



PUBLIC GOVERNANCE MODELS FOR A SUSTAINABLE HEALTH INFORMATION EXCHANGE INDUSTRY

REPORT TO THE STATE ALLIANCE FOR E-HEALTH

This report was prepared by the University of Massachusetts Medical School Center for Health Policy and Research (CHPR) in collaboration with the National Opinion Research Center (NORC) and the National Governors Association Center for Best Practices.

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Executive Summary

It is widely believed that the adoption of health information technologies (HIT) and effective health information exchange (HIE) are needed tools for improving and transforming our health care system. With the significant burden of health care costs on state budgets, the imperative to improve the quality of health care delivery, and the likelihood of accelerated investments to be made in health information technologies, it is essential that state leaders be informed on the key issues involved and strategies that might be used to effectively leverage investments in these technologies for health system improvement. Through the purchase of healthcare for Medicaid-covered individuals and state employees; the provision of health care services through public hospitals and health centers; the regulation of healthcare through policymaking, licensure, and enforcement; and advocacy for general public health, state governments have significant influence and interest in the development of effective HIT and HIE strategies.

A number of efforts are underway to help determine appropriate strategies to support the adoption of HIT tools such as electronic health records and personal health records. Many of the quality and efficiency benefits associated with these technologies, however, are dependent on the ability to share critical health care information between relevant stakeholders. Electronic HIE aims to facilitate access to and retrieval of health care data to provide safe, timely, efficient, effective, equitable, and patient-centered care.

For a number of reasons—including competing organizational interests and lack of financial sustainability—electronic HIE is still in the nascent stages of development. Although a number of health information organizations (HIO) are operating nationally, a limited number of them have sustainable business models. The fact that sustainable HIOs are in their early stages of development provides an opportunity for states to be proactive in determining their role in this developing industry. The role of states in the governance of this evolving industry has been identified as one of the key determinants of state involvement going forward.

To inform the State Alliance for e-Health and governors across the country, the University of Massachusetts Medical School convened a multi-disciplinary team of researchers and a national Advisory Committee including experts in HIE, public policy, and public utilities regulation. This team assessed the current state of the electronic HIE marketplace and the oversight and regulatory roles of state government in other industries. Using this information, a range of public governance models with specific review of the legal structure, accountability issues, and finance considerations, was developed to serve as a framework to support state governments as they consider their appropriate role in the evolving electronic HIE industry.

Elements of Success

Interviews with operating health information organizations led to the identification of five critical elements for success:

1. Engagement of key public and private healthcare stakeholders.
2. A formal organizational governance structure that is representative of stakeholders.
3. A technical architecture that facilitates electronic HIE.
4. Identified data sources, transaction types, and standards for exchange, security, and privacy.
5. Financing to support development and operations of electronic HIE.

Due to the fact that e-Health initiatives are in various stages of development across the country, state governments have an opportunity to determine the best regulatory and governance framework to advance electronic HIE. A governance framework is necessary to establish how state governments

partner with the health care sector and assure accountability for both the privacy and security of health care information shared through electronic HIE and public/private investments in such initiatives.

To promote successful HIE, there are various approaches states can take ranging from participation in private sector initiatives to direct provision of electronic HIE services. States can draw on concepts related to the structure of government oversight, regulation, self regulation, and industry coregulation to craft an appropriate governance framework for the electronic HIE industry. In recent years, several state governments took leadership steps in developing governance and regulatory structures to promote multi-stakeholder HIE; Rhode Island, New York, Delaware, Pennsylvania, Washington, Oregon, and Tennessee are examples of states leading in this field.

Three Public Governance Models for Sustainable HIE

In order to promote industry development and innovation, state government regulatory policies must be flexible and responsive, especially in evolving technologically dependent industries such as HIE. This flexibility must be linked to appropriate strategic planning and legal accountability functions to assure that all stakeholders are adhering to the determined 'rules of the road'. In order to advance strategic planning around specific state government structures for the oversight of electronic HIE, the following three conceptual governance models were developed:

- **Model 1 – Government-Led Electronic HIE:** Direct Government Provision of the Electronic HIE Infrastructure and Oversight of its Use.
- **Model 2 – Electronic HIE Public Utility with Strong Government Oversight:** Public Sector Serves an Oversight Role and Regulates Private-Sector Provision of Electronic HIE.
- **Model 3 – Private-Sector-Led Electronic HIE with Government Collaboration:** Government Collaborates and Advises as a Stakeholder in the Private-Sector Provision of Electronic HIE.

These conceptual models can be a starting point for states to consider viable oversight strategies based on the level of regulatory control state governments wish to exert over the electronic HIE industry. The body of this report provides more detail including a rationale and description, legal structure, and financing and accountability considerations for each of the models.

As strategic planning and implementation around electronic HIE initiatives ramp up nationwide, this report seeks to help state governments, stakeholders, and citizens surmount the challenges—and garner the very real benefits—associated with broad adoption of efficient, sustainable, and accountable electronic HIE initiatives.

Introduction

It is generally accepted that the adoption of health information technologies (HIT) and appropriate electronic health information exchange (HIE) between healthcare providers and other stakeholders holds significant promise for improving the quality and efficiency of healthcare in the United States. Nevertheless, widespread implementation of clinical health information technologies has been slow, and electronic HIE at the state and national levels is not yet financially sustainable. Numerous studies suggest that substantial state and federal government leadership and involvement is needed if the vision and promise of a nationwide health information network (NHIN) is to be achieved.

State governments are essential stakeholders in electronic HIE initiatives, even as they struggle to establish and determine their appropriate roles in this rapidly evolving area. State governments are significant players in the health marketplace through the purchase of healthcare for Medicaid-covered individuals and state employees; regulation of healthcare through policymaking, licensure, and enforcement; and advocacy of general public health.

Yet determining the appropriate and effective role for state government requires a broad understanding of the nascent electronic HIE industry. Numerous public and private electronic HIE efforts currently underway in the United States are developing, testing, and implementing specific electronic HIE services, policies, and business models. However, the specific stakeholder roles, services, and functions in the electronic HIE field are still under discussion. Even though multiple studies show that widespread adoption of electronic HIE will pay dividends for society as a whole, a nationwide network that relies on broad investments and the support of many stakeholders has yet to emerge.

It is against this backdrop that state governments find themselves assessing their roles in the budding electronic HIE industry. State governments have significant interests and incentives to be active in this emerging industry. The various healthcare roles of state government make it a critical stakeholder in electronic HIE and a benefactor to its potential positive impacts. Beyond healthcare, government's broader interest in promoting appropriate industrial behavior of organizations acting within their jurisdictions—including, but not limited to, public utilities—argues for states to play a significant role in electronic HIE industry oversight. The potential benefit of electronic HIE coupled with the interests of state and federal governments make a compelling case that the industry should be considered a public good.

This project, performed at the request of and in collaboration with the National Governors Association State Alliance for e-Health, aims to develop a framework for states to assess their potential roles in the electronic HIE industry by identifying model institutional structures and arrangements for oversight of, and fiscal support for, electronic HIE. The ultimate goal of this project is to provide governors and state officials with guidance that takes into account their functions as regulators and as stakeholders and also considers the dynamics of the healthcare marketplace within states and the interdependent industries impacted by electronic HIE.

Background

In 2006, the National Governors Association Center for Best Practices established the State Alliance for e-Health, a consensus-based, executive-level body of state elected and appointed officials charged to collectively review and address HIT and electronic HIE issues and concomitant challenges facing state governments. During 2007 and 2008, the State Alliance met quarterly to make recommendations on critical HIT and electronic HIE issues for states and state agencies, including barriers to interoperability, privacy and security issues, and regulatory challenges related to the practice of medicine. The State Alliance is supported by a nonvoting Advisory Committee and a number of task forces.

In January 2008, the State Alliance for e-Health issued a request for proposals (RFP) to examine financing, accountability, and oversight models to sustain electronic health information exchange. The RFP outlined a number of important issues for state government to consider regarding the electronic HIE industry, including electronic HIE start up and operations; the roles of the states in electronic HIE; the oversight roles of states in public utility, financial, and other sectors; and mechanisms for states to ensure accountability and protect consumers in the electronic HIE industry.

The University of Massachusetts Medical School was awarded a contract in March 2008 to conduct this research. In close collaboration with the NGA Center for Best Practices, the research project sought to identify model institutional structures and arrangements for state government oversight and fiscal support for a sustainable electronic HIE industry, accountability for public dollar investments, and appropriate consumer protections.

This report presents the findings of a collaborative team of researchers from the University of Massachusetts Medical School, the National Opinion Research Center, the NGA Center for Best Practices, and an Advisory Committee of national experts in HIE, public policy, and public utilities regulation. It is organized into the following sections:

- Section 1 presents the research methods.
- Section 2 provides definitions and background information on the current state of electronic HIE in the U.S. and the market issues impacting the sustainability of electronic HIE.
- Section 3 explains the program and policy issues for state governments that intersect with electronic HIE, reviews recent government electronic HIE initiatives, and discusses state agency coordination efforts.
- Section 4 describes government oversight and regulation, self regulation, and industry coregulation in these industries.
- Section 5 reviews the attributes and defining features of a sustainable electronic HIE industry as identified through facilitated discussions with the Advisory Committee and proposes three model institutional structures and arrangements by which states can provide accountable oversight to, and support for, a sustainable electronic HIE industry.

Section 1: Research Methods

The University of Massachusetts Medical School, in partnership with the National Opinion Research Center, conducted a systematic review of published and unpublished print and electronic materials. This review included gray literature and other relevant industry publications as well as health administration policy, federal and state case law, statutes, regulations, and public records. In addition to gathering primary information, 20 interviews with electronic HIE executives, state government officials, and other industry experts were conducted. A semi structured interview protocol was developed in coordination with the NGA Center for Best Practices. The interview questions were modified to reflect the specific

subject matter differences between the electronic HIE organizations, state programs, and other experts. Interviews were conducted from April to July 2008. The interview guide is available in Appendix A.

Discussions with members of six electronic HIE organizations were conducted to review the current and future scope of their exchange activities, particularly in relation to technical architecture and sustainability. The organizations were selected based on the type of technical architecture, maturity, and current level of sustainability of the HIE organizations’ operations. Participating electronic HIE organizations included the Delaware Health Information Network (DHIN), HealthBridge of Ohio, the Indiana Health Information Exchange (IHIE), Inland Northwest Health Services of Washington State, MedAllies/Hudson Valley Health Information Exchange (HVHIE), and Vermont Information Technology Leaders (VITL). Case studies that present the findings from these interviews are available in Appendix B.

Interviews with five state government agencies—New York, Oregon, Pennsylvania, Rhode Island (overseeing the Rhode Island HIE [RIHIE] project), and Washington—were conducted to assess the level of state government involvement with electronic HIE efforts in these respective states. Agencies selected for interviews represent states of varying size and demographics that have developed specific strategies to address electronic HIE. The interviews assessed the level of state government involvement in electronic HIE efforts (current and planned), the institutional structures in place at the state level to support electronic HIE, the accountability mechanisms being discussed and implemented, and the start-up and ongoing financing of electronic HIE operations. Case studies presenting the findings from selected state agency interviews are found in Appendix C.

To collect information from public utility, financial, and other non-health industry stakeholders, interviews were conducted with Computer Sciences Corporation, experts at the Institute of Public Utilities at Michigan State University, the Massachusetts Health Insurance Connector, the Executive Director of the Medical Banking Project, legal counsel at the National Association of Regulatory Utility Commissions (NARUC), and experts at Wal-Mart, AT&T, and the National Automated Clearing House Association (NACHA). (**Exhibit 1.**)

Exhibit 1: Interviews Conducted

Health Information Organizations	State Agencies	Other Interviews
<p>Delaware Health Information Network</p> <p>HealthBridge (OH)</p> <p>Indiana HIE</p> <p>Inland Northwest Health Services (WA)</p> <p>MedAllies/Hudson Valley HIE (NY)</p> <p>Vermont Information Technology Leaders (VITL)</p>	<p>New York</p> <p>Rhode Island</p> <p>Oregon</p> <p>Washington</p> <p>Pennsylvania</p>	<p>CSC Consulting</p> <p>Institute of Public Utilities at Michigan State University</p> <p>Massachusetts Health Insurance Connector Authority</p> <p>Medical Banking Project</p> <p>National Association of Regulatory Utility Commissions (NARUC)</p> <p>National Automated Clearing House Association (NACHA)</p> <p>Wal-Mart</p> <p>AT&T</p>

The project team created an Advisory Committee of national experts in the fields of electronic HIE, public utilities, and state government to provide feedback and react to the research output and findings. The Advisory Committee met five times to discuss research approaches and findings to date. Advisory Committee member names and affiliations are listed in the Acknowledgments section of this report.

Using the background information, the project team conducted a number of facilitated discussions with the project Advisory Committee and the State Alliance Privacy and Security and Public Programs Implementation task forces. These discussions led to agreement on five essential attributes of an electronic HIE industry. During these discussions, a number of potential state government oversight options for electronic HIE were reviewed. Based on the feedback of the Advisory Committee and task forces, these options were refined into three viable oversight and regulatory models for electronic HIE, discussed in Section 5.¹

The project team has been in close contact with and has received guidance from the NGA Center for Best Practices staff on project outputs and progress. In addition, preliminary results of this research were presented to the State Alliance for e-Health at its spring and summer meetings. Information that was of concern and interest to the State Alliance is included in this report.

Section 2: Understanding the Electronic HIE Environment

Electronic HIE tools are not new concepts in the U.S. healthcare industry. Administrative healthcare information technology systems that collect and exchange healthcare information have been in use since the 1960s. The creation of the Medicare and Medicaid programs in 1965 spurred growth in this area by imposing requirements for billing accuracy and timeliness.^{2,3} As a result, many healthcare organizations and vendors developed proprietary administrative systems that could broadly adhere to federal requirements. In 1997, the U.S. Department of Health and Human Services (HHS) estimated that there were more than 400 different formats used for claims processing in the U.S.⁴ The administrative simplification provisions of the Health Insurance Portability and Accountability Act (HIPAA) of 1996 required all healthcare entities using electronic transactions be HIPAA-compliant, which advanced and standardized administrative systems across the healthcare industry.⁵ In recent years, healthcare purchasers—both public and private—have supported further standardization of administrative systems. This support is largely due to the expected financial return on investment. A study from the New England Electronic Data Interchange Network found that the average labor and material cost of a single claim

¹ The following definitions of oversight, regulation, and accountability are used in this report:

Oversight: Management by overseeing the performance and operations of the HIE industry in general, along with specific HIE stakeholders and participants. The term “governance” is sometimes used synonymously with oversight. In the HIE arena, governance was defined by American Health Information Management Association as a primary role to convene healthcare stakeholders, promote collaboration and consensus development to coordinate policies and procedures to secure data sharing, and lead and oversee statewide HIE. For the purposes of this report, governance is used to describe multistakeholder control over electronic HIE efforts.

Regulation(s): Rules and administrative codes issued by governmental agencies adopted under authority granted by statutes that are enforceable under the law and often include penalties for violations.

Accountability: The acknowledgment and assumption of responsibility for actions, products, decisions, and policies within the organization’s/agency’s role or position that encompasses the obligation to report, explain, and be answerable for resulting consequences.

² Bernier E.S., Detmer D.E., & Simborg D. (2005). Will the Wave Finally Break? A Brief View of the Adoption of Electronic Medical Records in the United States. *Journal of the American Medical Informatics Association*. 12(1), 3–7.

³ Stagers, N., Thompson, C.B., & Snyder-Halpern, R. (2001). History and Trends in Clinical Information Systems in the United States. *Journal of Nursing Scholarship*. 33(1), 75–81.

⁴ Banks, D.L. (2006). The Health Insurance Portability and Accountability Act: Does it Live Up to the Promise? *Journal of Medical Systems*. 30(1), 45–50.

⁵ Office of the Secretary, Health Care Financing Administration, U.S. Department of Health and Human Services. (2000). Health Insurance Reform: Standards for Electronic Transactions. *Federal Register*. 65(160), 50353–50354.

transaction submitted via paper or fax was \$5, whereas the same transaction exchanged electronically cost 25¢, a 95 percent savings.⁶

The pharmaceutical distribution chain was also an early adopter of electronic information exchange and commerce. As early as 1972, pharmaceutical wholesalers began transmitting orders directly to manufacturers.⁷ Manufacturers and wholesalers quickly realized the financial benefit of electronic data exchange, including a reduction in inventory requirements and lead times. Pharmacies incorporated proprietary electronic systems to communicate to distributors. Payers, recognizing the financial benefits of instantaneous eligibility and payment systems, supported the adoption of electronic systems in pharmacies. In each of these situations, there was a significant return on the technological investments.

Encouraged by the promise of significant cost savings associated with the exchange of administrative data, multiple communities attempted to establish HIE networks in the early 1990s. The focus of these efforts was on sharing both administrative and clinical information. These early information-sharing networks—community health management information systems (CHMIS) and community health information networks (CHINs)—were established with foundation funding and employed per-transaction business models to support electronic transmission of administrative and limited clinical data sets.⁸ Most of these networks failed to develop, however, and were disbanded. These early health information-sharing network organizations failed for the following primary reasons:

- Lack of buy in due to competing/conflicting organizational interests
- Perceived lack of control and trust in the network organizational processes
- Lack of clear rules for ownership of data
- Lack of financial sustainability
- Technological difficulties⁹

These and other developmental efforts to facilitate electronic HIE commerce inform the current dialogue about broad-based electronic HIE among multiple public and private stakeholders. With much of the administrative infrastructure and standards in place to facilitate healthcare payment, most of the discussion and impetus to support electronic HIE today revolves around sharing clinical information from multiple providers, payers, and other healthcare stakeholders to drive improvements in healthcare quality and effectiveness.

GOALS AND DEFINITIONS OF HEALTH INFORMATION EXCHANGE

The goal of electronic HIE is to facilitate access to and retrieval of clinical data to provide safe, timely, efficient, effective, equitable, and patient-centered care. While numerous definitions of HIE have been developed recently, the concept of electronic HIE is typically described as the exchange of health-related data among providers, public health officials, payers, and patients for the purpose of improving the quality and efficiency of healthcare delivery and, in some cases, population health. For example, the e-Health Initiative defines electronic HIE as the “electronic mobilization or movement of healthcare information across disparate organizations within a region or community.”¹⁰ Likewise, the National

⁶ Halamka, J., Aranow, M., Ascenzo, C., Bates, D., Debor, G., Glaser, J., Goroll, A., Stowe, J., Tripathi, M., & Vineyard, G. (2005). Health Care IT Collaboration in Massachusetts: The Experience of Creating Regional Connectivity. *Journal of American Medical Informatics Association*. 12(6), 596–601.

⁷ U.S. Congress, Office of Technology Assessment. (1995). *Bringing Health Care Online: The Role of Information Technologies* (No. OTA-ITC-624). Washington DC: U.S. Government Printing Office.

⁸ Starr, P. (1997). Smart Technology, Stunted Policy: Developing Health Information Networks. *Health Affairs*. 16(3), 91–105.

⁹ Ibid.

¹⁰ eHealth Initiative. (2005). *Emerging Trends and Issues in Health Information Exchange*. Washington, DC: Author. Retrieved May 1, 2008, from

<http://www.ehealthinitiative.org/assets/Documents/eHI2005AnnualSurveyofHealthInformationExchange2.0.pdf>.

Alliance for Health Information Technology (NAHIT), under contract from ONC defines HIE this way: “[It is] the electronic movement of health-related information among organizations according to nationally recognized standards.”¹¹ NAHIT also defined the term health information organization (HIO) as the organizational infrastructure, including technology, policies and procedures, and governance entities necessary to enable HIE at the state or regional level.¹² A regional HIO is a common type of HIO that coordinates healthcare stakeholders within a defined geographic area and governs electronic HIE among them to improve community health services and delivery.

