



State Level Health Information Exchange

Final Report Part I: Roles in Ensuring Governance and Advancing Interoperability **Appendices A-D** **Profiles of State Level HIE Development**

Prepared for:
Department of
Health and
Human Services,
Office of the
National
Coordinator for
Health Information
Technology (ONC)

© FORE 2008
MX1337



Contract Number:
HHSP23320074100EC

March 10, 2008

Foundation of Research and Education
of American Health Information
Management Association
233 N. Michigan Ave., 21st Floor
Chicago, IL 60601-5800

phone: (312) 233-1100
fax: (312) 233-1090
www.ahima.org/fore

APPENDICES

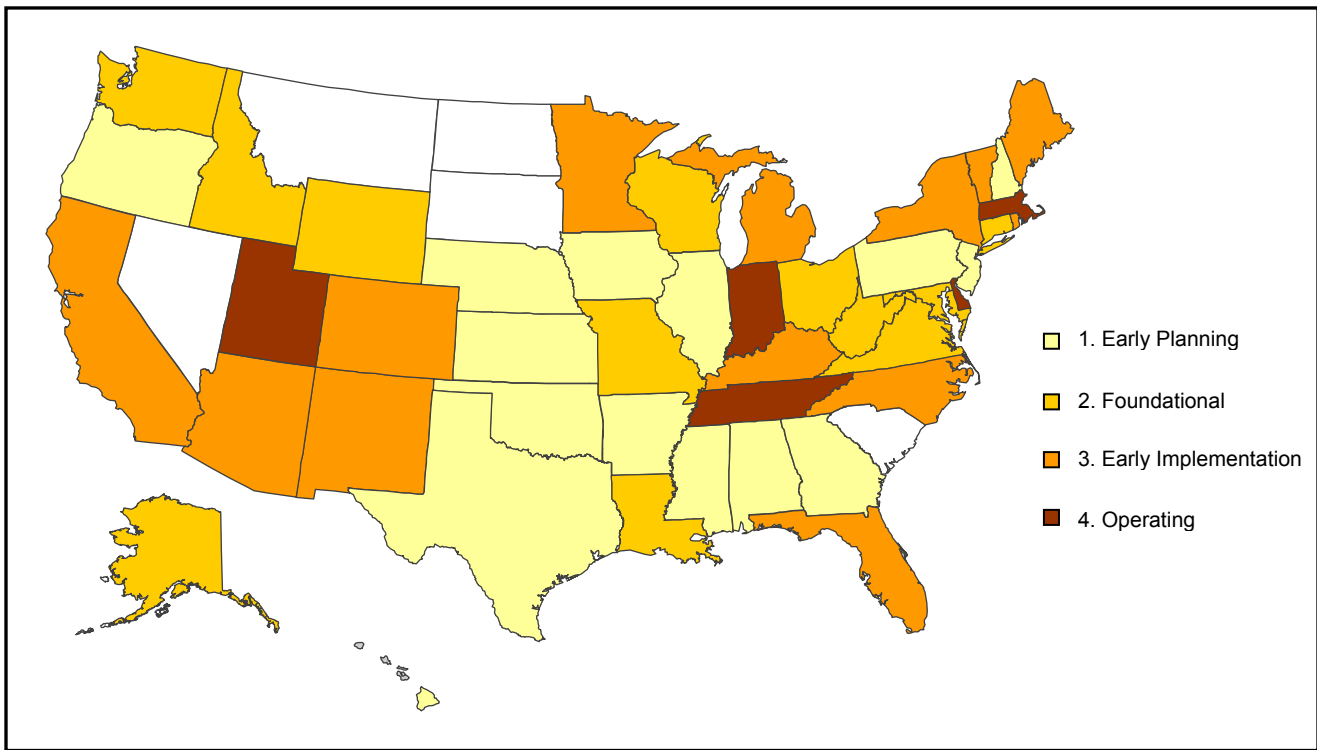
7 Appendix A - Continued Development of State-Level HIE Efforts

Although more than three-quarters of the states are pursuing HIE strategies of some kind, they vary considerably in their level of development. On the basis of a categorization developed by RTI International, state-level initiatives can be organized into the categories and development continuum described below.²⁴

1. **Early Planning (15 states as of January 2008):** An agency or government body conducted assessment of HIE efforts in the state.
2. **Foundational Component (12 states as of January 2008):** A central body was identified and established to coordinate HIE development. A governing body (e.g., board of directors) was appointed, operating committees established, and a strategic plan or road map completed.
3. **Early Implementation (13 states as of January 2008):** Some of the key road-map implementation steps have been undertaken, the state-level HIE initiative has begun coordination activities and/or selected a technology vendor, and pilot implementation has begun.
4. **Operating Implementation (five states as of January 2008):** A fully functioning state-level HIE is fulfilling either governance and/or technical operation roles, and the effort may be supporting only one or just a few types of clinical electronic HIE.

²⁴ *Privacy and Security Solutions for Interoperable Health Information Exchange: Assessment of Variation and Analysis of Solutions*. RTI International (July 2007).
http://healthit.ahrq.gov/portal/server.pt/gateway/PTARGS_0_1248_661882_0_0_18/AVAS.pdf.

Figure 3. Status of State-Level HIE Efforts (as of January 2008)



8 Appendix B - State-Level HIE Technical Operations

The research team categorized three dimensions of technical operations that could be provided by a state-level HIE:

1. *Infrastructure Components*: MPI, RLSs, clinical data repository
2. *Applications*: Administrative data sharing, clinical messaging, eprescribing, provision of EHRs
3. *Services*: Development of implementation guides, development and adoption of standards, work-flow optimization, and implementation support

Two of the state-level HIE initiatives assessed for this study are currently exchanging health information in an operational capacity; however, many states are exploring possibilities for statewide interoperability design, including how best to take advantage of economies of scale and the value created by data and transactional aggregation at both local and statewide levels.

Consistent with findings from previous studies, state-level HIE technology approaches vary considerably. The table below illustrates the types of statewide technical capacity currently offered or planned by six state-level HIE initiatives that serve in the technical operator role. *It should be noted that this information is preliminary and highly subject to change based on developing plans and timelines within these statewide HIE environments.* Additional profiles of states' technology approaches will be available in the updated Workbook.

