for responses to apply for planning	53 days	Fri 2/1/08	Tue 4/15/08
121	Release RFP	53 days	Fri 2/1/08	Tue 4/15/08
122	Review RFPs	53 days	Fri 2/1/08	Tue 4/15/08
123	Select two planning groups	53 days	Fri 2/1/08	Tue 4/15/08
124	Kick off meeting with planning groups to discuss goals and objectives	1 day	Tue 4/15/08	Tue 4/15/08
125	**Planning group 1 - CRISP**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
126	Develop structure of teams and areas to focus	212 days	Thu 5/1/08	Fri 2/20/09
127	**Legal and regulatory**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
128	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
129	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
130	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
131	**Policy formation**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
132	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
133	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
134	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
135	**Clinical workflows**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
136	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
137	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
138	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
139	**Communication and education**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**

ID	Task Name	Duration	Start	Finish
140	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
141	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
142	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
143	**Governance**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
144	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
145	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
146	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
147	**Infrastructure and data management**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
148	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
149	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
150	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
151	**Finance and sustainability**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
152	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
153	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
154	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
155	Reconvene entire team and review each section report	212 days	Thu 5/1/08	Fri 2/20/09
156	Draft combine reports into consolidated report	212 days	Thu 5/1/08	Fri 2/20/09
157	Finalize report	212 days	Thu 5/1/08	Fri 2/20/09
158	Submit report to MHCC	212 days	Thu 5/1/08	Fri 2/20/09
159	**Planning group 2 - MCHIE**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
160	Develop structure of teams and areas to focus	212 days	Thu 5/1/08	Fri 2/20/09
161	**Governance**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
162	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
163	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
164	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
165	**Community perspectives**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
166	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
167	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
168	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
169	**Privacy and security**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
170	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
171	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
172	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
173	**Technical infrastructure**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
174	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
175	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
176	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
177	**Finance and sustainability**	**212 days**	**Thu 5/1/08**	**Fri 2/20/09**
178	Hold meetings of team members	212 days	Thu 5/1/08	Fri 2/20/09
179	Determine best practices	212 days	Thu 5/1/08	Fri 2/20/09
180	Draft report	212 days	Thu 5/1/08	Fri 2/20/09
181	Reconvene entire team and review each section report	212 days	Thu 5/1/08	Fri 2/20/09
182	Draft combine reports into consolidated report	212 days	Thu 5/1/08	Fri 2/20/09
183	Finalize report	212 days	Thu 5/1/08	Fri 2/20/09
184	Submit report to MHCC	212 days	Thu 5/1/08	Fri 2/20/09
185	**MHCC Design Specifications**	**23 days**	**Sat 2/21/09**	**Wed 3/25/09**
186	Develop bid board notice	23 days	Sat 2/21/09	Wed 3/25/09
187	Post bid board notice	23 days	Sat 2/21/09	Wed 3/25/09
188	Review vendor responses	23 days	Sat 2/21/09	Wed 3/25/09
189	Select contractor	23 days	Sat 2/21/09	Wed 3/25/09

ID	Task Name	Duration	Start	Finish
190	Kick-off meeting to discuss work to be completed	23 days	Sat 2/21/09	Wed 3/25/09
191	Contractor performs work	23 days	Sat 2/21/09	Wed 3/25/09
192	Bi-weekly status meetings	23 days	Sat 2/21/09	Wed 3/25/09
193	Draft of final report	23 days	Sat 2/21/09	Wed 3/25/09
194	Final report submitted to MHCC	23 days	Sat 2/21/09	Wed 3/25/09
195	**MHCC HIE Implementation Plan**	**44 days?**	**Sun 3/1/09**	**Thu 4/30/09**
196	Develop bid board notice	44 days?	Sun 3/1/09	Thu 4/30/09
197	Post bid board notice	44 days	Sun 3/1/09	Thu 4/30/09
198	Review vendor responses	44 days	Sun 3/1/09	Thu 4/30/09
199	Select contractor	44 days	Sun 3/1/09	Thu 4/30/09
200	Kick-off meeting to discuss work to be completed	44 days	Sun 3/1/09	Thu 4/30/09
201	Contractor performs work	44 days	Sun 3/1/09	Thu 4/30/09
202	Bi-weekly status meetings	44 days	Sun 3/1/09	Thu 4/30/09
203	Draft of final report	44 days	Sun 3/1/09	Thu 4/30/09
204	Final report submitted to MHCC	44 days	Sun 3/1/09	Thu 4/30/09
205	**HIE RFA**	**109 days?**	**Wed 4/1/09**	**Mon 8/31/09**
206	Draft HIE Implementation RFA	91 days?	Wed 4/1/09	Wed 8/5/09
207	Finalize HIE implementation RFA	91 days?	Wed 4/1/09	Wed 8/5/09
208	Post RFA on MHCc website	91 days	Wed 4/1/09	Wed 8/5/09
209	Hold bidders conference	91 days	Wed 4/1/09	Wed 8/5/09
210	Gathered RFA responses	91 days?	Wed 4/1/09	Wed 8/5/09
211	Determine scoring criteria	91 days	Wed 4/1/09	Wed 8/5/09
212	Determine who will score the applications	91 days	Wed 4/1/09	Wed 8/5/09
213	Submit applications to scorers	91 days	Wed 4/1/09	Wed 8/5/09
214	Scorers grade each application	91 days	Wed 4/1/09	Wed 8/5/09
215	Determine top 2 contenders	91 days	Wed 4/1/09	Wed 8/5/09
216	Perform due diligence and review of top 2 contenders	91 days	Wed 4/1/09	Wed 8/5/09
217	Determine best candidate	91 days?	Wed 4/1/09	Wed 8/5/09
218	Submit candidate to Commissioners for approval	91 days	Wed 4/1/09	Wed 8/5/09
219	Submit approved candidate to HSCRC commission	91 days	Wed 4/1/09	Wed 8/5/09
220	Obtain HSCRC approval for candidate	91 days	Wed 4/1/09	Wed 8/5/09
221	Announce award to candidate	91 days	Wed 4/1/09	Wed 8/5/09
222	Secure financing letters from hospitals	1 day	Mon 8/31/09	Mon 8/31/09
223	**ONC HIE Cooperative Agreement Grant**	1224 days	Wed 8/5/09	Mon 4/14/14
224	**ONC HIE grant submission**	**206 days**	**Thu 7/30/09**	**Fri 5/14/10**
225	Review HIE ONC grant opportunity	22 days	Thu 7/30/09	Mon 8/31/09
226	Draft letter of intent	21 days	Sat 8/1/09	Mon 8/31/09
227	Review letter of intent	21 days	Sat 8/1/09	Mon 8/31/09
228	Finalize letter of intent	44 days	Sat 8/1/09	Thu 10/1/09
229	Develop grant documents	44 days	Sat 8/1/09	Thu 10/1/09
230	Strategic and operational plan	44 days	Sat 8/1/09	Thu 10/1/09
231	Draft strategic and operational plan	44 days	Sat 8/1/09	Thu 10/1/09
232	Review strategic and operational plan	44 days	Sat 8/1/09	Thu 10/1/09
233	Finalize strategic and operational plan	44 days	Sat 8/1/09	Thu 10/1/09
234	Project abstract	44 days	Sat 8/1/09	Thu 10/1/09
235	Draft project abstract	44 days	Sat 8/1/09	Thu 10/1/09
236	Review project abstract	44 days	Sat 8/1/09	Thu 10/1/09
237	Finalize project abstract	44 days	Sat 8/1/09	Thu 10/1/09
238	Current state	44 days	Sat 8/1/09	Thu 10/1/09
239	Draft current state	44 days	Sat 8/1/09	Thu 10/1/09
240	Review current state	44 days	Sat 8/1/09	Thu 10/1/09
241	Finalize current state	44 days	Sat 8/1/09	Thu 10/1/09

ID	Task Name	Duration	Start	Finish
242	Project summary	44 days	Sat 8/1/09	Thu 10/1/09
243	Draft project summary	44 days	Sat 8/1/09	Thu 10/1/09
244	Review project summary	44 days	Sat 8/1/09	Thu 10/1/09
245	Finalize project summary	44 days	Sat 8/1/09	Thu 10/1/09
246	Performance measures and reporting	44 days	Sat 8/1/09	Thu 10/1/09
247	Draft performance measures	44 days	Sat 8/1/09	Thu 10/1/09
248	Review performance measures	44 days	Sat 8/1/09	Thu 10/1/09
249	Finalize performance measures	44 days	Sat 8/1/09	Thu 10/1/09
250	Project management	44 days	Sat 8/1/09	Thu 10/1/09
251	Draft project management	44 days	Sat 8/1/09	Thu 10/1/09
252	Review project management	44 days	Sat 8/1/09	Thu 10/1/09
253	Finalize project management	44 days	Sat 8/1/09	Thu 10/1/09
254	Evaluation	44 days	Sat 8/1/09	Thu 10/1/09
255	Draft evaluation	44 days	Sat 8/1/09	Thu 10/1/09
256	Review evaluation	44 days	Sat 8/1/09	Thu 10/1/09
257	Finalize evaluation	44 days	Sat 8/1/09	Thu 10/1/09
258	Organizational capabilities	44 days	Sat 8/1/09	Thu 10/1/09
259	Draft organizational capabilities	44 days	Sat 8/1/09	Thu 10/1/09
260	Review organizational capabilities	44 days	Sat 8/1/09	Thu 10/1/09
261	Finalize organizational capabilities	44 days	Sat 8/1/09	Thu 10/1/09
262	Budget narrative	44 days	Sat 8/1/09	Thu 10/1/09
263	Draft budget narrative	44 days	Sat 8/1/09	Thu 10/1/09
264	Review budget narrative	44 days	Sat 8/1/09	Thu 10/1/09
265	Finalize budget narrative	44 days	Sat 8/1/09	Thu 10/1/09
266	Budget detail	44 days	Sat 8/1/09	Thu 10/1/09
267	Draft budget detail	44 days	Sat 8/1/09	Thu 10/1/09
268	Review budget detail	44 days	Sat 8/1/09	Thu 10/1/09
269	Finalize budget detail	44 days	Sat 8/1/09	Thu 10/1/09
270	Collate all sections of grant application	10 days	Fri 10/2/09	Thu 10/15/09
271	Review consolidated grant application	10 days	Fri 10/2/09	Thu 10/15/09
272	Finalize consolidate grant application	10 days	Fri 10/2/09	Thu 10/15/09
273	Submit grant application	1 day	Thu 10/15/09	Thu 10/15/09
274	Feedback from ONC on application	41 days	Fri 1/1/10	Fri 2/26/10
275	Perform modifications to application	41 days	Fri 1/1/10	Fri 2/26/10
276	Feedback from ONC on application	41 days	Fri 1/1/10	Fri 2/26/10
277	Perform modifications on application	41 days	Fri 1/1/10	Fri 2/26/10
278	Feedback from ONC on application	41 days	Fri 1/1/10	Fri 2/26/10
279	Perform modifications to application	41 days	Fri 1/1/10	Fri 2/26/10
280	Feedback from ONC on application	41 days	Fri 1/1/10	Fri 2/26/10
281	Perform modifications on application	41 days	Fri 1/1/10	Fri 2/26/10
282	Grant awarded to MHCC	1 day	Mon 3/15/10	Mon 3/15/10
283	Update strategic and operational plan	30 days	Mon 4/5/10	Fri 5/14/10
284	Update governance requirements	30 days	Mon 4/5/10	Fri 5/14/10
285	Update finance requirements	30 days	Mon 4/5/10	Fri 5/14/10
286	Update technical infrastructure requirements	30 days	Mon 4/5/10	Fri 5/14/10
287	Update business and technical operations requirements	30 days	Mon 4/5/10	Fri 5/14/10
288	Update legal/policy requirements	30 days	Mon 4/5/10	Fri 5/14/10
289	Submit changes to ONC for review and approval	1 day	Fri 5/14/10	Fri 5/14/10
290	Receive feedback from ONC on changes to strategic and operational plan	1 day	Thu 4/15/10	Thu 4/15/10
291	**State HIE Program reporting**	**1051 days**	**Thu 4/1/10**	**Thu 4/10/14**
292	Submit ARRA quarterly reports at federalreporting.gov	7 days	Thu 4/1/10	Fri 4/9/10
293	Submit ARRA quarterly reports at federalreporting.gov	7 days	Thu 7/1/10	Fri 7/9/10

ID	Task Name	Duration	Start	Finish
294	Submit ARRA quarterly reports at federalreporting.gov	6 days	Fri 10/1/10	Fri 10/8/10
295	Submit ARRA quarterly reports at federalreporting.gov	6 days	Mon 1/3/11	Mon 1/10/11
296	Submit ARRA quarterly reports at federalreporting.gov	6 days	Fri 4/1/11	Fri 4/8/11
297	Submit ARRA quarterly reports at federalreporting.gov	6 days	Fri 7/1/11	Fri 7/8/11
298	Submit ARRA quarterly reports at federalreporting.gov	6 days	Mon 10/3/11	Mon 10/10/11
299	Submit ARRA quarterly reports at federalreporting.gov	7 days	Mon 1/2/12	Tue 1/10/12
300	Submit ARRA quarterly reports at federalreporting.gov	8 days	Mon 4/2/12	Wed 4/11/12
301	Submit ARRA quarterly reports at federalreporting.gov	7 days	Mon 7/2/12	Tue 7/10/12
302	Submit ARRA quarterly reports at federalreporting.gov	8 days	Mon 10/1/12	Wed 10/10/12
303	Submit ARRA quarterly reports at federalreporting.gov	8 days	Tue 1/1/13	Thu 1/10/13
304	Submit ARRA quarterly reports at federalreporting.gov	8 days	Mon 4/1/13	Wed 4/10/13
305	Submit ARRA quarterly reports at federalreporting.gov	8 days	Mon 7/1/13	Wed 7/10/13
306	Submit ARRA quarterly reports at federalreporting.gov	8 days	Tue 10/1/13	Thu 10/10/13
307	Submit ARRA quarterly reports at federalreporting.gov	8 days	Wed 1/1/14	Fri 1/10/14
308	Submit ARRA quarterly reports at federalreporting.gov	8 days	Tue 4/1/14	Thu 4/10/14
309	**COHORT 3 State HIE Grant general Requirements**	**1233 days**	**Mon 4/12/10**	**Wed 12/31/14**
310	**Governance**	**121 days**	**Mon 4/12/10**	**Mon 9/27/10**
311	MHCC must submit approach to revising strategic and operational plan through broad-based stakeholder collaboration fostering buy-in and trust	121 days	Mon 4/12/10	Mon 9/27/10
312	Identify to ONC designated state HIT coordinator who interacts with federally funded state health programs	106 days	Sat 5/1/10	Mon 9/27/10
313	Submit approach to governance structure and make up of governing body	1 day	Mon 9/27/10	Mon 9/27/10
314	Submit content that outlines oversight and accountability mechanisms to protect public	1 day	Mon 9/27/10	Mon 9/27/10
315	Submit framework for MHCC to align with emerging nationwide HIE governance	1 day	Mon 9/27/10	Mon 9/27/10
316	**Finance**	**1 day**	**Mon 9/27/10**	**Mon 9/27/10**
317	Submit analysis of how state may use purchasing power to enhance demand for care	1 day	Mon 9/27/10	Mon 9/27/10
318	Update strategic and operational plan	1 day	Mon 9/27/10	Mon 9/27/10
319	Update strategic and operational plan	1 day	Mon 9/27/10	Mon 9/27/10
320	Update strategic and operational plan	1 day	Mon 9/27/10	Mon 9/27/10
321	Update strategic and operational plan	1 day	Mon 9/27/10	Mon 9/27/10
322	**Technical infrastructure**	**1 day**	**Mon 9/27/10**	**Mon 9/27/10**
323	Submit approach to how existing regional and state level efforts will be leveraged	1 day	Mon 9/27/10	Mon 9/27/10
324	Submit statewide technical architecture	1 day	Mon 9/27/10	Mon 9/27/10
325	Submit content to show planned technical architecture leverages HHS adopted standards	1 day	Mon 9/27/10	Mon 9/27/10
326	Submit content to show planned technical architecture aligns with NHIN	1 day	Mon 9/27/10	Mon 9/27/10
327	Submit content show planned technical architecture considered web enabled date level	1 day	Mon 9/27/10	Mon 9/27/10
328	Submit content show state has considered provider and patient authentication services	1 day	Mon 9/27/10	Mon 9/27/10
329	**Business and technical operations**	**1 day**	**Mon 9/27/10**	**Mon 9/27/10**

