



Facilitating Electronic Health Information Exchange in State Publicly Funded Health Programs: Challenges and Opportunities

Final Report

Prepared for the State Alliance
for eHealth by The Center for
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Executive Summary

At its initial meeting in May of 2007, the Health Information Communication and Data Exchange (HICDE) Taskforce commissioned the University of Massachusetts Medical School to conduct, in collaboration with the NGA Center for Best Practices, a qualitative analysis of the opportunities and challenges for publicly funded healthcare programs to participate in and facilitate the use of HIT and electronic HIE. To support this assessment, the University of Massachusetts Medical School research team conducted an environmental scan to identify state agencies that had significant HIT and electronic HIE initiatives planned or underway. Twenty-nine interviews were conducted with agencies from 21 states, Washington DC, the New York City Department of Health and Mental Hygiene, the Los Angeles Department of Public Health, and the Delaware Health Information Network. Participants in the interviews included Medicaid/SCHIP, public health, and state employee health plan (SEHP) agency directors, commissioners, and project and program staff. In addition to the interviews, a two-hour expert panel call was conducted involving representatives from eight states and New York City. The purpose of this expert panel call was to develop recommendations to address the challenges and issues related to intra-state agency data sharing.

The findings from these interviews and meetings with state officials were organized by five principles of analysis determined by the HICDE Taskforce:

- ❖ Structure of the HIT/HIE Initiative
- ❖ Leadership
- ❖ Financial and Contributory Responsibility
- ❖ Interoperability
- ❖ Consumer Involvement and Information Sharing

The states that participated in this analysis demonstrated a significant level of HIT and electronic HIE activity in their agencies, but also to a limited extent, corrections, school systems, and other ancillary state agencies that have a need to collect or use health related information. These activities included: coordinating, convening and organizing activities; development and support for EHR and other HIT tools; electronic HIE and interoperability capacity building, and internal information technology modernization and development.

There were many challenges identified by these agencies as they implemented complex HIT and electronic HIE projects within their respective state agencies. These challenges include:

- ❖ Organizing and structuring HIT and electronic HIE initiatives within states' complex and varied healthcare marketplaces;
- ❖ The lack of communication and data sharing between state agencies;
- ❖ Legal and regulatory issues regarding data sharing and consumer protections;
- ❖ The lack of EHR adoption by providers;
- ❖ The lack of EHR functionality for specific public health needs and quality measurement;
- ❖ Developing sustainable HIT and electronic HIE business models;
- ❖ Staffing challenges at all levels of the state agencies; and,
- ❖ The age and lack of funding to modernize legacy IT systems.

State agencies expressed that visible leadership was integral to the success of their HIT and electronic HIE initiatives. Examples of leadership from the Governor and state executive branch offices, the legislature, agency officials, and interagency and public/private coordinating bodies were provided by those interviewed. There was a call by the interviewees for ongoing leadership

from all of these groups to support electronic HIE between and among state agencies and other health care stakeholders.

There have been multiple federal and state financing mechanisms available to state agencies for HIT and electronic HIE activities. These mechanisms have provided resources for the initial planning and development of many HIT and electronic HIE projects undertaken by state agencies. Some states are using federal funding mechanisms such as federal financial participation (FFP) within their Medicaid programs and contractual purchasing arrangements to advance their HIT and electronic HIE initiatives, while others have received federal grants and contracts. A common concern of agency officials was that federal grants and contract requirements often limited the scope and reach of their HIT and electronic HIE projects. Another significant challenge and barrier to state agency advancement of HIT and electronic HIE was the lack of robust sustainability models and funding to support these initiatives in the future. Many states interviewed have begun projects in the absence of a sustainability plan.