There are multiple variations of electronic HIE currently being deployed for clinical data exchange in the healthcare marketplace. The following examples of electronic HIE are common:

- **HIOs, RHIOs, and other geographic networks:** Much of the attention around electronic HIE has been focused on networks that develop when a variety of stakeholders within a particular geographic area—normally hospitals, primary care physicians, and health plans—form a governing structure to facilitate the exchange of health information. State and local governments can also form RHIOs.
- **Integrated delivery network systems (IDNs):** This is a group of providers (inpatient and ambulatory) and other organizations (home healthcare, surgery, social services, rehabilitation, and preventive care) that provides a coordinated set of services for a defined population. IDNs typically provide health insurance for the population they serve. Because IDNs function as single entities, they can support the exchange of health information among all participating entities. Kaiser Permanente and the Geisinger Health System of Pennsylvania are examples of IDNs with advanced electronic HIE systems.
- **Pharmacies:** RxHub is a nonprofit consortium of pharmacy benefit managers (PBMs). RxHub formed a National Patient Health Information NetworkTM that allows providers to access more than 200 million patient records with prescription coverage. This network connects providers to PBMs, health insurance plans, Medicare Part D, and Medicaid plan services.¹³ RxHub, which recently joined with the retail network SureScripts, is an enormous prescription-related information resource.
- **Laboratories:** Most of the information exchange involving laboratories supports individual sharing of results from local or national labs to one provider. A larger number of lab tests (55 percent) are conducted by hospitals, which is a very important aspect of the exchange of clinical information. In addition, 53 percent of hospitals currently share comprehensive clinical data (including lab results) primarily with physician offices and laboratories.¹⁴ Some HIOs have recently worked to get national laboratories such as Quest and LabCorp to participate in the exchange, although results have been mixed.
- **Community health centers (CHCs):** CHCs are increasingly working with other CHCs and hospitals to form networks. Several health centers across the country have formed legal entities that offer a number of services, including electronic health record (EHR) implementation and

¹¹ National Alliance for Health Information Technology. (2008, April 28). *Defining Key Health Information Technology Terms*. Retrieved May 1, 2008, from http://www.os.dhhs.gov/healthit/documents/m20080603/10_2_hit_terms.pdf.

¹² U.S. Department of Health and Human Services. (2007). *American Health Information Community Successor White Paper*. Washington, DC: Author. Retrieved May 1, 2008, from <http://www.hhs.gov/healthit/community/background/documents/AHICsuccessorwhitepaper20070806.doc>.

¹³ Center for Health Transformation (2008). *Electronic Prescribing: Building, Deploying and Using E-Prescribing to Save Lives and Money*. Washington, DC: Author.

¹⁴ Pure, P. (2006, February). *Electronic Health Record: Laboratory Data Information Exchange, Private Industry Perspective*. Presented to the American Health Information Community. Retrieved December 19, 2008, from http://www.hhs.gov/healthit/ahic/materials/meeting02/ehr/lab_data_info_exchange.ppt.

hosting, help desk support, training, and integration of services with disparate systems, including labs. These networks have the capacity to exchange information within the network as well as with external entities like laboratories.

To gain insight and perspective on the development of electronic HIE governance and stakeholder roles, including the roles of government, the remainder of this section reviews the critical issues related to HIO development and sustainability. Due to the complexity and breadth of the potential services of an HIO, distinctions are made throughout this section (and the report) regarding the oversight and governance of HIOs (including consensus building, strategic planning, policy setting, and standards adoption) and technical operations (including the implementation and ongoing operations of the technical HIE infrastructure). The term HIO, or, when appropriate, RHIO, describes the designated entity that oversees these HIE efforts. This organization may or may not operate the technical infrastructure for electronic HIE.

Several HIT research and policy development organizations have developed frameworks outlining steps toward achieving state or regional electronic HIE and have identified components of a successful HIO.^{15,16} Building on the work of these organizations and incorporating feedback from interviews with HIE experts and discussions with the Advisory Committee and the State Alliance for e-Health task force members, the following five features of successful electronic HIE organizations were identified:

1. Engagement of key public and private healthcare stakeholders.
2. A formal organizational governance structure that is representative of stakeholders.
3. A technical architecture that facilitates electronic HIE.
4. Identified data sources, transaction types, and standards for exchange.
5. Financing to support development and operations of electronic HIE.

In the sections below, we present findings from key informant discussions and the literature review regarding these five components.

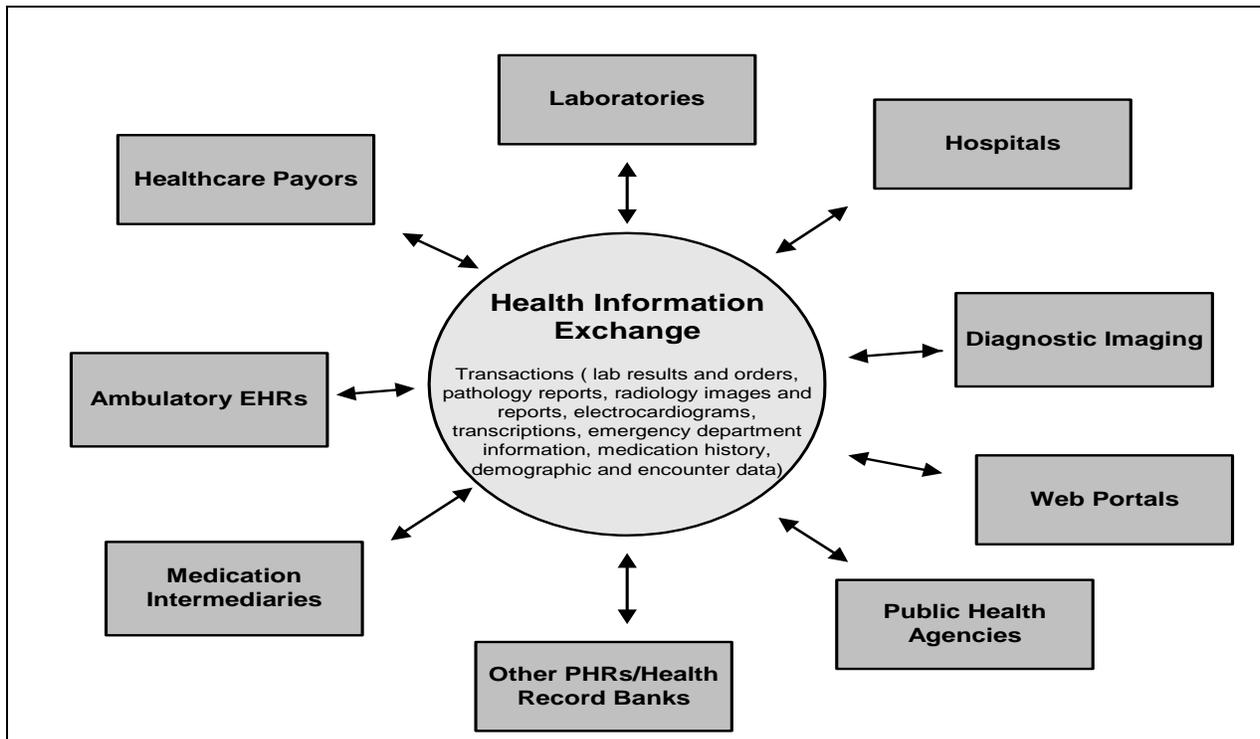
ENGAGEMENT OF KEY HEALTHCARE STAKEHOLDERS

Engaging key stakeholders is critical to the success of HIOs. Stakeholders can include consumers, consumer advocacy groups, physicians, hospitals, health systems, laboratories, pharmacies, pharmacy benefit managers (PBMs), long-term care facilities, quality and safety organizations, payers, employers, policymakers, public health departments, and state and local government agencies. Additional stakeholder groups can include home health organizations and medical specialists. **Exhibit 2** shows the relationships among many of the stakeholders involved in electronic HIE.

¹⁵ AHIMA e-HIM Workgroup on HIM in Health Information Exchange. (2007, September). HIM Principles in Health Information Exchange. *Journal of AHIMA*. 78(8). Retrieved December 19, 2008 from http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_035095.hcsp?dDocName=bok1_035095.

¹⁶ eHealth Initiative. (2005). *Emerging Trends and Issues in Health Information Exchange*. Washington, DC: Author. Retrieved May 1, 2008, from <http://www.ehealthinitiative.org/assets/Documents/eHI2005AnnualSurveyofHealthInformationExchange2.0.pdf>.

Exhibit 2: Electronic HIE Stakeholders



Building trust and consensus among stakeholders is commonly cited as a key initial step for ensuring the success of electronic HIE.¹⁷ However, gaining stakeholder buy in remains problematic for many electronic HIE initiatives and organizations. The following concerns are noted in the literature and were confirmed by key informants as barriers to stakeholder buy in: privacy and security of personal health information, potential loss of competitive advantage, and the lack of empirical evidence of clinical benefits.¹⁸

Our review of current HIE initiatives and organizations showed great variation in levels of stakeholder involvement. Interview respondents cited difficulty in engaging stakeholders—particularly consumers, health plans, and business leaders—in electronic HIE efforts. In addition, interview respondents noted that consumer advocacy groups had polarizing perspectives regarding privacy and security and, in some cases, did not necessarily represent the views of their constituents.

RHIOs have used a variety of different approaches to engage stakeholders. For example, the Rhode Island HIE (RIHIE) hired a public relations company to facilitate consumer involvement in the electronic HIE. Focus groups were one of the mechanisms used by RIHIE to gain consumer perspectives. Results from these focus groups contributed to the decision of RIHIE to pursue particular consent policies. Vermont Information Technology Leaders (VITL) established a multi-stakeholder board of directors to gain community interest and buy in. Although the electronic HIOs interviewed varied in the level and extent of stakeholder representation on their boards of directors, most of the respondents recognized the value in having early and transparent stakeholder participation in the initial stages of HIO formation.

¹⁷ AHIMA e-HIM Workgroup on HIM in Health Information Exchange. (2007).

¹⁸ Grossman, J.M., Kushner, K.L., & November, E.A. (2008). *Creating Sustainable Local Health Information Exchanges: Can Barriers to Stakeholder Participation be Overcome?* Washington, DC: Center for Studying Health System Change. Retrieved May 21, 2008, from <http://www.hschange.org/CONTENT/970>.

ORGANIZATION AND GOVERNANCE

Interview respondents identified the establishment of a governance structure and governing body as critical to formalizing an HIO. Steps in this process include the development of the organization's overall mission and legal entity status as well as the establishment of legal agreements, policies, and procedures.

The governing body is generally responsible for setting strategy, securing funding, and exercising oversight over the operational work of the HIO. Given the importance of this role, interview respondents said the following factors were keys to success in establishing a governing structure:

- The governing body has balanced stakeholder representation, yet is not so large that it impacts productivity
- The governing body senior leadership has the necessary skills and experience to execute the goals of the organization
- The governing body is flexible and can make changes in composition and roles over time

HIO and state representatives explained that there is variability in the time needed to establish the governance body and in the way the HIOs defined their missions, goals, and structure. There are three primary legal structures currently employed in the HIE industry: nonprofit, public utility, and physician/payer collaborative.

- **Nonprofit:** While a nonprofit organization is relatively simple to form, the HIO must be organized to address the community benefit requirements of IRS tax-exempt status. Meeting these requirements may be difficult as the electronic HIE matures and explores secondary uses of data (i.e., sale of data for research and other purposes). Tax-exempt status can help reduce funding challenges and allow an organization to provide special tax credits and/or incentives. For example, the governor of Rhode Island has requested a bond fund initiative that would allow the Rhode Island Quality Institute to sell tax-free bonds to fund the electronic HIE (see Appendix C).
- **Public utility:** Some state governments may develop and manage the statewide electronic HIE infrastructure and functions. The Delaware Health Information Network (DHIN) refers to itself as a “public-private partnership and public instrumentality” between the state and healthcare providers. The Delaware General Assembly created the DHIN in 1997 to serve as a state public authority to advance the creation of a statewide health information and electronic data interchange network for public and private use (see Appendix C). Tennessee developed a statewide private broadband network for state government transactions, that was recently updated to allow for electronic HIE services. The state is currently working to connect hospitals and other providers across the state to this network.
- **Physician and payer collaborative:** Physicians and payers within local communities have come together to form electronic HIE collaboratives responsible for overseeing the governance of the electronic HIE. These collaboratives can be either for-profit or nonprofit organizations. Collaboratives aim to provide equal benefits to both parties. For example, executives from two major hospital organizations collaborated to jointly oversee Inland Northwest Health Services' electronic HIE efforts. This endeavor would have been too costly to accomplish separately (see Appendix B).

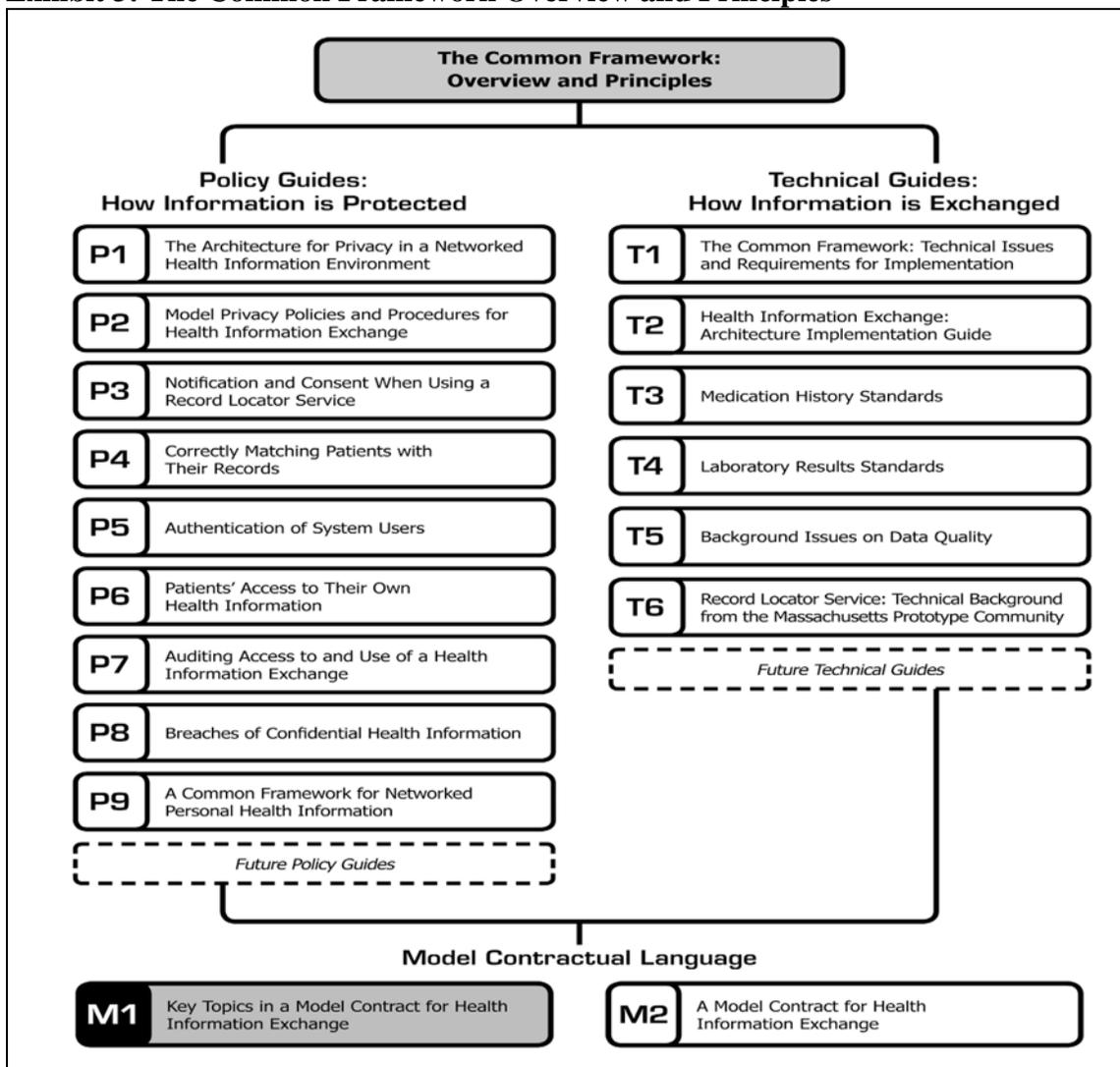
A number of policies and procedures need to be developed for an HIO to function efficiently and effectively. The HIO often delegates this development to members serving on organizational subcommittees. As HIOs continue to mature and evolve, the policies and procedures they need to have in place change. In general, policies required by most electronic HIOs fall into three categories: legal, privacy/security, and governance. Appendix D includes a template of the various electronic HIE policies

and procedures created from information gathered from the Agency for Healthcare Research and Quality (AHRQ) State and Regional Demonstration (SRD) projects.

TECHNICAL ARCHITECTURE

There are a number of technical architectures currently being implemented to facilitate electronic HIE. The Health Information Management and Systems Society (HIMSS) describes three different clinical architectures: centralized, federated, and hybrid.¹⁹ In addition, the health record bank model is a new and emerging technical architecture being explored by some electronic HIE initiatives. The Markle Foundation’s comprehensive Connecting for Health Common Framework—developed in 2004 in collaboration with the Robert Wood Johnson Foundation and updated regularly—has influenced all of these architectures. **Exhibit 3** outlines the different policy and technology guides that make up the Common Framework.

Exhibit 3: The Common Framework Overview and Principles



Source: The Markle Foundation.

¹⁹ Ibid.

Often, the operational architecture chosen by an HIO is dependent on community stakeholder buy-in and agreement on the purpose and goals of the HIO. Below are descriptions and the pros and cons of the broad architectural frameworks for electronic HIE.

Centralized Architecture

Description: The HIO collects and stores patient data in a centralized repository, data warehouse, or other database. The HIO has full control over the data and the ability to authenticate, authorize, and record transactions among participants. Inland Northwest Health Services (INHS) is an example of an RHIO with a centralized technical architecture. Data is stored in a single common repository and segregated by each provider institution. INHS grants providers access to information from data-sharing partners for specific patients.

Pros: The primary benefits associated with a centralized architecture are audit and reliability checks and the time efficiency of retrieving information from one source. A centralized architecture may be important to stakeholders who are interested in tracking the health of the community because data from one source is easier to aggregate for research and other secondary purposes.

Cons: Consumers and their advocates tend to stress concerns about the security and privacy risks related to storing data in a single centralized repository.

Federated (Decentralized) Architecture

Description: A federated architecture uses interconnected independent databases that allow for data sharing and exchange, granting users access to the information only when needed.²⁰ 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 stakeholder organizations.

Pros: Federated architectures may help to address concerns of provider organizations by allowing them to retain control over patient data.²¹ Providers may be more willing to participate in a federated architecture because it requires minimal effort to maintain the data outside of the original source. In addition, in some situations, a federated architecture may reduce the time needed for start up: “Because detailed clinical information is shared only in a transient manner in a federation, the governance decisions regarding data sharing may be easier to negotiate; that is, the stewardship of the clinical data remains with the originating enterprise.”²² Finally, hardware required to run a federated architecture is less costly, resulting in lower capital investment, replacement, and operating costs.

Cons: A federated architecture is dependent on the quality of data and response time of the participant organizations and, therefore, data quality, data accuracy, and system response time may differ across stakeholders.²³

Hybrid Architectures

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. For example, the RIHIE is employing a federated hybrid architecture that includes both central

²⁰ Ibid.