ID	Task Name	Duration	Start	Finish
330	Submit approach to provide technical assistance as needed to HIOs and others	1 day	Mon 9/27/10	Mon 9/27/10
331	Submit plan that indicates how recipients will align with State Medicaid HIT Plan	1 day	Mon 9/27/10	Mon 9/27/10
332	Submit approach for monitoring and plan for remediation of actual performance of HIE	1 day	Mon 9/27/10	Mon 9/27/10
333	Submit staffing plan to show how staff will be established and maintained to effectively operate	1 day	Mon 9/27/10	Mon 9/27/10
334	Submit communications plan to outline MHCC strategy to communicate	1 day	Mon 9/27/10	Mon 9/27/10
335	**Legal/Policy**	**1 day**	**Mon 9/27/10**	**Mon 9/27/10**
336	Submit outline of legal framework to facilitate HIE	1 day	Mon 9/27/10	Mon 9/27/10
337	Submit plan to establish statewide policy framework for incremental policies	1 day	Mon 9/27/10	Mon 9/27/10
338	Submit process to ensure appropriate safeguards are in place	1 day	Mon 9/27/10	Mon 9/27/10
339	Update strategic and operational plan to address implementation and evaluation of policies and	1 day	Mon 9/27/10	Mon 9/27/10
340	Update strategic and operational plan to address implementation and evaluation of policies and	1 day	Mon 9/27/10	Mon 9/27/10
341	Update strategic and operational plan to address implementation and evaluation of policies and	1 day	Mon 9/27/10	Mon 9/27/10
342	Update strategic and operational plan to address implementation and evaluation of policies and	1 day	Mon 9/27/10	Mon 9/27/10
343	Submit analysis of barriers, resources and opportunities for overcoming participation in IE	1 day	Mon 9/27/10	Mon 9/27/10
344	Within 3 months pf plan approval, begin executing plan to remove regulatory and policy	1 day	Mon 9/27/10	Mon 9/27/10
345	**Outcomes and performance measures**	**1118 days**	**Mon 9/20/10**	**Wed 12/31/14**
346	Submit plan to monitor and maintain targeted degree of participation	1 day	Mon 9/20/10	Mon 9/20/10
347	Update strategic and operational plan to address statewide HIE alignment with other federal programs	1 day	Tue 3/15/11	Tue 3/15/11
348	Update strategic and operational plan to address statewide HIE alignment with other federal programs	1 day	Thu 3/15/12	Thu 3/15/12
349	Update strategic and operational plan to address statewide HIE alignment with other federal programs	1 day	Fri 3/15/13	Fri 3/15/13
350	Update strategic and operational plan to address statewide HIE alignment with other federal programs	1 day	Mon 3/17/14	Mon 3/17/14
351	Participate in HIE program evaluation	1 day	Fri 12/31/10	Fri 12/31/10
352	Participate in HIE program evaluation	1 day	Mon 1/2/12	Mon 1/2/12
353	Participate in HIE program evaluation	1 day	Mon 12/31/12	Mon 12/31/12
354	Participate in HIE program evaluation	1 day	Tue 12/31/13	Tue 12/31/13
355	Participate in HIE program evaluation	1 day	Wed 12/31/14	Wed 12/31/14
356	**Planning**	**19 days**	**Wed 9/1/10**	**Mon 9/27/10**
357	Submit strategic and operational plan to ONC	1 day	Mon 9/27/10	Mon 9/27/10
358	Submit evidence of stakeholder endorsement of strategic and operational plan	1 day	Mon 9/27/10	Mon 9/27/10
359	Training and technical assistance	1 day	Wed 9/1/10	Wed 9/1/10
360	Participate in NHIN Governance Training	1 day	Wed 9/1/10	Wed 9/1/10
361	Review updates to statewide HIE toolkit	1 day	Wed 9/1/10	Wed 9/1/10
362	**Master Data Use Agreement**	**152 days?**	**Thu 10/1/09**	**Fri 4/30/10**
363	Examine federal and state laws	152 days?	Thu 10/1/09	Fri 4/30/10

ID	Task Name	Duration	Start	Finish
364	Draft data use agreement	152 days	Thu 10/1/09	Fri 4/30/10
365	Review data use agreement	152 days	Thu 10/1/09	Fri 4/30/10
366	Input from multi-stakeholders	152 days	Thu 10/1/09	Fri 4/30/10
367	Revise data use agreement	152 days	Thu 10/1/09	Fri 4/30/10
368	Review data use agreement	152 days	Thu 10/1/09	Fri 4/30/10
369	Finalize data use agreement	1 day	Fri 4/30/10	Fri 4/30/10
370	**Contracts**	**32 days**	**Mon 5/3/10**	**Tue 6/15/10**
371	Develop terms and conditions for participants	30 days	Mon 5/3/10	Fri 6/11/10
372	Examine industry for available contracts	30 days	Mon 5/3/10	Fri 6/11/10
373	Develop service level agreements with responsibilities	30 days	Mon 5/3/10	Fri 6/11/10
374	Determine pricing schema for participants	30 days	Mon 5/3/10	Fri 6/11/10
375	Develop contracts for participants	32 days	Mon 5/3/10	Tue 6/15/10
376	Execute contracts	30 days	Mon 5/3/10	Fri 6/11/10
377	**Communication and Outreach plan**	**1205 days**	**Sat 8/1/09**	**Fri 3/14/14**
378	Hire consumer outreach coordinator	1 day	Sat 8/1/09	Mon 8/3/09
379	**Develop outreach plan for hospitals**	**340 days**	**Thu 10/1/09**	**Wed 1/19/11**
380	Determine list of applicable members	210 days	Thu 10/1/09	Wed 7/21/10
381	Develop educational tools for target audience	210 days	Thu 10/1/09	Wed 7/21/10
382	Review educational tools for target audience	210 days	Thu 10/1/09	Wed 7/21/10
383	Sample test educational tools with 3 targets	210 days	Thu 10/1/09	Wed 7/21/10
384	Adjust educational tools as needed	210 days	Thu 10/1/09	Wed 7/21/10
385	Develop schedule of on site visits	210 days	Thu 10/1/09	Wed 7/21/10
386	Begin on site visits to promote HIE	210 days	Thu 4/1/10	Wed 1/19/11
387	Obtain letters of intent	210 days	Thu 4/1/10	Wed 1/19/11
388	**Develop outreach plan for physicians and practices**	**1032 days**	**Thu 4/1/10**	**Fri 3/14/14**
389	Determine list of applicable members	210 days	Mon 5/27/13	Fri 3/14/14
390	Develop educational tools for target audience	210 days	Mon 5/27/13	Fri 3/14/14
391	Review educational tools for target audience	210 days	Mon 5/27/13	Fri 3/14/14
392	Sample test educational tools with 3 targets	210 days	Mon 5/27/13	Fri 3/14/14
393	Adjust educational tools as needed	210 days	Mon 5/27/13	Fri 3/14/14
394	Develop schedule of on site visits	210 days	Mon 5/27/13	Fri 3/14/14
395	Begin on site visits to promote HIE	1032 days	Thu 4/1/10	Fri 3/14/14
396	Obtain consents	210 days	Mon 5/27/13	Fri 3/14/14
397	**Develop outreach plan for consumers**	**340 days**	**Thu 10/1/09**	**Wed 1/19/11**
398	Determine list of applicable members	210 days	Thu 10/1/09	Wed 7/21/10
399	Develop educational tools for target audience	210 days	Thu 10/1/09	Wed 7/21/10
400	Review educational tools for target audience	210 days	Thu 10/1/09	Wed 7/21/10
401	Sample test educational tools with 3 targets	210 days	Thu 10/1/09	Wed 7/21/10
402	Adjust educational tools as needed	210 days	Thu 10/1/09	Wed 7/21/10
403	Develop schedule of on site visits	210 days	Thu 10/1/09	Wed 7/21/10

ID	Task Name	Duration	Start	Finish
404	Begin on site visits to promote HIE	210 days	Thu 4/1/10	Wed 1/19/11
405	Obtain consents	210 days	Thu 4/1/10	Wed 1/19/11
406	**Develop outreach plan for vendors**	**210 days**	**Mon 5/27/13**	**Fri 3/14/14**
407	Determine list of applicable members	210 days	Mon 5/27/13	Fri 3/14/14
408	Develop educational tools for target audience	210 days	Mon 5/27/13	Fri 3/14/14
409	Review educational tools for target audience	210 days	Mon 5/27/13	Fri 3/14/14
410	Sample test educational tools with 3 targets	210 days	Mon 5/27/13	Fri 3/14/14
411	Adjust educational tools as needed	210 days	Mon 5/27/13	Fri 3/14/14
412	Develop schedule of on site visits	210 days	Mon 5/27/13	Fri 3/14/14
413	Begin on site visits to promote HIE	210 days	Mon 5/27/13	Fri 3/14/14
414	Obtain consents	210 days	Mon 5/27/13	Fri 3/14/14
415	**MHCC Policy Board**	**1392 days**	**Tue 9/1/09**	**Wed 12/31/14**
416	Determine membership of MHCC Policy	22 days	Tue 9/1/09	Wed 9/30/09
417	Develop mission and goals of policy board	22 days	Tue 9/1/09	Wed 9/30/09
418	Develop agenda for kick-off meeting	22 days	Tue 9/1/09	Wed 9/30/09
419	Post information on web site	1 day	Wed 9/30/09	Wed 9/30/09
420	Hold PB initial kickoff meeting	1 day	Tue 12/8/09	Tue 12/8/09
421	Develop PB operating guidelines	30 days	Tue 12/8/09	Mon 1/18/10
422	Obtain PB approval	1 day	Tue 1/19/10	Tue 1/19/10
423	Prepare meeting materials	29 days	Wed 12/9/09	Mon 1/18/10
424	Develop agenda	29 days	Wed 12/9/09	Mon 1/18/10
425	Post on website	1 day	Mon 1/18/10	Mon 1/18/10
426	Send reminders to PB members	1 day	Fri 1/15/10	Fri 1/15/10
427	Hold PB meeting	1 day	Thu 1/7/10	Thu 1/7/10
428	Prepare meeting materials	28 days	Wed 1/20/10	Sun 2/28/10
429	Develop agenda	28 days	Wed 1/20/10	Sun 2/28/10
430	Post on website	1 day	Sun 2/28/10	Mon 3/1/10
431	Send reminders to PB members	1 day	Wed 2/24/10	Wed 2/24/10
432	Hold PB meeting	1 day	Tue 1/19/10	Tue 1/19/10
433	Prepare meeting materials	30 days	Tue 3/2/10	Mon 4/12/10
434	Develop agenda	30 days	Tue 3/2/10	Mon 4/12/10
435	Post on website	1 day	Mon 4/12/10	Mon 4/12/10
436	Send reminders to PB members	1 day	Wed 4/7/10	Wed 4/7/10
437	Hold PB meeting	1 day	Mon 3/1/10	Mon 3/1/10
438	Prepare meeting materials	30 days	Tue 3/2/10	Mon 4/12/10
439	Develop agenda	30 days	Tue 3/2/10	Mon 4/12/10
440	Post on website	1 day	Mon 4/12/10	Mon 4/12/10
441	Send reminders to PB members	1 day	Wed 4/7/10	Wed 4/7/10
442	Hold PB meeting	1 day	Tue 4/13/10	Tue 4/13/10
443	Prepare meeting materials	22 days	Wed 4/14/10	Thu 5/13/10
444	Develop agenda	22 days	Wed 4/14/10	Thu 5/13/10
445	Post on website	1 day	Thu 5/20/10	Thu 5/20/10
446	Send reminders to PB members	1 day	Tue 5/18/10	Tue 5/18/10
447	Hold PB meeting	1 day	Tue 5/25/10	Tue 5/25/10
448	Develop policies	1 day	Tue 5/25/10	Tue 5/25/10
449	Prepare meeting materials	22 days	Wed 5/26/10	Thu 6/24/10
450	Develop agenda	22 days	Wed 5/26/10	Thu 6/24/10
451	Post on website	1 day	Thu 6/24/10	Thu 6/24/10
452	Send reminders to PB members	1 day	Thu 7/1/10	Thu 7/1/10
453	Hold PB meeting	1 day	Tue 7/13/10	Tue 7/13/10
454	Develop policies	1 day	Tue 7/13/10	Tue 7/13/10
455	Prepare meeting materials	22 days	Wed 7/14/10	Thu 8/12/10

ID	Task Name	Duration	Start	Finish
456	Develop agenda	22 days	Wed 7/14/10	Thu 8/12/10
457	Post on website	1 day	Thu 8/12/10	Thu 8/12/10
458	Send reminders to PB members	1 day	Mon 8/2/10	Mon 8/2/10
459	Hold PB meeting	1 day	Tue 8/17/10	Tue 8/17/10
460	Develop policies	1 day	Tue 8/17/10	Tue 8/17/10
461	Prepare meeting materials	22 days	Wed 8/18/10	Thu 9/16/10
462	Develop agenda	22 days	Wed 8/18/10	Thu 9/16/10
463	Post on website	1 day	Fri 9/10/10	Fri 9/10/10
464	Send reminders to PB members	1 day	Fri 9/10/10	Fri 9/10/10
465	Hold PB meeting	1 day	Tue 9/28/10	Tue 9/28/10
466	Develop policies	1 day	Tue 9/28/10	Wed 9/29/10
467	Prepare meeting materials	28 days	Wed 9/29/10	Fri 11/5/10
468	Develop agenda	28 days	Wed 9/29/10	Fri 11/5/10
469	Post on website	1 day	Mon 11/1/10	Mon 11/1/10
470	Send reminders to PB members	1 day	Mon 11/1/10	Mon 11/1/10
471	Hold PB meeting	1 day	Tue 11/9/10	Tue 11/9/10
472	Develop policies	1 day	Thu 9/9/10	Thu 9/9/10
473	Prepare meeting materials	28 days	Fri 9/10/10	Tue 10/19/10
474	Develop agenda	28 days	Fri 9/10/10	Tue 10/19/10
475	Post on website	1 day	Mon 1/3/11	Mon 1/3/11
476	Send reminders to PB members	1 day	Mon 1/3/11	Mon 1/3/11
477	Hold PB meeting	1 day	Tue 1/11/11	Tue 1/11/11
478	Develop policies	1 day	Tue 1/11/11	Tue 1/11/11
479	Prepare meeting materials	22 days	Mon 1/24/11	Tue 2/22/11
480	Develop agenda	22 days	Mon 1/24/11	Tue 2/22/11
481	Post on website	1 day	Tue 2/22/11	Tue 2/22/11
482	Send reminders to PB members	1 day	Tue 2/22/11	Tue 2/22/11
483	**Hold PB meeting**	**1 day**	**Tue 3/1/11**	**Tue 3/1/11**
484	Prepare meeting materials	22 days	Mon 3/7/11	Tue 4/5/11
485	Develop agenda	22 days	Mon 3/7/11	Tue 4/5/11
486	Post on website	1 day	Tue 4/5/11	Tue 4/5/11
487	Send reminders to PB members	1 day	Tue 4/5/11	Tue 4/5/11
488	**Hold PB meeting**	**1 day**	**Tue 4/12/11**	**Tue 4/12/11**
489	Prepare meeting materials	22 days	Mon 4/18/11	Tue 5/17/11
490	Develop agenda	22 days	Mon 4/18/11	Tue 5/17/11
491	Post on website	61 days	Tue 2/22/11	Tue 5/17/11
492	Send reminders to PB members	1 day	Tue 5/17/11	Tue 5/17/11
493	**Hold PB meeting**	**1 day**	**Tue 5/24/11**	**Tue 5/24/11**
494	Prepare meeting materials	22 days	Mon 6/6/11	Tue 7/5/11
495	Develop agenda	22 days	Mon 6/6/11	Tue 7/5/11
496	Post on website	1 day	Tue 7/5/11	Tue 7/5/11
497	Send reminders to PB members	1 day	Tue 7/5/11	Tue 7/5/11
498	**Hold PB meeting**	**1 day**	**Tue 7/12/11**	**Tue 7/12/11**
499	Prepare meeting materials	22 days	Mon 7/11/11	Tue 8/9/11
500	Develop agenda	22 days	Mon 7/11/11	Tue 8/9/11
501	Post on website	1 day	Tue 8/9/11	Tue 8/9/11
502	Send reminders to PB members	1 day	Tue 8/9/11	Tue 8/9/11
503	**Hold PB meeting**	**1 day**	**Tue 8/16/11**	**Tue 8/16/11**
504	Prepare meeting materials	22 days	Mon 8/22/11	Tue 9/20/11
505	Develop agenda	22 days	Mon 8/22/11	Tue 9/20/11
506	Post on website	1 day	Tue 9/20/11	Tue 9/20/11
507	Send reminders to PB members	1 day	Tue 9/20/11	Tue 9/20/11
508	**Hold PB meeting**	**1 day**	**Tue 9/27/11**	**Tue 9/27/11**
509	Prepare meeting materials	22 days	Thu 10/6/11	Fri 11/4/11
510	Develop agenda	22 days	Thu 10/6/11	Fri 11/4/11
511	Post on website	1 day	Fri 11/4/11	Fri 11/4/11
512	Send reminders to PB members	1 day	Fri 11/4/11	Fri 11/4/11
513	**Hold PB meeting**	**1 day**	**Tue 11/8/11**	**Tue 11/8/11**
514	Incorporate Polices into HIE	1322 days	Tue 12/8/09	Wed 12/31/14
515	**CRISP HIE Implementation**	**1412 days**	**Tue 8/4/09**	**Wed 12/31/14**

