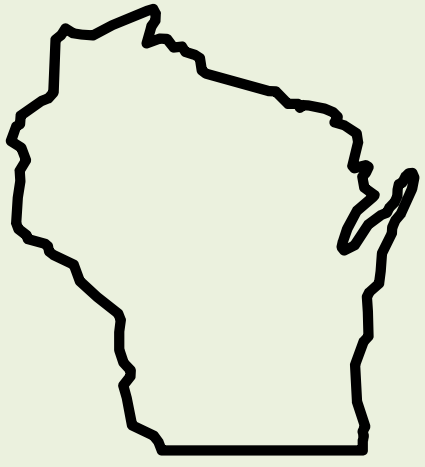
WIRED for Health

Wisconsin's

Health Information Technology (HIT) Strategic and Operational Plan



August 25, 2010

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FOREWORD

Wisconsin benefits from strong intellectual resources and a commitment to succeed in achieving statewide adoption and use of HIT and health information exchange (HIE) to enable improvements in the quality, safety, and efficiency of health care delivered in the state. The Wisconsin HIT Strategic and Operational Plan represents the collective efforts of multiple stakeholders and is an excellent example of the collaboration that exists between Wisconsin's public and private health and health care organizations.

This Plan describes the HIT and HIE goals and objectives Wisconsin aspires to achieve and the strategies and operational details on how Wisconsin proposes to accomplish the goals and objectives. The State acknowledges that the HIT and HIE landscape at the federal and state levels is evolving and that this is a living document requiring ongoing review, changes, and refinement. The federal Office of the National Coordinator (ONC) for HIT expects the State or State Designated Entity (SDE) to follow through on implementing this plan as described within this document.[i] The State's or, once selected, the SDE's governing board reserves the right to adjust the plan as necessary to meet environmental changes and/or evolving state and federal requirements, standards, and regulations. This could include changes to the vision, mission, guiding principles, goals, objectives, work plan, and timelines. The State, as the recipient of the State HIE Cooperative Agreement Program (CAP) grant award, will coordinate with and obtain approval from the ONC on any future changes to the plan and timelines in accordance with the program's terms and conditions.

[i] The use of the term "should" in this plan equates to a recommended or proposed course of action.

1 EXECUTIVE SUMMARY

This is a plan to promote and improve the health of individuals and communities in Wisconsin through the development of health information exchange (HIE)—electronic sharing of the right health information at the right place and right time. It recognizes the important role electronic health information exchange plays in enabling transformation in the health care delivery system and health care reform in Wisconsin. Adopting and using health information technology (HIT) and sharing health information electronically is an essential building block for this transformation.

Better information, exchanged appropriately, will mean that patients get better care as their health care providers have access to previous services and the patient's medical history. Better information will help clinical care providers improve their practice of medicine and help improve the health of individuals and communities in Wisconsin. Sustainability of this initiative will require stakeholder trust and buy in, security and privacy of data, and services that provide value.

The initiative's success will be measured by the ability to enable:

- Lives to be saved and improvements in the health status of Wisconsin's population through appropriate prevention, early intervention, and treatment
- A transformation of the health care sector that advances healthy cooperation and healthy competition among providers, with patients, payers and other partners contributing to better outcomes
- Improvement in the state's economy and competitive position as the health care sector is transformed and health care investments result in higher quality, safer, cost-effective care

"The implementation of a state HIE plan is essential for Wisconsin to have a healthy population, a healthy business community, and a vibrant economy. All are now linked and inextricably linked. Whether discussing the benefits received by consumers or providers, I offer my own experience as a practicing emergency physician in an innovative and maturing HIE market, Milwaukee, as a testimony for why HIE will be a benefit. I see the positive impact HIE can and does have every day on the lives of those I serve in my emergency department. We have been leaders in innovation for others for years, it is now time we innovate for ourselves and reap the benefit of our mid-Western good common sense."

- John E. Whitcomb, MD
Milwaukee County Health Care Partnership and Milwaukee County Medical Society
Milwaukee, WI

This document is Wisconsin's plan for a public-private partnership to develop and advance information sharing across the health care system by creating the Statewide Health Information Network (SHIN). The *WIRED for Health: Health Information Technology Strategic and Operational Plan* is required to secure federal funding for planning and implementation activities spanning 4 years through the State Health Information Exchange Cooperative Agreement Program. This program is made possible by the Health Information Technology for Economic and Clinical Health Act (HITECH) of 2009, a part of the American Recovery and Reinvestment Act (ARRA).

According the federal House of Representatives' Committees on Energy and Commerce, Ways and Means, and Science and Technology, the HITECH Act accomplishes four major goals that advance the use of health information technology, such as electronic health records (EHRs) and health information exchange, to help save lives and lower costs by:

- Requiring the government to take a leadership role to develop standards by 2010 that allow for the nationwide electronic exchange and use of health information to improve quality and coordination of care
- Investing $20 billion in health information technology infrastructure and Medicare and Medicaid incentives to encourage doctors and hospitals to use HIT to electronically exchange patients' health information
- Saving the government $10 billion, and generating additional savings throughout the health sector, through improvements in quality of care and care coordination, and reductions in medical errors and duplicative care
- Strengthening Federal privacy and security law to protect identifiable health information from misuse as the health care sector increases use of health information technology

"This HIT Strategic and Operational Plan establishes our starting point. We must now ensure a culture where HIE use and reuse by patients, clinicians, quality initiatives, public health, payers and countless other stakeholders is the standard of practice - within and beyond meaningful use definitions."

- Kim R. Pemble
Executive Director
WI Health Information Exchange (WHIE)
Milwaukee, WI

As a result of this legislation, the Congressional Budget Office estimates that approximately 90 percent (90%) of doctors and 70 percent (70%) of hospitals will be using comprehensive electronic health records within the next decade.

As part of the Cooperative Agreement, states must use their authority and resources to:

- Ensure an effective model for HIE governance and accountability is in place
- Convene health care stakeholders to build trust in and support for a statewide approach to HIE
- Coordinate with Medicaid and state public health programs to enable information exchange and support monitoring of provider participation in HIE
- Remove barriers that may hinder effective HIE, particularly those related to interoperability across laboratories, hospitals, clinician offices, health plans and other health information exchange partners
- Develop and implement up-to-date security and privacy requirements for HIE with and across state borders
- Develop state-level directories and technical services to enable interoperability within and across States

"I have been involved in hundreds of healthcare IT projects and never has the benefit to patients and the health of the residents of Wisconsin been so clear to me."

- Will Weider
Chief Information Officer
Ministry Health Care and Affinity Health System
Appleton, WI

This is work of great importance for Wisconsin because our current health care system, despite high rankings in national surveys, too often gets poor results, and is more inefficient, costly, and error prone than it should be. Wisconsin's population health outcomes are mediocre on a number of measures including diabetes and obesity; infant and elder health; alcohol and tobacco use; and rates of physical activity. For example:

- Diabetes rates are high and increasing—it is the seventh leading cause of death in Wisconsin, costing an estimated

annual $5.26 billion in health care costs and lost productivity. This burden is higher among minority populations.

- Obesity rates are high and increasing—27 percent (27%) for adults and 13 percent (13%) for children as reported in the June 2010 report "F as in Fat: How Obesity Threatens America's Future" from the Trust for America's Health and the Robert Wood Johnson Foundation. Obesity contributes to several of the leading causes of death, including heart disease, stroke, diabetes, and some types of cancer. Wisconsin has the highest rate of obesity in the nation among blacks at 44 percent (44%).

In today's health care system, health information is fragmented, often inaccessible and error prone. Patients, providers, public health authorities, and payers often make important decisions with inadequate information. Leveraging the potential of health information technology and exchange is a fundamental building block of a broader health system reform strategy. Electronic clinical data can help support public health interventions, disease management, quality improvement, provider performance measurement, epidemiological surveillance, and research. The intent is to use health information to achieve the right mix of prevention, primary care, acute care, and long-term care, creating the capacity to improve health care outcomes in a cost-effective manner over a multi-year period. The patient information that is now either missing, or sitting inside of health care records, some paper and some electronic, can be shared in the future in a way that promotes the public good while protecting patient privacy, enabling improvements in the health of individuals and communities in Wisconsin.

Using clinical data from EHRs for population health improvement is fundamental to health care reform. As a national leader in expanding health care access and improving health care quality, Wisconsin is in a position to measure the impact of preventive services and treatment for all people in a defined population area relative to the state's health improvement goals. This will assist in filling gaps so population-level impact can be demonstrated. This statewide HIE will create the capacity for state policy makers in both the private and public sectors to harmonize and build on current efforts across Wisconsin on health care quality improvement, health IT, the state's public health plan, and other related initiatives. It will support the translation and application of evidence-based practices and policies in public health, health care, and health system/financing strategies. This HIT plan positions Wisconsin to further the adoption of evidence-informed strategies in a collaborative way to achieve the goals of improved population health, improved patient care quality, and reduced costs.

"The high level of collaboration for the sole benefit of improving our clinician's ability to deliver high quality care has been outstanding. It is clear that we have the infrastructure, expertise and willingness to do great things in Wisconsin. I fully anticipate in the coming years a dramatic shift in the efficiency and the quality of care from these efforts."

- David E. Lundal

Vice President & Regional Chief Information Officer
SSM Integrated Health Technologies, WIITTS

Madison, WI

Partnership development is a key element of health care transformation—the type of public, private partnership that is evidenced by this HIT plan. Wisconsin has a smart public health plan framework. State leadership works in partnership with a wide variety of health system stakeholders. Academic medical centers are forging new missions in population health improvement. Many interesting and energized collaborations are actively working to improve population health and reform health systems around the state. There are strong industry partners in the technology and health care sectors and a remarkable history of collaboration across private sector competitors and across the public and private sectors.

The commitment, investment, and intellectual capacity brought to the work of the WIRED for Health Board by the health community are evidence that this plan has the kind of support that is needed for success. And the timing is excellent to launch this plan due to the new resources available to states through the HITECH Act and the health care reform law, including the availability of Medicare and Medicaid EHR incentive payments for meaningful use of electronic health records; alignment of the leadership, technical assets, and expertise that already exist in the state with the planning completed by the WIRED for Health Board; and significant progress on HIT plans and initiatives at the national level, including the Nationwide Health Information Network (NHIN).[1]

"The WIRED for Health Project should serve as the prototype for all future state of Wisconsin projects. We have proven that we are blessed in Wisconsin with an impressive amount of intellectual capital that is a ready and capable resource to draw from. If organized and used correctly, magical things can happen."

- Peter Nohelty

Chief Information Officer
Hospital Sisters Health System (Western Wisconsin)

Eau Claire, WI

This plan was created under the leadership of the WIRED for Health Board, appointed by Governor Jim Doyle in 2009, along with hundreds of volunteers from across the public and private sectors. This work was informed by earlier eHealth planning conducted in Wisconsin from 2005 - 2009 by the eHealth Care Quality and Patient Safety Board; a project conducted from 2006 - 2008 to analyze state and federal privacy and security policies; the development of a regional health information exchange in Milwaukee called the Wisconsin Health Information Exchange; and the State-Level HIE (SLHIE) Planning and Design Project, initiated by the Wisconsin Department of Health Services in May 2009.

In 2010, Governor Doyle signed Wisconsin Act 274, authorizing the State to select a qualified nonprofit corporation to serve as the State Designated Entity (SDE) to govern statewide health information exchange. The WIRED for Health Board and the lead state agency, the Department of Health Services, will complete the planning and selection phase and oversee transition of responsibilities to the SDE by February 2011. At that time, the SDE will assume leadership for this initiative and oversee implementation of this plan for a statewide health information network and services. The plan requires multi-stakeholder collaboration and emphasizes ongoing development of governance and policy structures. The board that runs the SDE will have broad and balanced public and private stakeholder representation, including Medicaid, public health, hospitals, providers, commercial payers, employers, and consumers.

Its work will be guided by three overarching goals:

- By 2016, all ambulatory care providers and hospitals will have and use nationally certified EHR systems and HIE
- By 2020, all health care consumers, providers, and public health agencies will have access to nationally certified EHR systems and HIT

[1] The NHIN is being developed to provide a secure, nationwide, interoperable health information infrastructure that will connect providers, consumers, and others involved in supporting health and healthcare. The NHIN is a collection of standards, protocols, legal agreements, specifications, and services that enables secure exchange of health information over the Internet.

- By 2020, most patients, health care providers, and public health agencies will use electronic health records and information exchange to improve outcomes related to the effectiveness, quality, efficiency, and safety of health care and population health services

These goals guided the development of the detailed strategic and operational plan. This strategic and operational plan addresses HIT adoption and HIE development; governance; finance; technical infrastructure and services; implementation and operations; and legal and policy issues. There are complex and important issues to address in each of these areas.

1.1 HIT Adoption and HIE Development

Significant statewide adoption of HIT by health care providers, hospitals, long-term care and aging facilities, and public and tribal health departments is a prerequisite for comprehensive statewide health information exchange.

- Wisconsin has a significantly higher rate of EHR adoption among its ambulatory care providers and hospitals than the national average. Over 69 percent (69%) of practicing physicians in the state are in a group practice of 50 or more physicians and 60 percent (60%) are in practices of 100 or more physicians. The majority of these large group practices has either implemented or is in the process of implementing an EHR system.
- The Wisconsin federally qualified health centers (FQHCs) are in various stages of EHR adoption. Approximately 70 percent (70%) of community health centers are either meaningful users or currently selecting/implementing an EHR.
- Wisconsin hospitals are investing heavily in HIT to enable improvements in care coordination and support decision-making across the continuum of care. The Wisconsin Hospital Association recently conducted a survey to assess the extent of HIT adoption among the 128 acute-care hospitals in the state. Eighty-six percent (86%) have achieved a moderate, high, or very high level of HIT use.
- Local public health and tribal health departments provide a combination of direct patient care, care management, and population health services and use a variety of systems to support their programs. Over time, these systems have been engineered to share some electronic information and receive data from the state vital records system and electronic lab reporting system. Public health needs improved efficiency and systems that will support multiple patient-centered workflows for both patient care and business intelligence.

The newly created Wisconsin HIT Extension Center (WHITEC) will provide technical assistance to approximately 1,625 primary care providers in Wisconsin in their efforts to select, implement, and achieve meaningful use of certified EHR technology, including meeting the interoperability requirements for HIE. To assist WHITEC in its efforts and to help promote Medicaid provider adoption of HIT, the State Medicaid Program has provided initial information regarding providers who may require assistance in the acquisition or upgrade of certified EHR technology. WHITEC will be a primary communication and outreach channel for the WIRED for Health Project for promoting statewide HIT and HIE adoption by providers.

1.2 Governance

The plan is to establish a permanent, state-level, nonprofit organization with both public and private membership that will govern statewide HIE by effectively executing the Wisconsin HIT Strategic and Operational Plan and fairly representing the needs of all consumers of health information. It is expected to do so in a way that fosters transparency, buy-in, accountability, and trust. It will be responsible for reporting to the broader stakeholder community on performance measures through a focused communications, education, and marketing plan.

1.3 Finance

Planning efforts are underway to establish a business strategy and financial framework that addresses short-term capitalization and long-term sustainability. Initial capitalization will leverage the $9.44 million federal grant that finances the work of the State HIE Cooperative Agreement Program. The goal is to develop the long-term financial strategy with broad stakeholder involvement and support.

Nationwide, sustainability is one of the most difficult issues in establishing HIEs. The funding that comes with the State HIE Cooperative Agreement Program is appropriated over 4 years, and requires an increasing amount of state match in years 2 to 4, which assumes that states will develop a path to sustainability by the end of the 4-year agreement.

Relying on voluntary support to finance the statewide health information network and HIE services presents multiple challenges, some of which may be unique to Wisconsin, including:

- **Localized Data Exchange**: Due to the high level of information technology adoption in health care in Wisconsin and the large proportion—over 69 percent (69%)—of its physicians practicing in large, independent group practices or IDNs, many of the physicians and hospitals have moved ahead with adopting and using EHRs and have made other significant health information technology investments, including investing in health information exchange within their organizations and local communities. The challenge this presents to sustainability is the need for the statewide health information network to demonstrate value beyond the benefits already being realized by health care provider organizations at the local level.
- **Capacity of Health Systems**: As a result of an environmental scan conducted in the summer of 2009, providers and health systems indicated that financial and human resource capacities are spread thin, especially in light of the current financial climate and competing demands for scarce resources. Therefore, the ability of health systems to undertake new projects will be limited even in light of the meaningful use requirements in federal law.
- **Trust**: A critical challenge facing all states as they work to implement HIE is the need to establish trust. Consumers and physicians alike must trust that the system will be easy to use, provide comprehensive, reliable information on which to base critical health care decisions at the point of care, and that the appropriate privacy and security policies are in place.

The eHealth Initiative, an independent national organization whose mission is to drive improvements in the quality, safety, and efficiency of health care through information and information technology, reports that across the country, there are now a number of HIE initiatives that are sustainable financially. These organizations were not dependent upon federal funding in the last fiscal year and broke even through operational revenue alone. The lessons learned from these organizations about services offered, financing

mechanisms, and funding sources will be of great value in the development of the business plan for the Wisconsin statewide health information network and HIE services.

1.4 Standards and Architecture

The goal is to develop a scalable, standards-based technical architecture for statewide HIE that supports interoperability and leverages existing investments in health IT. The expectation is that by 2020, the statewide health information network and HIE services will reach all geographies and providers across the State and be able to continuously receive, access, and transmit health information among health systems.

The work on standards and architecture focuses on defining a path to successful adoption and use of such an exchange, recognizing that success depends upon support and use by key Wisconsin stakeholders, and that some stakeholders already have small-to-medium scale HIEs functioning within their respective organizations or medical trading area. The proposed architecture recognizes this and accounts for existing assets as a way to accelerate the adoption and use of services.

The SLHIE Planning and Design Project documented the independent HIE-related initiatives currently being executed at local levels throughout Wisconsin. It is anticipated that the statewide health information network in Wisconsin will incorporate the concept of a "network of networks" in use by the NHIN. The evolving NHIN approach to building and maintaining trust among an expanding pool of users will serve as an important resource during implementation of a statewide health information network and HIE services. The SDE will be responsible for ensuring that statewide HIE in Wisconsin aligns with the developing nationwide HIE governance models.

1.5 Privacy and Security

Safeguarding patient privacy through strong security are top priorities for statewide HIE in Wisconsin.

Security and privacy strategies, policies, and procedures will be developed incrementally over time along with business, technical, and operational policies and procedures. This requires balancing a patient's right to privacy with a provider's need to access health information to provide optimal and cost effective care.

Widespread participation in health information exchange systems by providers and patients will not occur unless they know that information on the health information exchange system is secure. Thus, the health information exchange infrastructure must have strong security mechanisms to protect against inappropriate use of patient information. At a minimum, the exchange infrastructure will follow the HIPAA security standards for electronic transactions and the operator will identify and follow any additional established security best practices for health information exchange.

Significant issues related to the privacy and security framework that need to be resolved during implementation include:

- Creating new procedures for requesting an "opt out" from the statewide health information network that is easy for the patient to understand and use
- Resolving and harmonizing policies for privacy and security with federal requirements and with other states, especially Minnesota, Iowa, Illinois, and Michigan

Strong mechanisms must be in place to ensure patient information is not inappropriately used or accessed to the detriment of the patient. Inappropriate use of patient information can be prevented using a combination of security measures and privacy measures. Security measures include administrative, technical, and physical safeguards designed to prospectively protect information from being misused, such as firewalls and data encryption, or to retrospectively deter and identify misuse, such as electronic audit trails. Privacy measures include procedural standards to protect information. Some privacy procedures, such as consent requirements, are intended to prospectively protect information from being misused by limiting access to information, while other privacy procedures, such as breach notification requirements and disclosure accounting requirements, are intended to retrospectively deter and identify misuse.

In July 2010, the national eHealth Initiative assessed progress on HIT and HIE over the past 3 years and published "*The State of Health Information in 2010: Connecting the Nation to Achieve Meaningful Use.*" The report notes the changes in the overall health care market, the economy, and the state of technology available to health professionals and consumers and the impact on the current landscape. Key findings of the report include the significant impact of the HITECH Act, as it provides both a policy foundation and funding for developments in the states; the need for more education and outreach to consumers about HIT and HIE; the vital importance of privacy and security policies as the key to building consumer trust of HIT and HIE; the continuing need to build consensus on strategies that support the value case of HIE for population health; and the continuing need for business models that are sustainable and support transformation of care delivery.

In December 2006, Wisconsin's *eHealth Action Plan* set out the policies for statewide use of health IT as a means to save lives, improve the health status of the people of Wisconsin and receive a better return on investment in health care. It was a plan about improving the health system, measured by its success in improving health care to individuals and population health. It set out three strategies to do this:

- Creation of the eHealth technology platform, consisting of HIT adoption, regional health information exchange, and statewide HIE services
- Use of value-based purchasing policies and actions
- Linking HIT and HIE plans to prevention and disease management activities

This *WIRED for Health: Health Information Technology Strategic and Operational Plan* moves Wisconsin on to the next generation of activities to improve population health. It provides both long- and short-term goals and an implementation plan that will establish the eHealth technology platform, setting the foundation for implementation of health care reform and population health improvement strategies over the period 2010 – 2014.

2 INTRODUCTION

Health information technology (HIT) and health information exchange (HIE) can facilitate secure electronic sharing of the right health information at the right place and right time. Technology is an enabler and the means to a desired end state—improvement in the health of individuals and communities in Wisconsin.

The *WIRED for Health: HIT Strategic and Operational Plan* will move our state forward toward achieving this vision and developing the health information infrastructure and interconnectivity we need for improved health care and population health. The success of the statewide health information network (SHIN) will be measured by its ability to enable:

- Lives to be saved and improvements in the health status of Wisconsin's population through appropriate prevention, early intervention, and treatment
- A transformation of the health care sector that creates healthy cooperation and healthy competition among providers, with patients, payers and other partners contributing to better outcomes
- Improvement in the state's economy and competitive position as the health care sector is transformed and health care investments result in higher quality, safer, cost-effective care

Wisconsin has a deserved reputation as a national leader in improving health care quality. Our state is uniquely positioned to transform the health care sector because of its technical resources; strong industry partners in the technology and health care sectors; the widespread commitment, investment, and intellectual capacity brought to this work by the health community; and a remarkable history of collaboration across private sector competitors and across the public and private sectors. The WIRED for Health planning effort is one more example of this collaborative spirit in Wisconsin.

Throughout its eHealth journey, Wisconsin has adopted a collaborative and transparent approach that has included numerous stakeholders and volunteers with the intent that the result is a shared vision among Wisconsin's health community.

The Health Information Technology for Economic and Clinical Health Act or HITECH Act,[2] provides an unprecedented opportunity to build upon a foundation created through the pioneering vision and leadership of a number of leading health care organizations in the State. Led by hospitals, medical groups, integrated delivery systems, and public health, Wisconsin enjoys a high level of information technology adoption in health care and public health. Unlike most states, Wisconsin has a large proportion—over 69%—of its physicians practicing in large independent group practices or integrated delivery networks (IDNs). Most of these physicians and many of our hospitals have moved ahead with adopting and using electronic health records (EHRs) and have made other significant health information technology investments, including investments in health information exchange within their organizations and local communities. There is also a strong commitment to quality measurement, reporting, and improvement through the Wisconsin Collaborative for Healthcare Quality (WCHQ), the Wisconsin

[2] The HITECH Act is part of the 2009 American Recovery and Reinvestment Act (ARRA).

Health Information Organization (WHIO), the Wisconsin Hospital Association (WHA), the Wisconsin Medical Society (WMS), and MetaStar. The human and financial capital investments made to build this HIT infrastructure are significant and so too are the results. Wisconsin has led the nation in health care quality improvement for 2 of the last 3 years as reflected in the *National Healthcare Quality Report* issued by the federal Agency for Healthcare Research and Quality (AHRQ).

Action in the private healthcare sector has been complemented by considerable investment in public health informatics. Local health departments track maternal child care management and disease surveillance using systems that electronically import vital records and laboratory reports. Eighty-five percent (85%) of immunization registry transactions now occur electronically among more than 1,400 provider organizations.

Wisconsin is also home to two of the world's leading companies in electronic health information technology, Epic and GE Healthcare, as well as many other innovative companies and organizations working on health IT products and services, such as Marshfield Clinic. In the public sector, Wisconsin is developing a sophisticated public health information network and other systems that can connect to or support a statewide health information network.

Extensive work on privacy and security issues has already been conducted under the leadership of the Health Insurance Portability and Accountability Act (HIPAA) Collaborative of Wisconsin and the former eHealth Care Quality and Patient Safety Board, providing a venue for diverse stakeholders to uniformly address these critical issues. There is also a history of strong public-private collaboration to address health care issues, including great energy and enthusiasm brought to the work of the WIRED for Health Board over the past few months that has resulted in this plan.

Wisconsin is well positioned to advance the development of a statewide health information network and exchange infrastructure and services. The timing is excellent to launch this plan due to 1) the advent of the Medicare and Medicaid EHR Incentive payment program; 2) the alignment of the leadership, technical assets, and expertise that already exist in the state with the planning completed by the WIRED for Health Board; and 3) the significant progress on HIT plans and initiatives at the national level to build upon, such as the Nationwide Health Information Network (NHIN).

2.1 Wisconsin's Approach to Developing Its Health Information Technology (HIT) Strategic and Operational Plan

Wisconsin began its HIT planning when Governor Jim Doyle created a multidisciplinary advisory board, the eHealth Care Quality and Patient Safety Board ("the eHealth Board"), through Executive Order #129, in November of 2005. He appointed the Board members and designated the health services Cabinet Secretary to chair the Board in early 2006 and charged the eHealth Board with creating an Action Plan for Health Care Quality and Patient Safety ("eHealth Action Plan").

In 2006, the eHealth Board developed and published the eHealth Action Plan through the work of five workgroups: Patient Care, Information Exchange, Consumer Interests, Governance, and Financing. The workgroups comprehensively reviewed issues surrounding the creation of HIT infrastructure in Wisconsin and developed guidance, strategies, and recommendations for creating this infrastructure to transform Wisconsin's health care delivery system. The eHealth Action Plan outlined high-level goals and strategies for statewide HIT adoption and HIE and served as a guide for the HIT and HIE planning and implementation activities. Like other states in the infancy of their eHealth programs, Wisconsin had

limited resources to plan and implement the recommendations made by its eHealth Board in the eHealth Action Plan but was able to initiate and complete some important foundational work in two areas: removing some health information privacy law barriers to electronic HIE and initiating regional HIE development in the Milwaukee area. This work was enabled by two federally funded grant programs: the Health Information Security and Privacy Collaboration (HISPC) and the Medicaid Transformation Grant.

The Department's eHealth Program staff also worked with members of the eHealth Board's Patient Care and Information Exchange Workgroups to define the scope of work for a statewide HIE planning and design project (i.e., a "plan to plan"). This project, titled the State-Level HIE (SLHIE) Planning and Design Project, was initiated at the end of May 2009. The project started with state-level HIE governance planning activities that were consistent with the requirements promulgated by the federal Office of the National Coordinator (ONC) for Health IT in the State HIE Cooperative Agreement Program (CAP)[3] Funding Opportunity Announcement (FOA) for the governance domain of a State HIE Plan.

Over the summer of 2009, the SLHIE Planning and Design Project team conducted a stakeholder assessment and environmental scan. The Department held five HIE regional summit meetings across the state to provide stakeholders with an opportunity to share their opinions about the approach Wisconsin would take in establishing a state-level HIE governance entity and statewide HIE services. Over 300 individuals attended the Summit Meetings. The team also conducted a comprehensive inventory of public and private HIT assets that either need to be connected to an HIE or could be leveraged in a statewide HIE architecture. The SLHIE Planning and Design project produced the following deliverables:

- *SLHIE Stakeholder Assessment and Environmental Scan Report*, September 10, 2009
- *SLHIE Aggregated Stakeholder Asset Data Summary and Service Prioritization*, October 20, 2009
- *SLHIE Business Options Analysis and Recommendations*, February 15, 2010

These deliverables are available at http://dhs.wisconsin.gov/eHealth/SLHIE.

Current HIE planning activities and the previously mentioned efforts to create the eHealth Action Plan, address State privacy law, and implement an initial operational HIE capability in Milwaukee have not resulted in statewide exchange capability; however, they are logical and significant building blocks for the State's strategic and operational plan for statewide HIE. Building on this foundational work, Wisconsin is prepared to optimize the opportunity presented in the State HIE CAP and move forward to improve its health care delivery system and the health of its people.

To facilitate the development of its strategic and operational plan for statewide and interstate HIE, Wisconsin took a number of steps to establish a transparent, multi-disciplinary framework to engage stakeholders. On December 1, 2009, Governor Doyle signed Executive Order 303, included in Appendix 1, to rescind Executive Order 129 and establish the Wisconsin Relay of Electronic Data (WIRED) for Health Board to develop and implement the State's HIE plans in accordance with the State HIE CAP requirements. The Board is attached to the Department of Health Services ("DHS" or "the Department")

[3] The State HIE CAP is an ONC funding opportunity for planning and implementing statewide HIE authorized by the HITECH Act. The ONC awarded Wisconsin $9.441 million under this cooperative agreement.

and has broad, multidisciplinary stakeholder representation across the public and private sectors. The Governor made his appointments to the Board on February 23, 2010.

The Board met for the first time on March 8, 2010 and approved establishment of five committees to accomplish the planning:

1) Governance
2) Finance and Audit
3) Standards and Architecture
4) Communications, Education, and Marketing
5) Legal and Policy

The WIRED for Health Board approved co-chairs and charters for each of the committees, included in Appendix 2. Deloitte Consulting, State, and private sector project staff were assigned to provide support to the Board and each of the committees. The committees consist of a broad, balanced cross-section of private and public sector stakeholders. Please refer to Appendix 3 for a list of committee members.

The following figure illustrates the relationship between the Department of Health Services, including Medicaid and Public Health; the WIRED for Health Board and its committees; and project staff.

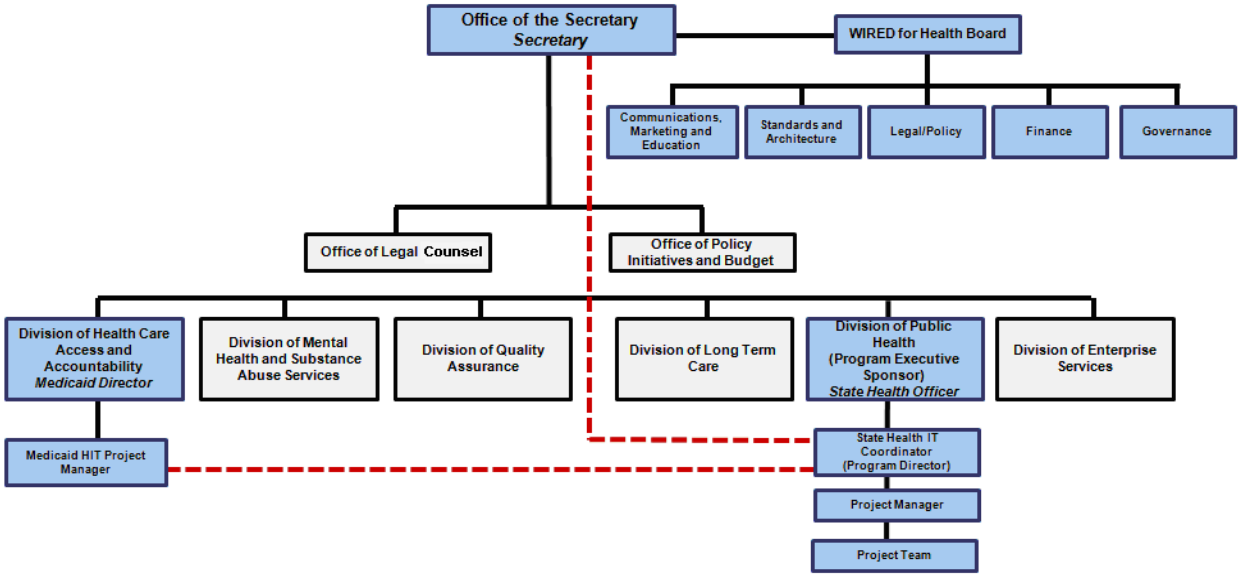

Figure 2.1.1: Organizational chart

All Board and committee meetings are subject to Wisconsin's Open Meetings Law and are open to the public. The meeting schedules, agendas, minutes, meeting materials, and drafts of the various sections of the plan are posted on a Microsoft SharePoint site set up for the project and/or on a Web site established for the Board (http://wiredboard.wisconsin.gov). The SharePoint site provides the ability to conduct virtual, collaborative, and transparent planning that is open to public view. To make the meetings widely available to the public across the State, meetings are broadcast over the Internet and recorded using tools such as Microsoft Live Meeting®, Adobe® Acrobat® Connect™ Pro, or Mediasite Live when the technical infrastructure and logistical support is available. The Department also set up a subscription

email listserv so anyone could subscribe and stay informed about the WIRED for Health planning activities and other eHealth updates. The WIRED for Health Project staff send out periodic updates on the committees' work to the subscribers.

Over a period of 5 months and several hundred hours of meetings, research, and writing, the WIRED for Health Board and its committee completed this HIT Strategic and Operational Plan for Wisconsin.

2.2 HIT Program Coordination

Successfully implementing interoperable intra- and interstate health information exchange has interdependencies with other relevant American Recovery and Reinvestment Act (ARRA), federal, and state programs and requires specific points of coordination with the organizations responsible for these programs as well as with other states bordering Wisconsin. This section describes the role of Wisconsin's State Health IT Coordinator and how these points of coordination are being addressed.

2.2.1 Role of the State Health IT Coordinator

The State Health IT Coordinator serves as a leader in developing and advocating for policies that support the goals of statewide HIE. The Coordinator is responsible for coordinating and working in close collaboration with the ONC, Wisconsin's State Designated Entity, the State's Medicaid Director, the State's Health Officer, other health leaders and stakeholders in the government and private health care sectors, and other states' Health IT Coordinators.

The State Health IT Coordinator is ensuring state agencies and their partners in the statewide health information exchange initiative work cooperatively with their federal partners and other stakeholders to facilitate statewide health information exchange and to help move providers to meaningful use of electronic health records systems.

The position of the State Health IT Coordinator resides in the Department of Health Services and is designated by the Governor's Office as the key liaison among government and private stakeholders in the statewide HIE efforts. Governor Doyle designated the State's eHealth Program Manager as the State Health IT Coordinator on October 16, 2009. The Governor's letter informing the ONC about the designation of the State Health IT Coordinator is included in Appendix 4. In fulfilling the role as the State Health IT Coordinator, this person is driving the coordination and integration of HIT/HIE-related projects funded under ARRA.

The State Health IT Coordinator:

1) Works with state health policy makers on strategies to achieve statewide HIE goals, including addressing legal and policy issues on privacy and security.
2) Serves as a leader in fostering effective and efficient exchange of health information that leverages existing state and regional efforts based on U.S. DHHS-adopted standards and certification criteria.
3) Represents the State at HIT-related functions.
4) Maintains a library of HIT literature and directs analysis and written communications about the health IT landscape and brief the Governor, Legislature, and other health entities.

5) Supports planning of HIE services within Wisconsin and across the State's borders, including the development and maintenance of the Wisconsin HIT strategic plan and an effective model for HIE governance and accountability.
6) Coordinates with Medicaid, state public health programs, other federally funded health programs, and other HIE activities in the state to enable and ensure an integrated, unified approach to HIE, the avoidance of duplication of efforts, and the monitoring of provider participation in HIE as required by the federal and state meaningful use requirements.
7) Works to leverage and maximize applicable state program resources and assets, such as the Wisconsin Immunization Registry and other public health registries and systems, the Wisconsin Master Client Index application, and authorized Medicaid federal financial participation to support HIE activities.
8) Coordinates with the Medicaid program and the Wisconsin Department of Employee Trust Funds on leveraging the state's purchasing power and policy levers to promote statewide HIE, such as establishing requirements for entities reimbursed, licensed, and/or regulated by the state to participate in e-prescribing, electronics labs results delivery, or electronically sharing care summaries across transitions of care (i.e., licensed pharmacies, CLIA-certified labs, and licensed health care providers).
9) Identifies and fosters cross-program coordination with other ARRA-funded programs (i.e., the Regional Extension Center, broadband, workforce development, the Strategic Health IT Advanced Research Projects (SHARP) Program, Beacon Communities), as well as other relevant federal initiatives (i.e., federal health care reform) applicable to Wisconsin.
10) Will develop and chair a State of Wisconsin Interagency Health IT Council to provide input and resources to the State Designated Entity (SDE) from state agencies such as DHS, the Department of Corrections, the Department of Employee Trust Funds, and the Department of Veterans Affairs.
11) Will serve as a resource to the SDE governing board in the implementation of the statewide health information network and services, either as an appointed Board member, an ex-officio Board member, and/or through a close working relationship with the chief administrator of the SDE.
12) Will verify the SDE complies with the terms of any contract with the Department pertaining to statewide HIE.
13) Ensures the annual report to the ONC on statewide HIE alignment with other federal programs is completed in a timely fashion.
14) Assists in increasing statewide consumer involvement in HIT/HIE development.
15) Identifies and facilitates potential interstate partnerships pertaining to HIT/HIE.

2.2.2 Coordination with Medicaid

The State Medicaid Program has been and continues to be a principal participant in the State's eHealth program and initiatives. The Medicaid Program continues to demonstrate its commitment to advancing health information technology and exchange through the WIRED for Health Project.

Past commitments to advancing HIT within in Wisconsin include a Medicaid Transformation Grant in 2007 to implement a community-level health information exchange between hospital emergency rooms in Milwaukee County hospitals further described in Section 4.1.1.1. The State Health IT Coordinator had a

key role in obtaining this grant and presently still manages the grant for the Medicaid program and takes direction from and reports to the Medicaid Director in this grant management capacity.

Multiple coordination activities are occurring with the State Medicaid Program to develop a coordinated HIT/HIE strategy that promotes the use of EHR technology and exchanging of health information to help improve the health of individuals and communities in Wisconsin. This coordinated strategy is reflected in both the Strategic and Operational Plan and the State Medicaid HIT Plan. Specific coordination activities with the Medicaid Program include:

- Medicaid Director participation on the WIRED for Health Board
- Medicaid Staff participation on the WIRED for Health Board's Committees
- Project management coordination

2.2.2.1 Medicaid Participation in the WIRED for Health Project

The Medicaid Director currently serves on the WIRED for Health Board. As a member of the Board, the Medicaid Director, along with other public and private sector representatives, is responsible for developing a plan for statewide health information exchange that will:

- Help health care providers use and exchange electronic records
- Provide a technical infrastructure
- Identify, secure, and provide funding to build capacity and ensure long-term sustainability
- Create a common set of rules for exchanging health information while protecting patient interests
- Provide for the operation and flow of information
- Outline provisions for oversight and accountability

Once a SDE is selected and the WIRED for Health Board's responsibilities are transitioned to the SDE, the Medicaid Director will have a seat on its governing board.

The WIRED for Health Project is a statewide initiative that is implementing a flexible statewide health information network architecture and core services that will address the health information exchange needs of health care providers and hospitals eligible for the Medicare and/or Medicaid EHR incentive program in the near term and all health care providers and patients regardless of health care payer, as well as other stakeholders, in the long term. Therefore, the Medicaid Program did not set up a separate governing/advisory council or board and committees/workgroups within the Medicaid Program to plan how it will promote the adoption of EHR technology and exchanging of health information among Medicaid providers. Instead, the Medicaid Director and Medicaid program staff are actively participating on the WIRED for Health Board's committees and workgroups and representing the Medicaid program's interests and needs as the plans are being developed. Medicaid program needs were communicated to the Committee co-chairs prior to the initiation of the committee meetings in order to set expectations of what the Medicaid Program needed to address in the committee meetings as a part of the Medicaid HIT Plan.

The teams are working together to develop a system architecture, governance structure, legal framework, financial model/business plan and communication strategy that will support both the WIRED for Health and Medicaid HIT Projects in achieving the vision to promote and improve the health of individuals and communities in Wisconsin through the development of health information exchange that facilitates electronic sharing of the right health information at the right place and right time.

2.2.2.2 Project Management Coordination

The project managers for the WIRED for Health Project and the State Medicaid HIT Planning Project meet on a weekly basis to share project information and to validate each team is receiving the information they need to complete the respective plans. The project teams, with support from the State Health IT Coordinator, aligned the WIRED for Health project plan and the Medicaid HIT project plan to effectively support coordinated development of the respective plans. The coordination between the projects allows resources to effectively work across projects and helps ensure alignment between the Strategic and Operational Plan and the Medicaid HIT Plan. The two respective project teams meet with the Secretary, the State Health Officer, the Medicaid Director, and the State Health IT Coordinator bi-weekly to report on project status. The State Health IT Coordinator also meets with the two respective project managers bi-weekly to ensure coordination.

2.2.3 Coordination of Medicare and Federally Funded, State Based Programs

The State Health IT Coordinator reached out to the Centers for Medicare and Medicaid (CMS) to discuss integration of Medicare and its data into the State's quality initiatives, particularly the WHIO Health Analytics Exchange. The State and the SDE will proactively pursue Medicare's involvement in the WIRED for Health Project and pursue establishment of a data sharing agreement with Medicare.

Coordination across the federally funded state-based health programs has fewer complexities in Wisconsin because these programs are all housed in a single state Department and are under the leadership of a single cabinet secretary. The Department of Health Services programs include Medicaid/Children's Health Insurance Program (BadgerCare Plus), Disability Determination, Public Health, Long-Term Care and Aging, Mental Health and Substance Abuse Services, Tribal Affairs, and Quality Assurance (the health care regulatory arm in the State) and already has well-established working relationships with CMS, the Centers for Disease Control (CDC), Health Resources and Services Administration (HRSA), Substance Abuse and Mental Health Services (SAMSHA), and Indian Health Service (IHS). DHS managers and staff are participating in and representing their respective programs in the planning for a statewide health information network and services and will be engaged in the implementation activities as well. The WIRED for Health Board is attached to the Department, and the DHS cabinet secretary co-chairs the governance committee and is ensuring the present planning accounts for the needs of all the health programs managed by the Department as well as those outside the Department. The State Health Officer is on the WIRED for Health Board and serving as one of the co-chairs. He also participates on the Governance Committee. Once a SDE is selected and the WIRED for Health Board's responsibilities are transitioned to the SDE, the State Health Officer will have a seat on its governing board as well. The Public Health Information Network (PHIN) Director is a member of the Standards and Architecture Committee. The State Health Officer and the PHIN Director are working to ensure the meaningful use HIE requirements related to public health will be satisfied and that the state's public health systems will be ready to connect to the statewide health information network.

The State's programs for children and families, including child welfare, child care, foster care, kinship care, and domestic abuse and violence were previously under the Department, but were reorganized under a separate department, the Department of Children and Families (DCF) in 2008. The Department has a strong working relationship with DCF, and together they are uniquely positioned to ensure targeted populations will continue to be meaningfully involved in the implementation of a statewide HIE network and services. One or both Departments either provide services or assist organizations that provide services to the medically underserved, newborns, children, youth, including those in foster care, the elderly, persons with disabilities, persons with mental and substance abuse disorders, and persons in long-

term care and aging. The Departments already have policies and procedures in place to ensure the needs of Limited English Proficiency (LEP) persons are met with regard to the populations they serve.

A variety of additional strategies aimed at communicating information to and obtaining input from specific target populations will be developed to meaningfully involve them in the implementation and ensure their special HIE needs are met. The State Health IT Coordinator will establish an interagency health IT council which will serve as a vehicle for obtaining input from relevant state and local government agencies, and the community-based organizations that interact with these agencies. One of the council's responsibilities will be to help ensure community-based organizations administering federally funded state-based programs and the populations they serve are involved in the implementation of the strategic and operational plan for statewide HIE and that the project ultimately fulfills their special needs. The council will consist of representatives from at least five state agencies, including the Department and DCF. It will provide input and resources for the SDE and the WIRED for Health Project and will help the SDE meet Wisconsin's HIT and HIE needs.

2.2.4 Coordination with Federal Care Delivery Organizations

Wisconsin has one active military base, Fort McCoy, with a military treatment facility—a troop medical clinic. There are about 1,250 permanently assigned active duty military assigned to the base and the base trains over 105,000 personnel annually. The Veterans Administration (VA) has three major medical centers in Wisconsin located in Madison, Milwaukee, and Tomah and 13 outpatient clinics and four community-based outpatient clinics across the state. The WIRED for Health Project team plans to engage Fort McCoy's clinic and the VA's medical centers and clinics to discuss, coordinate, and facilitate connecting these providers to other providers in the state and across state borders either through the nationwide or statewide health information network.

Biannually, the Department and the federally recognized Indian Tribes in Wisconsin hold a consultation meeting, and the Department develops a consultation implementation plan. The plan is a set of mutually agreeable short- and long-term strategies to address health and human services issues. The Department and the Tribes agree to collaborate and provide staff as required to successfully achieve these outcomes. One of the implementation plan outcome areas relates to the adoption and meaningful use of EHR in the tribal health clinics and participation in HIE. The State Health IT Coordinator arranged for time on the tribal health directors' quarterly meeting agenda and coordinated the Medicaid program and WHITEC's participation in these meetings, so the State can obtain the tribes' input into the statewide HIE plan and the Medicaid HIT plan. Technical assistance visits to each tribal clinic will be arranged after WHITEC coordinates with the National Indian Health Board (NIHB), which also received a grant award to serve as a HIT extension center for tribes.

2.2.5 Coordination with Other States

Wisconsin is participating in the ONC, CMS, and National Governor's Association multi-state collaboration forums and technical assistance calls and meetings. The State Health IT Coordinator is a member of the State HIE Leadership Forum and is coordinating and collaborating with her counterparts in neighboring states and will continue to do so throughout the implementation of Wisconsin's health information network and services so the interstate and nationwide HIE interoperability and connectivity goals are achieved. The State Health IT Coordinator and the SDE will review neighboring states' strategic and operational plans and identify interdependencies and priority areas for the development of strategies to achieve interstate exchange. The WIRED for Health Project team is sharing all its work with other states through its collaborative workspace—a publicly accessible SharePoint site where all project

documents are posted. The State Health IT Coordinator is also sharing documents through the State HIE Leadership Forum listserv.

As Wisconsin begins developing the detailed specifications for the directory services and the data sharing and use agreements, Wisconsin will coordinate with the states on its borders (i.e., Minnesota, Iowa, Illinois, and Michigan) and plans to establish a regular meeting schedule but will try to leverage existing regional and national meeting events. The State is currently collaborating with Minnesota on legal and policy issues related to sharing health information electronically across state borders. This collaboration is further described by the Legal and Policy Committee in Section 9.

The Medicaid Program is also coordinating its plans with other states that use the same fiscal agent/Medicaid Management Information System (MMIS) vendor (i.e., HP Enterprise Services). Presently, the Medicaid Program is evaluating the option to use a shared solution to support the administration of the Medicaid EHR Incentive program.

2.3 Stakeholder Endorsement of the Plan

The Governor's staff, the DHS cabinet secretary, and the State Health IT Coordinator have sought to ensure the WIRED for Health planning effort involved the right mix of people at the right level to represent their respective communities broadly statewide, who are influential, respected and resourceful, would commit the necessary time to the Board and the Committee work, and are visionaries who would promote solutions for building and funding statewide HIE capacity. The five working committees included a geographically and functionally diverse blend of government and private sector members, and the committees had a fair amount of power, influence, and input in this planning process. Letters of support endorsing this plan from Board members, including the Medicaid Director and State Health Officer, as well as other stakeholders involved in the planning are included in Appendix 5. The WIRED for Health Board also released this plan for public comment and broadly disseminated the announcement about the public comment period. Prior to releasing the plan, all meeting materials and the committees' draft documents were available to the public on the WIRED for Health SharePoint site.

3 HIT ADOPTION

The need to obtain significant statewide adoption of HIT by health care providers, hospitals, long-term care and aging facilities, and public and tribal health departments is fundamental to the development of a statewide health information network and achieving a statewide health information exchange capability.

3.1 Ambulatory Care Providers and Hospitals

Wisconsin has a significantly higher rate of EHR adoption among its ambulatory care providers and hospitals than the national average. Over 69 percent (69%) of practicing physicians in the state are in a group practice of 50 or more physicians and 60 percent (60%) are in practices of 100 or more physicians. The majority of these large group practices have either implemented an EHR system or are in the process of implementing a system. However, we do not know if any of these practices presently meet the new EHR certification requirements and assume most if not all may have to upgrade their present systems at a minimum. Large group practices and IDNs typically have greater access to financial and administrative resources making acquisition, implementation, and operation of EHR systems more attainable.

	Office-based physicians	Rate of physicians using operational EHR	Office-based physicians using operational EHR
Physicians in small practices	3,650	33%	1,200
Physicians in large practices	8,110[4]	72%	5,810
Total physicians	11,760[5]	60%	7,010

Table 3.1.1: Ambulatory care EHR adoption in Wisconsin[6]

The Wisconsin federally qualified health centers (FQHCs) are in various stages of EHR adoption. Approximately 70 percent (70%) of community health centers are either meaningful users or currently selecting/implementing an EHR. Thirty percent (30%) of community health centers do not have an EHR and are in a various stages of HIT adoption.