²¹ Healthcare Information and Management Systems Society. (2006). *Overcoming Ten Non-Technical Challenges of RHIOS*. Long Beach, CA: FCG First. Retrieved April 1, 2008, from <http://www.himss.org/content/files/OvercomingRHIOChallengesRpt.pdf>.

²² Eckman, B.A., Bennett, C.A., Kufman, J.H., & Tenner, J.W. (2006). Varieties of Interoperability in the Transformation of Health Information Infrastructure. *IBM Systems Journal*. 46(1), 19–41. Retrieved May 1, 2008, from <http://www.research.ibm.com/journal/sj/461/eckman.html>.

²³ Ibid.

and federally located data repositories. A Master Patient Index (MPI) is used to link patient records across the participant databases, and data from various sources is presented to users in an integrated, patient-centric manner employing a common user interface (portal). In addition, public health agencies may use a clinical data exchange architecture that runs a federated and centralized data exchange, employing an immunization database to store immunization-related data centrally and a federated mechanism to link data about patients reported from various stakeholders.

Health Record Bank

A health record bank (HRB) is described as an electronic repository developed to collect, store, and distribute a patient's health record.²⁴ This architecture allows patients to be actively involved in the management of their health information because they are able to review information submitted by providers and enter their own information if desired. Patients would authorize the release of their information to specific providers through the HRB. Integrated delivery networks, purchasers/payers, professional associations, or private organizations could manage these HRB repositories.

Currently, there are no functioning HIOs using HRB architecture, although there are several initiatives underway to support this type of model. For example, the Louisville (Kentucky) Health Information Exchange (LHIE) conducted an assessment of community readiness to support a health record bank and is developing an RFP to create one.²⁵ In addition, the Washington State Health Care Authority and the Oregon Medicaid programs are each developing statewide HRBs (see below).

HIE SERVICES AND STANDARDS

The scope, geographic boundaries, and core services offered by HIOs vary. According to the eHealth Initiative's fifth annual survey of state, regional, and community-based health information exchange initiatives and organizations, a total of 26 operational initiatives reported that they are exchanging laboratory results, up from 19 in 2007, and 23 are exchanging outpatient episodes, up from 21 in 2007. In addition, the number of operational initiatives exchanging radiology results (23), inpatient episodes (22), dictation/transcription data (20), and emergency department episodes (20) all increased from 2007.²⁶

Exhibit 4 shows the various electronic HIE services currently in use and planned for future rollout by the HIOs interviewed.²⁷

²⁴ Dimick, C. (2008). Taking Medical Records to the Bank. *Journal of AHIMA*. 79(5), 24–29. Retrieved April 1, 2008, from

http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_038087.hcsp?dDocName=bok1_038087.

²⁵ Health Data Management and SourceMedia, Inc. (2008, March 20). *HIE Opts for Free Health Bank Record*. Retrieved May 2, 2008, from http://www.healthdatamanagement.com/news/HIE_health_record_bank25940-1.html.

²⁶ eHealth Initiative. (2008). *Fifth Annual Survey of HIE at the State, Regional, and Community Levels*. Washington, DC: Author. Retrieved Dec. 29, 2008, from <http://www.ehealthinitiative.org/HIESurvey>.

²⁷ Some electronic HIE initiatives, not included in this study, primarily focus on the exchange of administrative information. For example, the first phase of implementation of the Utah Health Information Network focused on the exchange of claims-related data. In addition, the New England Healthcare EDI Network (NEHEN) is an electronic HIE that is completely focused on the exchange of administrative data.

Exhibit 4: Operational HIE Services Described by HIO Interview Respondents

Electronic HIE Services	DHIN	IHIE	INHS	Health-Bridge	MedAllies/HVHIE	VITL
Clinical Messaging	✓	✓	✓	✓	✓	✓
Medication History	Planned	✓				Pilot
Quality Metrics/ Disease Mgt.		✓		Planned	X	Pilot
Administrative Data Sharing	✓ (limited)	✓	✓	✓		
Medication Compliance/ Reconciliation	Planned	✓			Planned	
e-Prescribing (e-Rx)	Planned	Planned	Planned	Planned		
Personal Health Record (PHR)				Planned		
EMR-Lite	Planned	Planned	✓	✓		
Secondary Use (Research)	Being Considered	Planned				
Consumer Access to Health Information			Planned	✓		
Public Health Surveillance		✓		✓	✓	
Public Health Reporting		✓		✓	Planned	
Claims Processing		✓		Planned		
EHR Adoption					✓	✓

Note: This table represents a broad categorization of the services and transactions of operating HIE organizations interviewed. However, the specific transactions, data, and formats may differ at each organization. See Appendix A for specific transaction types and architectural models of the HIOs interviewed.

There is overlap in the services supported by the different HIOs participating in this study. Almost all are supporting exchange of lab data, various clinical reports (pathology, radiology, transcribed notes, etc.), and administrative data. A few of the HIOs also support the exchange of data for public health reporting purposes. In terms of future capability, supporting e-prescribing, medication history, and medication reconciliation were priorities of interviewees. Most of the HIOs reviewed support different results in delivery applications. Some HIOs support an EHR-to-EHR delivery. The Vermont Information Technology Leaders (VITL) and the Indiana Health Information Exchange (IHIE) are currently pursuing EHR-to-EHR data exchange in the ambulatory setting. Appendix E includes a table outlining the different data transactions and technical architecture pursued by electronic HIE case study respondents.

Standards are particularly important to the exchange of health information because they “enable interoperability by encoding health information using a common ‘language’ that multiple systems can read.”²⁸ Standards enforce a common language for exchanging information across disparate health

²⁸ Ibid.

systems and ensure that electronic messages are properly constructed by participating providers and stakeholders in electronic HIE.

There are a variety of standards organizations that are involved in electronic HIE. A notable one is the American National Standards Institute (ANSI) Health Information Technology Standards Panel (HITSP), a cooperative partnership between HHS, the Office of the National Coordinator (ONC) for HIT, and private-sector stakeholders. The purpose of HITSP is to develop a broadly accepted set of standards that contributes to interoperability and health information exchange and to identify gaps in standards development. ONC also tasked HITSP with harmonizing standards, developing nationwide health information network prototypes, and recommending necessary changes to standardize diverse security and privacy policies.²⁹ In 2007, the HHS secretary accepted 30 consensus standards recommended by HITSP.³⁰ Appendix F lists more common messaging, data, and privacy and security standards used in health information exchange.

FINANCING ELECTRONIC HIE EFFORTS

A variety of methods are used to finance electronic HIE initiatives. Most stakeholders and experts have noted that electronic HIE costs vary tremendously and depend on a number of factors, such as the types of transactions supported by the exchange, the willingness of stakeholders to provide in-kind contributions, and the availability of state, federal, or foundation grants to accomplish specific scopes of work related to promoting, designing, and operating an exchange. **Exhibit 5** shows the start-up and operational financing identified by the operational HIOs interviewed in this study.

Exhibit 5: Start-Up and Ongoing Financing for Operational Electronic HIO Respondents

Health Information Organization	Start-Up Financing	Ongoing Revenue Source
Delaware Health Information Network (DHIN)	\$5M: State of DE (\$2M in year one, \$3M year two) \$2M: Match from private sector (year one) \$4.7M: AHRQ SRD grant	<ul style="list-style-type: none"> Private stakeholders/data providers charged on volume of transactions. Costs are allocated as a percentage of total costs to the state authority. Per-member per-month (PMPM) fee for health plans. Subscription fee for value-added services to be implemented.
HealthBridge	\$1.75M: Loans from community stakeholders	<ul style="list-style-type: none"> 85 percent from hospitals/health systems as monthly subscription fees. 15 percent from premium services (transcription and billing). Total: \$3.7M per year.
Inland Northwest Health Services (INHS)	Initial investments from two hospital systems (integrated with hospital information systems)	<ul style="list-style-type: none"> Implementation contracts. Service fees.

²⁹ Healthcare Information and Management Systems Society. (2008). *What is HITSP?* Retrieved June 1, 2008, from http://www.himss.org/ASP/topics_hitsp.asp.

³⁰ Indian Health Services. (2007, January 31). *HHS Accepts Health Care Information Technology Standards Panel Recommendations*. Retrieved July 1, 2008, from <http://engineers.ihs.com/news/ansi-hhs-hitsp.htm?WBCMODE=Pre>.

Indiana Health Information Exchange (IHIE)	Investments from federal and state governments, Regenstrief Institute, eHealth Initiative, and Anthem BCBS \$1.8M: Biocrossroads \$2M: Fairbanks Foundation	<ul style="list-style-type: none"> • 17¢–37¢ per transaction fee for distribution of results by labs (clinical messaging, volume-based sliding scale). • 30¢ PMPM by insurance companies for quality reports. • No fees for clinician access to data.
MedAllies/Hudson Valley HIE (HVHIE)	\$1M: Stakeholder investments (2001) \$100K: eHealth Initiative, Connecting Communities for Better Health \$235K: IBM/ONC grant (2005) \$5M: HealNY (state grant) \$12.1M: HealNY for PH reporting (2008)	<ul style="list-style-type: none"> • Taconic IPA contracts with MedAllies for operations of the HVHIE. • \$400/month subscription fee for EMR implementation, support, and access to electronic orders (lab order entry; half offset by grants until pay for performance incentives begin). • \$72K per hospital interface maintenance.
Vermont Information Technology Leaders (VITL)	\$2.1M: VT Legislature \$2M: VT Department of Health \$1M: Community stakeholders	<ul style="list-style-type: none"> • Legislatively mandated funding from VT businesses and members of the public at 0.199 percent of medical claims. Projected to raise \$32M over seven years.

Note: These figures are estimates based on interview responses and publicly available information.

Start-Up Financing: All stakeholders acknowledge that substantial initial investments related to the following components are needed to establish an effective HIO:

- Convening stakeholders
- Setting up the legal governance structure
- Establishing committees and workgroups with appropriate representation to design policies and procedures
- Developing appropriate documents and agreements to stay in compliance with existing state and federal regulatory requirements
- Identifying and prioritizing transactions to be supported by the exchange
- Conducting inventories of data sources
- Procuring the appropriate technical and professional resources to design and deploy an exchange

The process of convening stakeholders and achieving consensus on the key aspects of the electronic HIO’s mission and operations is time consuming. In many HIOs, this process has taken more than a year. The convening process typically requires both direct support in the form of publicly funded grants or privately funded investment capital as well as in-kind contributions of time and expertise from assembled stakeholders.

Many HIOs have received initial start-up funding from a variety of public and private sources, including federal and state grants, private foundation grants, and contributions from healthcare stakeholders who support the goals of electronic HIE projects. Start-up funding has typically been used for activities such as convening and educating stakeholders in communities and regions, creating a governance structure for decision making, and developing a business plan that outlines the goals, vision, financing, and sustainability of the project.

Federal agencies have provided initial funding to support several electronic HIE initiatives. For example, AHRQ and the U.S. Health Resources and Services Administration (HRSA) have both provided seed grants for HIT and electronic HIE implementation. The U.S. Centers for Medicare and Medicaid Services have also provided funding through Medicaid grants and specific Medicare programs. Federal funding

usually will support start-up but not ongoing electronic HIE operations. Despite some federal and state support, electronic HIE initiatives continue to face problems acquiring start-up financing. The eHealth Initiative's fifth annual survey of state, regional, and community-based health information exchange initiatives and organizations reported that 79 percent of respondents found securing upfront funding for electronic HIE efforts a very difficult challenge.³¹

Operational Financing: In consultation with AHRQ SRD grantees, the National Opinion Resource Center (NORC) developed a framework to categorize the operational costs associated with electronic HIE efforts. The following operational costs are included in this framework:

- *Professional services:* financial management and accounting, marketing, legal costs, intellectual property, liability insurance, and policy development
- *Personnel costs:* board of directors, project management, staff development, staff relocation, and fringe benefits
- *Overhead costs:* travel, phone, rent, office space, and organizational memberships
- *Hardware and data center related costs:* servers, network hardware, network connectivity, data backup systems, data storage systems, and other related costs
- *Software:* clinical user authentication and security, patient identification (master patient indices [MPI]), firewall software, clinical repositories, record locator services, viewing applications (i.e., Web portal), EHR/EMR software, common vocabulary engines, auditing software, and licensing/support/maintenance for all applications and other tools
- *Stakeholder interface creation and maintenance:* interfaces with radiology centers, laboratories, microbiology centers, blood banks, pharmacies, practice management systems, EMR/EHRs, administrative/claims processing systems, and others
- *Training/help desk:* end-user training, help-desk costs, technology support costs, and application administration
- *Accreditation/certification:* costs related to Certification Commission for HIT (CCHIT), certification for clinical applications, and potential accreditation³² costs
- *Marketing and business development:* possible maintenance of a public website and materials to encourage membership in the electronic HIE by understanding their health information requirements and demonstrating the value of the electronic HIE

A number of factors prevented an accurate cost comparison of specific operational services for HIOs interviewed, including the variation among the electronic HIE organizational business models, the relative stages of development, the differences in accounting for and procurement of specific hardware and software, and the unique service mix.

The following notable issues emerged from the interviews with electronic HIO respondents regarding ongoing costs and financing:

- Organizational development budgeting must include the high costs associated with stakeholder consensus building around the multiple aspects of electronic HIE development—from determining and maintaining an organizational structure to developing an appropriate service mix.
- There are a limited number of available electronic HIE experts in the workforce, and extra time and resources may be required to hire and build the knowledge base of key staff.

³¹ eHealth Initiative (2008). Retrieved Dec. 29, 2008, from <http://www.ehealthinitiative.org/assets/Documents/eHealthInitiativeResults2008SurveyonHealthInformationExchangeSeptember2008Final091108.pdf>.

³² The Electronic Healthcare Network Accreditation Commission (EHNAC), a nonprofit standards development organization, is currently developing a new accreditation program for health information exchange organizations. The specifications of such an accreditation program are yet to be determined. See www.ehnac.org for more details.

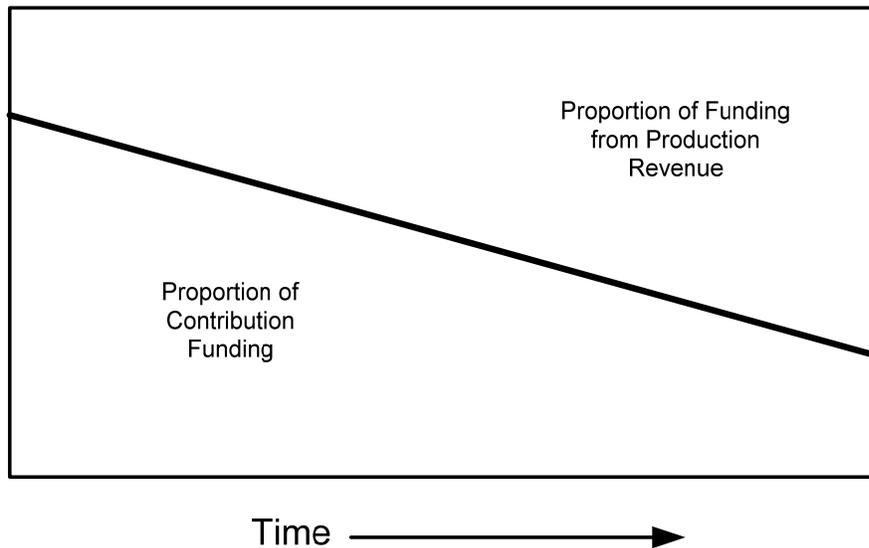
- Technical expertise is needed in the early stages of electronic HIO development to inform the decision-making process and prevent technological roadblocks.
- Financial considerations need to be made for depreciation of built hardware and software systems versus outsourced systems.
- HIOs often underestimate legal and liabilities costs (for instance, VITL’s liability insurance is greater than \$200,000 per year).³³
- HIOs may wish to consider and budget for potential costs associated with certification and accreditation programs that are currently being developed.
- Interface costs with various electronic HIE stakeholders are expensive; consideration must be made for the costs for each interface, current and planned.

Currently, there are a limited number of successful and sustainable financing strategies for electronic HIE. According to a recent report by the American Health Information Management Association (AHIMA), “many involved with electronic HIE efforts consider the issue of longer term sustainable financing to be one of the major barriers to electronic HIE initiatives going forward.”³⁴

As a result, many electronic HIEs are currently researching and designing business plans and revenue sources that will allow them to achieve long-term sustainability. It is commonly believed that sustainability will become more viable as the electronic HIE network increases in size and breadth.

Exhibit 6 shows the expected funding trend ratio between contribution and production described in the Vermont Information Technology Plan (2008).³⁵

Exhibit 6: Expected Funding Trend Ratio for Electronic HIE



ELECTRONIC HIE REVENUE SOURCES

The most common revenue sources in use by HIOs include membership fees, transaction fees, and program and service fees. HIOs often use these revenue sources in combination.

³³ Personal communication with Greg Farnum, President, Vermont Health Information Technology Leaders.

³⁴ Foundation of Research and Education of the American Health Information Management Association. (2006, September 1). *Final Report on the Development of State Level Health Information Exchange Initiatives*. Chicago, IL.

³⁵ Vermont Information Technology Leaders, Inc. (2008, April 9). *Vermont Health Information Technology Plan: Sustainability Model: Strategies for Operating a Health Information Exchange Network*. Montpelier, VT.

Membership fees: Stakeholders may pay to support shared services for all users of the electronic HIE. Membership fees may be equal or tiered on the basis of some factor, such as size of population or use. Considerations of the relative value to each participant of the electronic HIE services were described as critical to determining the appropriate fee. In addition, interview respondents viewed commitment from a critical mass of members as necessary to achieve successful implementation. According to the eHealth Initiative's fourth annual survey of state, regional, and community-based health information exchange initiatives and organizations, "most operational initiatives utilized subscription fees from data providers (92 percent) or data users (85 percent) to support ongoing operations."³⁶

Transaction fees: HIOs may charge transaction fees for its data-exchange services or products on the basis of benefit to participants. Unlike the membership fee model, dependence on this revenue source requires initial capital investments to build the infrastructure and capabilities for calculating transaction fees. Transaction fee arrangements include:

- \$ per clinical result delivered
- \$ per covered life PMPM
- \$ per month for license to use a particular software package over the Web

According to the eHealth Initiative's fifth annual survey of state, regional, and community-based health information exchange initiatives and organizations, eight operational HIOs are using transaction fees charged to providers and seven HIOs are using transaction fees charged to data users.³⁷

Program and service fees: In this case, the HIO acts in a programmatic capacity and charges stakeholders for their participation in, or on the outcomes from, broader-scope program activities undertaken by the electronic HIE organization.

Combination of sources: Most HIOs agreed that a combination of revenue sources will be necessary to achieve long-term operational sustainability. An example provided by interview respondents is a membership fee that supplies small core funding on a steady basis at start-up and an electronic HIE transaction fee used to supplement the ongoing revenue needs. The following are additional examples of operational financing for HIOs participating in this study:

- IHIE's Quality Health First initiative, which charges membership fees to payers for participation and uses a transaction model with a variable scale for results delivery.
- HealthBridge, which acquires approximately 85 percent of its operational revenues from subscription fees charged to health systems using the exchange with the remaining 15 percent obtained from fees paid by users for premium electronic HIE services.

In addition to the models described above, a number of HIOs are also exploring other funding streams, including providing value-added services in the form of "EHR-lite" functionality or HIT implementation support involving large employers and the state. Vermont has a one-of-a-kind electronic HIE sustainability business model. Legislatively mandated, each health insurer in Vermont will pay 0.199 percent on all medical claims into an HIT fund. This fund will raise approximately \$32 million over the next seven years to support HIT and the electronic HIE efforts of VITL.