Figure 4. State-Level HIE Technical Capacity

Technical Operations	CA CalRHIO	CO CORHIO	ME Health InfoNet	RI RIQI	TN eHealth Council	UT UHN
Infrastructure						
Statewide Master Person Index	Summer 2008	Summer 2008	Fall 2008	Summer 2008	Piloted in 2007	Summer 2009
Statewide Master Provider Index	Summer 2008	Summer 2008	Fall 2008	Summer 2008	NA	Summer 2009
Statewide Record Locator Service	Summer 2008	Summer 2008	Winter 2008	Fall 2008	TBD	Winter 2009
Central Data Repository	NA	NA	Winter 2008	NA	NA	NA
Applications						
Administrative Data Sharing	Summer 2008	TBD	NA	NA	Memphis 2006; CareSpark 2007	Already being done
Clinical Messaging	TBD	TBD	Winter 2008	TBD	TBD	2009
Credentialing	NA	NA	NA	NA	TBD	Already being done
EHR via an ASP model	TBD	NA	TBD	NA	TBD	Fall 2009

Eprescribing	Winter 2008	TBD	TBD	NA	Expansion in 2008	Fall 2009
Patient Clinical History	Summer 2008	Summer 2008	Winter 2008	Winter 2009	TBD	Fall 2009
Patient Medication History	Summer 2008	Summer 2008	Fall 2008	Winter 2009	Summer 2008	Fall 2009
Disease Management Services	NA	NA	NA	NA	Summer 2008	NA
Disease Management Registry	NA	TBD	NA	NA	Summer 2008	NA
Automated Reporting of Mandated Public Health Disease Surveillance Test Results	NA	TBD	Fall 2008	TBD	TBD	2010
Automated Reporting of Public Health Syndromic Surveillance Clinical Content	NA	TBD	NA	NA	TBD	TBD
Statewide PHR Supplier	NA	NA	NA	TBD	TBD	NA
Data Supplier to Local PHR Initiatives	Spring 2009	TBD	NA	TBD	TBD	TBD
Aggregation of Data for Marketing	NA	NA	NA	NA	NA	NA
Aggregation of Data for Public Health	NA	TBD	Spring 2011	TBD	TBD	TBD by Utah Department of Health
Aggregation of Data for Quality Metrics	NA	TBD	Spring 2011	TBD	Done at regional level	TBD
Aggregation of Data for Research	NA	TBD	NA	TBD	NA	TBD
Services						
Developing and Making Available Implementation Guides	Spring 2008	Fall 2007	Spring 2008	Fall 2008	Done at regional level	Already being done
Supporting Development and Adoption of Standards in Local HIEs		Fall 2007	Spring 2008	NA (no local HIEs)	Spring 2008	Already being done
HIE Interoperability Work-Flow Optimization Consulting	Spring 2008	NA	Summer 2008	Winter 2009		2009
Resource for Convening IT Vendors		NA	NA	NA	Summer 2008	Already being done
Clinical Data Standardization (e.g., Translation of Laboratory Test Codes to Logical Observation Identifiers Names and Codes)	Spring 2008	Spring 2008	Fall 2008	TBD	TBD	Already being done

NA – Not applicable: indicates that this feature is not envisioned as a core component of the technical framework, although this is subject to change and future development.

TBD – To be determined: indicates that this is a planned component of the technical road map, but implementation timelines have yet to be determined.

CalRHIO: California Regional Health Information Organization

CORHIO: Colorado Regional Health Information Organization

HealthInfoNet: Maine’s state-level HIE organization

RIQI: Rhode Island Quality Institute

eHealth Council: Tennessee’s state-level HIE entity

UHIN: Utah Health Information Network

9 Appendix C - Profiles of State-Level HIE: Sources and Mechanisms for Statewide Authority

State-level HIEs derive their ability to serve in a statewide capacity from a wide variety of sources. Research in 2006 revealed that launching of state-level HIE initiatives does not depend on the formation of a new legal entity.²⁵ States demonstrated that a preexisting entity can be used, or a virtual state-level HIE initiative can be established through the use of contracts and memoranda of understanding to establish the relationships between the parties or stakeholders and the governing structure for decision making.²⁶ In addition, state-level HIE initiatives frequently solicit participation of state government representatives on their boards and committees.

A state-level HIE initiative's scope of authority is commonly established by gubernatorial executive orders, legislation, agency regulations and rules, or contracts that specify performance of certain tasks (e.g., privacy assessment, technical services, standards implementation). A number of state-level HIE efforts have also used less formal mechanisms to gain recognition as entities that serve statewide interests. For example, gubernatorial campaign platforms and state agency policy briefs have been used effectively to confer recognition on state-level HIE efforts.

Figure 5 illustrates the various indices of authority for state-level HIE initiatives. It reveals a significant degree of variation across the states regarding which entities are conferred authority to provide or coordinate the elements of statewide HIE.

Although consolidating indices within a single organization has been proposed as a means for streamlining coordination efforts, some stakeholders expressed concerns about conferring control of privacy and security issues to entities that also have operational responsibilities. In its assessment of statewide HIE privacy and security approaches, the Research Triangle Institute (RTI) found that a governance arrangement in which the HIE oversees all aspects of governance could be interpreted as a conflict of interest because the HIE is responsible for making financial decisions that might conflict with its need to uphold community standards for privacy and security. For example, Vermont noted that it had observed a healthy tension between the board of directors of Vermont Information Technology Leaders, the state's HIE, and some of the proposals emerging from the state's Privacy and Security Solutions project work. The concern about the independence of the HIEs is most prevalent in states that have only a single HIE. State-level HIE efforts in Indiana, Massachusetts, and Utah, which are in more advanced stages of development, did not see an immediate need for a new governance structure.²⁷

State-level HIE representatives emphasized that sources of authority and the mechanisms used to confer authority are heavily influenced by local practices and practical considerations. For example, the degree to which state governments use executive orders, rules and regulations, and contracts varies significantly from

²⁵ *Development of State Level Health Information Exchange Initiatives: Final Report*. AHIMA/FORE (September 1, 2006). http://www.staterhio.org/documents/Final_Report_HHSP23320064105EC_090106_000.pdf.

²⁶ For an example of the multiparty data-sharing agreement and governance structure for a virtual HIE organization, see C.S. Sears et al, *The Indiana Network for Patient Care: A Case Study of a Successful Healthcare Data Sharing Agreement*. September 2005.

http://www.icemiller.com/pdf/2005_09_13_the_indiana_network_for_patient_care_a_case_study.pdf.

²⁷ Dimitropoulos, Linda. *Impact Analysis: Privacy and Security Solutions for Interoperable Health Information Exchange*. December 2007.

http://healthit.ahrq.gov/portal/server.pt/gateway/PTARGS_0_1248_815829_0_0_18/PrivacyandSecuritySolutionsProjectImpactAnalysis.pdf.

state to state. The Project Steering Committee came to no consensus about which sources or mechanisms of authority would be the most effective across all states.

Figure 5. State-Level HIE Initiatives' Indices of Statewide Authority as of January 2008

State-Level HIE Initiatives		Authority to Serve as Governance Entity				Authority to Provide Technical Operations	
		Executive Order	Legislation	Contracts (e.g., HISPC) ²⁸	Other	Federal Contracts (AHRQ SRD) ²⁹	State Contracts (HIE Services)
AZ	Arizona Health-e Connection	●		●			●
CA	CalRHIO			●			
CO	CORHIO			●		●	
FL	HIIAB ³⁰	●	●				
IN	IHIE			●		●	●
KY	KeHN Board		●				
LA	Louisiana Health Care Quality Forum		●		●		
MA	Massachusetts Health Data Consortium			●	●		
ME	HealthInfoNet			●			●
MI	MiHIN Resource Center		●				●
NY	New York eHealth Collaborative				●		●
RI	Rhode Island Quality Institute			●	●		●
TN	Tennessee eHealth Council	●				●	
UT	UHIN				●	●	●
WA	HIIAB ³¹		●				

²⁸ In Florida, Kentucky, Louisiana, New York, Utah, and Washington, state agencies designated organizations other than the state-level HIE to lead the HISPC activities.