In order to gain a full understanding of the current state of EHR adoption in Wisconsin, the WIRED for Health Project included the level of EHR adoption within the 17 FQHCs in the state:

- Access Community Health Centers
- Bridge Community Health Clinic
- Community Health Systems
- Family Health Center of Marshfield

[4] Based on WMS estimate of 69% of WI physicians practicing in groups with > 50 physicians
[5] Office-based physicians are estimated to be 90% of the 13,071 practicing WI physicians
[6] Wisconsin Department of Health Services, 2008 Wisconsin Ambulatory Health Information Technology Survey, date of publication: March 31, 2009

- Family Health/La Clinica
- Fox Cities Community Health Center
- Health Care for the Homeless of Milwaukee
- Kenosha Community Health Center
- Lake Superior CHC
- Milwaukee Health Services
- N.E.W. Community Clinic
- North Woods Community Health Centers
- Northern Health Centers
- Scenic Bluffs Community Health Center
- Sixteenth Street Community Health Center
- The Lakes Community Health Center
- Westside Healthcare Association

The following table includes the number of eligible professionals (in FTEs) currently using or who will eventually have access to EHRs within Wisconsin's FQHCs, based on existing plans.

EHR Adoption Stage by Health Center	Physician FTEs	Psychiatrist FTEs	Nurse Practitioner FTEs	Nurse Mid-wife FTEs	Pediatrician FTEs	Dentist FTEs	Total Provider FTEs by EHR Adoption Stage
Meaningful Use	**32.51**	**3.26**	**10.0**	**7.4**	**9.1**	**21.0**	**83.24**
Selection/ Implementation	**19.1**	**2.9**	**4.1**	**4.4**	**5.6**	**8.3**	**44.4**
Planning/Selection	**4.55**	**2.1**	**8.39**	**0.0**	**0.6**	**9.10**	**24.69**
Total Providers FTEs by Type	**56.16**	**8.21**	**22.44**	**11.79**	**15.34**	**38.39**	**152.33**

Table 3.1.2: EHR adoption within FQHCs[7]

Out of the eight responses (11 Tribes in Wisconsin), five Tribes reported using an EHR. The following table shows the number of eligible professionals in the Tribes. Three Tribes in Wisconsin indicated they are not using an EHR and an additional three Tribes did not respond to the survey.

[7] Does not include Family Health Center of Marshfield and Lake Superior CHC (Minnesota HRSA grantee).

Name of Organization	Total Eligible Professionals[8]	EHR Product Vendor
Red Cliff Community Health Center	4	IHS RPMS
Menominee Tribal Clinic	10	e-MDs
Lac Courte Oreilles Community Health Center	8	IHS RPMS
Lac du Flambeau Band of Lake Superior Peter Christensen Health Center	26	Intergy
Forest County Potawatomi Health & Wellness Center	12	IHS RPMS
Total	**60**	

Table 3.1.3: Number of eligible professionals in tribal organizations with an EHR

Wisconsin hospitals are investing heavily in HIT to enable improvements in care coordination and support decision-making across the continuum of care. The Wisconsin Hospital Association recently conducted a survey to assess the extent of HIT adoption among the 128 acute-care hospitals in the state as of the end of the 2009 fiscal year. The survey had a 100 percent (100%) response rate. Ninety-one percent (91%) of Wisconsin acute-care hospitals have either fully or partially implemented at least five HIT systems. Eighty-six (86%) percent have achieved a moderate, high, or very high level of HIT use.

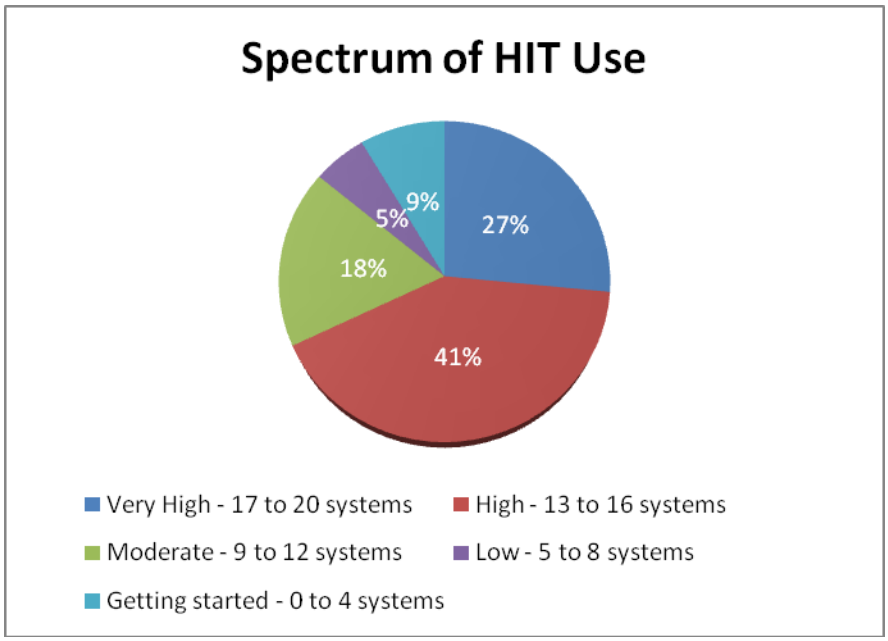

Figure 3.1.1: Spectrum of HIT use in Wisconsin hospitals

[8] These self-reported numbers are based on their understanding of the proposed MU rule as of March, 2010 and include both Medicaid and Medicare Eligible Professionals.

For the purpose of this survey and analysis, a hospital EHR contains all of the following systems:

1) Core master person index database
2) Lab information system
3) Pharmacy system
4) Enterprise medication administration record
5) Radiology information system
6) Order entry and results
7) Inpatient charting

Based on these criteria, 56 percent (56%) of Wisconsin acute-care hospitals have either fully and/or partially implemented and 27 percent (27%) have fully implemented all of these seven systems. With a focus on safety, forty-nine percent of Wisconsin acute-care hospitals have also fully or partially implemented a bedside medication verification system, with an additional 37 percent (37%) planning to do so. For computerized physician order entry, 37 percent (37%) are implementing this technology with 52 percent (52%) in the planning stage.

HIT System	Fully Implemented	Partially Implemented	Planning	No Plan at This Time
Master person index database	80%	5%	9%	6%
Lab information system	91%	4%	4%	2%
Pharmacy system	75%	16%	6%	3%
Enterprise medication administration record	57%	20%	20%	4%
Medication dispensing	64%	23%	9%	4%
Radiology information system	75%	9%	8%	9%
Computerized radiography	77%	13%	5%	5%
Picture archiving & communication system	82%	5%	10%	2%
Order entry & results	63%	24%	10%	2%
Inpatient charting	47%	28%	22%	3%
Bedside medication verification	36%	13%	37%	14%
Computerized physician order entry	13%	24%	52%	12%
Health electronic record portal	39%	16%	33%	12%
Bulk scanning	45%	19%	22%	14%
Surgery management system	58%	11%	20%	11%
Interface engine	55%	16%	15%	14%
Physician practice management systems	39%	13%	15%	34%

HIT System	Fully Implemented	Partially Implemented	Planning	No Plan at This Time
Physician practice EHR system	34%	17%	21%	28%
Long-term care EHR system	7%	6%	10%	77%
Home health EHR system	27%	4%	4%	65%

Table 3.1.4: Hospital adoption rate by percentage for 20 HIT systems[9]

The most prevalent EHR vendors in use in the state include:

- Epic
- Cerner
- Marshfield Clinic
- GE Healthcare
- Meditech
- HMS
- Healthland
- McKesson

The HITECH Act and Medicare and Medicaid Programs: EHR Incentive Program or meaningful use final rule focuses almost entirely on acute care and pediatric hospitals and a subset of medical provider specialties using EHR systems for patient care. The nation and Wisconsin will not fully enjoy the benefit of electronic health information until mental health care, rehabilitation, long-term care and aging, and public health professionals are also linked by exchange using health information systems harmonized to ONC/CMS certification and messaging criteria.

3.2 Local Public Health and Tribal Health Department Providers

Local public health and tribal health departments provide a combination of direct patient care, care management, and population health services. One hundred percent (100%) of local public health and tribal health departments use the web-based Secure Public Health Electronic Record Environment (SPHERE) for certain maternal-child health care management tasks. The SPHERE system is in need of an upgrade. All the departments also use a real-time electronic immunization and lead poisoning registry. One hundred percent (100%) of local public health departments use the Wisconsin Electronic Disease Surveillance System (WEDSS) for communicable disease case management. Public health and other agencies manage Women, Infants, and Children (WIC) Supplemental Nutrition Program clients on another system called Real-time Online Statewide Information Environment (ROSIE). Over time these

[9] Note: Due to rounding, not all system percentages total 100%.

systems have been engineered to share electronic information among themselves and receive data from the state vital records system and electronic laboratory reporting system. Like clinical providers, public health professionals desire the efficiency and quality improvement that would result from HIT integration in an environment that can support multiple patient-centered workflows for both patient care and business intelligence. To support optimal exchange, harmonization with ONC HIT certification requirements will be important. To date, the U.S. Department of Health and Human Services has been relatively silent on the HIT funding needs of the public health sector.

3.3 Resources for HIT Adoption

As noted throughout the industry and in this Plan, EHR adoption among providers of all sizes is a critical requirement to the advancement of HIE. The greatest barrier to EHR adoption cited by small practices in the 2008 survey of Wisconsin practices was the capital investment to purchase and implement an EHR system. However to date, the Wisconsin legislature has not appropriated any funding to assist small practices and solo practitioners, other than an EHR tax credit that was deferred until state fiscal year 2012. Wisconsin's principal strategy for helping these small group practices, individual providers, and critical access hospitals is primarily through technical assistance by working in partnership with WHITEC, workforce development opportunities, and the Medicaid EHR incentive program. Additionally, a number of the large IDNs in the state are offering a lower-cost option to providers in their local communities that are not part of their IDN to be able to use the IDN's EHR system. For example, in Madison, the University of Wisconsin Medical Foundation hosts and provides an EHR to the local FQHC in Madison. The following sections describe the primary resources currently available to support adoption and use of EHRs by health care providers and hospitals.

3.3.1 Wisconsin HIT Extension Center (WHITEC)

WHITEC plans to provide technical assistance to approximately 1,625 primary care providers in Wisconsin in their efforts to select, implement, and achieve meaningful use of certified EHR technology, including meeting the interoperability requirements for HIE. To assist WHITEC in its efforts and to help promote Medicaid provider adoption of HIT, the State Medicaid Program has provided initial information regarding providers who may require assistance in the acquisition or upgrade of certified EHR technology. This information was gathered through a provider survey conducted in April and May of 2010 by the State Medicaid Program (SMP). As the SMP continues to develop the plan to encourage EHR adoption of certified EHR technology the agency will assess opportunities to partner with WHITEC that help facilitate the goal of broad provider adoption. WHITEC is also coordinating with the National Indian Health Board, a Regional Extension Center for tribal nations across the states, to specifically assist the tribal health clinic providers in Wisconsin.

The SDE will be expected to coordinate with WHITEC to ensure providers participating in WHITEC's education and technical services are aware of the WIRED for Health Project and the statewide health information network and services implementation activities. WHITEC will be a primary communication and outreach channel for the WIRED for Health Project for promoting statewide HIT and HIE adoption by providers. The Department of Health Services is a member of WHITEC's Steering Committee.

3.3.2 HIT Workforce

The demand for a well-trained health IT workforce is great and is growing, but is to some degree limited by the available supply of professionals within the health care workforce. By the ONC's own estimates, an additional 51,000 HIT workers will be needed nationally over the next 5 years. Nationwide that will

require an estimated 50 percent (50%) increase in the workforce, many of whom will likely require a clinical background.

Like other states, the shortage of physicians and other health care professionals within the industry affects Wisconsin. Various organizations representing clinicians, hospitals, academia, and government have launched initiatives to monitor and address workforce shortages. Two such organizations, the Wisconsin Council on Medical Education and Workforce and the Department of Workforce Development's (DWD) Select Committee on Health Care Workforce Development regularly study and advise leaders in Wisconsin's health community on strategies to address needs and gaps in workforce levels and readiness.

A shared goal across these initiatives includes the need for increased training to cultivate more clinicians and increasingly, to advance HIT skills. The recent HITECH Workforce Development grant serves as an opportunity to advance the shared goal over the short-term in support of our existing long-term initiatives. The following sections provide statistics on Wisconsin's existing health care workforce and education and training programs.

3.3.2.1 Workforce Levels

Studies conducted in 2007 and 2008 by the DWD and the Wisconsin Council on Medical Education and Workforce, respectively, looked at current health care workforce levels and projected future supply/shortages. Highlighted findings from the separate studies include:

- **Physicians**: A shortage of primary physicians exists in rural and inner-city areas of Wisconsin. Specifically, there is a shortage of primary care physicians in rural Wisconsin, and in Milwaukee in the Health Professional Shortage Areas.[10]

  Based on their 2008 study, the Wisconsin Council on Medical Education and Workforce developed future projections and, as reflected in the following bullets and table, concluded:

  - The supply of physicians in Wisconsin is expected to grow at an annual rate of 0.9 percent (0.9%) to 1 percent (1%) over the next two decades. The growth for primary care physicians is projected to grow at a lower annual rate of 0.4 percent (0.4%).
  - The conservative projection of demand for physician services is 1.4 percent (1.4%) per year, with the high-end projected growth at 3.5 percent (3.5%).
  - The resulting shortfall in supply is projected to be between 0 percent (0%) and 44 percent (44%) by 2030, with the shortage for primary care physicians projected to be between 8 percent (8%) and 57 percent (57%).

[10] Who Will Care For Our Patients? *Wisconsin Council on Medical Education and Workforce*, 2008.

	Surplus		Shortage	
	Number of Counties	**FTE Surplus**	**Number of Counties**	**FTE Shortage**
Primary Specialists	31	994	41	374
Medical Specialists	13	708	59	488
Surgical Specialists	13	356	59	332
Hospital-Based	9	260	63	600
Totals		2,318		1,794

Note: Wisconsin has 72 counties.

- **Health Professionals**: Job openings or shortages exist among other non-physician health care professionals through either new jobs or vacancies, with registered nurses topping the list with 26,110 openings. Combined across all health profession occupations, the number of open positions (new and replacement) totals 65,880 over the 10-year period, ending in 2014.

Occupational Title	2004 Estimated Employment	2014 Projected Employment	2004-2014 Employment Change (new)	2004-2014 Employment Change (replacement)	2004-2014 Total Employment Change (new & replacements)
Registered Nurses	48,410	64,420	16,010	10,100	26,110
Nursing Aides/Orderlies/Attendants*	38,630	45,320	6,690	5,100	11,790
Home Health Aides*	13,730	20,790	7,060	1,800	8,860
Medical Assistants*	5,890	8,640	2,750	1,100	3,850
Dental Assistants*	5,050	6,950	1,900	1,400	3,300
Licensed Practical/Vocational Nurses	11,040	12,650	1,610	2,400	3,010
Healthcare Support Workers/All Other*	6,160	7,510	1,350	1,100	2,450
Pharmacy Technicians*	5,770	7,200	1,430	800	2,230
Emergency Medical Technicians/Paramedics	7,140	8,560	1,420	800	2,220
Dental Hygienists	4,390	6,050	1,660	400	2,060

Source: DWD, Office of Economic Advisors, 2006

While exact statistics do not currently exist on the size of the HIT workforce within Wisconsin, it is believed that current shortages in HIT are reflective of the existing shortages within the overall health profession.

3.3.2.2 Education and Training Programs

Key strategies in Wisconsin's long-term plan to address the needs in the health care workforce includes increasing enrollment and graduation rates within our universities, colleges, and technical programs while improving in-state retention rates upon graduation. In the short term, Wisconsin is supplementing existing educational programs by applying the recent award of the HITECH Workforce Development grant to develop HIT training programs.

3.3.2.2.1 Long-Term Strategy – Education

Supporting Wisconsin's long-term strategy are the three educational systems within the state that produce advanced, 4-year baccalaureate, and associate health care degrees. The three educational systems include

the University of Wisconsin System, the Wisconsin Private Colleges and Universities, and the Wisconsin Technical College System.

These institutions of higher learning have medical or health care informatics programs that prepare professionals to participate in and lead multidisciplinary teams in the development, implementation, and management of information technology solutions in health care, such as the Medical College of Wisconsin and the Milwaukee School of Engineering; the University of Wisconsin-Milwaukee, and the University of Wisconsin-Madison School of Medicine and Public Health. These programs join the disciplines of medicine, business, and information technology, and promote the use of HIT in the health care delivery process to achieve measurable improvements in both quality of care and cost effectiveness.

Health care and HIT have long been the focus of Wisconsin's institutions of higher learning. In 2007, DWD released the *Wisconsin Health Care Workforce Annual Report.* The following four tables are extracts from that report and include graduation statistics for many key health care occupations from the three Wisconsin educational systems. The first table highlights the registered nurse degree graduates from all the educational systems. Nursing is the single largest health care profession and as previously indicated, has the most total openings. The following tables show many key health care occupations by educational system.

Registered Nurse Degrees

Educational System	Academic Years						TOTALS over 6 yrs.
	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	
University of Wisconsin System	488	534	519	499	727	674	3,441
Wisconsin Private Colleges and Universities	631	632	534	582	638	660 *	3,677
Wisconsin Technical College System	772	790	892	878	1,053	1,333	5,718

Source: Compiled from the UW System Office of Policy Analysis and Research reports, Wisconsin Association of Independent Colleges and Universities Private Sector Health Degrees, and Wisconsin Technical College System Graduate Follow-up Reports. * The Wisconsin Private Colleges and Universities includes only BSN graduates.

University of Wisconsin System

In 2007, the DWD identified the University of Wisconsin System as a national leader in health care education and although the UW System graduated fewer baccalaureate registered nurses, overall degrees increased including the number of masters and doctorate prepared nurses by 26 percent (26%).

Degree Titles	Academic Years						TOTALS over 6 yrs.
	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	
Registered Nurses							
-Baccalaureate	488	534	519	499	727	674	3,441
-Masters and Doctorate	134	127	101	90	107	135	694
Physician Assistants	37	38	40	42	36	41	234
Medical Records/Health Information Technicians*	6	5	2	3	0	0	16
Medical Doctors (MD Degree)	143	152	136	142	134	152	859
Occupational Therapy	133	133	126	80	105	78	655
Physical Therapy**							
-Baccalaureate	0	2	0	2	0	0	4
-Masters	29	89	69	64	60	68	379

Source: UW System Office of Policy Analysis and Research

*Note: Medical Records/Health Information Administration program was discontinued in 2003.
**Physical Therapy degrees are presented by level of degree awarded as this discipline changed from baccalaureate program to masters program at campuses in the late 1990s.

Wisconsin Private Colleges and Universities (WPCU)

As determined by the DWD in 2007, the Wisconsin Private Colleges and Universities continued their success in graduating health care professionals. Registered nursing degrees at all levels increased by 16 percent (16%), while Medical Technology/Medical Informatics (formerly titled Medical Records/Health Information Technicians) increased by an impressive 900 percent (900%), and this is prior to the enactment of HITECH which is driving further demand for this type of degree. It should be noted that informal estimates indicate that up to 20 percent (20%) of BSN and MSN graduates may have already been RNs with an Associate degree so this is not a total increase in the numbers of RNs.

Degree Titles	Academic Years						TOTALS over 6 yrs.
	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	
Registered Nurses - BSN							
- Baccalaureate	631	632	534	582	638	660	3,759
- Masters	Not reported previously					82	82
Physician Assistants	31	26	24	34	31	29	175
Dental Clinical Sciences	29	34	30	35	26	11	165
Medical Technology/Medical Informatics	5	8	8	3	4	40	68
Health Services/Health Sciences	104	115	171	190	159	210	949
Dentists (DDS degree)	74	62	72	77	72	75	432
Medical Doctors (MD degree)	198	190	194	204	188	187	1,.161
Physical Therapy	115	114	78	89	70	80	546
Occupational Therapy	Not reported previously					37	37
Pharmacology	Not reported previously					4	4

Source: Wisconsin Association of Independent Colleges and Universities Private Sector Health Degrees.

Wisconsin Technical College System

Based on DWD's 2007 analysis, the Wisconsin Technical College System continued their outstanding level of providing health care graduates. Some highlights were a notable increase of 88% in practical nursing graduates, 27% increase of registered nursing graduates, and the 43% increase in dental assistants and hygienists.

Degree Titles	Academic Years						TOTALS over 6 yrs.
	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	
Registered Nurses	772	790	892	878	1,053	1,333	5,718
Nursing Assistants	2,597	3,110	4,647	5,619	6,534	6,541	29,048
Practical Nursing	279	320	398	412	562	1,055	3,026
Medical Assistants	244	236	231	256	393	446	1,806
Dental Assistants & Hygienists	190	179	256	278	287	410	1,600
Health Information Technology	33	23	39	38	50	52	235
Clinical Laboratory Technicians	59	47	49	26	52	70	303
Surgical Technology	30	27	33	36	42	47	215
Respiratory Care Practitioners	49	50	72	63	78	89	401
Physical Therapist Assistants	84	77	51	45	56	59	372
Radiography	85	93	89	113	100	166	646
Diagnostic Medical Sonography	18	16	17	18	17	26	112
Phlebotomy Technicians	32	25	47	58	73	84	319
Medical Coding Specialists	66	63	92	83	94	121	519
Pharmacy Technicians	32	25	31	37	42	54	221

Source: Wisconsin Technical College System Graduate Follow-up Reports

3.3.2.2.2 Short-Term Strategy – Training

To address the primary short-term need to increase the number of HIT professionals, Wisconsin will take advantage of the recent grant award it received through the HITECH Workforce Development grant to rapidly train individuals in HIT.

The Madison and Milwaukee Area Technical Colleges are part of the newly formed Midwest Community College Consortia led by Cuyahoga College in Cleveland Ohio that applied for a HITECH Workforce Development grant. The Midwest Community College Consortia received the grant award for Region 3. This consortium is made up of 17 colleges across 10 states: Wisconsin, Nebraska, Kansas, Minnesota, Iowa, Missouri, Illinois, Michigan, Indiana, and Ohio.

Individuals trained through this program will be a valuable resource for WHITEC, local HIT consulting firms, and providers across the state to assist with adoption, implementation, and meaningful use of EHRs.

The State Health IT Coordinator is a member of the colleges' HIT Training Advisory Committee.

Workforce Development Grant Details

Through the HITECH Workforce Development grant, Milwaukee has a total of $849,104 allocated (includes the grant award amount plus some matching funds from the college) to train and develop a HIT workforce in Wisconsin in four different roles:

1) Practice workflow and information management redesign specialists
2) Implementation support specialists
3) Implementation managers
4) Technical/software support staff

Students can complete the program in six months or less. They expect to train 150 students per year, for a total of 300 students, over the period of the grant.

Madison received $759,822 to train 80 students per year, for a total of 160 students, in two of the four roles listed above.

3.3.3 Medicaid EHR Incentive Program

The State Medicaid Program is currently developing the State Medicaid Health Information Technology Plan (SMHP) that includes the Medicaid Program's plan to: (1) administer Medicaid incentive payments to eligible professionals and hospitals (2) conduct oversight of the Medicaid EHR incentive program, including routine tracking of meaningful use attestations and reporting mechanisms, and (3) pursue initiatives to encourage the adoption of certified EHR technology for the promotion of health care quality and the exchange of health care information.

The primary focus of the planning effort is defining the business processes, organization structure, and technology changes that are needed to support administration and oversight of the Medicaid EHR Incentive Program with the goal of issuing incentive payments in early 2011 to the right providers under the correct circumstances in the first year of the program. In addition, the Medicaid Program is currently working with the WIRED for Health Project to define the HIE services that will be needed to support Medicaid providers in achieving meaningful use for payment years 2012 and beyond as well as the potential services that could be used by the Medicaid Program to manage the Medicaid EHR Incentive program (e.g., provider reporting of quality measures).

As the planning process matures, the Medicaid Program will identify strategies to encourage Medicaid provider adoption of certified EHR technology through the Medicaid EHR Incentive Program. This includes working in partnership with WHITEC to assess the need for technical assistance to support providers in the adoption of certified EHR technology and achieving meaningful use. The Medicaid Program will also be identifying other strategies to encourage EHR adoption and utilization that target eligible professionals and hospitals who may not currently meet all the eligibility requirements for a Medicaid EHR Incentive Payment.

3.3.4 EHR Tax Credit

A provision in 2007 Wisconsin Act 20, which was enacted October 26, 2007, created a tax credit for providers who purchase software or hardware used to maintain medical records in electronic form. Providers would be able to claim up to fifty percent (50%) of the amount expended. The total amount of credits that could be claimed by providers in a taxable year was limited to $10 million. This provision was supposed to first apply to tax years beginning after December 31, 2009; however, the funding for the credit was eliminated and deferred until fiscal year 2012. If the tax credit is funded, this will provide some financial help to providers subject to Wisconsin state taxation.

4 HIE DEVELOPMENT

4.1 Environmental Scan for HIE Readiness and Adoption

The Environmental Scan provides an overview of HIE readiness and adoption in Wisconsin, as it relates to clinical providers, including pharmacies and labs; public health; and health plans. While overlaps exist among the HIE capabilities in these three categories, for the purposes of this scan, these categories will be discussed separately. The specific HIE capabilities identified in the following figure relate to various meaningful use objectives and are the focus of this planning effort. The initial step in understanding what HIE infrastructure and services Wisconsin needs to develop involves conducting a scan of the existing HIE capabilities and understanding the gaps.

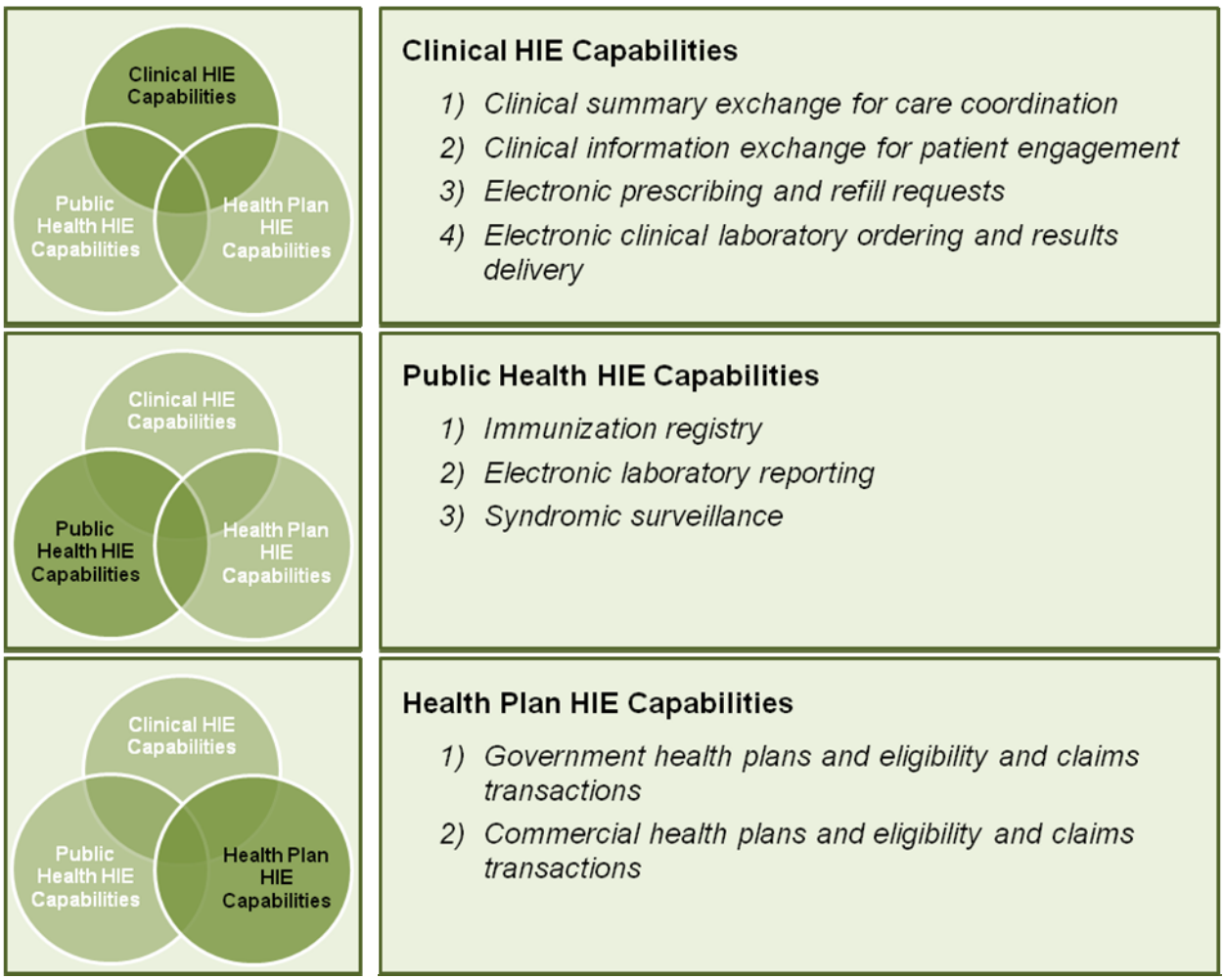

Figure 4.1.1: Environmental Scan for HIE Readiness and Adoption

The State of Wisconsin used a collaborative process to conduct the Environmental Scan to identify existing HIE capabilities and capacities. Inputs into this process included Wisconsin's eHealth Action Plan issued in 2006 and outputs generated by the SLHIE Planning and Design Project, which included input from over 1,000 stakeholders across Wisconsin.

A key input into the Environmental Scan included the output of five HIE regional summit meetings held throughout Wisconsin during the summer of 2009. These summit meetings provided stakeholders with an opportunity to express their opinions and make recommendations on statewide HIE governance, finance, and technical considerations. The Department of Health Services also invited stakeholders to share their opinions on statewide HIE through an online HIE Capabilities Survey, specifically related to readiness and participation.

Survey results from the HIE Capabilities Survey show that respondents are in support of a statewide HIE, but some may be lacking organizational capacity and resources to connect to a statewide health information network. There is currently a high degree of exchange within Wisconsin IDNs but only a minimal amount across unaffiliated providers. The high EHR adoption rate by Wisconsin providers is an enabling factor for HIE.

4.1.1 Clinical HIE Capabilities

The HIE Capabilities Survey recorded results from over 90 respondents across multiple stakeholder types—IDNs, hospitals, payers, consumers, independent physicians, and quality and health information organizations. The survey was available to the public. When stakeholders were asked to describe the statement that best represented their organization's interest in establishing a SLHIE, all but two respondents indicated that Wisconsin should provide a state-level governance structure and HIE services.

When asked to describe their internal readiness to participate in HIE based on organizational capacity, approximately 45 percent (45%) of respondents indicated that participation in health information exchange would stretch their organizational capacity. Organizational capacity was described as having the ability to provide staff or procure the resources necessary to address the technical and process changes required to successfully participate in statewide health information exchange.

When asked to characterize the priority their organization would place on participation in statewide HIE activities, over 50 percent (50%) of stakeholders indicated participation in statewide HIE is a top priority in the next 3 years or part of their organization's 5-year plan.

Please refer to Appendix 6 for results from the HIE Capabilities Survey participation results.

Organizations have varying degrees of clinical HIE capabilities across the following objectives:

- Clinical summary exchange for care coordination
- Clinical summary exchange for patient engagement
- Electronic prescribing and refill requests
- Electronic clinical laboratory results delivery

The subsequent section discusses the baseline data and identifies gaps for each category.

4.1.1.1 Clinical Summary Exchange for Care Coordination

There are numerous examples of clinical summary exchanges for care coordination in Wisconsin. The Wisconsin Health Information Exchange (WHIE) is an example of a regional health information organization exchanging information across unaffiliated health systems. There are also other representative examples of clinical summary exchange for care coordination between unaffiliated health systems. This section provides three such examples: the Dane County Care Everywhere pilot, the

Marshfield/Ministry exchange, and the Kiara Clinical Integration Network (KCIN). Numerous other examples can be found throughout the state.

While no exchange of full clinical summaries—defined here as a continuity of care document (CCD) consistent with the certification standard—currently exists, these examples do represent existing resources that could be leveraged in the statewide health information network. Based on the examples of clinical summary exchange between unaffiliated health systems included in this section, approximately 6,190 physicians in Wisconsin have the ability to exchange clinical summaries (although not full CCDs).[11] This number does not take into account physicians who may practice in more than one health system or hospital and are currently participating in more than one of the exchanges. The SDE should complete a more detailed analysis during the implementation phase of these and other clinical summary exchange examples.

4.1.1.1.1 Wisconsin Health Information Exchange (WHIE) (Intrastate)

The Wisconsin Health Information Exchange (WHIE) is a regional health information organization based in southeastern Wisconsin. Emergency Department (ED) Linking was WHIE's first operational HIE project, funded by a Medicaid Transformation Grant and the five Milwaukee health systems. Current operations are supported by Medicaid, participating health systems, self-funded employers, and commercial and managed care payers.

The exchange receives and aggregates admission, transfer, and discharge (ADT) data real time from hospitals and associated clinics, including allergy history, primary care and case manager background and contact detail, chief complaint, discharge diagnosis, and other encounter specific data. Additionally, the exchange receives weekly data feeds from the Wisconsin Medicaid Program that include prescription fill data; medically relevant fee-for-service claims and HMO encounter data such as procedure and diagnosis detail; and physician, case manager, and pharmacy assignment data, if applicable, for all Medicaid beneficiaries statewide. The Medicaid pharmacy data has about a 1-week lag time and includes date of prescription, date of most recent dispensing, quantity, days' supply, number of refills, and prescriber's name. Much of the Medicaid medical claims and encounter data have an average lag time of about 90 days.

Currently, 44 hospitals, over 120 hospital/ambulatory clinic sites, and 1 FQHC across 24 counties contribute ADT data to the WHIE for both clinical care use and public health syndromic surveillance. WHIE recently implemented its first data feed from a Managed Care Organization (MCO), Independent Care (iCare), which is principally a Medicaid MCO. iCare provides the exchange data on case manager assignment, case manager contact details, and patient specific communications from case managers to providers in the ED and ambulatory settings, enhancing communication between providers and case managers.

The exchange presently has over 525 user accounts and provides clinicians at 10 hospital emergency departments and one federally qualified health center in Milwaukee county real-time access to a patient's historical encounter data stored in the exchange at the time of a patient's care. Clinicians are also able to post a "Clinician Communication" to the exchange about a patient under their care to alert other health care providers to issues that may affect care, such as the existence of a pain management contract. Based

[11] The number of physicians identified as having access to clinical summary exchange capabilities may be higher than actual depending on an unknown number of double counted physicians.

on current usage statistics, approximately 210 physicians have access to clinical summary information through the WHIE.

WHIE data suitable for syndromic surveillance and population health analysis is made available to the 16 local health departments serving Milwaukee and Waukesha counties, and to the state Division of Public Health. This data was used for real-time biosurveillance during the recent influenza H1N1 pandemic.

The economic and care impact of WHIE on Medicaid patients is the subject of an ongoing evaluation being conducted by the University of Wisconsin School of Nursing. Preliminary evaluation data from an evaluation being conducted by the Medical College of Wisconsin using physician surveys indicate that WHIE data influence care in 42 percent (42%) of emergency department cases. In about one half of these cases, change included a reduction in prescribing, imaging, or laboratory testing.[12] Information from WHIE influenced a multi-million dollar impact decision over school closings during the influenza H1N1 pandemic.[13]

WHIE uses Microsoft Amalga Unified Intelligence System® for its exchange and can accept data in a variety of formats, including Health Level Seven (HL7), batch files, customized interfaces, and other current and evolving standards (e.g., HL7 2.x, HL7 3.x, Integrating the Healthcare Enterprise (IHE) Cross-Enterprise Document Sharing (XDS) XDS.b, Digital Imaging and Communications in Medicine (DICOM)). Both query response and central storage use cases are supported.

Depending on changes to data sharing agreements, the WHIE data could be shared for clinical quality improvement and for potential state-level core services such as a Master Person Index and Record Locator Service.

4.1.1.1.2 Epic Care Everywhere (Intrastate and Interstate)

One example of electronic health information exchange between unaffiliated health systems in Wisconsin (with potential for interstate expansion) is the Dane County Care Everywhere pilot. In Dane County, health exchange is occurring between organizations using Epic Care Everywhere. UW Health, Meriter Hospital, St. Mary's Hospital, Dean Clinic, and Group Health Cooperative South Central Wisconsin, representing a majority of providers in Dane County, are now exchanging full electronic health records (including patient allergies, medications, immunizations, history, problems, ante partum summary, labs, and results) in emergency departments and urgent care settings. Providers surveyed believe this program has improved clinical decision-making and has reduced duplicative testing across EDs and urgent care settings. There are between 80 and 100 patient records exchanged daily between participating organizations. A challenge for the Dane County Care Everywhere pilot is current state legislation, which does not explicitly protect health care organizations when collecting prospective consent in an effort to provide better care for patients. This has caused the participating organizations to design their workflows to require clinicians to obtain patient consent for HIE at every care encounter.

The pilot ended on July 31, 2010, and the current participants are deciding whether to connect with all other Epic clients in the country using Care Everywhere. Most, if not all, of the current participants plan

[12] Data from J Rubin, MD in Pemble K. Impacting health and care in Wisconsin: the role of HIE. Dairyland HIMSS 10th Annual Spring Leadership and Legislative Conference, May 13, 2010. Delafield WI.
[13] Foldy SL. HIE-enabled Syndromic Surveillance of Pandemic (H1N1) Influenza 2009 and a High-Stakes Decision. Public Health Information Network Annual Meeting, Centers for Disease Control and Prevention, Atlanta, GA. Aug. 31, 2009.

on participating in the program after July 31, 2010. Future roll-out strategies are likely to vary by organization.

A survey of health system chief information officers (CIOs) across the state currently using or planning to use Epic determined that approximately 4,980 physicians are using or will have access to clinical summaries through Epic's Care Everywhere application.

4.1.1.1.3 Ministry/Marshfield Exchange (Intrastate)

Another example of electronic HIE among two unaffiliated systems is the Ministry/Marshfield exchange. Marshfield Clinic is a physician-owned and operated medical group comprised of approximately 750 multi-specialty physicians serving Northern Wisconsin. Ministry Health Care operates 11 hospitals in that service area. Seventy-five percent (75%) of all patients admitted to Ministry hospitals over the last five years have been treated by at least one Marshfield Clinic physician.

To provide the best possible care to the shared patient base, Ministry and Marshfield Clinic created a two-provider HIE where all key clinical information collected at Ministry hospitals is shared with the Marshfield Clinic HIE. This information includes clinical summaries, operative reports, discharge summaries, lab results, radiology interpretations, and all digital images.

To the extent that interoperability standards exist, the hospital information system (HIS) leverages these standards. For example, lab results are normalized using the Logical Observation Identifiers Names and Codes (LOINC) standard. The HIE is enabled by managing a common patient numbering system between Marshfield Clinic and the four Ministry HIS databases, which are separate systems from Marshfield Clinic's own EHR.

Combined, approximately 1,000 physicians have access to clinical summaries through the data exchange between Ministry and Marshfield Clinic.

4.1.1.1.4 Kiara Clinical Integration Network (KCIN)

The Kiara Clinical Integration Network allows electronic exchange between Hospital Sisters Health System **(**HSHS) owned and affiliated clinics in Wisconsin and Illinois using a provider portal. HSHS is a health care system that owns and operates 13 hospitals with both owned and affiliated clinics across northwestern and northeastern Wisconsin and Illinois. As a HIE, KCIN's primary objective is to facilitate the exchange of health care information across this system of organizations. KCIN is dedicated to enabling hospital and community partners with the ability to exchange health and other business information in a secure and efficient fashion for the purposes of maximizing excellence in patient care, excellence in care efficiency, and clinician experience excellence.

KCIN current existing capabilities include:

1) Medicity ProAccess Provider Portal eMPI and other associated technology solutions interface with all 13 HSHS hospitals' internal systems. All HSHS hospitals and HSHS owned and affiliated clinics in Wisconsin and Illinois are able to access and/or exchange records using this MPI.
2) Medicity EHR Gateway, Medicity/Novo EHR Grid Agent, and the Medicity/Novo Dropbox provide information access between owned and affiliated clinics and other community partners.

3) KCIN began rolling out two EHR systems (Allscripts Enterprise and EpicCare Ambulatory EHR systems) to community physicians across HSHS served geographies/communities.

The primary goal of these KCIN EHR offerings is to build large, single enterprise-level "virtual" EHRs that can group many smaller physician practices across geography (medical trading area) into a large single system. The intent is to allow more simplistic and efficient access to information within a single EHR and create a single point of integration from these numerous smaller physician practices into either local and/or state-level health care networks.

4.1.1.2 Clinical Information Exchange for Patient Engagement

To date, capability for clinical summary exchange for patient engagement exist, but this capability is primarily confined to individual IDNs.

Providers throughout the state are engaging their patients through various tools, including through patient-controlled personal health records. One example of a technology used by patients for clinical summary exchange is the Epic MyChart patient portal. MyChart allows patients to review their medications, immunizations, allergies, and medical history through a secure password-protected web portal. It also allows patients to request appointments, message their provider, and receive test results online. There are numerous other examples of patient engagement found throughout the state.

4.1.1.3 Electronic Prescribing and Refill Requests

Another area where clinical HIE capabilities already exist in Wisconsin is electronic prescribing and refill requests. Through a survey of all licensed pharmacies within Wisconsin, approximately 76.6 percent (76.6%) (1,019 out of 1,330 total pharmacies) of pharmacies accept electronic prescribing and refill requests. According to the 2009 Surescripts' report, "W*isconsin Progress Report on E-Prescribing*," 17 percent (17%) of prescriptions are electronically routed in Wisconsin (up from only 1.94 percent (1.94%) of total prescriptions routed electronically in 2008).[14] For a map illustrating the geographic location of pharmacies and their current ability to accept electronic prescriptions and refill requests, please refer to Appendix 7.

4.1.1.4 Electronic Clinical Laboratory Ordering and Results Delivery

Through the Clinical Laboratory Improvement Amendments (CLIA), the Centers for Medicare and Medicaid Services (CMS) regulates all laboratory testing (except in research) performed on humans in the United States.[15] In Wisconsin, there are 3,489 CLIA-certified labs in Wisconsin. Major laboratory information systems in the state include the following:

- Aspyra CyberLAB
- Cerner PathNet®
- Epic Beaker (formerly known as EpicLab)
- HMS

[14] http://surescripts.com/about-e-prescribing/progress-reports/state.aspx?state=wi
[15] https://www.cms.gov/clia/

- McKesson Horizon Lab
- MISYS/Sunquest LIS
- Orchard Harvest LIS
- SCC SoftLab

The WIRED for Health Project conducted a survey of all CLIA accredited and compliance labs (768) within the state to determine the baseline number of labs currently delivering results electronically. Survey results indicated that 59.5 percent (59.5%) (457 out of 768) of labs currently deliver results electronically. For a map illustrating the geographic location of laboratories and their current ability to deliver results electronically, please refer to Appendix 7.

4.1.2 Public Health HIE Capabilities

Public health has developed many different mechanisms over more than a century to collect information necessary to monitor public health and to trigger public health action. This information is often used to alert health care providers of time-sensitive opportunities to improve patient care (e.g., to alert clinicians of a disease outbreak requiring unique diagnostic or therapeutic considerations). The Department of Health's Division of Public Health (DPH) now seeks to improve information timeliness, completeness, and accuracy; and to reduce burdens on health care providers and other information sources, by moving from manual reporting to automatic data transmission from electronic health information systems. DPH also seeks to foster the electronic reuse of data (when appropriate) to improve the effectiveness and efficiency of public health and prevention programs. The division recently created the Office of Health Informatics in a reorganization that unites the State Health IT Coordinator; eHealth program staff; the vital records, population health, and healthcare information sections, the Public Health Information Network program; and the epidemiology coordinator into a single unit ready to share information and develop mutually interoperable systems in the new eHealth environment. The following sections provide details and baseline data about the primary public health capabilities related to immunizations, laboratory reporting, and syndromic surveillance.

4.1.2.1 Immunization Registry

The Wisconsin Immunization Registry (WIR), sponsored jointly by Public Health and the State Medicaid Program, records and tracks immunizations given to Wisconsin children and adults, provides parents with access to their children's immunization records, provides a rich source of data for health care providers and health care organizations, and supports activities related to the Strategic National Stockpile.[16] There are over 1,600 immunization providers and about 2,650 schools with access to the registry who have reported over 50 million immunizations given to seven million de-duplicated clients (a population larger than the State of Wisconsin, including many residents of other states). In 2009, the registry performed 21 million information transactions. Legacy data from providers is typically received by ASCII batch files. New immunizations are received by manual entry (now only 15 percent (15%) of transactions); ASCII files (55 percent (55%) of transactions); HL7 2.3.1 batch files 2 percent (2%); HL7 2.4 batch files 37 percent (37%); HL7 real-time messages using the Public Health Information Network Messaging System (PHIN-MS) 3 percent (3%); and integrated URL encoding queries from inside EHR applications 3

[16] Centers for Disease Control and Prevention.

percent (3%). Real-time HL7 transactions via web services with major EHR vendors are under development. The system currently exchanges ASCII or HL7 files with users of several large EHR systems including Cerner, Epic, GE Healthcare, McKesson, the Indian Health Services Resource and Patient Management System (RPMS), and the ROSIE system serving the WIC Supplemental Nutrition program. The WIR system is used by 16 states and U.S. territories, in addition to Wisconsin, where it was initially developed. As part of the Public Immunization Record Access feature, WIR allows parents and legal guardians to look up their child's immunization record in the WIR. This decreases the number of requests to providers for immunization records from their patients and provides parents with ready access to their children's immunization status. WIR also includes assessment reporting tools which help providers better understand immunization needs, rates of immunizations and missed vaccination opportunities. As part of future planning initiatives, DPH is looking to provide direct access to WIR within providers' electronic health record products. A new module of WIR now permits pediatric health providers to access a child's history of tests for lead poisoning.

One hundred percent (100%) of Wisconsin's local health departments and tribal health services currently have access to near-real-time immunization information from WIR (some view WIR data through RECIN, a regional registry in North Central Wisconsin). The receipt of such information from clinical providers is by a many-to-one exchange, with many immunization providers contributing information in one or more of the various modalities described above. Thus, all health departments are able to receive electronic records of immunization from providers, but all providers do not provide such records to the system. Nevertheless, 3,543 provider organizations representing over 30,000 WIR users do use the registry.

- Immunization data submission is considered fairly complete for childhood vaccinators, public health vaccinators, and vaccines administered in large group practices (which represent an unusually large proportion of clinicians in Wisconsin). Approximately 93.5 percent (93.5%) of Wisconsin children born since 1989 have at least two immunizations in the system.
- A larger proportion of internists, OB/Gyns, and other adult care providers began submitting reports to WIR during the 2009-2010 influenza H1N1 pandemic.
- Improvement is needed in interstate vaccine record exchange to capture a higher proportion of vaccines administered to Wisconsin residents in Michigan, Minnesota, Iowa, and Illinois.

4.1.2.2 Electronic Lab Public Reporting

The Electronic Lab Reporting (ELR) system, operated by the Wisconsin State Lab of Hygiene (WSLH) on behalf of the DPH, provides results for Wisconsin patients tested for notifiable conditions by either public or private clinical laboratories. Current ELR functionality includes results transmission/delivery, results lists (historical), mandated public health disease/condition reporting, and voluntary public health reporting.

As of July 2010, 100 percent (100%) of local health departments, and the tribal health units that perform case management of communicable diseases in lieu of local health departments, are using the WEDSS. WEDSS receives electronic laboratory reporting through a hub operated by the WSLH. Nineteen major laboratories (including the WSLH) are reporting notifiable results via WEDSS. Over the next 2 years, HL7 reporting will be added from 8 to 10 other laboratories (including three major national labs), and bi-directional laboratory exchange with Minnesota for out-of-state residents. Laboratories that report small volumes of notifiable conditions will continue to use the Wisconsin Laboratory Reporting portal, a manual-entry web interface tailored to their local tests, until ELR exchange for such labs becomes

practical. Nine labs are currently using the portal with more extensive training planned over the next 2 years.

4.1.2.3 Syndromic Surveillance

Currently State Public Health receives near real-time reports of hospital admissions from 44 hospitals and outpatient visits from over 120 ambulatory practice sites across 24 counties via the WHIE. Further expansion of data feeds to WHIE are in progress through funding provided by DPH. Data includes demographics and chief complaint. These represent major providers in every region of the state. An additional six hospitals from three health systems are in various stages of establishing participation with WHIE to further expand hospital and ED visit data volumes. Data includes demographics, date/time/facility of encounter and service type, chief complaint, allergies, primary care physician and for most sites diagnosis. Information from Milwaukee area sites are also received from WHIE by the City of Milwaukee Health Department and the Milwaukee-Waukesha Counties Public Health Emergency Preparedness Consortium of 17 local health departments. A separate project is creating real-time reporting of encounters, including demographics, symptoms, and laboratory results from 22 ambulatory family medicine clinics affiliated with the University of Wisconsin across Central and Southern Wisconsin. This project is scheduled to be operational on 11/30/10. Wisconsin and the City of Milwaukee also have access to syndromic reporting from CDC's BioSense application. The Madison-Dane County health department has online access to a syndromic surveillance system developed by the University of Wisconsin Division Of Emergency Medicine that tracks emergency department visits for influenza-like illness and gastrointestinal illness visits at one large emergency department. It is otherwise unknown how many other local health departments enjoy local syndromic surveillance systems. Access to data in the possession of the Wisconsin Division of Public Health can be provided to 100 percent (100%) of local public health agencies on a role-based authorization basis through the Wisconsin Analysis, Visualization and Reporting application, but this has not yet been implemented.