Several tools have been designed to guide electronic HIE sustainability efforts. One widely accepted tool is the Value and Sustainability Model (VSM), which was developed by the eHealth Initiative in collaboration with HRSA. The purpose of the VSM is to help communities develop sustainability plans

³⁶ eHealth Initiative (2007). Retrieved Dec. 29, 2008, from <http://www.ehealthinitiative.org/hiesurvey/2007Survey.aspx>.

³⁷ eHealth Initiative (2008). Retrieved Dec. 29, 2008, from <http://www.ehealthinitiative.org/assets/Documents/eHealthInitiativeResults2008SurveyonHealthInformationExchangeSeptember2008Final091108.pdf>.

based on the unique and specific needs of their providers and stakeholders.³⁸ The VSM model consists of four key sustainability tools: (1) a market-readiness assessment tool; (2) a tool for estimating the value created by any electronic HIE network; (3) a tool to estimate investor risk, community electronic HIE returns, and levels of electronic HIE subsidization; and (4) a business plan pro forma, complete with interactive electronic HIE financial statements.³⁹ IHIE, HealthBridge, and HVHIE participated in the empirical research development of VSM.

As discussed above, there are numerous public and private electronic HIE efforts currently underway that are developing, testing, and implementing specific electronic HIE services, policies, and business models in the U.S. However, the specific stakeholder roles (including those of the public sector), services, and functions of electronic HIE that will lead to sustainability have yet to be agreed on by stakeholders.

Section 3: Policy Considerations for State Government Involvement in Electronic HIE

State governments have a variety of roles in healthcare—as purchasers, providers, regulators, and public health entities—and therefore have significant interests in and opportunities related to the development of sustainable electronic HIE. As electronic HIE initiatives and organizations develop across the nation, employing varying strategies of start up, stakeholder involvement, governance, and technical operations, there will be a number of different roles for state governments. These roles will be based largely on the context and life cycle of the electronic HIE environment within particular states.

At the national level, the Office of the National Coordinator of HIT has defined the nationwide health information network (NHIN) as a “network of networks, built out of state and regional health information exchanges (HIEs) and other networks so as to support the exchange of health information by connecting these networks and the systems they, in turn, connect.”⁴⁰ With the federal government defining its role in supporting a network of networks, state governments have significant flexibility in structuring their involvement in electronic HIE.

HIE DEVELOPMENT FACTORS IMPACTING STATE GOVERNMENT POLICY

In 1999, the Institute of Medicine (IOM) concluded that a fundamental redesign of the U.S. healthcare system was necessary to improve healthcare quality.⁴¹ In 2001, IOM recommended the creation of an information infrastructure to support evidence-based decision making by providers, patients, and members of the healthcare delivery team. This call to action resulted in many of the HIT and electronic HIE efforts currently underway at the national and state levels. It has been recognized at multiple levels that appropriate investments in HIT and electronic HIE will lead to significant downstream benefits to the health system as a whole and that these technologies are essential for health system redesign.^{42,43}

³⁸ Ibid.

³⁹ eHealth Initiative. (2007). *Breakthrough Health Information Exchange Research and Sustainability Tools*. Washington, DC: Author. Retrieved May 7, 2008, from http://toolkit.ehealthinitiative.org/value_creation_and_financing/eHI_VSM_and_HRSA_Release_Final_06.05.07_for_Wire.pdf.

⁴⁰ U.S. Department of Health and Human Services, Health Information Technology. *Nationwide Health Information Network (NHIN): Background*. Retrieved August 1, 2008, from <http://www.hhs.gov/healthit/healthnetwork/background>.

⁴¹ Kohn, L.T., Corrigan, J.M., & Donaldson, M.S. (1999). *To Err is Human: Building a Safer Health System*. Washington, DC: The National Academies Press.

⁴² Blumenthal, D., DesRoches, C., Donelan, K., Ferris, T., Jha, A., Kaushal, R., Rao, S., Rosenbaum, S., & Shield, A. (2006). *Health Information Technology in the United States: The Information Base for Progress*. Princeton, NJ: Robert Wood Johnson Foundation.

To exchange healthcare information through electronic HIE, the information must be electronic, requiring the use of standards-based clinical and administrative HIT systems at the point of care. However, adoption and use of these systems on a national level are low. Although many studies are based on survey data with limited sample sizes, the adoption of ambulatory EMRs in the U.S. is thought to be between 13 percent and 24 percent, with the number of fully functional, interoperable EMRs as low as 4 percent.^{44,45} Similarly low adoption rates of inpatient computerized provider order entry (CPOE) have also been reported.⁴⁶

This low level of HIT adoption is the backdrop to the public policy debate over electronic HIE and highlights one of the critical issues that has precipitated the current underinvestment in HIT and electronic HIE throughout the healthcare system. The fragmentation and competition among the government, commercial healthcare payers, and the multiple providers of healthcare services prevents many of the alignment and coordination steps necessary to facilitate electronic HIE. Moreover, HIT and electronic HIE systems require significant upfront capital investments. Yet the return on investment for these technologies is primarily for the healthcare system as a whole and does not necessarily benefit any one party enough to offset the significant upfront investments.

The following statements summarize the reasons why electronic HIE systems may not be taking hold:

- Hospital operating margins in many cases are low, preventing these institutions from expending significant resources to upgrade internal systems solely for electronic HIE. In addition, some hospital executives have expressed concern with losing competitive advantage by making data available through electronic HIE.
- Outpatient providers often lack access to capital to purchase interoperable EMR systems and capacities for electronic HIE. Providers are predominantly compensated on a fee-for-service or capitation basis. Therefore, they do not necessarily reap the benefits of higher-quality care delivery because the current payment system lacks appropriate financial incentives for enhancements in quality of care that allow for money-saving reductions in services.
- Insurers do not provide exclusive coverage to all patients in a provider panel. Rather, most providers see patients with coverage from multiple insurers. The benefits to payers in supporting HIT and HIE come from the network effects. Some payers are prepared to shoulder an equal or fair share for electronic HIE,⁴⁷ while others are reluctant to make significant investments without the confidence that other payers are willing to make the same investments. Resistance to free riders is a driving factor in many of the limited investments of payers to date.
- Data providers such as laboratories and radiology centers do not necessarily accrue savings through HIE participation. In some cases, laboratories and radiology centers may risk losing business as a result of their participation in electronic HIE due to the reduction in redundant service orders.

⁴³ Chaudhry, B., Wang, J., Wu, S., Maglione, M., Mojica, W., Roth, E., Morton, S.C., & Shekelle, P.G. (2006). Systemic Review: Impact of Health Information Technology on Quality, Efficiency, and Costs of Medical Care. *Annals of Internal Medicine*. 144(10), 742–52.

⁴⁴ DesRoches, C.M., Campbell, E.G., Sowmya, R.R., Donelan, K., Gerris, T., Jha, A., Kaushal, R., Levy, D.E., Rosenbaum, S., Shields, A.E., & Blumenthal, D. (2008). Electronic Health Records in Ambulatory Care: A National Survey of Physicians. *New England Journal of Medicine*. 359, 50–60.

⁴⁵ Jha, A.K., Ferris, T.G., Donelan, K., DesRoches, C., Shields, A., Rosenbaum, S., & Blumenthal, D. (2006). How Common are Electronic Health Records in the United States? A Summary of the Evidence. *Health Affairs*. 25(6), 496–507.

⁴⁶ Ibid.

⁴⁷ Some payers, such as Blue Cross Blue Shield of Massachusetts and Blue Cross Blue Shield of Tennessee, have invested heavily.

There is also a gap between the long-term goals of electronic HIE and the short-term interests of HIE industry stakeholders. As stakeholder organizations, including governments, are being asked to invest in electronic HIE, their short-term economic needs and performance can outweigh the longer-term investments in electronic HIE.

Electronic HIE has yet to reach “industry” status, in that the business model to achieve sustainability has not yet been demonstrated on a scalable and replicable basis, and competition among HIE organizations has yet to develop in a manner that encourages broad-based development. Yet, as discussed in the previous section, there are a number of efforts currently underway to develop electronic HIE governance, services, technical architectures, and stakeholder participation, as well as to achieve sustainability. These efforts are being undertaken for multiple reasons, but with the common understanding that there is intrinsic value in exchanging healthcare information.

ELECTRONIC HIE AS A PUBLIC GOOD

Public utility models for electronic HIE have been a common topic of recent debate. The Deloitte Center for Health Solutions defines the electronic HIE public utility business model as follows: “These HIEs are created and maintained with the assistance of federal/state funds and are provided direction by the federal/state government.”⁴⁸ According to Deloitte, the primary differentiator between a public utility model for electronic HIE and other business models is the funding source. However, the significant oversight, accountability, and enforcement responsibilities of state governments require that a public utility model for electronic HIE be reviewed in a much broader context.

The debate over public involvement electronic HIE has led some stakeholders to ask whether electronic HIE should be considered, to some degree, a public good like air, water, or national defense.⁴⁹ The term “public good” has been used in recent policy debates to justify government intervention and support for electronic HIE efforts by noting that a “true public good is both ‘non-excludable’ and ‘non-rivalrous’ in that multiple firms can benefit from the technological advance at the same time without reducing its value. The question of how to finance public goods raises a basic conundrum: without any government-created incentive, few firms would invest in the development of such goods in the first place because rival firms would quickly exploit them without paying for them.”⁵⁰

The various healthcare roles of state governments make them a critical stakeholder in electronic HIE and a benefactor to its potential positive impacts. Beyond healthcare, state governments’ broader interests in promoting appropriate industrial behavior of organizations acting within their jurisdictions—including, but not limited to, public utilities—argues for a significant role for government in oversight of the developing electronic HIE industry. The potential societal benefit of electronic HIE, coupled with the interests of state and federal governments in this industry, form the basis for many industry experts to consider HIE a public good.

State governments’ role in such a beneficent electronic HIE industry will vary in each state according to the unique population demographics, the specific healthcare marketplace dynamics, the electronic HIE initiatives currently underway, and the level of buy in and support for electronic HIE among key stakeholders. As a result, state governments must consider multiple areas in which to focus their oversight planning for electronic HIE. These areas include alignment of regulatory policies to both promote electronic HIE and protect consumers and industry participants; use of state purchasing power to encourage the adoption of technologies that facilitate electronic HIE; promotion of electronic HIE in

⁴⁸ Deloitte Center for Health Solutions. (2006). *Health Information Exchange (HIE) Business Models: The Path to Sustainable Financial Success*. Washington, DC: Author.

⁴⁹ Malepati, S., Kushner, K., & Lee, J.S. (2007). RHIOs and the Value Proposition: Value is in the Eye of the Beholder. *Journal of AHIMA*. 78(3), 24–29.

⁵⁰ Nuechterlein, J.E., & Weiser, P.J. (2005). *Digital Crossroads: American Telecommunications Policy in the Internet Age*. Cambridge, MA: MIT Press.

public sector healthcare delivery; and assurances that a sustainable HIE industry develops in a manner that is equitable, effective, and beneficial to broader population health.

RECENT STATE GOVERNMENT TRENDS IN ELECTRONIC HIE

Many state governments have initiated or been involved in HIT and electronic HIE projects recently. These projects have ranged from statewide multistakeholder efforts to agency-specific projects. A key factor to successful state involvement in electronic HIE efforts to date has been the leadership demonstrated by both the executive and legislative branches of state government. Governors who have provided visible leadership and articulated a vision for state electronic HIE were viewed as crucial champions for the development of statewide electronic HIE.⁵¹ To date, 15 governors have issued 20 executive orders designed to drive healthcare quality improvements through the use of electronic HIE and HIT.⁵²

State legislative action and support for electronic HIE has also been on the rise. Prior to 2005, there was scarcely any state legislation regarding electronic HIE and HIT. That changed in 2005, as 38 states introduced 121 electronic HIE- and HIT-related bills, with 36 eventually signed into law in 24 states.⁵³ The number of new state legislative bills addressing electronic HIE and HIT increased to more than 250 in 2007, with 74 of those passed into law in 39 states and the District of Columbia.⁵⁴ Although it goes beyond the scope of this project to describe all the current state government activities in electronic HIE, some notable states, such as Rhode Island, New York, Delaware, Pennsylvania, Washington, Oregon, and Tennessee have initiated significant leadership and oversight roles over their electronic HIE initiatives.

The Rhode Island Department of Health (DOH) received federal funding through an AHRQ SRD to build an electronic HIE, the Rhode Island Health Information Exchange (RIHIE). DOH serves as the project manager for its development while a separate nonprofit organization, the Rhode Island Quality Institute (RIQI), acts as a multistakeholder governance entity with multiple committees to advise the electronic HIE operations. DOH has a unique relationship with RIQI: The RIHIE project is a part of the state government due to the funding mechanism, and members of state government serve in leadership positions at RIQI, yet RIQI governs the RIHIE through its community-based convening mission.

New York, as part of its broader health reform initiative, is spending more than \$250 million to develop a statewide interoperable health information infrastructure. The state has created the Office of Health Information Technology Transformation (HITT) within the New York Department of Health to advance and coordinate New York's statewide HIT and electronic HIE initiatives. HITT has been working to develop policies and organizational structures that effectively support the network of RHIOs funded through the state's Health Care Efficiency and Affordability Law for New Yorkers (HEAL NY) capital grant program, the primary outlet for distributing most of the funding.

The New York eHealth Collaborative (NYeC), the convening organization of HEAL NY grantees, is the designated statewide electronic HIO charged with implementing HIE policies and strategies. NYeC is a separate entity founded with contract funding from the state. Its governance board is made up of both public and private stakeholders. NYeC is using a consensus-based approach for its role as the convener of

⁵¹ Ibid.

⁵² In 2007, the governors of California, Georgia, Kansas, Maryland, Mississippi, Missouri, Ohio, Virginia, and Washington all released executive orders to support electronic HIE. Source: National Conference of State Legislatures, personal communication.

⁵³ eHealth Initiative. (2007). *Fourth Annual Survey of HIE at the State, Regional, and Community Levels*. Washington, DC: Author. Retrieved May 1, 2008, from <http://www.ehealthinitiative.org/2007HIESurvey>.

⁵⁴ National Conference of State Legislatures Health Information Technology Champions (HITCh). (2008). *2007 Enacted Legislation on Health Information Technology*. Retrieved July 1, 2008, from <http://www.ncsl.org/programs/health/forum/Hitch/enacted.htm>.

all HEAL NY projects to set policies, procedures, and technical standards that align with HITT's broader policy objectives for the entire state.

The Delaware Health Information Network (DHIN) is an operational HIO that is a public authority (it is also referred to as a public instrumentality) established in a 1997 law to create a statewide health information and electronic data interchange network for public and private use. DHIN has a board of directors representing community and professional stakeholders. It has a consumer advisory committee and a broad-based project management team. Currently, three hospital systems and the two largest reference laboratories in the state are participants, with more stakeholders planning to participate in the near future. DHIN is a state entity that has responsibility for both governance and operations of the statewide electronic HIE, acting as an HIO.

In March 2008, Pennsylvania Governor Edward Rendell signed an executive order to create an HIE governance entity called the Pennsylvania Health Information Exchange (PHIX). This entity is charged with performing the activities necessary to develop, implement, and manage a statewide health information exchange and other HIT activities. PHIX, a state entity whose executive director will report to the chief information officer in the Pennsylvania Office of Administration, is being designed to resemble the institutional structure of DHIN.

The Washington State Health Care Authority (HCA)⁵⁵ has focused its HIE efforts on a consumer-centric, electronic HIE architecture using the health record bank (HRB) model. HCA and a legislatively created multistakeholder Health Information Infrastructure Advisory Board (HIIAB) selected the HRB model due to its consumer focus, control, and privacy protections. In addition, due to the variations in the HIE marketplace, HCA and HIIAB officials believe that the HRB represents the most viable approach to leverage existing IT infrastructure in the state. HCA released \$1.7 million in grants to three communities to pilot HRB implementation in early 2009. The authority also created a multistakeholder organization to help consumers and patients improve their knowledge of and access to electronic health information.⁵⁶ HCA is currently assessing whether the partnerships and collaborations that have developed through the creation of this organization may be an appropriate venue for a governmentally autonomous authority that will design policy structures for ongoing HIE efforts in Washington.

Oregon also will promote HRB as one of its HIE strategies. In 2008, Governor Ted Kulongoski established the Oregon Health Information Infrastructure Advisory Committee (HIIAC) by executive order to develop a broad-based strategy for the creation of a statewide health information system that will include HRB. In 2007, the Oregon Division of Medical Assistance Programs (the state Medicaid agency) received a \$5.5 million Medicaid Transformation Grant to build a HRB for all Medicaid members. Oregon is currently implementing this project with the intention of rolling the HRB out to all state residents and institutions in the future. HIIAC is currently in deliberations on how the HIE infrastructure should be developed through the HRB project and how other HIE projects will intersect with broader health reform initiatives.

Tennessee is working with AT&T and other contractors to provide a private, secure, high-speed, broadband network for electronic HIE in its 95 counties. (The network is already in use for other state business.) Through existing and new vendor contracts, Tennessee has modified the network to support electronic HIE for treatment purposes with HIPAA-compliant authentication. Healthcare providers will be able the access this network at state-negotiated rates with service level guarantees.

These states and many others are moving forward in designing and implementing electronic HIE efforts on a statewide basis, recognizing the associated expected improvements to their healthcare system.

⁵⁵ The Washington State Health Care Authority (HCA) is a public agency that runs the state employee benefits program and other state healthcare programs.

⁵⁶ See www.Accessmyhealth.org.

Beyond these statewide efforts, many state agencies, such as Medicaid offices, public health departments, and state employee health plans have been actively promoting large-scale electronic HIE initiatives.

STATE AGENCY ELECTRONIC HIE EFFORTS

To date, specific state agency involvement with electronic HIE efforts depend on each agency's mission. Medicaid agencies, like healthcare purchasers, focus particularly on improving their care delivery systems to advance member health and reduce costs. Medicaid Transformation Grants (MTGs) authorized by Congress under Section 6081 of the 2005 Deficit Reduction Act have been significant drivers for advancing electronic HIE in Medicaid programs throughout the country. Of the \$150 million in MTGs awarded in 2007, a significant amount was allocated to electronic HIE-related projects. Relevant MTG-funded electronic HIE projects include convening and coordinating activities, supporting EHR development for Medicaid populations, building interoperability capacity of internal systems, and, in a few cases, developing statewide electronic HIE systems to serve Medicaid and other populations.⁵⁷

The Arizona Health Care Cost Containment System (Arizona's Medicaid program) received an \$11 million MTG to build a Web-based electronic health record and electronic HIE utility to give all providers access to Medicaid members' health information via Internet connection at the point of service. The EHR will be based on administrative claims data, while the larger electronic HIE system will support e-prescribing, lab and medication data, and clinical decision support functions.

In other states, the public health department plays an active role in electronic HIE development and implementation. State public health functions require a relationship with county and local health departments, which uniquely positions these agencies to drive appropriate health data sharing among providers, purchasers, and public health entities for the purpose of biosurveillance, screening, and health promotion. Moreover, many public health agencies currently collect critical health information, such as immunization data, that is useful to providers and their patients. The New York Department of Health (NYDOH) focuses many of its electronic HIE efforts on driving improvements in the state public health system. NYDOH requires that electronic HIE organizations receiving state funding develop systems for public health surveillance and reporting processes. The Utah Department of Health is a major participant in the ongoing development and support of the Utah Health Information Network and its appropriate use of standards for clinical data creation, storage, and exchange.