²⁹ AHRQ awarded State and Regional Demonstration (SRD) contracts to six states (Colorado, Delaware, Indiana, Rhode Island, Tennessee, and Utah).

³⁰ Florida's Health Information Infrastructure Advisory Board (HIIAB) term expired in June 2007. Currently, the Agency for Health Care Administration (AHCA) is facilitating many of the statewide HIE activities.

³¹ Washington State's HIIAB term expired in December 2006. Currently, Health Care Authority (HCA) is facilitating many of the statewide HIE activities.

10 Appendix D - Profiles of State-Level HIE: Organizational Models and Development Pathways

A. State Government–Led Public Private Partnerships

State governments play a significant role in supporting and leading state-level HIE initiatives. To date, some governors have issued executive orders, and states have passed laws to create PPPs to provide the foundational elements of convening and coordinating stakeholders. Among the Project Steering Committee members, state governments in Florida, Kentucky, Louisiana, Tennessee, and Washington illustrate a variety of leadership roles in their respective state-level HIE initiatives.

State Governments as Temporary Caretakers (Florida, Louisiana, and Washington)

In three states (Florida, Louisiana, and Washington), the originally chartered entities commissioned to study, assess, and make recommendations regarding statewide HIE have expired. To sustain statewide HIE efforts, state agencies have assumed temporary caretaker roles while planning continues for new PPPs. State government representatives from all three states indicate that they foresee their efforts eventually being advanced by independent PPP entities.

For example, after the expiration of the Florida Governor’s HIIAB three-year term in June 2007, the Office of Health Information Technology within the Florida Center for Health Information and Policy Analysis in the AHCA began sponsoring the statewide convening and coordinating functions. Currently, the Florida Center is working to create a HIE Coordinating Committee consisting of health information stakeholders to provide guidance for the development of the Florida Health Information Network.³²

In 2007 and 2008, the Florida budget to support the governance role was \$2 million. Funding was used to support four full-time staff members and coordinate and support RHIO activities through seminars, training, assistance with grant preparation, and other ad hoc tasks.

Florida’s Office of Health Information Technology	
Annual Budget	\$2 million for staff and operations
Staff	1 administrator 2 government analysts 1 government operations consultant
Services	Coordinate and support RHIO activities through seminars, training, assistance with grant preparation, and other ad hoc tasks

³² Additional details on plans for the Florida HIE Coordinating Committee are available online at http://www.fdhc.state.fl.us/SCHS/chistwg_HIECC.shtml.

=====

WASHINGTON (Profile of Nascent State-Led PPP)

Washington is a midsized state in terms of population (15th largest) and geographic area (20th largest). Its population of nearly 6.4 million is concentrated mainly in the urban areas of the state (82 percent), though the state has many rural parts. Approximately 15 percent of the state's population is uninsured. The provider landscape includes nearly 19,000 physicians and 393 physician groups, 111 hospitals, and 22 community health centers. Information from an informal survey conducted by the Washington State HCA and an electronic survey of members by the Washington State Medical Association in 2006 indicates that of those that responded, 25 percent of ambulatory providers, more than 50 percent of small physician offices, and 88 percent of the state's 24 largest multispecialty clinics had EHR systems.³³

Evolution of State-Level HIE Initiative: In 2005, the state of Washington legislature passed Substitute Senate Bill 5064 enacted as chapter 261, Laws of 2005. The bill required the HCA and a 12 person advisory body, the HIIAB, to develop a strategy for the adoption and use of EMRs and health ITs.

In December 2006, HCA and HIIAB jointly submitted their final report, *Washington State Health Care Authority Health Information Infrastructure: Final Report and Roadmap for State Action*, and the term of the HIIAB officially expired. The Washington State legislature and the governor adopted the report's recommendations and road map.

In 2006, the legislature appropriated \$3.4 million for the HCA and a reconstituted HIIAB to continue the work and implement the first consumer-centric health record bank (HRB) pilots to be operational by January 2009. An additional \$1 million was also appropriated to provide grants to qualifying small providers, small practices, and rural health entities of up to \$20,000.

With the a new legislative mandate, the HCA and the reconvened HIIAB are finalizing plans for a consumer-designated and -controlled HRB system to enable statewide HIE. As of this writing, HCA is vetting the details on the design, requirements, and specifications in potential pilot communities.

HIE Activities: The state of Washington enjoys significant penetration of health IT among its providers and a number of long-standing local HIE efforts including:

- ***Local HIE Efforts:*** Significant local exchange activities are occurring in Wenatchee, Tacoma, Yakima, the Tri-Cities, Bellingham, Seattle, and Spokane. Washington has two well-regarded and established HIEs: Whatcom County Health Information Network (Hi-NET) in Bellingham connects community health services, payers, hospitals, and physician offices via an Intranet, and Inland Northwest Health Services (INHS) connects Spokane-area hospitals and regional medical services.
- ***Chartered Value Exchanges:*** As of February 2008, HHS designated one entity in Washington, the Puget Sound Health Alliance, as a Chartered Value Exchange. Currently, the Puget Sound Health Alliance maintains a database of 1.6 million records covering data from 2004 to September 2006.

³³ Thomas and Associates Consulting. *Report to WA State Health Information Infrastructure Advisory Board (HIIAB) SSB 5064. March 23, 2006.* Available online at: site: <http://www.hca.wa.gov/hit/doc/HThomasHITinWAState.pdf>.

- **Administrative Data Providers:** OneHealthPort, an example of an administrative data provider created by a coalition of health plans, physicians, and hospitals, provides the Medication Information eXchange—a collaborative community-wide program to make medication history and benefit information available to healthcare providers.
- **State Registries:** Washington State maintains registries for immunization (CHILD Profile), prescription drug monitoring, HIV, and diabetes.
- **Tele-Medicine/Tele-Health:** Various communities in Washington State are collaborating with the Washington Telehealth Consortium as part of an FCC grant for a 12-month period. The consortium's goals are to leverage existing infrastructure, connect existing networks, and facilitate access to telehealth services for rural health/social service providers and residents.

Proposed Organizational Relationship: The HIIAB's final report recommended the creation of a competitive HRB model in which multiple organizations in a community operate as HRBs where consumers may choose to store their health records. According to this model, a consumer elects whether to participate and selects the HRB he or she wishes to use. A central account locator service will ultimately be established to keep track of which HRB holds the record for each consumer. When the record is needed for care, the consumer provides access information for the record (i.e., the name of his or her bank and account number). The consumer record is then obtained directly from the applicable HRB. When the care is completed, a copy of the information is sent directly to the consumer's HRB for aggregation with the existing health record.

To oversee the HRBs, representatives from the original planning process are considering the creation of an entity that would serve as a utility commission. Although still in development, the proposed utility commission would have the authority (either from legislation or rule making) to:

- Serve as a consumer ombudsman
- Accredite HRBs
- Review conformance to agreed-upon privacy, security, technical, and standards policies
- Provide for sanctions and penalties for misuse of the system
- Enforce rules

Key Findings: As in many states, the difficulty in securing adequate funds and the lack of a clear mandate for the proposed statewide HIE framework have slowed progress. Despite the setbacks, local communities continue to invest and participate in the consensus approach and work with the HCA and HIIAB to leverage community infrastructure, resources, and funding.