4.1.3 Health Plan HIE Capabilities

For the purposes of electronic eligibility and claims transactions, all major health plans in the state can accept the 837 claims transactions and are progressing toward industry-wide acceptance of HIPAA 270/271 eligibility verification transactions. The HIPAA rule requires that "all private sector health plans (including managed care organizations and Employee Retirement Income Security Act (ERISA) plans but excluding certain small self administered health plans) and government health plans (including Medicare, State Medicaid programs, the Military Health System for active duty and civilian personnel, the Veterans Health Administration, and Indian Health Service programs), all health care clearinghouses, and all health care providers that choose to submit or receive these transactions electronically are required to use these standards." Consistent with this requirement, 100 percent (100%) of health plans support electronic claims transactions and many fully support electronic eligibility transactions. The following section discusses the electronic eligibility and claims transactions in the public and private sector.

4.1.3.1 Government Health Plans and Electronic Eligibility and Claims Transactions

Health care providers across Wisconsin have multiple methods available to them to verify eligibility electronically for State-managed programs under the "ForwardHealth" umbrella including: Medicaid, Badger Care Plus (all plans), the Wisconsin Well Woman Program, the Wisconsin Chronic Disease Program, SeniorCare, Family Care, and several waiver programs. The following sections describe the State-managed mechanisms for electronic eligibility verification and claims submission.

4.1.3.1.1 ForwardHealth Eligibility Verification

ForwardHealth interChange is the State of Wisconsin's Medicaid Management Information System (MMIS), which supports real-time processing of Wisconsin ForwardHealth. ForwardHealth serves over 1.2 Million members and approximately 60,000 providers. To accommodate the significant differences in size, technical proficiency, and need of the providers, ForwardHealth offers multiple options for electronic eligibility verification for the various ForwardHealth programs including:

1) The direct exchange of HIPAA 270/271 transactions
2) The eligibility verification functionality on the ForwardHealth Portal
3) The Automated Voice Response (WiCall) system
4) The Pharmacy Point of Sale (POS)

The exchange of the 270/271 transaction is generally used by larger providers who need to verify the eligibility of a large number of members. The exchange of the 270/271 HIPAA transaction is available free of charge to providers who successfully complete HIPAA compliance testing to validate that they are able to securely transmit the transaction in the correct format. Alternatively, providers may choose to contract eligibility verification out to a verification service that can also be authorized to exchange transaction records. ForwardHealth processes an average of 1.2 million 270/271 transactions per month.

The ForwardHealth Portal contains an eligibility verification function that allows a provider to look up individual members and verify their eligibility in any of the ForwardHealth programs. This functionality is typically used by small-to-medium size providers who are able to do individual member look-ups. Providers must enter specific identifying criteria (as defined by CMS) before they can obtain member-specific benefit information. As with the 270/271 transaction exchange, the ForwardHealth Portal is free of charge to providers. All that is needed is an internet connection.

The WiCall system is available toll-free to providers wishing to obtain eligibility verification information over the phone. WiCall conducts 32,000 eligibility verifications every month.

ForwardHealth Pharmacy providers have the ability to verify eligibility automatically at the time they submit their POS claims transactions. The ForwardHealth system checks 1.1 million eligibility verifications every month. The ForwardHealth POS system checks eligibility automatically as part of the claims adjudication response and notifies the pharmacy if any eligibility issues are discovered. This functionality, although only available to ForwardHealth Pharmacy providers, supports over 2.5 million pharmacy transactions per month.

4.1.3.1.2 ForwardHealth Electronic Claims Submission

As with eligibility verification, ForwardHealth offers several mechanisms by which providers can submit claims electronically for any of the ForwardHealth programs, including:

1) Direct exchange of HIPAA 837 claims transactions
2) The claims direct data entry (DDE) functionality on the ForwardHealth Portal
3) The Pharmacy Point of Sale (POS)

Similar to the 270/271 transaction exchange, the exchange of the HIPAA 837 transactions is available to providers who complete HIPAA compliance testing with the State. While ForwardHealth offers this service for free, many providers contract out to a billing service to conduct this exchange on their behalf.

For providers who do not want to contract with a billing service but are also not able to modify their internal systems or conduct the required testing, ForwardHealth offers a free software package called Provider Electronic Solution (PES), which can exchange the transaction electronically with ForwardHealth. Providers are able to enter claims information into PES and then upload the information directly to ForwardHealth.

Providers wanting to submit their claims in real-time or who are in need of a more interactive method of submitting claims can do so through the ForwardHealth Portal claims DDE functionality. Each of the various claims forms (UB04, 5010, and Dental) are available for providers to complete and submit (note: the pharmacy claim DDE functionality is currently under development). The ForwardHealth claims engine processes the claim near real-time (every 15 minutes) and sends the response back to the provider from the claims engine. During data entry of the claim, the provider is given immediate feedback on any potential errors and is able to make corrections prior to submitting the claim. It is important to note that this functionality only processes the claim through the ForwardHealth claims engine and does not provide immediate feedback on responses from the financial cycle.

As noted earlier, the Pharmacy POS system provides ForwardHealth Pharmacy providers with the ability to submit pharmacy claims real-time to the ForwardHealth system. The system supports over 2.5 million POS transactions per month.

4.1.3.2 Commercial Health Plans and Electronic Eligibility and Claims Transactions

Most insurers receive greater than 70 percent (70%) of claims electronically, though, depending on a health plan's service area and provider relationships, the percentage can be as high as 95 percent (95%). The highest percentage of electronic claims is submitted by pharmacies, nursing homes, and hospitals. Ancillary providers (e.g., PTs, acupuncturists, and out-of-state providers) submit the majority of paper claims. The marketplace currently addresses the need for commercial payers to exchange information electronically. Most payers are already using third party clearinghouses to exchange data.

The highest percentage of electronic claims is submitted by pharmacies, nursing homes, and hospitals. The marketplace currently addresses the need for commercial payers to exchange information electronically. Most payers are already using third party clearinghouses to exchange data.

4.1.4 Supporting Stage 1 Meaningful Use HIE Requirements: Gap Analysis and Strategies

The Wired for Health Project completed a preliminary baseline measurement of HIE capabilities of health care providers to exchange care summaries, of pharmacies to electronically receive prescriptions and refill requests from providers, and of labs to electronically deliver results to providers. Wisconsin has gaps in all three areas. The process used to complete the initial pharmacy and lab data collection, the call scripts, and the survey questions are included in Appendix 7. To assess the feasibility of strategic options to close the pharmacy and lab gaps, we need to complete initial data collection and validation, including reconciling duplicate records and additional outreach to non-responders; and conduct data analysis. We also have to identify and collect additional information from providers, pharmacies, and labs to assess the magnitude and impact of the gaps on eligible professionals and hospitals applying for incentive payments.

The State and the SDE will collaborate with WHITEC and other private sector partners to obtain information about providers that are unable to e-prescribe because their local pharmacies cannot receive electronic prescriptions or that are unable to receive structured lab results electronically because their servicing labs do not deliver results electronically. We will also coordinate with the Medicare and Medicaid programs to obtain NLR information about providers applying for the EHR Incentive Program that practice in counties with an identified gap. Collectively, the Department of Health Services and the SDE, once selected, will need to implement feasible strategies to fill gaps so providers are able to meet Stage 1 HIE meaningful use requirements. Strategies for clinical summary exchange, electronic prescribing, and lab results are outlined in the section below.

Clinical Summary Exchange – As previously noted, no full clinical summary exchange consistent with the CCD certification standard is currently taking place. Therefore, the emphasis of Wisconsin's SOP is focused on establishing an infrastructure and policy framework that enables the exchange of CCDs as described in Sections 7 and 9. Specific strategies to support Stage 1 meaningful use of exchange of clinical summaries include:

1) Developing an initial infrastructure in 2011 to enable eligible professionals and hospitals to conduct a test of patient care summary exchange and providing HIE core services that support exchange of care summaries, including a provider directory. Collaborate with the State Medical Board through the Wisconsin Department of Regulation and Licensing (DRL) to set up a provider directory.
2) Providing technical assistance to eligible professionals and hospitals through the SDE and WHITEC to implement and operate the standards and service specifications developed through the NHIN Direct project to enable them to securely transport health information over the Internet to a known health care provider.
3) Supporting existing EHR connectivity among unaffiliated hospitals and health systems as a mechanism to achieve the HIE meaningful use requirements and working with the prevailing EHR vendors in Wisconsin to support the CCD standard.

Electronic Prescribing – The following strategies will be considered for addressing the pharmacies currently not accepting electronic prescribing and refill requests:

1) Assess the volume of Medicaid claims coming from pharmacies that do not accept electronic prescriptions and if significant, consider policy levers the State Medicaid Program has to increase adoption, such as HIT incentives; or technical services the State Medicaid Program could provide.
2) Assess feasibility of using state licensure vehicles to set requirements for e-prescribing. Coordinate with WI Department of Regulation and Licensing (DRL) on possible regulatory or policy options. The 2009 Wisconsin Act 362, enacted in May 2010, requires the Pharmacy Examining Board to implement a prescription drug monitoring program and requires pharmacists or practitioners to generate a record documenting each dispensing of certain prescription drugs and deliver the record through a secure electronic format to the Pharmacy Examining Board. The transmission of these records could potentially be done through the SHIN and may encourage pharmacies to adopt HIT. The Board is permitted to specify penalties for failure to comply. This presents an opportunity for collaboration and may prevent duplication of effort in both infrastructure creation and reporting requirements.

3) Evaluate opportunities to leverage prevalent vendor(s) in the state such as Surescripts to provide connectivity and services to pharmacies that do not currently support e-prescribing at a reduced cost based on a negotiated rate.

Laboratories – Just over half of the labs surveyed have the capability to deliver results electronically. We still need to determine if these labs can deliver structured results, assess the level of transaction volume processed by these labs, and determine geographic coverage. Knowing this information will help determine which strategy is most feasible and best suited to help close the gap. The following strategies will be considered:

1) Assess the volume of Medicaid claims coming from labs that are unable to deliver electronic results to providers and if significant, consider policy and HMO contract levers the State Medicaid Program has to increase adoption, such as HIT incentives; or technical services the State Medicaid Program could provide. Wisconsin law does not regulate labs; however, the Medicaid Program does certify labs that want to submit claims to receive Medicaid reimbursement. The State Medicaid Program requires labs to be CLIA certified. The Medicaid Program does not contract with labs.
2) Negotiate with labs and existing HIEs in Wisconsin or outside of Wisconsin, such as the WHIE, Minnesota HIE (MNHIE), and the Duluth Community Health Information Collaborative (CHIC), etc., on providing a structured interface to providers through an HIE network. Eventually this use case will be supported by the SHIN.

Public Health – Three of the 10 meaningful use menu set requirements specify electronic transmission of the following data to public health: immunizations, laboratory results for reportable conditions, and syndromic surveillance. Eligible providers and hospitals must meet five of the menu set requirements, one of which must be a public health requirement.

DPH has systems that are technically well positioned to accept and continue receiving electronic submissions of immunization and laboratory data. The target systems are in place, administered by DPH, mature, already accept HL7 2.3.1, and can be readily upgraded to accept HL7 2.5.1 submissions (although a majority of immunization system data providers currently submit data in other formats). Existing funding for the upgrades appears to be sufficient. It is likely DPH will be ready to accept tests and subsequent transmissions by April 2011. Syndromic surveillance data currently comes to DPH through an arrangement with the WHIE from 44 acute-care Wisconsin hospitals and associated clinics as discussed previously in earlier sections. At least some of these hospitals and clinics are providing data using HL7 2.3.1 or 2.5.1. The current arrangement for syndromic surveillance through WHIE is based on limited-term grants. The Division has not been made a decision regarding permanent, ongoing funding for this relationship.

For further details on the Public Health Meaningful Use Implementation Plan, see Appendix 8.

4.2 Strategic Framework

The WIRED for Health Board developed a strategic framework that included two interdependent components. The first component consisted of the vision, mission, and guiding principles for statewide health information exchange. The second component included the goals, objectives, and performance measures.

The result was a shared vision that reflected the WIRED for Health Board's collective aspirations for HIE and its impact on stakeholders. The mission translated the vision into a "purpose statement" which

captured the importance of statewide HIE to Wisconsin and the health community. The guiding principles developed by the Board articulated the philosophies and core beliefs about health information exchange, which guided goal-setting activities.

Once the Board established the foundation for the strategic framework, the committees identified detailed near and long-term goals and objectives as well as performance measures. Combined, the goals and objectives provided the committees with the strategic direction required to develop the proposed performance measures designed to gauge success. The SDE will be responsible for leveraging this strategic framework in implementing the overall Strategic and Operational Plan. The following section describes the various components of the strategic framework.

4.2.1 Vision and Mission

The WIRED for Health **vision** is to promote and improve the health of individuals and communities in Wisconsin through the development of health information exchange that facilitates electronic sharing of the right health information at the right place and right time.

This vision recognizes the important role electronic health information exchange plays in enabling transformation in the health care delivery system and health care reform in Wisconsin. Adopting and using health information technology and sharing health information electronically is a necessary component—although not the only component—needed for this transformation to occur. Better information will help clinical care providers improve their practice of medicine and help improve the health of individuals and communities in Wisconsin.

The WIRED for Health **mission** is to develop and sustain a trusted, secure statewide health information network and HIE services that provide value to participants.

The WIRED for Health Board understands that stakeholder trust, privacy and data security, and services that provide value are the keys to sustainability.

4.2.2 Guiding Principles

Wisconsin adopted the following overarching principles that will serve as guideposts for the development of the statewide health information network and services.

Rome wasn't built in a day. We will use an incremental, voluntary, and collaborative approach to develop and maintain the statewide health information network and HIE services that considers the relative benefit to and readiness of participants, beginning with meaningful use; and builds on existing health IT successes, standards, and investments.

Enabling and empowering. We will provide information and tools to the individuals responsible for making health decisions in a way that is easy to use and understand. The HIE solution will connect community resources to enable informed decision-making and care coordination at the community level.

Strike the right balance. We will establish the right mix of services and functionality that benefits participants, encourages commitment to using the statewide health information network, and fosters cooperation among participants.

Enhancing delivery of care for improved quality. The statewide health information network will provide tools and information to improve the efficiency and effectiveness of care delivery, health

promotion, and disease prevention while informing future policy and planning decisions and expenditures.

Stakeholders must see the value. We will align qualitative and quantitative benefits to provide value to the individual, health community, and population as a whole. We will present a value proposition that encourages stakeholders to voluntarily participate in and pay for the statewide health information network and HIE services.

Transparency is critical for the advancement of HIE. We will establish trust among stakeholders by providing an environment where decisions about HIE are made openly and in full public view.

Balancing protection of health information with appropriate access. We will ensure the statewide health information network protects patient privacy by sharing electronic information on a "need-to-know" basis and in a way that is secure. We will foster trust among participants by establishing effective security safeguards and controls.

4.2.3 Goals and Objectives

A fundamental goal of the 2006 eHealth Action Plan was to establish an eHealth technology platform in Wisconsin. This goal had two components: 1) statewide adoption and use of electronic health record systems by all health care providers and 2) fostering the creation of regional health information exchanges while simultaneously developing statewide HIE services. Building on the strategic foundation established by the eHealth Action Plan, the WIRED for Health Board developed overarching HIT and HIE strategic goals; and high-level strategic goals, long-term and near-term goals, and objectives for each of its committees.

While the WIRED for Health Board developed HIT Strategic and Operational Plan for Wisconsin, including the vision, mission, and goals, it will be a nonprofit corporation selected or created to serve as the State Designated Entity (SDE) that will oversee the implementation of the Plan. Once the Plan is approved by the ONC, the goals and objectives under the Plan will serve as the starting point for the implementation period. However, with an eye toward continuous improvement in realizing effective and secure HIE across health care providers, the SDE will also engage in continuous review and updating of the entire Plan, including the goals and objectives. During the term of the State HIE CAP, reassessments and updates to the Plan are required annually in collaboration with ONC.

The SDE will not be directly responsible for achieving the parts of the overarching goals related to EHR adoption. However, it will be the SDE's role to support and foster attainment of these goals for Wisconsin. The SDE is also not responsible for setting standards for providers' EHR systems. Some of the near-term goals will have been accomplished prior to completing the planning and receiving approval of the plan by the ONC.

4.2.3.1 Overarching Goals

- By 2016, all ambulatory care providers and hospitals will have and use nationally certified EHR systems and HIE.
- By 2020, all health care consumers, providers, and public health agencies will have access to nationally certified EHR systems and HIE.

- By 2020, most patients, health care providers, and public health agencies will use electronic health records and information exchange to improve outcomes related to the effectiveness, quality, efficiency, and safety of health care and population health services.

4.2.3.2 Governance

High-Level Goals:

- Wisconsin will establish a permanent, state-level, public-private, not-for-profit governing entity for statewide HIE that effectively executes the State HIT Strategic and Operational Plans and fairly represents the needs of all consumers of health information.
- Wisconsin will establish a governance framework that is flexible and enduring, able to continuously improve and re-invent itself to meet changing environmental conditions.

Near-Term Goals and Objectives:

1. By June 30, 2010, the Board will establish an open and transparent process to identify qualified applicants and select the SDE.
    a. The Request for Application (RFA) will include the following selection criteria:
        i. All requirements specified by law.
        ii. Commitment of the SDE Board of Directors (BoD) to embrace and execute the mission and goals of the WIRED for Health Project.
        iii. Commitment of the SDE BoD to the principles of collaboration, transparency, buy in, and trust as a manner of conducting business and making business decisions.
        iv. Demonstrated ability to perform, or commitment to build performance capabilities to successfully execute, stated requirements.
    b. The selection process will:
        i. Be well documented and easily understood by applicants and other participants.
        ii. Be transparent and attract a broad group of applicants.
        iii. Invite broad stakeholder involvement.
2. By September 30, 2010, the State will select the SDE.
    a. By September 24, 2010, an Evaluation Team selected by the WIRED for Health Board will make a recommendation to the Board on the organization to serve as the SDE. The recommendation will include:
        i. The organization that successfully met the evaluation criteria and was rated as the best applicant by the Evaluation Team. The successful applicant must:
            1. Meet all/almost all of the requirements. If not all requirements are met, the applicant must agree to submit a plan of action to satisfy any outstanding requirements within a reasonable and acceptable time frame.
            2. Have generated broad public support during the selection process.

ii. A summary of the applicant's profile with emphasis on what is already in place and what must be built/created/changed before transition of Governance authority can occur.

For details on the selection process, refer to Section 4.1.1.2, "Selection of the SDE."

Long-Term Goals and Objectives:

1. By February 1, 2011, the SDE will assume responsibility for implementation of the Strategic and Operational Plan.
    a. By November 30, 2010, the State will execute a contract with the SDE. The contract will:
        i. Transfer responsibility and authority to the SDE for execution of the Strategic and Operational Plan of the WIRED for Health Project.
        ii. Document the transition process, including specific details about changes in structure or process identified through the selection and recommendation process and timing requirements.
        iii. Establish the terms of the partnership between the SDE and the State of Wisconsin including the deliverables that must be met for transfer of funds.
            1. Identify State Health IT Coordinator role and authority in relation to business process and ongoing responsibilities of the SDE.
            2. Establish a tie between the State Medicaid HIT Plan and the SDE.
    b. By February 1, 2011, the SDE will:
        i. Integrate the vision, mission, guiding principles, and goals in the Strategic and Operational Plan into the SDE vision, mission, guiding principles, and goals.
        ii. Fully understand and be committed to successful implementation of the Strategic and Operational Plan.
        iii. Establish a focus on continuous improvement in realizing effective and secure HIE across health care providers by implementing a process for continuous review and alignment of its vision, mission, guiding principles, and high-level goals as necessary to comply with the evolving requirements of the State HIE CAP.
2. By February 1, 2012, the SDE will satisfy the structural and functional transition requirements of the contract with the Department.
    a. The SDE will establish a process for continuous review and alignment of its implementation plans with the State Medicaid HIT Plan.

4.2.3.3 Finance

High-Level Goal:

Develop a path to financial sustainability including a business plan with feasible public and private financing mechanisms for ongoing statewide health information exchange.

Near-Term Goals and Objectives:

1. Determine the short-term capital and operating fiscal needs for the statewide health information network and its core services.
    a. Identify services.
    b. Identify cost drivers.
    c. Achieve consensus with the Standards and Architecture domain on capital and operating financing.
2. Prepare a short-term capital acquisition plan for statewide health information network and HIE services.
    a. Identify sources of capital.
    b. Develop a strategy to acquire capital based on an implementation timeline.
3. Develop budget for ARRA State HIE CAP funding.
    a. Identify short-term costs.
    b. Develop plan to expedite spending of ARRA funds in the first 2 years of the State HIE CAP.
4. Based on recommended HIE services developed in the Standards and Architecture domain, estimate the cost of implementation as well as ongoing operations for the statewide health information network and HIE services.
    a. Develop individualized financing requirements for top-priority use cases and related services using financial model.

Long-Term Goals and Objectives:

1. Develop a comprehensive business plan to achieve long-term sustainability with public and private funding, once ARRA State HIE CAP funding is exhausted.
    a. Analyze the value propositions for each stakeholder group.
    b. Develop a balance for costs and benefits for each stakeholder group.
2. Identify key barriers to long term financial sustainability and recommend resolutions.
    a. Communicate with stakeholders to identify barriers to participation in the statewide health information network and HIE services.
    b. Develop recommendations to overcome or mitigate the identified barriers.
3. Provide contingency plans if revenue sources do not materialize as originally predicted.
    a. Identify and prioritize sources of capital funding and operational revenues. Develop three financing scenarios based on differing amounts of capital.
    b. Determine which HIE services are non-essential.
    c. Work with Standards and Architecture domain to prioritize HIE services. Prioritization will include current and future costs and revenues.
    d. Recommend adequate level of cash reserves to allow for growth as well as to withstand operational deficits and potential litigation risks.
4. Develop a consensus on stakeholder benefits and stakeholder investments required to both capitalize initial efforts and achieve long-term financial sustainability.

a. Develop a benefits matrix to identify value add to each stakeholder.

b. Communicate with stakeholder communities to acquire buy in and commitment.

5. Develop and implement appropriate audits and controls focused on assuring equity and compliance among all stakeholders.

4.2.3.4 Standards and Architecture

High-Level Goal:

Develop a scalable, standards-based technical architecture for statewide HIE that supports interoperability and leverages existing investments in health IT to the extent possible.

Near-Term Goals and Objectives:

The timelines and goals presented below may be met at an earlier date, but the goals are intended to serve as a starting point.

1. Deploy a standards-based architecture and core HIE services to be available to meet meaningful use requirements for eligible professionals and hospitals.
    a. Conduct a readiness assessment of providers and hospitals to determine status and ability to connect to the statewide health information network and HIE services. Reference the data collected through other similar surveys to reduce response burden on providers and hospitals.
    b. By August 31, 2011, technical infrastructure will be available to help support eligible health professionals and hospitals in meeting the Stage 1 meaningful use criteria for HIE. (This assumes the infrastructure available will, at a minimum, support a provider's test of HIE with fictional patient data from the EHR because operational HIE with real patient data cannot occur until the policy and legal work related to implementing the patient consent model is completed.)
    c. By June 1, 2012, the statewide health information network and HIE services will be available to help support eligible health professionals and hospitals in meeting the Stage 1 meaningful use criteria for HIE. (This will provide an operational bi-directional exchange capability and assumes the policy and legal work related to implementing the patient consent model will be completed by this date.)
    d. By October 1, 2012, the statewide health information network and HIE services will be available to help support eligible health professionals and hospitals in meeting the Stage 2 meaningful use criteria for HIE.
    e. By January 1, 2015, the statewide health information network and HIE services will be available to help support eligible health professionals and hospitals in meeting the Stage 3 meaningful use criteria for HIE.
2. Develop and implement a state-level business process for selecting and adopting standards.
    a. Review evolving national standards and initiatives (e.g., NHIN Exchange, NHIN Direct) and ensure planning incorporates standards that will enable interstate and national connectivity for Wisconsin's statewide health information network and HIE services.

3. By 2016, data accepted by the statewide health information network from EHR systems statewide will be anonymized and made available to authorized entities through HIE for measurement of health care quality, determinants of health, and trends and magnitude of health disparities in Wisconsin.
    a. Collaborate with the Wisconsin HIT Extension Center (WHITEC) to encourage providers to include standards-based connectivity to the statewide health information network in their EHR roll-out plans.
    b. Encourage all health care providers with EHR implementations to connect to the statewide health information network and provide data.
    c. Will work with experts in the field of anonymization.

Long-Term Goals and Objectives:

1. By 2020, the statewide health information network and HIE services will reach all geographies and providers across the State and be able to continuously receive, access, and transmit health information among health systems.
    a. Determine HIE use cases to be implemented in priority order.
    b. Determine geographies and timeline to advance these implementations statewide.
    c. Define standards of timeliness for use cases and data elements.
    d. Align with and leverage the state broadband plan.
2. By 2016, the statewide health information network will facilitate unified electronic access to personal health information by patients and their appointed guardians via personal health record system(s). The statewide health information network will remain agnostic to personal health record (PHR) solutions and facilitate a standard feed for PHR implementations.
    a. Identify where this capability currently exists, differentiating from IDN-specific portal and HIE-served PHR.
    b. Assess and identify standards for content and communication and adopt these standards in the statewide architecture.

4.2.3.5 Legal and Policy

Near-Term Goals and Objectives:

1. Establish a policy framework that optimizes the electronic exchange of health information while protecting patient privacy.
    a. Establish uniform privacy and security strategies, policies, and procedures for the statewide health information network and HIE services that ensure health information is protected in accordance with Wisconsin law, HIPAA, and other federal laws and requirements (i.e., consent, authorization, authentication, access, audit, breach, etc.).
    b. Establish uniform business, technical, and operational policies, and procedures for the statewide health information that ensure health information is protected in accordance with Wisconsin law, HIPAA, and other federal laws and requirements.
    c. Develop a process for establishing strategies, policies, and procedures identified in Objectives (a) and (b) above incrementally over time.

d. Consistent with the established legal and policy framework, establish a contractual model for governing participation in the statewide health information network and HIE services in Wisconsin and in exchange with federal agencies.

e. Establish oversight and accountability mechanisms that ensure compliance with the established legal and policy framework by the statewide health information network and participants.

f. Develop a process to evaluate and update the legal and policy framework as part of an annual program evaluation and more often if necessary consistent with Objectives (a) and (b) above.

g. Collaborate with neighboring states beginning with Minnesota to harmonize laws, regulations, policies, and practices in support of interstate HIE.

2. Establish a legal framework that enables the electronic exchange of health information while protecting patient privacy.

    a. Recommend changes to Wisconsin health privacy laws and regulations where warranted.

    b. Advocate for the harmonization of existing federal and State laws to enable HIE services.

    c. Consistent with the established legal and policy framework, establish a contractual model for governing participation in the statewide health information network and HIE services in Wisconsin and in exchange with federal agencies.

    d. Establish oversight and accountability mechanisms that ensure compliance with the established legal and policy framework by the statewide health information network and participants.

    e. Develop a process to evaluate and update the legal and policy framework as part of an annual program evaluation and more often if necessary consistent with Objectives (a) and (b) above.

    f. Collaborate with neighboring states beginning with Minnesota to harmonize laws, regulations, policies, and practices in support of interstate HIE.

Long-Term Goals and Objectives:

1. Evaluate and update the policy framework as part of annual program evaluation and more often if necessary to optimize the electronic exchange of health information while protecting patient privacy.

    a. Position the statewide health information network for participation in the nationwide health information network.

2. Evaluate and update the legal framework as part of an annual program evaluation and more often if necessary to enable the electronic exchange of health information while protecting patient privacy.

    a. Position the statewide health information network for participation in the nationwide health information network.

4.2.3.6 Communications, Education, and Marketing

High-Level Goal:

Inform and raise the awareness of consumers and the health community about the benefits of health information technology and health information exchange.

Near-Term Goals and Objectives:

1. Design and implement a comprehensive HIE communication and educational program.
    a. Begin gathering information that will be critical to message development through various methods, such as stakeholder meetings, town halls, surveys, and focus groups, within 90 days of the SDE assuming responsibilities.
    b. Develop and deploy messages to a broad spectrum of prioritized stakeholders through community partners within 6 months of receiving the results of the stakeholder input.
    c. Develop and deploy targeted messaging to enhance public transparency regarding uses of protected health information (PHI) maintained by HIEs in Wisconsin and individuals' rights related to uses of PHI.
    d. Develop measures to evaluate the success of the initial communications and education campaign within 6 months of receiving the results of the stakeholder input.
    e. Develop and implement a continuous quality improvement plan after 6 months into the campaign.
2. Develop and implement an ongoing marketing program within the SDE to solicit financial support and engage consumers and the health community in the adoption and use of HIE services.
    a. Once the Strategic and Operational Plan is approved by the ONC, immediately develop marketing strategies and tools to begin communicating the benefits to target stakeholders that are most likely to help capitalize the statewide health information network and services.
    b. Develop a marketing strategy and tools that target stakeholders who are most likely to contribute to the sustainability of the statewide health information network and HIE services within 60 days of the SDE assuming responsibilities.
    c. Survey the consumer market to identify HIE services they are most likely to use and purchase.

4.2.4 Performance Measures

The WIRED for Health Board intends that, over time, the state-level governance entity for statewide HIE will identify measures and analyze the impact HIE has on the health care process and its intermediate and longer-term impacts on health care quality and efficiency. Designing effective ways to capture and report on these measures will be an ongoing governance responsibility.

The WIRED for Health Board identified a number of preliminary, high-level performance measures that will evolve over time as additional guidance becomes available from the ONC and others, such as the State-Level HIE Leadership Forum and the National Opinion Research Center, and as the SDE begins implementation of the Strategic and Operational Plan. The State Health IT Coordinator will assist the SDE in the continuing evaluation of effective performance measures for statewide HIE.

The preliminary measures identified by the WIRED for Health Board are as follows:

Overarching HIT and HIE Measurement Areas:

- The percentage of health care providers participating in HIE services enabled by the statewide HIE technical infrastructure and core services.
    - The percentage of health care providers in the state that are able to send electronic health information using components of the statewide HIE technical infrastructure and core services (e.g., Patient Index, Directory Services, Patient Information Locator Service, and Consent).
    - The percentage of health care providers in the state that are able to receive electronic health information using components of the statewide HIE technical infrastructure and core services (e.g., Patient Index, Directory Services, Patient Information Locator Service, and Consent).
- The percentage of pharmacies serving people within the state that are able to connect to the statewide health information network to actively support electronic prescribing and refill requests.
- The percentage of clinical laboratories (including for example reference laboratories and the State Laboratory of Hygiene (SLOH)) serving people within the state that are able to connect to the statewide health information network to actively support electronic ordering and results reporting. This includes the ability to respond to queries for results outside of the order/result reporting flow such as the case for newborn screening where access to such data may be useful outside of the "standard" pediatric provider.

Governance

- The state-level governing entity's board composition has broad and balanced public and private stakeholder representation, i.e., Medicaid, public health, hospitals, providers, commercial payers, employers, and consumers.
- There is evidence the state-level governing entity is conducting transparent business operations. For example, the governance entity:
    - Publicly posts its meetings and meetings are open to the public;
    - Has processes to regularly inform the public on progress and performance of the statewide HIE initiative (listservs, media presence, etc.);
    - Makes its policies and procedures available on a public Web site or SharePoint site; and
    - Has a working methodology for regular self-monitoring, evaluation and reporting.

Finance

- A working business plan exists, including a plan to acquire capital funding for implementation and a financial sustainability plan that will support business operations throughout the State HIE CAP performance period and beyond.
- The implementation of financial policies and procedures is consistent with state and federal requirements, including Single Audit requirements of the Office of Management and Budget.

Standards and Architecture

- The ratio of number of encounters in the state and the percentage reported to public health for disease surveillance meets or exceeds a yet to be specified percentage.
- The ratio of eligible providers sharing information through electronic HIE and "known" to the Directory Services and those with an EHR meets or exceeds a yet to be specified percentage.
- The ratio of lab results reported directly to EHRs and total number of lab results in comparison to the ratio prior to HIE, recognizing that there is a high uptake of electronic lab reporting in Wisconsin already.

Legal and Policy

- The percentage of patients who opt in/opt out of the HIE (depending on consent model adopted).
- The percentage of participants who are in compliance with their data sharing agreements.

Communications, Education, and Marketing

- The percentage of stakeholders by stakeholder type that know the state-level, state-coordinated HIE effort exists, what it is, and how this effort will help eligible professionals and hospitals achieve the meaningful use criteria related to HIE.
- The percentage of stakeholders by stakeholder type that have raised awareness on how HIT and HIE improves access to more timely health Information and provides opportunities to improve health decisions, safety, and outcomes.
- The percentage of consumers that have raised awareness on how their electronic personal health information is used, secured, and safeguarded by the statewide health information network.

5 GOVERNANCE

The current governance structure for the WIRED for Health Project is a natural extension of the collaboration between the Department of Health Services and the broad cross section of health care stakeholders that participated in the work of the eHealth Board and its workgroups. Like the eHealth Board, the WIRED for Health Board is based on broad, multidisciplinary stakeholder representation across the public and private sector, with a commitment to collaboration, transparency, trust, and buy-in.

The State's approach to promoting statewide HIE was significantly influenced by the SLHIE Project initiated by the Department in May 2009. This Project provided stakeholders an opportunity to share their opinions on the approach Wisconsin should take to governing the development of a statewide health information network and HIE services. In assessing the governance options, the SLHIE Project team used a variety of resources to make its recommendations, including:

- Input from Wisconsin's public, private, and consumer health care stakeholder groups, gathered through a stakeholder assessment, environmental scan, and regional summit meetings across the State
- Guidance and recommendations provided by ONC's State HIE CAP FOA, based on the provisions of the HITECH Act included in ARRA
- Information collected from earlier work of the eHealth Board; the SLHIE Consensus Project, and the National Governors' Association State Alliance for eHealth governance models adopted by other states

Following an analysis of these resources, the recommendation was that Wisconsin delegate responsibility to a non-profit corporation to serve as the SDE to implement the HIT Strategic and Operational Plan for Wisconsin. The State accepted this recommendation. Major factors in this decision included:

- The strong preference of stakeholders
- Stakeholders' perception of the SDE structure as neutral and independent
- Insulation from potential changes in State administration and budget priorities
- The desire for balanced governance—involvement of both government and the private sector

Two significant actions flowed from the decision to work with an SDE. The first was the creation by the Governor of the 15-member WIRED for Health Board under Executive Order 303, as described in Section 2.1. The second significant action was the enactment of legislation that authorizes the State to select a qualified non-profit corporation to serve as the SDE and details the responsibilities of the SDE, with reference to federal requirements. During the legislative process, many key stakeholders expressed their strong support for the proposal, which the Governor signed into law as 2009 Wisconsin Act 274 ("Act 274" or "WIRED for Health Act") on May 11, 2010, please refer to Appendix 9.

Together, Executive Order 303 and Act 274 position Wisconsin to fulfill the planning and implementation phases of statewide HIE. The WIRED for Health Board will complete the planning phase and oversee the transition to the SDE. The SDE will serve as the primary state-level governance entity and oversee the implementation phase of the State HIE Strategic and Operational Plan. Both phases place emphasis on multi-stakeholder collaboration as a critical component of achieving a secure statewide health information

network and HIE services. Both phases also place emphasis on ongoing development of governance and policy structures.

5.1 Establishing a State-Level Governance Entity

The following sections describe the role of the SDE, the process for selecting the SDE, and contingency planning in the event there are no qualified SDE applicants.

5.1.1 Role of the SDE

Act 274 authorizes the State to select a non-profit corporation under Chapter 181 of the Wisconsin Statutes to serve as the State's SDE, provided the Secretary of the Department determines that the corporation:

- States in its articles of incorporation or by-laws that a purpose of the corporation is to use information technology to improve health care quality and efficiency through the authorized and secure exchange and use of health information
- Annually evaluates, analyzes, and reports to the Secretary of DHS on progress toward implementing statewide HIE and how the HIE efforts are enabling meaningful use of certified electronic health records, as defined under federal law, by health care providers
- Complies with federal requirements to be an SDE and to receive a grant under the HITECH Act
- Has a governing structure and bylaws that allow it to consult and consider recommendations from outside entities
- Has a board of directors that includes representatives of both the public and private health care sectors as detailed in the Act
- Agrees to fulfill the specified purposes related to development and maintenance of the statewide health information network

Specifically, the Board of Directors of the SDE must include:

- The State health officer
- The director of the State's Medical Assistance program
- One person designated by the governor
- One or more persons who represent each of the following, such that the representation of the public and private health sector is balanced in the board's membership: health care providers, public and commercial health insurers or health plans, employers who purchase or self-insure employee health care, health care consumers or consumer advocates, and higher education

Act 274 tasks the SDE with the following responsibilities:

- Building substantial health information exchange capacity statewide to support all of the following:
    - Health care providers' meaningful use of electronic health records
    - Population health improvement

    - Reporting of health care performance.

- Developing policies and recommending legislation that advance efficient statewide and interstate health information exchange and that protect consumer privacy
- Developing or facilitating the creation of a statewide technical infrastructure that supports statewide health information exchange and enables interoperability among users of health information
- Coordinating between the Medical Assistance and public health programs to enable information exchange and promote meaningful use of electronic health records
- Providing oversight and accountability for health information exchange to protect the public interest
- Increasing public awareness of and support for statewide health information exchange and fostering agreement among health care providers and other users of health care information on an approach to statewide health information exchange
- Adopting standards for health information exchange in accordance with national standards, implementation protocols, and reporting requirements
- Prioritizing among health information exchange services according to the needs of the residents of Wisconsin
- Managing and sustaining funding necessary to develop and support statewide health information infrastructure and services
- Conducting or overseeing health information exchange business and technical operations, including providing technical assistance to health information organizations and other health information exchanges
- Developing or facilitating the creation and use of shared directories and technical services, as applicable to statewide health information exchange
- Establishing a uniform statewide patient consent and authorization process, to allow electronic access to, review of, or disclosure of a patient's identifiable health care information
- Certifying regional health information exchange networks, if any, and confirming that any regional health information exchange network meets the criteria to participate in and connect to the statewide health information exchange network
- Monitoring health information technology and health information exchange efforts nationally and facilitating alignment of statewide, interstate, and national health information exchange strategies
- Developing programs and initiatives to promote and advance health information exchange to improve the safety, quality, and efficiency of health care and to reduce waste due to redundancy and administrative costs

These responsibilities of the SDE, prescribed under Wisconsin law, are consistent with those in the State HIE CAP.

5.1.2 Selection of the SDE

The WIRED for Health Board has the responsibility of recommending to the Secretary of the Department a qualified non-profit corporation to serve as the SDE for Wisconsin. The Governance Committee designed, and the Board approved, a selection process intended to:

1. Solicit interest and input from a wide range of stakeholders.
2. Be easily understood and followed.
3. Ensure that all interested parties have equal access to information on the selection criteria.

The SDE selection process is based on a Request for Application (RFA), included in Appendix 10. Responses to the RFA will be reviewed by a multi-stakeholder Evaluation Team selected by the WIRED for Health Board. The Evaluation Team will make a recommendation to the Board, which will in turn make a recommendation to the Department. It is anticipated that the selection of an organization to serve as the SDE will be made in late September 2010.

The selection process includes the following key steps:

1. Governance Committee **solicits letters of interest from entities** that would like to receive additional materials relevant to the selection process.
2. Governance Committee **sends an initial draft of the RFA** to be used in the selection process to the list of respondents to Step 1. The purpose is to provide all potential applicants with an opportunity to provide input and comments on the draft and the process.
3. Governance Committee **reviews comments** received in response to Step 2 and **finalizes the draft RFA** for review and approval by the WIRED for Health Board.
4. Governance Committee **distributes the approved RFA**, along with instructions, to potential applicants and posts them on the WIRED for Health SharePoint site.
5. The Evaluation Team **scores responses to the RFA, identifies qualified applicants, conducts interviews and reference checks, and prepares its recommendation** for the WIRED for Health Board.
6. The WIRED for Health Board **reviews the recommendation** of the Evaluation Team and subsequently **makes its recommendation** to the Secretary of the Department.
7. The Secretary reviews the recommendation of the WIRED for Health Board. Upon certification by the Secretary that the organization satisfies the criteria under Act 274, the **State selects the organization to serve as the SDE**.

Once the SDE is selected, the WIRED for Health Board and the SDE will jointly determine the governance transition plan (see section on "Decision Making Authority" below) and the Department and the SDE will enter contract negotiations based on the HIE CAP and the understanding that there will be ongoing development of the governance and policy structures under the guidance of the SDE.

5.1.3 Contingency Planning

The chosen strategy for governance of the statewide health information network and HIE services is to select a qualified non-profit organization to serve as the SDE. As described above, the intention is to select the SDE through an RFA process. The primary risk to this strategy is that there may be no

qualified applicants. As provided under Act 274, the Secretary would have the option of organizing and assisting in maintaining a non-profit corporation under Wisconsin law to serve as the SDE. Such an organization would be subject to the same criteria as those detailed in the RFA. However, in that case, the Secretary would be responsible for appointing the initial board of directors for the organization.

5.2 Role of State Government

As described above, the State of Wisconsin, through the Department of Health Services, has served as the initiator and convener of the multi-disciplinary planning efforts on HIT and HIE that have occurred to date through the eHealth and WIRED for Health Boards. As the SDE becomes fully operational, governance of the statewide health information network will be driven by this private-sector led organization with strong and active state government participation and collaboration.

The State will continue to be fully engaged with the development of statewide HIE even when the governance structure is led by the SDE. The State has several specific interests that may be distinct from private partners. One of these interests is to help ensure that the exchange serves public and population health, as well as the quality and efficiency of health services delivered to Wisconsin residents. Another is to ensure the SDE operates consistently in the public interest. A third is to ensure that HIE is actively used to support the delivery of more effective and economical health services such that Wisconsin remains competitive for employers and the many other resulting benefits that accrue to taxpayers (i.e., better educational outcomes).

The State Health IT Coordinator, the State Medicaid Director, and the State Health Officer will play key roles in promoting these interests and ensuring a continued strong and active role for the State. As noted, the State Health IT Coordinator will serve as a resource to the SDE Board of Directors either as an appointed member, an ex-officio member, or through a close working relationship with the chief administrator of the SDE. In addition, as described under "The Role of the State Health IT Coordinator," the Coordinator will be actively engaged in additional activities in support of statewide health information network and HIE services, including but not limited to:

- Developing a State Interagency Health IT Council to provide input and resources to the SDE from state agencies
- Promoting an integrated approach to HIE across Medicare, Medicaid, the State Public Health Program, other federally funded health programs, and other HIE activities in the State
- Assisting in increasing statewide consumer involvement in HIT/HIE development

The State Medicaid Director and the State Health Officer will be actively engaged with the SDE as members of the SDE's board of directors. In this role they will also help integrate the work of the SDE and the State Medicaid and Public Health Programs.

Act 274 requires the SDE to report annually to the Secretary on the progress toward implementing statewide HIE and how efforts are enabling meaningful use of certified electronic health records as defined under federal law. The annual report will serve as a means for the Secretary to verify that the corporation continues to satisfy the requirements to serve as the State's SDE.

The State Health IT Coordinator will verify the SDE complies with the terms of any contract with the State pertaining to statewide HIE, including the planned contract based on the State HIE CAP. In particular, the Coordinator will work with the SDE to ensure that the SDE collects and submits all information needed for the federal reports to the Department as described in the State HIE CAP FOA, the

Notice of Grant Award, and any supplemental program guidance ONC provides throughout the period of the Cooperative Agreement.

5.3 Decision Making Authority

The WIRED for Health Board, in consultation with the Department of Health Services Secretary and the State Health IT Coordinator, will be responsible for decision-making until: (1) the Strategic and Operational Plan is approved by ONC; (2) the SDE contract with the Department based on the State HIE CAP is in place; and (3) the SDE is operational. Once all of these events have occurred, the WIRED for Health Board's responsibilities will be officially transitioned to the SDE.

A transition plan will be devised to address decision-making during the interim after the SDE has been selected and prior to all of the aforementioned conditions being satisfied. The transition plan will be worked out between the WIRED for Health Board and the corporation designated to serve as the SDE. It is anticipated that there will be one or more joint meetings of the WIRED for Health Board and the Board of Directors of the SDE.

The SDE will be bound, through the selection and contracting processes, to a commitment to principles of collaboration, transparency, buy- in, and trust as a manner of conducting business and making business decisions. As part of this commitment, the SDE will be required to develop, maintain, and enforce policies to: (a) ensure the SDE operates in the best interest of the people of Wisconsin and in a fair manner in support of the Strategic and Operational Plan, the provisions of the State HIE CAP, and Act 274; and (b) require members of the SDE's BoD to disclose conflicts of interest, to recuse themselves from deliberations on matters in which they have a conflict of interest, and to abstain from voting on such matters.

5.4 Oversight, Accountability, and Transparency

Oversight, accountability and transparency related to the Wisconsin statewide HIE initiative can be thought of in two primary phases, the period governed by the WIRED for Health Board and the period governed by the SDE. The role of oversight, accountability, and transparency in each phase is described below, followed by a description of reporting and performance requirements applicable to both phases.

5.4.1 WIRED for Health Board

The WIRED for Health Board has made a commitment to conducting the work of the Board and its committees through an open and transparent process. All Board and Committee meetings are open to the public and many of the meetings are available to the public through online meeting resources. All Board and committee meeting agendas and minutes are posted publicly and working documents developed by the Board and committees are posted to a SharePoint website that any member of the public can access by creating an account to do so. An online subscription service for eHealth updates (listserv) was created for individuals and organizations that have expressed interest in the WIRED for Health Project at previous eHealth Summit or HIE Regional Summit Meetings, made an inquiry on the health IT provisions of HITECH/ARRA, or volunteered to participate in activities associated with the project, including membership on the WIRED for Health Board and its committees. Periodic project updates are sent out through the listserv.

In addition, the WIRED for Health Board created a Communications, Education, and Marketing Committee, in part to ensure a focus on outreach beyond the primary stakeholder groups. See the goals and implementation plans included in this Plan for more details on the work of this Committee.

5.4.2 State Designated Entity

The organization selected to serve as the State's SDE will be required to commit to using open and transparent processes in conducting the business of the SDE. Appropriate oversight and accountability will be assured by:

- The broad range of stakeholders represented on the SDE Board of Directors and Committees
- The role of the State Health IT Coordinator in working with the SDE and in coordinating the work of the SDE with related initiatives
- The statutory requirements of Act 274
- The role of the State in enforcing the terms of the contract(s) it will have with the SDE

As noted, the SDE must report annually to the Secretary on progress in achieving stated goals. In addition, while the SDE receives funding from the Department under the State HIE CAP, the additional section 1512 ARRA oversight requirements that apply to the Department will also apply to the SDE.

One of the responsibilities of the SDE is to secure the ongoing financial stability of the SHIN. As an independent non-profit corporation, the Board of the SDE will need to assume all necessary fiduciary responsibilities, including annual financial audits. In addition, the SDE will be accountable to its users/members for operations, security, and confidentiality.

Finally, one of the strategic goals for Governance under the Strategic and Operational Plan is to establish a governance structure that is flexible and enduring and is able to continuously improve and re-invent itself to meet changing environmental conditions. Having a plan to achieve this goal is one of the criteria for selection as the SDE and will also contribute to overall accountability on the part of the SDE. The SDE will be responsible for reporting on its performance based on the goals, objectives, and measures included in the Strategic and Operational Plan and any other reporting, measurement, and evaluation requirements specified by the ONC as part of the State HIE CAP.

5.4.3 ARRA Reporting and Evaluation Requirements

A major source of financial support for the start up of the Statewide HIE Planning and Implementation project is the ARRA funding awarded through the State HIE CAP. The ARRA funds are subject to the specific reporting requirements under ARRA s.1512, which are designed to ensure transparency and accountability, as well as to other reports and evaluation processes required under the HIE CAP. In Wisconsin, all ARRA funding is also subject to specific oversight by the State's centralized reporting office, the Office of Recovery and Reinvestment, in the Governor's Office. The Department has further implemented enhanced programmatic and fiscal oversight and accountability mechanisms for all ARRA programs under the Department. These will apply to the SDE as an ARRA sub-recipient. The Secretary takes an active role in planning and prioritizing the responsible use of all ARRA funds; review by the Secretary's Office is a key step in management oversight. In addition, in the case of the State HIE CAP, the State Health IT Coordinator will assist the Secretary in assuring the timely preparation and review of all required reports by the SDE.