ID	Task Name	Duration	Start	Finish
516	**Pick core selection team**	**19 days**	**Tue 8/4/09**	**Fri 8/28/09**
517	Direct hires	19 days	Tue 8/4/09	Fri 8/28/09
518	Consultants	1 day	Tue 8/4/09	Tue 8/4/09
519	**Master Patient Index Infrastructure**	**239 days**	**Thu 10/1/09**	**Tue 8/31/10**
520	Draft RFP document	239 days	Thu 10/1/09	Tue 8/31/10
521	Review RFP document	239 days	Thu 10/1/09	Tue 8/31/10
522	Finalize RFP document	239 days	Thu 10/1/09	Tue 8/31/10
523	Post RFP document on web	239 days	Thu 10/1/09	Tue 8/31/10
524	Receive and answer bidder questions	239 days	Thu 10/1/09	Tue 8/31/10
525	Responses received	239 days	Thu 10/1/09	Tue 8/31/10
526	Review vendor responses	239 days	Thu 10/1/09	Tue 8/31/10
527	Narrow to top 5 vendors	239 days	Thu 10/1/09	Tue 8/31/10
528	Top 5 vendor presentations	239 days	Thu 10/1/09	Tue 8/31/10
529	Narrow to top 2 vendors	239 days	Thu 10/1/09	Tue 8/31/10
530	Perform site visits	239 days	Thu 10/1/09	Tue 8/31/10
531	Perform due diligence on top 2 vendors	239 days	Thu 10/1/09	Tue 8/31/10
532	Choose 1 vendor	239 days	Thu 10/1/09	Tue 8/31/10
533	Obtain technical team approval	239 days	Thu 10/1/09	Tue 8/31/10
534	Obtain board approval	239 days	Thu 10/1/09	Tue 8/31/10
535	Obtain MHCC approval	239 days	Thu 10/1/09	Tue 8/31/10
536	Contract negotiations	239 days	Thu 10/1/09	Tue 8/31/10
537	Contract signed	239 days	Thu 10/1/09	Tue 8/31/10
538	**Core infrastructure**	**1370 days**	**Thu 10/1/09**	**Wed 12/31/14**
539	Draft RFP document	239 days	Thu 10/1/09	Tue 8/31/10
540	Review RFP document	239 days	Thu 10/1/09	Tue 8/31/10
541	Finalize RFP document	239 days	Thu 10/1/09	Tue 8/31/10
542	Post RFP document on web	239 days	Thu 10/1/09	Tue 8/31/10
543	Receive and answer bidder questions	239 days	Thu 10/1/09	Tue 8/31/10
544	Responses received	239 days	Thu 10/1/09	Tue 8/31/10
545	Review vendor responses	239 days	Thu 10/1/09	Tue 8/31/10
546	Narrow to top 5 vendors	239 days	Thu 10/1/09	Tue 8/31/10
547	Top 5 vendor presentations	239 days	Thu 10/1/09	Tue 8/31/10
548	Narrow to top 2 vendors	239 days	Thu 10/1/09	Tue 8/31/10
549	Perform site visits	239 days	Thu 10/1/09	Tue 8/31/10
550	Perform due diligence on top 2 vendors	239 days	Thu 10/1/09	Tue 8/31/10
551	Choose 1 vendor	239 days	Thu 10/1/09	Tue 8/31/10
552	Obtain technical team approval	239 days	Thu 10/1/09	Tue 8/31/10
553	Obtain board approval	239 days	Thu 10/1/09	Tue 8/31/10
554	Obtain MHCC approval	239 days	Thu 10/1/09	Tue 8/31/10
555	Contract negotiations	239 days	Thu 10/1/09	Tue 8/31/10
556	Contract signed	239 days	Thu 10/1/09	Tue 8/31/10
557	Develop technology project plan	210 days	Mon 5/31/10	Fri 3/18/11
558	Begin implementation of technology	210 days	Mon 5/31/10	Fri 3/18/11
559	Hire necessary staff to maintain system	210 days	Mon 5/31/10	Fri 3/18/11
560	Purchase necessary sw and hw	210 days	Mon 5/31/10	Fri 3/18/11
561	Implement necessary sw and hw	210 days	Mon 5/31/10	Fri 3/18/11
562	System training	210 days	Mon 5/31/10	Fri 3/18/11
563	Configure sw and hw	210 days	Mon 5/31/10	Fri 3/18/11
564	Test sw and hw	210 days	Mon 5/31/10	Fri 3/18/11
565	Reconfigure as needed	210 days	Mon 5/31/10	Fri 3/18/11
566	Perform load testing	210 days	Mon 5/31/10	Fri 3/18/11
567	Perform penetration testing	210 days	Mon 5/31/10	Fri 3/18/11

ID	Task Name	Duration	Start	Finish
568	Test contingency plan	210 days	Mon 5/31/10	Fri 3/18/11
569	Test disaster plan	210 days	Mon 5/31/10	Fri 3/18/11
570	Complete technology implementation	210 days	Mon 5/31/10	Fri 3/18/11
571	Hire deployment staff	210 days	Mon 5/31/10	Fri 3/18/11
572	Train deployment staff	210 days	Mon 5/31/10	Fri 3/18/11
573	Begin pre-production pilot	210 days	Mon 5/31/10	Fri 3/18/11
574	Make system adjustments	210 days	Mon 5/31/10	Fri 3/18/11
575	Ensure all policies are current and distributed	210 days	Mon 5/31/10	Fri 3/18/11
576	Ensure proper licensing in place	210 days	Mon 5/31/10	Fri 3/18/11
577	Comply with standards to support meaningful use	210 days	Mon 5/31/10	Fri 3/18/11
578	Develop process to capture and report metrics and HIE status	210 days	Mon 5/31/10	Fri 3/18/11
579	Begin production pilot	210 days	Mon 5/31/10	Fri 3/18/11
580	Make system adjustments as needed	210 days	Mon 5/31/10	Fri 3/18/11
581	Set up end users on portal	210 days	Mon 5/31/10	Fri 3/18/11
582	Train users on portal	210 days	Mon 5/31/10	Fri 3/18/11
583	Provide privacy and security training to end users	210 days	Mon 5/31/10	Fri 3/18/11
584	Production environment live	210 days	Mon 5/31/10	Fri 3/18/11
585	Determine production services deployment schedule (assume 2 service groups)	210 days	Mon 5/31/10	Fri 3/18/11
586	Determine production deployment schedule (includes hospitals, physician practices, and	210 days	Mon 5/31/10	Fri 3/18/11
587	System maintenance as needed	1218 days	Mon 5/3/10	Wed 12/31/14
588	**Service group 1 development (includes prescription fill, Lab orders and results, discharge summary, clinical summary, e-prescribing, rad orders and results)**	**90 days**	**Tue 6/1/10**	**Mon 10/4/10**
589	For each service - total of 6	90 days	Tue 6/1/10	Mon 10/4/10
590	Identify vendor solution options	90 days	Tue 6/1/10	Mon 10/4/10
591	If applicable, negotiate vendor solution contracts	90 days	Tue 6/1/10	Mon 10/4/10
592	**Requirement gathering**	**90 days**	**Tue 6/1/10**	**Mon 10/4/10**
593	Outbound ADT triggers	90 days	Tue 6/1/10	Mon 10/4/10
594	Inbound report	90 days	Tue 6/1/10	Mon 10/4/10
595	Consent process	90 days	Tue 6/1/10	Mon 10/4/10
596	Provider workflow	90 days	Tue 6/1/10	Mon 10/4/10
597	Reporting and quality measures	90 days	Tue 6/1/10	Mon 10/4/10
598	Establish acceptance criteria	90 days	Tue 6/1/10	Mon 10/4/10
599	**Design**	**90 days**	**Tue 6/1/10**	**Mon 10/4/10**
600	Outbound ADT triggers	90 days	Tue 6/1/10	Mon 10/4/10
601	Inbound report	90 days	Tue 6/1/10	Mon 10/4/10
602	Consent process	90 days	Tue 6/1/10	Mon 10/4/10
603	Provider workflow	90 days	Tue 6/1/10	Mon 10/4/10
604	Reporting and quality measures	90 days	Tue 6/1/10	Mon 10/4/10
605	**Build**	**90 days**	**Tue 6/1/10**	**Mon 10/4/10**
606	Outbound ADT triggers	90 days	Tue 6/1/10	Mon 10/4/10
607	Inbound report	90 days	Tue 6/1/10	Mon 10/4/10
608	Consent process	90 days	Tue 6/1/10	Mon 10/4/10
609	Provider workflow	90 days	Tue 6/1/10	Mon 10/4/10
610	Reporting and quality measures	90 days	Tue 6/1/10	Mon 10/4/10
611	**Training and education**	**90 days**	**Tue 6/1/10**	**Mon 10/4/10**
612	Develop training materials	90 days	Tue 6/1/10	Mon 10/4/10
613	Develop patient education materials	90 days	Tue 6/1/10	Mon 10/4/10

ID	Task Name	Duration	Start	Finish
614	**Service group 2 development (includes eligibility claims, public health reporting and quality reporting)**	**90 days**	**Fri 6/1/12**	**Thu 10/4/12**
615	For each service - total of 6	90 days	Fri 6/1/12	Thu 10/4/12
616	Identify vendor solution options	90 days	Fri 6/1/12	Thu 10/4/12
617	If applicable, negotiate vendor solution contracts	90 days	Fri 6/1/12	Thu 10/4/12
618	**Requirement gathering**	**90 days**	**Fri 6/1/12**	**Thu 10/4/12**
619	Outbound ADT triggers	90 days	Fri 6/1/12	Thu 10/4/12
620	Inbound report	90 days	Fri 6/1/12	Thu 10/4/12
621	Consent process	90 days	Fri 6/1/12	Thu 10/4/12
622	Provider workflow	90 days	Fri 6/1/12	Thu 10/4/12
623	Reporting and quality measures	90 days	Fri 6/1/12	Thu 10/4/12
624	Establish acceptance criteria	90 days	Fri 6/1/12	Thu 10/4/12
625	**Design**	**90 days**	**Fri 6/1/12**	**Thu 10/4/12**
626	Outbound ADT triggers	90 days	Fri 6/1/12	Thu 10/4/12
627	Inbound report	90 days	Fri 6/1/12	Thu 10/4/12
628	Consent process	90 days	Fri 6/1/12	Thu 10/4/12
629	Provider workflow	90 days	Fri 6/1/12	Thu 10/4/12
630	Reporting and quality measures	90 days	Fri 6/1/12	Thu 10/4/12
631	**Build**	**90 days**	**Fri 6/1/12**	**Thu 10/4/12**
632	Outbound ADT triggers	90 days	Fri 6/1/12	Thu 10/4/12
633	Inbound report	90 days	Fri 6/1/12	Thu 10/4/12
634	Consent process	90 days	Fri 6/1/12	Thu 10/4/12
635	Provider workflow	90 days	Fri 6/1/12	Thu 10/4/12
636	Reporting and quality measures	90 days	Fri 6/1/12	Thu 10/4/12
637	**Training and education**	**90 days**	**Fri 6/1/12**	**Thu 10/4/12**
638	Develop training materials	90 days	Fri 6/1/12	Thu 10/4/12
639	Develop patient education materials	90 days	Fri 6/1/12	Thu 10/4/12
640	**Production deployment for service group 1 (includes prescription fill status, lab orders and results, e-prescribing and refills, discharge summary, clinical summary, radiology orders and results)**	**914 days?**	**Sat 5/1/10**	**Thu 10/31/13**
641	**Site 1**	**805 days?**	**Fri 10/1/10**	**Thu 10/31/13**
642	Obtain network subscription agreement	805 days?	Fri 10/1/10	Thu 10/31/13
643	Interface requirements obtained	805 days?	Fri 10/1/10	Thu 10/31/13
644	Interface developed (includes build, configuration, installation)	805 days?	Fri 10/1/10	Thu 10/31/13
645	Install necessary hw/sw (edge servers)	805 days?	Fri 10/1/10	Thu 10/31/13
646	Interface implementation (includes testing, validation, go-live)	805 days?	Fri 10/1/10	Thu 10/31/13
647	Set up users on portal	805 days?	Fri 10/1/10	Thu 10/31/13
648	Train users on portal	805 days?	Fri 10/1/10	Thu 10/31/13
649	Privacy and security training	805 days?	Fri 10/1/10	Thu 10/31/13
650	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
651	**Site 2**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
652	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
653	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
654	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
655	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
656	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
657	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
658	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
659	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
660	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
661	**Site 3**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
662	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
663	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
664	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
665	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
666	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
667	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
668	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
669	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
670	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
671	**Site 4**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
672	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
673	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
674	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
675	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
676	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
677	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
678	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
679	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
680	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
681	**Site 5**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
682	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
683	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
684	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
685	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
686	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
687	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
688	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
689	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
690	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
691	**Site 6**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
692	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
693	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
694	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
695	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
696	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
697	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
698	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
699	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
700	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
701	**Site 7**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
702	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
703	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
704	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
705	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
706	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
707	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
708	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
709	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
710	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
711	**Site 8**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
712	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
713	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
714	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
715	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
716	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
717	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
718	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
719	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
720	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
721	**Site 9**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
722	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
723	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
724	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
725	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
726	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
727	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
728	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
729	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
730	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
731	**Site 10**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
732	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
733	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
734	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
735	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
736	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
737	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
738	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
739	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
740	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
741	**Site 11**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
742	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
743	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
744	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
745	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
746	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
747	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
748	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
749	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
750	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
751	**Site 12**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
752	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
753	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
754	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
755	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
756	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
757	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
758	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
759	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
760	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
761	**Site 13**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
762	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
763	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
764	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
765	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
766	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
767	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
768	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
769	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
770	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
771	**Site 14**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
772	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
773	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
774	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
775	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
776	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
777	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
778	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
779	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
780	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
781	**Site 15**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
782	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
783	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
784	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
785	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
786	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
787	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
788	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
789	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
790	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
791	**Site 16**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
792	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
793	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
794	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
795	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
796	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
797	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
798	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
799	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
800	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
801	**Site 17**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
802	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
803	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
804	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
805	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
806	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
807	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
808	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
809	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
810	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
811	**Site 18**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
812	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
813	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
814	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
815	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
816	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
817	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
818	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
819	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
820	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
821	**Site 19**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
822	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
823	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
824	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
825	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
826	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
827	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
828	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
829	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
830	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
831	**Site 20**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
832	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
833	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
834	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
835	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
836	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
837	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
838	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
839	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
840	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
841	**Site 21**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
842	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
843	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
844	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
845	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
846	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
847	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
848	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
849	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
850	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
851	**Site 22**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
852	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
853	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
854	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
855	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
856	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
857	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
858	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
859	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
860	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
861	**Site 23**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
862	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
863	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
864	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
865	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
866	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
867	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
868	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
869	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
870	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
871	**Site 24**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
872	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
873	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
874	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
875	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
876	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
877	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
878	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
879	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
880	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
881	**Site 25**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
882	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
883	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
884	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
885	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
886	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
887	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
888	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
889	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
890	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
891	**Site 26**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
892	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
893	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
894	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
895	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
896	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
897	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
898	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
899	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
900	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
901	**Site 27**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
902	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
903	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
904	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
905	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
906	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
907	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
908	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
909	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
910	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
911	**Site 28**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
912	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
913	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
914	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
915	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
916	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
917	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
918	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
919	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
920	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
921	**Site 29**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
922	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
923	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
924	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
925	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
926	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
927	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
928	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
929	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
930	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
931	**Site 30**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
932	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
933	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
934	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
935	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
936	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
937	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
938	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
939	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
940	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
941	**Site 31**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
942	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
943	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
944	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
945	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
946	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
947	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
948	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
949	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
950	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
951	**Site 32**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
952	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
953	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
954	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
955	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
956	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
957	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
958	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
959	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
960	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
961	**Site 33**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
962	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
963	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
964	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
965	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
966	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
967	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
968	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
969	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
970	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
971	**Site 34**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
972	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
973	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
974	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
975	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
976	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
977	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
978	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
979	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
980	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
981	**Site 35**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
982	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
983	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
984	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
985	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
986	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
987	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
988	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
989	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
990	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
991	**Site 36**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
992	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
993	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
994	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
995	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
996	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
997	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
998	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
999	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1000	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1001	**Site 37**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1002	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1003	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1004	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
1005	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1006	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1007	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1008	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1009	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1010	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1011	**Site 38**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1012	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1013	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1014	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
1015	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1016	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1017	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1018	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1019	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1020	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1021	**Site 39**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1022	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1023	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1024	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
1025	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1026	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1027	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1028	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1029	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1030	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1031	**Site 40**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1032	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1033	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1034	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
1035	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1036	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1037	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1038	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1039	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1040	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1041	**Site 41**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1042	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1043	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1044	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
1045	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1046	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1047	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1048	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1049	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1050	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1051	**Site 42**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1052	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1053	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1054	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
1055	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1056	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1057	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1058	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1059	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1060	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1061	**Site 43**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1062	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1063	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1064	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
1065	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1066	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1067	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1068	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1069	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1070	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1071	**Site 44**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1072	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1073	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1074	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
1075	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1076	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1077	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1078	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1079	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1080	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1081	**Site 45**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1082	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1083	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1084	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
1085	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1086	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1087	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1088	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1089	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1090	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1091	**Site 46**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1092	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1093	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1094	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13