State Governments in Long-Term Governance Roles (Kentucky and Tennessee)

Unlike agencies in Florida, Louisiana, and Washington, state agencies in Kentucky and Tennessee are leading their respective governance roles assisted by advisory bodies consisting of local stakeholders from the public and private sectors. As these efforts continue to develop, a key challenge will be to establish an organizational structure and capacity that can span successive governors' administrations.

In Kentucky, a bifurcated governance-operator relationship is emerging between the Kentucky e-Health Network (KeHN) Board, which is an advisory committee supported by state government, and the Kentucky

e-Health Corporation (KeHC), a newly formed independent PPP. Created in March 2005, KeHC currently receives funds from the general assembly; establishes committees to set policy, procedures, and standards and issue guidance; and oversees grant programs for health IT adoption.

Although KeHC continues to serve in a governance capacity, KeHC will serve in the technical operations role. With obligations to provide quarterly financial and programmatic reports to KeHC and the state government, KeHC will manage the development and operations of the statewide KeHC, which is being supported by a \$3.75 million Medicaid Transformation Grant.³⁴

In Tennessee, Governor Phil Bredesen issued an executive order in 2006 to form Tennessee's eHealth Council, which includes public and private stakeholders from across the state, representing payers, employers, providers, and HIEs. The Council provides advice and recommendations to the governor regarding policies to support the emergence and adoption of health IT.

The Council's goal is to accelerate adoption of EHRs by building in an incremental fashion such that incremental success can build momentum. Initially, the Council's efforts were directed toward building the legal framework to forge trust and establish rules of engagement for HIE in Tennessee. Moving forward, Tennessee's road map includes milestones that will continue to strengthen the basic infrastructure hosting the Tennessee eHealth Exchange Zone. The Council collaborates among stakeholders to incubate initiatives, as well as to develop standards for HIE, including best practices, recommended minimum core data set, interoperability, and federated identity management to facilitate secure, single-sign-on capability.

In support of the Council and related projects, the State Office for eHealth Initiatives has a \$650,000 administrative budget to cover four full-time staff members, offices, overhead, meetings, supplies, and all other aspects of council administration.

Tennessee State Office for eHealth Initiatives	
Annual Budget	\$650,000 for staff, overhead, meetings, and supplies
Staff	4 full-time staff members
Services	Support for state and federal grant programs and the Governor's eHealth Council

TENNESSEE (Profile of a State Government–Led Public-Private Initiative)

Tennessee has a population of 6.1 million with more than half of the state's population residing in rural areas. Approximately 10% of Tennesseans are uninsured, and approximately one-third are enrolled in public health insurance programs.

Evolution of State-level HIE Initiative:

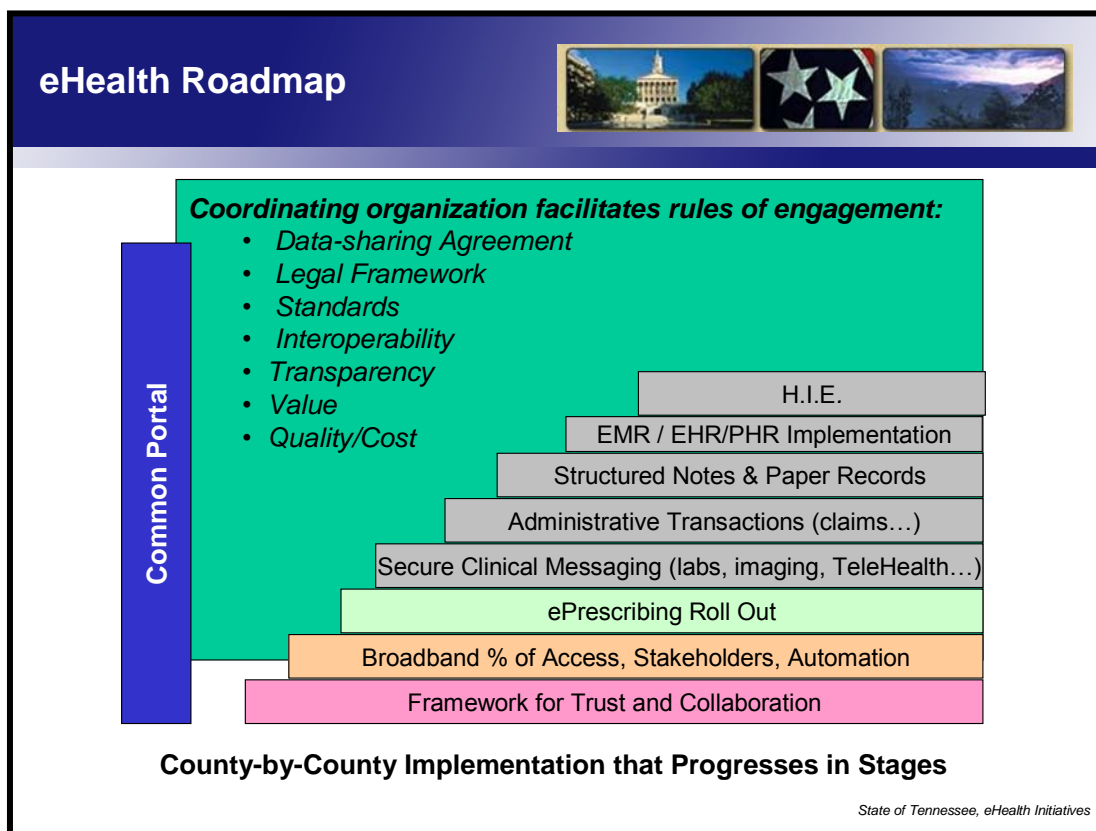
In his inaugural speech in 2003, Governor Phil Bredesen announced his intentions to reform the use of IT in healthcare. In 2004, Tennessee formally began this process when the MidSouth eHealth Alliance (MSeHA), a Memphis-area RHIO, was created with a multiyear grant of \$4.8 million federal from the AHRQ, \$7.2 million in state funding, and in-kind contributions from Vanderbilt University. MSeHA brings clinical patient encounter data from 15 area hospitals, 16 clinics, one university medical group, and one Medicaid managed care organization (MCO) to bear at the point of care. This initiative began in hospital emergency departments and has since expanded to include safety net clinics and hospitalists. MSeHA EHRs include admissions and discharge information, laboratory results, radiology results, transcriptions, and other clinical and demographic encounter

³⁴ An illustration of the organizational relationship and funding strategy for KeHC is available online at http://ehealth.ky.gov/NR/rdonlyres/DD58A179-1E6F-4815-981C-F9E15D63A86B/0/KeHC_Presentation_KeHCBusinessPlan_101607.pdf.

information. Actively sharing data since June 2006, MSeHA has 1.35 million records for 950,000 unique patients. Approximately 30,000 records are added daily.

In 2005, Tennessee’s Medicaid program, TennCare, contracted with Shared Health to provide clinical health records based on claims data for all TennCare enrollees. Sharing data among practitioners since June 2006, Shared Health has now amassed records for almost 2 million Tennesseans, or one-third of the state’s population.

In 2006, Governor Bredesen issued an executive order to form Tennessee’s eHealth Advisory Council, supported by the Office of eHealth Initiatives in the Tennessee Department of Finance and Administration. The Council includes public and private stakeholders from across the state, representing payers, employers, providers, and HIEs. Tennessee’s eHealth Council has established the following road map to guide stepwise progression toward the ultimate goal of having longitudinal EHRs for all Tennesseans.