5.4.4 Performance Measurement

In addition to the required reports discussed above, the WIRED for Health Board and the SDE are accountable for reporting to the broader stakeholder community on performance. It is intended that the SDE will continue the WIRED for Health Board's strategy of accomplishing broader reporting on performance measures through a focused communications, education, and marketing plan.

The WIRED for Health Board has identified preliminary, high-level performance measures for the initiative. Please refer to Section 4.2.4. The selection of more detailed performance measures will occur as additional guidance is made available from the ONC and others, such as the State Level HIE Leadership Forum and the National Opinion Research Center, and as the SDE moves into the implementation phase. The State Health IT Coordinator will assist the SDE in the continuing evaluation and selection of effective performance measures for statewide HIE.

5.5 Alignment with Nationwide HIE Governance

The State HIE CAP requires applicants to develop a governance structure that achieves broad-based stakeholder collaboration with transparency, buy-in and trust. This directive has been a primary focus for the State of Wisconsin and was the key driver of the decision to select a governance structure under which implementation of a statewide health information network and HIE services will be driven by a private-sector led organization with state government participation and collaboration. This decision to work through an SDE was based on the strong preference of private stakeholders, expressed during the SLHIE Planning and Design Project. In Wisconsin, this approach has the greatest potential to achieve significant levels of buy-in and trust across a broad array of stakeholders.

As noted, the WIRED for Health Board is committed to conducting the work of the Board and its committees in an open and transparent manner. The Communications, Education, and Marketing Committee was created to help keep these important principles at the forefront of planning for a statewide health information network and HIE services.

The SLHIE Planning and Design Project documented the independent HIE-related initiatives currently being executed at local levels throughout Wisconsin. It is anticipated that the statewide health information network in Wisconsin will incorporate the concept of a "network of networks" in use by the NHIN. The evolving NHIN approach to building and maintaining trust among an expanding pool of users of the NHIN will serve as an important resource during implementation of a statewide health information network and HIE services. The SDE, in consultation with the State Health IT Coordinator, will be responsible for ensuring that statewide HIE in Wisconsin aligns with the developing nationwide HIE governance models. The Coordinator will work hand-in-hand with the SDE to keep the principles of transparency, buy-in, and trust at the forefront of the implementation stage in Wisconsin.

6 FINANCE

Financial sustainability involves identifying and securing predictable revenue sources to ensure the ability to finance both the short-term and long-term costs associated with the statewide health information network. The WIRED for Health Board tasked the Finance and Audit Committee to develop an approach for a business plan that provides the SDE with considerations that could help lead to financial sustainability.

Within the boundaries established by the ONC sustainability requirement and the guiding principles and goals agreed upon by the WIRED for Health Board, the approach developed by the Finance and Audit Committee is purposely flexible in nature, but supports the objectives of the Board. In developing this approach, the committee recognized that the SDE will require some degree of latitude in identifying value and services based on demand and the ability to generate revenue.

Therefore, this section of the Strategic and Operational Plan includes the following topics:

- Challenges and Key Considerations
- Approach to Financial Sustainability
- SHIN Capital and Operational Cost Estimates
- SHIN Estimated Benefits
- SHIN Capital and Operational Revenue Sources
- Potential Financial Models
- Transition to SDE and Controls and Reporting

Improvement in the state's economy and competitive position as the health care sector is transformed and health care investments result in higher quality, safer, cost-effective care.

As required by the ONC, a fundamental goal of the WIRED for Health Board is to ensure the development of a financial sustainability strategy that uses public and private financing. Recognizing the importance of broad stakeholder participation in developing the sustainable strategy, the WIRED for Health Board received collaborative representation from physicians, hospitals, payers, trade associations, Medicaid, quality-reporting organizations, and other healthcare entities.

Currently, planning efforts are underway to establish a business strategy and financial framework that addresses short-term capitalization and long-term sustainability. Initial capitalization will leverage the $9.44 million ($8.5 million after current SHIN and HIE services planning) ARRA grant. The goal of Wisconsin is to develop the long-term financial strategy with broad stakeholder involvement and support.

In the summer of 2009, an environmental scan of stakeholders in the state of Wisconsin revealed positive support for a statewide HIE and related services; at the same time, the scan revealed a corresponding lack of support for a government controlled/led model. Given the positive results of the analysis reflecting support for statewide HIE and services and the intended selection of a non-profit as the SDE, the WIRED for Health Board is optimistic that stakeholders will voluntarily participate in financing a SHIN that provides value to its participants.

In undertaking its charge, the Finance and Audit Committee adhered to the following concepts:

- Plan for low initial and operational costs
- Identify benefits by each stakeholder category
- Recognize benefits that accrue to the public
- Obtain voluntary stakeholder participation
- Leverage revenue mechanisms from multiple sources

6.1 Challenges and Key Considerations

As with any strategic plan, challenges and key considerations need to be identified and addressed. Understanding the challenges and considerations is an important step in the approach to achieving a sustainable model. The first part of this section describes some of the key challenges and barriers to achieving sustainability. The second part of this section identifies some considerations in support of the SHIN.

6.1.1 Challenges to Achieving Sustainability

The Finance and Audit Committee acknowledges that relying on voluntary support to finance the SHIN and HIE services presents multiple challenges, some of which may be unique to Wisconsin. Examples of challenges include:

- **Localized Data Exchange**: Due to the high level of information technology adoption in health care in Wisconsin and the large proportion—over 69 percent (69%)—of its physicians practicing in large, independent group practices or IDNs, many of the physicians and hospitals have moved ahead with adopting and using EHRs and have made other significant health information technology investments, including investing in health information exchange within their organizations and local communities. The challenge this presents to sustainability is the need for the SHIN to demonstrate value beyond the benefits already being realized by health care provider organizations at the local level.
- **Historical Data**: A limited amount of reliable data, relative to the benefits associated with statewide HIE, currently exists within the industry. This presents a challenge to substantiate the financial benefits. Therefore, the Finance and Audit Committee is working with stakeholders to identify data sources that will help quantify the value of the SHIN to stakeholders.
- **Capacity of Health Systems**: Findings from an environmental scan conducted in the summer of 2009, indicated that provider and health system financial and human resource capacities are spread thin, especially in light of the current economic climate and competing demands for scarce resources. Therefore, the ability of health systems to undertake new projects will be limited even in light of the meaningful use requirements.
- **Trust**: A critical challenge facing all states as they work to implement HIE is the need to establish trust. Consumers and physicians alike must trust that the system will be easy to use, provide comprehensive, reliable information on which to base critical health care decisions, and that Personal Health Information (PHI) will be fully protected. Regardless of the value proposition assigned to statewide HIE, if providers and consumers do not trust the SHIN, this can lead to lower participation rates.

6.1.2 Key Considerations in Support of a Statewide Health Information Network

Stakeholders should view investments in the SHIN from the perspective that electronic health information exchange will help improve patient care and population health. As a result, there will be varying degrees of benefits, which include incentives and disincentives for stakeholders to consider in terms of the value proposition the SHIN presents to them and their specific needs.

- **Public Good**: One consideration, the public good, cannot be readily quantified, though many believe HIE would be an invaluable public asset. The societal benefit of overall improvements in the quality and safety of the health care delivered in Wisconsin is an incentive for stakeholder support. At a minimum, two qualitative points must be emphasized; first is the Institute of Medicine estimate[17] that nationally 100,000 lives are lost annually due to medication and medical errors. It is understood that timely, accurate, comprehensive information in the patient record can reduce errors. While experts may differ on what percent reduction in errors a statewide HIE would support, if only a small percentage of lives are saved, or readmissions and disability eliminated, the value proposition is undeniable.
- **Meaningful Use Requirements for Wisconsin**: Since meaningful use Stages 2 and 3 requirements have not been fully defined, it is difficult to know what specific requirements will drive demand for HIE services which stakeholders will pay for and therefore voluntarily contribute to the financing of the SHIN. However, it is anticipated that Stage 2 and 3 requirements will not be easily achieved. It also is anticipated that the Stage 2 and 3 meaningful use requirements will help increase EHR adoption and may drive improved levels of stakeholder engagement in the SHIN.

  The Medicare and Medicaid incentive payment program will provide further incentive for providers to meaningfully use electronic health records. Medicare incentives can be up to $44,000 and Medicaid incentives up to $63,750 for eligible providers and hospitals could receive incentives in excess of $1 million each depending on their size and percentages of Medicare and Medicaid revenues. Initial estimates project approximately $859.3 million could be paid to Wisconsin healthcare providers by meeting meaningful use requirements. Since HIE is included in the final meaningful use requirements, statewide HIE can help secure this significant source of revenue for Wisconsin's health care communities. The following figure includes details on the maximum amount of meaningful use incentive revenue. See Appendix 11 for additional information.

[17] "To Err is Human, Building a Safety Health System" (2000).

Non-hospital based eligible professionals	Medicare	Medicaid	Total incentives
Eligible professionals, estimated	10,000	690	
Cumulative individual incentive	$ 44,000	$ 63,750	
Lost MU incentives, potential maximum	$ 425,000,000	$ 36,800,000	$ 461,800,000
Lost MU incentives, adjusted for no SHIN	$ 29,400,000	$ 2,300,000	$ 31,700,000

PPS Hospitals	Medicare	Medicaid	Total incentives
Eligible hospitals, estimated	66	46	
Lost MU incentives, potential maximum	$ 283,581,000	$ 45,901,000	$ 329,482,000
Lost MU incentives, adjusted for no SHIN	$ 36,712,000	$ 5,943,000	$ 42,655,000

Critical Access Hospitals	Medicare	Medicaid	Total incentives
Eligible hospitals, estimated	59	27	
Lost MU incentives, potential maximum	$ 53,100,000	$ 14,953,000	$ 68,053,000
Lost MU incentives, adjusted for no SHIN	$ 4,685,000	$ 1,363,000	$ 6,048,000

Total MU Incentive Payments	Medicare	Medicaid	Total incentives
Lost MU incentives, potential maximum	$ 761,681,000	$ 97,654,000	$ 859,335,000
Lost MU incentives, adjusted for no SHIN	$ 70,797,000	$ 9,606,000	$ 80,403,000

Figure 6.1.1: Maximum amount of meaningful use incentive revenue

In addition to the Medicare and Medicaid EHR incentive program, a potential driver of provider demand is the Medicare reimbursement penalties for not being compliant with meaningful use requirements. Penalties will begin in 2015 and increase over the next 3 to 5 years and could motivate stakeholders to participate in the financing of the SHIN. The financial penalties are potentially significant. Based on 2007 Medicare data, the estimated maximum penalties could amount to $11.8 million in 2015 and up to $42.4 million statewide in 2019 in lost Medicare revenue. The following figure includes details on the maximum lost Medicare revenues due to failure to meet meaningful use requirements. See Appendix 12 for additional information.

Non-hospital based providers	2015	2016	2017	2018	2019
Penalty	1%	2%	3%	4%	5%
Expected Medicare Part B revenues	$ 3,395,000,000	$ 3,672,000,000	$ 3,972,000,000	$ 4,297,000,000	$ 4,648,000,000
Maximum lost Medicare revenue (est.)	$ 34,000,000	$ 73,400,000	$ 119,200,000	$ 171,900,000	$ 232,400,000
Medicare revenue lost due solely to lack of HIE (est.)	$ 6,800,000	$ 13,200,000	$ 19,300,000	$ 25,100,000	$ 30,500,000
Penalized Eligible Professionals (est.)	2,600	2,300	2,100	1,900	1,700
Lost revenue per penalized Eligible Professional (est.)	$ 2,600	$ 5,700	$ 9,200	$ 13,200	$ 17,900

PPS Hospitals	2015	2016	2017	2018	2019
Penalty	25%	50%	75%	75%	75%
Expected Medicare Part A revenues	$ 3,391,000,000	$ 3,574,000,000	$ 3,766,000,000	$ 3,969,000,000	$ 4,182,000,000
Expected PPS increase (avg.)	2.75%	2.75%	2.75%	2.75%	2.75%
Maximum lost Medicare revenue (est.)	$ 23,300,000	$ 49,100,000	$ 77,700,000	$ 81,900,000	$ 86,300,000
Medicare revenue lost due solely to lack of HIE (est.)	$ 4,700,000	$ 8,800,000	$ 12,600,000	$ 11,900,000	$ 11,300,000

Critical Access Hospitals	2015	2016	2017	2018	2019
Penalty	100.66%	100.33%	100.00%	100.00%	100.00%
Expected Medicare Part A revenues	$ 265,200,000	$ 279,500,000	$ 294,500,000	$ 310,400,000	$ 327,100,000
Maximum lost Medicare revenue (est.)	$ 900,000	$ 1,900,000	$ 2,900,000	$ 3,100,000	$ 3,300,000
Medicare revenue lost due solely to lack of HIE (est.)	$ 300,000	$ 500,000	$ 700,000	$ 700,000	$ 600,000

Total Lost Medicare Revenues	2015	2016	2017	2018	2019
Maximum lost Medicare revenue (est.)	$ 58,200,000	$ 124,400,000	$ 199,800,000	$ 256,900,000	$ 322,000,000
Medicare revenue lost due solely to lack of HIE (est.)	$ 11,800,000	$ 22,500,000	$ 32,600,000	$ 37,700,000	$ 42,400,000

Figure 6.1.2: Potential lost Medicare revenues due to failure to meet meaningful use requirements

6.2 Approach to Financial Sustainability

As with any start-up enterprise, the fundamental sustainability elements that must be addressed include costs, benefits, and revenue. The WIRED for Health Board has taken a strategic approach to develop a baseline for the SDE to validate the feasibility of capital and implementation (short-term) goals and operational (long-term) financial sustainability.

6.2.1 Sustainability Success Factors

In an effort to create a scenario for a financially sustainable SHIN that provides value to its users, the Finance and Audit Committee used a structured approach to address the fundamental financial elements including costs, benefits, and revenue. This approach addresses both the short-term and long-term financing goals. The basis of this approach is to integrate broad-based stakeholder involvement in all aspects of planning and ultimately garner buy-in to support the SHIN and HIE services.

Anticipated success factors over the next 3 to 5 years required to achieve financial sustainability include:

- Identify realistic capital and operating cost estimates
- Identify potential value of widespread adoption of the SHIN for each stakeholder category
- Obtain stakeholder support
- Acquire financing for short-term capitalization
- Identify sustainable revenue mechanisms for long-term financing

6.2.2 Requirements and Assumptions for Financial Sustainability

The WIRED for Health Project made overall assumptions and identified requirements necessary to maintain the quality and integrity of deliverables to ensure the data is valid and justifiable. These assumptions and requirements include:

- **Collaborative**: This is a collaborative approach between the broad base of stakeholders represented by the Finance and Audit Committee and other WIRED for Health committees
- **Transparency**: All of the quantitative data is sourced and transparent
- **Reviewed**: All outputs have been reviewed and supported by the Finance and Audit Committee
- **Flexible**: The approach is intentionally flexible to allow for future additions or changes as needed for ongoing analysis

6.3 SHIN Capital and Operational Cost Estimates

The costs associated with a SHIN and HIE services fall into two categories: capital costs and operational costs. High-level estimates associated with the SHIN and HIE services have been identified for both categories. The capitalization estimate leverages industry market data, assumed system requirements, and other HIE case studies and lessons learned. The operational cost estimate is based on input received from all of the WIRED for Health Board's committee staffing plans, anticipated requirements, and other operational costs.

Ultimately, the estimated costs for the SHIN and HIE services will need to be determined by the SDE. Presumably, the SDE will solicit proposals from vendors and/or entities interested in being the Technical Operator to obtain the most accurately detailed estimates. Factors the SDE will need to consider for capitalization include the technology solution (e.g., packaged, custom solution, open source), implementation timeline, Technical Operator Model (e.g., Application Service Provider [ASP], Software as a Service [SaaS], traditional software licensing models), and other variables yet to be defined. From an operational perspective, the SDE will need to consider staffing in relation to the planned implementation timeline of the SHIN. Additionally, the SDE will need to consider use case priorities.

- **Capital costs**: The estimated capitalization costs identify up-front financing required to establish and operate the SDE and implement the planned SHIN and HIE services for Wisconsin. The capital costs cover the first 10 years, during which a significant amount of financing will be required by the SDE to design, develop, and launch the SHIN. Some of the costs associated with the initial development are licensing fees, hardware, maintenance, and other implementation costs.
- **Operational costs**: In order to ensure sufficient planning for the short-term and long-term sustainability of the SHIN, operational costs must be estimated. These costs generally include staffing, facility, maintenance, insurance, professional service fees, and other overhead expenses required for day-to-day operations.

6.3.1 Cost Estimate Notes and Assumptions

In-order to develop baseline estimates that the SDE will be able to leverage, the following high-level assumptions were made in developing the estimates. See Appendix 13 for a complete list of assumptions.

- **Industry experience**: Experiences in the HIE industry have been leveraged to tailor the estimates and assumptions for the initial technical recommendations made by the Standards & Architecture Committee.
- **Model**: The SDE will have options when choosing the type of models when implementing the SHIN. Based on other states interested in implementing an HIE, the trends are toward adopting either an ASP or SaaS model. For the purposes of this plan, the estimates are based on an ASP model. An ASP model entails Wisconsin subscribing with a vendor to host, develop, and maintain the HIE. Year 1 costs are assumed to be higher for initial setup with the following years being estimated at an established subscription rate. An advantage of this model is predictable year-by-year cost estimates.
- **State comparisons**: The estimates developed include actual quotes received by other states for their statewide HIE initiatives. These quotes were compared with Wisconsin's anticipated requirements.
- **Packaged solution**: The estimates are based on a packaged vendor solution versus developing a custom solution or significant customization of a packaged vendor solution. When solutions are customized or extensive enhancements are made, this typically results in substantially increasing the costs of the solution.
- **Interfaces**: The cost for interfaces varies depending on the type and complexity of the interface. For the purposes of this estimate, we assumed the highest costs for the estimated number of interfaces.
- **Contingency**: A 5 percent (5%) contingency has been added to the estimate to account for additional expenses that may be added.

6.3.2 Short-Term Cost Estimates

Year 1: Based on the assumptions used to develop an estimate, costs are anticipated to be highest in Year 1 at approximately $10.6 million due to initial start-up costs and licensing fees.

Years 2 to 5: Beginning in Year 2, annual costs are expected to average approximately $7.8 million per year. The total estimated costs for the first 5 years of the SHIN are estimated at $39.4 million.

A detailed list of the costs associated with the SHIN for Years 1 to 5 are identified in the following figure.

	Short Term			Total 5 Year Outlook	
	Year 1	Year 2	Year 3	Year 4	Year 5
SDE - OPERATIONAL COSTS					
SDE - FIXED					
Executive Director	$ 150,000	$ 154,500	$ 159,135	$ 163,909	$ 168,826
Policy Analyst	$ 70,000	$ 72,100	$ 74,263	$ 76,491	$ 78,786
Controller	$ 100,000	$ 103,000	$ 106,090	$ 109,273	$ 112,551
Executive Assistant	$ 35,000	$ 36,050	$ 37,132	$ 38,245	$ 39,393
Communications Specialist	$ 60,000	$ 61,800	$ 63,654	$ 65,564	$ 67,531
Technical/Clinical Project Manager	$ 90,000	$ 92,700	$ 95,481	$ 98,345	$ 101,296
Technical Staff	$ 120,000	$ 123,600	$ 127,308	$ 131,127	$ 135,061
Fringe Benefits	$ 250,000	$ 257,500	$ 265,225	$ 273,182	$ 281,377
Total Annual Fixed Staffing Costs	**$ 875,000**	**$ 901,250**	**$ 928,288**	**$ 956,136**	**$ 984,820**
SDE - Overhead					
Facility, Equipment, & Supplies	$ 30,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Total Annual SDE Overhead Costs	**$ 30,000**	**$ 20,000**	**$ 20,000**	**$ 20,000**	**$ 20,000**
TECHNICAL OPERATOR - CAPITAL & OPERATIONAL COSTS					
Technical Operator - Capital & Operational Costs					
Hardware/Sys. Software/Hardware Install	$ 750,000				
Hardware Maintenance		$ 375,000	$ 378,750	$ 382,538	$ 386,363
Core Application Software Licenses	$ 3,250,000	$ 325,000	$ 328,250	$ 331,533	$ 334,848
Non-Core Software Licenses	$ 300,000	$ 300,000	$ 303,000	$ 306,030	$ 309,090
Implementation - FTE Costs	$ 2,565,000	$ 2,030,000	$ 2,038,800	$ 2,047,688	$ 2,056,665
Conversion/Initial Data Feed					
Interfaces & Maintenance	$ 1,251,000	$ 1,500,000	$ 1,515,000	$ 1,530,150	$ 1,545,452
Hosting Set-up & Fees	$ 600,000	$ 600,000	$ 606,000	$ 612,060	$ 618,181
Disaster Recovery (basic)		$ 300,000	$ 303,000	$ 306,030	$ 309,090
Training	$ 500,000	$ 100,000	$ 101,000	$ 102,010	$ 103,030
Insurance	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 125,000	$ 125,000
Future Enhancements					
Total One-Time Costs	**$ 9,216,000**	**$ 5,530,000**	**$ 6,573,800**	**$ 5,743,038**	**$ 5,787,718**
Contingency					
Contingency	$ 506,050	$ 322,563	$ 376,104	$ 335,959	$ 339,627
Total Annual Contingency Costs	**$ 506,050**	**$ 322,563**	**$ 376,104**	**$ 335,959**	**$ 339,627**
Total Annual HIE Costs	**$ 10,627,050**	**$ 6,773,813**	**$ 7,898,192**	**$ 7,055,133**	**$ 7,132,166**
Rolling Sum (Costs)	**$ 10,627,050**	**$ 17,400,863**	**$ 25,299,054**	**$ 32,354,187**	**$ 39,486,353**

Figure 6.3.1: Year 1 to Year 5 cost estimates

6.3.3 Long-Term Cost Estimates

Years 6 to Year 10: Annual costs are estimated on average to be approximately $7.3 million. Total costs for the first 10 years of the SHIN are estimated at $76.3 million.

Detailed cost estimates associated with Years 6 to Year 10 are identified in the following figure.

	Total 10 Year Outlook					
	Year 6	Year 7	Year 8	Year 9	Year 10	**Total**
SDE - OPERATIONAL COSTS						
SDE - FIXED						
Executive Director	$ 173,891	$ 179,108	$ 184,481	$ 190,016	$ 195,716	1,719,582
Policy Analyst	$ 81,149	$ 83,584	$ 86,091	$ 88,674	$ 91,334	802,472
Controller	$ 115,927	$ 119,405	$ 122,987	$ 126,677	$ 130,477	1,146,388
Executive Assistant	$ 40,575	$ 41,792	$ 43,046	$ 44,337	$ 45,667	401,236
Communications Specialist	$ 69,556	$ 71,643	$ 73,792	$ 76,006	$ 78,286	687,833
Technical/Clinical Project Manager	$ 104,335	$ 107,465	$ 110,689	$ 114,009	$ 117,430	1,031,749
Technical Staff	$ 139,113	$ 143,286	$ 147,585	$ 152,012	$ 156,573	1,375,666
Fringe Benefits	$ 289,819	$ 298,513	$ 307,468	$ 316,693	$ 326,193	2,865,970
Total Annual Fixed Staffing Costs	**$ 1,014,365**	**$ 1,044,796**	**$ 1,076,140**	**$ 1,108,424**	**$ 1,141,677**	**10,030,894**
SDE - Overhead						
Facility, Equipment, & Supplies	$ 20,001	$ 20,002	$ 20,003	$ 20,004	$ 20,005	210,015
Total Annual SDE Overhead Costs	**$ 20,001**	**$ 20,002**	**$ 20,003**	**$ 20,004**	**$ 20,005**	**210,015**
TECHNICAL OPERATOR - CAPITAL & OPERATIONAL COSTS						
Technical Operator - Capital & Operational Costs						
Hardware/Sys. Software/Hardware Install						$ 750,000
Hardware Maintenance	$ 390,227	$ 394,129	$ 398,070	$ 402,051	$ 406,071	$ 3,513,198
Core Application Software Licenses	$ 338,196	$ 341,578	$ 344,994	$ 348,444	$ 351,928	$ 6,294,771
Non-Core Software Licenses	$ 312,181	$ 315,303	$ 318,456	$ 321,641	$ 324,857	$ 3,110,558
Implementation - FTE Costs	$ 2,065,732	$ 2,074,889	$ 2,084,138	$ 2,093,479	$ 2,102,914	$ 21,159,304
Conversion/Initial Data Feed						$ -
Interfaces & Maintenance	$ 1,560,906	$ 1,576,515	$ 1,592,280	$ 1,608,203	$ 1,624,285	$ 15,303,791
Hosting Set-up & Fees	$ 624,362	$ 630,606	$ 636,912	$ 643,281	$ 649,714	$ 6,221,116
Disaster Recovery (basic)	$ 312,181	$ 315,303	$ 318,456	$ 321,641	$ 324,857	$ 2,810,558
Training	$ 104,060	$ 105,101	$ 106,152	$ 107,214	$ 108,286	$ 1,436,853
Insurance	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 3,875,000
Future Enhancements						$ -
Total One-Time Costs	**$ 5,832,846**	**$ 5,878,424**	**$ 5,924,458**	**$ 5,970,953**	**$ 6,017,912**	**$ 62,475,149**
Contingency						
Contingency	$ 343,361	$ 347,161	$ 351,030	$ 354,969	$ 358,980	$ 3,635,803
Total Annual Contingency Costs	**$ 343,361**	**$ 347,161**	**$ 351,030**	**$ 354,969**	**$ 358,980**	**$ 3,635,803**
Total Annual HIE Costs	**$ 7,210,572**	**$ 7,290,383**	**$ 7,371,631**	**$ 7,454,350**	**$ 7,538,574**	**$ 76,351,862**
Rolling Sum (Costs)	**$ 46,696,925**	**$ 53,987,308**	**$ 61,358,938**	**$ 68,813,288**	**$ 76,351,862**	

Figure 6.3.2: Year 6 to Year 10 cost estimates

6.3.4 Key Considerations Beyond SOP Cost Estimates

- **Market Analysis**: The SDE should conduct a detailed market analysis to gauge the level of interest among stakeholders and determine stakeholder plans to participate in the SHIN.
- **Vendor Selection**: Based on stakeholder demand, the SDE will need to consider vendor ability to accelerate implementation and balance associated costs. The SDE is encouraged to address this consideration through any subsequent HIE vendor procurement process.

6.4 SHIN Estimated Benefits

Current health spending continues to rise and is not sustainable. According to a recent report published by the CMS Office of Actuary,[18] U.S. health care costs rose to $2.5 trillion in 2009, which translates to $8,143 per person and 17.3 percent of the nation's Gross Domestic Product (GDP). Despite slower growth in overall health expenditures, the share of GDP devoted to health care increased from 16.2 percent in 2008. The total government spend on Medicare and Medicaid was $880 billion accounting for about one-fifth of the entire federal budget. CMS projects that public spending will account for more than half of U.S. health care spending by 2012. Some experts, such as the Midwest Business Group, estimate that up to 30 percent (30%) of health care nationally is unnecessary, emphasizing the need to streamline the health care system and eliminate this needless spending and inefficiency. [19]

According to the U.S. Census Bureau's figures, Wisconsin's population was about 1.8 percent (1.8%) of the national population in 2009. Therefore, we will approximate that Wisconsin's share of the $2.5 trillion in health care spending in 2009 was about $46 billion. Presently, there is no reliable data source to determine the percentage of inefficiency or waste in Wisconsin health care. Given the high level of EHR adoption in Wisconsin, it is likely the state's level of inefficiency and amount of unnecessary health care is lower than the estimated national average. For the purposes of this Plan and the available data, we are providing a range for unnecessary health care costs in Wisconsin that includes the estimated national average of 30 percent (30%) and a more conservative percentage of 15 percent (15%) or half of the national average. Wisconsin's share of the unnecessary health care costs or waste could be as high as $13.8 billion or conservatively about $6.9 billion.

	WI Spending		Estimated % Waste (National Avg.)	Estimated Total Waste	Estimated % Waste (Adjusted Avg.)	Estimated Total Waste
Total	$46B		30%	$13.8B	15%	$6.9B
Per Capita	$8,143		30%	$2,443	15%	$1,221

Table 6.4.1: Inefficiency or waste in Wisconsin health care

There are many factors that contribute to unnecessary care and waste in the health care system. For example, relying on a paper-based health care system is error-prone, inefficient, and faced with very serious challenges.[20]

There are medical error, patient safety, quality, and cost issues associated with information being unknown, inadequate, unavailable, or missing at the time of care:

- 1 in 4 prescriptions taken by a patient are not known to the treating physician

[18] Health Spending Projections Through 2019: The Recession's Impact Continues
Truffer et al. *Health Affairs*.2010; 0: hlthaff.2009.1074v1-10.1377/hlthaff.2009.1074
[19] Kaiser Family Foundation Health Systems Issue Module on U.S. Health Care Costs, 2008,
http://www.kaiseredu.org/topics_im.asp?imID=1&parentID=61&id=358
[20] Presentation by Blackford Middleton, Chairman, HIMSS, Partners Healthcare, Harvard Medical School, accessed at
himss.org/ASP/ContentRedirector.asp?ContentID=65397, 11/20/06.

- 1 in 5 lab and x-ray tests are ordered because the originals are missing
- 18 percent (18%) of medical errors are estimated to be due to inadequate availability of patient information
- 40 percent (40%) of outpatient prescriptions are unnecessary
- Patients receive only 55 percent (55%) of recommended care

A fractured and "unwired" system also contributes to inefficient and unnecessary care:

- Medicare beneficiaries see a median of two primary care physicians and five specialists working in four different practices annually. For 33 percent (33%) of beneficiaries, the assigned physician changed from one year to another.[21]
- 90 percent (90%) of the more than 30 billion health care transactions in the U.S. every year are conducted via mail, fax, or phone.

Paper records are very difficult to secure and put patients' data at risk of unauthorized access as well as misuse of the information in the records. There are few if any audit trails about how the information in paper records is used.

The Institute of Medicine, in a landmark report issued in 2001, *Crossing the Quality Chasm*, found that safer, high-quality care requires redesigned systems of care, including the use of information technology to support clinical and administrative processes.[22]

There is strong public support for efforts to improve care coordination and access to information. On behalf of The Commonwealth Fund Commission on a High Performance Health System, Harris Interactive surveyed U.S. adults to determine the public's perspectives on ways to improve patient care and on health policy priorities facing the President and Congress. Based on the representative sample of 1,023 adults ages 18 and older, there is a shared belief that expanded use of information technology, care teams, and improved delivery of preventive services could improve the quality of care. Patients reported recent experiences of wasteful, inefficient, or unsafe care. In addition, half of middle-income and lower-income families reported serious problems paying for care and insurance coverage. Three-quarters of all adults said the U.S. health care system needs either fundamental change or complete rebuilding.[23]

According to the Kaiser Family Foundation background brief on U.S. health care costs in 2008:[19]

- Better availability of information through greater use of health information technology, such as EHRs and HIE, has been promoted and researched for its potential to more efficiently and effectively share information, resulting in reductions in overhead costs and unnecessary care.
- There are a number of initiatives that aim to help make the health care system more efficient and higher quality, and consequently more cost effective. Overall, decreasing unwarranted variation in medical practice and unnecessary care is seen as a priority, particularly geographic variation,

[21] Pham et al, *Care Patterns in Medicare and Their Implications for Pay for Performance.* New England Journal of Medicine, March 2007.
[22] Institute of Medicine, *Crossing the Quality Chasm: A New Health System for the Twenty-first Century.* (Washington: National Academies Press, 2001).
[23] C. Schoen, S.K.H. How, I. Weinbaum, J. E. Craig, Jr., and K. Davis, Public Views on Shaping the Future of the U.S. Health Care System, The Commonwealth Fund, August 2006.

since higher spending on health care in certain geographical areas does not correspond to better health outcomes.

Preliminary evaluation findings from analysis of WHIE mentioned in Section 4.1.1.1 suggest these benefits are obtainable through the use of HIE. HIT and HIE can help address the inefficiency, variations, and fragmentation in health care. We are not suggesting that HIE alone would reduce health care inefficiency and waste. But from a hypothetical perspective, if even 1 percent (1%) of the inefficiency and waste (using the more conservative 15 percent (15%) estimate of costs for unnecessary health care) is eliminated by providing better information through HIE, this would equate to a $69 million reduction in unnecessary health care costs annually in Wisconsin.

Better information, exchanged appropriately, will mean that patients get better care as their health care providers have access to previous services and the patient's medical history. Better information will help clinical care providers improve their practice of medicine and help improve the health of individuals and communities in Wisconsin and help reduce waste and inefficiency in health care. Sustainability of this initiative will require stakeholder trust and buy in, privacy and data security, and services that provide value.

Benefits derived from the SHIN and HIE services will vary by each stakeholder category and the entities within each category. In order to develop a financial model that is both sustainable and equitable, the Finance and Audit Committee conducted an initial analysis identifying benefits by stakeholder type. In order to support a case for financial sustainability, the SDE should conduct an analysis of the cost savings, cost avoidance, and benefits by HIE service for each stakeholder type. From a financial perspective, the prioritization criteria should consider HIE services that add value and are financially feasible.

As with any new business, the Finance and Audit Committee expects that initial costs will exceed revenue in the short term. Initially the SHIN infrastructure will be less robust with anticipation that the SDE will incrementally add capabilities to develop a more robust infrastructure. Based on a less robust infrastructure during the early stages of the SHIN, it is anticipated a limited number of services leveraging this infrastructure will likely be available. Therefore, the SDE should consider implementing services based on prioritization that includes a variety of factors such as stakeholder demand, perceived value, and ability to generate revenue. Additionally, the value of the exchange will also vary with the proportion of patients who have records in the system, the proportion of providers participating, and the proportion of patients using the services of more than one provider of services. Therefore, the value proposition presented to stakeholders is expected to increase incrementally over time as additional HIE services are made available through the SHIN.

Transparency—a core requirement—is critical in this aspect of the sustainability approach. In order to obtain buy in from stakeholders, the data sources for the expected benefits must be valid and justifiable.

- **Benefits by Use Case**: Measuring the potential added financial value from each HIE service by stakeholder category presents an opportunity to establish the business case for the SHIN. Validation of the "real value" is a strong tool when justifying the investment. Some of the anticipated benefits to stakeholders are improved time efficiency and reduction in unnecessary costs. The SDE may choose to conduct an analysis evaluating potential cost savings and avoidance that can be realized from the actual services within the planned architecture of the SHIN.

- **Cost Saving and Avoidance Outcomes**: Measuring the financial benefits of anticipated outcomes demonstrates not only a potential financial benefit to stakeholders, but also supports the agenda to increase the quality and efficiency of care in Wisconsin. However, it is important to note that under fee-for-service reimbursement, providers lose revenues when there is a reduction in health care services they provide. As a result, some stakeholders may not actively support the SHIN.

  The following list includes some of the initial benefit considerations:

  1) Reductions in duplicative lab tests and images.
  2) Reductions in unnecessary hospital readmissions.
  3) Reduced hospital lengths of stay for chronic patients.
  4) Reduced adverse drug events.
  5) Increased efficiency in records management.
  6) Reductions in duplicative workups due to missing clinical information.
  7) Reductions in unnecessary admissions through the ER.
  8) Reduced office visits with the doctor as consumers become more engaged in managing their health.

- **Cost/Benefit Analysis for Participants in the SHIN:** Logically, the SDE should build a business case for why each participant should have an interest in participating in the SHIN. A suggestion for the SDE is to conduct a cost/benefit or return on investment (ROI) analysis. By demonstrating how the SHIN will yield positive benefits and returns on investment, the exchange provides stakeholders with incentive to participate.
- **Additional Points of HIE Value Creation**: There are many other sources of value created by HIE that are difficult to quantify but deserve attention when developing a sustainable financing strategy for statewide HIE. These other instances of value include but are not limited to:
  1) The resulting improved health and safety of patients is an outcome that should be considered of the highest value.
  2) Reduced redundancy (individual providers) of labor intensive services like directory creation and maintenance and master patient indexing.
  3) Reductions in the cost of information transactions (eliminating inefficient manual and paper-based work).
  4) Reduction of redundant costs associated with multiple system-to-system interfaces (i.e., between and among technical systems; and care delivery providers, pharmacies, diagnostic services organizations, state systems, health information organization (HIOs), etc.) which can be replaced by a single system-to-HIE interface.
  5) Faster, more accurate diagnosis due to access to more comprehensive information such as past diagnostic tests and results of past therapies.
  6) Creation of richer relational data, including demographics, diagnostics, therapeutics, care utilization, and outcomes, for secondary use in health research and population health at far lower costs than traditional sources.

7) Improved public health surveillance permits faster, surer detection and management of disease outbreaks.
8) Faster and more complete information permitting more rapid quality and safety improvements.
9) Centralized statewide information consent management would replace redundant HIPAA documentation at the provider level.
10) Centralized patient-specific, community-based documents, such as care plans and advanced directives.

Although there are many intrinsic sources of value to information exchange, these are further enhanced by the Medicare and Medicaid EHR incentives that accrue to hospitals and eligible providers who achieve meaningful use and participate in statewide HIE.

6.4.1 Benefits from the SHIN

Benefits received by stakeholders were a key consideration for the Standards and Architecture Committee when prioritizing the Use Cases for the SHIN. Time/Cost and Quality are the primary benefits identified by stakeholder type. This is a preliminary analysis that identifies the number of use cases benefiting each stakeholder type.

The following table shows the variables considered when identifying benefits by stakeholder type.

Time/Cost	Quality
• Reduced administrative cost • Less time on individual encounter • Reduction in number of unnecessary diagnostic tests • Reduced staff time spent on handling diagnostic results • Chronic care cost reduction • Use of HIE to support lab orders and results delivery • Provides avenue for reporting of critical data • Higher productivity	• Improved population health • Improved care coordination • Improved data accuracy • Improved patient satisfaction with care received • Reduction in number of unnecessary diagnostic tests • Improved access to test results • Reduction in number of unnecessary refill requests • Extends health community access and clinical data exchange to health service providers, independent rehabilitation centers, and the patients

Table 6.4.2: Benefits considered by time/cost and quality

6.4.2 Benefits of Use Cases by Stakeholder Category

An initial evaluation of the stakeholders receiving benefits from the selected use cases was made. During the development of the Sustainability Plan, it is assumed the SDE will conduct further analysis to determine benefits by stakeholder to support the development of a marketing and outreach strategy.

The following figure assigns benefits by stakeholder to each of the use cases identified by the Standards and Architecture Committee:

Case #	Use Case	Payer	Provider	Specialist	Hospital	Patient	Labs	Public Health	Pharmacist
1	Provider refers patient to specialist (including care coordination document)	X	X	X	X	X			
2	Primary care provider refers patient to hospital including summary care record	X	X		X	X			
3	Specialist sends summary care information back to referring provider		X	X	X				
4	Hospital sends discharge information to referring provider	X	X		X				
5a	Provider orders Lab tests from lab or reference lab	X	X		X		X		
5b	Provider receives lab test results from lab or reference lab		X		X		X		
9	Provider sends a clinical summary of an office visit to the patient		X			X			
11	Provider sends reminder for preventive or follow-up care to the patient		X		X	X			
12	Primary care provider sends patient immunization data to public health		X						
13	Provider or hospital submits quality data and/or measures to the CMS, the State, and/or health information organizations	X			X				
15	Laboratory reports test results for some specific conditions to public health (Reference #33, #34)						X	X	
16	Providers send chief complaint (non-reportable) data to public health for syndromic surveillance		X			X		X	
17	State public health agency reports public health data to Centers for Disease Control					X		X	
18	Pharmacist sends medication therapy management consult to primary care provider	X	X			X			X
19	A patient or designated caregiver monitors and coordinates care across multiple domains	X	X			X			
25	Clinicians can send summaries to other providers and to patients.	X	X		X	X			
30	ED Linking	X	X		X	X			
31	Provide Advance Directives to requesting Providers	X	X		X	X			
32a	Provider sends reportable disease diagnosis data to public health					X		X	
32b	Provider sends non-reportable, anonymized disease data to public health					X		X	
35	PCP prescribes medication for patient.		X			X			X
36a	Lab orders test from another lab	X			X	X	X		
36b	Lab receives test results from another lab	X			X	X	X		
37	Release of Information (Provider to Provider) - Similar to referral only broader	X	X		X	X			
38a	Patient Opts Out of having records shared in HIE (via PHR or HIE Patient Web Portal)								
38b	Patient decides to Opt back In to having information exchanged in the HIE (via PHR)	X	X	X	X	X	X	X	X
39	Public Health sends feedback report to provider on clinical care, surveillance, interventions, disease management, and other factors		X			X		X	

Figure 6.4.1: Stakeholder identified as benefiting from each use case

6.5 SHIN Capital and Operational Revenue Sources

The identification of all potential revenue sources and mechanisms to finance the capital and operational costs is critical when developing a plan for financial sustainability. The goal is to identify a viable mix of public and private financing for the SHIN that stakeholders will voluntarily support.

6.5.1 Revenue Sources

Multiple potential revenue sources exist that could be leveraged by the SDE to develop a sustainable financial model. This revenue "menu" identifies a comprehensive list of potential revenue sources, but the committee anticipates only leveraging sources that have been identified as reasonable and viable.

6.5.1.1 Revenue Sources – Capitalization and Implementation

The WIRED for Health Board anticipates that the SDE will need to explore a mixture of potential public and private revenue sources to identify a viable capitalization strategy. The WIRED for Health Board acknowledges that there will likely be a period of time where expenses exceed revenues due to low participant adoption of the SHIN and HIE services. This is typical and is to be expected. During this initial period of time, the SDE will need a sum of cash-on-hand to remain solvent. The Finance and Audit Committee has created a financing strategy based on the estimate of capital required for the short-term, 5-year plan that will cost $39 million.

Potential Public Sources:

- **ARRA Funding**: Initial capitalization will leverage the $9.44 million ($8.5 million after current statewide health information network and HIE services planning) allocated by the ARRA grant.
- **Wisconsin Health and Educational Facilities Authority (WHEFA) Bonding**: WHEFA assists with analyzing financing alternatives and structuring revenue bonds for health care and educational institutions. According to WHEFA's executive director, through a WHEFA board approval process, the SDE may be eligible for obtaining bonding assistance. The SDE and at least 95 percent (95%) of the SHIN and HIE services business would need to have federal 503(c)(3) status. The SDE must have a sound business case to attract investors to purchase the bonds and WHEFA's involvement includes no guarantee of bond sales. Bonding will also likely require the amortization of capital costs into operational revenues significantly increasing the price of items such as transaction fees, membership fees, and user fees.
- **General Purpose Revenue (GPR)**: Since GPR is revenue collected from personal income tax, this option requires collecting money from the general population to pay for the SHIN and HIE services. GPR funding is difficult to obtain and is appropriated through the biennial budget process or through legislation. Given Wisconsin's current fiscal and economic climate, it is unlikely GPR funding is a viable funding source.
- **State of Wisconsin Master Lease**: The Master Lease is a capital financing mechanism that can be used only by the State for capital-intensive projects such as land acquisition, construction, and large IT projects.
- **CMS 90/10 Funding**: The State could potentially use an available federal Medicaid funding option to build the core HIE technical services (e.g., enterprise master patient index, record locator service, consent management, shared directories). Under this scenario, the Centers for

Medicare and Medicaid Services would pay up to 90 percent (90%) of certain HIE services costs and the State would `significantly increase governmental influence and oversight of the SHIN.

Potential Private Sources:

- **Health Insurance Assessment**: While this option involves enacting or proposing legislation to assess insurance claims to finance HIE efforts, it is a private sector contribution. These assessments are typically under 0.2 percent (0.2%) of paid health insurance claims and also include a sunset date. In Wisconsin, an assessment of 0.1 percent (0.1%) on health insurance claims would generate approximately $11 million annually. This revenue assumption is based on 2006 paid health insurance premiums ($10.5 million) published by the state Office of the Commissioner of Insurance.

  This assessment would require minimal administration if conducted in concert with the Health Insurance Risk-Sharing Plan (HIRSP) Authority, which already collects a similar assessment on health insurance claims paid in Wisconsin. An assessment to fund HIT adoption and exchange could have a sunset date after 5 to 6 years because it is likely that with such an assessment, HIT adoption will be nearly complete and information exchange operations would then be financially self-sustaining. The following highlights HIRSP's collections in 2009 and 2008:

  - In 2009, HIRSP collected $27.5 million in insurance assessments.
  - In 2008, HIRSP collected $39.3 million in insurance assessments.

  New medical lab results (MLR) requirements and increased state and federal scrutiny of rate increases make it difficult for commercial payers to absorb this expense. Therefore, it should be recognized this changing environment may not make an insurer assessment an appealing option.

- **Public and Employer Foundations**: Public and Employer Foundations have established endowments from private funding. The investment income from the endowments are established to help fund medical research, education, and for public health initiatives. Funding from the endowments may be a potential source for capitalizing the SHIN. To acquire the necessary capital, either in the form of a gift or a loan, would require a special request for funding by the WIRED for Health Board, the State Health IT Coordinator, and other state and community leaders. An example of this type of foundation is the Blue Cross and Blue Shield United of Wisconsin Public Health Foundation. The University of Wisconsin Medical School and the Medical College of Wisconsin have an endowment established from funds when Blue Cross and Blue Shield United of Wisconsin became a for-profit stock corporation. The proceeds were split equally between the University of Wisconsin Medical School and the Medical College of Wisconsin to establish endowments at both universities. The endowments collectively stood at $665.2 million on December 31, 2009. The schools use 65 percent (65%) of the investment income from the endowments for medical research and education, and 35 percent (35%) for public health initiatives with community partners.

- **Philanthropy**: Philanthropy is a possible option for acquiring funding, but it is not likely that donors will generate any significant portion of the capital necessary for SHIN and HIE services implementation.

- **Vendors**: Depending on the SDE, a vendor may be engaged to discuss possible solutions toward capitalizing the SHIN. This option would require a request for proposal (RFP) for software and services from vendors.

6.5.1.2 Revenue Sources – Operational

A list of potential revenue sources has been identified to financially support the operations and long-term sustainability of the SHIN. The list identifies a mix of public and private sources that may be leveraged, if voluntary support from these sources is provided. See Appendix 14 for additional details.

Revenue Sources	Public and Private Sources
Federal Sources	• ARRA State HIE Cooperative Agreement • HIT Regional Extension Center Program • Children's Health Insurance Program Reauthorization Act (CHIPRA) Quality Demo Grant • CMS Medicaid 75/25 Funding
State Sources	• Medicaid Managed Care Programs • State Appropriations – General Purpose Revenue (GPR) • State Bonds • All Payer Assessment • Employee Trust Fund
Private Sources	• Payers/Employers • Physicians • Hospitals • Patients • Laboratories • Imaging Facilities • Pharmacies
Philanthropy Sources	• Employer Philanthropy Programs • Foundations

Table 6.5.1: Potential revenue sources

6.6 Potential Financial Models

Before committing to any of the proposed financial models, the SDE should consider conducting an evaluation of the advantages and disadvantages of each model.

The following assesses each of the possible financial models.

Transaction Fees: Participants pay fees on type of service or data requested. This may include a tiered scale with volume discounts – lower fee per message delivered for higher volumes.

Advantages:

- Participants pay in direct proportion to their use of the HIE
- Has the potential to generate significant revenues as volume of HIE use and associated costs rise over time

Disadvantages:

- Transaction fees may discourage participants from using the HIE

- May be hard for organizations to predict their level of use and therefore budget for fees
- Challenging for Statewide HIE effort to predict its revenue
- Challenging to substantiate fee structure during start-up phase in the absence of a "track record" of performance
- Administrative requirements for billing and payment may be overly complex.
- HIE costs may become "lost" if embedded within larger set of charges for a hospital stay or outpatient encounter

Membership/Subscription Fees: Participants pay fees based on a schedule (e.g., annual or monthly). Different variations are possible, including a tiered fee schedule that recognizes differing levels of participation, organization type, or organization size.

Advantages:

- Participants pay a one-time annual or monthly fee for use of the HIE
- Participants who are members are inclined to use the HIE more often and therefore increase the value of the SHIN
- Once participants become a member, the SDE will be able to accurately forecast annual financials
- Participants can easily forecast Membership fees and build into budget
- As greater value is perceived, a potential for more members to support long-term sustainability

Disadvantages:

- Participants may initially be reluctant to invest in Membership fees
- Organizations may not know the actual value of the SHIN, unless usage is tracked

GPR Fee Per Person: A per member model would explore the possibility of assessing a GPR per person per year to obtain SHIN financing.

Advantages:

- Financial forecasts would be predictable
- If a fee is assessed, this will provide a consistent stream of revenue to sustain the SHIN

Disadvantages:

- Assessing a fee may not be supported by the Governor
- The public may not be in favor of an additional tax
- A new tax may not collect enough to financially sustain the SHIN

Fee per Covered Life: Payers or Employers who offer coverage pay a determined fee per person covered under their plan. This can be a fee, per member per month or a one-time annual per member per year.