ID	Task Name	Duration	Start	Finish
1095	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1096	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1097	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1098	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1099	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1100	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1101	**Site 47**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1102	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1103	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1104	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
1105	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1106	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1107	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1108	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1109	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1110	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1111	**Physician practice 1 - 2325**	**805 days**	**Fri 10/1/10**	**Thu 10/31/13**
1112	Obtain network subscription agreement	805 days	Fri 10/1/10	Thu 10/31/13
1113	Interface requirements obtained	805 days	Fri 10/1/10	Thu 10/31/13
1114	Interface developed (includes build, configuration, installation)	805 days	Fri 10/1/10	Thu 10/31/13
1115	Install necessary hw/sw (edge servers)	805 days	Fri 10/1/10	Thu 10/31/13
1116	Interface implementation (includes testing, validation, go-live)	805 days	Fri 10/1/10	Thu 10/31/13
1117	Set up users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1118	Train users on portal	805 days	Fri 10/1/10	Thu 10/31/13
1119	Privacy and security training	805 days	Fri 10/1/10	Thu 10/31/13
1120	Go-live	805 days	Fri 10/1/10	Thu 10/31/13
1121	**vendor deployment (i.e. outside Lab/Rad)**	**109 days**	**Sat 5/1/10**	**Thu 9/30/10**
1122	Obtain network subscription agreement	109 days	Sat 5/1/10	Thu 9/30/10
1123	Interface requirements obtained	109 days	Sat 5/1/10	Thu 9/30/10
1124	Interface developed (includes build, configuration, installation)	109 days	Sat 5/1/10	Thu 9/30/10
1125	Install necessary hw/sw (edge servers)	109 days	Sat 5/1/10	Thu 9/30/10
1126	Interface implementation (includes testing, validation, go-live)	109 days	Sat 5/1/10	Thu 9/30/10
1127	Set up users on portal	109 days	Sat 5/1/10	Thu 9/30/10
1128	Train users on portal	109 days	Sat 5/1/10	Thu 9/30/10
1129	Privacy and security training	109 days	Sat 5/1/10	Thu 9/30/10
1130	Go-live	109 days	Sat 5/1/10	Thu 9/30/10
1131	**Production deployment for service group 2 (includes eligibility and claims transactions, public health reporting, quality reporting)**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1132	**Site 1**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1133	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1134	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1135	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1136	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1137	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1138	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1139	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1140	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1141	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1142	**Site 2**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1143	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1144	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1145	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1146	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1147	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1148	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1149	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1150	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1151	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1152	**Site 3**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1153	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1154	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1155	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1156	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1157	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1158	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1159	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1160	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1161	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1162	**Site 4**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1163	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1164	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1165	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1166	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1167	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1168	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1169	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1170	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1171	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1172	**Site 5**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1173	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1174	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1175	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1176	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1177	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1178	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1179	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1180	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1181	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1182	**Site 6**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1183	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1184	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1185	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1186	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1187	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1188	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1189	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1190	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1191	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1192	**Site 7**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1193	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1194	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1195	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1196	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1197	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1198	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1199	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1200	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1201	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1202	**Site 8**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1203	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1204	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1205	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1206	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1207	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1208	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1209	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1210	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1211	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1212	**Site 9**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1213	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1214	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1215	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1216	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1217	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1218	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1219	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1220	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1221	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1222	**Site 10**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1223	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1224	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1225	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1226	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1227	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1228	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1229	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1230	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1231	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1232	**Site 11**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1233	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1234	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1235	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1236	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1237	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1238	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1239	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1240	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1241	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1242	**Site 12**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1243	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1244	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1245	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1246	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1247	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1248	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1249	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1250	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1251	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1252	**Site 13**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1253	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1254	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1255	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1256	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1257	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1258	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1259	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1260	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1261	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1262	**Site 14**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1263	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1264	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1265	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1266	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1267	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1268	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1269	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1270	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1271	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1272	**Site 15**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1273	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1274	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1275	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1276	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1277	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1278	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1279	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1280	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1281	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1282	**Site 16**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1283	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1284	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1285	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1286	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1287	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1288	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1289	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1290	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1291	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1292	**Site 17**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1293	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1294	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1295	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1296	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1297	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1298	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1299	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1300	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1301	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1302	**Site 18**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1303	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1304	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1305	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1306	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1307	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1308	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1309	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1310	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1311	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1312	**Site 19**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1313	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1314	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1315	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1316	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1317	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1318	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1319	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1320	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1321	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1322	**Site 20**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1323	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1324	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1325	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1326	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1327	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1328	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1329	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1330	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1331	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1332	**Site 21**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1333	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1334	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1335	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1336	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1337	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1338	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1339	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1340	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1341	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1342	**Site 22**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1343	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1344	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1345	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1346	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1347	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1348	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1349	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1350	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1351	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1352	**Site 23**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1353	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1354	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1355	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1356	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1357	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1358	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1359	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1360	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1361	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1362	**Site 24**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1363	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1364	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1365	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1366	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1367	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1368	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1369	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1370	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1371	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1372	**Site 25**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1373	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1374	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1375	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1376	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1377	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1378	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1379	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1380	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1381	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1382	**Site 26**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1383	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1384	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1385	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1386	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1387	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1388	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1389	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1390	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1391	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1392	**Site 27**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1393	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1394	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1395	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1396	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1397	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1398	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1399	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1400	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1401	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1402	**Site 28**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1403	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1404	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1405	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1406	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1407	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1408	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1409	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1410	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1411	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1412	**Site 29**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1413	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1414	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1415	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1416	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1417	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1418	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1419	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1420	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1421	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1422	**Site 30**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1423	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1424	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1425	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1426	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1427	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1428	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1429	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1430	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1431	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1432	**Site 31**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1433	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1434	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1435	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1436	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1437	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1438	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1439	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1440	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1441	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1442	**Site 32**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1443	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1444	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1445	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1446	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1447	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1448	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1449	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1450	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1451	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1452	**Site 33**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1453	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1454	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1455	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1456	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1457	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1458	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1459	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1460	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1461	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1462	**Site 34**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1463	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1464	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1465	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1466	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1467	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1468	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1469	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1470	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1471	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1472	**Site 35**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1473	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1474	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1475	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1476	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1477	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1478	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1479	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1480	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1481	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1482	**Site 36**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1483	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1484	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1485	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1486	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1487	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1488	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1489	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1490	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1491	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1492	**Site 37**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1493	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1494	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1495	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1496	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1497	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1498	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1499	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1500	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1501	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1502	**Site 38**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1503	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1504	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1505	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1506	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1507	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1508	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1509	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1510	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1511	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1512	**Site 39**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1513	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1514	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1515	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1516	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1517	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1518	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1519	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1520	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1521	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1522	**Site 40**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1523	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1524	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1525	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1526	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1527	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1528	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1529	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1530	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1531	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1532	**Site 41**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1533	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1534	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1535	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1536	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1537	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1538	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1539	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1540	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1541	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1542	**Site 42**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1543	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1544	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1545	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1546	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1547	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1548	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1549	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1550	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1551	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1552	**Site 43**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1553	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1554	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1555	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1556	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1557	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1558	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1559	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1560	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1561	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1562	**Site 44**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1563	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1564	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1565	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1566	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1567	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1568	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1569	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1570	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1571	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1572	**Site 45**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1573	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1574	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1575	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1576	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1577	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1578	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1579	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1580	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1581	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1582	**Site 46**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1583	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1584	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1585	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1586	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1587	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1588	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1589	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1590	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1591	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1592	**Site 47**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1593	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1594	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1595	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1596	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1597	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1598	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1599	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1600	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1601	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1602	**Physician practice 1 - 2325**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1603	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14
1604	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1605	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1606	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1607	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1608	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1609	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1610	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1611	Go-live	545 days	Mon 1/2/12	Fri 1/31/14
1612	**vendor deployment (i.e. outside Lab/Rad)**	**545 days**	**Mon 1/2/12**	**Fri 1/31/14**
1613	Obtain network subscription agreement	545 days	Mon 1/2/12	Fri 1/31/14

ID	Task Name	Duration	Start	Finish
1614	Interface requirements obtained	545 days	Mon 1/2/12	Fri 1/31/14
1615	Interface developed (includes build, configuration, installation)	545 days	Mon 1/2/12	Fri 1/31/14
1616	Install necessary hw/sw (edge servers)	545 days	Mon 1/2/12	Fri 1/31/14
1617	Interface implementation (includes testing, validation, go-live)	545 days	Mon 1/2/12	Fri 1/31/14
1618	Set up users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1619	Train users on portal	545 days	Mon 1/2/12	Fri 1/31/14
1620	Privacy and security training	545 days	Mon 1/2/12	Fri 1/31/14
1621	Go-live	545 days	Mon 1/2/12	Fri 1/31/14

Technical Infrastructure

Standards and Certifications

The Advisory Board serves as the multi-stakeholder group for the purpose of identifying a widely accepted and useful set of standards for the statewide HIE. All standards deployed by the statewide HIE have already been accepted by HHS and will support widespread interoperability among providers in Maryland and with the NHIN. The statewide HIE anticipates using CONNECT to interface with the NHIN in late 2011. As part of the technology evaluation and procurement process, the statewide HIE has completed an assessment of the technology for compliance with HHS standards and will only integrate technology that meets these requirements. The MHCC has engaged Clifton Gunderson to perform an independent audit of the statewide HIE. In addition to auditing internal accounting and financial reporting controls of the statewide HIE, the audit team also evaluated whether the statewide HIE participant's patient data is processed, transmitted and stored by the statewide HIE and its vendors in a secure manner to minimize the potential for unauthorized disclosure or breach. The team gained an understanding of internal controls and the responsibilities of the statewide HIE and its vendor (i.e. Axolotl) to secure patient data from improper exposure. The findings from this assessment are expected to be complete in March of 2011. Any deficiencies identified by the auditors will be addressed by the statewide HIE Board of Directors.

Standards used by the statewide HIE infrastructure include: Health Level 7 (HL7), Digital Imaging and Communications in Medicine (DICOM), IHE, Electronic Data Interchange X12 (EDI X12), National Council on Prescription Drug Plans (NCPDP), Standard Object Access Protocol (SOAP), electronic business Extensible Mark-up Language (ebXML), Secure Socket Layer (SSL), and Transport Layer Security (TLS). DICOM and NCPDP provide for messaging standards around imaging and medication information, respectively. The statewide HIE has defined two Use Cases that will leverage these standards for the delivery of image and drug information. The American National Standards Institute Accredited Standards Committee X12 (ANSI ASC X12) is a standard that will be used in the exchange of administrative health care transactions.

The statewide HIE plans to use the Continuity of Care (CCD) C32 as a document standard with the recognition that further definition and constraints within that document will need to be applied. The use of the CCD standard is built upon and reinforced by the CCHIT identifying the CCD as a document standard in its 2008 certification criteria. The Advisory Board views some standards as having more relevance to the early phases of the HIE implementation than others.

A condition of connectivity for providers is that they use an EHR that meets national certification standards and other meaningful use requirements. Technology deployed by the statewide HIE will use existing standards recognized by the Secretary of HHS. The approach leverages a number of HITSP-endorsed IHE profiles, as well as ensuring emerging standards and interoperability specifications that have been endorsed by the appropriate oversight committee.

The statewide HIE is monitoring the work of ONC's Health IT Policy and Standards Committees to ensure that the technical infrastructure includes only those standards endorsed by the Secretary of HHS. Lessons learned regarding the technical infrastructure and other aspects of data sharing will be communicated directly with ONC and through collaboration with the designated Regional Center.

Safeguarding Data

In the first year of operation, the Advisory Board will define what security rules need to be implemented for the exchange of electronic patient information. Complying with the HIPAA Security Rule is expected to require significant time and effort on the part of the statewide HIE. Adherence to the 18 broad standards is viewed as a critical step to ensuring the protection of electronic patient information. The statewide HIE's Board of Directors consists mainly of provider organizations that view the security of the data as paramount. These individuals will help guide the statewide HIE as it develops a compliance process. Vendor technology partners are required to demonstrate that their solutions meet or exceed the security requirements. Participation agreements stipulate that users comply with the HIPAA requirements. The statewide HIE will maintain an inventory of electronic patient information. The flow of electronic patient information will be easily tracked throughout the statewide HIE.

The statewide HIE will mitigate risk through a systematic and analytical approach that identifies and assesses these problems. The risk analysis will be used to develop appropriate and reasonable protections, and to anticipate risks and implement security measures. Security policies, procedures, and decisions will be documented by the statewide HIE and reviewed by the Board of Directors. The statewide HIE is well positioned to verify the accuracy of information through audit logs and conduct annual penetration testing to identify the vulnerabilities and determine the adequacy of the security protections. Penetration testing will be performed by the core infrastructure vendor on a quarterly basis and an annual penetration test to be conducted by an independent third party.

Disaster Recovery

The MHCC has a comprehensive Disaster Recovery Plan on file, which is tested during an annual audit. This information is proprietary in nature and is not available for publishing.

Technical Architecture

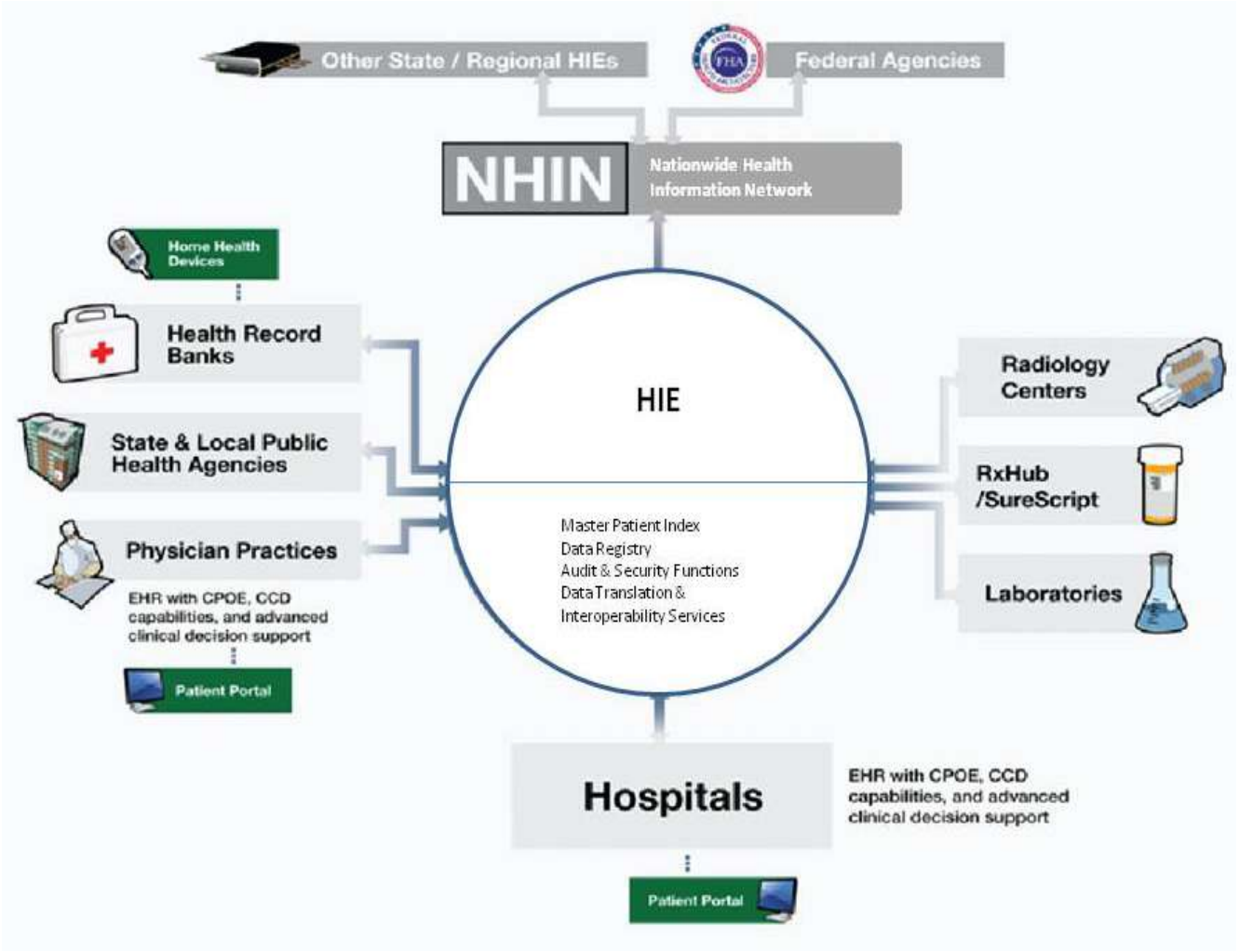
The statewide HIE is a standards-based, decentralized, hybrid model that supports both distributed data and PHRs and HRBs that will allow statewide availability for the secure transfer of a defined set of clinical information between appropriate participating entities. In the model developed in Maryland, a hybrid system is one that consists of a single core infrastructure vendor that serves as a platform for expanding functionality of the utility by adding different vendor applications to the core system. For instance, the core infrastructure selected, Elysium Exchange, consist of an exchange utility with a master patient index (MPI). The MPI in most solutions lacks the robust features necessary to support advanced matching of consumer's to their health information, therefore CRISP has selected Initiate

Systems to serve as the MPI solution which will integrate with Axolotl's technology. The HRB serves the same functions as a PHR in this model. While clearly there are distinctions in the industry about HRBs and PHRs, in the model conceived of for Maryland there is considerable overlap in functionality. Primarily, both allow for consumer control and in this model the HRB also acts as a permissions portal for sharing patient information.