Interoperability was an integral aspect of most of the state agency HIT and electronic HIE projects identified. States are working through the challenges of inter-agency and inter-state interoperability and are promoting interoperability with other public and private stakeholders as well. There were a number of challenges identified by states as they address interoperability, including: the lack of a common electronic HIE architecture and framework; lack of common standards for data creation and exchange; lack of interoperability both between state IT systems and with other states' IT systems and outside stakeholders; the lack of standardized reporting standards for vital statistics, laboratory, and disease reporting; and, the challenge of Internet broadband access in many rural areas of the nation.

The appropriate involvement of consumers was cited as a challenge that has yet to be overcome. State agencies acknowledged that consumers needed to be involved in their HIT and electronic HIE initiatives but they had limited success in doing so thus far. In some initiatives consumers were involved in focus groups, meetings, outreach efforts, and the demonstration of HIT tools. A particular challenge identified was the need for consumer education on the benefits and realities of HIT and electronic HIE. The fact that consumers assume that physicians already have EHRs and can get their information electronically presented a difficulty as state agencies began consumer educational campaigns. In addition, agencies cited the significance of consumer concerns over the privacy and security of their personal health information.

The interview findings also indicated that there is a perceived lack of leadership at the federal level that has resulted in a 'wait and see' attitude by many states before committing additional state resources to HIT and electronic HIE activities. A common view expressed by interviewees was the lack of a clearly articulated national HIT and electronic HIE agenda with properly aligned priorities.

This research was conducted to inform the deliberation process for the HICDE Taskforce of the State Alliance for eHealth. As a result this report is meant to present a current view of the level of HIT and electronic HIE initiatives undertaken by Medicaid, public health, and state employee health plans, the challenges and obstacles these agencies have encountered in the planning, development and implementation of these initiatives, and their recommendations to address those challenges and obstacles. The research team did not attempt to weight or prioritize these findings, as that was the role of the HICDE Taskforce.

Throughout its appointment, the HICDE Taskforce received periodic updates and interim findings from this research to inform its deliberation process and assist it in making appropriate recommendations to the State Alliance for eHealth. In February of 2008 the HICDE Taskforce presented its final recommendations to the State Alliance for eHealth. These recommendations are included in Appendix 3.

Background

In 2006 the National Governors Association Center for Best Practices was awarded a contract from the Office of the National Coordinator for Health Information Technology (ONC) to establish the State Alliance for eHealth: a consensus-based, executive-level body of state elected and appointed officials charged to collectively review and address state-level health information technology (HIT) and electronic health information exchange (HIE) issues and challenges.

In 2007, the State Alliance met quarterly to address HIT and electronic HIE issues for states and state agencies, including barriers to interoperability, privacy and security issues, and state law and regulatory challenges related to the practice of medicine. A non-voting advisory committee and three taskforces supported the State Alliance. The advisory committee provided direct technical expertise and support to the State Alliance on key issues related to its charge. The three taskforces: the Health Information Protection Taskforce, the Health Care Practice Taskforce, and the Health Information Communication and Data Exchange Taskforce, provided specific expertise and guidance in developing recommendations for the State Alliance to address the most salient HIT and electronic HIE issues facing state government and public sector agencies. Each of the taskforces developed recommendations through consensus decisions informed by expert presentations, contracted work products, and informed dialogues.

Introduction

In order to facilitate specific policy interventions and development opportunities for state Medicaid, public health, and state employee health plans regarding the use, support, governance, and regulation of HIT and electronic HIE, the State Alliance for eHealth charged the Health Information Communication and Data Exchange (HICDE) Taskforce to:

“Develop and advance actionable policy statements, resolutions, and recommendations for referral to the State Alliance to inform their decision-making process in addressing ways in which states can enhance Medicaid, employee health benefits, and public health through cooperative electronic HIE activities with the private sector.”

The Taskforce held four face-to-face meetings in 2007 (May, July, September, and November) and held monthly conference calls in June, August, October, and December of 2007 and January of 2008. At its initial meeting in May of 2007 the Taskforce commissioned the University of Massachusetts Medical School to conduct, in collaboration with the NGA Center for Best Practices, a qualitative analysis of the opportunities and challenges for publicly funded healthcare programs to participate in and facilitate the use of HIT and electronic HIE. This final report presents the findings and recommendations from key informant interviews conducted with leadership and staff from Medicaid, public health, and state employee health plans.