Advantages:

- Financial forecasts would be predictable
- This would spread the cost of financing the HIE to multiple entities, which would reduce the impact to a specific financer
- The fee is already tiered based on size of covered population, allowing for payers or employers to more easily manage incurred fee

Disadvantages:

- Payers and Employers may not voluntarily participate

Hybrid: A hybrid model is the combination of one or more of the previously defined models to sustain the SHIN.

Advantages:

- Uses multiple sources to finance the SHIN
- Spreads the out the costs of the SHIN to all stakeholders, resulting in reasonable requests for revenue

Disadvantages:

- If voluntary, stakeholders may chose not to participate
- May be difficult to predict stakeholder adoption

6.6.1 Financial Scenario

Using the estimated costs of implementing and financing the operations of the SHIN, the Finance and Audit Committee developed a financial scenario to garner the capitalization requirements necessary to sustain the SHIN. The purpose of the scenario is to provide a baseline for the SDE and to demonstrate that financial sustainability is feasible. Based on the cost and revenue analysis, the Finance and Audit Committee developed a financing scenario involving broad stakeholder participation to finance the SHIN and HIE services.

For the purposes of the Strategic and Operations Plan, the scenario developed leverages ARRA and potential CMS revenue from Public Funding. However, the goal of this scenario is to primarily leverage private sources for financing the SHIN and achieving sustainability.

6.6.2 Financial Scenario Assumptions

In order to develop a baseline financial scenario for the SDE, the following high-level assumptions were made:

- **ARRA Funding**: The scenario assumes the use of ARRA and CMS funding to finance the first year of the SHIN. Due to the limited capabilities of the SHIN in the first year, stakeholders are not be asked to subscribe to the HIE until Year 2.
- **Model**: Assumes a hybrid of both a fee per covered life and a subscription model.
- **Stakeholder Adoption**: The scenario assumes an initial low adoption rate of the SHIN by stakeholders with a gradual increase of adoption as interfaces are developed.

6.6.3 Short-Term Financial Scenario

Year 1: Since the SHIN's capabilities may only provide the ability to test, the financial scenario suggests providing a first year free subscription to stakeholders with the concept that stakeholders may perceive greater value in subsequent years, with paid subscriptions beginning in Year 2. In order to finance Year 1 of the SHIN, the Finance and Audit Committee recommends leveraging CMS 90/10 and ARRA funding. Based on this scenario, Year 1 revenue is estimated at $8.9 million.

Years 2 to 5: Beginning in Year 2, stakeholders will have the option to begin subscribing to the SHIN at a reduced introductory rate. Over time, stakeholder adoption is anticipated to increase. Using conservative adoption rates, the scenario estimates generating $39.1 million total revenue through Year 5.

The following figure depicts a proposed revenue scenario with revenue sources to finance the SHIN in Years 1 to 5.

	Short Term			Total 5 Year Outlook	
	Year 1	Year 2	Year 3	Year 4	Year 5
Projected WI Population	5,815,580	5,858,790	5,902,000	5,945,210	5,988,420
Percent Insured	94%	94%	94%	100%	100%
Projected Insured WI Population	5,466,645	5,507,263	5,547,880	5,945,210	5,988,420
Public Funding Federal & State Sources					
ARRA Funding	$ 7,000,000	$ 1,000,000			
HIT Regional Extension Center Program					
CHIPRA Quality Demo Grant					
CMS 90/10	$ 1,433,000	$ 120,000	$ 121,200	$ 122,412	$ 123,636
CMS 75/25	$ 491,200	$ 1,090,250	$ 1,102,418	$ 1,114,815	$ 1,127,448
State Appropriations - General Purpose Revenue (GPR)					
Per Person - $0.25/year					
Per Person - $0.50/year					
Per Person - $1/year					
Public Health					
State Bonds					
All Payer Assessment					
Employee Trust Fund					
Total State Sourced Revenue	**$ 8,924,200**	**$ 2,210,250**	**$ 1,223,618**	**$ 1,237,227**	**$ 1,251,084**
Private Sources					
Insurance Assessment		$ 1,100,000	$ 1,100,000	$ 1,100,000	$ 1,100,000
Payers/Employers					
$.75 fee/covered life /year		$ 2,250,000	$ 2,250,000		
$1 fee/covered life /year				$ 3,000,000	$ 3,000,000
$1.50 fee/covered life /year					
Physicians					
Subscription Fees - $10/mo./physician					
Subscription Fees - $15/mo./physician		$ 450,000			
Subscription Fees - $25/mo./physician			$ 900,000	$ 1,050,000	$ 1,200,000
Subscription Fees - $30/mo./physician					
Hospitals					
Subscription Fees - $10/mo./physically available bed					
Subscription Fees - $15/mo./physically available bed		$ 540,000	$ 720,000	$ 1,080,000	
Subscription Fees - $20/mo./physically available bed					$ 1,440,000
Laboratories					
Pharmacies					
Long Term Care/Skilled Nursing Facilities					
Home Health/Home Health Monitoring					
Philanthropy					
Employer philanthropy programs					
Grants		$ 500,000	$ 500,000	$ 500,000	$ 500,000
Foundations					
Total Private Sourced Revenue	**$ -**	**$ 4,840,000**	**$ 5,470,000**	**$ 6,730,000**	**$ 7,240,000**
Total Annual Revenue	**$ 8,924,200**	**$ 7,050,250**	**$ 6,693,618**	**$ 7,967,227**	**$ 8,491,084**
Rolling Sum (Revenue)	**$ 8,924,200**	**$ 15,974,450**	**$ 22,668,068**	**$ 30,635,294**	**$ 39,126,378**

Figure 6.6.1: Year 1 through Year 5 financial scenario

6.6.4 Long-Term Financial Scenario

Years 6 to 10: The model assumes stakeholder adoption will progressively increase year by year. The forecasted average revenue is estimated to be $7.9 million per year. The 10-year total is estimated at $78.9 million.

The following figure depicts a proposed revenue scenario covering Years 6 to 10.

	10 Year Outlook					
	Year 6	Year 7	Year 8	Year 9	Year 10	**Total**
Projected WI Population	6,031,298	6,074,176	6,117,054	6,159,932	6,202,810	
Percent Insured	100%	100%	100%	100%	100%	
Projected Insured WI Population	6,031,298	6,074,176	6,117,054	6,159,932	6,202,810	
Public Funding Federal & State Sources						
ARRA Funding						$ 8,000,000
HIT Regional Extension Center Program						$ -
CHIPRA Quality Demo Grant						$ -
CMS 90/10	$ 124,872	$ 126,121	$ 127,382	$ 128,656	$ 129,943	$ 2,557,223
CMS 75/25	$ 1,140,321	$ 1,153,442	$ 1,166,816	$ 1,180,449	$ 1,194,347	$ 10,761,506
State Appropriations - General Purpose Revenue (GPR)						$ -
Per Person - $0.25/year						$ -
Per Person - $0.50/year						$ -
Per Person - $1/year						$ -
Public Health						$ -
State Bonds						$ -
All Payer Assessment						$ -
Employee Trust Fund						$ -
Total State Sourced Revenue	**$ 1,265,194**	**$ 1,279,564**	**$ 1,294,199**	**$ 1,309,105**	**$ 1,324,290**	**$ 21,318,730**
Private Sources						
Insurance Assessment						$ 4,400,000
Payers/Employers						$ -
$.75 fee/covered life /year						$ 4,500,000
$1 fee/covered life /year	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 21,000,000
$1.50 fee/covered life /year						$ -
Physicians						$ -
Subscription Fees - $10/mo./physician						$ -
Subscription Fees - $15/mo./physician						$ 450,000
Subscription Fees - $25/mo./physician						$ 3,150,000
Subscription Fees - $30/mo./physician	$ 1,800,000	$ 1,800,000	$ 1,800,000	$ 1,800,000	$ 1,800,000	$ 9,000,000
Hospitals						$ -
Subscription Fees - $10/mo./physically available bed						$ -
Subscription Fees - $15/mo./physically available bed						$ 2,340,000
Subscription Fees - $20/mo./physically available bed	$ 1,680,000	$ 1,920,000	$ 1,920,000	$ 1,920,000	$ 1,920,000	$ 10,800,000
Laboratories						$ -
Pharmacies						$ -
Long Term Care/Skilled Nursing Facilities						$ -
Home Health/Home Health Monitoring						$ -
Philanthropy						$ -
Employer philanthropy programs						$ -
Grants						$ 2,000,000
Foundations						$ -
Total Private Sourced Revenue	**$ 6,480,000**	**$ 6,720,000**	**$ 6,720,000**	**$ 6,720,000**	**$ 6,720,000**	**$ 57,640,000**
Total Annual Revenue	**$ 7,745,194**	**$ 7,999,564**	**$ 8,014,199**	**$ 8,029,105**	**$ 8,044,290**	**$ 78,958,730**
Rolling Sum (Revenue)	**$ 46,871,572**	**$ 54,871,135**	**$ 62,885,334**	**$ 70,914,439**	**$ 78,958,730**	

Figure 6.6.2: Year 6 through Year 10 financial scenario

6.6.5 Estimated Revenue and Expenses Based on the Financial Scenario

The following figure depicts annual revenue and expenses. As displayed, the Finance and Audit Committee anticipates revenue to exceed costs after Year 5. The initial costs will be higher due to up-front capital required to begin developing and implementing the SHIN. Once the initial costs associated with developing and implementing the SHIN have been incurred, ongoing costs will be derived from the incremental addition of HIE services as well as costs attributed to operating and maintaining the SHIN. The anticipated revenue is a combination of up-front capital and fees, as reflected in the following chart. Once the up-front capital is expended, the SHIN will be financed by a model that uses a mix of public and private revenue sources to sustain operations.

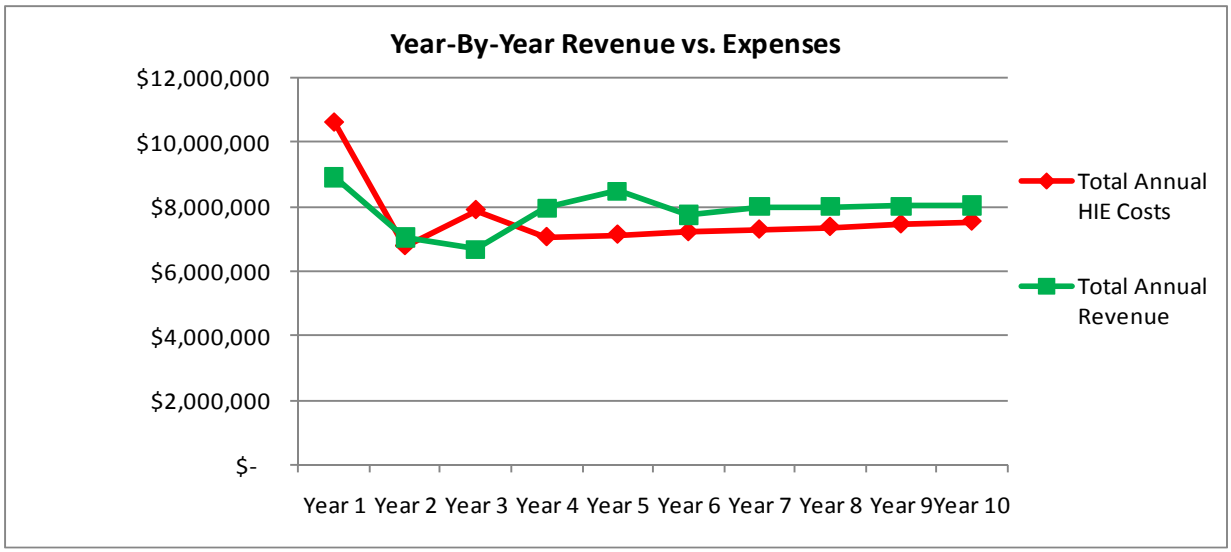

Figure 6.6.3: Annual revenue and expenses

Using the same revenue and expense data as in the previous figure, another view of the financial picture is an estimate of annual accumulation of costs and revenue. Based on the projected expenses and revenue in the financial model, revenue is anticipated to exceed expenses in Year 5. The following figure displays the estimated cumulative revenue and expenses.

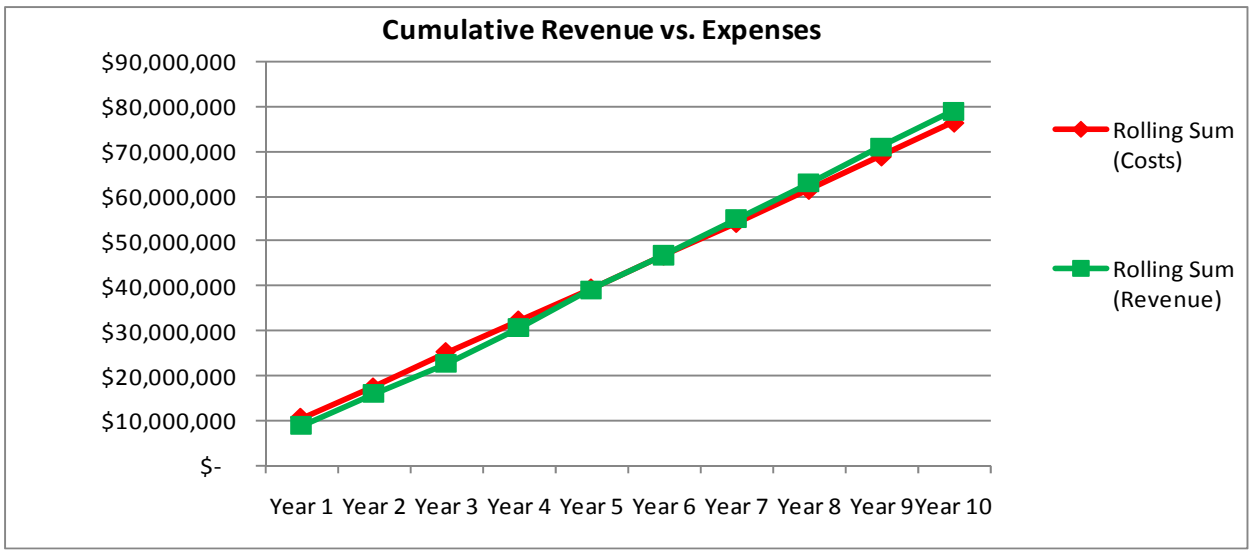

Figure 6.6.4: Annual accumulation of costs and revenue

6.7 Transition to SDE and Controls and Reporting

Upon selection of an SDE, the WIRED for Health Board's roles and responsibilities will be formally transitioned to the SDE. One of the SDE's required responsibilities will be the financial management and sustainability of the SHIN.

6.7.1 Transition to the SDE

The process of transitioning from State government and the WIRED for Health Board to the SDE is described in Section 5.1.

6.7.2 Controls and Reporting

To meet all the State HIE CAP reporting requirements, the Department and the SDE will work in concert with the Wisconsin Office of Recovery and Reinvestment (ORR) to comply with all current and future reporting requirements as specified by ONC and CMS. Additionally, the Department will review all required financial and performance reports from the SDE to ensure the reports are accurate, complete, and timely.

All State HIE CAP-related reporting will include details on compliance with state and federal financial policies and procedures. All revenue sources including operational, federal, state, non-federal cash, and in-kind support will be reported and will include discrete details. The Department's and SDE's financial and budgetary controls and audit procedures established for this project will comply with OMB requirements and state and federal laws.

To ensure compliance with reporting and controls, the Department will enter into a contract with the SDE. This contract will require achievement of performance milestones in addition to compliance with State HIE CAP reporting requirements, generally accepted accounting principles (GAAP), and all relevant OMB circulars to be eligible to receive State HIE CAP implementation funds.

6.7.3 Audit Requirements

The Department will track and maintain all ARRA funds separately from other funding within its financial system. The Bureau of Fiscal Services (BFS), which maintains the Department's accounting records and processes all fiscal transactions, has assigned a unique project number and a monitoring accountant in BFS for each ARRA program. The Department's program divisions work closely with accountants to review all expenditures and ensure that expenditure reports are accurate, complete, and timely. As required by the ONC and in accordance with the finance reporting requirements for a Single Audit, the Department is subject to an annual single audit by the State Legislative Audit Bureau. Once the SDE is established, the Department will require the SDE to contract with an external auditor to perform an annual audit in accordance with OMB Circular A-133.

6.7.4 Financial Status Reports

In accordance with the requirement in the FOA, an annual Financial Status Report will be submitted within 90 days of the end of each budget and project period. As with all ARRA funds received, the Department will adhere to the financial reporting processes established by ORR. This process is noted in section 6.7.2.

6.7.5 ARRA-Specific Reporting

The Department instituted a number of procedures to comply with ARRA-specific reporting requirements. Within the Department, proactive, responsible implementation of ARRA is a high priority. The Secretary has an active role in planning and prioritizing the responsible use of ARRA funds. Review by the Secretary's Office is a key step in overseeing all ARRA reporting. The Department will submit all Section 1512 recipient reports (quarterly financial and performance reports) due 10 days after the end of the quarter to the ORR, which will submit the reports through a federal reporting website. The Department has implemented the following procedures to ensure enhanced transparency and accountability related to ARRA funds:

- All ARRA funds are tracked separately from other funding within the financial system.
- All reports on ARRA funding and performance submitted to the federal government receive enhanced management oversight including review by the appropriate Department division administrator, the Secretary's Office, and the ORR.
- All ARRA invoices from sub-recipients are approved by the Department before payment is made.
- Staff members who administer ARRA funding are trained on the State's Code of Ethics, as well as receiving ethics training related to procuring goods and services and overseeing contracts. The training materials have been updated to include ARRA-specific information.
- Additional policies and procedures are being created on how to report and deal with suspected fraud and abuse.

6.7.6 State HIE CAP Evaluation

The Cooperative Agreement requires allocation of 2 percent (2%) of the State HIE CAP grant budget for project evaluation services. Evaluation services will be performed by an independent entity unaffiliated with the organizations receiving funds from the HIE project. Evaluations will be performed annually and will assess and document progress towards achieving statewide health information exchange.

7 TECHNICAL INFRASTRUCTURE AND SERVICES

Wisconsin envisions a "network-of-networks" architecture for statewide and interstate health information exchange that it is comprised of a Wisconsin state-level exchange network, participating Wisconsin medical trading areas or non-geographic exchange networks, other neighboring state-level exchange networks, and the NHIN.

The proposed technical architecture interprets recommendations made in other WIRED for Health committees and gives due consideration to the following objectives:

- Provide secure and reliable electronic exchange of health care information between health care providers (e.g., hospitals, laboratories, physician offices, ambulatory treatment centers, and pharmacies) and other stakeholders of Wisconsin's health care system
- Develop a standards-based architecture and core HIE services can help meet meaningful use requirements for eligible professionals and hospitals
- Formulate a state-level business process for selecting and adopting standards, and staying in sync with evolving national standards and initiatives (e.g., NHIN Exchange, NHIN Direct)
- Create a roadmap for how Wisconsin's statewide health information network and HIE services will reach all geographies and providers across the State, be able to continuously receive, access, and transmit health information among health systems, and connect to the NHIN and other states' networks
- Determine HIE use cases to be implemented and create a high-level deployment roadmap
- Identify an architectural solution that accounts for medically underserved areas, technology challenged areas, or areas falling between currently functioning medical trading area HIE networks
- Incorporate safeguards for privacy and security of personal health information

The WIRED for Health Board recognizes that the proposed architectural solution for a statewide health information network is an evolving construct and the ever-changing federal landscape and Wisconsin health care and business needs will continue to influence the future direction of this architecture. The current recommended solution, a hybrid architecture, is what the Standards and Architecture Committee believes best serves Wisconsin's needs given the current landscape. This section describes the recommended solution and includes information about potential HIE services; a reference architecture that describes the integration of existing assets and initiatives; alignment with the NHIN, Medicaid and Public Health; and a potential roadmap for the deployment of HIE services in support of meaningful use.

7.1 HIE Services

The WIRED for Health Project collected information related to the HIE services needed in Wisconsin. The information was used to establish a prioritized list of HIE use cases that would serve as the roadmap for implementation of a statewide health information network and HIE services. The process for completing and prioritizing the use cases was extensive, but necessary. By establishing a solid foundation for the development of HIE services at this phase of the project, the WIRED for Health Project was able to 1) identify any special considerations, exceptions, or risks that could impact subsequent project phases and 2) provide a solid foundation of information for future project phases.

7.1.1 HIE Prioritized Use Cases

The WIRED for Health Board's Standards and Architecture Committee formed an ad-hoc workgroup to select, categorize, and prioritize use cases for the statewide health information network. The workgroup completed detailed worksheets for each use case and developed a prioritization methodology. The details of the work are included in Appendix 15.

The following tables show a prioritized list of all use cases considered thus far by the WIRED for Health Project, including the preliminary score for each case. During the prioritization process, 2 of 28 use cases were classified as "core." These use cases are integral to the overall operation of the statewide health information network and are prerequisites to all other use cases. These use cases (#38a and #38b) also support the patient's ability to "opt out" and "opt back in" to having their health data exchanged via the SHIN. Because of their significance, these use cases were ranked the highest of any use cases and were not scored using the prioritization methodology.

7.1.1.1 Core Use Cases

Case #	Description
38a	Patient Opts Out of having records shared in HIE (e.g., PHR or HIE Patient Web Portal)
38b	Patient decides to Opt back In to having information exchanged in the HIE (e.g., PHR)

Table 7.1.1: Core use cases

7.1.1.2 Preliminary Prioritized Use Cases

Case #	Description	Total Score
25	Clinicians can send summaries to other providers and to patients	1.445
12	Provider send patient immunization data to public health	1.394
4	Hospital sends discharge information to referring provider	1.314
1	Provider refers patient to specialist (including care coordination document)	1.293
3	Specialist sends continuity of care document back to referring provider	1.262
33	Laboratory or reference lab send aggregate data to Public Health (batch)	1.244
2	Provider refers patient to hospital (including continuity of care record)	1.215
15	Laboratory (or reference laboratory) sends test results to Public Health	1.175
13	Provider or hospital submits quality data and/or measures to the CMS, the State, and/or health information organizations	1.134
11	Provider sends reminder for preventive or follow-up care to the patient/caregiver (via PHR)	1.061
32a	Provider sends reportable disease diagnosis data to public health	0.900
32b	Provider sends non-reportable, anonymized disease data to public health	0.898
39	Public health sends alert to provider (either general alert or patient-centered information on a particular patient)	0.889
16	Providers send chief complaint (non-reportable) data to public health for syndromic surveillance	0.886
5b	Provider receives lab results from laboratory or reference laboratory	0.784
37	Release of information (provider to provider)	0.682
36b	Laboratory receives lab results from another lab	0.629

Case #	Description	Total Score
30	Emergency Department Clinical summary link	0.580
5a	Provider orders patient lab tests from laboratory or reference laboratory	0.572
18	Pharmacist sends medication therapy management consult to provider	0.527
36a	Laboratory orders lab test from another lab	0.508
9	Provider sends a clinical summary of an office visit to the patient/caregiver (via PHR)	0.507
19	A patient-designated caregiver monitors and coordinates care across multiple domains	0.503
17	State public health agency reports public health data to Centers for Disease Control (CDC)	0.345
35	Provider prescribes medication for patient	0.182
31	Provide advance directives to requesting providers (via PHR)	0.098

Table 7.1.2: Preliminary prioritized use cases

7.1.2 Roadmap for Implementation

The list of prioritized use cases is a key input to the overall SHIN implementation roadmap. The SDE should concentrate its initial efforts on implementing use cases with a total score of 1.0 or higher as these cases have the highest overall value to Wisconsin, according to the prioritization methodology. Use cases with a total score less than 1.0 will be considered for subsequent phases unless additional information becomes available that would necessitate adjusting the roadmap.

The prioritized list of use cases is only one input into the implementation roadmap. The cases provide the framework for the overall scope of work that must be completed. The list of preliminary prioritized use cases is a key initial input as Wisconsin identifies potential functionalities of a statewide health information network. However, it is not the only input to be considered as other factors, including cost, time to implement, sustainability, and capabilities of the technical solution vendor must also be considered. The SDE will need to continue refining and evaluating all of these factors as it incrementally develops and implements the SHIN. As with any initiative of this size, the final plan, to be developed by the SDE, will need to balance and address these factors as best as possible.

7.1.3 Next Steps for Use Cases

The information collected through the use case analysis provides a solid foundational understanding of the HIE landscape in Wisconsin. As noted above, this information was used to develop the preliminary prioritized use cases and provide input into the implementation roadmap.

The continuously changing health care environment demands our implementation plan be flexible and responsive. As such, use cases will continue to be evaluated and possibly expanded as our efforts toward statewide HIE progress. Our next steps include further detailed development of the existing use cases, collection of additional use case information, and another comprehensive review of the cases to ensure the list is complete. These steps will allow us to refine and revise our plan while still making progress toward our goals.

7.2 Reference Architecture

7.2.1 Architecture Overview

The Wisconsin statewide health information network (SHIN) architecture approach is based on using time tested and well-proven techniques that lower overall risks and help define a proven path to success. As key Wisconsin stakeholders define and express their needs, and health care information exchange use cases are developed, the work of the technical architecture definition process begins. The architectural process involves translating these stakeholder needs and use cases into technology solutions that provide the framework, standards, and descriptions to design and implement Wisconsin's SHIN. By evaluating the key elements of the most successful networks in history (Internet and public telephone) and by following the lead of the NHIN architecture, we identified the following guiding principles as key to the widespread use, scalability, sustainability, and ubiquitous connectivity of Wisconsin's SHIN.

- Highly scalable, hierarchal, multi-tier "networks of networks" connection model
- Well-defined standards that support a broad base of multi-vendor connectivity and interoperable solutions
- Each tier/layer of the network has well defined and clear functions
- All participants agree to a common set of technical standards and policies that align with the NHIN
- Modular architecture and design uses proven, standardized components that can be easily replicated throughout the network
- Replication of modular components allows simple, predictable, and cost-effective scalability of networks over time
- Common public/global and local/private network addressing/indexes with network address/index translation techniques that link these indexes together
- The network should ideally provide: connectivity between end points, the ability to exchange or access information bi-directionally, support for both push and pull workflows, indexes/addressing/translations to map connections or information, and core services that support the exchange and connectivity to the actual information

Within the industry, the majority of attention around HIE architecture has been focused on three data storage and access models:

- Centralized
- Decentralized/fully federated
- Various hybrid approaches

A brief description of each model is presented in the following table.

Model	Description
Centralized	In this model, the HIE collects and stores patient data in a centralized repository, data warehouse, or other database. The HIE has full control over the data and the ability to authenticate, authorize, and record transactions among participants. Data is stored in a single common repository and segregated by each provider institution.
Decentralized/Fully Federated	A federated architecture uses interconnected independent databases that allow for data sharing and exchange, granting users access to the information only when needed. A distinguishing feature of a federated system is that the system employs multiple patient identification technologies, often called Global Patient Indices and Master Patient Indices. This architecture is located centrally and at participant organizations.
Hybrid	Numerous and broad *hybrid* variations of the federated and centralized architectures are currently being used by different organizations to harness the advantages of both architectures to achieve clinical data exchange. Hybrid architecture could include both central and federally located constructs such as repositories, indices, and services.

Table 7.2.1: HIE architecture models for data storage and access

The key to traditionally successful architectures has been to achieve a balanced approach in meeting the overall requirements of the system. It is the consensus of the WIRED for Health Board that the hybrid architecture approach will best meet the needs of the SHIN and is consistent with the approach adopted by the NHIN and several other leading HIE vendors. To that end, Wisconsin has identified the following key architectural elements:

- Information indexing and translations
- Data storage and access
- Core Health Information Exchange (HIE) services

The hybrid HIE architecture approach may require some storage in the SHIN backbone for non real-time clinical needs such as public health analysis and quality reporting functions since this may remediate potential performance or latency issues caused from data being pushed or pulled across the SHIN backbone directly to the end point organization's storage/database. Please refer to Section 9.2.3.2 on data use agreements.

The key to success will be to truly harmonize an overall architecture that brings together the above three key HIE architectural elements into a single model that is technically elegant, simple and efficient to build, scalable, and successfully serves the unique needs of our Wisconsin stakeholders.

7.2.2 Architectural Model and Data Flows

Multi-tiered architectures have long been known for their inherent scalability and ability to keep the flow of information between sender and receiver as local to them as possible. These architectures rely on the assumption that the majority of the information that is exchanged between a given group of senders and receivers is of local interest only and can be locally resolved within the local exchange network. As you move farther outside areas of local interest, the overall amount of data exchanged is less and less between local exchange network areas. From a WIRED for Health perspective, the reference architecture supports

these assumptions, and the layers of Wisconsin's SHIN are centered on a three layer model using medical trading areas, statewide regional exchange areas, and national areas of exchange.

This multi-layered reference architecture would provide the ability for several options to exist in accessing the Wisconsin SHIN. The SHIN architectural components are defined in the following table.

Architecture Components	Definition
Medical Trading Area Exchange Network	An exchange network focused on information flow in a specific medical trading area, usually defined by geography (e.g., regional health information exchange network)
Non-Geographic Exchange Network	A local exchange network focused on exchanging information across geographies, typically as part of an IDN
Bi-directional Web Portal Access	A web-based portal that allows two-way flow of information to and from providers who do not have an EHR installed. In addition, a non-EHR participant may submit data electronically using standards or agreed to data formats. This does not have to be an "online" submission.
Individual EHR Direct Connection	An individual provider who needs to connect directly to the SHIN backbone

Table 7.2.2: Architecture component definitions

As shown in the following figure, there are several options for both medical trading area-based exchange networks and non-geographic exchange networks. The SHIN provides direct access options for organizations that do not have an EHR and need to directly interface to a state-level exchange web portal or for individual EHR installations that cannot connect into a local layer 1 exchange and need to connect directly to the state level HIE backbone.

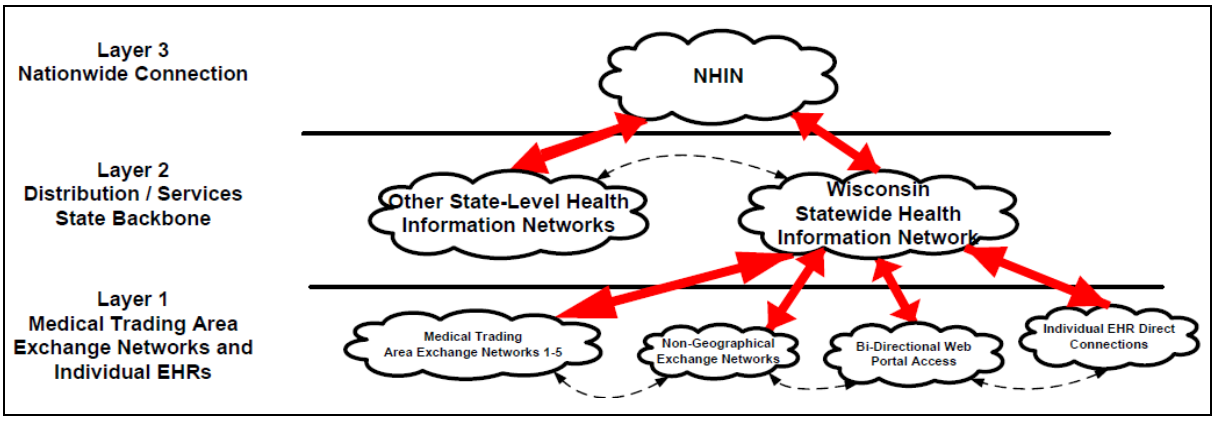

Figure 7.2.1: Multi-layered reference architecture

An individual medical trading area exchange or a non-geographical statewide local access exchange would exchange data locally within the access layer (layer 1) where most of a patient's informational needs would reside and medical services would occur and be serviced from within any given medical trading area. The following figure shows examples of possible local access layer exchange data flows between provider types and medical services organizations that may exist within a medical trading area exchange network.

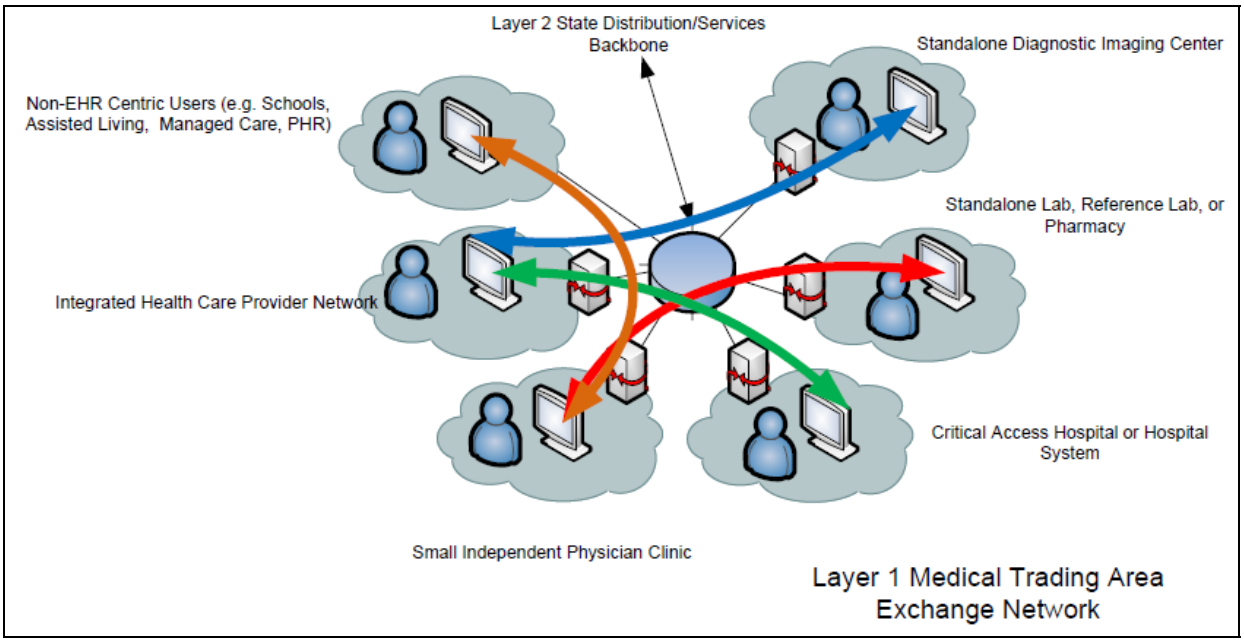

Figure 7.2.2: Medical trading area exchange network (Layer 1)

This multi-layered architecture would also provide multiple medical trading area exchange networks across the state to exchange data—preferably using the SHIN backbone (layer 2) where these information requests can be resolved between any of the local exchanges connected to the SHIN backbone.

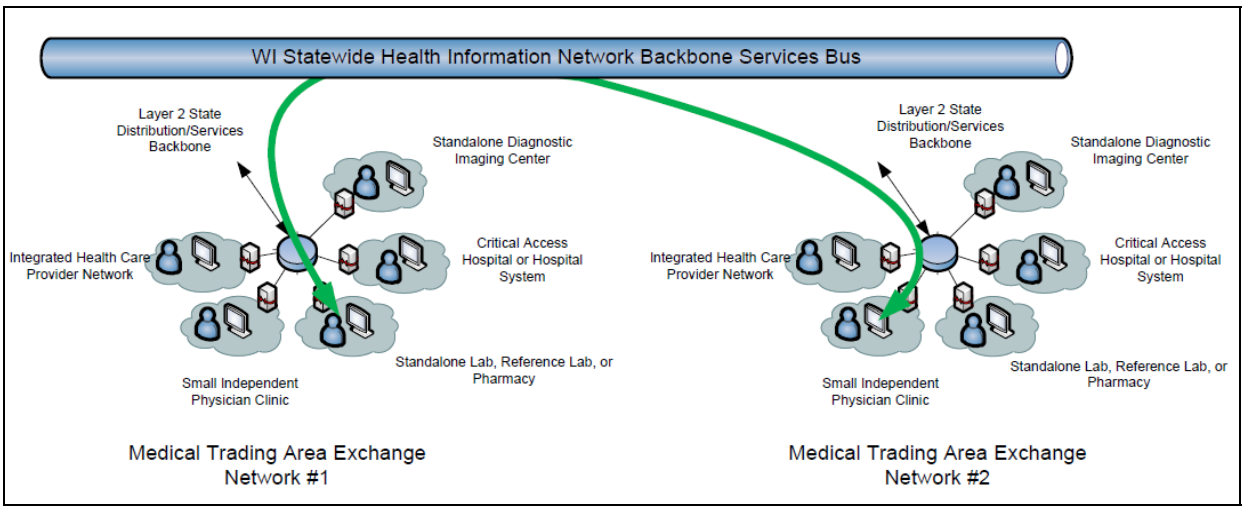

Figure 7.2.3: SHIN backbone connected to medical trading area exchange networks

Another access layer (layer 1) requirement would be to enable medical providers, specialized medical care facilities, or medical service providers to have access to the exchange to both push and pull medical information without the specific requirement of being connected to a local exchange. These providers may not have EHRs within their facilities, or may not have the ability to connect to the SHIN backbone or a medical trading area exchange network for a variety of reasons. This approach, shown in the figure below, allows another connection and information exchange model that will support a migration path to get started and interact with the SHIN with a much lower set of initial requirements. As these providers move forward with EHR technologies, they will eventually connect into a layer 1 exchange network or can continue to directly connect to the state-level exchange network.

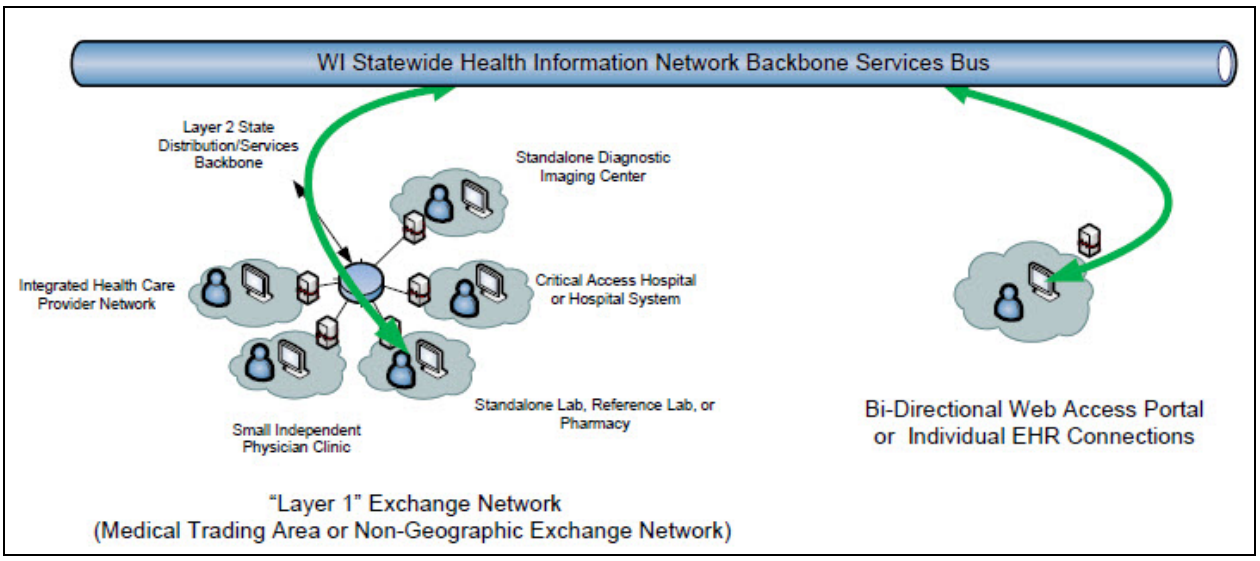

Figure 7.2.4: SHIN backbone connected to layer 1 and bi-directional web access portal or individual EHR connections

7.2.2.1 Architecture Description

The architecture for Wisconsin's SHIN should follow well-tested and time-proven processes to translate needs, requirements, strategies, and use cases from key stakeholders into the proposed solution. The architecture will have services as nodes on the network to provide discovery of patient identifiers to locate patient data. As indicated in the architecture overview, this process is the ability to technically describe tangible solutions based on all of the various inputs from key Wisconsin stakeholders. In addition to the information provided in the previous sections, other important architectural considerations include:

- Using, integrating, and preserving as much of the existing technology capabilities and investments that have been made across the state with respect to HIE
- Enabling the widespread adoption of the ARRA meaningful use requirements through a meaningful and helpful set of solutions
- Realizing the defined use cases for the Wisconsin SHIN through phased implementation

As described in the above sections, one of the key attributes of this architecture is the use of and the ability to integrate into existing medical trading area exchange networks that are integrated by the SHIN backbone. These medical trading area exchange networks are or can be either medical trading area-based, or statewide non-geographic-based exchange networks that are used to best serve the patients and medical organizations unique needs within a given exchange network. With this architecture approach, existing technology investments can be preserved and can encourage future local/regional area investments in order to meet information exchange needs that may not be necessary or needed in the overall scope of the state-level exchange network.

There would be no mandatory requirement to participate in these medical trading area-based exchanges. Connecting to more than one local exchange should be supported and encouraged, especially for rural providers who frequently straddle geographic boundaries and are outside of urban markets, particularly if this provides better services and continuity of care to the medical trading areas being served. Providers that participate in multiple local exchanges will have to choose a "primary" exchange to avoid duplicate information responses to the SHIN backbone.

Common core services have been defined as a set of resources provided by the SHIN backbone to aid in the exchange of information across the state and between the local exchanges, and also through the SHIN backbone to the NHIN from the local exchange networks and Wisconsin state agencies directly connected to the backbone.

Category	Core Service

Indices	• Patient Index
	• Provider Directory
	  ○ Health care Organization Index (end points reachable/ connected by the exchange)
	  ○ Skilled Nursing Facility/ Long Term Care Facility Index
	  ○ Pharmacy Index
	  ○ Reference Lab, Internal Medical Organization Labs, or Standalone Lab Index
	• Payer Directory
	• NHIN to SHIN (Patients, Providers, etc.)

Registries	• Patient Consent Registry • Other Registries
Exchanges	• ePrescribing Gateway to Surescripts, regional Pharmacy Benefits Management services, etc. • Connections/gateways to key organizations that maintain statewide directory information to feed indexes • Gateways to regional, state, and national reference lab organizations (i.e., Quest, LabCorp, etc.) • Gateway to NHIN • Direct Connection/Gateway to Medicaid's interChange system, the Wisconsin Immunization Registry, and the Public Health Information Network, and other statewide agencies of common interest
Other	• NHIN Direct based bi-directional secure messaging • Information access portal (for providers only) • Personal Health Record Portal (for patients) • Digital Certificate Authority • PKI (Private Key Infrastructure) Encryption Key

Table 7.2.3: Common core services

Use cases defined and prioritized within the WIRED for Health Project are listed in Appendix 15.

The following figure shows the high-level architecture proposed to meet HIE requirements established by the stakeholder representatives who participated in this planning effort. The design and implementation processes will provide further detail and will be refined as the architecture is tested and validated.

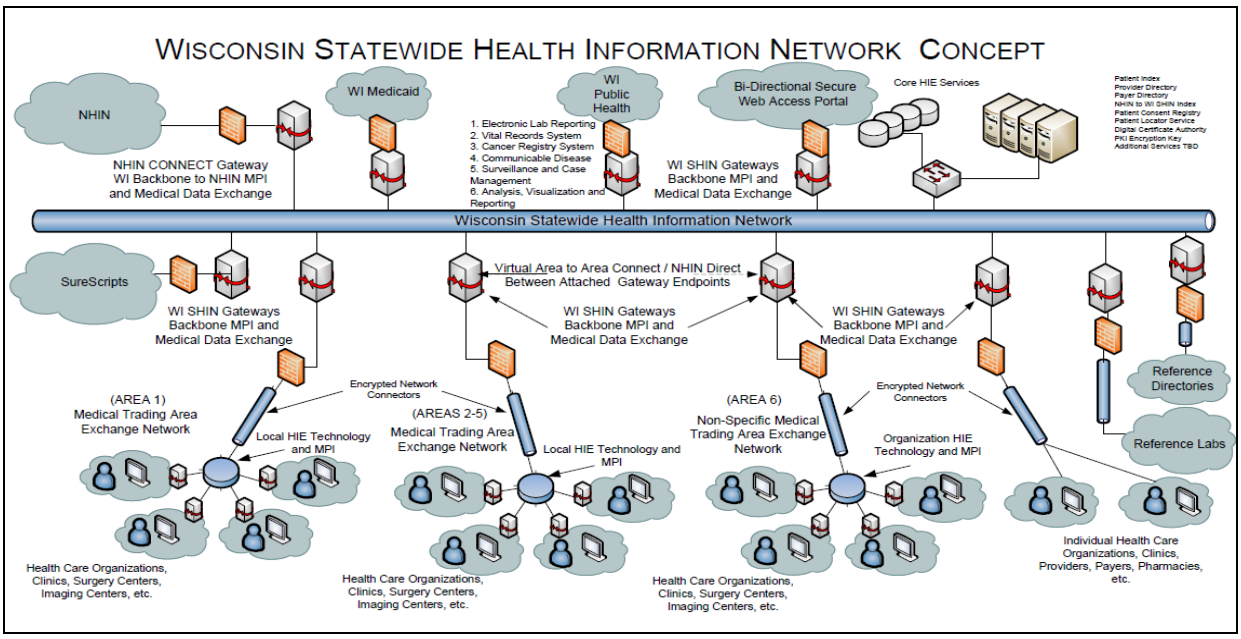

Figure 7.2.5: High-level architecture

7.2.3 Authentication and Security

The deployment of statewide health information network is predicated on establishing a consistent chain of trust within which all parties can operate with a high degree of confidence and to protect this environment from any intrusion or data leakage that could adversely affect the overall trust of the HIE environment. A foundational element to this chain of trust is a standards-based security framework. To achieve broader implementation of strong security, exchange participants need a uniform set of requirements that define the appropriate processes, standards, and technologies commensurate with the identified level of risk. A security framework will bridge the gap between business risks, security requirements, and technical solutions and enables clear policy development and good practices for security throughout and across the network.

Wisconsin's approach to developing an "end-to-end" security framework is through the use of rationalized requirements linked to the various legal and regulatory requirements. It is to this end that Wisconsin will evaluate the option of leveraging the Health Information Trust Alliance (HITRUST) Common Security Framework (CSF) as a foundation for Wisconsin's framework. The HITRUST CSF is based on leading information security standards and regulatory requirements (e.g., HITECH, HIPAA security rule, ISO 27002, NIST 800-53), and would enable Wisconsin to address the various dimensions of security management. Additional regulatory requirements and standards, such as those promoted by the HHS, NHIN, ONC, and Wisconsin's state privacy laws, will be identified and integrated into the security framework as necessary. Similar to the Payment Card Industry Data Security Standard (PCI DSS), the HITRUST CSF enables organizations to certify that they have properly implemented the CSF security safeguards, which will undoubtedly aid in Wisconsin's compliance efforts. The certification process is designed to remove the variability in acceptable security requirements by establishing a baseline defined and used by the health care industry.

To achieve the vision for secure exchange of PHI, an architecture, which will enable secure interactions between exchange participants and the SDE, is also necessary. This creates a brokerage of trust between participants facilitated by the exchange. This security architecture consists of the integrated technical

components (i.e., hardware, software, networks, applications, and protocols) and security services (i.e., authentication and authorization, data protection, auditing and reporting, event management, etc.) required to deliver services in accordance with the security framework and the programs necessary to support them. The security architecture also addresses secure integration of applications and the security and authentication of the underlying devices and technology supporting HIE-related transactions.

The security framework will serve as a key input into the design of this dynamic and broad-based security architecture by identifying prescriptive and appropriate physical, technical, and administrative security safeguards. The security architecture, as shown in the following figure, will use a layered approach, which includes four layers: Data, Presentation, Application, and Infrastructure.

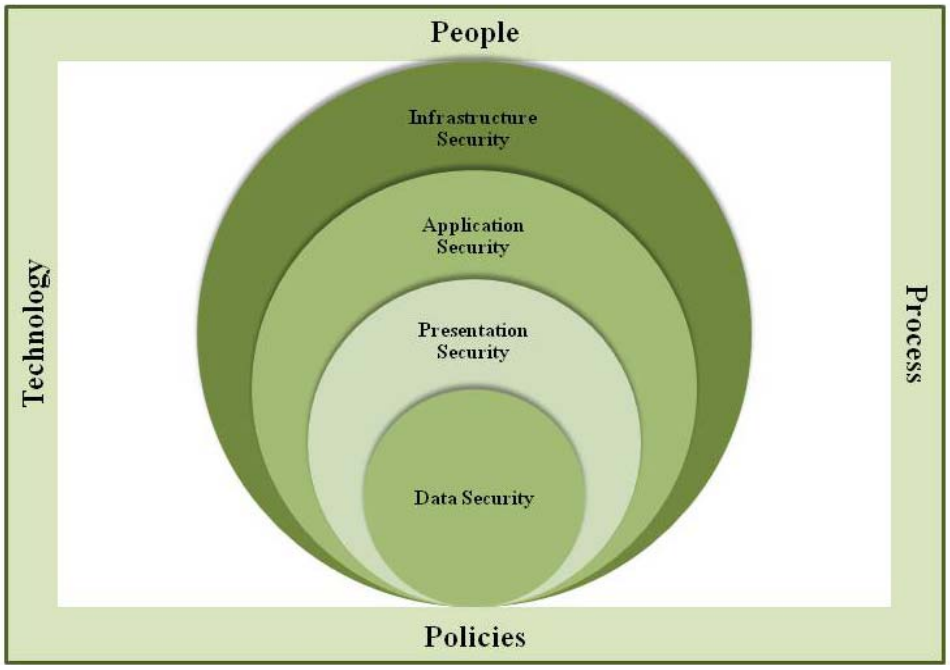

Figure 7.2.6: Layered approach to security

Below are several suggested guidelines intended to provide direction regarding the development and implementation of a security framework, a comprehensive set of security and privacy policies, technology capabilities, and technical services and safeguards. These will guide the SDE's implementation of the technical architecture for the statewide health information network and HIE services.