The statewide HIE Advisory Board has establish the technical performance requirements for providers connecting to the statewide HIE. The infrastructure is flexible to allow for market development in either a distributed or HRB driven model and will accommodate a MPI and Registry to locate records within the HIE. The distributed model ensures that data is held where it is created, therefore avoiding the negative perceptions and potential privacy and security consequences of storing all patient information in a large centralized HIE repository. In some cases such as laboratory results, radiology reports, pathology reports, and medication histories, clinical data will not be held in edge servers, but rather routed from the laboratory or imaging center to the ordering provider. The statewide HIE fosters a market in which consumers utilize PHRs/HRBs, which function as a node in the statewide HIE. Access to the HRB/PHR selected by the consumer through the statewide HIE will be for viewing purposes only, and the data will not be integrated into the clinical record of the provider. Data from the statewide HIE will be available for public health and other approved secondary uses. The Policy Board will deliberate on data repositories for research and public health reporting in 2011. The architecture of the statewide HIE is compatible with NHIN core services.

The State of Maryland currently owns and operates the existing MMIS. The system is a direct descendant of the original MMIS applications based upon the Federal Blue Book specifications and technical architecture of the 1970's. Maryland has opted to proceed in pursuing a replacement MMIS with fiscal agent services and program operations through the MITA. Coordination with Medicaid is underway to ensure integration of the statewide HIE with MITA.

Figure 15 - Maryland HIE Fundamental Design



Selected Core Infrastructure: Axolotl

General Privacy and Security Strategy

Restricted Access to PHI

A main principle of the Privacy Rule is to prevent the availability of patient data to anyone other than healthcare providers designated by the patient. In addition to security measures to block intruders from accessing the network or system (please see Network Security below), privacy from unauthorized users is provided by the Elysium User Directory, nested within the Lotus Domino Directory. The directory provides user role and user workgroup creation, configuration, and administration tools. When users access the system, configured roles and workgroups are cross checked against database Access Control Lists (ACLs). ACLs define the users that can access a database, the data that can be accessed by those users, and the actions that they can perform on that data. Through these tools,

Elysium Exchange restricts users, such that they may only access, edit, and manage clinical data according to their clinical workgroup and/or staff position.

Precise Patient Search

Protected health information (PHI) is further protected by Elysium Exchange's precise patient search technology. Elysium Exchange's patient index can find and return patients based on many items of patient information. Furthermore, patient index search engine restrictions are highly configurable. By configuring strict search parameters that require multiple items of patient information for the return of results, health systems greatly reduce the chance of physicians accessing PHI for patients they aren't treating.

Comprehensive User Audit

Elysium provides robust auditing capability for all access obtained to PHI. There will always be some cases where users may misappropriate clinical data, despite hardware security and configurations in the Elysium User Directory. In the case of such misappropriation, Elysium Exchange components provide the ability to audit users for the clinical information they have accessed, and when and from where they accessed it (please see Framework Components – EUA). Accordingly, an HIE may inform patients of all PHI that was compromised.

Physical and Network Security

Axolotl provides security of PHI in an Elysium Exchange through a number of leverages. The physical locations, networks, platform, and application technologies that support Elysium Exchange provide ample security on all levels.

Axolotl will deploy the following hosting and network practices for any systems related to PHI. First, there is physical machine security. Axolotl only hosts production Elysium Exchange servers in Tier 4 data centers that can pass the internationally recognized SAS 70-II standard requirements. This includes physical precautions such as HVAC units, fire retardant measures, strict host and guest authentication/sign in policies, and more.

Next, network security must be addressed. All Axolotl hosted Elysium servers are installed behind multiple firewalls configured for high availability and minimal vulnerability. All servers are installed with the latest versions of Windows 2003 Server and Symantec Antivirus Corporate Edition. OS security and virus definition updates are performed regularly. Finally, network transfer security should be established. Secure network connections and protocols are responsible for the transfer of PHI outside the network. Web standards such as VPN tunnels, WANs, HTTPs, and sFTP greatly reduce the threat of third party interception of sensitive data. For web services, secure network transport is provided by WSsecurity components such as SAML, the X.509 token profile, XML encryption, and XML digital signature. To verify that these location and network security measures are effective, Axolotl regularly performs internal security audits and penetration testing, in addition to bringing in outside firms to perform full audits of the system.

Platform Security

Beneath network security lays platform and application security measures. IBM Domino is responsible for most of the secure data transfer across Elysium servers. Domino provides greater security by using

NRPC key encryption on all data that passes through Domino's Notes Transfer Port. This encryption makes intercepted data useless to offenders for lack of an appropriate decryption key. Further platform security is provided by the Domino Directory. The directory provides administrators with user role and user workgroup creation, configuration, and administration tools. When users access the system, configured roles and workgroups are cross checked against database Access Control Lists (ACLs). ACLs define the users that can access a database, the data that can be accessed by those users, and the actions that they can perform on that data. Through these tools, IBM Domino governs that users may only access, edit, and manage clinical data appropriately, according to their clinical workgroup and staff position.

Application Security and Privacy

Components of Elysium Exchange serve as the bottom level of security in the system. The Elysium User Directory was designed to build on the strengths of the IBM Domino Directory. Accordingly, user authentication is still largely powered by the Domino engine; however there are more specific user role and access definitions that may be configured. These specific role configurations allow Elysium Exchange to provide a greater range of access levels to the system. The Elysium Exchange has also been designed to effectively utilize Domino's flexible document formats. Beyond ACLs, Elysium databases are configured such that each user may only see certain views, forms, fields, and documents based on user type. If necessary items are not defined on a user document, the system will compute not to display certain information or options in the U/I. This strengthens Elysium's ability to prevent unauthorized access to PHI by disabling the display of it. In the case of users who may require access to data without prior patient authorization (e.g. emergency users), customizable consent forms may be configured and presented to users. Although it may be easy to "click through" these forms, the confidentiality and legality warnings displayed should serve as a serious deterrent. By using these challenge forms, users are forced to question whether they are legitimately accessing PHI. If not, they are subject to audit and legal scrutiny.

Authentication and Authorization

Elysium Directory manages an exchange's user and workgroup registration, access rights, and security. Elysium Directories are nested within IBM Domino directories. IBM clients provide an interface for the administration of user accounts and access rights. Domino directories are LDAP compliant, so some Elysium Directory management is available via LDAP.

Elysium provides industry recognized standards for authentication and security. Because the application is web based, authentication must be established through the browser interface. Elysium utilizes the available authentication tools from the Domino platform, web browsers, and more, including session based authentication and SSL encryption. For web service authentication and security, WS-security policies are employed such as SAML, the X.509 token profile, XML encryption, and XML digital signature.

Elysium Directory provides an exchange with all the necessary tools to add and manage system users. System administrators can easily add users with a host of configuration options at their finger tips. These options determine what may be accessed, viewed, and modified by users, in addition to establishing some basic user preferences and demographic details. The various configuration options allow a great level of detail for user access roles and privileges. Beyond demographics, configuration options include system user type, available system add-ons (e.g., eRx, lab ordering), user's workgroup,

job category, prescription DEA and license numbers, user specialties, provider ID configurations, and more. With this diverse set of fields to define each user, administrators can grant a wide variety of access levels to the system according to each user's clinical role.

Within each configuration, users are assigned to a specific workgroup. For a typical end user, this workgroup consists of all users in a particular practice. As such, each user shares a practice specific database, allowing providers and staff to manage patient workflow easily and efficiently. It is important to note that practice workgroup information is cross referenced before patient summary data is displayed. In other words, patient summary data that is displayed may be practice specific unless consent has been otherwise set by the patient. This system prevents out-of-practice users from viewing clinical data to which they have no right. For web services, authentication and authorization security is provided by WS-security components such as SAML, the X.509 token profile, XML encryption, and XML digital signature.

The Elysium Exchange platform supports single sign on (SSO), and Axolotl has done some limited integration of external systems with Elysium Exchange through this technology. However, SSO integration has not been frequently requested by Axolotl clients, as the Elysium Exchange suite effectively allows users to access data without the need of multiple applications. This tends to eliminate the need for SSO integration. Should portal integration be required, users may be able to access Elysium EMR and other systems through an SSO based portal, without the requirement of multiple authentication entries. Elysium EMR is agnostic with regard to portal technology; it may be integrated with any portal that supports SSO.

Data Ownership

There are generally two methods for systems integration with Elysium Exchange. The first is through the Elysium Framework based SOA Platform Gateways (e.g., Elysium I Hub, Elysium PHR Gateway), which enable heterogeneous integration of third party applications and services. The second is through Elysium Distributed Gateway EdgeServers, which allow participant entities to interface with the exchange while maintaining ownership and stewardship of entity specific data.

As described above, the heart of the Elysium Exchange system is the Elysium SOA platform. This platform has been designed for heterogeneous application integration, and is built using industry leading middleware technologies. The platform offers a rich, standards based set of web services for application integration. The integrated applications, either custom developed or provided by third party vendors, can interoperate seamlessly with Elysium applications and modules such as Elysium EMR, VHR, patient index and clinical summary. The web services offered by the Elysium SOA platform are highly secure and designed to support high transaction loads. The web services are built using Java EE. They use an enterprise service bus for event-driven communication, and use SAML and WS-Security for authentication and authorization.

Alternatively, for major CDOs or large participant entities that require some level of federation and maintenance of data control, Elysium EdgeServers may be provided. Elysium EdgeServer manages the transformation and distribution of data from systems such as legacy hospitals, lab systems, radiology systems, payers, and other regional information exchanges to Elysium. Elysium EdgeServers reside between source systems and an exchange on logically separated servers. Key EdgeServer databases include a site and feed configuration database, an administration database, a log database, and a routing database.

Logging and Audit

Auditing services will be provided at a number of levels. Elysium Exchange is IHE ATNA profile compliant; all authentication, interface use, and data import/export is logged to Elysium internal logs or to Web service audit repositories. All audit data is easily exported for analysis and reporting. Audit logging is configurable, all events are auditable (login/logout, lockouts, records viewed, data accessed, web services use, etc.) and reporting tools are configurable to easily track event trails. Some of these audit services may be provided by tools internal to Elysium Exchange, such as the Elysium Usage Analyzer, described in detail below. For Web service audit, Elysium Exchange provides services to populate and query ARRs. Elysium may also provide ARRs for population and query from any authorized users.

Elysium Exchange can route de-identified/pseudo-anonymized data to interfaced systems, such as public health population surveillance systems. If necessary, the pseudo-anonymization can include identifiers that will enable appropriate users to link back to identified patient records.

Additionally, Elysium Usage Analyzer (EUA) provides usage, performance, access, and security reporting for activity within an exchange. Elysium Usage Analyzer exists as a Domino database. This database references server log files of all web activity on the server. The EUA pulls data for a configurable time range, sorts it, and displays it in a number of views for reporting and analysis. Because the EUA produces a comprehensive view of web server activity, it proves itself ideal for system performance analysis. The EUA retrieves all data related to user web requests. As such, administrators may easily break down user activities, the time it takes the system to receive web requests, and the time it takes the system to respond. This kind of data allows for detailed analysis of overall system performance, specific component performance, specific user performance, most common user activities, and more.

Beyond system performance, the EUA provides views and tools for user audit and investigation into the misuse of PHI. Administrators with appropriately configured security roles may access restricted views, configure and run security audits, and view audit reports to determine what information was accessed by which user. This information can then be relayed for HIE staff to address appropriately.

The audit tools provide the ability for users to both proactively and reactively report against audit information. If desired, audit reports may be run for up to the minute access of the system or specific data. As such, audit report data may be used to identify users who have consumed PHI.

There is some flexibility with regard to logging options for CRISP. Various system components support a variety of log levels, and system audit tools (e.g. Elysium Usage Analyzer) may be configured to only reference and pull specific log information.

Custom audit rules may easily be generated, as the reporting module for generating EUA audit reports is highly flexible.

The EUA does not currently include automated alerting for audit exceptions; however, the product may be enhanced to provide automated alerts to security administrators if required.

Consent Management

The Elysium Exchange platform provides a highly flexible and configurable patient consent module. The module supports the ability for users to request “break the glass” one time access, for patients to set consent to share data, and for patients to give consent to disclose records. The consent to share

data component is flexible, it can be configured to accommodate community wide sharing, or practice/user specific sharing. The consent to disclose records component enables patients to specify which records they want to submit to the HIE, and which they do not.

The way the system behaves based on known consent conditions is configurable. For example, if patients opts in, they may be opting in to share with the entire community, or they may have to specify practices and entities to share data with. The consent modules flexibility is also highlighted by the ability to configure the system to react differently based on unknown consent conditions. For example, if a patients consent is unknown, the system may automatically treat the consent as opt-in to automatically share with the community, opt-out to deny community access, or emergency only to allow community access if an emergency situation is declared. Flexibility may also be applied with regard to minor consent to share models. First, HIE administrators have to define the age range for "minors." Once a consumer reaches the configured "minor" range, the system will automatically reset the minor's consent to a configured setting for that age range (in this case, opt-out / do not share). HIE administrators may also define whether these consent settings may be edited for the minors, and by whom they may be edited.

These are just a few examples of how the Elysium Exchange consent module may be configured and deployed. The module is designed to be highly flexible to meet a very wide variety of regional, state, and federal consent requirements.

Existing consent status may be imported to the Elysium consent module through standard or proprietary interfaces, based on the capability of the system providing the consent status. Axolotl has had extensive experience deploying the consent management module at all Elysium Exchange deployment. The most in depth experience has been gained through work in the state of New York, where Axolotl provides a variety of consent management services to four separate regions of the state. Some of these regions, and NY state specifically, are known for employing some of the most complex consent models in the country. As New York and other clients propose new consent models required for patient privacy assurance, the Elysium Exchange consent module and HIE platform is modified accordingly.

Consumer Personal Health Record Authentication and Identity Management

Axolotl does not provide its own patient portal product, however, as with other health information systems, Elysium Exchange may interface with any standards based PHR system. Axolotl's philosophy is that with the emergence of PHRs supplied by health plans and employers, not to mention Google and Microsoft, it is highly unlikely a single vendor PHR solution will succeed. As such, similar to integration with any CCHIT or standards-based EMR, Axolotl is prepared to integrate with any suitable PHR.

It is imperative that some level of identity management and authentication services are built into the PHR or the portal that connects them so as to ensure any exchange of health data is assured to be by and for the patient purportedly using the PHR. Axolotl has partners that can be utilized to provide strong and/or two-factor authentication services at very reasonable prices. Axolotl has a current customer that is establishing third party PHR integration into an Elysium with two PHRs initially with plans to expand. This same customer has put up a Patient Portal website that enables the patients to submit their participation consents for data sharing as well as register a PHR if they are using it. Axolotl has also been involved in discussion with Google Health for deployment of Elysium-Google

Health integration in existing Elysium HIEs, and we anticipate a pilot HIE to begin exchanging data with Google Health in late 2011.

Elysium PHR Gateway is still under construction, but Axolotl imagines a wide range of data will be exchanged via this gateway. Information type being considered for PHR exchange include patient demographics, appointment information, consent details, patient results, patient medication information and refill requests, self reported data, uploaded data from home healthcare devices, and more.