The Council collaborates among stakeholders to develop standards for HIE including best practices, recommended minimum core data set, interoperability, and federated identity management to facilitate secure single-sign-on capability. They are also incubating initiatives to support ongoing progress and rollout strategies on multiple health IT fronts.

In 2007, eHealth Initiatives partnered with the Department of Health and the Community Health Network, using \$1.6 million in state funds and \$364,000 in United States Department of Agriculture funds, to establish the Tennessee TeleHealth Network and provide secure high-speed broadband connectivity to Tennessee’s 45 federally qualified health centers. This same team of partners also secured \$1.6 million from HRSA to develop the Middle Tennessee Rural Health Information Network connecting four rural hospitals and a community clinic for data exchange. A similar

partnership between eHealth Initiatives, the University of Tennessee Health Sciences Center, and Community Health Network secured nearly \$8 million in Federal Communications Commission (FCC) funding to connect 400 additional nonprofit sites and encourage their use of health IT and TeleHealth. The year 2007 also saw the emergence of more regional initiatives, including CareSpark in upper east Tennessee, a \$2.68 million NHIN trial implementation awardee, and the Innovation Valley Health Information Network in the Knoxville area.

In 2008, eHealth Initiatives is disbursing \$10 million in state funds to physician practices and clinics statewide to drive adoption and use of the Tennessee eHealth Exchange Zone. These grants include connectivity via the state's secure, private broadband network, as well as seed money for eprescribing or EMR applications.

HIE Activities:

- ***Local HIE Efforts:*** Three HIEs are actively exchanging data in Tennessee as of February 2008. MSeHA has 1.35 million records (clinical data) for 950,000 unique patients in the Memphis area. Shared Health has records (claims data) for almost 2 million unique Tennesseans statewide, including the Medicaid population. CareSpark is currently launching a community-based exchange that will serve 17 counties in upper east Tennessee and southwest Virginia. Emerging initiatives are under way in the Nashville area and in the upper Cumberland area of middle Tennessee.
- ***Chartered Value Exchanges:*** As of February 2008, HHS has designated one Chartered Value Exchange in Tennessee: Healthy Memphis Common Table.
- ***Statewide Data Activities:*** Built on the foundation provided by the inclusion of Tennessee's Medicaid population, Shared Health has clinical health records based primarily on claims data for almost 2 million Tennesseans, or one-third of the state's population. The Office of eHealth Initiatives is driving connectivity and eprescribing among healthcare providers statewide by disbursing grants totaling \$10 million in state funds to physician practices and clinics statewide.
- ***State Registries:*** Tennessee maintains registries for immunization, low birth weight, cancer, and controlled substances prescribed.

Organizational Relationships: The eHealth Council serves in an advisory capacity for state policy makers, recommending rules and policies to facilitate secure HIE statewide. State government is supporting the development of sufficient infrastructure to support the growth and use of the Tennessee eHealth Exchange Zone. In addition, state government is working to spur adoption of health IT to build critical mass in the marketplace.

Substantial emphasis has been placed on local control of the standards and practices for regional initiatives. The statewide rules and policies for HIE deliberately leave significant room for individual information sources to strike their own data-sharing agreements once they are connected via the common, state-facilitated infrastructure. Market forces are expected to drive further opportunities for progress once the basic infrastructure is in place for the Exchange Zone and a critical mass of users are on the system.

Key Findings: To date, the strongest drivers of statewide HIE activities in Tennessee have been gubernatorial leadership, support from the Tennessee General Assembly, highly engaged commitment from senior leadership among key stakeholders, and availability of significant state and federal funds for HIE activities.

B. Independent Public Private Partnerships: Governance

In Massachusetts, Michigan, and New York, independent PPPs have been established, and their primary focus is convening and coordinating functions. In each of the three states, the technical operations are the purview of other entities. Although the state-level HIE entities in Michigan and New York are relatively new and currently depend on state government funding to support their operations, the state-level HIE in Massachusetts has been operational since 1978 and depends on member contributions for sustainability.

In Michigan and New York, independent public-private organizations have emerged to fulfill key governance roles and help local RHIOs develop their HIE capabilities.

Launched in June 2007 from a Michigan Department of Community Health planning grant, the Michigan Health Information Network (MiHIN) Resource Center assists regional HIE efforts across the state by providing assistance and knowledge to increase the adoption rate and successful implementation. The MiHIN Resource Center's charter calls upon it to provide assistance to regional HIEs, including interpreting legal statutes; assisting with representation at state and national levels; and identifying and promoting standard policies and procedures for HIE operation, governance, and financing. MiHIN will also provide support for technological infrastructure, education, and awareness about HIE in the state and information on national initiatives and standards.³⁵

In New York, the New York e-Health Collaborative (NYeC) has emerged as the focal point for convening and coordinating statewide efforts to guide the development of a Statewide Health Information Network for New York (SHIN-NY). Incorporated in 2006, NYeC is a PPP that serves as a leader and point of convergence for healthcare stakeholders across the state to build consensus on health IT policy priorities and to collaborate on implementation efforts. The organization lists its principal goals as developing health IT and HIE policies and standards that will facilitate both interoperability and the protection of consumers' health information; evaluating and establishing accountability measures for New York's overall health IT strategy; and convening, educating, and engaging key constituencies to ensure that a broad range of stakeholders share a unified vision and approach to health IT and HIE efforts.

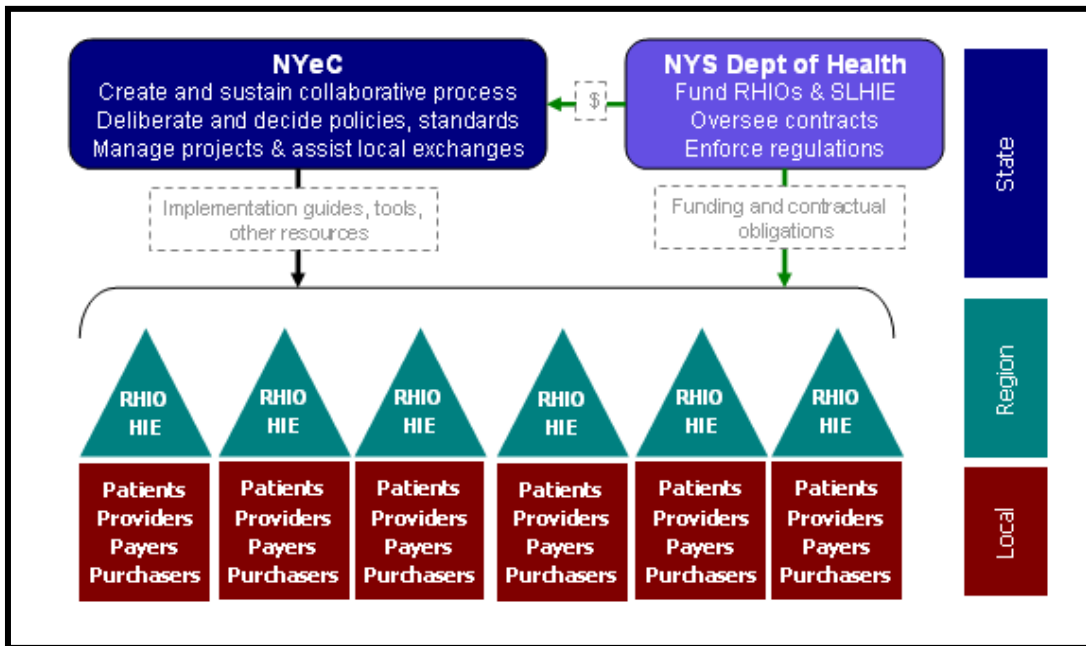
Both MiHIN and NYeC depend upon funding from state government to support staff members and convening and coordinating activities. In addition to its annual budget for staff and so on, NYeC has budgeted an additional \$150,000 for costs related to convening—meetings, conference calls, travel, and publications.