In certain instances, these guidelines further crystallize the high-level HIE criteria set forth in the meaningful use rule and in HIPAA, making it important to consider them in planning an HIE infrastructure for Wisconsin.

Architecture Layer	Recommended Guiding Principle
Data	**Data Protection:** The SDE will define and oversee implementation of broad-based security technologies, such as encryption and practices to ascertain the authenticity, confidentiality, and integrity of the health data or information processed by the network. The security technologies used should meet compliance requirements, protect data in motion and at rest, and prevent data leakage.
Presentation	**Authentication:** The SDE will determine authentication requirements, including credential types and attributes, based upon an evaluation of acceptable risk for user authentication, system-to-system, and mutual authentication. The network will authenticate each authorized user's identity or participant's exchange system, prior to providing access to PHI and to the level of authorized access that complies with the SDE's data use agreement **Authorization:** Authorization is the process controlling a user's access to the network. Specifically, the SDE will determine the appropriate authorization model, tools, and methodologies commensurate with the identified level of risk. The use of a role-based access control (RBAC) authorization model, which defines and manages a user's access to the network, is strongly encouraged. Additionally, the SDE should consider alignment with *The Federal Identity, Credential, and Access Management (FICAM) Roadmap and Implementation Guidance*, which outlines a consistent approach for managing the vetting and credentialing of individuals. It is important to note that the SDE shall only be responsible for defining the categories of roles (e.g., physicians, clinical office staff, inpatient nursing staff) and the appropriate technical access rules associated with these roles. Participating organizations will be responsible for determining who the individual users from their entity are and what their role assignment will be, in compliance with the SHIN's Data User Agreement.
Application	**Audit and Logging:** The SDE will define the technical and administrative requirements for collecting data on disclosures, internal events, and externally provided data; and the technical and administrative requirements for correlating and communicating real time actionable events to enable effective risk mitigation. Additionally, the SDE will implement policy and procedures that establish mechanisms for the regular review of logs with a process to escalate an event requiring further investigation. System and event logs should be managed in a secure manner such that the integrity of the logs are preserved and should be resistant to tampering and unauthorized access including viewing and deleting of the log data. Audit logs pertaining to disclosures would enable the SDE to report on network transactions related to health care treatment, payment and operations.

Architecture Layer	Recommended Guiding Principle
Infrastructure	**Infrastructure Security:** The SDE will define and oversee implementation of appropriate supporting protective software, hardware, and operational procedures that provide mechanisms to protect the network (i.e., such firewalls, application firewalls, anti-virus, patching, configuration management, vulnerability scanning, and intrusion detection, etc.). **Availability:** To plan for and manage system and network outages due to situations, such as hardware crashes, software malfunctions, or denial of service (DOS) attacks, the SDE will ensure a comprehensive business continuity plan is in place. This plan will help anticipate and mitigate outages and interruptions before they occur and should include plans for replacing information systems and other critical resources during an incident (i.e., disaster recovery planning).

Table 7.2.4: Proposed security framework

7.2.3.1 Security and Privacy Risk Management

The SDE will be expected to conduct ongoing security and privacy risk assessments to enable a comprehensive view of where security and privacy risks exist within the environment. The risk assessment methodology should be standards-based and provide the SDE with the ability to determine the level of security and privacy risk across key services as well as enable a process to evaluate the existing physical, administrative, and technical safeguards within the operating environment. The SDE will be responsible for developing action plans to mitigate areas of risks and having capabilities to monitor and report on the entity's overall risk posture.

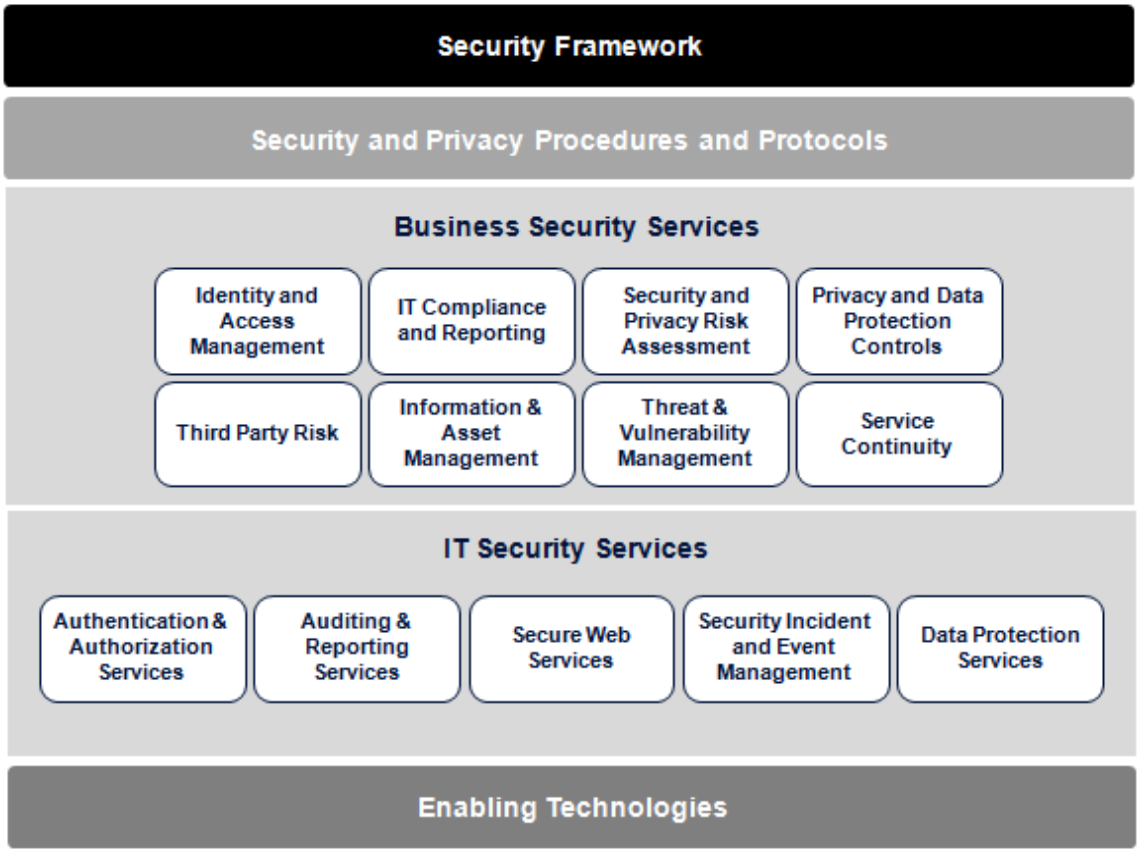

Figure 7.2.7: Security reference architecture

7.2.4 Standards, Interoperability, and Certifications

Over the past several years, it has been a daunting task for health IT vendors, health care organizations, and state agencies to track and stay informed on HIT and HIE standards. Doing so is becoming more streamlined and simpler for the average person or organization with the convergence of the various standards-setting committees and federally integrated organizations.

The HIT Standards Committee, a federal advisory body, has approved recommendations for data standards that support the exchange of patient information among disparate entities. ARRA HITECH requires such data exchange for meaningful use of electronic health records. The recommended interoperability standards for consideration by Wisconsin are (but not limited to):

- Structured electronic documents: HL7 v.3 CDA (e.g., relevant CDA profile for consultation notes, or CCD for summary records)
- Clinical messaging: HL7 v.2.5.1 (e.g., encounter or lab results)
- Immunization queries and vaccination updates (only): HL7 v.2.3.1
- Prescriptions: NCPDP Script v.10.x or v.8.1 (ambulatory) and HL7 v.2.5.1 (inpatient)
- Eligibility, benefits and referrals: ASC X12 v.4010A1, NCPDP Script v.5.1 and CAQH CORE Phase I and Phase II

- Quality measure reporting: CMS PQRI Registry XML Specification

Wisconsin will align with recommended translation standards for vocabulary and nomenclature, including consideration of (but not limited to):

- SNOMED CT for clinical problems and procedures
- RxNorm for drugs and medication allergies
- UNII for ingredient allergies
- CPT
- ICD-9 and ICD-10

Wisconsin intends to implement and integrate vendor-supplied technology solutions that follow and use national standards. Wisconsin will also implement the NHIN standards that will enable integration and interoperability between other state-level exchange networks, and federal agencies connected to the NHIN. The following figure shows the process for how new standards and updates to existing standards will be integrated into the SHIN.

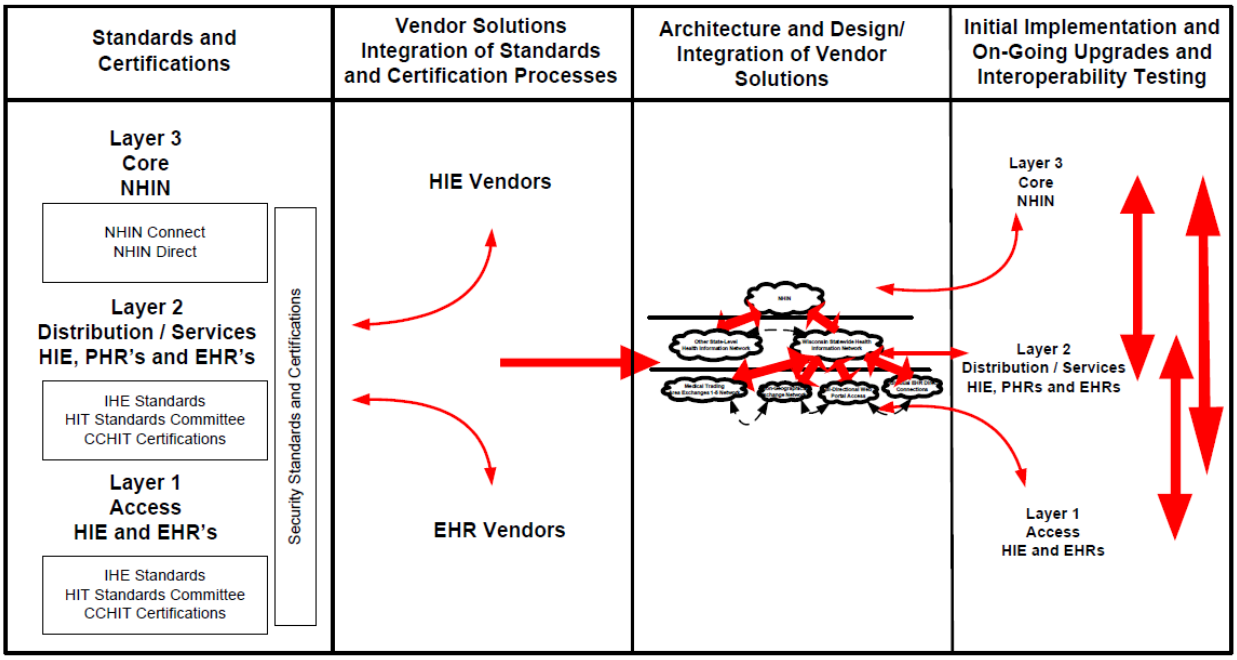

Figure 7.2.8: Process to integrate new standards to and update existing standards

The SHIN's exchange standards will be compatible with the exchange standards adopted by ONC in its EHR certification rule. Accordingly, the SDE will need to consider the NHIN standards (and others as they become available) included in the following table and use compliant/certified technology vendor solutions that use these standards in their solutions.

Adopted Content Exchange and Vocabulary Standards			
Purpose	**Category**	**Adopted Standard(s) to Support Meaningful Use Stage 1**	**Candidate Standard(s) to Support Meaningful Use Stage 2**
Patient Summary Record	Cx	HL7 CDA R2 CCD Level 2 or ASTM CCR	Alternatives expected to be narrowed based on HIT Standards Committee recommendations
Problem List	V	Applicable HIPAA code set required by law (i.e.,ICD-9-CM); or SNOMED CT®	Applicable HIPAA code set required by law (e.g.,ICD-10-CM) or SNOMED CT®
Medication List	V	Any code set by an RxNorm drug data source provider that is identified by the United States National Library of Medicine as being a complete data set integrated within RxNorm+	RxNorm
Medication Allergy List	V	No standard adopted at this time.	UNII
Procedures	V	Applicable HIPAA code sets required by law (i.e., ICD-9-CM or CPT-4®)	Applicable HIPAA code sets required by law (i.e., ICD-10-PCS or CPT-4®)
Vital Signs	V	No standard adopted at this time.	CDA template
Units of Measure	V	No standard adopted at this time.	UCUM
Lab Orders and Results	V	LOINC® when LOINC® codes have been received from a laboratory	LOINC®
Drug Formulary Check	Cx	Applicable Part D standard required by law (i.e., NCPDP Formulary & Benefits Standard 1.0)	Applicable Part D standard required by law
Drug Formulary Check	Cx	Applicable Part D standard required by law (e.g., NCPDP SCRIPT 8.1) or NCPDP SCRIPT 8.1 and NCPDP SCRIPT 10.6	NCPDP SCRIPT 10.6
Electronic Prescribing	V	Any code set by an RxNorm drug data source provider that is identified by the United States National Library of Medicine as being a complete data set integrated within RxNorm+	RxNorm
Administrative Transactions	Cx	Applicable HIPAA transaction standards required by law	Applicable HIPAA transaction standards required by law
Quality Reporting	Cx	CMS PQRI 2008 Registry XML Specification#,+	Potentially newer version(s) or standards based on HIT Standards Committee Input

Adopted Content Exchange and Vocabulary Standards			
Purpose	**Category**	**Adopted Standard(s) to Support Meaningful Use Stage 1**	**Candidate Standard(s) to Support Meaningful Use Stage 2**
Submission of Lab Results to Public Health Agencies	Cx	HL7 2.5.1	Potentially newer version(s) or standards based on HIT Standards Committee Recommendations
Submission of Lab Results to Public Health Agencies	V	LOINC® when LOINC® codes have been received from a laboratory	LOINC®, UCUM, and SNOMED CT® or Applicable Public Health Agency Requirements
Submission to Public Health Agencies for Surveillance or Reporting (excluding adverse event reporting)	Cx	HL7 2.3.1 or HL7 2.5.1	Potentially newer version(s) or standards based on HIT Standards Committee Input
Submission to Public Health Agencies for Surveillance or Reporting (excluding adverse event reporting)	V	According to Applicable Public Health Agency Requirements	According to Applicable Public Health Agency Requirements
Submission to Immunization Registries	Cx	HL7 2.3.1 or HL7 2.5.1	Potentially newer version(s) or standards based on HIT Standards Committee Recommendations
Submission to Immunization Registries	V	CVX*,+	CVX

Table 7.2.5: Adopted Content Exchange and Vocabulary Standards (from ONC EHR Certification Rule)

7.2.5 Alignment with NHIN

The WIRED for Health Project intends that Wisconsin's SHIN will fully leverage the current and developing NHIN standards. Wisconsin also plans to use NHIN Exchange capabilities so that the SHIN can connect and interoperate with federal agencies connected to the NHIN and with other state-level exchange networks. Wisconsin wants to be capable of exchanging health information with all state-level exchange networks and entities connected to the NHIN. However, the WIRED for Health Project expects the need for exchange outside of Wisconsin will be primarily with its neighboring states on its borders through state-level exchange networks and with federal agencies through the NHIN.

Marshfield Clinic is a current participant in the Social Security Administration's (SSA) Medical Evidence Gathering and Analysis through Health Information Technology (MEGAHIT) project and will have a

direct connection to NHIN as a result. Additional information on this project can be found in Section 7.2.7.4.

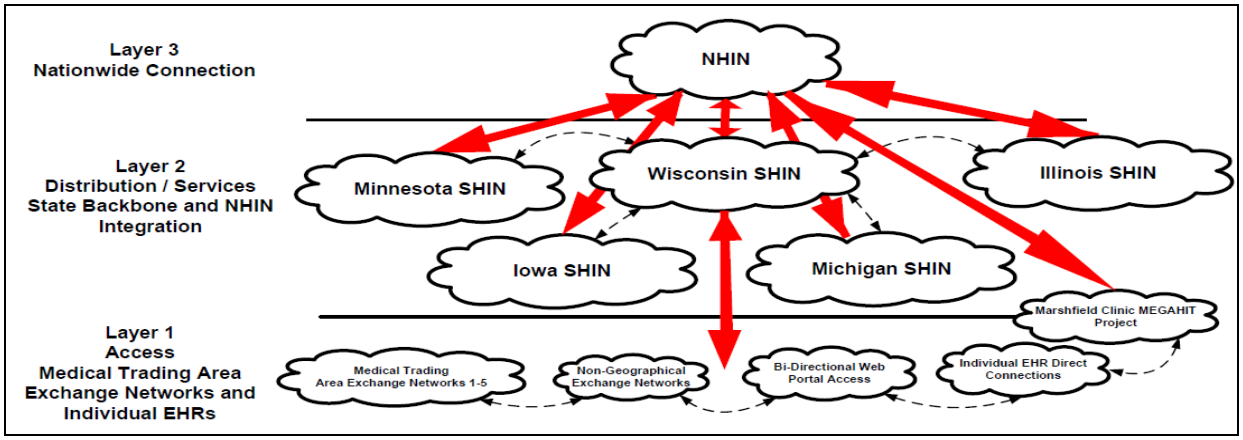

Figure 7.2.9: Alignment with NHIN and other state-level exchange networks

7.2.6 State-Level Shared Services and Directories

An important shared service for a HIE is the concept of a Patient Information Locator Service. At this time, the SHIN is pre-disposed to not managing a statewide registration and numbering system to provide a unique number to patients such as those developed for Social Security or a Department of Motor Vehicles. In order to share patient data across a SHIN, with other SHINs, with a nationwide network, and connected organizations, it is necessary to have mechanisms to match patient identities in the absence of a single national identifier.

The ability to match a target patient that has information stored on other network nodes (other provider EHRs) is a core requirement of an HIE that is enormously complex. Given that the SHIN is pre-disposed to following standards, patient matching is likely to be accomplished through probabilistic matching technology as described in the NHIN Patient Discovery Web Service Interface Specification. The context for using this interface is described using IHE IT Infrastructure Technical Framework – Cross-Community Patient Discovery (XCPD).

This approach is different than a Master Patient Index (eMPI) that attempts to maintain a de-duplicated directory of all patients on all nodes. However, patient discovery is a somewhat unproven approach at a statewide level and an evolving specification. Therefore, the possibility is left open that the SHIN will need to store some patient information in an index.

In considering all state-level shared services and directories that may be required, the following list describes the directories and associated services that Wisconsin will consider to control and direct traffic via the SHIN:

- User Directory/Registry: The authoritative source of identity information used for authenticating or verifying the identity of all known users and automated systems
- Authorization/Policy Store: Contains the required security attributes of a known user or automated system and will allow them to access a requested resource based on role-and rule-based access controls

- Patient Index: While the SHIN intends to use a Patient Information Locator Service, that service could store some patient information within the SHIN in order to optimize the performance and accuracy of the service

- Provider Directory: Unified source of all licensed health care professionals in Wisconsin

- Patient Consent Directory: Stores a patient's consent preference (opt-in or opt-out), and enforces the patient's consent preferences by allowing or denying access to health information

- Health Care Organization and Site Index: Identifies all the health care organizations providing patient encounter information to the SHIN and essential attributes

- Certificate Authority (CA): Associates a public key with proof of identity by producing a digitally signed certificate. The CA will provide to users a digital certificate that links the public key with some assertion about the user, such as identity. The CA will also offer other services such as time-stamping, key management services, and certificate revocation services

The directories are data files that track key information assets that exist in multiple computer systems that will connect to the SHIN. Directories are important for a number of reasons:

- Directory tables are built to speed up access time. They are read many more times than written

- Tracking the location of information assets in a directory speed up information query times eliminating the need to query every single node anytime a query is performed

- Directories can provide common reference to information assets that have no standard naming in the source systems (e.g., within the individual providers' EHR)

Most directory services will be accessible through a web interface as well as a programmatic interface. The web interface will appropriately limit access to data elements based upon the role of the user. For example, the SHIN provider directory will include basic required public information and should be made available to the general public via the web. Additionally, a provider directory service will be a key component of the technical infrastructure, whereby electronic transactions may query available providers and validate the provider identifiers in electronic transactions.

While some directories will be designed, developed, and maintained by the SHIN operating entities, the SDE should seek to leverage organizations that have expertise in managing various information assets. For example, the Wisconsin Medical Society already manages a provider directory of physicians licensed to practice in the state. Rather than recreate the intellectual property, processes, and policies to manage such a directory, the SDE should pursue leveraging existing statewide assets to the greatest extent possible.

Regardless of the private or public entity managing the directories, the HIE will need to design capabilities to maintain the directories through a variety of mechanisms that meet the needs of the SHIN and its stakeholders. These capabilities are likely to include web-based interfaces for online directory updates by appropriate parties and electronic transactions that will automatically update directories as changes are made in source systems. For example, when a provider credentials a new physician into their organization, which could trigger a transaction to update the provider directory.

The vast majority of patients residing in the Wisconsin are managed by a handful of integrated health care systems that have already implemented electronic health records. In addition to the patient information

that the State of Wisconsin stores on 1.5 million Medicaid enrollees, other notable directories that maintain large amounts of patient data include:

- In the northern half of Wisconsin, Marshfield Clinic and Ministry Healthcare share an EHR internally developed by Marshfield Clinic that contains 1.9 million unique patient records in Wisconsin (not deceased)
- Aurora Healthcare, with hospitals and clinics widely present across the eastern portion of the state, has implemented an EHR from Cerner. That system includes 3.5 million patient records. Additionally, Aurora Advanced Healthcare has implemented an Epic EHR
- Hospital Sisters Health System (HSHS), with locations in northeast and northwest Wisconsin, has implemented the Meditech EHR and manages 1.6 million electronic patient records
- Wheaton Health Care, located in Milwaukee and southeast Wisconsin, has implemented an EHR from McKesson that store records for over 2 million patients
- Froedtert and Community Health, with hospitals in Milwaukee, Waukesha and Washington Counties and an affiliation with the Medical College of Wisconsin, implemented an Epic EHR that includes more than 1.7 million distinct patient records
- Columbia St. Mary's, located in Milwaukee and Ozaukee Counties, has implemented the Cerner EHR that maintains 4 million active person entries
- ThedaCare and Bellin Health share an Epic EHR with over 1.5 million patients that have been seen by these northeast Wisconsin providers
- UW Health, which includes UW Hospitals and Clinics, UW Medical Foundation and Access Community Health Center, contains 2.2 million unique patient records
- Mercy Health System has approximately 750,000 unique patient records
- Children's Hospital of Wisconsin has approximately 750,000 patient records
- Wisconsin Immunization Registry contains 7 million unique patient records

The total number of patients represented in the large health care systems' databases exceeds the current population of Wisconsin, which is approximately 5.7 million people. There is a significant overlap of patients in these EHR databases; thus further demonstrating the need for a statewide exchange network. The SDE should study the patient overlap in each of the large health care system databases in preparation for planning for the patient directory services.

7.2.7 Integration of Existing Assets and Initiatives

The proposed approach to the SHIN architecture focuses on defining a path to successful adoption and use of such an exchange. The widespread adoption and use of the Wisconsin SHIN is dependent upon support and use by key Wisconsin stakeholders, and some stakeholders already have small-to-medium scale HIEs functioning within their respective organizations or medical trading area. The proposed architecture for Wisconsin's SHIN recognizes this and accounts for existing assets as a way to accelerate the adoption and use of services being provisioned by the SHIN backbone. An example of an existing asset is the Dane County Care Everywhere pilot previously discussed in Section 4.1.1.1.2. As a functioning and operational pilot, it would be advantageous to all stakeholders to provide the capability to integrate such smaller exchanges or networks into the larger network-of-networks architectural approach of the SHIN backbone. Thus, the benefit of a multi-layered architecture can be realized through its inherent scalability and the ability to keep the flow of information as local (or within their network) as

possible. With this architectural approach, existing technology investments can be preserved and future local investments can be encouraged to meet information exchange needs that may not be necessary or needed in the overall statewide scope of the Wisconsin SHIN.

As part of the SLHIE Planning and Design Project, hospitals and independent physicians were surveyed last summer about their HIT assets to gain an understanding of the technical architecture and infrastructure of Wisconsin's health systems, hospitals, clinics, and physician practices. The HIT Asset Survey asked hospital systems, providers, state agencies, and non-governmental agencies to provide information about their HIT assets. This survey gathered information on existing technical and functional assets within Wisconsin. To gain a full understanding of the assets that exist within State government, various departments and agencies were asked to provide information about technical assets that could be leveraged for statewide HIE. The WIRED for Health Project also coordinated with the State Medicaid HIT Planning project and Public Health to further supplement the previous survey of Medicaid and Public Health-related technical assets.

Please refer to Appendix 16 for results from the HIT Asset Survey.

7.2.7.1 Alignment with Medicaid

The Wisconsin Medicaid Program is one of several State health care programs included under the ForwardHealth "umbrella." In most cases, the systems and infrastructure that support Medicaid also support several other ForwardHealth programs, including:

- BadgerCare Plus (Core, Basic, Standard, Benchmark)
- Family Care
- SeniorCare
- Wisconsin Chronic Disease Program
- Wisconsin Immunization Registry
- Wisconsin Well Woman Program
- SSI Supplement payments
- FoodShare
- Various waiver and limited benefit plans (Family Planning Services, QMB, etc.)
- Other State administered programs

The ForwardHealth systems and infrastructure consist of an operational and mature set of technology assets that could be leveraged to further the realization of a statewide health information network. Additionally, the programs supported by this infrastructure would be consumers of statewide HIE services.

Below is a list of several significant ForwardHealth technology assets, including descriptions of each and the components that could serve as a potential provider or consumer of SHIN services.

7.2.7.1.1 Medicaid as a provider of statewide HIE services

The following ForwardHealth system assets (providing services specific to state-sponsored business) could potentially provide services to be consumed by the SHIN. Once the SDE is in place, these assets should be evaluated in detail to determine their potential use in the SHIN backbone.

1) **ForwardHealth interChange**: ForwardHealth interChange is the State of Wisconsin's Medicaid Management Information System (MMIS), which supports real-time processing of Wisconsin ForwardHealth claims, prior authorizations, and eligibility verification.

    a) Pharmacy Point of Sale (POS): The POS system is a subsystem ForwardHealth interChange that supports electronic submission and processing of pharmacy claims for immediate adjudication and eligibility verification.

    b) ForwardHealth Portal: The ForwardHealth Portal is a web-based interface used by providers, managed care organizations, HIPAA trading partners, and other ForwardHealth Partners to conduct electronic business with ForwardHealth interChange.

2) **Decision Support System/Data Warehouse (DSS/DW)**: The DSS/DW is a large data warehouse and decision support application that is used primarily for analytical queries. Each week data from the ForwardHealth interChange system is extracted, transformed into analytical structures, and loaded into the DSS. In addition to data from the ForwardHealth interChange system, the DSS/DW holds data from other systems that provide services to ForwardHealth programs, including managed care encounters.

3) **ACCESS**: The ACCESS application offers Wisconsin residents a self-service, streamlined benefits eligibility tool that provides the option to check potential eligibility, apply for benefits, and report changes in status at the convenience of the individual without the assistance of income maintenance or county workers.

4) **Client Assistance for Re-employment and Economic Support (CARES)**: CARES is Wisconsin's public assistance eligibility determination system. CARES encompasses the State's automated array of systems used in determining eligibility for federal and state public assistance programs. CARES is used to determine eligibility for a number of programs including but not limited to: Wisconsin's ForwardHealth programs, Temporary Assistance for Needy Families (Wisconsin Works/W-2), and Child Care (Wisconsin Shares).

    a) CARES Worker Web (CWW): The CWW is a web-based tool used by public assistance staff to interface to CARES.

5) **Wisconsin Immunization Registry (WIR)**: WIR is an internet database application that records and tracks Wisconsin's children and adults immunizations. This asset was described previously in Section 4.1.2.1.

6) **Master Customer Index (MCI)**: The MCI is a web-based application that generates and stores unique identifiers for Wisconsin residents. The MCI allows multiple systems (including CARES/CWW, Functional Screen Information Access (FSIA), Automated System Support for Employment and Training (ASSET), Program Participation System (PPS), Long Term Care Encounter, ForwardHealth interChange, and eWiSACWIS) to link patient data using a single identifier. The MCI stores the primary demographics for an individual and validates that

information with the Social Security Administration. There are over 3.85 million individual records stored in the MCI.

7.2.7.1.2 Medicaid as a consumer of statewide HIE services

The services to be provided by the SHIN could be leveraged by the Medicaid Program to supplement and complement those services the MMIS provisions on its own. These could potentially include:

- Quality Measurement
- Quality Assurance
- Provider Directory
- Patient Directory

7.2.7.2 Alignment with Public Health

Public Health practice is highly dependent upon health information and data systems to perform its epidemiology, surveillance, and health promotion functions as well as to support the delivery of clinical services. Universal EHR adoption and the creation of a SHIN can revolutionize the practice of public health by streamlining data acquisition, epidemiologic investigation, surveillance, reporting, and improving health data timeliness, completeness, and quality. Using the SHIN as the primary source for public health information systems may also greatly decrease the reporting burdens of data submitters. Further, the use of the SHIN can strengthen the communication and coordination between public health professionals and other partners in the public and private sectors.

7.2.7.2.1 Public Health as a provider of statewide HIE services

The following Public Health assets could potentially provide services to be consumed by the SHIN. Once the SDE is in place, these Public Health assets should be evaluated in detail to determine their potential use in the SHIN backbone.

1) **Wisconsin Immunization Registry (WIR)**: As previously mentioned in the Environmental Scan of HIE Readiness and Adoption in Section 4.1.2.1 and Alignment with MMIS in Section 7.2.7.1, the WIR records and tracks immunizations given to Wisconsin children and adults. The WIR collects immunizations, allergies, patient demographics.

2) **Electronic Laboratory Reporting**: The current capability to provide results for all Wisconsin patients tested for notifiable conditions by either public or private clinical laboratories can potentially be extended and leveraged to encompass all types of lab reporting. The SDE should evaluate for reuse current ELR functionality, including results transmission/delivery, results lists (historical), mandated public health disease/condition reporting, and voluntary public health reporting.

3) **Vital Record System**: The vital records system captures birth and death information that can be used to update the future patient index, which in itself could leverage the existing Wisconsin Immunization Registry.

4) **Cancer Registry System**: Information on newly diagnosed (incidence) cancer cases sent to the WCRS can be leveraged for the SHIN as a source of patient health information.

5) **Wisconsin Electronic Disease Surveillance System (WEDSS)**: This web-based system designed to facilitate reporting, investigation, and surveillance of communicable diseases in Wisconsin can also be used as a source of patient health information to provide to the SHIN.

6) **Analysis, Visualization, and Reporting (AVR)**: The AVR system allows public health practitioners and partners to securely contribute, retrieve, and analyze data by providing the ability to integrate, perform statistical analysis on, display, report, and map data. As a potential asset to the SHIN, a robust AVR system that also contains individual and small-area geo-coded public health information offers the potential for helping healthcare quality improvement processes account for these important co-factors for better health outcomes. This system can also be used to create an information environment to support the combination of community-based and health-care-team support envisioned by the Chronic Disease Model and similar care improvement approaches.

7) **Public health alerting**: Wisconsin's Health Alert Network, Partner Communication & Alerting system (utilizing Send Word Now), and Wisconsin Tracking Resources, Alerts, and Communications (WITRAC) systems enable public health authorities to communicate urgently with clinicians and administrators of clinical entities using website postings, email, telephone and fax. Wisconsin DPH anticipates electronic public health communication will become more bilateral and migrate to EMR messaging since this will be the information environment within which clinicians will spend their time. This will enable person-oriented and real-time communication, such that public health alerting could interact with Clinical Decision Support or patient registries to help clinicians protect individuals or groups of patients during a disease outbreak or environmental emergency.

7.2.7.2.2 Public Health as a consumer of statewide HIE services

The services to be provided by the SHIN could be leveraged by Public Health to supplement and complement the public health services currently provided. These could potentially include:

- **Quality Assurance**: Many public health programs promote public health through more consistent application of clinical preventive services, maternal-child health services, and chronic disease management services. For example, the Diabetes Quality Improvement Project focuses on reducing disparities in diabetes outcomes through registry-based care quality improvement at the Federally Qualified Health Centers serving many of the state's low income residents. Greater exchange of information relevant to quality outcomes will serve both public health programs and clinicians.
- **Provider Directory**: Public health sometimes needs to reach clinicians within their care environment to alert them of health threats that might affect some or all of their patients. For example, the recent pandemic of H1N1 influenza necessitated frequent updates of clinicians who rarely use other communication modalities.
- **Patient Information Sharing**: Public health nursing, communicable disease control and other public health services requires a high level of coordination with other providers caring for a given individual. Public health sometimes serves as a clinical provider similar to other providers. For example, a sexually-transmitted diseases clinic has the same need for clinical background information on patients as other providers.

7.2.7.3 Alignment with Quality Measurement, Reporting, and Improvement Activities

Wisconsin has been a national leader in establishing and promoting voluntary quality and patient safety public reporting and improvement initiatives. Several Wisconsin healthcare quality and health information organizations discussed in the following sections have assets that can be leveraged by the SHIN. Once the SDE is in place, these assets should be evaluated in detail to determine their potential use in the SHIN backbone. These organizations will also potentially connect to the SHIN and be consumers of SHIN services.

7.2.7.3.1 Wisconsin Collaborative for Healthcare Quality

The Wisconsin Collaborative for Healthcare Quality (WCHQ) is a voluntary consortium of organizations learning and working together to improve the quality and cost-effectiveness of health care for the people of Wisconsin through the public reporting of comparative performance information. WCHQ uses two separate yet complementary processes to receive both administrative and clinical data directly from its participating member hospital and medical group organizations. One process relies on the organization to transmit its calculated performance based on internally constructed administrative and clinical data extracts to WCHQ. The second process involves the transmission of patient-level administrative and clinical data files through a secure repository-based submission (RBS) process to WCHQ. Both processes emphasize the collection of data on an "all-payer" basis, allowing for the construction of quality process and outcome measures for an entire population of patients regardless of payment source. The RBS tool is a Centers for Medicare and Medicaid Services (CMS)-approved registry for the Physician Quality Reporting Initiative (PQRI). Ten WCHQ member organizations utilized the RBS process to submit PQRI measures to CMS for the 2009 reporting period. Five member organizations submitted their WCHQ quality measures through the RBS to WCHQ for the spring 2010 measures and eight member organizations are planning to submit their WCHQ quality measures through the RBS for the fall 2010 measures. Additionally, the WCHQ had ten Minnesota Community Measurement provider groups submit through RBS for PQRI for the 2009 reporting period. WCHQ's member organizations represent 40 percent (40%) of the physicians and 50 percent (50%) of the primary care physicians in Wisconsin.

7.2.7.3.2 Wisconsin Hospital Association

The Wisconsin Hospital Association is a non-profit membership group that advocates for the ability of its members to lead in the provision of high-quality, affordable, and accessible health care services, resulting in healthier Wisconsin communities. WHA and its subsidiary, WHA Information Center, are leading two primary initiatives of significance to HIT planning efforts: (1) Wisconsin PricePoint and (2) Wisconsin CheckPoint. PricePoint, created by the WHA Information Center, is an online application that allows users to access charge information about hospitalizations and selected outpatient services in Wisconsin hospitals or Medicare-certified ambulatory surgery centers. The site also aggregates hospital "discount" information for private insurance, Medicare and Medicaid. Facilities report data quarterly to the WHA Information Center, and it in turn publishes pricing information about the four most recently reported quarters on PricePoint. The Wisconsin Hospital Association created and operates the CheckPoint program, a public web-based reporting program of hospital quality, safety and service measures. CheckPoint provides information on interventions that research indicates will lead to the best outcome for error prevention measures. The hospitals reporting to CheckPoint provide care to more than 99 percent (99%) of the state's patient population.

7.2.7.3.3 Wisconsin Health Information Organization

The Wisconsin Health Information Organization (WHIO) maintains a central repository for health care claims data that provides for tracking, analysis, and measurement of risk-adjusted episodes of care. The information collected is used to determine value of care based on quality-process measures and cost over time. The data is used by member organizations to generate comparative performance reports for providers, evaluate population health, and perform additional analysis on the delivery of health care. WHIO's longer term goal is to influence the quality and efficiency of health care delivery through transparency of practice group and physician performance results. The third version of the data mart, released in April 2010, contains data for more than 2.8 million individuals for the period from October 1, 2007 to December 31, 2009. WHIO aggregates data from seven insurance organizations and health plans, including over 300,000 Medicaid FFS members and over 280,000 Medicaid Dual FFS members. The data includes 11.1 million episodes of care, 102 million medical claims, and 34 million pharmacy claims. In the next data mart release (version 4), scheduled for October 2010, WHIO will add Medicaid HMO encounter data and four additional health plan data contributors.

7.2.7.3.4 Wisconsin Medical Society

The Wisconsin Medical Society (Society) is the state's largest association of medical doctors representing more than 12,500 members dedicated to the best interests of their patients. The Society has been a trusted source for health policy leadership at both a state and national level since 1841, while offering an expanding portfolio of products and services to enhance the day to day operation of a doctor's practice. The Society's mission is to improve the health of the people of Wisconsin by supporting and strengthening physicians' ability to practice high-quality patient care in a changing environment.

As the meaningful use definition evolves, the Society promotes and provides access for physicians to begin reporting data on quality measures through the use of its PQRIwizard, an on-line tool powered by the CECity registry™, a CMS qualified registry for PQRI reporting. The PQRIwizard earned a 100 percent (100%) success rate for PQRI reporting in 2008, with all eligible professionals submitting through the on-line tool earning an incentive check from CMS. Using the PQRIwizard allows physician to rapidly collect, validate, report and submit data for any of the thirteen (13) PQRI group measures available for the 2010 reporting period. This process completely eliminates administrative time spent in the claims and coding process. The system calculates measures and provides a report of measure results in real-time, which WMS then uses to drive quality improvement activities within the practice.

7.2.7.3.5 Wisconsin Community Health Centers

The Wisconsin Community Health Center Network (WCHCN), a division of the Wisconsin Primary Health Care Association (WPHCA), is using funding awarded through the Health Resources and Services Administration (HRSA) Health Center Controlled Network (HCCN) grant to design and implement a data warehouse and reporting system for community health centers (CHC). The first implementation phase focuses on five CHCs who have implemented certified EHRs or have selected and are currently implementing certified EHRs. Subsequent implementation phases will be rolled out to the remaining CHCs.

Development of a centralized data warehouse and reporting system for robust reporting and data interoperability will provide normalized databases that will drive clinical decision support, HIE connectivity among CHCs and with the SHIN, and center-specific reporting databases. In the longer term, the data repository and reporting system will provide an infrastructure to support CHC participation in the SHIN through the following actions:

- Stronger data quality through integration of data-driven processes into Health Center workflows

- Auditing functionality for HIE transactions
- Centralized data conversion tools for CCD/ADT/HL7 interfacing

By leveraging the SHIN, this project will expose and make available a rich data set across a large population of patients. Through this project, WPHCA and Wisconsin's CHCs will have the ability to drive clinical, fiscal, and operational improvements at the provider, Health Center and Association levels. Key outcomes will be improving CHC providers' ability to measure and report on the quality of care and health outcomes; reduce health care costs associated with inefficiency, medical errors, and inappropriate care; and increase accessibility and transparency of data to support improved patient care.

7.2.7.4 Medical Evidence Gathering and Analysis through Health Information Technology (MEGAHIT)

The SSA has to make complex disability determinations for more than 3,000,000 individuals nationwide. Annually, SSA makes over 15 million requests for medical records, from over 900,000 providers, to support eligibility determinations. During federal fiscal year 2009 (October 2008 thru September 2009), the Wisconsin Disability Determination Bureau processed 67,627 federal disability claims as well as 5,468 state medical assistance disability applications. Over the past 12 months (June 2009 thru May 2010), the Wisconsin Disability Determination Bureau received 205,702 responses to requests for medical and school evidence from 8,887 providers, totaling 7,081,958 pages.

Currently, SSA gives providers a number of options to respond to its requests for medical evidence; however, all require manual intervention before SSA can enter the evidence into SSA's electronic disability case folder. Locally, the Department's Disability Determination Bureau (DDB) determines, in accordance with federal SSA regulations, if Wisconsin residents applying for disability benefits meet the criteria for any of the following: Social Security Disability, Supplemental Security Income (SSI) Medicaid (Medical Assistance), Katie Beckett Program, and the Medicaid Purchase Plan. In an effort to maximize efficiencies in processing disability claims, SSA initiated development of the MEGAHIT system that leverages HIT and the NHIN Exchange to gather medical evidence electronically from participating providers' electronic health record systems. SSA implemented an automated, computer-to-computer request for, and receipt of, medical records. The MEGAHIT system formats the information into a human readable document and adds it to SSA's new electronic disability case folder. The MEGAHIT system also applies business rules to the data and generates an alert to decision makers regarding findings that could possibly meet certain SSA medical eligibility criteria. Marshfield Clinic in north central Wisconsin applied for and was awarded a contract with SSA to send requested medical evidence from their EHR systems to the SSA's MEGAHIT system through the NHIN Exchange. After the statewide health information network and core technical services are established, Wisconsin should pursue a connection to the SSA through the NHIN Exchange that gives all Wisconsin providers with EHRs the capability to submit electronic medical evidence to the SSA electronically. According to a recently published SSA case study report,[24] MEGAHIT enables medical evidence to reach the SSA within minutes of the request instead of weeks or months via traditional methods. Faster disability determination can lead to potential uncompensated care recovery because benefit determination results in

[24] Feldman, Sue F., RN and Horan, Thomas A. PhD *Using the Nationwide Health Information Network to Deliver Value to Disability Claimants: A Case Study of Social Security Administration and MedVirginia Use of MEGAHIT for Disability Determination*, January 11, 2010; Available at: http://www.medvirginia.com/includes/20100111_MedVA+Case+Study.pdf

health benefits which generate revenue for the provider. This HIE capability could have a significant benefit for Wisconsin's large IDNs.

7.2.8 Broadband Mapping and Access

There are areas of Wisconsin that are very well served with broadband access, and there are areas that are under-served or not served at all. Even those areas with coverage are not ensured accessibility given cost considerations. Some areas have the option of selecting from fiber, copper, cable, satellite or wireless connectivity while some areas have none of these. Several Wisconsin ARRA grant awards will help address some of the existing deficiencies.

Two recent awards totaling $32.3 million will benefit WiscNet's efforts in supporting Community Area Networks (CANs) in Wisconsin. The larger of the two grants will award $29.9 million to build more than 600 miles of fiber optic cable impacting 39 communities and 182 institutions. This will not only advance the statewide research and education infrastructure, but it will also extend advanced broadband to public safety agencies, health care providers, schools, and community organizations in four demonstration communities: Platteville, Wausau, Superior, and the Chippewa Valley region. A separate $2.4 million grant will support education and outreach in the same four communities and in the Menominee Nation.

Grant applications from surrounding states will also bring capacity close to Wisconsin communities that are currently underserved. Within the next few years, the copper and fiber networks provided by the telecom companies will push connectivity further into the less heavily populated areas of the state, and wireless providers will extend the reach well beyond the ground lines. Greater bandwidth can be pushed across copper networks with new technology, and fiber extension is becoming feasible as more businesses and individuals become dependent upon network connectivity. Cable and satellite TV providers are adding more broadband capability to their customers as bundled service. Wireless broadband use is growing extremely quickly around the state where it is available, as phone service and more applications become dependent upon mobile applications. The SHIN will be implemented in a time of rapidly expanding opportunities for broadband connectivity, but the network will still face the challenge of dealing with unserved and underserved areas as well as the challenge of creating a manageable network.

There is a project underway at the Wisconsin Public Service Commission (PSC) that will map all existing broadband coverage in the state, as well as tracking broadband that is, or will be installed. Broadband coverage of the state is already very extensive but there are pockets throughout the served areas that are deficient. The PSC environment scan of all HIE potential participants will indicate the availability for each location. The SDE selected to govern the SHIN should establish a regular review with the PSC and the list of providers that the PSC maintains to perform ongoing evaluations of broadband capability throughout the state. If more spectrum is made available to the wireless broadband providers, the reach of their towers is likely to extend quickly. As the exchange of data among HIE participants extends into transporting larger burst of data such as images, the broadband capability for some locations may be constrained until additional capacity can be achieved.

The State currently manages two different communication networks that deliver broadband widely throughout the state. The BadgerNet Converged Network (BCN) is managed by the Department of Administration, and the Boreas Network is managed by the University of Wisconsin (UW) together with WiscNet, a non-profit Internet service provider associated with the UW. The BCN is provided to the state by AT&T and some 70 other telecom companies that together form the Wisconsin BadgerNet Access Alliance (WBAA). The BCN provides a wide-area network to all state agencies and Internet connectivity to over 900 schools and libraries in all 72 counties of the state. The BCN provides socialized rates to schools and libraries around the state in order to extend affordability, and also administers the TEACH

program that provides a federal subsidy to help reduce costs for schools and libraries. The BCN is shown in the following figure.

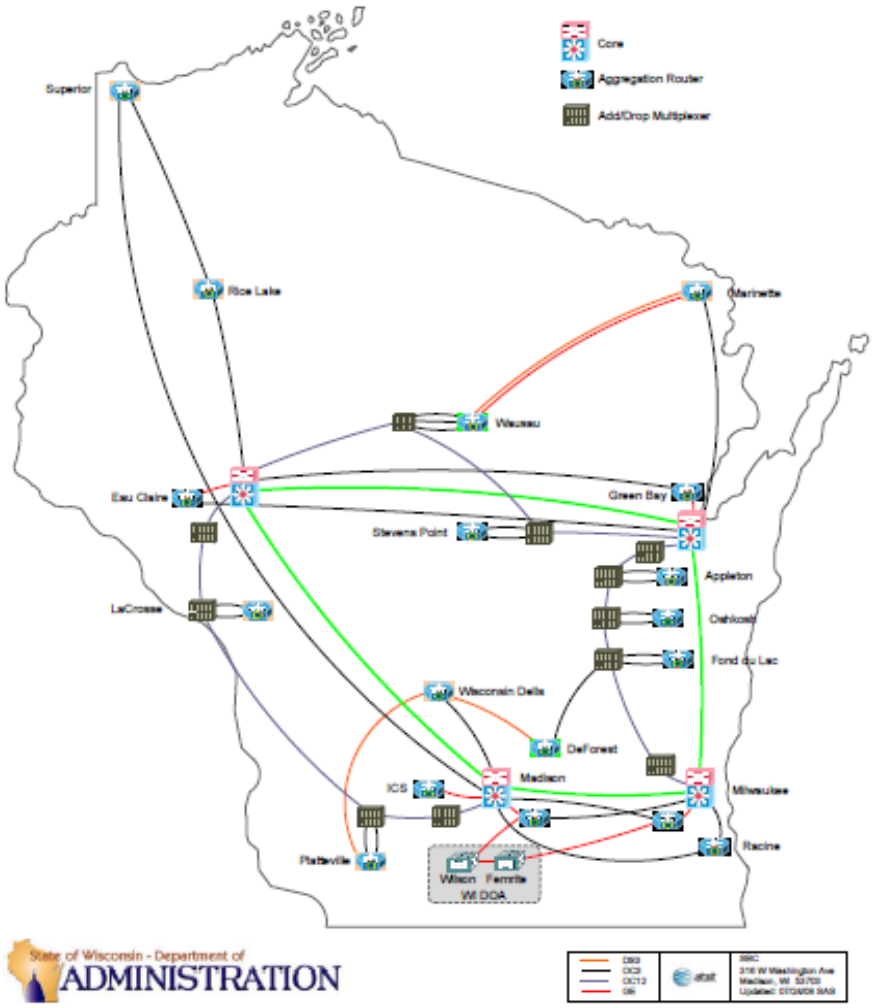

Figure 7.2.10: BadgerNet Converged Network

The UW created the Boreas network to interconnect UW campuses and to connect the UW into a country-wide higher education network. WiscNet was set up to provide Internet access to UW sites and others that choose to connect to the UW backbone. The UW Extension currently has an ARRA grant application submitted that proposes the creation of five community area networks that extend the UW network into combined community service.

There are also many existing local private data sharing networks in the state that link health entities within an area. These networks need to be mapped in a method comparable to the mapping being completed by the PSC, with the exception that they will be specific to points served within the HIE. Efforts should be made to use and expand upon the networks that are already in place. The State's Department of Workforce Development also has a program for assisting workforce job searches in rural communities and there may be an opportunity for network sharing.