State employee health benefits plans (SEHPs) are also interested participants in electronic HIE. SEHPs are financed through multiple mechanisms, such as state and county revenues, legislative appropriations, pension investment funds, and premiums collected from employers, employees, and dependents. Some SEHPs are using their investment funds to support a variety of electronic HIE-related activities. These activities range from using their contracting process to drive electronic HIE use with vendor health plans to participating in multistakeholder collaborative groups that leverage electronic HIE to promote pay-for-performance and transparency initiatives.⁵⁸ The California Public Employees Retirement System (CalPERS), the state employee health plan and the third largest purchaser of healthcare in the country,⁵⁹ recently endorsed its support for the California RHIO (CalRHIO) and is directing its current health plans to contract with CalRHIO and provide funding for the initial build out of the electronic HIE.⁶⁰

⁵⁷ Alfreds, S., Masters, E., & Himmelstein, J. (2008). *Opportunities for Facilitating Electronic HIE in Publicly Funded Programs: Findings from Key Informant Interviews with Medicaid, SCHIP, Public Health, and State Employee Health Benefit Plan Leadership and Staff*. Shrewsbury, MA: University of Massachusetts Medical School, National Governors Association Center for Best Practice.

⁵⁸ Ibid.

⁵⁹ CalPERS provides health benefits to more than 1.2 million state and public agency employees, retirees, and their dependents.

⁶⁰ California Regional Health Information Organization. (2008). Retrieved May 1, 2008, from <http://www.calrhio.org>.

COORDINATION OF STATE AGENCY EFFORTS

The potential involvement of state governments in electronic HIE requires careful consideration of both the current level of electronic HIE integration and coordination among state agencies, as well as the electronic HIE initiatives evolving in the private sector. The complexity of state involvement in electronic HIE has received significant national attention from the Office of the National Coordinator (ONC) for HIT and, more recently, from the State Alliance for e-Health Public Programs Implementation (PPI) Taskforce.

At its June meeting, the PPI task force focused its discussions exclusively on the alignment of public- and private-sector electronic HIE initiatives. The task force members agreed that alignment of all electronic HIE efforts both within state agencies and with external stakeholders was needed to effectively achieve these broader population health-improvement goals. To offer the State Alliance and states some guidance and a framework for thinking through the complexities of state involvement in electronic HIE, the PPI task force offered the following recommendations:

- *Governors and state legislatures should designate an electronic HIE coordinating body, with centralized authority over governmental agencies, to align both internal governmental agency electronic HIE activities and their intersection with external public private electronic HIE activities.*
 - *The ‘Coordinating Body’ should have authority over state agencies and structures as well as the financial resources to support its efforts*
 - *The ‘Coordinating Body’ should involve and align with the State and Agency Chief Information Officers (CIOs) or position equivalent*
 - *States can empower an existing agency or create a new entity*
 - *The functions of the ‘Coordinating Body’ may include:*
 - *Provision of high-level coordination of electronic HIE efforts;*
 - *Alignment of internal electronic HIE efforts and their intersection with external electronic HIE efforts;*
 - *Assessment of internal and external gaps;*
 - *Conduct of readiness assessments;*
 - *Development and dissemination of strategic plans to align efforts;*
 - *Development of success measures and mechanisms to hold entities accountable; and*
 - *Streamlining implementation, evaluation, and continuous improvement strategies.*

The task force recommended that each state create an e-Health “coordinating body” that would be empowered to align electronic HIE policy, processes, and functions across governmental agencies as well as to support the broader healthcare goals of the state. The task force recommended that the coordinating body have authority over state government agencies and collaborate with private-sector electronic HIE governance efforts.

While the task force recommended that all states have an electronic HIE coordinating body, there was little consensus on how to fund such an entity, given the degree of difference among the 50 states and six territories. A critical aspect of establishing an electronic HIE coordinating body, the task force found, was gaining support through the collaborative, bipartisan leadership of both the governor and the legislature.

Project participants and interviewees viewed an e-Health coordinating body as a critical function and first step toward state oversight of the developing industry of electronic HIE. Without the coordination of internal governmental efforts with the broad healthcare priorities and goals of the state, coupled with an in-depth understanding of the external electronic HIE initiatives, successful oversight of electronic HIE would be particularly challenging.

Section 4: Government Oversight, Regulation, and Interaction with Public Utilities and Private Industry

To inform the development of an appropriate oversight and regulatory framework for state governments in the evolving electronic HIE industry, this section explores examples of the intersection of state governments with public utilities, finance, and other regulated industries.⁶¹ This section reviews relevant information related to the structure of government oversight and regulation, self regulation, and coregulation in these industries.

Competition is a key market factor that promotes appropriate industrial behavior in most commercial industries in the U.S. However, in some industries, such as electricity, natural gas, water, telecommunications, and transportation, competition may not protect the public interest. Government regulation may be required when the widespread public use of specific services and states' interests in protecting the public welfare collide with the business objectives of (public or private) delivery firms.⁶²

To address these issues, governments have created institutional structures to improve their effectiveness in addressing the regulatory needs of industry along the following lines:

- Promote appropriate competition to drive greater productivity, higher quality, expanded services, lower prices, and innovation
- Prevent excessive monopoly profits and unreasonable price discrimination
- Support social goals and universal access at similar prices
- Ensure public safety
- Promote management efficiency^{63,64,65}

Most regulation is categorized as social regulation or economic regulation. Social regulation is aimed at restricting organizational behaviors that put the public's health, safety, and/or welfare at risk. Economic regulation aims to ensure competitive, open, and free markets for goods and services. In the case of public utilities, regulation often takes the place of competition to address specific market failures. Therefore, much of the public utility regulation to date has been to oversee and moderate the economics of monopolistic, capital-intense–fixed-asset-heavy industries and to regulate private-sector profits.

Public regulation is not devoid of political influence, however. "Policy makers sometimes have more nefarious motives than maximizing welfare, for example, to gain short term political advantage or to benefit political supporters."⁶⁶ Preventing inappropriate political influence has been an important factor contributing to the design of regulatory institutional structures currently in place in many state and local jurisdictions.

⁶¹ A general definition of a public utility is a business organization (such as an electric company) performing a public service and subject to special governmental regulation.

⁶² Jamison, M.A., Berg, S.V., Gasmi, F., & Tavera, J.I. (2004). *Annotated Reading List for a Body of Knowledge on the Regulation of Utility Infrastructures and Services*. Retrieved August 1, 2008, from <http://www.regulationbodyofknowledge.org/documents/bok/bok.pdf>.

⁶³ Ibid.

⁶⁴ Teske, P. (1995). *American Regulatory Federalism and Telecommunications Infrastructure*. Hillsdale, NJ: Lawrence Erlbaum.

⁶⁵ National Regulatory Research Institute. (2003, April). *A Primer on Public Utility Regulation for New State Regulator Commissioners*. Retrieved December 19, 2008, from <http://www.globalregulatorynetwork.org/Resources/NRRIPrimer.pdf>.

⁶⁶ Jamison, et al. (2004).

FEDERAL AND STATE GOVERNMENTS' ROLES IN PUBLIC UTILITY REGULATION

Assigning the appropriate roles of federal and state government actors in regulating public utilities has been an ongoing challenge in the U.S. Generally, interstate activities are subject to federal jurisdiction and intrastate activities are subject to state control. However, these distinctions are blurred when the activities of public utilities go beyond state borders.

State governments' and state regulators' constituencies represent local business and consumers. State governments have an obligation to business and consumer interests at the state level and must consistently monitor local economic and marketplace conditions to appropriately address these local needs. As a result, regulation at the state level may lead to greater public participation in decisions and more responsiveness by politicians than if such regulations are promulgated at the federal level. States are also learning laboratories. For the following reasons, each state has different policies for regulating various industries:

- Different legal authority delegated to public utility regulators by state governments
- Varying size and nature of utility markets within each state
- Political impact and pressure from the executive branch, legislative branch, and utility stakeholders
- Varying regulators and regulatory environments^{67,68}

Regardless of the differences among states, as they experiment with various regulatory structures and policies, successes and failures can lead to more informed policy development. State-level policy advocacy organizations, such as the National Association of Regulatory Utility Commissions (NARUC), NGA, and National Conference of State Legislatures (NCSL) all perform dissemination functions that support innovation at the state level and can assist states in applying various policies to their unique political, demographic, and legal requirements.

As state-specific public regulatory policies are developed, policymakers debate their effectiveness. Some policymakers suggest that state-specific regulation may increase societal costs. For example, telecommunications networks require standards so that all subscribers can communicate with each other regardless of where they live. Rather than having 51 different regulatory organizations, one may be more efficient and effective in regulating the behavior of a national telecommunication industry.⁶⁹

Across the U.S., multiple states are informally cooperating with one another to develop regional utility regulations. One example of regional cooperation is the Organization of Midwest Independent System Operators (OMS). The purpose of OMS is to coordinate regulatory oversight among Midwestern states and make recommendations to the independent system operators, Federal Energy Regulatory Commission (FERC), and state regulatory commissions. Although not a formal regulating body, OMS offers an institutional framework for regional communication and regulatory coordination.⁷⁰

The debate over state versus federal regulation demonstrates the complexity of networked industries. Networks, by their very nature, become more valuable as they reach more stakeholders. For example, the value of a telecommunications network to all subscribers increases as the number of other subscribers who can be reached grows. This is called a positive network externality.⁷¹ HIE, as with

⁶⁷ Teske, P. (1987). *State Telecommunications Regulation: Assessing Issues and Options in the Midst of Changing Circumstances*. Wye, MD: Aspen Institute Program on Communications and Society.

⁶⁸ Teske (1995).

⁶⁹ Ibid.

⁷⁰ The Organization of Midwest Independent System Operators. Retrieved July 1, 2008, from <http://www.misostates.org>.

⁷¹ "Externalities are benefits or costs from a transaction that are received or born [sic] by third parties who are not part of the transaction. Air pollution produced by electricity generation is an example of a negative externality." Jamison, et al. (2004).

telecommunications, is a networked industry. The benefits of HIE require broad interoperability of healthcare systems beyond state borders. If some states develop policies that impede interoperability, or act to retard the expansion of new network services, stakeholders in other states may not benefit due to the network limitations. As electronic HIE becomes ubiquitous, interstate cooperation in HIE regulatory policy will be critical to long-term sustainability.

The issue of nationwide interoperability has led to the current HHS policy to promote the network-of-networks strategy for NHIN. As a function of this strategy, HHS on multiple occasions promoted its policy of “national standards; local innovation.” Several organizations, including the American Health Information Community (AHIC), Health Information Technology Standards Panel (HITSP), Certification Commission for HIT (CCHIT), and others are addressing the need for dual federal and state regulation of HIE. Although it goes beyond the scope of this report to assess the current state of these efforts, it will be critical for any state government HIE initiative to be aware of, and integrate its efforts with, these broad federal initiatives.

GOVERNMENT OVERSIGHT, ACCOUNTABILITY, AND DELIVERY OF PUBLIC UTILITY AND OTHER INDUSTRY SERVICES

The processes that governments have used to oversee and regulate the public utility marketplace and other industries are intrinsically important to developing model institutional structures for state governments to oversee their involvement in electronic HIE. All HIE stakeholders agree that governance is a critical step in developing an electronic HIE organization. However, the appropriate oversight role of the state government in the governance of electronic HIE has been different in all the HIE organizations reviewed.

Although the methods are overlapping and varied, the different ways that governments oversee the delivery of public utility services and other industries can be organized into the following five categories:

1. Government provision.
2. Creation of a separate governmental entity.
3. Outsourcing.
4. Creation of a private corporation subject to government control.
5. Government regulation through a regulating body.

Governments use these structures to directly and indirectly address—and, where appropriate, to intervene in—the conduct of specific organizations and markets acting in their particular jurisdictions. As such, the manner in which the government designs these structures, along with the legal and regulatory policies that interact with the industries in question to achieve particular service outcomes, ultimately define the accountability of government and industry stakeholders.⁷² The methods used by governments to provide oversight and regulations are the mechanisms for establishing accountability. This process, however, is not so clearly delineated in practice.

The following section describes the five ways that governments have overseen their governance participation and oversight roles in public utility and other industries.

1. Direct government provision: The most basic way that governments exercise control over a service is to provide it directly to their citizens. Direct government provision protects the interests and safety of consumers through the electoral process and, in some cases, through citizen participation in governing boards. Although the bureaucracy of government is complex, sometimes government can be more efficient in providing services internally rather than through other indirect means such as contracting or participating in the creation of separate legal entities. The financing for governmental agency provision of

⁷² Accountability is an ambiguous term that is generally defined as the willingness to accept responsibility for one’s actions. Merriam Webster’s online dictionary, <http://www.m-w.com>.

service is a complex process of program, line-item, and multiyear budgeting that is ultimately dependent on legislative approval.

In the U.S., state and local agencies are the dominant providers of law enforcement, justice and corrections, fire protection, library, education, public health, social services, and transportation infrastructure. In some states, local, county, and state agencies also provide electricity, water, and sewer infrastructure directly to their residents. Today, there are 251 municipally owned electric and gas utility companies in the U.S.⁷³ Direct government provision is warranted in the following five situations:

1. Where the existence of legitimate force is involved.
2. Where industry performance cannot easily be left to chance.
3. Where equity considerations are especially important.
4. Where no effective market exists to supply a good or service and is not likely to exist in the foreseeable future.
5. Where the maintenance of some governmental capability is essential.⁷⁴

2. Creation of a separate government entity: In some cases, governments create a separate, financially independent public entity, or “authority,” to provide a service. These entities are known by a variety of descriptive names, such as “quasi-public agency.” For our purposes, the essential characteristic that sets them apart from other models discussed is that the entity remains a public actor and is thus subject to due process, public records, and other types of public obligations.

Public authorities are different from ordinary state agencies in several ways. First, the public authority provides a business-like organizational structure that can be self supporting through user fees and/or the issue of bonds. Public authorities can make long-term investment decisions without disruption from the political process. Public authorities can also overcome constitutional barriers to government spending and be exempt from civil service rules. Finally, a public authority may obtain and issue financing without involvement of the main government.

One of the defining advantages of a public authority is its relative insulation from the political process, thereby imbuing an expected level of effectiveness in addressing specific service provisions that are politically controversial.^{75,76} Governing boards are generally structured to be independent of those who appointed them and theoretically can make unpopular political decisions. In addition, board members typically serve overlapping terms so that only a select number of members are replaced at any one point in time. These separate public entities may be able to shield the main governmental entity from certain legal liabilities. The legislature is able to craft the exact characteristics of the entity, including its potential liabilities and governing structure, in the enabling statute.

A common criticism and source of legal challenge for public authorities is that, in some states, the legal definition of the institutional structure of a public authority is sometimes ambiguously described in the enabling statute. This can result in legal challenges over accountability for the actions of government

⁷³ The Utility Connection. (2005). *Publicly Owned Electric & Gas Utilities (US)*. Retrieved June 1, 2008, from www.utilityconnection.com/page2e.asp#muni_util.

⁷⁴ Leman, C. (2002). Direct Government. In L. Salamon (Ed.), *The Tools of Government: A Guide to the New Governance*. New York: Oxford University Press.

⁷⁵ Bourdeaux, C. (2004, July). *Can Public Authorities Just Get Things Done? An Analysis of Politically Buffered Institutions in a Contentious Policy Arena*. Paper presented at the annual meeting of the American Political Science Association, Chicago, IL. Retrieved December 19, 2008 from http://www.allacademic.com/meta/p60370_index.html.

⁷⁶ Doig, J., & Mitchell, J. (1992). Expertise, Democracy and the Public Authority Model: Groping toward Accommodation. In J. Mitchell (Ed.), *Public Authorities and Public Policy: The Business of Government*. New York: Greenwood Press.

versus public authorities.⁷⁷ Massachusetts created a separate public entity to oversee the implementation of its new legislation requiring all Massachusetts residents to carry health insurance (see Appendix G for a description of the Massachusetts Health Insurance Connector Authority).

3. Provision of a governmental or public service via outsourcing (privatization): Governments often contract out the provision of a governmental service to a private contractor. The terms of these contracts can vary. The public entity might contract out the entire operation, or it might contract for only a subset of the operation (i.e., only the management or the administrative portion). These contracts might place all or part of the commercial risk on the vendor and might require a vendor to address broad infrastructure improvements.

Government exerts its control through carefully crafted procurement and contract documents. In general, the terms of the contract are set out in the RFP. Governments need to carefully develop RFPs and contract documents to protect stakeholders' interests. Privatization has generated some public contention in the utility marketplace in instances where malfeasance has led to adverse market consequences.

4. Creation of a private corporation subject to government control: The legislature can create a nonprofit corporation to deliver a service, typically a governmentally controlled corporation. In general, a governmentally controlled corporation is expected to act as a private organization and engage in activities that make money or are otherwise be self sustaining. The corporation is generally not subject to the appropriations and budget limitations of the government.

The corporation is a separate legal entity from the government and, therefore, may have a stronger degree of separation than a public authority; it also has the right to sue and to be sued under its own name. Although the corporation is a separate private legal entity, the government retains control of its operations by maintaining seats on the board of directors. The enabling statute generally provides that the government appoint some or all of the board members. The statute might also reserve one or more board seats for representatives of the private sector or consumers.

Often, government corporations are created as a way to avoid constitutional limitations on borrowing. When issuing bonds for capital-intensive programs or initiatives, such corporations may benefit from government subsidies and federal and state tax exemptions, significantly lowering the costs of borrowing. In addition, the state and federal government can provide implicit guarantees for some of the institution's financial liabilities.

Some notable federal government-owned corporations include the National Railroad Passenger Corporation (Amtrak), Tennessee Valley Authority, Corporation for Public Broadcasting, and United States Postal Service. Many states have created government-owned corporations as well. In states, the enabling statutes for these government corporations are varied, particularly in the funding and support structures. In some cases, the legislature provides state funds to the entity to cover start-up costs. In other cases, the legislature might specifically instruct the entity to seek its own finances through fundraising, application for federal monies, or operational profits. The statute may instruct the entity to hire employees or it might direct an existing state agency to provide the entity with administrative support. Many of these corporations go on to receive tax-exempt status under Section 501(c)(3) of the tax code.⁷⁸

5. Government regulation through a regulating body: States exert significant regulatory power over utilities, insurance, and banking. The public utility industry is perhaps the best example of widespread economic regulation. All 50 states have a regulatory commission for public utilities. The structure of these regulatory agencies is similar across the nation, usually involving a panel of commissioners who oversee the policy decisions and executive actions of these agencies. There are a number of ways

⁷⁷ Walsh, A.H. (1978). *The Public's Business: The Politics and Practices of Government Corporations*. Cambridge, MA: MIT Press.

⁷⁸ Stanton, T.H., & Moe, R.C. (2002). Government Corporations and Government-Sponsored Enterprises. In L. Salamon (Ed.), *The Tools of Government: A Guide to the New Governance*. New York: Oxford University Press.

regulating bodies are structured. Often, the governor—sometimes subject to approval of the legislature—appoints the commissioners. In Indiana, a bipartisan nominating committee presents a list of candidates to the governor, who must appoint from that list. In Mississippi, the Public Utility Commissioners are elected during general elections, with each commissioner representing a separate geographic area of the state.

In general, these regulatory commissions are self supporting, generating enough revenues from assessments on providers, user surtaxes, or the award of federal grants to offset their operating costs. In some states, such revenues are directly credited to the agency, allowing the commission to be omitted from the state budget. In other states, revenues generated by the commission are deposited to the state's general funds, and the commission receives an annual line-item appropriation.

Regulatory commissions are primarily responsible for economic regulation, particularly rate setting and approval of new facilities, via a formal hearing process. In this process, the commissioners or their representatives serve as hearing officers, admitting testimony from representatives of the regulated industry and representatives of the public interest.