Policy

Axolotl's solution allows for deep granularity in defining user access roles and privileges

The various configuration options of the Elysium Directory allow for a detailed level of definition for user access roles and privileges. Beyond demographics, configuration options include system user type, available system add-ons (ex: eRx, lab ordering), user's workgroup, job category, prescription DEA and license numbers, user specialties, provider ID configurations, and more. With this diverse set of fields to define each user, administrators can grant a wide variety of access levels to the system according to each user's clinical role.

Axolotl's solution provides a highly flexible and configurable patient consent module

The module supports the ability for users to request "break the glass" one time access, for patients to set consent to share data, and for patients to give consent to disclose records. The consent to share data component is flexible; it can be configured to accommodate community wide sharing, or practice/user specific sharing. The consent to disclose records component enables patients to specify which records they want to submit to the HIE, and which they do not.

Axolotl's solution includes comprehensive user audit for all access to the HIE

Elysium provides robust auditing capability for all access and use of the exchange across all types of users, both administrative and clinical. Inevitably, cases will exist where users may inappropriately access the HIE, despite hardware security and configurations in the Elysium User Directory. In these cases, the Elysium Usage Analyzer provides views and tools for user audit and investigation into misuse of PHI. Administrators with appropriately configured security roles may access restricted views, configure and run security audits, and view audit reports to determine what information was accessed by which user. This information can then be relayed for HIE staff to address appropriately.

Axolotl provides strict physical and network security for all exchange of data

Axolotl provides security of data in an exchange through a number of avenues. The physical locations, networks, platform, and application technologies that support Elysium Exchange provide ample security on all levels. First, there is physical machine security. Axolotl only hosts production Elysium Exchange servers in Tier 4 data centers that can pass the internationally recognized SAS 70-II standard requirements. This includes physical precautions such as HVAC units, fire retardant measures, strict host and guest authentication/sign in policies, and more.

All Axolotl hosted Elysium servers are installed behind multiple firewalls configured for high availability and minimal vulnerability. All servers are installed with the latest versions of Windows 2003 Server and Symantec Antivirus Corporate Edition. Operating system security and virus definition

updates are performed regularly. Beyond internal network protection, network transfer security is established. Secure network connections and protocols are responsible for the transfer of data outside the network. Web standards such as VPN tunnels, WANs, HTTPs, and SFTP greatly reduce the threat of third party interception of sensitive data. For web services, secure network transport is provided by WSsecurity components such as SAML, the X.509 token profile, XML encryption, and XML digital signature. To verify that these location and network security measures are effective, Axolotl regularly performs internal security audits and penetration testing, in addition to bringing in outside firms to perform full audits of the system.

Axolotl's solution ensures restricted access to data

In addition to security measures to block intruders from accessing the network or system, privacy from unauthorized users is provided by the Elysium User Directory, nested within the Lotus Domino Directory. The directory provides user role and user workgroup creation, configuration, and administration tools. When users access the system, configured roles and workgroups are cross checked against database Access Control Lists (ACLs). ACLs define the users that can access a database, the data that can be accessed by those users, and the actions that they can perform on that data. Through these tools, Elysium Exchange restricts users, such that they may only access, edit, and manage clinical data according to their clinical workgroup and / or staff position.

Axolotl offers an HIE Access Tool that allows clinicians to design workflows and policies based on the need of that particular clinician

The Elysium HIE Access Tool is a product that allows clinicians to design workflows and policies based on the needs of that particular clinician. Databases and functionality include clinical inboxes and disease reporting and rules engines. Add-ons include Elysium Ordering, Elysium Encounter Data Store, and Elysium Health Alerts. Off the shelf functionality includes components such as inbox management, clinical messaging, workflow management, referrals and consults, e-signature of documents, auto print and processing, patient summaries, and e-prescription writing.

Axolotl provides several levels of access solutions to ensure that providers have access to the exchange regardless of their current level of technology adoption

Axolotl has been in the HIE industry for many years and recognizes that to have a successful exchange with widespread use, an HIE must account for varying levels of participant technology. Axolotl offers access solutions for the full spectrum of users. Providers with EMRs may obtain information directly within their EMRs. For providers who would like to access the exchange electronically but have not yet implemented an EMR, Axolotl offers a cost-efficient HIE Access Tool product with customizable workflows and eRx. For providers who do not want an electronic system, Axolotl can configure the exchange to print or fax information to designated office spaces.

Axolotl has strong speed to value for deployment

Axolotl has brought over twenty successful HIEs live, and from these experiences they have developed an understanding of how to bring speed to value for an HIE. In the deployment plan presented to CRISP, Axolotl demonstrated a deep understanding of factors that will both increase speed to value and factors that are common barriers to implementation. Their methodology was proven, for example, in

Nebraska, where Axolotl recently enabled NeHII to ribbon cut the HIE for Omaha, their capital region medical trading area (MTA), within a matter of three months.

Axolotl has a service oriented architecture (SOA) platform that is proven in live deployments across the country

Axolotl's SOA approach enables third party development and customization of applications. Axolotl is deploying a strategy of making documented APIs available to all customers. This will help the statewide HIE ensure that we will not be restricted by a single vendor's product map or product vision. For example, the Rochester RHIO leveraged Axolotl's SOA platform to integrate information from the Monroe County Office for the Aging with the exchange.

Axolotl has strong standards support and compliance

Federally recognized groups such as IHE, HITSP, and CCHIT have created a number of profiles and standards that will be relied on to drive interoperability across domains. Axolotl has followed these committees and workgroups closely, and has made significant effort to adhere to standards while still meeting client and provider needs. As such, Axolotl has passed several IHE certifications key to interoperability and data exchange (PIX, PDQ, XDS.b, XCA, ATNA, ARR etc.), and has adapted traditional Elysium technology to be able to employ these profiles. Axolotl has demonstrated this technology at IHE Connectathons, HIMSS Interoperability Showcases, in the deployment of the SHIN-NY, and in the NHIN demonstrations. Axolotl participates yearly in IHE Connectathons, and has been consistently invited to take part in the HIMSS Interoperability Showcase that demonstrates this IHE technology.

Axolotl's technology has been proven in a good number of installations, including several statewide HIEs

In a recent KLAS report, Axolotl was a top vendor for number of installations. Axolotl is also the underlying technology for three statewide HIEs, which is more than any other vendor. The statewide HIE performed additional technical and financial due diligence both through internal company exploration and existing customer interaction.

Axolotl's technology has integrated tools for syndromic surveillance and public health reporting

Axolotl took a further step to enhance Elysium technology by integrating tools for syndromic surveillance and public health reporting. Through Elysium Registry and Reporter, authorized users can create and run reports across databases to detect clinical conditions and trends throughout the community (e.g. a diabetes report may be generated for all patients with relevant A1C results). Not only can the system scan and report on these conditions, but it may be configured to automatically alert appropriate community members in the event of any public health emergency.

The Health Record Bank and Personal Health Record Exception

Consumers have the option of exclusion from the statewide HIE for all other data transfer, while still allowing information to flow from an HRB to a health care provider. This feature of the statewide HIE is designed for consumers desiring more granularity than an all-out option. As consumer access applications become more available, user controls within those applications allow consumers to manage the flow of their personal health information within the statewide HIE, as long as those applications adhere to the technical and privacy standards established by the statewide HIE. When a

query is initiated, the transaction process flow includes a reference to consumer-defined configurations for access to health information. The patient has the ability to change those controls in real-time or near real-time to modify which providers have access to his or her information, what information they have access to, and the duration of access for a given provider. By creating an HRB account, consumers can opt-out of the full treatment, payment, and health care operations (TPO) exchange of their data and exercise greater control over what elements of their health records are shared through the statewide HIE.

The statewide HIE will allow PHRs, HRBs, and other consumer access applications to act as nodes on the statewide HIE, similar to any other provider participant. Consumer access will not be enabled in the early phases of the statewide HIE, but rather after early phase functionality has been deployed and is in use. In practice, this implies that PHRs/HRBs will adhere to similar IHE integration standards supporting the standardized transactions. The statewide HIE includes minimum integration standards that HRB vendors can build against and then engage the exchange to implement the product. These standards may leverage the IHE profiles, but may also look to deploy the XPRH IHE integration profile, the purpose of which is to support interoperability between PHR systems used by patients and the information systems used by healthcare providers. The statewide HIE will publish minimum authentication standards and will determine patient authentication to ensure the accurate delivery of patient records in HRB accounts in late 2011.

The statewide HIE will provide a consumer access portal into the HIE, similar to the provider portal, which will allow consumers to view their health information and exert control over how it flows through the system. Encouraging consumer engagement by offering a standardized consumer portal solution will act as a catalyst for broader adoption of consumer health management tools.

Electronic Health Records

The statewide HIE includes a provider portal solution that can act as a mechanism to drive the adoption of robust EHR solutions as the statewide HIE grows and its value is realized. The concept is that less intrusive HIT solutions, such as portal access to the exchange, can allow providers to participate and use external health information during patient treatment without having to deploy intensive EHR solutions locally or significantly to modify clinical workflows.

Underserved Populations

The statewide HIE will include communities facing health, and health care, disparities. The statewide HIE will engage safety net clinics, federally qualified health centers, and consumer advocacy groups. A number of safety net clinics, federally qualified health centers, and consumer advocacy groups are already involved in the statewide HIE efforts. The statewide HIE is currently working with the Summit Health Institute for Research and Education, Baltimore Medical System, Community Health Integrated Partners, and the Shepherd's Clinic.

Public Program Connectivity

The statewide HIE is working with Medicaid to connect the existing Medicaid Management Information System. It will also assist Medicaid in selecting technology compatible with the statewide HIE for the Medicaid Information Technology Architecture transformation. Assessment activity related to connecting with the VA, Department of Defense, and other state and federal agencies will take place around the end of 2010. Among other things, this includes having the Advisory Board perform an in-

depth evaluation of potential Use Case opportunities with these public agencies and to make recommendations to the Board of Directors on the prioritization. Efforts to connect Medicaid and the VA are expected to overlap. Public program connectivity to the statewide HIE is vital to improving health care quality, safety, and efficiency.

Discussions of public program connectivity have evolved and have produced a strategy to integrate data exchange capability between the statewide HIE and publically funded programs. Specific details regarding an implementation plan are expected to be developed in the 3rd quarter of 2011. System architectures from the core infrastructure vendor selected by the statewide HIE are expected to meet with representatives from public programs within the next six months to complete a system integration design that will support connectivity of these programs to the statewide HIE.

Credentialing

The statewide HIE with the assistance of legal counsel has developed a participation agreement that codifies the relationship with various participants. Providers interested in participating in the statewide HIE will have the ability to review the terms and conditions of the participation agreement on the statewide HIE's website. The participation agreement provides a mechanism for participants to acknowledge their understanding of the terms and conditions for participating in the statewide HIE. Providers interested in connecting to the statewide HIE are required to have a participation agreement on record with the statewide HIE before access to the HIE will be granted. A valid participation agreement requires the signature of an officer at the provider organization and the President of the statewide HIE. All participation agreements are maintained on-site by the statewide HIE and are included in the annual operational audit. It is the responsibility of each participating provider to ensure that employees of their organization with access to the statewide HIE have been appropriately credentialed. This approach avoids the statewide HIE from having to credential every individual provider and employee accessing the statewide HIE. Consumers are credentialed directly by the care provider at the point of care.

Analytics/Reporting

Public Health, Care Management, and Quality Improvement

The public health opportunities associated with the statewide HIE are immense. Databases of anonymized health information can create powerful quality improvement initiatives aimed at identifying best practices, defining evidence-based practices, and developing care management plans. The concerns related to privacy are of comparable significance. Some public health needs also do not require immediate or any reference of having to trace back to a particular individual.

Many providers in Maryland are already required to submit multiple files for secondary uses by public health officials for monitoring and reporting purposes. The statewide HIE will serve as a conduit to facilitate this existing reporting requirement, easing the burden on the provider community. However, the standards for identified, de-identified, or anonymized data will be clearly defined by the Policy Board, communicated accurately, and understood widely when health information is used for these purposes.

The MHCC and the statewide HIE have had a series of discussions with DHMH over the last eight months regarding integrating Maryland's Immunization Registry, known as ImmunNet, into the statewide HIE. DHMH is considering utilizing the statewide HIE as a utility for maintaining the

immunization registry. A decision regarding an immunization Use Case is expected later in 2010. The MHCC and the statewide HIE are expecting to be an active participant in the Maryland Medical Assistance Program's MITA redesign effort. While the statewide HIE will not serve as a data repository for the Medicaid program, it will serve as the utility by which the data will flow. During the 2010 legislative session a bill failed to pass that would require the statewide HIE to establish a prescription drug monitoring program that would rely on the statewide HIE as a repository for prescription drug information. The legislature has requested that the MHCC, in consultation with the statewide HIE and DHMH, evaluate the ability of the statewide HIE to serve as an efficient repository for prescription drug data and make recommendations back to the legislature in the 2011 session.

Other Secondary Use Opportunities

The statewide HIE will use secondary data, as approved by the Policy Board, to provide clear societal benefits and benefits to various local, state, and national public health agencies for the purposes of early identification of communicable diseases and acute or long-term population health threats. The communications between the appropriate parties during such public health events, as well as on-going and real-time monitoring of public health threats, are vital functions of a mature statewide HIE. The mechanism that will be implemented for collecting and analyzing health data from the HIE will enable public-health professionals to analyze and respond in real-time, which will significantly improve the responsiveness and efficacy of public-health risk remediation and response.

Technology Deployment

The deployment of the statewide HIE is planned incrementally to ensure that the HIE meets the requirements of meaningful use. This incremental strategy is rooted in the knowledge that moving too quickly in an environment as nascent as the HIE field could lead to unintended consequences for the statewide HIE and the HIE participants. In July 2010, Governor Martin O'Malley, Lieutenant Governor Anthony Brown, and Secretary of the Department of Health and Mental Hygiene John Colmers, along with the MHCC, convened a *Health Information Technology Forum* (Forum) at Sinai Hospital in Baltimore with the hospital Chief Executive Officers (CEOs) and other senior level executives from Maryland's acute care hospitals. In attendance at the Forum were elected officials, media, and more than 200 hospital representatives. State leaders stressed the value of the HIE and the significance of sharing information between places of care and coordinating efforts across different providers. They also discussed how electronic health information will become even more important in an era of personalized medicine and accountable care. The Governor, Lieutenant Governor, and Secretary encouraged the CEOs to sign a Letter of Intent (LOI) conveying their hospital's intent in connecting to the statewide HIE. The statewide HIE received a signed LOI from each of the acute care hospitals in September 2010. Hospitals selected one of four timeframes for connecting (see Table 2 for the *Timeframes Specified by Hospitals for Connecting to the HIE*).

Table 7: Timeframes Specified by Hospitals for Connecting to the HIE

Timeframe for HIE Connectivity	Percent of Hospitals
Early (6 months)	38
Mainstream (6-12 months)	23
Deferred (12-18 months)	22
Late (18-24 months)	17

Service Oriented Architecture

The statewide HIE embraces a SOA approach, which is necessary for the long-term viability of the HIE. The statewide HIE infrastructure is comprised of numerous services that will run on an enterprise service layer and enable the core functions of the HIE. By incorporating an SOA approach into the design, the statewide HIE will ensure that the exchange takes advantage of developing and advancing services and not rely upon a single service provider for all services. They include:

- Master Patient Indexing;
- Provider Identity Management Services;
- Registry Services;
- Repository Services;
- Authentication Services;
- Audit Services;
- Nomenclature Normalization Services;
- Consent/Authorization Management Services; and
- Network Monitoring Services.

Locating and Retrieving Records

Reading the Master Patient Index

When a participant in the statewide HIE is attempting to locate a patient in the HIE, that participant will send a request to the MPI PIX manager by submitting a standardized PIX Query. The PIX Query transaction carries the local medical record number (MRN) and locates that MRN within the PIX manager. Once found, the PIX Manager, as the name suggests, cross-references the submitted MRN with the other record numbers that have been associated with that MRN when the original PIX feeds were submitted to the exchange. Providers also have the ability to query the statewide HIE using demographic information for those patient encounters for which no MRN has previously been established or communicated with the PIX manager for cross-referencing. The Patient Demographic Query transaction will allow basic patient demographic information to be submitted to the MPI for patient location by leveraging statistical matching.