The HIE evolving network requirement will be defined by the implementation plan adopted from the use case definition and prioritization. Initially the SDE will determine network options that are available for their use based upon their organizational definition. The SDE should work with the PSC to obtain broadband mapping information for the state and superimpose the information gathered for existing HIE member networks, including the current use of the network. When the initial and subsequent implementation scopes are defined, the SDE will create a map of broadband requirements and can decide whether or not to procure the additional services required through a competitive process or through negotiation with existing providers in the area. The WIRED for Health Board recommends the SDE track the expansion of broadband capabilities throughout the state, so that implementation strategies and schedules take advantage of all new options for participants that want to connect to the Wisconsin SHIN.

The DOA provided the following maps showing broadband coverage throughout the state, as of June 30, 2009. The first map, Figure 7.2.11, illustrates the density of broadband providers of all technology types. The second map, Figure 7.2.12, illustrates areas within the state that currently lack broadband coverage of any kind.

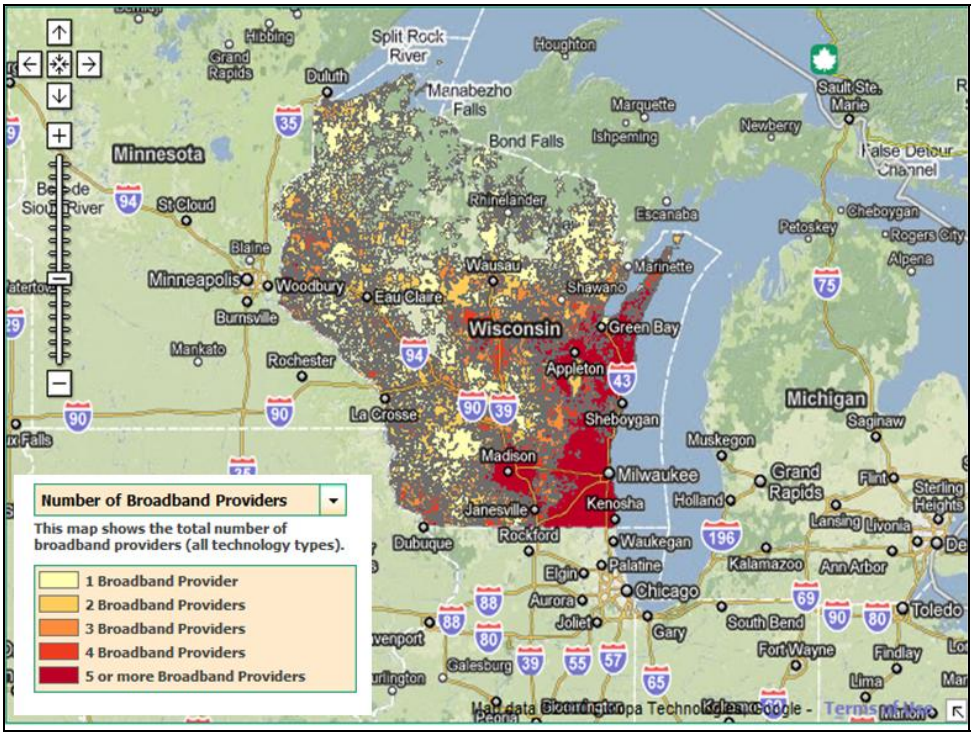

Figure 7.2.11: Broadband coverage map by number of providers

The DOA provided the following broadband map showing areas within the state without broadband coverage of any technology type.

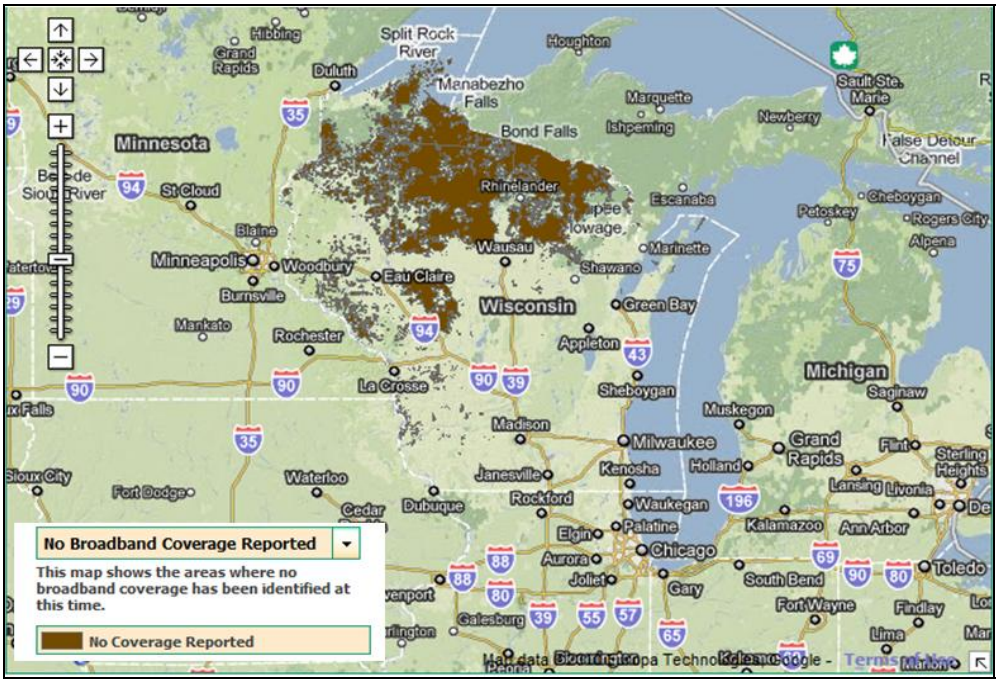

Figure 7.2.12: Map of areas without broadband coverage

7.3 Technology Deployment

Deployment plans for the SHIN in Wisconsin will be aligned with the services and use cases identified in the State HIE CAP FOA and with the meaningful use requirements and timeline. A potential technology deployment roadmap is presented in the following figure. The specific sequencing and timelines around the preliminary list of prioritized services and use cases will need to be addressed by the SDE. The roadmap is intended to provide an overall representation of the short-to-mid term deployment planning that the SDE will need to consider as part of implementation planning and rollout of HIE services. As identified in Section 4.2.3.4, a key near-term goal and associated objectives for the technology deployment and the timelines presented below may be met at an earlier date. However, the goal and objectives, noted below, are intended to serve as a starting point for the SDE to begin its implementation planning.

- **Goal** – Deploy a standards-based architecture and core HIE services to be available to meet meaningful use requirements for eligible professionals and hospitals that, at a minimum, achieves the following objectives:

    - Objective – By August 31, 2011, technical infrastructure will be available to help support eligible health professionals and hospitals in meeting the Stage 1 meaningful use criteria for HIE. (This assumes the infrastructure available will, at a minimum, support a provider's test of HIE with fictional patient data from the EHR because operational HIE with real patient data cannot occur until the policy and legal work related to implementing the patient consent model is completed.)

    - Objective – By June 1, 2012, the statewide health information network and HIE services will be available to help support eligible health professionals and hospitals in meeting the Stage 1 meaningful use criteria for HIE. (This will provide an operational bi-directional exchange capability and assumes the policy and legal work related to implementing the patient consent model will be completed by this date.)

The intent behind this goal and set of objectives is the desire to deploy a technical infrastructure for providers to conduct a test exchange of a fictional patient's data from their EHR without concern about consent requirements related to exchanging a real patient's data. This approach is based on the notion that Wisconsin will not likely have completed the work on the patient consent model or the necessary legislative changes in the first year of meaningful use Stage 1. It is the plan to have an operational bi-directional exchange capability implemented by June 1, 2012, the second year of Stage 1.

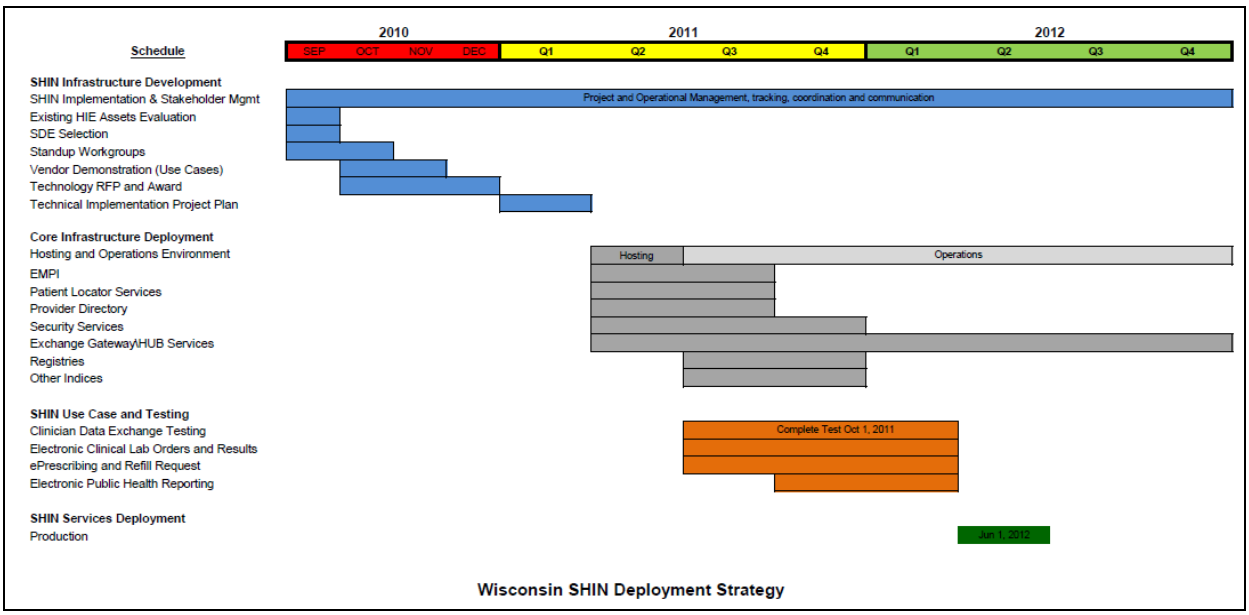

Figure 7.3.1: Technology deployment roadmap

Wisconsin also recognizes that some of these use cases, such as electronic eligibility checking and claims submission, are already extensively implemented by Wisconsin eligible professionals and health systems. To ensure resources are used as efficiently as possible, our deployment planning will be structured to allow continued operation of solutions, while enabling a transition path to the SHIN as a conduit between connection points and to leverage other SHIN services over time as a future option replacement for existing solutions. In providing a proposed deployment roadmap, the Standards and Architecture Committee recognizes the need to allow the SDE flexibility based on evolving requirements in a dynamic environment.

The plans for deployment will leverage integration of existing and evolving regional HIE assets in the State, following the NHIN standards structure, enabling timely connectivity across a large geographical coverage for Wisconsin. Consideration will also be given to the role of SHIN technical services as a provider of HIE services to those regions where there is no existing regional capability and/or insufficient resources to undertake independent regional implementation.

As discussed in the Environmental Scan of HIE Readiness and Adoption, there are various existing medical trading area or non-geographic based HIE networks already in place. Current capabilities provided by these networks include CCD exchange, Patient Information Locator services, standards translation services, data feeds to public health reporting for disease surveillance, and clinical summary view. However, not all of the existing networks provide all of the aforementioned capabilities. These networks further comply with the planned reference architecture, providing n-tier architecture, thin and thick client capabilities, and support nationally established standards for HIT and HIE.

In addition to leveraging existing HIE services; the plans for SHIN deployment across Wisconsin will fully leverage existing directory assets as well as connectivity to public health reporting for assets such as the State Lab of Hygiene and immunization registry. While the plan calls for integration of these assets to the SHIN, as with existing use case solutions, existing connectivity to these services will be continued. Connectivity to these directories and services through the SHIN will occur over time as point-to-point interfaces are upgraded to leverage community-level integration.

While current planning emphasizes intrastate exchange, Wisconsin, and some of organizations with the existing assets are planning to engage in interstate exchange. These initiatives will fully leverage NHIN standards. Additionally, intrastate exchange infrastructure development is a necessary prerequisite for connecting to other states' health information networks and the NHIN.

Currently, Wisconsin has initiatives in place that employ large repositories to support quality initiatives, based on clinical data, and analytics on treatment services/episodes of care over time around claims data. The SDE should assess the potential to reduce the duplication of similar data types into a model where data is collected once and used for a variety of authorized purposes and services. Such assessment could apply to data use at the time and place of care and serve health care quality and performance, measurement, reporting, and improvement initiatives.

8 IMPLEMENTATION AND OPERATIONS

The WIRED for Health initiative includes an approach to facilitate electronic exchange of healthcare information across numerous organizations and systems throughout the state. Wisconsin's SHIN will provide the capability to electronically move information between disparate healthcare information systems while maintaining the meaning of the information being exchanged. The goal is to facilitate and operationally maintain access to and retrieval of clinical data in order to provide timely, efficient, and effective patient-centered care.

In addition to connecting operational medical trading area and non-geographic HIE networks through a "network of networks" as described in the Reference Architecture, Wisconsin's SHIN may also provide some electronic features and functionality to organizations that have not been able to automate their systems through EHR implementations. To this end, the SDE will need to work closely with WHITEC to ensure such organizations receive technical assistance and are included in the overall health care information exchange landscape for Wisconsin.

Also in the near-to-mid term, the SDE will standardize operating procedures and the participation process for the SHIN, and recruit staff or procure services to fulfill responsibilities of the core staff roles outlined in this section. Additionally, the SDE will identify and implement procurement, contracting, and ongoing project management processes and methodologies to help sustain the initial as well as the ongoing operations of its organization and the SHIN.

8.1 Standard Operating Procedures and Participation Process

It is recognized that HIE initiatives are founded in a collaborative, competitive, and transparent structure. The SHIN will establish and maintain a structure for participation in the SHIN that fully leverages best practices, policies, and procedures from existing regional HIE initiatives. It is expected that regional efforts connecting to the SHIN will also leverage the agreed upon policies and procedures to ensure consistency and congruency, where necessary.

In accordance with the contractual model for HIE participation in Section 9.2.3.1, the SDE should consider developing SHIN participation and use case constructs.

8.1.1 Process

Participation in the SHIN, which may include infomediaries functioning at the community or regional levels, brings responsibility to ensure data accuracy and integrity. The WIRED for Health Board, through its committees, agreed that data accuracy is to be the responsibility of the source transmitting the data to or through the SHIN. The SDE will establish standards that provide resolution for repetitive issues from data providers. Through the data use agreement described in Section 9.2.3.2, the SDE will establish standards that provide for repetitive issues from data providers. It is recommended that the Data Use and Reciprocal Support Agreement (DURSA) incorporate language establish standards of operation for participating organizations. Such language enables the SHIN to engage with a participating organization to resolve repeated occurrences of issues, such as data quality, misidentification of patient records, network connectivity, network communication interference or other actions/events that negatively impact the operations of the SHIN for other participants.

Maintenance to assure message content and structure should be preserved outside of any required translation for centralized elements and those elements routed through the SHIN, will be the responsibility of the SHIN.

Data submitting/requesting systems will be required to support the established national standards and certifications, to the extent that such standards exist for a given participant system type. The Standards and Architecture Committee recognizes that some participants in the SHIN will use other non-standard interface formats and that some systems may not have established standards. In these instances, the SHIN may need to translate non-standard interface formats to standards that will be recognized by other participants in the SHIN. In all cases, the SDE will establish a minimum participation level for all participating organizations.

Directory providers, such as WMS, will be responsible for managing and maintaining their own directory services.

8.1.2 Audit

The SHIN will establish policies and procedures for scheduling and publishing audits. The SDE should establish an oversight function to manage auditing procedures.

In compliance with State and HIPAA regulations, the SHIN should provide and support audit reports including, but not limited to:

1) **Access events:** Access to PHI is never provided to those individuals who choose not to participate in the exchange, and for those who have elected to participate, access occurs only for those with whom such access complies with State of Wisconsin legislation and HIPAA.

2) **Release of information events:** It will be the responsibility of the regional health information network (RHIN) or SHIN operator to respond to queries from patients, or their authorized agent, for a release of information request.

3) **Breach notification events:** It will be the responsibility of the RHIN or SHIN operator to perform breach notifications since movement of data may impact multiple points on the SHIN. Communications between these various entities will be established to support these efforts. Operationally, this establishes a standard for maintaining audit trails of SHIN use across participants and elements of the SHIN.

The SDE should commit to establishing an ongoing risk assessment process that will be applied to the SHIN and all participants connecting and providing data to the SHIN.

8.1.3 IT Risk and Compliance Management

The SHIN will require the establishment of processes and procedures to manage and govern the various IT risk and compliance activities. The SDE should establish an oversight committee and create a compliance officer role vested with the responsibility to collaborate with applicable staff at regional and participating organizations to address risk and compliance issues. The following table includes functions and typical activities related to IT risk and compliance management.

Function	Typical Activities
Risk and Compliance Management	• Determine reporting requirements on various risk and compliance activities • Investigate and resolve compliance violations and complaints • Develop and implement an Incident Response Plan for coordinating and responding efficiently to security and privacy threats and incidents, which also includes a breach notification process • Understand the status of issues and corrective action plans relating to audits and other assurance related activities • Lead business continuity management policy, planning, testing, and regulatory preparedness • Lead disaster recovery planning, testing, and regulatory preparedness
Policy and Standards Administration	• Establish a standard and process for identifying, updating and communicating IT policies and standards affected by laws, regulations, and other legislative actions • Establish a formal process and protocol for monitoring legal requirements, assessing applicability, and identifying affected policies and standards • Define data classification standards
Operations Planning and Execution	• Understand threats and vulnerabilities, course of action, and status of corrective action planning • Review proposed changes to technology architecture standards to help identify risk implications • Respond to queries from patients, or their authorized agent, for release of information request • Oversee implementation of administrative, technical, and physical mechanisms to ensure that access to PHI complies with legal and regulatory requirements • Plan tactical solutions to resolve gaps identified during audits or from lessons learned during testing
Audit and Assurance	• Schedule and coordinating audits on systems and processes involved in the HIE, in accordance to legal and regulatory requirements • Provide input into the scope of audits and other assurance reviews to ensure adequate coverage in accordance with legal and regulatory requirements • Conduct Third Party assurance reviews to ensure compliance with the SHIN policies, procedures and contract provisions and to identify potential threats and vulnerabilities

Table 8.1.1: IT risk and compliance management functions and activities

8.2 Staffing Plan

Given the limited funding currently available, the SDE should operate as a lean organization, and its primary staffing focus should be on its core state-level HIE governance responsibilities. If the SDE decides to directly fulfill the technical operator role for the SHIN, it will need to staff additional technical operations functions. The SDE could fill all roles through internal staffing, in-kind contributions through private or public organizations, or through contracts. Roles listed in the following sections include either core staff functions or additional technical operations functions, and are labeled accordingly.

HIE work activities, related to integration and data flow, have (1) an initial development and implementation phase and (2) subsequent ongoing operations. It is assumed that—to a large extent—the peak work efforts related to new participant integration (e.g., system interface work) will require resources beyond the core SHIN positions.

Given the SHIN reference architecture concept of a "network of networks," the WIRED for Health Board anticipates that some of these functions could be performed regionally within these independent networks. Rather than SDE staffing all roles, the SDE could contract with one or more of the regional network organizations to perform certain functions.

Unless otherwise specified, the SDE must provide staffing to fulfill all responsibilities and functions described in the following sections. Additional staffing resources may be needed associated with initial "start up" and anticipated "expansion" phases of the SHIN and HIE services. Pending the decision on which operational services will be provided, the SDE may need to adjust the staffing plan.

8.2.1 Core Staff Roles, Responsibilities, and Functions

At a minimum, the SDE core staff roles should include an Executive Director, Director of Operations and Technology/CTO-COO, Controller, Director of Information Security and Privacy/Chief Information Security Officer-Chief Privacy Officer (CISO-CPO), Clinical Project Manager, Communications Specialist, Policy Analyst, Program Assistant. Descriptions of these roles are included in the following sections.

8.2.1.1 Executive Director

The Executive Director role includes the following responsibilities and functions:

- Carries out the organization's mission and vision, and leads its overall strategic direction in all areas including communications, finance, technology, and policy
- Develops and executes all business plans and fundraising activities in coordination with the board of directors, as well as builds and maintains relationships with diverse stakeholders, both within the state as well as nationally
- Includes the responsibilities for marketing to and contracting with participating state-HIE entities
- Coordinates efforts with State's Medicaid and Public Health programs
- Ensures the integration of local, regional, state, and national-level efforts
- Manages board activities as well, and builds trust within the board

- Oversees day-to-day operations of the SDE, including directing staff assignments, hiring/terminations of staff, and completing staff performance evaluations
- Accountable for state-level HIE program implementation milestones and timelines, performance measurement and evaluation, and expenditures under the State HIE cooperative agreement with the ONC
- Supports the State HIT Coordinator by providing timely information and reports for submission to the ONC
- Works with the State HIT Coordinator to communicate with stakeholders and the public on the progress toward meeting the SDE's goals and the goals of Wisconsin's Strategic and Operational Plans for statewide HIE

8.2.1.2 Director of Operations and Technology/CTO-COO

The CTO-COO role includes the following responsibilities and functions:

- Provides overall technical and operations management and ongoing assessment of technical requirements to ensure compliance with established service level agreements for HIE services
- Maintains alignment with all evolving health care information technology and information exchange standards and certification requirements and applies the preceding in all implementations of HIE in the State
- Establishes and maintains all service level agreements related to technical services.
- In the event that HIE services are contracted with one of more regional initiatives, oversees and administers these contracts and ensures compliance, as well as ensures operations of the SHIN in this distributed model
- Maintains core technical services and ensures their operation for the SHIN for all implementation models
- Conducts long-term planning for continued growth and development of the SHIN

8.2.1.3 Controller

The Controller role includes the following responsibilities and functions:

- Develops annual operating budget
- Implements procedures to monitor spending
- Develops accounts payable and receivable procedures
- Ensures proper financial reporting to the state and federal government
- Oversees development and implementation of ongoing funding mechanism for the SDE
- Provides the Board and Executive Director with financial analyses as needed

8.2.1.4 Director of Information Security and Privacy/CISO-CPO

The Director of Information Security and Privacy role includes the following responsibilities and functions:

- Oversees the IT risk assessment, data and technology security, threat and vulnerability, and business continuity functions
- Reviews IT risk metrics and reports, including commenting on remediation plans in response to audit findings and key risk exposures identified during security and privacy assessments
- Verifies due diligence is performed with any third party processors, prior to selecting a third party to process or store data
- Works with Legal Counsel to verify that proper security and privacy contractual language is included in third party contracts
- Advises on remediation of any adverse event

8.2.1.5 Clinical Project Manager

The Clinical Project Manager role includes the following responsibilities and functions:

- Directs all clinical environment implementation activities
- Advises on clinician-driven design, workflow processes, and adoption strategies
- Develops standards for interoperability, security, patient/population health services, shared directories and technical services
- Established a robust project management framework to oversee and coordinate the SDE's initiatives
- Provide regular status reports to the Executive Director
- Integrates local, regional, state and national-level efforts

8.2.1.6 Communications Specialist

The Communications Specialist role includes the following responsibilities and functions:

- Implements strategies to support the state-level HIE and its initiatives and functions through public, media, stakeholder, and community/consumer relations; events, marketing; Web and print publishing; brand management; grant and report writing; and presentation development
- Produces publications to support the SDE, including press releases and newsletters
- Develops a statewide outreach and education plan, to include consumers, employers, providers, payers, legislators, other government entities, educators, and other stakeholders

8.2.1.7 Policy Analyst

The Policy Analyst role includes the following responsibilities and functions:

- Develops and maintains a policy framework for the SDE
- Monitors state and federal laws and regulations and ensures state HIE efforts are in compliance
- Recommends changes to state law to further the adoption of HIE statewide
- Tracks national HIE efforts

- Leads activities to develop, implement, and enforce privacy and security requirements
- Works with the Clinical Project Manager to develop, implement, and enforce appropriate privacy and security requirements
- Researches, suggests, and assists legal counsel and the Legal and Policy Committee in the development of model agreements and other legal documents

8.2.1.8 Program Assistant

The Program Assistant role includes the following responsibilities and functions:

- Provides administrative support for the Executive Director and staff of the SDE for the day-to-day operations of the entity
- Assists with logistics for events and meetings
- Supports staff in the preparation of presentations, reports, and other documents
- Takes minutes of Board meetings and other Committee meetings as directed
- Handles travel arrangements; maintains schedules and calendars; orders and maintain supplies; creates and maintains all e-mail distribution lists; and manages the overall administrative requirements for the office, including human resources requirements (e.g., maintaining proper personnel files)

8.2.2 Additional Technical Operations Roles

The suggested core roles listed above are necessary for the daily SDE operations. For technical operations, the following roles may also be required. These roles the SDE could staff through internal staffing, in-kind contributions through private or public organizations, or through contracts.

- Compliance Officer/Legal
- Project Manager
- Integration/Interface Developers
- Data/Reporting Analyst
- Education and Testing Specialist
- Database Administrator
- Network/Security Specialist
- Help Desk Analyst

8.3 Technical Assistance

We understand that the SDE will need to identify and provide technical assistance to guide providers in establishing a connection to the SHIN. This technical assistance can be provided through partnerships with WHITEC, Medicaid, a to- be-selected HIE vendor, and professional health care organizations and associations across the state.

As part of its standard operating procedures, the SDE should provide technical assistance, as needed, to RHIOs and other entities involved in developing HIE capacity in Wisconsin. Our approach will be to provide 1) direct technical assistance via policies, procedures, and facilitated access to expert resources and 2) to collaborate with WHITEC to maximize the amount of technical support provided.

WHITEC will provide local technical assistance for primary care providers, and critical access hospitals in the adoption and meaningful use of electronic health records to improve the health and safety of the people of Wisconsin. The SDE will collaborate with WHITEC to provide technical assistance and support to providers as they adjust their workflows and begin submitting health information through the SHIN.

In addition, as described in the Environmental Scan for HIE Readiness and Adoption in Section 4.1, there are multiple public and private collaborative HIT and HIE initiatives in Wisconsin to improve health care delivery. The SDE shall continue working with stakeholders to determine how these and other existing assets may be leveraged for broader HIE objectives.

8.4 Project Management

We recognize that project management for a multi-year, multi-phase and large-scale initiative goes beyond managing the day-to-day activities of the engaged team. It involves monitoring and communicating the project's status, producing quality deliverables on time and on budget, and identifying and resolving issues as the project progresses. The WIRED for Health Board is recommending the use of a standardized project management methodology (to be selected by the SDE) for project and program implementation and oversight. Some highlights of the proposed methodology include:

- A framework to systematically address key components of project management
- A method that is scalable and flexible; it can be integrated into existing methods in whole or in part to address relevant project management issues
- An approach that closely reflects the iterative workflow process of project management and is woven through all phases of projects through which the vision put forward by the WIRED for Health Board will become a reality

Through the use of the methodology, the functions of project management will be performed by a dedicated project manager working very closely with the key stakeholders and project sponsors to achieve the overall WIRED for Health goals and objectives. The Project Manager will need the authority and have the ultimate responsibility for the day-to-day oversight of the program. As such, the main tenants for the project manager are as follows:

- Manage all execution threads through an integrated Business, Technology, and Operations lens
- Be effective with a lean structure and skeleton staff

- Leverage existing processes and systems where possible
- Enforce sound governance
- Promote open and frequent communications within the organization and externally (including management of interdependent programs)
- Capture and leverage metrics (e.g., benefits, dependencies) for sound decision-making

The Project Manager will be supported by a complete project management environment that includes a single, adaptable project management methodology, toolsets to promote effective project management, and templates to standardize and accelerate all the phases of our delivery.

The following is a list of key project management activities:

- Project Planning and Management
- Project Communications and Reporting
- Resource Management
- Issue and Risk Management
- Change Control
- Financial Reporting

8.5 Procurement and Contracting

Maximum flexibility should be built into the procurement options for the SDE. State agencies can use the Federal General Services Administration (GSA) Schedules, cooperative purchasing agreements, or the Wisconsin Department of Administration (DOA) state contract for purchase options depending upon the item to be purchased. All of these procurement channels should be made available to the SDE as options. DOA has pre-selected bulletins for many items and this feature could be customized to support the SHIN. For example, the State maintains a list of vendors that are pre-qualified and contracted to provide consulting assistance to agencies. Specific subsets of vendors can be created within this blanket contract, so a set of vendors with skills of interest for supporting SHIN activities could be created and selection for a specific task only requires a description of the task to be sent to Procurement and a qualified candidate can be available within days of the need being identified. Consultants or HIE entities should be used to perform any work that the SDE identifies as short-term project work or work that requires a very specific skill for a limited time.

Adoption of standard templates and prescriptions for deciding among the use of a Request for Application (RFA), a Request for Information (RFI), a Request for Bid (RFB), or a Request for Proposal (RFP) would be beneficial. There will be cases in which standard bulletins will not work. Standards will save time and reduce the risk of derailed procurement attempts. The timeline for procurement is somewhat proportional to the size and complexity of the need, but any of the procurement vehicles listed above can easily take three to six months from specification writing through intent to award.

Adoption of standards for contract vehicles will also save the SDE time and prevent contract administration issues. Specific guidelines for selecting among firm fixed price, cost plus, time and materials, fixed maximum or other type of contract vehicle can make contract administration easier and may minimize related issues.

The project plan provides the baseline and all major milestones against which all projects and related contracts are measured. Starting with the right procurement and contracting options will simplify program and vendor management against the project plan. An executive sponsor should be named for each contract and project. A communication plan, standard status report, and demonstrable milestones should be created for all programs and contracts. Status reports that have deliverables tied to the payment schedule should be used when possible. Signature blocks on the status reports should assure that all key stakeholders agree with the contents, for example the executive sponsor, project manager, financial authority, business authority and IT authority. If several similar projects are underway at the same time, peer reviews are useful. When status reports indicate that the program or portions of the program are not meeting the planned schedule, scope, or budget, the escalation path for resolution will be initiated.

8.6 Monitoring Performance

Base operational performance monitoring for SHIN services will be tied to the Service Level Agreements (SLA) established by the SDE and the participating organizations in the SHIN. It is anticipated that these SLA metrics will include such elements as:

- Network availability
- MPI services
- Throughput
- Response time for regional or portal services

Details on operational performance monitoring will be established based on use cases and services planned for implementation as prioritized by the WIRED for Health Board or the SDE's governing board once it is operational. Regular reporting procedures will be established in conjunction with the WIRED for Health Board, SDE, and participating organizations.

Overall, the success of SHIN advancement and engagement of target population of eligible professionals will be measured by performance measures approved by the WIRED for Health Board.

Over time, other participants that add value to, or obtain value from, the electronic exchange of health information, will be added as participating organizations of the SHIN. These may include managed care organizations; however, other entities may also be included.

8.7 Communications, Education, and Marketing Strategy

To support the goal of sustaining a statewide health information network and HIE services, the Communications, Education, and Marketing (CEM) Committee developed a proposed strategy to: (1) to inform, educate, and engage health care providers and organizations, the public, and other key stakeholders about the benefits of HIT adoption and use, and HIE-related activities in Wisconsin, (2) to engage key stakeholder organizations that will be instrumental in helping communicate important information to their members and constituents, and assisting with these activities, and (3) to develop a marketing program that successfully communicates the value of the statewide health information network and HIE services to stakeholders and encourages their voluntary participation and financial support.

The strategy relies on current ongoing communication activities that have proven to be successful in making information about eHealth in Wisconsin available and accessible to stakeholders and the health community. These activities will play an important role in the overall communications strategy for this

initiative. The SDE will need to employ some of these activities on an "as needed" basis or as opportunities arise.

An eHealth Initiative Web site was created earlier this year, which contains information about EHRs, HIE, privacy and security, and federal HIT funding. This Web site also permits interested parties to make inquiries, which are answered by eHealth Program and WIRED for Health Project staff. Interested parties can also subscribe to the eHealth Updates LISTSERV.

eHealth and project staff continually develop, use, and update presentation material to provide information and consistent messaging directed at general and specific audiences. The Department media and public relations staff assist the eHealth Program with HIT-and HIE-related press releases and articles that are published periodically. The Department has also successfully collaborated with existing organizations, such as the Wisconsin Hospital Association (WHA) and the Wisconsin Medical Society (WMS), to communicate important information about HIT and HIE to hospitals, clinics, and physicians.

The SDE will be expected to staff (either through a contract or internal or in-kind staff) and oversee the communications, education, and marketing functions during the implementation phase of the project. The SDE will be responsible for working with the CEM Committee or its successor, if any, to implement this HIT and HIE communications, education, and marketing plan, which will include the integration of current ongoing communications activities.

A variety of key messages and communications will be developed, along with methods for information dissemination directed at general and specific stakeholder groups. Communications and education will be focused on a variety of key stakeholder audiences including a general audience, policymakers, Wisconsin legislators, health plans, hospitals, long-term care, home health, physician organizations, community clinics, public health departments, RHIOs, ancillary service organizations (i.e., lab, pharmacy, imaging), vendors, the public, consumer advocates, and health care payers, purchasers, and employers. Information technology, including professional and social networking sites, will be used to gain efficiencies and reach the broadest audience possible.

The SDE will lead activities aimed at broadening existing collaborations to include additional health care organizations, providers, and consumers, as well as additional activities, such as education and training. Particular attention will be given to collaborating with states on Wisconsin's borders (i.e., Illinois, Iowa, Michigan, and Minnesota), the Midwest Community College Consortia colleges in Wisconsin, the WHITEC, rural health organizations, professionals and organizations responsible for targeted health literacy initiatives, and representatives of special needs populations. The SDE will also be responsible for assisting its board and committees with presentation materials, and for enhancing and maintaining the content available on the applicable Web sites.

A detailed CEM plan is included in Appendix 17.

9 LEGAL AND POLICY

The WIRED for Health Board established a legal and policy framework and plans that when implemented will optimize and enable the electronic exchange of health information while protecting patient privacy, and position Wisconsin to participate in HIE with neighboring states and eventually nationwide HIE. Two principal areas are addressed in this section: security and privacy mechanisms; and mechanisms for participation, oversight, and accountability.

The differences between existing Wisconsin and Federal laws and the problems those differences create for HIE were previously identified and documented by HISPC workgroups of the eHealth Board. Wisconsin statutes and regulations, including those governing privacy, consent, liability, contracts, and data breaches, among others, will need to be assessed and updated as part of implementation to achieve the legal and policy goals. Harmonization with federal laws will be required, and the laws of neighboring states will need to be identified and analyzed to enable interstate collaboration. Data use agreements are recommended and will be developed to contractually govern participation in the SHIN and provide mechanisms for oversight and accountability. Privacy and security strategies, policies, and procedures will be developed incrementally over time along with business, technical, and operational policies and procedures.

9.1 Privacy and Security Strategy

9.1.1 Analysis of Privacy and Security Issues Related to HIE

Wisconsin has undertaken significant analysis of privacy and security issues affecting in-state and out-of-state disclosures of electronic health information using health information exchange. Much of this analysis was originally undertaken as part of Wisconsin's participation in the HISPC Project, the work of the eHealth Board, and a Section 51.30 (Mental Health/Substance Abuse) Work Group specially convened by the DHS in 2007. Additional analysis of the recent HITECH Act and the ONC's Consumer Consent Options for Electronic Health Information Exchange white paper (the "ONC Consumer Consent White Paper")[25] has added to Wisconsin's consideration of privacy and security issues.

Through the Legal and Policy Committee of the WIRED for Health Board, Wisconsin undertook an extensive review of the above analyses and is using those analyses to help guide its privacy and security implementation for the SHIN and information exchange throughout Wisconsin. A full summary of that review is contained in Appendix 18. Key issues considered in that review include:

1) Consent requirements for general health care records
    a) Pursuant to Sections 146.81 and 146.82 of the Wisconsin Statutes, general health care records must remain confidential. However, such records may be shared without patient consent for purposes of treatment, payment, and healthcare operations, or if one of over 20 statutory exceptions to confidentiality applies.

[25] http://healthit.hhs.gov/portal/server.pt/gateway/PTARGS_0_11673_911197_0_0_18/ChoiceModelFinal032610.pdf

2) Consent requirements for mental health, alcohol and other drug abuse, and developmental disability records

    a) Pursuant to Section 51.30 of the Wisconsin Statutes, certain records created in the course of providing services to individuals for mental illness, developmental disabilities, alcoholism, or drug dependence ("mental health treatment records") are held to more stringent confidentiality standards than general health care records under Sections 146.81 and 146.82 of the Wisconsin Statutes and HIPAA. While there are over 27 exceptions to confidentiality under Section 51.30, this section generally prohibits the disclosure of mental health treatment records for treatment, payment, and health care operations purposes without written patient consent.[26] The disparate laws governing disclosures of general health care records and mental health treatment records for treatment, payment, and health care operations purposes continue to be identified by many as an impediment to the integration of physical health care and mental health care, and widespread provider participation in cost-effective health information exchange.

3) HIV test results

    a) Wisconsin law treats HIV test results as "sensitive" information and provides more stringent privacy protection than is provided under Sections 146.81 and 146.82 of the Wisconsin Statutes.

4) Minimum necessary requirement for mental health, alcohol and other drug abuse (AODA), and developmental disability

    a) State requirements relating to mental health, alcohol and other drug abuse, and developmental disability allow only the "minimum necessary" information to be exchanged. Often technology cannot limit disclosures to the "minimum necessary," so processes that could be electronic need to be manual so that the information can be manually limited.

5) Balancing patient right to privacy with providers' need to access health information to provide optimal and cost-effective care

6) New HITECH security and privacy requirements

    a) HITECH added significant new security and privacy requirements to Federal HIPAA law, including substantially increased penalties for HIPAA violations, new federal enforcement mechanisms, new breach identification and notification requirements, and new accounting requirements.

7) ONC recommendations to enhance patient and provider participation in health information exchange

    a) ONC's Consumer Consent White Paper included several key recommendations for states as they develop infrastructure to encourage statewide health information exchange. Those recommendations included:

        i) Adopt an opt-out or no-consent model, in concert with tight restrictions on data access and/or use, including stringent penalties for misuse.

[26] Two notable exceptions allow for certain disclosures without consent in certain emergency situations (§ 51.30(4)(b)8., Wis. Stats.) and, as agreed to by the 2007 § 51.30 Work Group and enacted by 2007 Act 108, disclosures without consent of certain limited types of information if necessary for the current treatment of the individual (§ 51.30(4)(b)8g., Wis. Stats.).

ii) Address the lack of or difficulty in achieving technical and procedural capacity of health information networks to segment and manage data in the manners desired by various constituents.

iii) Actively engage patients in the development of the infrastructure to enable statewide health information exchange.

iv) Minimize administrative burdens, and as appropriate, encourage participation with financial or other incentives.

9.1.2 Key Differences between Wisconsin and Federal Law

Wisconsin, like many other states, has state laws that provide heightened consent requirements for the disclosure of certain types of health information. As noted above, Wisconsin statutes and rules impose specific consent requirements with respect to certain disclosures of certain health information related to mental health, developmental disabilities, and HIV/AIDS test results made for the purposes of treatment, payment, and health care operations. These requirements are more stringent than HIPAA which would not require consent for disclosures of such information for treatment, payment, and health care operations purposes.

Further analysis of key differences between Wisconsin and Federal Law can be found in Appendix 19.

9.2 Framework for HIE Policies and Procedures (Legal and Policy Framework)

9.2.1 Developing the Legal and Policy Framework

Wisconsin's legal and policy framework for health information exchange begins with the goals and objectives discussed in Section 4.2.3.5. Those goals and objectives were guided in part by the HHS Privacy and Security Framework for Electronic Exchange of Individually Identifiable Health Information, which sets out principles to help guide the actions of health care-related persons and entities that participate in health information exchange. The principles of individual choice, data quality and integrity, safeguards, and accountability were particularly influential in the development of Wisconsin's goals, as well the framework for authentication and security mechanisms discussed in Section 7.2.3.

With goals and objectives in place, Wisconsin's framework is also influenced by existing Wisconsin, Federal and other states' laws. Privacy and security laws, liability laws, HITECH, contract law, health care regulation, Wisconsin's WIRED for Health Act, and other laws all impact the core legal and policy topics that Wisconsin must address as it implements its HIE plans.

Wisconsin has identified security and privacy mechanisms and participation, oversight, and accountability mechanisms as the core legal and policy topics that it must address as part of its legal and policy framework. Together, these two topics have overlapping influence on the more specific policies and procedures that will be created and finalized as part of Wisconsin's implementation phase. Many of these policies and procedures are interdependent. Thus, for example, Wisconsin's framework for developing a consent policy will be influenced by its security policy, authorization policy, and other policies.

The Legal and Policy Committee, in conjunction with the Wisconsin Medicaid Program's development of the State Medicaid HIT Plan, worked to include within the legal and policy framework privacy considerations requiring alignment. In the future, the SDE will continue to work with the Wisconsin

Medicaid Program to ensure privacy policies at the statewide level reflect the needs of Medicaid and other stakeholders of the SDE.

A visual summary of Wisconsin's framework is illustrated in the following figure.

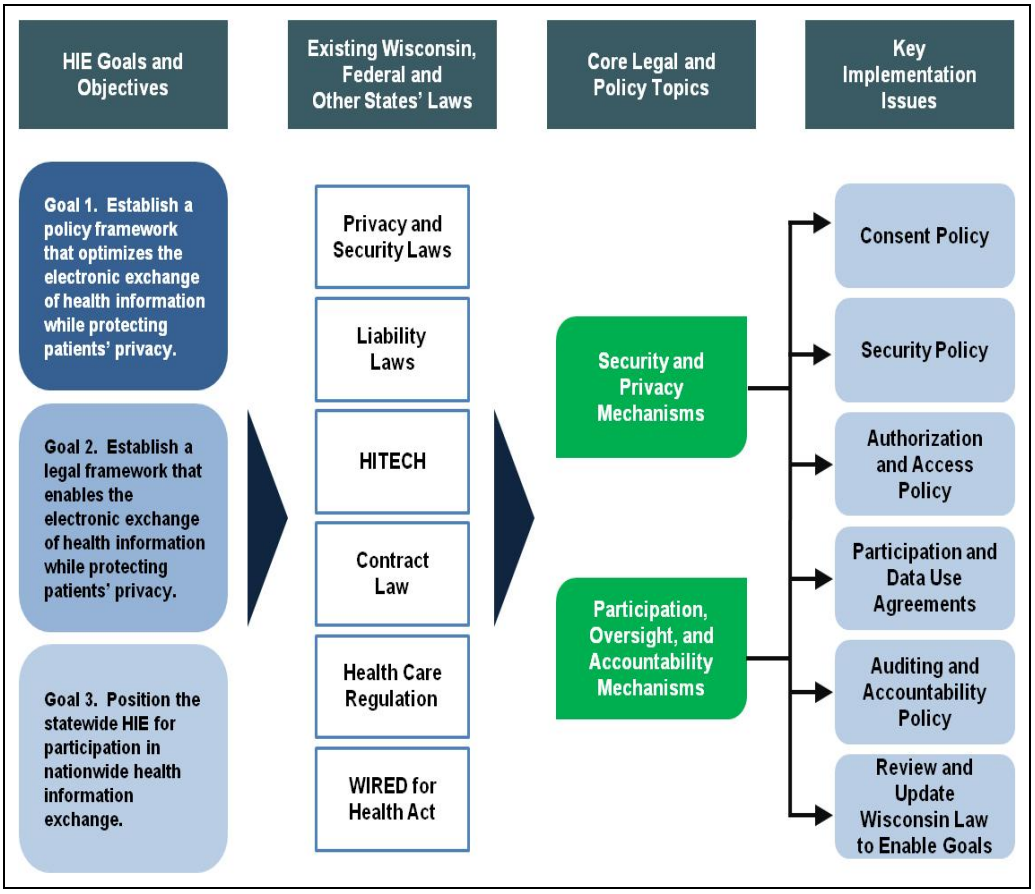

Figure 9.2.1: Legal and policy framework

9.2.2 Security and Privacy Mechanisms

Strong mechanisms must be in place to ensure patient information is not inappropriately used or accessed to the detriment of the patient. Inappropriate use of patient information can be deterred using a combination of security measures and privacy measures. Security measures include administrative, technical, and physical safeguards designed to prospectively protect information from being misused, such as firewalls and data encryption, or to retrospectively deter and identify misuse, such as electronic audit trails. Privacy measures include procedural standards to protect information. Some privacy procedures, such as consent requirements, are intended to prospectively protect information from being misused by limiting access to information, while other privacy procedures, such as breach notification requirements and disclosure accounting requirements, are intended to retrospectively deter and identify misuse.

Historically, Wisconsin policymakers have relied exclusively on privacy measures to prevent inappropriate use of patient information. Alternatively, through the federal HIPAA and HITECH laws and regulations, Federal policymakers have chosen to use a balance of security measures and privacy measures to protect a patient's health information.

Wisconsin's approach sufficiently served the era of paper health care records where electronic security was not possible. However, the Federal approach better serves the digital era of electronic health care records by protecting patient health information from inappropriate use through security measures and by facilitating improved patient care through privacy measures that enable more rapid communication of needed health care information. It is imperative that Wisconsin pursue updates to its medical record policies and laws that will (1) strengthen statutory mechanisms to prevent patient information from being inappropriately used and (2) facilitate improvements in patient care and reductions in patients' cost of care by encouraging health care providers to securely share patient information between patients' caregivers. Specifically, Wisconsin will seek a combination of new security measures to protect patient information and revised privacy measures that will relax barriers that significantly impede the sharing of important health information between patients' caregivers.

Because Wisconsin's consent laws have been the principal legislative mechanism for preventing inappropriate use of patient information, but at the same time have been identified as a significant impediment for widespread provider participation in electronic health information exchange, Wisconsin thus far has given the most consideration to consent policies and procedures. As the implementation of the SHIN progresses, detailed considerations of other key security and privacy mechanisms for preventing inappropriate use of patient information will occur.

9.2.2.1 Development and implementation of a centrally managed opt-out consent model for health information exchange

9.2.2.1.1 Description of centrally managed opt-out consent model

Wisconsin is considering using a centrally managed opt-out consent model for the exchange of health information using the SHIN that is based on a concept similar to the Wisconsin and Federal telemarketing "do not call" registries. Due to the establishment of the Wisconsin and Federal telemarketing "do not call" registries, consumers are now able to contact a single authority if they do not wish to receive telemarketing calls, rather than having to contact each telemarketer they encounter. Similarly, under the envisioned centrally managed opt-out consent model, if a Wisconsin patient does not wish to have the patient's caregivers exchange information with each other using the SHIN, then the patient will only need to contact the operator of the SHIN (or its agent) rather than each of the patient's caregivers in order to effectuate that wish.

Thus, for the SHIN, a central organization (likely the technical operator of the SHIN) would manage all patient requests to "opt out" of the SHIN instead of the individual provider centrally blocking the movement of patient information between the patient's caregivers. Such an arrangement would remove the burden from providers and patients to individually manage consents for each exchange of health information over the SHIN. This arrangement has the potential also to be extended to other health information exchange networks in Wisconsin.

9.2.2.1.2 Preferred option for consent model

Depending on the final architecture of the SHIN, a centrally managed opt-out consent model for the SHIN would have benefits for both patients, providers, and the SHIN. Such a model would:

1) Allow a patient to choose not to participate in the SHIN.
2) Like the "No Call List," make it easier for patients to manage their participation in health information exchange through the SHIN.
3) Have substantially lower IT and operational costs than an opt-in consent model.
4) Have substantially lower IT and operational costs than opt-out consent models that require providers to solely manage consents for each exchange of health information over the SHIN.

When joined with the right HIE architectural infrastructure, security measures, and implementation process, the centrally managed opt-out consent model has initially received support from both provider and patient representatives.

At the present time, the final technical infrastructure for the SHIN has not been determined. Wisconsin, with input from stakeholders, will continue to evaluate the feasibility of the centrally managed opt-out consent model as the final architecture for the SHIN becomes clearer.

Wisconsin, with input from stakeholders, will also continue to evaluate the feasibility of the centrally managed opt-out consent model as a statewide solution for health information exchange through systems other than the SHIN. Preliminary analysis and discussions with stakeholders suggest that the centrally managed opt-out consent model could be a viable solution not just for the SHIN but for other health information exchange systems throughout Wisconsin.

9.2.2.1.3 Development of implementation framework for consent model

Wisconsin tasked the Legal and Policy Committee of the WIRED for Health Board, a committee composed of diverse stakeholder interests including patient and consumer representatives, with undertaking a deliberative process to develop a consent policy for the SHIN that optimizes the electronic exchange of health information while protecting the patient from inappropriate use of the patient's health information. While much of the focus was on developing a policy for the SHIN, it was recognized that any law changes needed to implement such policy could also apply to existing and future health information exchange systems in Wisconsin. Thus, consideration was also given to how the SHIN consent model could be extended to other health information exchange systems in Wisconsin. A description of the process used to develop a consent policy for the SHIN is contained in Appendix 20.