Regulatory commissions have developed multiple mechanisms to ensure universal access to regulated services by citizens in the state. Examples of these mechanisms include approval of higher payment rates or new facilities only on agreement that the industry will extend service to underserved areas. Another mechanism is to raise monies by surcharges or through federal grants to encourage private organizations to create such access. A regulatory example at the national level to address universal access is the Federal Communications Commission (FCC) Universal Service Fund (USF), which is used to pay for and support consumer, school and library, and rural health access to telecommunications networks. The FCC requires telecommunications providers to contribute to the USF. Some of these telecommunications providers bill consumers directly through a universal service line-item fee, while others account for their USF contribution as an operational cost.⁷⁹

SELF REGULATION, COREGULATION, AND INDUSTRY ACCOUNTABILITY

Industry self regulation and coregulation between industry and government can also be effective mechanisms for social and economic regulation. In this context, self regulation does not refer to an entity regulating itself, but to a group of entities in a particular industry agreeing to follow a set of rules and conduct standards.⁸⁰ In most cases, rules and standards are developed and overseen by an industry-sanctioned organization to which the participating entities belong.

Self regulation is not altogether separate from government regulation; rather, it exists on a continuum of government oversight of industry behavior. There are two primary types of self regulation described in the literature with regard to government involvement:

- Voluntary self regulation, in which rulemaking and enforcement are carried out privately by an organization or the industry itself, independent of government involvement; and
- Government-enforced self regulation, where industry and government share policymaking, standard-setting, and enforcement responsibilities at varying levels.⁸¹

Voluntary self regulation is rare due to the complexities of both economic and social regulations in most industries. Many industry experts argue that self-regulatory controls that are sanctioned or supported by some level of government intervention (coregulation) are more effective than self regulation alone. This is

⁷⁹ The Federal Communications Commission (2008.) *The FCC's Universal Support Mechanisms*. Washington, DC: Author. Retrieved August 1, 2008, from <http://www.fcc.gov/cgb/consumerfacts/universalservice.html>.

⁸⁰ Gunningham, N., & Rees, J. (2002). Industry Self-Regulation: An Institutional Perspective. *Law and Policy*, 19(4), 363–414.

⁸¹ Ibid.

because coregulation allows for the benefits of self regulation, while giving the government the opportunity maintain some level of regulatory control if needed.^{82,83} In most industries, there is a spectrum of coregulatory controls that lies between government command-and-control regulation and pure self regulation.⁸⁴

The potential benefits of self regulation include flexibility, cost-effectiveness, sensitivity, and speed in addressing market situations. Examples of potential efficiencies associated with self regulation include standard setting and, through review of compliance with standards, identification of fraudulent behavior and abuse. Industry practitioners, whether in the electricity industry or in the healthcare industry, often have the specific information needed about the marketplace and about the internal financial outputs that are needed to develop standards for creating appropriate policies. In many cases, industry organizations have an incentive to monitor for potential fraud and abuse as a way to ensure their own competitive welfare. Peer pressure within many industries also acts to ensure compliance to standards and accountability among stakeholders.⁸⁵

State and public utility commissions sometimes lack the information, the organizational flexibility, and the overall capacity to address complex regulatory issues. This is especially true in the absence of policy alignment across state agencies and among branches of state government. According to some industry experts, “the overarching purpose of any self-regulatory group is to keep industry interests aligned with the public interest so as to avoid government intervention and the possibility of more-restrictive regulation.”⁸⁶

However, in practice, self-regulatory policies sometimes fall short of expectations and serve the interests of industry at the expense of the public. The literature describes some self-regulatory policies as weak on standards and ineffective on enforcement.⁸⁷ According to one critic, “self-regulation is frequently an attempt to deceive the public into believing in the responsibility of an irresponsible industry. Sometimes it is a strategy to give the government an excuse for not doing its job.”⁸⁸ These issues are especially salient in light of the current financial crisis in the U.S. economy, which has led to stepped up federal government oversight and, in some cases, outright ownership of once-private companies.

Regardless of the pros and cons, self regulation occurs in many industries. Often, a self-regulatory organization (SRO) serves a primary role in exerting regulatory authority over an industry. SRO institutional arrangements vary. Many SROs form from industry advocacy organizations, standards development organizations (SDOs), or, in some cases, an organization created specifically to serve a regulatory role over an industry. SROs are generally tasked with establishing the rules by which they operate, within the broader outlines of government regulation. Governments interact with SROs in many ways, including regulating, certifying, and sanctioning—or “deeming”—them to participate in governmental programs.⁸⁹

⁸² Ayres, I., & Braithwaite, J. (1992). *Responsive Regulation: Transcending the Deregulation Debate*. New York: Oxford University Press.

⁸³ Ayres and Braithwaite define coregulation as industry–association self regulation with some oversight and/or ratification by government.

⁸⁴ Ayres & Braithwaite (1992).

⁸⁵ Gunningham & Rees (2002).

⁸⁶ CFA Institute Centre for Financial Market Integrity. (2007, September). *Self-Regulation in Today's Securities Markets: Outdated System or Work in Progress?* Charlottesville, VA.

⁸⁷ Gunningham & Rees (2002).

⁸⁸ Braithwaite, J. (1993). Responsive Regulation in Australia. In P. Graboski & J. Braithwaite (Eds.), *Business Regulation and Australia's Future*. Canberra: Australian Institute of Criminology.

⁸⁹ Sinclair, D. (1997). Self-Regulation versus Command and Control? Beyond False Dichotomies. *Law & Policy*. 19(4). 529–559.

Successful SROs must have the capacity and the incentive to support the public welfare when a conflict arises between the public's needs and the SRO's own interests or those of the SRO's members. The literature notes the following important attributes of a successful SRO:

- Demonstrable commitment to members
- Mutually beneficial relationship for members and SRO
- Good representation from industry participants
- Consumer involvement
- Cost efficiency compared with government-imposed regulations
- Transparent and accountable governance
- Independence from the market it regulates
- Independent board of directors
- Sufficient budgetary funding
- Government oversight is an effective deterrent
- Transparent, flexible policy- and rulemaking powers
- Effective surveillance, supervision, and enforcement powers^{90,91,92}

Furthermore, successful SROs must be able to overcome possible disadvantages, such as ineffective enforcement mechanisms in the absence of statutory backing, lack of due process, inequitable allocation of the costs of self regulation among members, lack of support from constituencies, and unfair or unlawful behavior among competitors.⁹³

U.S. securities markets are coregulated using a combination of self-regulation mechanisms subject to Securities and Exchange Commission (SEC) oversight and direct SEC regulation. The federal government designed this regulatory structure to give securities SROs, including the national stock exchanges, responsibility for administering their own operations. This responsibility includes most of the daily oversight of the securities trading markets.

Securities SROs are primarily responsible for establishing the standards under which their members conduct business, monitoring business conduct and bringing disciplinary actions against their members for violating applicable federal statutes, carrying out SEC regulations, and adhering to their own established rules. In overseeing the implementation and enforcement of rules, the SEC may use its statutory authority to, among other things, review, approve, or annul SRO-proposed rule changes.⁹⁴ SEC delegates most of its enforcement and rulemaking authority to the Financial Industry Regulatory Authority (FINRA), which regulates registered securities broker-dealers (see Appendix G for more detail on FINRA). The recent actions by Congress to address the U.S. credit crisis and the issues related to subprime mortgage investments and derivatives demonstrate, however, the significant potential challenges and pitfalls associated with limited government oversight in securities SROs.

U.S. payment systems that function within electronic networks are overseen by a mix of government and industry regulation. The National Automated Clearing House Association (NACHA) is an example of a successful SRO that represents both government and industry interests. NACHA oversees the Automated Clearing House (ACH) payment network in the U.S. The ACH network is a nationwide batch-processing

⁹⁰ CFA Institute Centre for Financial Market Integrity (2007).

⁹¹ International Council of Securities Associations (2006). *Best Practices for Self-Regulatory Organizations*. Retrieved May 8, 2008, from http://www.icsa.bz/html/statements_and_letters.html.

⁹² National Consumer Council. (2003). *Three Steps to Credible Self-Regulation*. London, UK: Author. Retrieved May 8, 2008, from <http://www.ncc.org.uk/index.php>.

⁹³ Winn, J.K. (2006). Standard Developing Organizations as a Form of Self-Regulation. In Sherrie Bolin (Ed.), *The Standards Edge: Standardization: Unifier or Divider*. Menlo Park, CA: The Bolin Group.

⁹⁴ U.S. Government Accountability Office. (2004). *Financial Regulation: Industry Changes Prompt Need to Reconsider U.S. Regulatory Structure*. (No. GAO-05-61). Washington DC: U.S. Government Printing Office.

electronic payment system for small-value payments, including business-to-business, business-to-consumer, and government payments. All financial institutions moving funds through ACHs are required to follow NACHA's operating rules. (See Appendix G for more information on NACHA.)

In the U.S. healthcare system, government and industry coregulation serve an important oversight and accountability role. Government-enforced or -sanctioned private, voluntary accreditation programs are the predominant coregulatory instruments used in the U.S. healthcare arena. The purpose of accreditation is to ensure that the organization meets and continues to meet specified industry standards of practice. Healthcare accreditation programs include the Accreditation Commission for Health Care (ACHC), Electronic Network Accreditation Commission (EHNAC), Joint Commission (formerly Joint Commission on Accreditation of Health Care Organizations [JCAHO]), National Committee for Quality Assurance (NCQA), and Utilization Review Accreditation Commission (URAC). Recently, EHNAC announced the development of an accreditation program for electronic HIE. A number of states, including New York, are participating in EHNAC HIE accreditation program development.

The federal and state governments have mixed coregulatory influences with most, if not all, healthcare accreditation organizations. A key mechanism governments use to influence the healthcare industry through these accreditation programs is through sanctioning or "deeming" a particular accredited healthcare organization as eligible to participate in, receive funding from, receive information from, or be recognized as appropriately conducting a particular service for the government.

The Joint Commission is one of the most prominent healthcare accreditation organizations in the U.S. The 1965 Social Security Amendment passed by Congress includes a provision that "hospitals accredited by JCAHO are 'deemed' to be in compliance with most of the Medicare Conditions of Participation for Hospitals and, thus, able to participate in the Medicare and Medicaid programs."⁹⁵ In addition, the Centers for Medicare and Medicaid Services (CMS) are required to validate the Joint Commission accreditation process regularly. Since the initial provision, federal deeming authority has been provided to the Joint Commission for their accreditation of other healthcare entities, including ambulatory care centers and independent laboratories.

⁹⁵ The Joint Commission. (2008). *Our History*. Retrieved August 1, 2008, from http://www.jointcommission.org/AboutUs/joint_commission_history.htm.

Section 5: State Government Oversight in the Electronic HIE Industry: Research Findings

This report reviews many of the issues related to the development of the electronic HIE industry, including how government interactions with other public and private industries may inform the state regulatory and oversight structures that can sustain an effective electronic HIE industry.

The models presented below were developed in coordination with the project Advisory Committee, incorporating the feedback of the many experts interviewed as well as the input of the State Alliance for e-Health Privacy and Security and Public Programs Implementation task forces. These models are meant to serve as a framework for state governments to build, inform, and clarify the development of appropriate institutional and policy structures for public participation and leadership in the electronic HIE industry.

ESSENTIAL ATTRIBUTES OF AN ELECTRONIC HIE INDUSTRY

To appropriately develop model institutional structures for state government oversight of electronic HIE, the project team and the Advisory Committee agreed that a framework was needed to define the core attributes of a successful and sustainable electronic HIE industry. Due to its nascent stage, specific services and functions of a sustainable HIE industry are not yet determined. In addition, there is currently no clear evidence that particular technical architectures or specific services are more likely to promote sustainability. However, there are broad attributes—technology development and adoption, business practice, and oversight—that industry experts see as necessary for sustainable electronic HIE.

Technology Development and Adoption

- ***Widespread adoption of standards-based Electronic Health Records and other clinical health information technology systems across all provider types, payers, state agencies, public health entities, and other relevant stakeholders:*** Effective exchange of health information requires that it be electronic in the first place. The limited adoption of interoperable clinical HIT systems today has impeded the development of an electronic HIE industry.
- ***An architecture that is interoperable with systems in other states and territories:*** Any electronic HIE architecture must adhere to nationally accepted exchange standards to ensure interoperability with other states and territories.
- ***The exchange of real-time or near-real-time information among providers, laboratories, pharmacies, insurers, and state agencies for the purposes of health improvement in accordance with nationally recognized technology, software, security, and privacy standards:*** The network benefits of electronic HIE accrue to all healthcare stakeholders. As a result, interoperability must be a function of all healthcare information systems, from EMRs to payment and population health systems. Only by facilitating real-time or near-real-time connections between all systems will the opportunities for broad healthcare improvements be possible.

Business Practice

- ***Sustainable business model(s) that allow(s) the infrastructure to grow and adapt to new technologies, policies, and processes:*** If electronic HIE is to achieve sustainability as an industry, there must be incentives and business drivers that justify investments in current and new technologies and that advance the ultimate goal of electronic HIE: To improve the quality and safety of healthcare delivery in the U.S. while reducing healthcare costs.

Oversight and Governance

- ***An oversight/governance body that convenes, coordinates, and aligns the interests of all public and private stakeholders:*** The majority of electronic HIE stakeholders (including state governments) recognize that success is predicated on stakeholder buy in. To convene, develop, coordinate, and organize participation in the electronic HIE industry, an independent, trusted oversight/governance body is needed to act as the “responsible entity” at the state level.
- ***A management structure that efficiently and effectively manages and operates the hardware, software, and/or services to conduct electronic HIE:*** Whether a function of the oversight/governance body for the HIE industry at the state level or separate from it, there must be a clearly defined management structure, or structures, for the hardware and software operations associated with electronic HIE activities. The electronic HIE operations, depending on the size, strategy, and stakeholder agreements, may be managed by one organization or by multiple organizations.
- ***Accountability structures to ensure that consumer privacy is protected when information is being shared through the electronic HIE and to ensure that appropriate security mechanisms are in place to prevent information breach, theft, and misuse:*** Successful and sustainable electronic HIE relies on accountability structures that ensure appropriate protection of consumer privacy and security of the data passing through and stored within the particular electronic HIE architecture. Policies must be in place to protect the privacy and security of both consumer health information and non-healthcare information that is shared and stored in the electronic HIE system. In addition, consumers need education on what information is being stored and shared as well as their options for redress and action if there is a breach of confidentiality and/or specific malicious theft or misuse of their personal information.

The critical attributes of a sustainable electronic HIE industry presented above offer many areas of opportunity for state governments to begin to focus their efforts. Supporting interoperable clinical HIT adoption will be an important facet of any state efforts to drive electronic HIE development. A September 2008 report released by the State Alliance for e-Health, *Accelerating Progress: Using Health Information Technology and Electronic Health Information Exchange to Improve Care* describes and makes recommendations on specific approaches states may use to support interoperable HIT to improve widespread adoption and also to ensure that states’ interests are being met.

STATE GOVERNMENT ACCOUNTABILITY FOR ELECTRONIC HIE

As with the development of any organization, governance determines the legal ramifications for accountability. Accountability is a general term used to define the responsibilities of individuals, organizations, and industries. As state governments establish their roles in the industry of electronic HIE, accountability should cover the following four areas:

1. **Privacy and security:** State governments must decide what level of privacy and security is appropriate in the electronic HIE infrastructure, data systems, and operators that participate in electronic HIE. HIPAA rules set the floor for privacy and security standards, but some state government respondents believe that more stringent standards are necessary. To facilitate cross-boarder interstate HIE, states will need to share privacy and security standards with other states.
2. **Interoperability:** To be interoperable, each stakeholder participating in and sharing information with the electronic HIE must be able to exchange data through standardized transactions. State governments have a role in ensuring that interoperability standards are adopted and are in use.
3. **Fiscal integrity:** State governments and public entities must ensure that public money used for electronic HIE is spent appropriately and accounted for in a transparent manner.

4. **Universal access:** State governments have the constitutional role to represent all citizens. Therefore, state governments must ensure that all citizens are able to take advantage of the benefits of electronic HIE, especially where public investments are made.

No matter how state governments structure their involvement in the development, oversight, and regulation of the electronic HIE industry, the following specific state government accountability mechanisms apply:

1. **Political process:** If the public does not approve of the way that state government is interacting with the electronic HIE industry, they can elect new public officials. In addition, ballot initiatives can be initiated to allow the public to impact the behavior of the government.
2. **Transparency laws:** Public record and open meeting laws ensure accountability and transparency of state government action. Every state and the District of Columbia have enacted laws requiring government to conduct its business openly.
3. **State ethics laws:** State laws generally prohibit public officials from taking actions that would affect their own or their associates' financial interests. This is to ensure that public officials act in the best interests of taxpayers.
4. **State finance laws:** All states have laws governing how taxpayer money is spent. In general, executive agencies receive a certain appropriation from the legislature each budgetary cycle. Often, each appropriation is subject to conditions contained in the state budget. When executive agencies spend money on outside vendors, they must do so in accordance with state procurement law. Generally, those procurement laws require states to spend money only after a competitive bid.

STATE GOVERNMENT FINANCING OF ELECTRONIC HIE

One of the most debated issues surrounding electronic HIE is financing. The information technology systems for both clinical care and broad-based exchange of information require significant start-up capital and ongoing financial support. Many states and the federal government have provided grants and contracts to support electronic HIE start up. Providing some capital for electronic HIE start up is an important role of state government; in addition, state financing has been a mechanism used in other industries to develop a public infrastructure. Some electronic HIE project participants hold the view that state governments should not be solely responsible for financing the development of the industry. Rather, they feel that seeding electronic HIE growth and supporting the development of sustainable business models is a more appropriate use of state funds.

There are multiple options for state governments to be active in financially supporting the long-term operations of electronic HIE. These options, however, are complex and require states to critically review the role of electronic HIE in relation to state health system improvement goals. An area that is currently under review by the federal government and many states is Medicare and Medicaid payment policy; specifically, the development of payment methodologies that reward provider performance based on quality and effectiveness metrics.

Updating payment systems will require new methods to assess and use clinic healthcare data. The availability of that data through electronic HIE will therefore be an essential aspect of payment reform. One such reform is public-sector pay for performance. Medicare has recently initiated a number of demonstration projects in hospitals, physician group practices, and care management pilots.⁹⁶ Over half of

⁹⁶ Rosenthal, M.B. (2008). Beyond Pay for Performance: Emerging Models of Provider Payment Reform. *New England Journal of Medicine*. 359, 1197–1200.

all states have one or more public pay-for-performance programs in operation.⁹⁷ Such programs—coupled with broader health reforms, such as Advanced Medical Home, which pegs payments to case management and performance—offer additional means to address electronic HIE sustainability financing.

Vermont's enactment of a 0.199 percent claims assessment for HIT and electronic HIE demonstrates that state governments can significantly impact on the ongoing sustainability of electronic HIE, while simultaneously addressing the market failures that have prevented its growth to date. A claims assessment equalizes the impact across the range of healthcare payers. Although politically challenging, a claims assessment offers a unique financial mechanism to support the public interest in electronic HIE.

Currently, there are few widely established public financing mechanisms for sustainable HIE. Additionally, there is little consensus on the breadth of electronic HIE; the specific standards, services, and architectures; or the appropriate stakeholder roles in the development and oversight of the systems. Thus, state governments will need to be active in providing leadership, developing policy, and supporting appropriate and accountable financing of this emerging industry.