	MiHIN	NYeC
Annual Budget	\$1 million for staff	Approximately \$1.5 million for staff and costs for meetings, conference calls, travel, and publications
Staff	1 executive director 2 senior project managers 2 project managers 2 business analysts 1 analyst	1 executive director 2 program staff members focusing on communications 1 controller 2 administrative assistants

³⁵ Additional details on MiHIN and its responsibilities are online at <http://www.mihin.org>.

NEW YORK (Profile of a Nascent Independent Governance Entity)

New York’s total population is 19 million, making it the third most populous state in the United States. Nearly 8 percent of New Yorkers live in a rural area. Approximately 17 percent of New Yorkers are uninsured, and 19 percent are enrolled in public health insurance programs. Active in New York are approximately 23 commercial health maintenance organizations, 17 Medicare health maintenance organizations, and 17 Medicaid managed care plans. The provider landscape includes 236 hospitals and 131 community health centers; New York State has 21 general practitioners per 100,000 people compared with 339 specialists per 100,000. According to the Medical Society of the State of New York, the 2006 adoption rate for EHRs was 18 percent for all physicians and 8 percent for physicians in small groups or in solo practices.



Evolution of State-Level HIE Initiative: In March 2005, HHS Secretary Mike Leavitt and New York Governor George Pataki announced a reform plan for New York's Medicaid program that would include, among other focus areas, investing in eprescribing, EMRs, and RHIO activities. This waiver program is known as the Federal-State Health Reform Partnership and will reinvest \$1.5 billion of savings in federal funding for these and other purposes.

In fall 2005, the New York State Department of Health announced the availability of funds under the Health Care Efficiency and Affordability Law for New Yorkers (HEAL NY) Grant Program. HEAL NY is a multiyear, multiphased program that supports development and investment in health IT initiatives on a regional level. The HEAL NY phase 1 grant process provided \$52 million to 26 grantees for health IT and HIE efforts. HEAL NY phase 5 grants, which will provide an additional \$105 million to support RHIOs, will be released in spring 2008.

In fall 2006, NYeC was incorporated as a PPP to serve as a leader and point of convergence for healthcare stakeholders across the state to build consensus on health IT policy priorities and to collaborate on implementation efforts.

In January 2007, the Office of Health Information Technology Transformation (OHITT) was created to provide guidance to state and private-sector efforts to improve healthcare quality, accountability, and efficiency through widespread deployment of health IT. OHITT also oversees the HEAL NY grantees.

HIE Activities:

- ***Local HIE Efforts:*** By virtue of significant state funding, there are more than 20 local HIE initiatives in the state of New York, though only one, the Taconic Health Information Network and Community RHIO, was exchanging data as of February 2008.
- ***Chartered Value Exchanges:*** As of February 2008, HHS designated two entities in New York as Chartered Value Exchanges: the New York Quality Alliance and the Niagara Health Quality Coalition.
- ***Statewide Data Activities:*** New York State Department of Health manages the Electronic Medicaid Program of New York State, a database that provides Medicaid eligibility verification to service providers, Medicaid claims payments, and managed care broker enrollment.
- ***State Registries:*** New York State maintains registries for immunization, cancer, and prescription drug monitoring.

Organizational Relationships: The proposed organizational relationship of entities is articulated in the New York State Department of Health's HEAL 5 funding solicitation.³⁶

A central strategic focus of New York State's efforts is to advance interoperability through the development and implementation of a shared health information infrastructure based on a community-driven model available to all providers, payers, and patients. The HIE will evolve in two layers: a *statewide* framework of rules and policies that facilitates exchange between multiple networks at the *local* level. In this two-layer model, NYeC, with state funding, will support the creation and deployment of common policies, technical standards, and protocols, as well as regional bottom-up approaches that allow local communities to structure their own efforts on the basis of clinical and patient priorities.

At the state level, the expectation is that there will not be a single central repository or HIE. Instead, OHITT envisions the evolution of SHIN-NY, which will be responsible for a set of agreed-upon rules, policies, and standards that facilitate the flow of health information across entities.

A portion of the state's \$105 million HEAL 5 investment will be used to support the state-level activities. First, OHITT will commit \$5 million over two years to the PPP, NYeC, which will serve as a multistakeholder, consensus-driven entity that discusses, analyzes, and makes decisions regarding health information policies and standards for New York.

At the local level, RHIOs are being created to serve as the entities that govern HIE in their regions. Funds from HEAL 1 supported the creation (or expansion) of 13 RHIOs across the state. RHIOs will oversee the development of connections between local healthcare

³⁶ NY State Office of Health Information Technology Transformation. *HEAL NY Phase 5 Health IT RGA Section 7.2: Technical Discussion Document: Architectural Framework for New York's Health Information Infrastructure.*

providers and ensure they conform to the SHIN-NY policy, privacy, and technical framework.

Key Findings: To date, the following have been drivers of statewide HIE activities in New York: committed senior-level leadership in state government and key stakeholders, wide stakeholder participation, and availability of significant funds for HIE activities.

=====

Like those in Michigan and New York, the state-level HIE organization in Massachusetts, the Massachusetts Health Data Consortium (MHDC), is an independent PPP that fulfills the convening and coordinating functions. MHDC, formed in 1978, serves as a convening, advocacy, and policy organization. It brings the healthcare community together to address issues of common concern, holds educational events several times a year that inform stakeholders and the public about the opportunities and challenges of HIE, and helps implement projects that advance health IT and HIE, such as the Massachusetts HISPC.

As noted previously, MHDC staff members estimate that the governance role requires a 25 percent time commitment from the executive director and the director of healthcare policy. They estimate the fully loaded cost of the share of their convening activities to be approximately \$125,000 per year, spread across multiple individuals. With respect to coordination of privacy and security efforts, MHDC's level of effort to support the work of the HISPC is approximately \$500,000 per year.

The approach in Massachusetts differs from those in Michigan and New York in two ways: the sustainability model and the relationships with statewide technical operators. With respect to the former, unlike MiHIN and NYeC, MHDC's convening and coordinating functions are financed by revenue from its broad general membership, not state grants or donations. MHDC staff members commented that this financing approach promotes a sense that convening and governance are inclusive, open processes.

Massachusetts has two entities, Massachusetts Simplifying Healthcare Among Regional Entities (MA-SHARE) and NEHEN, that operate and manage various technical facets of HIE statewide. The arrangements among MHDC, MA-SHARE, and NEHEN are outlined in the profile below.