9.2.2.1.4 Implementation of consent model

Wisconsin has outlined the following high-level framework for implementing a centrally managed opt-out consent policy that would be compatible with initial projections of the SHIN architecture:

1) Participants in the SHIN would be required to add a provision to their HIPAA-mandated notice of privacy practices document that must be provided to the providers' patients and explains in easy to understand terms:
    a) That the entity participates in the SHIN.

b) The benefits of electronic health information exchange, including that participation in the SHIN will allow other health care providers that treat the patient to have more complete information about the patient's past care.

c) If the patient does not wish to participate in an exchange between providers using the SHIN, the SHIN will block sharing of clinical information about the patient between providers using the SHIN upon the patient's request to the SHIN.

d) Instructions on how the patient can contact the SHIN to make such a request.

2) Participants in the SHIN would be permitted to disclose information to the SHIN without patient consent.

3) However, the SHIN would not be permitted to disclose clinical information about a patient or identify to providers the other providers that have clinical information about the patient if the patient requested the SHIN operator block sharing of the patient's clinical information between providers using the SHIN.

Thus, if a patient requests such an "opt out," clinical information may be disclosed from a provider to the SHIN and reside at the SHIN, but that clinical information would be securely "trapped" within the SHIN and not further shared with other providers. Pursuant to the "opt-out," the SHIN would not be permitted to share that clinical information with other providers or identify to providers what other providers have clinical information about the patient. However, in order to engender provider trust with the reliability of the information on SHIN, the SHIN would be permitted to disclose to providers a simple indication that the patient has chosen to "opt out" of exchanges using the SHIN.

Subject to possible yet-to-be-finalized administrative limitations, a patient would also have an option to choose to revoke their decision to "opt out" of participation in the SHIN.

9.2.2.1.5 Notable aspects of consent model

Wisconsin has identified several distinguishing aspects of a centrally managed opt-out consent model that suggest that it could be a viable consent solution for the SHIN and health information exchange in general:

1) Patients will have control of their participation in electronic health information exchange.

2) The model will require the least statewide cost to provide patient control of participation in the SHIN. Rather than requiring the modification of hundreds of providers' individual EHR systems and policies, this requires only the yet-to-be built SHIN to build the capability to segregate or block the information of individuals who do not wish to have the SHIN share their information. Providers' cost to implement the policy would be minor administrative costs associated with informing patients of their ability to contact the SHIN to "opt out." Similar cost savings may be available to other health information exchange systems that use a centrally managed opt-out consent model, if such systems' architectures are compatible with the model.

3) Patients will have greater control of their participation in health information exchange than is required under the federal HIPAA privacy regulations and Wisconsin laws governing general health care information.

4) Patients are benefited by having a single entity manage their participation in health information exchange.

5) Having a shared and consistent consent policy for general health care information and mental health care information can enable the integration of mental health and other health care and result in better care.
6) Because this framework is compatible with federal law, federal care delivery organizations can easily participate in the Wisconsin SHIN.

A notable limitation of the centrally managed opt-out consent model is that it is generally incompatible with truly peer-to-peer electronic exchange networks that do not route clinical information through any central hub or server capable of blocking the transmission of information from one provider to another.

9.2.2.1.6 Law changes necessary to implement consent model

Changes to Wisconsin law governing mental health treatment records, AODA treatment records, and HIV test results would be required.

Pursuant to federal HIPAA regulations and Wisconsin's general health care information privacy law, § 146.82, Wis. Stats., consent would not be needed from a patient to allow a health care provider to exchange "general" health care information with other providers using the SDE's health information exchange infrastructure. Thus, for general health care information, the proposed centrally managed opt-out consent policy for the SHIN would be a more stringent and onerous disclosure standard than what existing law requires.

However, even for purposes of treatment, payment, and health care operations, disclosure of mental health and state AODA treatment records governed by § 51.30, Wis. Stats. and HIV test results governed by § 252.15, Wis. Stats. ("Special Health Care Information"), in most cases, requires the informed consent of the patient under current Wisconsin law (though disclosures of HIV test results for treatment is permitted). Thus, for Special Health Care Information, the proposed centrally managed opt-out consent policy for the SHIN is incompatible with existing Wisconsin law.

Thus, as one part of the comprehensive update of medical record policies and laws described in Section 9.2.2, we recommend the SDE consider developing and pursuing enactment of amendments to Wisconsin laws governing Special Health Care Information that would be compatible with a centrally managed opt-out consent model for the SHIN, assuming such policy is compatible with the SHIN architectural infrastructure. Appendix 21 describes two separate options for making statutory changes that would be compatible with the centrally managed opt-out consent policy: a "HIE-level opt-out policy option" and a "HIE-level opt-out full statutory option."

The Legal and Policy Committee is further recommending that the legislation be broad enough to allow for incremental development of the SHIN, existing regional health information exchange networks, and other potential health information exchange networks that may develop in Wisconsin. New legislation or rules should not be required each time a health information exchange networks wishes to expand the type of clinical information shared.

As noted in Appendix 20, the centrally managed opt-out model received broad support from both provider representatives and consumer representatives on the WIRED for Health Board's Legal and Policy Committee. Wisconsin intends to build on that initial support by actively seeking support from key mental health and HIV/AIDS stakeholders. Thus, Wisconsin believes that the law changes proposed will have broad support and have a high likelihood of being enacted in mid to late 2011.

9.2.2.2 Additional security and privacy related policies

9.2.2.2.1 All or nothing participation policy

Under existing technology it is not practical to implement a policy that would allow an individual to choose to share some types of clinical information but not other types of information through a health information exchange system or to choose to share information only with particular providers. Furthermore, widespread provider participation and use of a SHIN will be unlikely if providers cannot trust that the health information exchange system is providing complete and accurate information relevant to the provider's care of the patient. Thus, Wisconsin will pursue the implementation of an "all or nothing" participation policy in which a patient and provider will have two options: opt out of all exchange of clinical information between all providers using the SHIN, or fully participate in the SHIN without limitation. However, Wisconsin will routinely monitor the evolution of exchange technology, and will consider revisions to the all or nothing participation policy to the extent granular consents become a practical option.

9.2.2.2.2 Exclude federal AODA information

Federal regulations under 42 Code of Federal Regulations (CFR) Part 2 requires patient consent for certain disclosures of alcohol and other drug abuse information for treatment, payment, and health care operations purposes. Because of these consent rules, providers that have such information, as well as the SHIN, would have to incur significantly higher IT and administrative costs in order to share such information using the SHIN. To minimize barriers to participation, Wisconsin will pursue the implementation of a policy that will dictate that the SHIN not request or receive federal AODA information or any other information that is not permitted to be disclosed without specific prior patient consent. While the inclusion of such information in the SHIN or any other Wisconsin health information exchange system would be beneficial to improve the overall care provided to individuals receiving AODA services, the burdens imposed by 42 CFR Part 2 would make the exchange of such information prohibitively expensive and thereby add barriers to provider participation. Wisconsin will monitor Federal efforts to modify 42 CFR Part 2 to make it more consistent with federal goals to enable widespread health information exchange.

9.2.2.2.3 Strong security is a top priority

Widespread participation in health information exchange systems by providers and patients will not occur unless they know that information on the health information exchange system is secure. Thus, the SHIN's health information exchange infrastructure must have strong security mechanisms to protect against inappropriate use of patient information. At a minimum, the SHIN's exchange infrastructure will follow the HIPAA security standards for electronic transactions. Furthermore, the SHIN operator will be required to identify and follow any additional established security best practices for health information exchange.

Wisconsin will also pursue new state statutory security requirements for other health information exchange systems as part of its efforts to update its medical record policies and laws. Through a combination of security and privacy measure updates to Wisconsin statutes, Wisconsin will work to (1) strengthen mechanisms to prevent patient information from being inappropriately used and (2) facilitate improvements in patient care and reductions in patients' cost of care by encouraging health care providers to securely share patient information between patients' caregivers. The Federal HIPAA regulation's

security requirements will be the guide for Wisconsin as it considers new statutory security requirements for health information exchange systems.

9.2.2.2.4 Breach notification considerations

Pursuant to the HITECH Act, health care providers, health information exchanges, and other users of patient information are required to meet stringent new notification requirements if the provider or health information exchange does not use certain security standards and a breach of patient health information occurs. It will be a high priority for the SDE to investigate all options to implement those security standards for the Wisconsin SHIN.

9.2.2.3 Significant issues related to the privacy and security framework to be resolved during implementation

In order to implement Wisconsin's security and privacy framework for statewide health information exchange and the SHIN, Wisconsin has identified several issues that will be resolved during implementation. The WIRED for Health Project intends and will expect the SDE to involve key stakeholders as it resolves these issues. For example:

- All plans for the security framework of the SHIN, including the contractual enforcement of the SHIN's security framework, should be completed prior to any legislative votes on health information exchange-related legislation amending Wisconsin's consent laws
- A specific process for requesting an "opt out" from the SHIN shall be determined. While the WIRED for Health Board recommends that the patient be responsible for requesting an "opt out," the process must be easy to understand and easy to access and complete for the patient
- Identify specific language that should be communicated to inform patients about the SHIN and the process for requesting an opt out from the SHIN. Determine whether such language should be a statutory requirement or a contractual requirement. Determine whether different language would be needed for other health information exchange networks
- A specific process for implementing a requested "opt out" from the SHIN shall be determined
- For purposes of implementing a patient's request to opt out of sharing using the SHIN, develop mechanisms to match the identify of a patient who chooses to opt out from the SHIN with the patient's records
- Develop a procedure to revoke an opt out and determine whether there should be limitations on the ability of a patient to repeatedly revoke an opt out
- Develop a procedure for patient surrogates to request or revoke an opt out on behalf of a patient
- Determine how the SHIN will authenticate a request to opt out of participation or a request to revoke an opt out
- Determine what, if any, circumstances may permit a caregiver or other person to override a patient's choice to opt out of sharing information using the SHIN. For example, should medical urgency be a reason to override a patient's decision to opt out?
- Develop a process for patients and providers to request and receive an accounting of disclosures made from the SHIN

- Determine timeframes for the SHIN to respond to requests: to opt out, to revoke an opt out, or to provide an accounting of disclosures
- Under current laws governing Sensitive Health Care Information, there are several circumstances in which consent is not necessary for disclosure. Wisconsin will need to determine whether all of these exceptions should apply if a patient chooses to opt out
- Determine a realistic time frame for enacting legislation necessary to implement the privacy and security framework. The Wisconsin legislature has adjourned for 2010 and will not be in session again until January 2011, after the election of a new governor
- Determine the effects of the final meaningful use rule issued in July 2010 on the outlined privacy and security framework

9.2.2.4 Interstate Collaboration

Wisconsin has a critical need to electronically exchange health information for the care and treatment of patients with four neighboring states—Minnesota, Iowa, Illinois, and Michigan. There are existing medical trading areas involving Wisconsin and each of these states in which the exchange of health information for clinical purposes is occurring without regard to state boundaries. However, interstate electronic HIE is currently impeded because of differences in privacy and security requirements between states.

As a first step, Wisconsin intends to identify and analyze possible policy approaches to address barriers to and enable opportunities for interstate HIE. Consideration will be given to a variety of issues, including, but not limited to, purposes of exchange, consent, privacy and security, liability, and the development and use of uniform agreements. The identification and examination of solutions involving legislation, contracts, policies, and practices to advance and support interstate HIE will follow.

Wisconsin and Minnesota have agreed to begin their efforts to advance interstate HIE with each other. Wisconsin plans to work with the Minnesota Office of Health Information Technology to advance interstate HIE through a series of teleconferences and meetings. It is expected that other border states will be included in these efforts in the future.

Wisconsin and Minnesota were both members of the Health Information Security and Privacy Collaboration's (HISPC) Interstate Disclosure and Patient Consent Requirements Collaborative. The Collaborative assembled and analyzed detailed requirements stipulated in state laws, regulations, and rules pertaining to consent for the disclosure of protected health information across a range of specific interstate HIE scenarios and offered several options for incrementally moving forward with HIE across state boundaries. Its report provides a comparative analysis of privacy laws as well as a basic understanding of the types of conflicts that must be resolved. This information can be leveraged in Wisconsin's work with Minnesota as well as with other neighboring states to plan, design, and implement feasible and practical approaches to interstate HIE.

Wisconsin along with Minnesota, Iowa, North Dakota, South Dakota, and Illinois applied as a consortium for a new opportunity to receive support services through RTI International via the State Health Policy Consortium (SHPC) Project to advance interstate HIE, which is funded by the ONC. Minnesota served as the facilitator for a coordinated submission on behalf of the participating states. On June 9, 2010, Minnesota submitted the Upper Midwest HIE Consortium's request to RTI for the first cycle of support services awards.

Our proposal for the SHPC Project is separate and distinct from, yet congruous with, our State HIE CAP work to advance and support interstate HIE. The request seeks support services to: (1) formally establish the Upper Midwest HIE (UM-HIE) Consortium, (2) analyze current law from each state through either an examination of previous HISPC reports or a survey prepared by a subject matter expert, (3) identify possible mechanisms and common language to enable interstate HIE, and (4) identify an electronic mechanism for implementation of the preferred mechanism to enable interstate HIE. We received notification on July 27, 2010 from RTI that our consortium was selected to receive support services for the SHPC Project in the first cycle.

9.2.3 Participation, Oversight, and Accountability Mechanisms

9.2.3.1 Background on Data Use Agreement

Under the WIRED for Health Act, the State of Wisconsin will designate a nonprofit corporation (the "SDE") to receive and administer federal funds to implement the SHIN and HIE services. In accordance with the direction set by the WIRED for Health Board, the SDE will establish the legal and policy structure relating to the SHIN. The structure will consist primarily of a contractual model. The structure will address the core legal and policy issues of privacy and security; auditing, accountability and enforcement; and liability and indemnification. This structure will be critical to facilitating trust among SHIN participants.

9.2.3.2 Data Use Agreement

Qualified participants will be entities that will access the SHIN by entering into and complying with a data use agreement with the SDE. The SDE will set the qualification criteria, including the types of participants (e.g., providers, payers, researchers, public health, regional health organizations). The terms of the data use agreement may vary, based on these different types of participants. In addition, participants' access may vary based on whether the participant contributes data to the SHIN, receives data from the SHIN, or both. Unique participants, such as correctional institutions or public health, may require specialized access and/or terms and conditions. In all these instances, Wisconsin will establish the primary trust relationships necessary to create the framework for the SHIN through the data use agreement. An initial draft of the data use agreement parameters and components is included in Appendix 22.

Individual authorized users of the SHIN will need to be affiliated with a qualified participant in order to access the SHIN. Participants will use various methods of forming trust relationships with such individuals, such as employment or by contract.

Notwithstanding the use and terms of the data use agreement, the SDE must evaluate and propose necessary revisions to state law to ensure the agreement is appropriate, effective, and enforceable. The WIRED for Health Board intends that the combination of state law and entry into the data use agreement will facilitate exchange, promote accountability, engage appropriate oversight, create accountability and a mechanism for enforcement of rights and obligations of the various constituents, and provide remedies for violations of law or contract. Remedies are closely related to oversight and accountability, and enforcement is as important as establishing the protections.

9.2.3.2.1 Adaptability of Terms and Conditions

The SDE will determine and finalize the terms and conditions of the data use agreement. These terms and conditions will be based on the actions, assumptions, and guidance of the WIRED for Health Board, as evidenced by the SDE's organization, operations, and infrastructure. The terms and conditions will comply with all applicable laws, rules, and regulations. In addition, the SDE will revise the data use agreement as necessary to ensure necessary alignment with the NHIN. Most importantly, the SDE will create the mechanism to set, review, and revise the data use agreement in reaction to future changes in technology, law, and policy.

9.2.3.2.2 Legal and Policy Issues

Many legal and policy issues will need to be resolved in order to draft an effective and accepted data use agreement. The WIRED for Health Board, including the Legal and Policy Committee, and later the SDE itself, will work to create short- and long-term project plans that address these issues. A detailed list of these legal and policy concerns is set forth in Appendix 23. The primary concerns are as follows:

9.2.3.2.2.1 Privacy and Security

A re-examination of the legal remedies available to address specific privacy violations, such as unauthorized access or unauthorized disclosure, is warranted. Existing law may not provide reasonable and necessary protection of the privacy and security of information. Even if existing law is adequate, the SDE must establish policies and procedures to provide assurances that the SHIN is used only for permitted uses and disclosures.

Existing Wisconsin and Federal HIPAA law provides legal remedies for privacy violations, such as unauthorized access or unauthorized disclosure. The availability of these remedies may be dictated by the type of record that is accessed or disclosed. For example, stricter access limitations apply to mental health treatment records. Remedies include civil actions for violations, damages, injunctive relief, monetary penalties, imprisonment, and discipline of certain public employees.

Wisconsin has adopted a data security breach law that requires notice to individuals of any unauthorized disclosure of their personal information. However, health care providers, health information exchanges, and other entities subject to federal data security regulations under HIPAA must follow more rigorous federal breach notification and mitigation requirements, and thus are exempt from the state law. Other Wisconsin and Federal laws relating to identity theft and the unauthorized use of an individual's personal identifying information or documents also exist. Their applicability to unauthorized access or disclosure of health information requires further examination.

Under existing Federal law, covered entities (e.g., health care providers and many SHIN participants) and their business associates (e.g., the SDE) are governed by HIPAA. In addition, other federal laws, such as laws governing AODA records may apply. Under the recent HITECH Act, federal law imposes notification and mitigation obligations for the breach of unsecured protected health information, unless such information has been rendered "unusable, unreadable, or indecipherable." It may be valuable to participants and the SDE if the SHIN only uses and exchanges this "secured" protected health information.

Participants will need to continue to comply with existing laws. In addition, any participants that are not otherwise governed by such laws will be required to comply by contract.

Authorized users may only request information through the SHIN for permitted purposes established by law and SDE policies.

9.2.3.2.2.2 Liability and Indemnification

The SHIN must operate in a manner that ensures adequate remedies are available to the SDE, its participants and authorized users and individuals whose data may be used or disclosed. However, it must also appropriately limit liability to ensure participation in the SHIN and its continued existence. A re-examination of the legal remedies available to address liability and rights of indemnification is warranted.

In general, the SHIN will function within the existing state law and common law indemnification principle that each actor is responsible for its own acts and omissions. Thus, the SDE would be responsible only for the "exchange activities" it undertakes, and not for the accuracy or efficacy of the data furnished by the participants. For example, the SDE would be responsible for failing to exclude from disclosures data of an individual who "opts out" of the exchange. A participant would be responsible for including erroneous data in a record. Participants would be required to obtain any required consents or authorizations relating to the disclosure of data, and would be liable for any failure to do so.

This responsibility, however, must be tempered with sufficient protections and immunities to encourage and enable the use of the SHIN. Those protections will be accomplished by law and by contract under the data use agreement.

To ensure the sustainability and widespread use of statewide health information network, issues pertaining to liability indemnification must be considered. This may include legislation to ensure that limitations on liability apply as a matter of law (rather than mere contract); that an appropriate remedy is provided if the SDE fails to observe an opt-out of any individual from participation in the SHIN; and that participants and the SDE itself are protected from “bad acts” by participants.

The data use agreement must conform to any such laws, and may provide additional contractual limitations on liability and indemnification obligations. This may include the manner in which participants interact with one another to resolve disputes, including issues of responsibility when costs are incurred.

Finally, the SDE must be aware of changes in liability standards, as the increasing access to information creates new and changing legal concerns. For example, trial attorneys are beginning to pursue negligence claims based on a physician’s failure to make a SHIN inquiry or a physician’s delay in signing an order, which delays entry of that order into the medical record.

9.2.3.2.3 SHIN Model

The contractual model for SHIN participation described in this section was developed concurrently with the Standards and Architecture Committee. Therefore, the parameters of the data use agreement and the legal and policy issues to be addressed are difficult to settle. However, it is fair to assume that the SHIN will involve use of an interactive system that will assist participants in locating and sharing patient demographic and clinical data held by multiple health care organizations with disparate health information computer applications.

Because the architecture and data sharing of this network may be through any number of models, the model that is chosen will impact the analysis and recommendations regarding data use parameters,

enforcement of legal and contractual rights and obligations, and appropriate legal protections. In general, the more data that is contained in a central repository, the greater the need for the SDE to ensure individuals' rights are protected and to secure access to the SHIN and its data.

9.2.3.3 Oversight and Accountability Background

In addition to the contractual model, the project plans will include evaluation of the need for any revisions to state law, to ensure appropriate oversight and accountability of the SDE and its participants and authorized users.

Because statewide HIE is an emerging field, the SDE will need to retain legal counsel to provide advice and develop policies as needed. Most immediately, the SDE with the assistance of legal counsel will need to prepare and draft security and privacy policies governing the exchange of health information through the statewide HIE network. These policies will address privacy, security, auditing, accountability, liability, and indemnification. The enforcement of rights and obligations under such policies shall be presumably through state law remedies and as set forth in the data use agreement between the SDE and the SHIN participants.

Further, the State's role in oversight of the SHIN, setting accountability and enforceability standards, and creating remedies by legislation should be considered. To create the appropriate oversight and accountability mechanisms, the SDE may need to:

- Prepare and draft a compliance and enforcement policy for instances of breach of the data use agreement, including breaches of obligations to meet applicable laws, rules, or regulations
- Determine the types of participants qualified to participate in the SHIN, and the rights and obligations of those participants. For example:
    - General participants will likely have access to personal health information through the SHIN, obtain any legally required accounting from the SDE, and receive notices of authorized and unauthorized access to the SHIN or individual's information through the SHIN
    - Provider participants may also have access to provider-based quality improvement records, quality reports, quality assurance records, and care management records
    - Payers may obtain SHIN access for eligibility verifications, disease management, care coordination, or research
    - Public Health may access the SHIN to receive public health data for the purpose of preventing or controlling disease, injury or disability
    - Researchers may be able to access the SHIN to request information for research studies
- Define and limit the scope of the acceptable uses of the SHIN and the information provided through the SHIN
- Determine the availability of enforcement mechanisms and the remedies available to the SDE and its participants to access or exchange information through the SHIN and among the states' health information network
- Conduct audits of access to, and use of, the SHIN by participants
- Require use of specific technology to limit access or capture records of access to the SHIN
- Require participants employ certain security measures

- Require participants to provide accurate, timely, and complete information through the SHIN
- Determine consequences for failure to comply, including termination from the data use agreement and participation in the SDE.

The above areas will require examination of federal and state law, and analysis of the costs and benefits. It is the goal of the WIRED for Health Board to ensure appropriate measures are in place to ensure compliance with federal and state law, as well as to build sufficient provider and patient trust to ensure utilization of the SHIN.

9.2.3.4 Medical Trading Area or Non-Geographic Based Exchange Networks

HIE networks that connect and exchange data through the SHIN will first be required to enter into a data use agreement. The SDE will provide oversight by setting criteria for participation in the data use agreement and confirming that participants in the statewide health information network meet those criteria. On an ongoing basis, the SDE will serve as a resource for the continued development of interoperability of exchange throughout the state, in conformance with federal certifying criteria.

The SDE will implement and maintain a process for ongoing compliance review and remediation.

Under current law, the SDE has no regulatory authority over entities that choose not to participate in the statewide health information network. Participation in the statewide health information network should be voluntary, with the goal that the SDE attracts and retains participation by building a value proposition for the various types of stakeholders.

The SDE will develop and implement a process for evaluating the systems of potential statewide health information network participants, and at minimum require representations regarding those systems in the data sharing agreement. The process will include a mechanism through which this risk analysis will be required (i.e., data sharing agreements, other), the standards to which each participant's system must adhere, and other related issues.

When the ONC establishes HIE certification criteria, the SDE may consider establishing a certification program for HIE networks operating in Wisconsin. Although certification would be voluntary for HIE networks not participating in the SHIN, such certification by the SDE may help to ensure interoperability, enhance public trust, and establish the SDE as the HIE authority for the state.

9.3 Mechanisms to Refresh Legal and Policy Framework

The overall objective of the legal and policy framework is to establish clear parameters for the collection, access, use, and disclosure of personal health information by all individuals and organizations that participate in the SHIN and engage in the exchange of health information through the SHIN. In addition, patients must be provided with access to and reasonable controls over their personal health information and security safeguards and controls must be adopted. Several legal- and policy-related activities need to occur over the long term to help promote the adoption and sustained use of HIT and HIE and keep Wisconsin's legal and policy framework robust and meaningful in the years to come.

First, a process will be developed for the incremental development and implementation of uniform privacy and security strategies, policies, procedures, and practices for the SHIN that ensure health information is protected in accordance with Wisconsin law, HIPAA, and other federal laws and

requirements. This process also will be used for the incremental development and implementation of uniform business, technical, and operational strategies, policies, procedures, and practices. The development and implementation of strategies, policies, procedures, and practices will be prioritized beginning with those items that need to be in place in order for the SHIN to "go live." Other items will be developed and rolled out depending on where they fit into the overall project timeline and milestones.

Second, a process will be developed to evaluate and update the legal and policy framework as part of the required annual program evaluation and more often if necessary. As a result of that process, we anticipate recommending changes to Wisconsin health laws and regulations for both intrastate and interstate HIE, advocating for the continued harmonization of existing federal and State laws to enable HIE services, and developing new and revising existing strategies, policies, procedures, and practices for the SHIN. All of this work will be undertaken in a comprehensive and consistent manner that reflects current as well as emerging health care information policies, practices, standards, and technologies. This process will ensure the strategic and operational plans are updated annually.

Finally, in close coordination with the other committees, a strategy will be developed to position the SHIN for participation in the NHIN.

The membership of the Legal and Policy Committee should be maintained in its current form, to the greatest extent possible, to continue with the important work it has begun, at least through the transition period to the SDE.

9.4 Public Health

Public health is the science and art of disease prevention. To accomplish this, public health practice is highly dependent upon health information and data systems. It involves epidemiology—using data to discover disease causes; and surveillance—case reporting and analysis of health events to monitor trends. Epidemiology and surveillance provide the scientific basis for actions to prevent disease and minimize their burden. These interventions may also involve the delivery of clinical services by the public health system to prevent disease.

Accordingly the State HIE CAP, authorized by Section 3013 of the Public Health Services Act as amended by ARRA intends to award cooperative agreements to states or SDEs to "meet … public health …information needs…"[27] and meet "…other important state policy requirements such as those related to public health…"[27] The program recognizes that Wisconsin must "coordinate an integrated approach with Medicaid and state public health programs to enable information exchange and support monitoring of provider participation in HIE as required for Medicaid meaningful use incentives, and that the interests of public health agencies must be considered and incorporated into Wisconsin's planning and implementation activities for HIE."[27] In particular, the State HIE CAP requires that Wisconsin develop or facilitate the creation of statewide technical infrastructure that facilitates electronic public health reporting. Furthermore, the final Stage 1 EHR meaningful use criteria includes the following public health-related requirements for hospitals and eligible professionals:

1) "[Perform] at least one test of certified EHR technology's capacity to submit electronic data to immunization registries and follow up submission if the test is successful (unless none of the

[27] State Health Information Exchange Cooperative Agreement Program Funding Opportunity Announcement, http://healthit.hhs.gov/portal/server.pt?open=512&objID=1336&mode=2&cached=true, pp. 8 and 13 [Accessed May 4, 2010].

immunization registries to which the EP or eligible hospital submits such information have the capacity to received the information electronically)"

2) "[Perform] at least one test of certified EHR technology's capacity to submit electronic syndromic surveillance data to public health agencies and follow-up submission if the test is successful (unless none of the public health agencies to which an EP or eligible hospital submits such information have the capacity to receive the information electronically)."

3) "[Perform] at least one test of certified EHR technology's capacity to submit electronic data on reportable lab results to public health agencies and follow-up submission if the test is successful (unless none of the public health agencies to which an eligible hospital submits such information have the capacity to receive the information" (for hospitals only).[28]

In the proposed rule released in January 2010, CMS had given indications of possible future EHR meaningful use requirements related to public health. For Stage 2 EHR meaningful use, CMS had requested comment on its intent to propose the following in future rulemaking: "Measures that currently require the performance of a capability test (for example, capability to provide electronic syndromic surveillance data to public health agencies) will be revised to require the actual submission of that data." CMS had also requested comment on goals for Stage 3 EHR meaningful use, including "improving population health."[29]

To accomplish these goals, Wisconsin recognizes that public health agencies are organizations that must participate in health information exchange. Public health participation is further guaranteed by inclusion of the State Health Officer on the SDE board through the WIRED for Health Act. Additionally as Wisconsin implements its health information exchange plans and activities, it shall consider existing public health law. Pursuant to Wisconsin public health statutes, the DHS:

- Has authority to investigate diseases and possesses all powers necessary to fulfill the Department of Health Services duties prescribed in the statutes (§ 250.04(1), Wis. Stats; § 250.04(2)(a), Wis. Stats.)
- Shall establish and maintain surveillance of acute, communicable, injury, occupational, environmental, maternal, and child health events (§ 250.04(3)(a), Wis. Stats.) and analyze these events (§ 250.04(3)(b)(1), Wis. Stats.)
- Shall, in cooperation with local health departments, maintain a Public Health Data System (§ 250.04(3)(b)(2), Wis. Stats.)
- Has authority to conduct investigations, studies, experimentations, and research of public health problems, subject to required privacy protections (§ 250.04(3)(b)(3), Wis. Stats.)
- [See above bullet point]Has the authority to establish systems of disease surveillance and inspection to ascertain the presence of any communicable disease (§ 252.02(1), Wis. Stats.)

[28] Department of Health and Human Services, Centers for Medicare & Medicaid Services, 42 CFR Parts 412, et al., Medicare and Medicaid Programs; Electronic Health Record Incentive Program; Final Rule, Federal Register Vol. 75, No. 144, Wednesday, July 28, 2010, Rules and Regulations, p. 44325, http://edocket.access.gpo.gov/2010/pdf/2010-17207.pdf [Accessed August 25, 2010].
[29] Department of Health and Human Services, Centers for Medicare & Medicaid Services, 42 CFR Parts 412, et al., Medicare and Medicaid Programs; Electronic Health Record Incentive Program; Proposed Rule, Federal Register Vol. 75, No. 8, Wednesday, January 13, 2010, Proposed Rules, pp. 1844-2011, http://edocket.access.gpo.gov/2010/pdf/E9-31217.pdf [Accessed May 4, 2010].

- Shall study and use vital statistics for health planning (§250.04(1), Wis. Stats.)

Wisconsin also requires health care providers and others to undertake several public health related activities, including

- Mandatory disease reporting (e.g. cancer and communicable disease reporting, immunization registry); (Ch. 252 and Ch. 255, Wis. Stats.; Wis. DHS Ch. 145)
- Vital records reporting (Ch. 69, Wis. Stats.)

Universal EHR adoption and HIE can revolutionize public health. It is an opportunity to streamline data acquisition, epidemiologic investigation, surveillance, reporting, and improve health data timeliness, completeness, and quality. Common HIE standards for reporting information to public health information systems (e.g., immunization registry, cancer reporting, communicable disease reporting, vital records, etc.), either through the SHIN or directly to the public health information systems, can also greatly decrease the reporting burdens of data submitters.

Four evolutionary stages for incorporating public health into Wisconsin's planning and implementation activities for HIE have been identified. These evolutionary stages would be implemented over time.

- Evolution 1 – Advance and simplify electronic reporting of existing mandated case reports and disease reports (e.g. communicable disease reporting, electronic laboratory result reporting, and immunization registry data exchange)
- Evolution 2 – Surveillance using de-identified data (HIPAA Privacy Rule Limited Data Set (LDS), implementation of state-wide surveillance mandate including syndromic surveillance)
- Evolution 3 – Public Health Alerting and Surveillance Feedback to Clinical Care (using HIPAA-LDS)
- Evolution 4 – Research to improve clinical and public health services

Evolutions 1 and 2 are one-way data feeds to public health to fulfill mandatory case reporting and surveillance requirements. Public health information systems, such as the WEDSS, the WIR, and other PHIN components must have the capability to receive electronic data in order to participate in health information exchange. Wisconsin's planning and implementation activities for the SHIN should work to ensure that key public health information systems have this capability, and that these systems use standardized protocols and formats for gathering information from submitters.

Evolution 3 involves bidirectional exchange for including alerts and feedback to clinical care once data are analyzed. Here, in addition to electronic receipt of data, public health information systems must have the capacity to analyze and send findings back to clinical care for targeted alerting, clinical, and population health improvement. Whether concerning the care of an individual patient or to communicate an alarm to clinicians of an urgent general health threat, public health-clinician communication must increasingly occur within the setting of the electronic health record or it will not fit tomorrow's clinical workflow. Given CMS's request for comments on including "improvements in population health" as a Stage 3 EHR meaningful use goal, this evolution may also support yet-to-be proposed Stages 2 and 3 of the EHR meaningful use criteria.

Evolution 4 also involves bidirectional exchange. A lack of information linking health care and public health practices to health outcomes stymies efforts to improve these services. A mature SHIN will permit sophisticated comparisons of clinical and public health interventions in ways not available today, while

continuing to maintain a very high level of privacy and security. The cost and complexity of performing observational, case-control, and controlled trials (both single and multi-site) can be drastically reduced, while the careful oversight of the SHIN could maintain or even improve on the protections of the rights of study subjects enjoyed today. Enabling rapid and efficient research on clinical and public health practices can allow Wisconsin's health system to benefit from "rapid learning" and "advance the evidence base for clinical care; fill major knowledge gaps about the benefits, risks, and comparative effectiveness of drugs and procedures; and obtain greater insight on geographic variations, the health of special populations, and public health program effectiveness."[30] Knowledge thus generated would save Wisconsin patients the pain and expense of harmful or unneeded procedures and medications, and improve the health of communities through more effective public health programs. These both produce cost savings and workforce health that create a more favorable business and tax environment statewide. It can also make Wisconsin a magnet for biomedical and public health research and development, an important economic driver for the future.

A key assumption is that public health agencies and institutions will have access to nationally certified EHR systems when they provide clinical services, which will allow them to participate in the SHIN or other health information exchange system when they act as health care providers. But support for public health clinical services represents a difficult problem. Without tremendous federal or state investment, it is unlikely public health agencies will be able to afford certified EHRs and fully participate in HIE when they provide clinical services to patients. Policies and solutions must be found to support clinical services and ensure full participation by public health agencies (including Wisconsin DHS institutions for people who have mental illness or developmental disabilities) and other public sector health care providers (e.g., Wisconsin DVA and DOC, school nurses, etc.).

Appendix 24 provides a more detailed examination of public health issues related to health information exchange.

9.5 Purchasing Power

Wisconsin recognizes that the capital and ongoing costs of participating in a health information exchange system may be a barrier to widespread use of health information exchange technology. One strategy to minimize that cost may be to use the purchasing power of the State of Wisconsin to reduce the purchase price of equipment and services necessary for the development and use of the SHIN and other health information exchange systems. For example, if it were necessary for all participants to have a particular type of server in order to share and use the SHIN (the final architecture of the SHIN will be determined during implementation), it may be advantageous if the State were to purchase such servers in bulk and provide or sell such servers to the individual SHIN participants.

Furthermore, as the relationship between the State and the SDE is more formally developed, consideration should be given to allow the SDE to use the State's purchasing power for some services or products necessary for the development of the SHIN and other health information exchange systems in Wisconsin.

At this early stage in the development of Wisconsin's health information exchange infrastructure, Wisconsin is unable to make specific recommendations regarding the use of the state's purchasing power

[30] Etheredge LM, A rapid-learning health system, Health Aff (Millwood), 2007;26(2):w107-118.

to purchase equipment and services; however, the above strategies should be considered as opportunities arise.

While the WIRED for Health Board does recommend partnering with the state to purchase equipment and supplies, it does not recommend that the State use its purchasing power to condition Medicaid payments to providers based on providers' participation in the SHIN. While such a use of purchasing power may initially impel participation in the SHIN, that action would likely stifle the rapid evolution and innovation of health information exchange capabilities in Wisconsin in the future and jeopardize Medicaid beneficiaries' access to care.

9.6 Alignment with Federal HIE Efforts

In parallel with the development of state-based health information exchange capabilities, the Federal government is also developing a national health information exchange identified as the NHIN. The Federal government's intent is that the NIHN would connect to all 50 state-level health information exchanges in order to:

- Improve the health and healthcare of patients throughout the country, whether receiving care locally or when traveling throughout the nation
- Enhance access to additional human services. For example, the Social Security Administration and the Marshfield Clinic Research Foundation have been working together to improve the speed, accuracy, and efficiency of the federal disability application process through electronic exchange of medical evidence to adjudicate disability claims using the NHIN Exchange
- Safeguard the privacy and security of protected health information—by fostering adoption of innovative technologies that are explored, developed, and tested in the open government environment
- Provide providers and consumers with access to vital federal health and human service partners including, but not limited to, the Centers for Medicare and Medicaid Services, the Social Security Administration, the Department of Defense Military Health System, the Veterans Administration, the Indian Health Service, and the Center for Disease Control and Prevention

The SDE will establish necessary interfaces and alignments with the emerging NHIN. Accordingly, the SDE will leverage and comply with the policies, standards, and services required for statewide health information exchanges established and by the ONC. When new nationwide policies, standards, protocols, specifications, and services are adopted, the SDE will maintain awareness of and will prioritize the SDE's health information exchange policy and system updates to ensure appropriate compliance.

10 IMPLEMENTATION PLAN

The WIRED for Health Implementation Plan describes an overall timeline for the activities, milestones, and tasks associated with the Strategic and Operational Plan. The milestones are highlighted in the high-level project timeline below. In Appendix 25, a detailed proposed project plan is included. It will be the responsibility of the SDE to review and update the plan.

The Implementation Plan is divided into six major sections. Since the SDE will implement a committee and workgroup structure and be responsible for delineating responsibilities, the Implementation Plan contains a baseline set up of tasks to be completed independent of the organization selected. The six sections follow the ONC domains, with an initial section related to general activities.

1) **General Implementation Management** – Key project management tasks include monitoring and communicating the project's status and assisting with Board and Committee meetings. Ongoing activities include annual reporting to the ONC, updating the budget, and attending annual meetings.
2) **Governance** – The selection process for the SDE includes soliciting applicants, creating the RFA, implementing the evaluation team, selecting the SDE, and preparing for transition from the current WIRED for Health Board to the SDE.
3) **Legal and Policy** – A policy framework will be determined, which will establish the appropriate and corresponding legal requirements, participation and data use agreements, and internal policies to help assure the protection of electronic health information.
4) **Technical Infrastructure** – A review of existing assets and use cases is a critical step before selecting a technical operator through a competitive RFP process. In addition to other workgroups, a directory workgroup will be created to assist with the analysis of existing directory assets.
5) **Business and Technical Operations** – Implementation and operations tasks include the development of a comprehensive communications, education, and marketing plan. The SDE will be responsible for determining a quality improvement process and developing a process for updating and refreshing standards.
6) **Finance** – The sustainability portion of the plan divides core tasks into three categories: cost analysis, benefits analysis, and financial mechanisms to support the SHIN. Tasks through the end of the cooperative agreement identify key activities that will be required to sustain the SHIN long-term.

10.1 Project Work Plan

The following figure shows the high-level project timeline and identifies key milestones for the SDE. The detailed project plan can be found in Appendix 25. This plan is a proposed implementation strategy for the SDE to review. Ultimately, the SDE will be responsible for determining owners for specific tasks and key milestones. The project work plan was created with independencies between tasks in mind, and these interdependencies are referenced throughout the Strategic and Operational Plan. Major tasks across the domains occur in parallel.

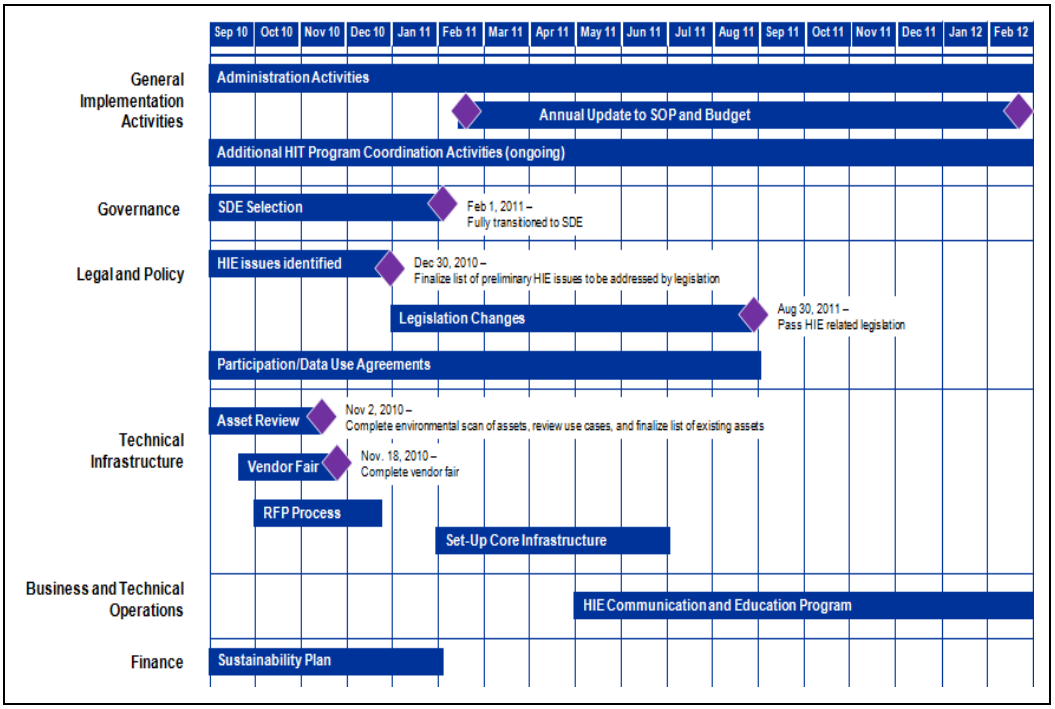

Figure 10.1.1: High-level implementation plan

10.2 Risks and Mitigation Strategies

As the SDE coordinates deployment of the HIE strategy, the Implementation Plan involves various levels of business and technical barriers, expressed in the form of risks. The following table includes a detailed listing of the potential risks and corresponding mitigation strategies. The table shows high-level risks, categorized by domain, and provides a mitigating strategy for each identified risk. Included in Appendix 26 is a Risk Management Strategy that defines an approach to risk management that involves assessing, identifying, and addressing project risks using the Project Management Institute's Risk Management Methodology. The SDE should consider adopting this approach to proactively monitor and respond to project-related risks. As a part of this approach, the SDE should conduct on-going risk assessments and mitigation strategy reviews throughout the entire course of the project. To date, the following high-level risks were identified by the WIRED for Health committees.

Risk	Mitigation Strategy
Governance	
Select a qualified non-profit organization to serve as the SDE. The primary risk to this strategy is that there may be no qualified applicants.	As provided under Act 274, the Secretary would have the option of organizing and assisting in maintaining a non-profit corporation under Wisconsin law to serve as the SDE. Such an organization would be subject to the same criteria as those detailed in the RFA. However, in that case, the Secretary would be responsible for appointing the initial board of directors for the organization.
Finance	
An inability to establish sufficient stakeholder support to build and maintain a financially sustainable SHIN and HIE services run by the	The SDE should consider maximizing available ARRA and CMS funding during the first year to finance the SHIN while the HIE is being developed and tested. Additionally, available services offered through the SHIN in the first year could be offered by the SDE to stakeholders at no charge to increase participation and help support

Risk	Mitigation Strategy
private sector that would support providers in achieving meaningful use.	compliance with Stage 1 meaningful use criteria. After the first year, the SDE could begin phasing-in a method of revenue mechanisms to support the SHIN based on the value derived from participating stakeholders.
Lower than anticipated value among stakeholders resulting in their withdrawal from participating in the SHIN and use of HIE services, which would negatively impact estimated financial projections.	When developing the Sustainability Plan, the SDE should conduct a thorough stakeholder assessment and market analysis to ensure the desired services and use cases supported by the SHIN are prioritized based on demand in order to add the most value to the widest number of stakeholders as early as possible.
Developing a financial strategy around unsubstantiated cost estimates from vendors.	When developing the Sustainability Plan, the SDE should obtain cost estimates from vendors who are interested in supporting Wisconsin's SHIN through a formal RFP process. Vendors' cost estimates should be a true reflection of the effort required to accomplish the SDE's expected results. Once vendors' cost estimates are obtained, the SDE should develop a financing strategy to adequately cover estimated costs.
Standards and Architecture	
Scope creep/project and change management related risks.	The SHIN will mitigate this risk by being practical in our scope, incremental in our approach, and involving the stakeholder community in setting implementation prioritization. Our implementation timeline is dependent on the ONC approving the Plan within the established timeframe and the execution of subsequent deliverables. SDE leadership and our project management approach is the key to mitigating these risks by having a clear understanding of risks on an ongoing basis.
Vendor oversight and system performance.	The SHIN will mitigate this risk by first conducting vendor demonstrations and adherence to functionality and contracting terms via use cases and realistic assessments of network services, scale, capacity and capabilities. Secondly, the Executive Director of the SDE will manage vendor relations. Under the leadership of the Executive Director, the Director of Operations and Technology and the Project Manager are responsible for implementing the HIE technology and leading various project teams to ensure effective and efficient roll-out of HIE infrastructure, adherence to operations and service levels. This will include deployment of the SHIN infrastructure and HIE services to include service level agreements and performance monitoring. This collective group will be responsible for monitoring projects and preparing reports that track the performance of the SHIN.
Breach of information (lose trust) and unauthorized user access.	The SDE will mitigate this risk by supporting privacy and security policies and by providing training to every system user. This includes the completion of a technology impact assessment. Every user that participates with the SHIN will be properly vetted, require authorization, authentication, education, and training and technical support on instruction and best practices on accessing the system.
Changing standards and	The SHIN will mitigate this risk by leveraging and complying with

Risk	Mitigation Strategy
technology.	the policies, standards, and services required for statewide health information exchanges established by the ONC. As new nationwide policies, standards, protocols, specifications, and services are adopted, the SDE will maintain awareness of and will prioritize the SHIN's health information exchange policy and system updates to ensure appropriate compliance.
User adoption (usability and workflow, accessibility).	The SDE will mitigate this risk by relying on stakeholder input to guide priority setting. We will continue with this approach as additional services are added and continually assessing how well we are meeting user needs. In addition, by prioritizing the transactions that will be required for meaningful use, we believe the HIE has an increased probability of meeting users' priority needs.
Legal and Policy	
Patients and providers may choose to not participate because Wisconsin is not able to create a trust relationship through its legal and policy framework.	Wisconsin has developed a legal and policy framework that attempts to balance patient and provider interests with the goal of improving patient care. Wisconsin believes that if patients and providers fully understand the framework, they will have a high level of trust in the framework. Further, trust will be built by responding to concerns raised by patients and providers. It will be important that Wisconsin adequately inform patients and providers on key points of the framework in order to improve understanding of the framework and build trust in the framework. It is key that breaches of patient information are minimized as much as is practically possible in order to build the trust of both patients and providers.
Wisconsin's HIE consent and exchange framework does not align with other states' frameworks. This could be a barrier to participation for providers with patients in multiple states.	Wisconsin has a critical need to electronically exchange health information for the care and treatment of patients with its four neighboring states. As a first step to achieve this, Wisconsin intends to identify and analyze possible policy approaches to address barriers to and enable opportunities for interstate HIE. Solutions to address differences in state laws governing privacy and security, liability, and other issues will have to be found. Wisconsin has already begun to analyze this issue through its participation in the Health Information Security and Privacy Collaboration's (HISPC) Interstate Disclosure and Patient Consent Requirements Collaborative. Further, Wisconsin, together with Minnesota, Iowa, North Dakota, South Dakota, and Illinois, has applied with ONC to begin a State Health Policy Consortium Project to advance interstate HIE. Among the proposals of that project is the establishment of the Upper Midwest HIE Collaborative. Collectively, this work should begin to align core elements of the HIE plans of Wisconsin and its neighboring states.
Process for managing consents creates a burden and cost that discourages participation in the SHIN.	Wisconsin is pursuing a centrally-managed opt-out consent model that minimizes the statewide cost of providing patient control of participation in the SHIN. Rather than requiring the modification of the hundreds of providers' individual EHR systems and policies, this requires only the yet-to-be built SHIN to build the capability to segregate or block the information of individuals who do not wish to have the SHIN exchange their clinical information.
Statutory changes to	Wisconsin's plan lays a framework for legislative changes that

Risk	Mitigation Strategy
implement privacy law changes are not implemented by the Legislature.	supports sustainable health information exchange within the state. That includes a vision for a policy framework that addresses not just privacy but also security in order to maintain or improve mechanisms to prevent the inappropriate use of patient information. Wisconsin's plan also calls for the involvement of key stakeholders in order to build support for the framework and legislative changes. Further, Wisconsin's strategy will seek to build on themes of integrating physical and mental health care and improved health care overall to facilitate modifications to Wisconsin's mental health care information laws. If legislative changes are unsuccessful, Wisconsin's exchange capabilities would be limited; this would necessitate revising Wisconsin's strategic and operational plan.
If risks, liability, and remedies that could emerge as a result of sharing of electronic health information don't adequately balance stakeholder interests, patients and providers may not elect to participate.	Widespread electronic sharing of health care information presents new liability scenarios that will need to be fully considered. Both the SDE and participating providers will need to consider these new scenarios and appropriately protect themselves. SDE and participant liability coverage, data use agreements, immunity provisions, and SHIN operations will all need to be considered and possibly modified in order to address liability concerns.

Table 10.2.1: High-level risks