STATE GOVERNMENT OVERSIGHT MODELS FOR THE ELECTRONIC HIE INDUSTRY

The three models presented below offer frameworks for state governments to begin to develop the specific institutional structures, regulatory policies, and incentives that will impact and promote a successful and sustainable electronic HIE industry. A number of potential oversight options were initially developed throughout the summer and fall of 2008 based on the findings from the literature review and informant interviews. Through facilitated discussions with the project Advisory Committee, the State Alliance for e-Health task forces, interview participants, and the project team, these options were refined and organized into three viable oversight and regulatory models for electronic HIE. Due to the nascent state of electronic HIE, many states are in the process of developing and designing appropriate oversight structures. Where there are representative examples of states adopting aspects of one or multiple models, they are presented in the model descriptions. The following three state government oversight models are discussed in detail below:

- **Model 1 – Government-Led Electronic HIE:** Direct Government Provision of the Electronic HIE Infrastructure and Oversight of its Use.
- **Model 2 – Electronic HIE Public Utility with Strong Government Oversight:** Public Sector Serves an Oversight Role and Regulates Private-Sector Provision of Electronic HIE.
- **Model 3 – Private-Sector-Led Electronic HIE with Government Collaboration:** Government Collaborates and Advises as a Stakeholder in the Private-Sector Provision of Electronic HIE.

Effective state government regulatory policy for electronic HIE should be responsive to industry dynamics and flexible to the potential for changing roles. The goals of electronic HIE are interrelated with broader healthcare reform efforts throughout the U.S., whether it is increasing healthcare insurance coverage, improving the delivery system, or achieving payment reform. Therefore, the choice of different models for state government oversight and regulation of the electronic HIE industry will depend on the varying demographics and characteristics of the healthcare marketplace operating in each state. Hybrid models will be necessary in many states to address specific stakeholder concerns, unique electronic HIE initiatives currently underway, and the political preferences of the government for the provision of HIE services. In addition, the best model for a particular state may change over time. Thus, it will be critical for states to undertake periodic reviews to reassess the best policies for current and future time periods. Finally, it may be reasonable to consider that some states may employ more than one model

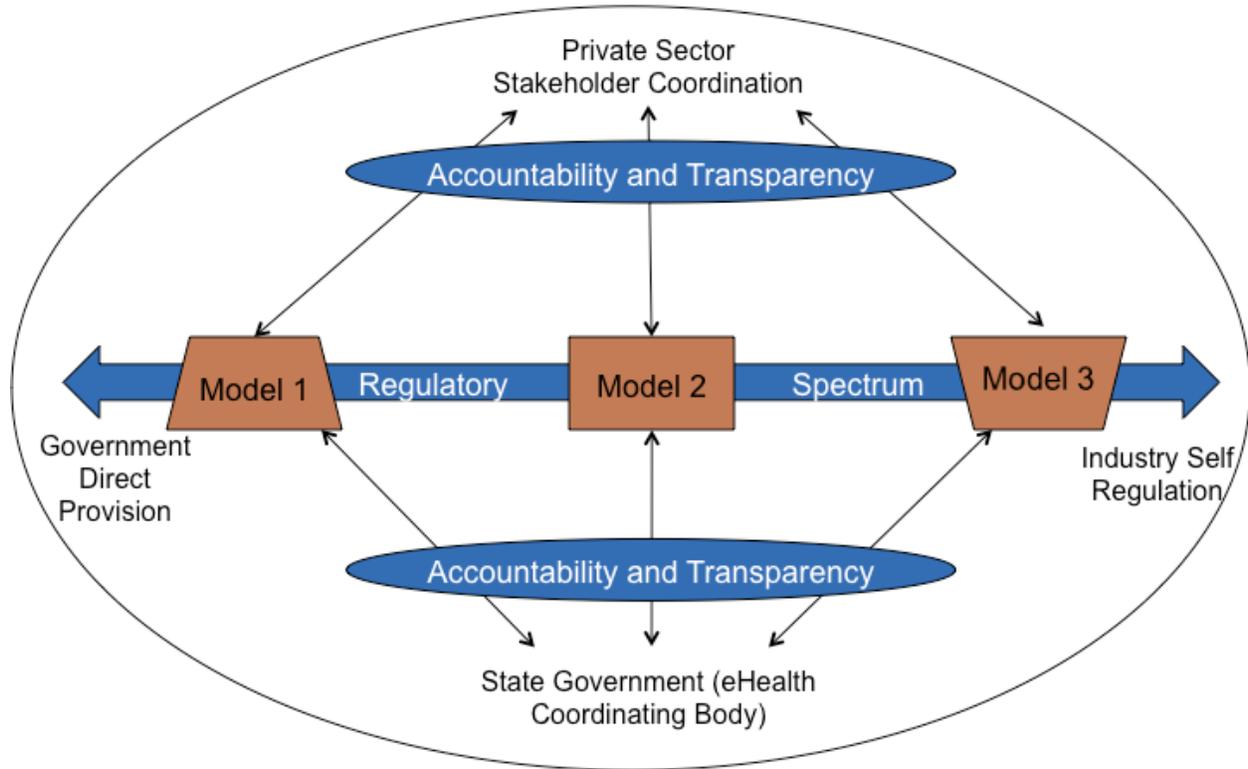
⁹⁷Kuhmerker, K., & Hartman, T. (2007, April). *Pay-for-Performance in State Medicaid Programs: A Survey of State Medicaid Directors and Programs*. New York: The Commonwealth Fund.

simultaneously to address multiple aspects of electronic HIE, from setting policy to implementing infrastructure.

The description of these models does not include the specific involvement of the many state agencies that will be necessary stakeholders in the electronic HIE industry. The recommendations from the State Alliance for e-Health Public Programs Implementation (PPI) Taskforce include processes for aligning both internal and external state agency electronic HIE projects through a state e-Health coordinating body.

These models represent equally viable oversight options based on the level of regulatory control that state governments wish to exert over the electronic HIE industry. **Exhibit 7** shows the relationship among the three models, the state government, the private-sector electronic HIE stakeholders, and the spectrum of regulatory control—from direct government provision to industry self regulation. The following section describes each of these models with reference to the legal structure and considerations that state governments may need to make when assessing the impact and relevance of each model regarding accountability and financing issues. Where available, existing and developing examples of these models are described. More detail on these examples can be found the case studies presented in Appendix C.

Exhibit 7: Regulatory Spectrum for Models of State Government Oversight for the Industry of Electronic Health Information Exchange



Model 1 – Government-Led Electronic HIE

Rationale and Description: There is a compelling argument to be made for direct government provision of the HIE infrastructure and oversight of its use, especially in small states with limited existing private-sector electronic HIE efforts underway. State government has significant interest in promoting electronic HIE, especially in the public healthcare sector. In cases where there is a limited electronic HIE marketplace, the state government may be the most influential source for promoting statewide electronic

HIE. This model may present a relevant option for states with existing advanced information technology infrastructures that may be scaled up to advance electronic HIE.

By directly providing electronic HIE to stakeholders, state government has direct control over electronic HIE industry performance, the privacy and security of the information passing through the infrastructure, and financial sustainability. Direct provision may also be an inviting policy to support or serve as a basis for broader healthcare reforms in some states, as it represents the infrastructure necessary to collect the information needed to develop these policies.

In this model, state government may act as the “operator” of the HIE services and the convener/coordinator of the HIE stakeholders. Directly providing HIE services may require the state government to be responsible for the following tasks:

- Convening healthcare stakeholders and building trust and consensus: As electronic HIE requires the participation of all HIE stakeholders, state government may provide a forum for and ensure representation and a voice for appropriate stakeholders. Stakeholder participation may be promoted through board representation or other convening processes. In addition, the state will facilitate alignment of policies, procedures, standards, regulations, and laws to promote consistency and trust among all participating electronic HIE stakeholders.
- Defining and designing an appropriate technical architecture: Choosing the appropriate architecture based on the needs of the state and the input of the healthcare stakeholders will be critical to success. The state government will not necessarily provide all necessary technologies to participating stakeholders. Rather, the state may be responsible for the infrastructure and architecture necessary to promote electronic HIE among those stakeholders. Therefore, the state government must decide whether to develop or purchase requisite systems.
- Determining and implementing appropriate electronic HIE services and transactions: The state government will need to come to consensus with stakeholders on the appropriate and valued transactions and services that will promote the sustainability and ongoing success of the operation.
- Defining and designating specific standards for electronic HIE: The state government will be responsible for defining appropriate standards for electronic HIE privacy, security, and interoperability that align with intrastate, interstate, and federal standards.
- Creating data agreements: The state government, no matter what type of legal entity, would be responsible for addressing appropriate data use and legal protections for electronic HIE stakeholders.
- Financing operations: State government will be directly responsible for developing an appropriate business model for electronic HIE. It is unlikely that all states will have programmatic funds to support electronic HIE over the long term. Thus, state governments will need to generate appropriate revenue structures to support investments.

Legal Structure: State governments may directly provide and oversee electronic HIE through a separate governmental entity (public authority), a governmentally controlled corporation, or an existing state agency. Three legal structures for this model are described below.

- A. **Public authority:** Legislation can create the public authority to provide electronic HIE services and oversee the industry. A public authority is a functional part of the state government itself, generally subject to all applicable constitutional requirements, including due process, open meeting, and public records. According to some electronic HIE experts, the public records requirements of a public authority may necessitate statutory exemptions to protect security of patient information in the publicly owned electronic HIE. As a state entity, a public entity generally has at least a certain amount of sovereign immunity from lawsuit. This has been

described by some electronic HIE stakeholders as advantageous in addressing the accountability concerns of stakeholders.

One of the advantages of a public authority directly providing electronic HIE is the authority's relative insulation from the state government's political processes. Broad stakeholder representation on the authority board, along with mechanisms like staggered member terms can promote stakeholder buy in and trust and assuage the "Big Brother" perception of government controlling the industry. Project participants also recommended consumer involvement in the board and/or workgroups as a way to build public trust and support public provision of electronic HIE.

The enabling legislation creating the public authority can exempt the public authority from state civil service and labor requirements in an effort to assist in the recruitment and preservation of staff. In addition, enabling legislation may exempt the public authority from state procurement rules and may provide the authority finance electronic HIE efforts without the approval of the main state government.

Delaware implemented this model through the Delaware Health Information Network (DHIN), a public authority created in 1997 to oversee and operate a statewide electronic HIE. DHIN has a board of directors that represents community and professional stakeholders as well as a consumer advisory committee. DHIN officials say their sovereign immunity status builds stakeholder buy in and encourages participation in the statewide electronic HIE effort (see the full report and Appendix C for more information). Pennsylvania is pursuing a similar oversight model for its state government electronic HIE effort.

- B. ***Government-controlled corporation:*** State governments can also enact legislation creating a separate nonprofit corporate entity under existing state law. Through the enabling legislation, the state can retain the ability to appoint a majority of the governing board members, thereby maintaining control over decision making. Although maintaining control, board representation of private stakeholders, as with a public authority, will be necessary to demonstrate commitment and facilitate participation of healthcare stakeholders. Consumer involvement in the corporation's decision-making process will also be important to drive support for a state-controlled electronic HIE corporation.

This new corporation would function independently from state government with specific functional capacities outlined in the enabling legislation. As a separate private entity, the corporation's finances are independent of government and would not be subject to government procurement, employment, or public record rules unless otherwise specified in the enabling legislation. In addition, the corporation would not be subject to borrowing limitations of state government, including debt limitations and legislative and/or public referendum-approval requirements. However, a corporation may be provided state government guarantees for financial liability. Governmental guarantees for financial liabilities may assist the organization in acquiring needed capital for initial start up and construction of the electronic HIE infrastructure.

Both these arrangements offer significant flexibility. If crafted appropriately in legislation, these arrangements can be effective means to oversee state government provision of electronic HIE resources. In either of these two circumstances, the state maintains control of both the operations and the oversight of the electronic HIE.

- C. ***Existing state agency:*** Finally, state governments may provide for and govern electronic HIE directly through existing agencies. Although this option has the potential to address market failures and equity issues, project participants view this option as a challenging oversight model for most states for the following reasons: The lack of perceived neutrality of state government, time-consuming political and public policy processes, and problems with recruitment and

retention of staff educated in or experienced with complex project management and electronic HIE in state government.

Regardless of these challenges, the Washington Health Care Authority (HCA)—a state agency responsible for overseeing the state employee health benefits plan and other health programs in the state—used this model to develop a Health Record Bank (HRB) electronic HIE model in three communities. The initial project is designed as a proof-of-concept pilot. If it is successful, Washington HCA is considering whether to maintain oversight through HCA or create a public authority to oversee the ongoing efforts of the HRB.

Considerations for Financing and System Development: When a state directly provides electronic HIE to stakeholders and citizens, the financing will be complex. States have used appropriations to provide electronic HIE start-up funding, but they rarely provide operational funding. States commonly use revenue bonds to fund public utilities. In addition, enabling legislation may allow the oversight entity to accept gifts and grants to support electronic HIE start up. It is unlikely, however, that state government will be able to fully support the ongoing electronic HIE operations through these types of funding mechanisms due to political, economic, and budgetary requirements. States will need to establish sustainable revenue streams to meet electronic HIE obligations. The use of a combination of governmental investments and membership, transaction, program, and service fees charged to industry stakeholders (including government programs) may provide states with the most likely sustainable source of operational electronic HIE revenue.

Opportunities for state governments to get enhanced Medicaid matching funding from the U.S. Centers for Medicare and Medicaid Services (CMS) may also provide financing opportunities to support electronic HIE. CMS has announced that enhanced matching funds are available to state Medicaid programs to support electronic HIE activities controlled by state Medicaid agencies. Enhanced match for such activities is the same as under the current Medicaid Management Information Systems program: A 90 percent federal match for system development and 75 percent federal match for ongoing operations. The specific relationship between the governing body and the Medicaid agency in this model will require legal review as to whether such funding would be available. Finally, broad healthcare assessments, such as the claims assessments implemented in Vermont, may provide ongoing sustainable financing for electronic HIE in any of the three models discussed here.

Significant strategic planning will be required to develop the electronic HIE technical systems. State governments may develop the electronic HIE technologies as an operational function of their own institutions or contract for HIE services. As state governments contemplate building electronic HIE systems internally, the following specific focus areas should be considered:

- Expertise of existing staff and the availability of experienced staff for hire
- Costs associated with building a system that can be interoperable across a wide venue of stakeholder systems
- Capacity of the state system to grow as new services are added and technologies improved
- Accounting for the depreciation of the systems

States may also issue contracts to develop and maintain an electronic HIE infrastructure through its procurement process. When the state issues a request for responses (RFR) to electronic HIE providers, the state would determine the specifications of the electronic HIE systems, services, and/or requirements and put the specifications out to bid. The state would then choose one or more private entities to develop and operate the electronic HIE services. The contractor would be subject to state supervision and control as outlined in the contract.

Contracts offer a manageable mechanism for state governments to provide services. To be successful, effective contract and project management on the institution's behalf will be required, along with the vendor's ability to achieve the outcomes as promised. There are many contracting arrangements that may

be applicable to the electronic HIE environment, including typical fixed price and cost-plus contracts. Revenue-sharing contracts and performance-based contracts offer additional opportunities. Revenue-sharing contracts require the vendor to pay for all or part of the contract up front and then recover its costs from project revenue. According to a recent report by the National Association of State Chief Information Officers, 12 states are currently using revenue-sharing contracts.⁹⁸ Performance-based contracts offer vendors rewards and penalties for specific performance metrics.

Texas used these mechanisms to develop its state government portal, TexasOnline. Convenience fees, subscription fees, and service fees generate revenue for the portal. The vendor received 90 percent of the gross revenue from start up, which was then reduced to 80 percent at a break even, with the state receiving 50 percent of net revenue. The contract also requires that the vendor adhere to service metrics. The vendor either receives credit for achieving the metric or is charged a penalty for failing to do so.^{99,100}

Contractual arrangements that allow for revenue sharing may offer significant opportunities for state governments as they consider the direct provision of electronic HIE services. In tight budgetary times, these contracts, with appropriate performance monitoring, may allow state governments to provide needed electronic HIE services without significant upfront capital.

Considerations for Accountability: In the government-led electronic HIE model, government is directly accountable to its citizens for privacy, security, fiscal integrity, system interoperability, and universal access to the system. General governmental accountability is set through the political process, transparency requirements, state ethics law, and state finance law. A number of states noted that legislation should be enacted to impose privacy and security standards that are more stringent than HIPAA rules, impose criminal penalties on individuals or organizations that misuse data, create private rights of action and redress for consumers, and promulgate interoperability standards. Such legislative requirements could be included in the enabling legislation of the oversight body or be enacted separate from it. In addition, states should develop processes for enforcement of specific rules and standards, including administrative remedies, adjudication, mediation, and arbitration.

Specific legislation, especially regarding privacy, security, and interoperability standards, may not be flexible enough to address the rapidly changing electronic HIE environment. Empowering the public authority or governmentally controlled corporation with regulatory authority may be a more flexible way to impose standards for privacy, security, and interoperability. Offering regulatory authority to the multi-stakeholder board of these organizations may be more palatable to private stakeholders and would be more likely to generate trust, buy in, and, ultimately, success.

Contract documents, if developed appropriately, offer a mechanism to implement and hold accountable both the oversight body and vendors for adhering to particular privacy, security, and interoperability standards. Finally, executive orders, if used to create these oversight entities, may include accountability provisions that promote privacy, security, and interoperability standards of practice.

Model 2 – Electronic HIE Public Utility with Strong Government Oversight

Rationale and Description: In states where there is significant traction of private-sector electronic HIE efforts, but limited coordination or concern over the sustainability of the existing efforts, the state government may wish to develop an institutional arrangement that provides oversight and regulatory authority over the electronic HIE industry without the responsibility for provision of electronic HIE services.

⁹⁸ National Association of State Chief Information Officers. (2008, September). *Innovative Funding for State IT: Models, Trends and Perspectives*. Lexington, KY: Author.

⁹⁹ Ibid.

¹⁰⁰ National Association of State Chief Information Officers. (2003, November). *Innovative Funding for Innovative State IT*. Lexington, KY: Author.

In this model, the private sector provides the electronic HIE infrastructure to which both private and public stakeholders contribute data. The state government, either through a public authority or an existing state agency, retains oversight over all or some of the electronic HIE industry through convening processes, the state's general policing power, and the state's regulatory responsibilities. The purpose of this model is to specifically oversee the electronic HIE industry and regulate industry behavior.

The particular oversight roles of the state government include policy setting, convening and coordinating with private-sector HIE efforts, and monitoring and addressing inappropriate industry behavior. To establish sufficient oversight, policies, and appropriate economic and social regulation, the state government is responsible for the following tasks:

- Convening healthcare stakeholders and building trust and consensus: The state government should provide a forum and ensure representation and a voice for appropriate stakeholders in the governance of electronic HIE efforts. Stakeholder participation would best be promoted through board representation on the authority or other convening processes.
- Defining appropriate statewide technical and policy standards: The state government will need to work actively with public and private stakeholders to ensure that electronic HIE architectures and services are being developed with appropriate considerations for interoperability and flexibility for future technological advances and business sustainability options.
- Defining and overseeing specific standards and policies for electronic HIE: The state government will need to take on responsibility for defining appropriate standards for electronic HIE privacy, security, and interoperability and ensuring that they align with intrastate, interstate, and federal standards. In addition, the state government would be responsible for developing enforcement mechanisms to ensure adherence to standards and policies.
- Supporting the development of appropriate data agreements: The state government should also consider participating in the development of appropriate and standardized (where appropriate) data use and sharing agreements.
- Supporting the development of appropriate business models for electronic HIE and rates for electronic HIE transactions: As a regulatory body, appropriate economic regulation will require assessing the business incentives and models for the industry and, where appropriate, developing fair rates for industry participants. In addition, state governments may provide financing to support electronic HIE development. State governments will need to provide financial support to public healthcare delivery systems for their participation in electronic HIE.
- Monitoring and creating incentives: The state government will be responsible for monitoring the electronic HIE industry within the state and assessing the monopolistic behavior of electronic HIE delivery organizations. Specific economic regulatory policies and incentives may be needed to ensure appropriate industry behavior.

Legal Structure: The state government can create a separate governmental public authority to provide oversight for and regulation of the electronic HIE industry, or it may do so through existing agencies.