=====

MASSACHUSETTS³⁷ (Profile of an Established Independent Governance Entity)

Most of the 6.4 million residents of Massachusetts live in the Boston metropolitan area. Less than 1 percent of the state's population is rural. More than 1 million Massachusetts residents are enrolled in Medicaid, and nearly 970,000 are enrolled in Medicare. Most healthcare delivery is in the Boston metropolitan area, and three, large integrated delivery networks (CareGroup, Partners, and Caritas) deliver much of the healthcare for the state.

Evolution of State-Level HIE Initiative: In 1978, MHDC was founded to lead the development of a comprehensive health data system to address the health information needs of the state for the purpose of improving healthcare and health. In 1995, MHDC created the Affiliated Health Networks of New England and Chief Information Officer (CIO) Forum working groups. The CIOs from payers, providers, and employer groups agreed to meet on a monthly basis to discuss the use of IT to streamline healthcare commerce, reduce costs, and enhance care delivery processes. Early work included common privacy/security guidelines, common data sets for describing clinical encounters, and early discussions of how organizations could collectively address HIPAA compliance issues as a region rather than a series of disjointed efforts.

³⁷ Adapted from Halamka et al, *Health Care IT Collaboration in Massachusetts: The Experience of Creating Regional Connectivity* JAMIA, December 2005.

In 1998, NEHEN, a consortium of regional payers and providers, was formed to design and implement a secure electronic-commerce solution to exchange HIPAA standard transactions for eligibility, referrals, and billing. NEHEN members pay a tiered membership fee to participate in administrative data exchange. Currently, NEHEN has a greater than 90 percent adoption rate among the commercial health insurance carriers in New England.

After the creation of NEHEN, MHDC facilitated the creation of MA-SHARE. The purpose of MA-SHARE is to foster improvements in community clinical connectivity, enabling appropriate sharing of interorganizational healthcare data among the various participants in the healthcare system, including patients, clinicians, hospitals, government, and payers. Its operating goal is to serve as the clinical grid, providing community utility services that support secure clinical data exchange just as NEHEN provides administrative data exchange.

In 2003, MA-SHARE began operations as a project of MHDC. MA-SHARE promotes the interorganizational exchange of healthcare data by using information technology, standards, and administrative simplification to make accurate clinical health information available wherever needed in an efficient, cost-effective, and safe manner. MA-SHARE has received grants from stakeholders, foundations, and the federal government. To promote sustainability, MA-SHARE has initiated a subscription fee model for eprescribing (\$50,000 to \$100,000 per year, depending on size). MA-SHARE hopes to become self-sustaining in 2008.

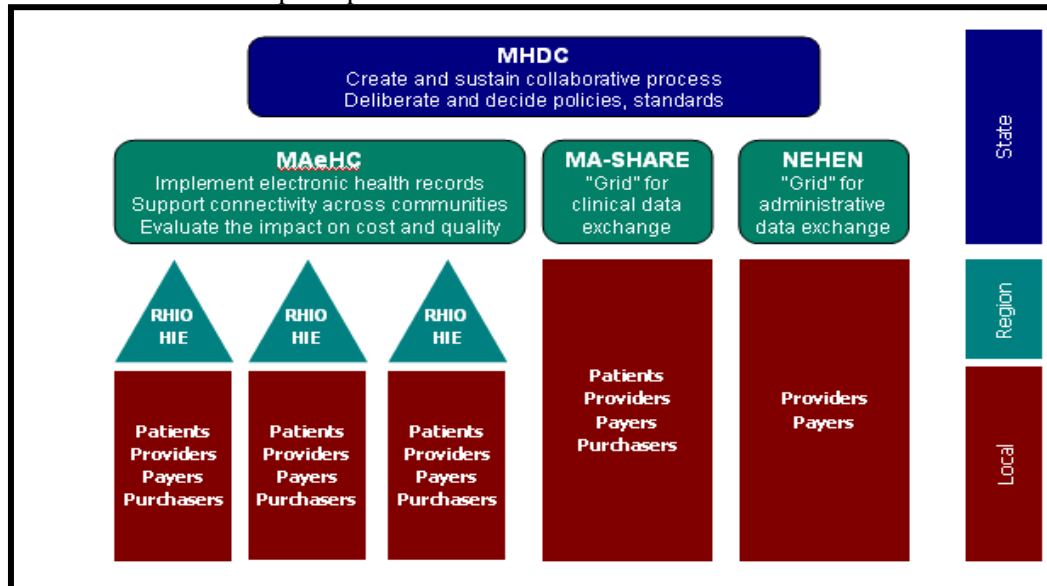
In 2004, Massachusetts e-Health Collaborative (MAeHC) formed as an initiative of the physician community to bring together the state's major healthcare stakeholders for the purpose of establishing an EHR system that would enhance the quality, efficiency, and safety of care in Massachusetts. Including 34 member organizations and participating pilot communities, MAeHC received \$50 million in initial funding from payers. MAeHC awarded \$3 million to local HIE pilot programs, on the condition that they develop self-sustaining models. MAeHC is developing a model for achieving sustainability during 2008.

HIE Activities:

- ***Local HIE Efforts:*** Massachusetts has four local HIE initiatives: one supported by the Fallon Community Health Plan and three others supported by MAeHC.
- ***Chartered Value Exchanges:*** As of February 2008, HHS designated one Massachusetts organization, the Massachusetts Chartered Value Exchange, as a Chartered Value Exchange.
- ***Statewide Data Activities:*** NEHEN serves as the grid for community exchange of administrative data, and MA-SHARE provides the grid for community exchange of clinical data.
- ***State Registries:*** Massachusetts maintains registries for prescription drug monitoring.

Organizational Relationships: Unlike other states, Massachusetts has no overarching plan for statewide HIE efforts. Instead, the governance and operational roles have evolved organically from a variety of efforts and initiatives. A clear division of labor has evolved among these organizations, with each playing a key role in accomplishing the overall objective of facilitating regional data exchange. In Massachusetts, the organizations' four separate roles have been characterized as the *convener*, the *transactor*, the *grid*, and the *last mile*. As described below, these four organizations perform these distinct but complementary

roles in a way that fully addresses the overall mission of increasing diffusion of clinical IT to improve the quality, safety, and cost-effectiveness of healthcare. Close communication and coordination across these efforts has been maintained because many of the same people are on the boards of the four principle entities.



The convening function is performed by MHDC, which brings all the stakeholders together to build relationships, share perspectives, and devise collaboration opportunities in health IT, HIE, and health data.

Actual technology development and operations, as opposed to convening, is done by MA-SHARE and NEHEN. MAeHC supports local implementation of health IT and HIE capabilities.

Although MHDC convenes the standards and policy committees, other organizations in the state (NEHEN, MA-SHARE, and MAeHC) agree to implement, test, and enforce the use of these standards and policies. For example, MAeHC will fund the installation of an EHR in a clinician's office only if it meets the interoperability requirements specified by the technical advisory board, enabling the secure exchange of clinical data across the continuum of patient care.

Although the Massachusetts State government does not directly support local HIE activities, it participates on the board of MHDC and through the Group Insurance Commission required implementation of the Clinical Performance Improvement Initiative, which gathers quality and efficiency data for hospitals and physicians.