Locating Clinical Information

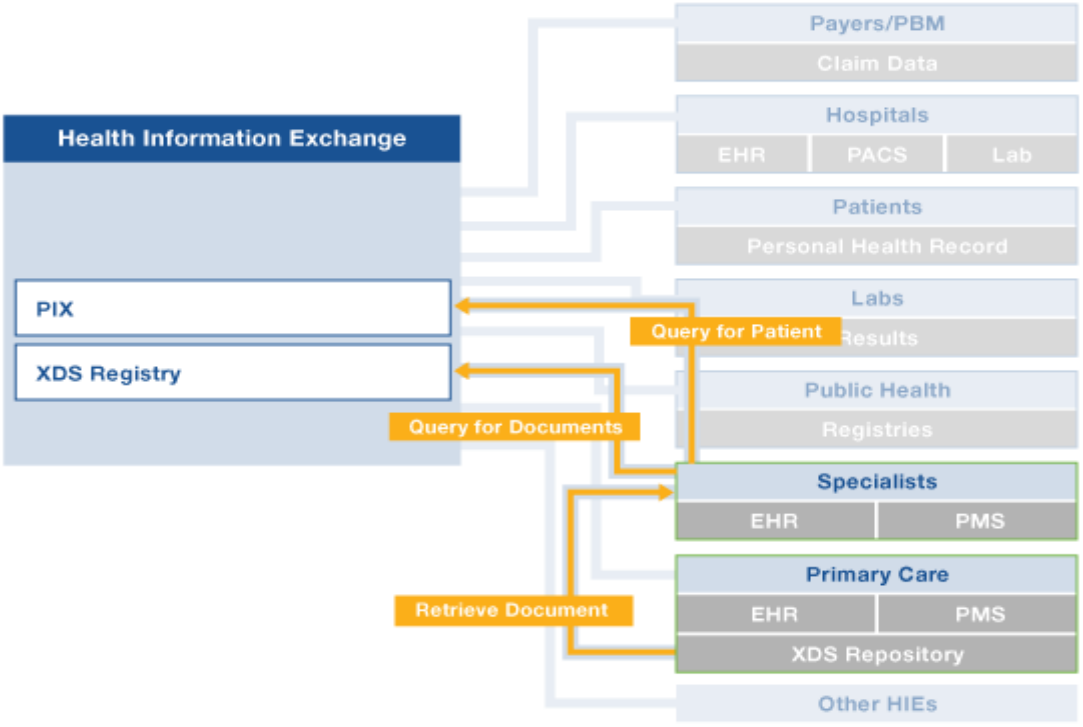
After successfully locating the patient, a transaction will be executed to locate records for that patient within the centralized Registry. Data housed in the Registry is not clinical data and is only metadata about the location and type of information available on edge devices and other repositories connected to the statewide HIE. Information in the Registry will then be presented to the provider as a list of clinical documents available in the statewide HIE, or normalized and compiled into a single clinical summary. The list of documents presented to the provider is dependent upon the access rights defined for that provider within the statewide HIE. Data will be presented to the provider as a list, but other data delivery options exist.

Retrieving Clinical Information from the Exchange

Following the initial PIX Query and the subsequent query and response of the statewide HIE Registry, the provider will have the option to select a document from the Registry that they wish to exchange, again dependent upon their access rights to view that document. When a provider selects a document from the Registry list, a Retrieve Document transaction will be initiated that will send a request to the edge device storing the clinical information. When the request is accepted, that clinical document will be presented to the requesting provider.

This process for the retrieval of clinical information implies a pause in the location of patient records at the exchange Registry level for review of available documents. However, scenarios exist whereby a provider may prefer to receive core clinical data about a patient without the additional workflow of selecting clinical documents from a list of all available documents. In this scenario, the statewide HIE will identify, locate, and deliver a core document, defined by the document type, to be delivered to the requesting provider.

Figure 16: HIE Process for Retrieval of Clinical Information



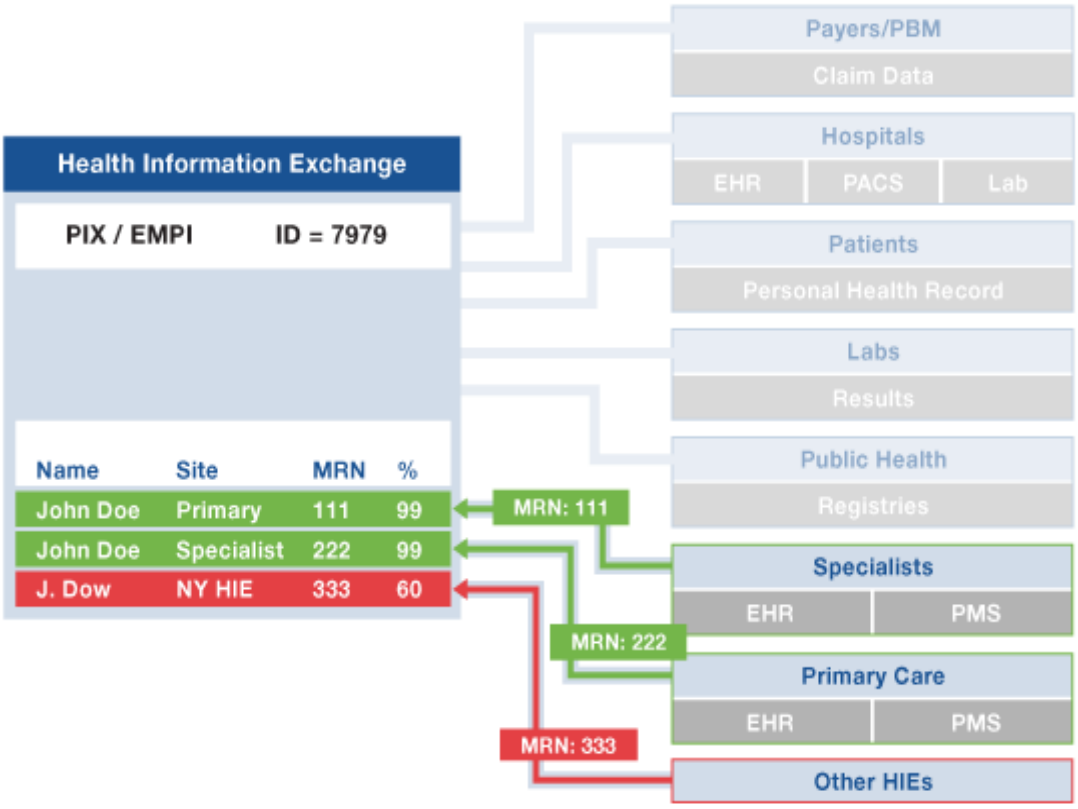
Master Patient Indexing

The statewide HIE will deploy the IHE PIX approach to patient matching to minimize both false positives and false negatives. The PIX manager is a layer on an MPI that is operated within the exchange and each record in the PIX contains cross references to the MRN located at participating institutions, which translates the MRN of one provider to the MRN of another provider. The initial link between a provider MRN and an existing PIX record is accomplished through statistical matching. Errors are mitigated through probabilistic or deterministic matching. This approach is similar to deploying a record locator service; however, it leverages an independent MPI and independent Registry to separate the functions in pursuit of an SOA approach.

The early statewide HIE Use Cases require that a supplier/sender will need to feed their MPI into the PIX, and receiving/consuming providers can send demographic data to the statewide HIE to be matched probabilistically to the MPIs of data suppliers/senders to obtain available data. The MPI will run algorithms against the existing demographic information to preprocess the database to determine the frequency of every attribute and will score the match according to the discriminating ability of the specific attributes of that database. The limits of acceptance and rejection will be tailored to the size of the population and the risk tolerance of both false negative and false positives.

The diagram below illustrates an HIE participant submitting a standardized patient identity feed to populate the centralized MPI. Based on a centrally defined set of non-clinical patient information, a standard message will be sent to the central exchange MPI. If the subject patient already exists, the inbound transaction will be cross-referenced with the new record.

Figure 17: HIE Process for Retrieval of MPI



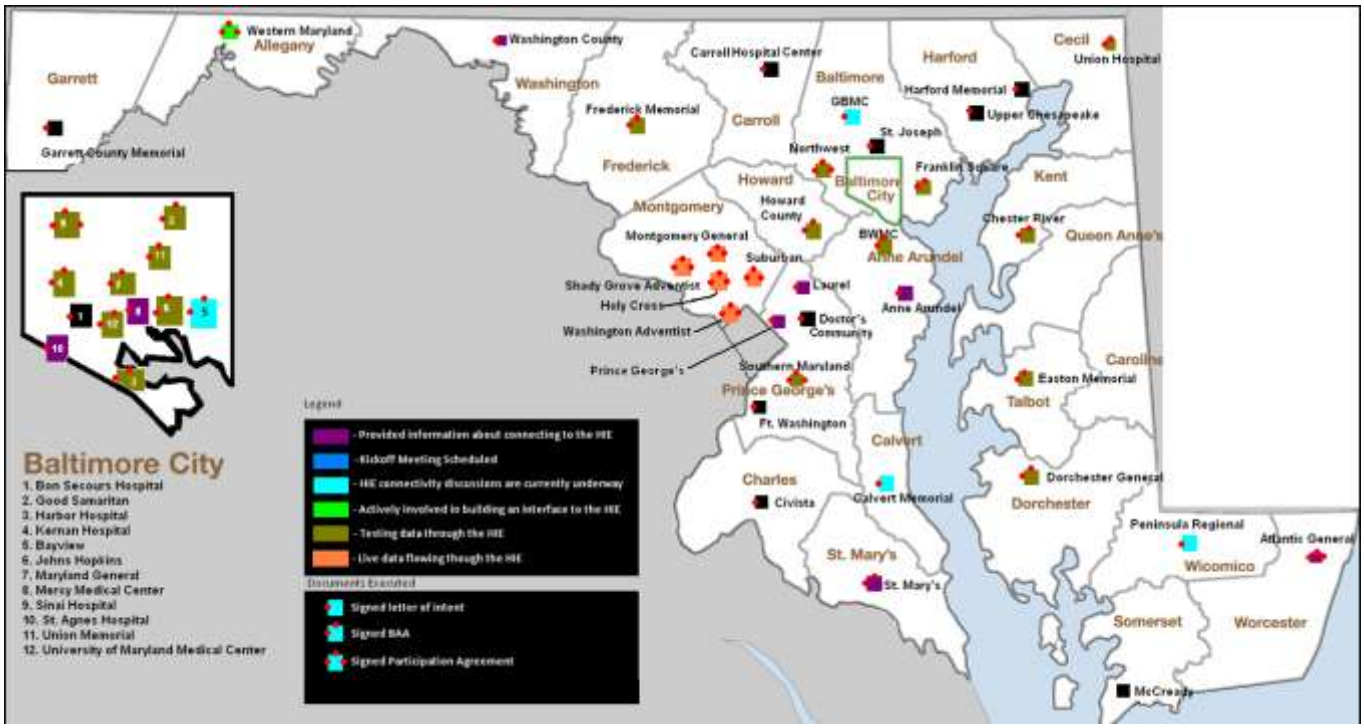
Business and Technical Operations

Current HIE Capacities

Approximately 45 percent of Maryland's acute care hospitals reported in 2009 as having initiatives underway to share limited patient information electronically with providers outside the hospital.[16] In an effort to increase efficiency and quality of care, hospitals are implementing data sharing initiatives unique to their geographic area although consistent with existing standards and statewide policy. These hospitals will function as a single node on the statewide HIE and will manage connectivity with providers in their service area. Five hospital have connected to the statewide HIE and are providing data, with about 18 are currently in the testing phase. Figure 18 illustrates hospitals' state of engagement with the statewide HIE. Connectivity depends largely on the readiness of each hospital. The statewide HIE will continue to assess hospital readiness for connecting to the HIE and, based on Use Cases, establishing connectivity with one hospital at a time.

[16] Maryland Health Care Commission, *Health Information Technology: An Assessment of Maryland Hospitals*, August 2010. Available at: http://mhcc.maryland.gov/electronichealth/2010_hospital_hit_report.pdf.

Figure 18 - HIE Participation



State-Level Shared Services and Repositories

The statewide HIE's Advisory Board will explore opportunities for shared services and repositories with acute care hospitals that exchange some limited electronic patient information in their service area. These services include, but are not limited to: Patient Locator Service, Data/Document Locator Service, and Terminology Service. Over time, other services may be developed that comply with the standards and certification criteria adopted by HHS in an effort to expand participation in HIE. Currently, data sharing initiatives of acute hospitals is fairly limited. The Advisory Board's Exchange Technology Committee will work with acute care hospitals to identify opportunities for leveraging services from the statewide HIE. The Exchange Technology Committee is also expected to work with Medicaid as they move forward with implementing MITA. Coordination with Medicaid will eliminate redundancies in technology implementation and ensure that technology implemented by the statewide HIE is appropriately deployed. The MHCC is currently in discussion with Medicaid as they continue to plan for MITA implementation.

Standard Operating Procedures for Statewide HIE

HIE services are defined by Use Cases, which are services that provide benefits to patients, providers, and other stakeholders. Ultimately, the selection and prioritization of Use Cases is largely market driven. Market assessment by the Advisory Board's Clinical Excellence and Exchange Services Committee is ongoing. The statewide HIE website is one source for stakeholders to recommend Use Cases. The Board of Directors has the final decision on the implementation of new Use Cases. The Board of Directors will consider the Use Case recommendations from the Advisory Board's Clinical Excellence and Exchange Services Committee. Those approved will be forwarded to the staff of the

statewide HIE to operationalize the Use Case. Prioritization will be based on existing workflows, resources, and potential revenue.

Human Capital

The statewide HIE has retained three full-time employees to manage the operations and implementation of the exchange. Systems integrators and management agreements are being used to provide the bulk of the statewide HIE's capacity in the first two years. In the following years, the statewide HIE will transition towards full-time employees based upon business needs. This approach will enable the statewide HIE to assess human capital needs within the organization to ensure appropriate resources to meet business requirements.

The statewide HIE expects to transition from a contractual labor model to a permanent staffing model based upon the work requirements and available revenue. Today, the implementation process is occurring based on a model that includes specific scope of work activities. Consultants are deployed based upon the work requirements in the existing scope of work. The decision to use contractual labor has been one that centers around work volume and costs. To hire FTEs to complete the current work effort would cost considerably more money than using consultants on a discretionary basis. The core infrastructure vendor selected for the HIE will provide input to determine the appropriate time when to retain FTEs in the PMO. The statewide HIE will only transition to an FTE when the scope of work demand meets or exceeds at least 173 hours per month, which is the work time required for an FTE. This work demand will be assessed on a monthly basis and the position transition will occur when this need is sustained for a minimum of 90 days. The MHCC and the statewide HIE have evaluated the risks and trade-offs associated with using contractual labor as opposed to hiring FTEs. This approach ensures that the statewide HIE will not unnecessarily hire individuals where the work efforts do not support this decision.

Project Plan Risk Assessment and Mitigation

Approach

In an effort to accurately assess the impact of systems on systems, the statewide HIE will evaluate performance through a technique known as systems thinking. Data suggests that complex initiatives are better managed by the application of systems thinking. This will enable the statewide HIE to seek out new and diverse perspectives when solving problems in a manner that considers complexity, environmental influences, policy, change, and uncertainty.

Systems thinking will be used to self-evaluate the statewide HIE to determine an appropriate measurement of success with regard to implementation. As a strategic simulation tool, systems thinking evolved from a variety of tools aimed at mapping and modeling the global interaction of processes, information feedback, and policies across sectors. Viewing the statewide HIE from a very broad perspective that includes structures, patterns, and events, rather than limiting the assessment to just the events, allows for rapid detection and identification on the true cause of any issue and helps in determining specific areas that need attention to address these issues. The evaluation process will focus on input, processes, outputs, and outcomes pertaining to the implementation of the statewide HIE, and analyze select activities relating to the implementation and interdependencies of the statewide HIE. Data collected will be used to balance the processes that control change and help maintain stability.

Tools

The statewide HIE will use a number of systems thinking design tools in conducting ongoing evaluations of the HIE. These tools will increase the understanding and analyses of the statewide HIE and the conditions that create or affect the interdependencies. A combination of these tools will accurately depict a particular system or core system to the infrastructure of the statewide HIE. Key assessment tools include:

- Causal loop diagrams;
- Behavior-over-time graphs;
- Systems archetypes; and
- Flow diagrams.

Techniques

Systems thinking will be applied to each Use Case during the implementation phase and as appropriate on an ongoing basis. The statewide HIE will evaluate each Use Case prior to deployment and then monitor and assess the progress of implementation from a technical and operational perspective. The Advisory Board develops any process modifications that are identified from the analysis. The statewide HIE will maintain all systems thinking evaluations as a permanent record, and is subject to annual audits by an independent reviewer. The statewide HIE is required to report on its self-evaluation activity to the MHCC.

Risk Management

The statewide HIE is responsible for developing risk management and contingency plans. The committees of the Advisory Board are active participants in identify risks and ways to mitigate the risks. The Board of Directors is ultimately accountable for the integrity and success of the risk mitigation plans.

Vendor Risk Management

Business Operations

Risk: The use of contractors poses challenges related to meeting the milestones of the State Plan.