- A. **Public authority:** As with Model 1, the state government can create a separate governmental authority specifically to oversee and regulate the electronic HIE industry.

The public authority is granted regulatory power either through legislation or executive order. These controls may recognize the monopolistic position of one or more private-sector electronic HIE organizations or HIOs. In this structure, hearing processes are put in place to inform the regulatory rule setting of the authority.

As discussed in Model 1, the public authority should be structured to provide private electronic HIE stakeholders a seat on the governing board as a way to improve private stakeholder buy in

and participation. As a public entity, the state government will have ultimate control over the organization but should stagger the terms of the board members to prevent the perception of unwarranted political influence. Also, the authority should develop liability protections for private stakeholders. Offering an opportunity for consumer involvement is important to building trust and buy in among stakeholders.

The enabling legislation may exempt the public authority from state civil service and labor requirements in an effort to assist in the recruitment and retention of staff. In addition, enabling legislation may exempt the public authority from state procurement rules and allow the authority to issue financial support, as needed, to private-sector electronic HIE efforts without the approval of the main state government.

When a public authority provides oversight, states can pursue various coregulatory options such as enforced accreditation of electronic HIOs and RHIOs and require certification of specific technologies and standards. If deemed appropriate, there are opportunities for the states employing this model to determine and set rates for various HIE transactions and services. Finally, there are opportunities for states to work with existing electronic HIE oversight/governance entities in this model to align and coordinate efforts. Although the state will maintain an oversight role, the level of control that the government institution exerts through this model will be related to the structure and maturity of the electronic HIE marketplace in each particular state.

- B. ***Existing state agency:*** Many of the project participants agree that it would be particularly challenging for existing public utility commissions to take on this role due to the complexity of the electronic HIE and the healthcare marketplace as well as significant differences between existing utilities and electronic HIE. Project participants view the state oversight challenges as similar to those discussed in Model 1.

However, project participants agree that some existing public health agencies may be positioned to serve an oversight role. The Rhode Island Department of Health (RIDOH) has been working to develop regulatory oversight mechanisms for the Rhode Island HIE (RIHIE). Originally, RIDOH sat on the board of the Rhode Island Quality Institute, the designated convening organization for RIHIE. However, due to conflict-of-interest issues related to state funding, the state stepped down from board membership. As the project manager for RIHIE implementation, RIDOH has been creating regulatory structures within its agency to oversee RIHIE. This coregulatory approach represents a hybrid between oversight Models 2 and 3.

Financing Considerations: As with Model 1, states can provide financing for a public authority through state appropriations and state-issued revenue bonds. Programmatic funds may be used to develop such a structure within an existing state agency. If revenue bonds are used, revenue streams will need to be established to meet capital repayment obligations of the bonds.

Fees may be assessed to electronic HIE provider organizations to support the operations of the public authority, as is common in most public utility commissions. The enabling legislation needs two stipulations: (1) the independent financial capacity of the public authority, and (2) whether the electronic HIE revenue will be credited to the authority or deposited into the state's general fund from which the authority receives annual appropriations. In addition, enabling legislation may allow the oversight entity to accept gifts and grants to support start up and operations.

In this model, the state government entity may engage in rate setting for electronic HIE transactions among industry stakeholders to promote fair and equitable prices. To date, due to the nascent stage of electronic HIE, there are no examples of state government rate setting for the electronic HIE industry. There are multiple rate-setting methodologies that may be pursued, including rate of return, price cap, and

revenue-cap economic regulations. Other states may choose a more flexible structure to set rates according to marketplace growth and offer financial incentive for efficiencies.

Accountability Considerations: In this model, government is accountable to its citizens for how it oversees the privacy, security, interoperability, and universal access to the system; how it accounts for its own fiscal responsibility when providing this oversight; and how it addresses the market failures that either prevent or limit universal access to electronic HIE. Some legislative accountability mechanisms for this model are similar to those presented in Model 1. Legislation may also be enacted to mandate specific standards for data storage and interoperability transactions and can require or outline compliance incentives for private entities. In addition, legislation may be enacted to require or promote electronic HIE access in specific areas and settings (e.g., rural and/or community-based providers).

In developing the regulatory authority of a public authority or specific regulatory requirements of an existing state agency, considerations need to be made for the ongoing review and updating of privacy, security, and interoperability standards (in coordination with any existing legislation); access requirements for specific provider groups and populations; and the economic regulation of electronic HIE organizations. As with public regulatory commissions, this regulating organization would be responsible for ensuring that, in the absence of appropriate market forces, private electronic HIE organizations operate in a manner that is fair, equitable, and cost appropriate, and do not inadvertently interfere with competition. This may require the development of antitrust privileges for monopolistic electronic HIE organizations along with iterative monitoring programs and intervention planning. Contract documents are another mechanism to hold the oversight entity, vendors, and electronic HIE delivery organizations accountable for adhering to particular privacy, security, and interoperability standards.

Recently, accreditation and certification programs for electronic HIE have received significant attention. Due to the lack of consensus on the core functions and services of electronic HIE and the significant resources and costs associated with accreditation and certification, there are no current programs in place. However, New York is currently considering a state government-sanctioned (through its “deeming” authority) accreditation program for electronic HIE organizations and RHIOs operating in the state. Various policies are being considered, such as requiring accreditation as a condition of participation in state programs, use of state agency data, and receipt of state funding. The Electronic Healthcare Network Accreditation Commission (EHNAC) recently announced an accreditation program for electronic HIE. The specifications on the accrediting standards for this program are currently under development.

Model 3 – Private-Sector-Led Electronic HIE with Government Collaboration

Rationale and Description: In some states, private-sector electronic HIE efforts may be relatively mature and organized among stakeholders. Agreements on the technical architectures and services that provide value to stakeholders may already be in place. In cases where private-sector organizations and electronic HIE stakeholders have reached this level of consensus and commitment, it may be ineffective for state governments to impose significant oversight through means of direct provision or regulation.

In this model, private-sector organizations and entities provide and have governing responsibility over the electronic HIE industry. State governments may support and collaborate with the industry and, where appropriate, provide regulation and/or the threat of regulation to ensure appropriate industry behavior. In this model, the state government acts as a stakeholder in overseeing collaborative electronic HIE industry activities and may be responsible for the following tasks:

- Participating in and supporting the collaborative oversight/governance of private-sector electronic HIE efforts
- Supporting and participating in the development and use of appropriate electronic HIE standards that align with intrastate, interstate, and federal standards
- Supporting the development of appropriate data agreements

- Creating incentives and/or providing direct financial assistance to support electronic HIE adoption
- Ensuring that public programs and public healthcare delivery systems are appropriately represented and included in electronic HIE implementation
- Monitoring the electronic HIE industry to ensure that consumers are being protected and the industry is developing in a fair and equitable manner
- Developing intervention strategies and regulatory options to address market failures should they occur

To achieve success through this model, the private sector will be responsible for the following actions:

- Mutually beneficial relationship for HIO members
- Good representation from public and private participants and consumers
- Cost efficiency compared with government-imposed regulations as proposed in Models 1 and 2
- Transparent and accountable oversight/governance demonstrating independence from the electronic HIE marketplace, including an independent board of directors
- Transparent and flexible policy- and rulemaking powers
- Effective surveillance, supervision, and enforcement powers over participants and stakeholders
- Sufficient budgetary funding

Legal Structure: In the private-sector-led electronic HIE model, state governments can formally participate in the oversight of the electronic HIE industry in a number of ways. State governments can formalize their relationship with existing non-governmental electronic HIOs through legislation or executive order, through sanctioning or “deeming” a separate nonprofit corporate entity as the primary HIO in the state, or by identifying a particular HIO through which the government conducts business. By formalizing their relationships with HIOs, the state government can remove competitive pressures on electronic HIOs and, at the same time, exert regulatory requirements over the organizations. In addition, enabling legislation may allow the oversight/governance entity to accept gifts and grants to support start up.

A state government may also participate on the board of an existing public–private HIO through invitation. This multistakeholder organization may function in many ways as directed by the organization’s governing board of directors, which would include the state government but not be controlled by it. State governments must carefully review the structure of such organizations to ensure that all healthcare sector interests are being represented and that the government’s participation on the board of such an organization does not negatively affect the electronic HIE industry or appropriate competition that may be developing to advance the industry.

Many stakeholders support the development of a separate corporate entity with broad public and private representation and distributed control to provide oversight/governance over statewide electronic HIE. If developed appropriately, this type of organization may allow public representation while also allowing for private-sector innovation and competition to support industry growth. According to some experts, however, state government commitment to such a model is highly dependent on the prioritization of electronic HIE by governmental leadership. As political priorities change, governmental commitments, if not formalized, may change, thereby impacting the sustainability of this model in the absence of other formal oversight structures.

Many states and organizations pursuing this model are exploring specific regulatory structures and mechanisms to promote its sustainability. The New York eHealth Collaborative (NYeC) is an example of a multistakeholder oversight/governance organization involving both public and private stakeholders. The NYeC oversees the convening and joint policy development for multiple RHIOs throughout the state and has received contracts from the state government to finance these efforts.

Financing Considerations: State government financing of private-sector-led HIE may be associated with monitoring and transparency initiatives, provision of direct fiscal support to electronic HIE and HIT initiatives through grants and contracts, or indirect support through financial incentives targeted at stakeholders.

Multiple state governments have experienced conflicts of interest related to their participation on the board of a non-governmental HIO that will receive direct financial support from state government. In most cases, the state government has stepped down from the oversight/governance board to avoid conflict-of-interest liability. This presents many challenges as state governments consider their involvement in private-sector electronic HIE efforts. In the absence of state government representation, there is the chance that specific populations, such as the low-income, high-risk population covered by Medicaid or specific public health programs will not be appropriately represented in electronic HIE efforts. Specific incentives to ensure that these interests are met are critical to the success of this model.

Accountability Considerations: It will be essential for industry stakeholders in the private-sector-led model to develop an industry-wide framework of principles and practice (including standards) defining the right of conduct within the state and in coordination with national electronic HIE standards and policies. This framework will define and legitimize expected industry behavior. To date, the Markle Foundation's Common Framework and the State-Level HIE Development Models have provided guidance on developing broad electronic HIE frameworks.

Contractual mechanisms, as discussed in Models 1 and 2, are a way that state governments may exert some control and ensure that particular services, specifications, and accountability mechanisms are in place as they collaborate with private electronic HIE stakeholders. In the private-sector-led HIE model, private-sector entities have significant accountability responsibilities to citizens for system privacy, security, universal access, and interoperability. However, state government must retain monitoring and advisory capacity within its institutions. In addition, state governments will need mechanisms that allow for intervention where market failures prevail.

The state government may promote accountability through this model by using the threat of regulation. Most industries do not view state government regulation positively. By implementing ongoing monitoring programs and transparency initiatives in this model, state governments can demonstrate to industry stakeholders that government is willing to step in if the industry does not develop in a fair, equitable, and appropriate manner.

Multiple organizations throughout the country are developing and reviewing electronic HIE certification and accreditation programs. Certification and accreditation programs offer the electronic HIE industry the opportunity to generate accountability through self monitoring and self regulation. However, due to the nascent stage of electronic HIE, it is not yet clear what standards of practice will be included within these certification and accreditation programs. In addition, given the current lack of sustainable business structures for the HIE industry, it is unclear who will pay for such programs.

Conclusion

The three models for state government oversight and regulation of the electronic HIE industry presented above do not purport to represent the only options available to states, nor are they exclusive. Moreover, due to the complex nature and breadth of state government interaction with electronic HIE and the rapidly changing electronic HIE technology and policy environments, these models will require further development and refinement as state governments experiment with and develop new options for overseeing and participating in the HIE industry.

The appropriate role of state government in electronic HIE oversight is highly dependent on the specific healthcare, electronic HIE, demographic, and stakeholder environments in each particular state. In addition, the state government's role will likely change over time to reflect the evolving nature of

electronic HIE. As a result, the oversight structures created by state governments need to be flexible to adjust to industry, policy, and stakeholder changes. Regardless of what structure state governments choose to oversee their electronic HIE efforts, they will need to ensure that the systems promote interstate interoperability and are compatible with national networking efforts like NHIN, CCHIT, and others.

The findings presented in this report serve as a starting point as state governments consider their role in the electronic HIE industry. As strategic planning and implementation of electronic HIE initiatives ramp up nationwide, it is hoped this report helps state governments overcome the challenges—and realize the rewards—associated with efficient, sustainable, and accountable e-Health systems.

Reflections on the Models

The long-term sustainability of the HIE industry must involve government, as demonstrated by the three models described in this report. State governmental interest in this industry centers on two key issues: 1) the protection of consumers and their health information, and 2) the essential nature of HIE as a means to improving and transforming our health care system. To accomplish these goals, states recognize that there must be links among key health care stakeholders: governments, providers, health plans, and consumers.

The NGA Center gave the members of the State Alliance for e-Health an opportunity to review this report, and asked them to provide feedback. The Center also asked three other experts¹⁰¹ to examine the report and provide perspectives on the pros and cons of each model.

This chapter synthesizes this feedback to offer a pragmatic look at the models proposed in the report. The reviewers were asked two basic questions: First, articulate pros and cons of the models; second, what they would recommend or suggest as the likely approach states should consider adopting and why.

The responses were fairly consistent. Although there were clear pros and cons to each model, the reviewers found that one of the approaches was generally the preferred and most realistic, given a number of existing circumstances. However, they also consistently stated that states would need to review their environments to be sure the model selected built on existing strengths and local efforts. Below is a brief summary of their comments on each of the models and their concluding recommendations for states.

GENERAL COMMENTS ON THE REPORT AND ITS ASSUMPTIONS

The reviewers had several overarching comments about the report, including a strong belief that state involvement is essential. Regardless of model applied, state oversight of the HIE industry was seen as necessary to advancing this industry. Previous efforts to create widespread health information exchange have failed to thrive, often because of the lack of trust and buy-in among private sector partners with potentially conflicting interests. There is a clear need for a “trusted agent” to ensure stakeholder buy-in and to address policy concerns, such as liability and privacy. Government participation in the development of the framework is perceived as critical and, if lacking, could seriously impact the interest of competitive parties to participate.

Regardless of the model selected, states must take a clear role in the development of a framework that will determine the governance of the industry. This framework would set the roles of each stakeholder group, and determine the services and functions that would be expected of the exchange. In setting this framework, the states will have to determine how they view the HIE industry overall, and how they will relate to that industry. In any case, states likely will approach their oversight role in a manner consistent with regulatory models they have experience implementing.

Financing was identified by the reviewers as the other major role for states and other public entities. A workable financial framework that sustains the exchange is imperative. This framework would include apportioning costs among stakeholders (e.g., providers, government, insurance plans, and patients). Beyond public investments, several reviewer comments centered on the need for states to identify strategies and oversee structures to ensure financial costs for the exchange were aligned with benefits accrued from the exchange.

Initial capital costs must be addressed, and government may need to play a prominent role in attracting and perhaps providing infrastructure and resources as exchanges are built and deployed. After they are established, states would play different roles in the financing equation in these different models, but some sustained public investment was cited as critical to all potential approaches.

¹⁰¹ The list of review panel members can be found on page iii.

Model One: Government-Led Electronic HIE

Reviewers did see some rationale for this model, although in limited circumstances. In essence, this model would be preferred only for environments with little or no current activity. If little private sector action or local coordination exists, it would likely be essential for the state to jump-start the effort with strong government involvement as the driving force. The action and even the HIE services would be based in a state-initiated entity, primarily with state dollars.

On the positive side, this model would provide the opportunity to drive efforts where none currently exists and could provide a framework for taking current activities to a much higher scale. Serious and extended funding would be needed, but if committed by the state, it could alleviate some of the concerns about sustainability. All of the models call for considerable public investment, but this was seen as essential in the recognition of the “public good” aspects of HIE. This model would certainly meet that criterion.

Another benefit of this model would be the ability to downplay the competitive challenges that are encountered in private-sector led efforts. Competition among the stakeholders make meaningful consensus and progress more difficult. With the state in the driver’s seat, it would be easier to convene the necessary stakeholders, negating many concerns about competition. Finally, liability issues could be dealt with upfront in the founding legislation or rules creating the exchange.

Reviewers identified the perception and the reality of a “heavy-handed” approach by the state as negatives against this approach. That is, while this model could drive new activity, it could put government in the position of sole funder and founder. If the perception was that government was taking this on in full, there would be little impetus for private sector funding or innovation.

In addition to the financial burden, this perception of government as owner could discourage private sector buy-in and a sense of ownership. It could also slow the adoption of newer technology or business arrangements, so this model should only be taken up when absolutely needed and should be continuously evaluated to ensure it does not slow industry maturation.

Other concerns identified the challenges of buffering such an effort from political changes, conflicting agency priorities and funding challenges, and creating a bulky government agency that would be too slow to innovate in this fast-moving arena.

Model Two: Electronic HIE Public Utility with Strong Government Oversight

Reviewers believed that Model Two would encourage private sector contributions, complemented by sustained public funding and oversight. Reviewers felt that this model was the most practical and timely option for most states, but perhaps not for all. This was confirmed by the fact that most of the advisory committee and case studies conducted by UMASS classified themselves as this model or a close derivative for much of their activities and history.

This model was frequently described as having a basis in the public utility model including forming a public-private commission under some state control or oversight. Many reviewers saw several direct advantages to using this approach and description. It reflected the proper recognition of the “industry” nature of HIE, including the potential profitable operation of these exchanges and the desire for innovation and adaptation. On the other hand, this model also recognizes the public good aspects of HIE, as well as the need for a level playing field to ensure access for all the stakeholders. The principles of interoperable utilities could also apply to efforts to bring together fragmented local efforts into a coherent relationship statewide.

A utility commission for HIE could provide a seat for all of the relevant government agencies and stakeholders, ensuring that the goals of various programs are recognized and addressed, and coordinate among federal and state initiatives. It would also have sufficient public oversight to garner stakeholder trust and alleviate some of the competitive challenges. Furthermore, the utility would allow for public

sector rate setting and other parameters to address liability issues and ensure appropriate contributions from all parties.

There were some cons cited by the reviewers that must be addressed. Specifically, reviewers stressed the importance that the entity/commission be created in a way that ensured the flexibility to react in timely manner to technology innovations and shifts in the broader health care arena. It is simple to describe this feature, but difficult to make a reality, and several reviewers cautioned states not to assume the model could remain static.

Finally, reviewers expressed concern that the commission could be seen as just one more player in a crowded and expensive health care arena. This could be counteracted if the HIE efforts were connected to other health care improvement concerns, such as payment reforms and quality assessment and measurement.

Model Three: Private-Sector-Led Electronic HIE with Government Collaboration

Several reviewers expressed the hope that this kind of “self-regulation” model would be functional, particularly as many existing exchanges use this as the premise. The vision would be for a system and environment that would allow for public sector input, while offering consumer protections and limited risk to all the stakeholders. However, the feeling was that the current environment in most states was not sufficiently ripe and the industry too new for this to be the model selected.

This model was seen as the most flexible and easiest to respond to changing technology and other market pressures. It also is less likely to be influenced by political change and public financing challenges. Government still has a role, but on an equal footing to other purchasers and stakeholders. It also allows for a balanced approach to financing structures so that benefits and costs can be aligned.

The major challenges for adopting this model were seen by the reviewers as two-fold. First, the business case for HIE remains questionable, creating too great a sense of risk for private sector stakeholders. This perceived risk exacerbates the competitive challenges that prevent moving beyond the status quo for many of the private sector actors. The other concern is that without government oversight establishing a level playing field, many important stakeholders—particularly small practices and safety net providers—are not able to enter the market. Eventually, the value of such a system will be realized by the consumer, but initially, state oversight efforts should focus on industry regulation that promotes cooperation and drives system performance.

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