Key Findings: To date, the following have been drivers of statewide HIE activities in Massachusetts: long, successful history of collaboration among competitive entities; significant financial support for local HIE implementation from the private sector; independent but well-coordinated relationships with entities involved with implementation; significant nationally recognized HIE expertise at multiple levels.

C. Independent Public Private Partnerships: Governance and Technical Operations

State-Level HIE Initiatives Among Local HIEs (Arizona, California, Colorado, Indiana)

In Arizona, California, Colorado, and Indiana, state-level HIEs serve both the governance and technical operator roles and share a common challenge: they operate in geographically large and complex markets among multiple, independent HIE efforts. Moreover, in all but Indiana, the local HIEs arose before the establishment of the state-level HIE initiatives. In this environment, each must chart a technology and governance trajectory that incorporates the varied needs of their respective incumbent entities.

In Arizona, the Arizona Health-e Connection, a not-for-profit organization formed in January 2007, evolved from Governor Napolitano's 2005 executive order to develop a statewide e-health infrastructure and EHRs for every Arizonan by 2010. Arizona Health-e Connection's strategic direction has three categories: serving as an information clearinghouse on HIE, leading development of standards, and supporting infrastructure as it develops around the state. The Arizona Health-e Connection currently is focused on its governance role and trying to ensure coordination among a fledgling RHIO effort in the state, the state's Medicaid HIE, the Arizona HealthQuery (an integrated database of medical records from public and private data sources in Arizona), and local hospitals and physician practices. As part of its governance role, Arizona Health-e Connection operates a Council of Initiatives, which convenes entities in the state that are doing anything related to HIE (i.e., public health alerts, funding of rural health IT, centers of Medicaid, docket program, rural health office, etc.).

In California, the CalRHIO is a collaborative effort to incrementally build the structure and capabilities necessary for a secure statewide data-exchange system that enables California's healthcare providers and patients to access vital patient information at the time and place it is needed. On March 13, 2007, CalRHIO announced the results of its vendor selection process to build a statewide HIE utility service that will offer physicians, providers, local HIEs, government agencies, and patients access to critical information sources through a common statewide technology platform. CalRHIO is developing a business model that will permit it to raise private seed money to fund start-up costs for the CalRHIO HIE utility service, including building the statewide backbone infrastructure and integration, marketing and communication, and CalRHIO's operating budget. Financing requirements for the entire statewide implementation are estimated at \$300 million.

CORHIO began in 2004 as an informal statewide initiative after the award of a AHRQ SRD contract to Colorado through the University of Colorado Health Sciences Center. On the basis of broad stakeholder consensus, CORHIO was incorporated in early 2007 as an independent nonprofit public-partnership entity to provide statewide governance and state-level technical operations. Its initial technical development project has been to build a federated point-of-care clinical data exchange among four major Denver-based health systems, including safety net providers and Kaiser Permanente, under the terms of the AHRQ contract. The launch of live data exchange is targeted for early summer 2008, and CORHIO is in the midst of determining its business model and financing strategies to expand its technical implementation to support clinical messaging, administrative, and population data exchange in conjunction with priorities of local HIEs and other key stakeholders. CORHIO is part of Governor Bill Ritter's Building Blocks to Reform agenda; through the Colorado Department of Health Care Policy and Financing, home to Colorado Medicaid, he committed \$250,000 from the general fund to be matched by federal funds and funds to be contributed by the private sector.

The staffing models for the independent PPPs in the four states ranges from IHIE, which currently employs 32 professionals, to state-level HIE organizations that have fewer than five staff members each (Arizona Health-e Connection, CalRHIO, and CORHIO). Like many small, entrepreneurial organizations, the newer state-level HIE initiatives often rely upon external consultants and in-kind contributions of staff, space, and services from other organizations. An illustration of staffing models for state-level HIEs that combine the governance and technical operator roles is provided below.

Figure 6. Sample Staff Positions for Entities Fulfilling Governance and Technical Operations

Chief Executive Officer and President. Carries out the organization's vision and leading strategic direction. Has responsibilities for developing and executing all business plans and fundraising activities, as well as building and maintaining relationships with diverse stakeholders, both within the state and nationally.
Chief Technology Officer. Is responsible for the development and implementation of the statewide HIE service. Develops processes for and leads selection of and negotiations with vendors. Directs all implementation activities including adoption and work-flow processes.
Medical Informatics Director/Consultant. Provides clinical informatics expertise.
Chief Communications Officer. Is responsible for conceptualizing, developing, and implementing strategies to support the state-level HIE and its initiatives and functions through public, media, stakeholder, and community/consumer relations; events; marketing; Web and print publishing; brand management; grant and report writing; and presentation development.
Executive Assistant. Provides administrative support for chief executive officer and other executives and board activities. Assists with logistics for events and meetings. Manages offices and basic human resources requirements. Supports preparation of presentations, reports, other documents. Handles travel arrangements, calendars, etc.

State-Level HIE Initiatives as the Sole HIE for the State (Maine, Rhode Island, Utah)

In contrast to the states highlighted above, state-level HIE efforts in Maine, Rhode Island, and Utah operate in less populous states without the presence of local RHIOs. In essence, the state-level HIE initiatives in these three states act as the RHIOs for their entire states.

Operating in a very small state with one basic market (15 hospitals and approximately 420 practices), RIQI serves in the statewide HIE governance role and is the state's sole HIE. Incorporated in 2002, RIQI represents multiple stakeholders, including the state's Quality Improvement Organization and consumer advocates, with support from an AHRQ State and Regional Demonstration grant and additional matching funds from local stakeholders, including a five-year \$2.5 million grant from the CVS/Caremark Charitable Trust. In August 2007, the Rhode Island Department of Health, which oversees the AHRQ grant, awarded a contract to Electronic Data Systems to build the statewide HIE that RIQI will oversee. The three-year contract is valued at \$1.7 million and includes options for as many as four 12-month extensions after three years.

Once fully operational, RIQI will allocate nearly \$1 million annually for a staff that includes a chief operating officer; a privacy and security officer; a stakeholder manager; five employees addressing provider, consumer, and public relations; a four-person team addressing project management, technology, and adoption issues; and four administrative staff members.

In Utah, UHIN has served as the statewide convener and operator since 1993. UHIN, a not-for-profit, membership-owned organization currently serves all the hospitals, ambulatory surgery centers, national laboratories, and approximately 90 percent of the medical providers in Utah. UHIN's initial focus was on claims and claims-related transactions. In 1999, the UHIN board made a decision to expand and enhance its statewide network to support the electronic exchange of additional healthcare information. In 2004, UHIN received an AHRQ SRD grant to expand and enhance the current statewide UHIN gateway for the secure electronic exchange of healthcare data by using standardized transactions. The AHRQ funding has catalyzed the development of additional healthcare information exchange capabilities in Utah, and UHIN has used its existing organizational processes among community stakeholders to develop new healthcare transaction standards, many of which are clinically focused.

UHIN's annual staff budget is approximately \$2.5 million for an executive director; a community project manager; a standards team of two employees; a marketing/customer services team of four employees; a project management team of four employees; and three additional staff members for accounting, human resources, and IT management services.