Mitigation: The statewide HIE has three FTE positions and relies upon contractors to meet its deliverables. The contractors are required to provide the statewide HIE with a Scope of Work document that identifies the deliverables due from the contractor and are required to meet with the President of the statewide HIE on a weekly basis to ensure completion of the work. The contractor providing human capital support is a Maryland-based minority business and located within the same county as the offices of the statewide HIE. The organization supporting the statewide HIE continues to express their eagerness to be a part of this process and contracting organization has a stable workforce with minimal turnover.

Contingency Planning

Risk: Disruption in the statewide HIE's ability to meet its deliverables in the event of a severed relationship with the supporting contractor(s).

Mitigation: The statewide HIE has identified a working relationship with a competing human capital consulting organization local to the Maryland market. Representatives from this organization participate on voluntary basis on a number of planning and implementation activities. This consulting organization currently has the technical and policy development staff that could easily resume the business operations of the statewide HIE should any disruption occur in the existing relationships.

Vendor Oversight

Risk: Improper oversight of contractors could negatively impact the workflow and build out of the statewide HIE.

Mitigation: The Project Management Office (PMO) Director of the statewide HIE will manage vendor relations. The PMO Director reports to the President and is responsible for implementing the HIE technology and leading various project teams to ensure effective and efficient roll out of Use Cases. The PMO Director is responsible for monitoring the projects and preparing reports that track the performance of the statewide HIE.

Participant Risk Management

Participation

Risk: Unpredictable demand for services from the statewide HIE.

Mitigation: Services of the statewide HIE will be regionally deployed and clustered by location around the state. The work of the Regional Extension Center is structured to target high concentration medical trading areas. The statewide HIE has established a plan to work with The Maryland State Medical Society to leverage their support in getting providers to participate in the statewide HIE. In addition, Maryland passed House Bill 706, *Electronic Health Records – Regulation and Reimbursement*, during the 2009 legislative session that will incent providers to adopt EHRs and participate in the statewide HIE.

Health System Implementation

Risk: Uncertainty as to the period of time that the health systems will connect to the statewide HIE.

Mitigation: The effective exchange of electronic health information largely depends on the three academic health systems participating in the statewide HIE. These health systems constitute approximately 30 percent of all hospitals in Maryland and are associated with roughly 50 percent of the physicians that would be participating in the HIE. All three health systems have signed letters of intent to be early adopters of HIE services. Most hospitals within these systems are either live or in the testing phase with the statewide HIE.

Payers Participation

Risk: Payers may delay implementation due to concerns over value and services.

Mitigation: Approximately two payers in the state have about 90 percent of the privately insured market. The statewide HIE, in consultation with the MHCC, has met on several occasions with the leadership of these two payers to keep them informed of the work activity and encourage participation in the statewide HIE. Presently, both payers are represented on the Advisory Board of the statewide HIE.

Technical Risk Management

Technology Deployment

Risk: Staggered implementation of component technology may impact the overall functionality of the statewide HIE.

Mitigation: Identifying technology partners and resolving issues related to functionality and contracting are critical in keeping with the established timeline. As a hybrid model health information exchange, the system is build using components from different vendors. Adhering closely to the timeline is critical to ensuring that services are deployed as scheduled. The statewide HIE is monitoring vendor activities and limits the time potential vendor solutions have to overview products, address questions, and complete contract negotiations.

Policy Implementation

Risk: The ability of the technology to support policies developed by the MHCC convened Policy Board.

Mitigation: Policies developed by the Policy Board will impact on the technology capabilities of the statewide HIE. The statewide health information exchange is required to implement policies from the Policy Board. The statewide HIE holds and ex-officio membership on the Policy Board and provides expertise regarding technology barriers to policy implementation. The Policy Board may recommend that the MHCC require the statewide HIE explore advanced technology solutions to allow for specific policy requirements. The Policy Board has adopted one such resolution which centers on increased patient control over their health information.

Sustaining the Functionality of the Core infrastructure

Risk: Disruption in services due to a hybrid model, resources, and increased utilization.

Mitigation: Maintaining the functionality of the system as additional components are added to the system and as new providers begin to participate with the statewide HIE can have an impact on the ability to adequately maintain network availability and reliability, and recover quickly from any unforeseen disruption to the system. The operational plan anticipates growth in services and in capacity. The statewide health information exchange will monitor capacity on a monthly basis to determine if additional technology and human resources are needed to sustain the core infrastructure. The technical staff of the core infrastructure that is being deployed will also monitor capacity and assist in capacity planning and evaluation.

User Education

Risk: Improperly trained users can create system disruptions and breaches.

Mitigation: Every new user that participates with the statewide HIE will require authorization, authentication, education, and technical support. The statewide HIE's Outreach Coordinator is responsible for ensuring that large provider groups with more than ten providers follow specific training guidelines for instructing users of the system on best practices. For practices with less than ten providers, the Outreach Coordinator will conduct an on-site visit to train users how to access the system.

Integrating Community Data Sharing Initiatives

Risk: Community data sharing initiatives may not see the benefit in participating with the statewide HIE.

Mitigation: Leadership from the statewide HIE and the MHCC routinely meet with hospital CIOs to discuss the value of participating in the statewide HIE and technology requirements to connect to the exchange. Providing CIOs with critical information regarding connectivity and their participation prior to implementing the statewide HIE helps the hospitals align their technology deployment plans with the State Plan.

Financial Risk Management

Sustainability

Risk: Improperly setting user participation fees at a threshold where providers are willing to pay for value.

Mitigation: The statewide HIE's Finance Committee of the Advisory Board is charged with identifying the appropriate costs of HIE services. The work of this group includes provider surveys and the review of national efforts to determine price points for services provided by the statewide HIE. The statewide HIE has recommended that fees for services be dispersed among participants of the statewide HIE, with approximate 80% for hospitals and integrated delivery networks and 20% for physician offices, labs, and other providers. This distribution is a reflection of the key roles that hospitals and integrated delivery networks play as the most technologically advanced participating, provider organizations as well as a reflection of the incentive payments that will be made to hospitals and physician offices for meaningful user of health information technology under the HITECH Act. The statewide HIE has also recommended a hospital cost sharing model based on an average of the share of each hospital's acute care admissions and share of normalized operating revenues in the state. Initial funding received through the unique all-payor-rate-setting system will help offset participant costs during the first couple of years of operation. This is in an effort to ensure pricing stability and incent participation in the early years of the statewide HIE. Thus, the statewide HIE has recommended that annual fees for hospitals be incrementally increased: zero in year one, 35 percent in year two, 65 percent in year three, and 100 percent in subsequent years.

Cost Containment

Risk: Improper pricing of services in comparison of value and the cost of the services could negatively impact participation, thus increasing costs to those that are participating.

Mitigation: The Finance Committee of the statewide HIE's Advisory Board is tasked with developing unit costs for each service provided by the statewide HIE. The evaluation includes

assessing CPU usage, human capital, and potential support from technology partners. Each service will have the base amount as well as a fee required by the provider type to manage cost in the most appropriate manner. The outcome of this process is used in determining a standard user fee for participation in the statewide HIE.

Legal Risk Management

Participant Agreement

Risk: Developing a participant agreement that is enormously complex or too simplistic to appropriately address participant requirements.

Mitigation: The statewide HIE has engaged an outside legal resource to modify the DURSA. The legal counsel will seek feedback from the provider community in the modifications proposed to the DURSA. The Advisory Board, the Board of Directors, and the MHCC Policy Board will review and approve the final document for use by the statewide HIE. Providers will not be permitted to modify the document once it has been finalized.

Liability Insurance

Risk: Insufficient insurance to cover risks associated with potential civil suits that could emerge as a result of sharing electronic health information.

Mitigation: The statewide HIE recognizes the risks associated with exchanging electronic health information. The statewide HIE has retained liability insurance to counter any litigation that could materialize. Feedback from the Board of Directors and outside legal counsel will routinely be sought to ensure adequate liability coverage of the organization and its' officers.

Competitive Risk Management

Community Data Sharing Initiatives

Risk: Acute care hospitals may choose to implement community sharing initiatives in their service area and bypass the statewide HIE.

Mitigation: Engaging the hospitals early in their technology planning processes will help ensure that independent efforts to connect physicians to hospitals will not affect the community from participating in the statewide HIE. The statewide HIE has worked with all of the hospitals and obtained letters of intent to participate with the statewide HIE. The MHCC has proposed state legislation that will require revision in state law to define an HIE and qualified HIEs and requires HIEs that are not commonly-owned, such as hospitals or health systems, to adhere to the exchange policies adopted by the MHCC. These proposed changes to state law will ensure the privacy and security of health information and decrease the likelihood of unreliable community sharing initiatives entering the market.

Payers establishing their own HIE

Risk: Payers may choose to implement data sharing initiatives for their provider network.

Mitigation: The statewide HIE continues to engage Maryland payers in the design and service deployment of the statewide HIE. The goal is to identify the value for payers by participating in the exchange and implementing select services (i.e., electronic claims, eligibility verification, etc.) in the early stages to keep payers engaged in developing a statewide HIE. The proposed legislation mentioned above will also be a potential mitigating factor.

Legal/Policy

Establish Requirements

The statewide HIE has retained Ober|Kaler, a Baltimore-based legal firm, with expertise in health care law and specializing in HIT and HIE matters. Legal counsel has been retained to ensure compliance with all applicable federal and state legal and policy requirements. Thus far, legal counsel has assisted in the development of participation agreements for the statewide HIE and has been instrumental in the Privacy and Community Interaction workgroup for one of the multi-stakeholder groups' HIE planning projects. Expert legal counsel has also provided substantial services to the Board of Directors of the statewide HIE. The Chair and the Secretary of the statewide HIE Board of Directors both bring a health care oriented legal background to the leadership team. Ober|Kaler reviewed the statewide HIE's work and provided guidance to the Board of Directors as it relates to compliance with HIPAA and MCMRA.

The input of legal counsel shapes the evolving policy regarding secure HIE consistent with existing laws. The statewide HIE recognizes that the regulatory environment in which the HIE operates will be significantly changed as the various HIPAA amendments and new requirements of the HITECH Act section of ARRA become effective. The statewide HIE's legal counsel has reviewed those requirements and assessed them on a high level basis and is confident that, directly and through appropriate vendor selection, the statewide HIE will be in compliance. Other requirements, such as the need to support accounting for disclosures on behalf of TPOs for a rolling three year period, will not be required for several years and the statewide HIE will ensure that selected vendors can support these requirements.

Legal counsel views HIPAA and the MCMRA as consistent with, and in fact supportive of, the type of HIE that Maryland intends to implement. Both Acts support the transfer of more data earlier in the life of the exchange, for treatment purposes at least, which could lead to greater adoption of both EHRs and in entity participation in the HIE due to the fact that one measure of the value of the statewide HIE will be the amount of data available. The growth rate will accelerate as more data becomes available, and an opt-out policy fosters use of the HIE.

Opt-Out as the Baseline Consent Process

The statewide HIE will function on an opt-out principle only. Basic demographic information such as name, gender, address, and birth date will be transmitted, captured, and stored in secure computers owned or contracted for use by the statewide HIE. A separate Registry database, which is a core component of the HIE technology, will house the information or metadata that identifies what type of health information about a particular patient exists in the exchange and where that information can be found. Technical and privacy justifications require separate MPI and Registry databases as compared to keeping all patient identifying and record locating information in one database. A consumer's health information will remain with the participating entities and the statewide HIE will only serve as the roadmap and transport mechanism to find and retrieve records.

The statewide HIE will allow consumers the right to opt-out of the HIE at the point of care, through a web-based portal connected to the statewide HIE, via fax, or via phone. When the consumer opts out they will complete a consent form which indicates their preference to disallow their information to be exchanged through the statewide HIE. The statewide HIE will confirm a consumer's choice to opt out by providing a written confirmation letter. .

Providers will not have the ability to access patient information, other than clinical results order and delivery, if the consumer elects to opt-out. However, as mentioned above, some demographic data will be transmitted and stored in the MPI hosted by the HIE, which is necessary in the event that the consumer elects to opt-in to the statewide HIE at a later date. The statewide HIE will inform consumers of their right to participate through an intensive public awareness campaign. The Policy Board has adopted a *Consumer Choice* policy that details policy provisions specific to the responsibilities of the statewide HIE as it relates to a consumer's choice in allowing their PHI to be made available through the statewide HIE. See Appendix D for the *Consumer Choice* policy.

Privacy and Security Harmonization

Working with legal counsel, the statewide HIE will harmonize privacy and security requirements and compliance across Maryland and its bordering states relative to access, audit, authentication, and authorization. Harmonization of privacy and security requirements will be addressed through convening meetings with bordering states. These policies specify how participants in the statewide HIE are defined as individual users of the system; how the usage of the system is governed; how users are accurately and appropriately identified; and how records of that usage are captured, stored, and used for various audit purposes. Statewide policy development will initially focus on the four A's of HIPAA (access, audit, authentication, and authorization).

Access

The statewide HIE will use role-based access to allow participating entities to control access levels for the various resources within their organizations. Providers who currently utilize health information systems will likely have experience with assigning roles that dictate access level. In considering how role-based identity management is controlled, the statewide HIE must determine what entity defines those roles. Varying levels of identity management complexities exist, dependent upon whether participants access the statewide HIE through local integrated systems or through a specific client or web-based application.

The inclusion of an additional application, usernames, and passwords into a participating entity's operations imposes a number of challenges; however, the statewide HIE intends to pursue this approach because it is more realistic for near term clinical data exchange. Role types will be established and assigned because the statewide HIE will offer a physician portal to access the HIE. Administrators of the statewide HIE will have privileges to the appropriate user within participating entities who will then have the ability to assign usernames and passwords to individuals within that entity.

Participants will enter into participation agreements that are developed by the governance, approved by legal counsel, with a consistent approach to role assignment in order for the exchange to be successful. The Advisory Board will define the assignment of roles and access protocols in a common statewide HIE policy guide and codify that definition in a contractual agreement allowing for the trust that is a prerequisite for clinical data exchange.

The Policy Board has adopted the *Participating Organization Access* policy that describes the statewide HIE's responsibilities as it relates to allowing participating organizations the ability to access information through the statewide HIE. See Appendix D for the *Participating Organization Access* policy.

Audit

Audit logs will be stored centrally at the statewide HIE level and will include detailed information about the type of data accessed, by whom, and when, but will not store the actual health information in the audit log. The statewide HIE includes providers that vary in size and have different audit and logging capabilities, the statewide HIE will avoid specific or complex audit requirements at the participant level and account for transactions flowing through the HIE in a centralized auditing log. The statewide HIE will conduct random auditing of logs based on specific rules that trigger audit events, including:

- Audits of all VIP records;
- Procedures for follow-ups on suspicious activity, such as indications of possible privacy or security breaches;
- Review of network intrusion detection system activity logs;
- Review of system administrator authorizations and activities;
- Review of physical access to data centers; and
- Review of other technical, physical, and administrative safeguards as established by the policies of the HIE.

Audit policies will include system event and mechanisms to disseminate incident reports and breach notifications. The Policy Board will define accountability actions to handle breaches, investigate complaints, and provide resolution or enforcement activities when such incidents occur. The Policy Board anticipates approving an audit policy in early 2011. The Board of Directors will develop sanctions for any participant violating appropriate use of data.

The statewide HIE will at a minimum conduct annual penetration testing to exploit the vulnerabilities to determine whether unauthorized access or other malicious activity is possible. Penetration testing will include all applications, controls, and processes within the statewide HIE. Penetration testing will occur from both outside and inside the statewide HIE.

Authorization

The granularity that the Policy Board deems appropriate is a balance between complexity, usability, and administrative overhead of the exchange and will be arrived at in consultation with the statewide HIE participants. The statewide HIE will enable providers to view and save data for the purposes of treatment. The statewide HIE will verify which functions a user is authorized to perform. Authorization can range from the ability to view, contribute, and save data. These functions could be as simple as distinguishing between the ability to view data or view and contribute data, or they may involve more complex functions such as defining to the ability to see specific types of data and filtering various health data elements.

The Policy Board has adopted the *Authorization* policy that describes responsibility of the statewide HIE to define the requirements for establishing user access, and ensuring that users are properly authenticated. See Appendix D for the *Authorization* policy.

Authentication

A username and strong password will be the basis of authentication for access to the statewide HIE. When accessing the statewide HIE through a web-based application, participants will be required to have additional security measures deployed. The Policy Board has adopted the *Authentication* policy that describes the statewide HIE's responsibilities as it relates to authenticating users to the HIE. See Appendix D for the *Authentication* policy.

Federal Requirements

The statewide HIE anticipates exchanging health information with federal care delivery organizations. Discussions with the VA Maryland Health Care System are scheduled to occur during the fourth quarter of 2010. Planning meetings with representatives with the Maryland VA are essential to identify barriers and discuss challenges that relate to data sharing. Actual data sharing is not expected until late 2011.

[Appendices included in separate link]