Overview of State Medicaid Agencies, Public Health Departments, and State Employee Health Plans

Medicaid and SCHIP

Medicaid is the means tested public health insurance entitlement program providing health care coverage and long-term care services for low income and medically vulnerable citizens. Medicaid is administered by states, under broad based guidelines set by the U.S. Department of Health & Human Services' (DHHS) Centers for Medicare and Medicaid Services (CMS). State Medicaid programs are jointly funded by CMS and the states through a cost sharing mechanism. Federal law outlines requirements for each Medicaid program but states have significant flexibility in designing the structure of their programs, member eligibility, and provider and managed care rates and rate setting methodologies. The result of this flexibility is that there are over 50 different state Medicaid agencies operating in the U.S. These differences present both opportunities and challenges for policy development and information sharing. Each state can act as a learning laboratory for innovation of policy and tools. However, due to the differences between states and their laws and regulations, the transfer of knowledge between states presents challenges.

In FY 2006 Medicaid served over 58 million Americans and had more than \$304 billion in expenditures – representing 17% of all state general fund expenditures.¹ Medicaid provides health care coverage for acute and long term care services to a diverse population of low income families and pregnant women, persons with physical and behavioral disabilities, and the elderly, including those who are 'dually-eligible' for both Medicaid and Medicare services. Medicaid covers many unique services that are not generally covered by commercial insurance such as home and community based care and long-term care. The unique populations and services covered by Medicaid make it the predominant purchaser of health care services in many settings such as nursing facilities, health centers, home care settings, and for specific safety net services.

The State Children's Health Insurance Program (SCHIP) was created in the Balanced Budget Act of 1996 and codified as Title XXI of the Social Security Act. SCHIP is an optional capped program that allows states to expand health coverage to children in families with incomes too high to qualify for Medicaid, but too low to afford private health insurance. The initial appropriation for SCHIP was approximately \$40 billion to be spent over ten years. An enrollment incentive built into the SCHIP program allowed states to draw a greater percentage of federal dollars than standard Medicaid to match state dollars spent on the program up to a cap. In 2005, SCHIP covered over 6 million low-income children (4 million at any one time), and had expenditures of \$7 billion of combined state and federal funding.² There is a significant debate currently underway at the federal level in regard to the appropriate caps and eligibility requirement to support SCHIP reauthorization going forward.

Public Health

The organization and roles of U.S. public health agencies vary significantly across federal, state, and local levels. The federal government provides some funding and support to state and local public health agencies and departments through DHHS and the Centers for Disease Control (CDC), but it delegates most public health authority to the states to organize and deliver public

¹ The Henry J. Kaiser Commission on Medicaid and the Uninsured 2007. www.statehealthfacts.org Accessed on 2/29/2008.

² The Henry J. Kaiser Commission on Medicaid and the Uninsured. State Children's Health Insurance Program (SCHIP) at a Glance. January 2007.

health services. Every state has an agency that is responsible for public health, but the structures of those agencies vary. In some states the public health agency is a freestanding agency, while in other states public health is part of an umbrella health and human services organization or department. In a 2001 survey of 45 state public health agencies, twenty five (56%) of the states responding were freestanding whereas the other 20 (44%) were located within a larger umbrella agency, most often a health and human services agency.³

Relationships between the state agency and local health departments are also variable. Some state public health departments have direct control over local public health services, while other have varying levels of control, giving local health departments some autonomy over services delivered. According to the National Association of County and City Health Officials (NACCHO), in 12 states the local health department is a unit of the state health agency, in 31 states the local health departments are units of local governments, and in 7 states the local health departments have mixed governance.⁴

Public health agencies and departments provide a diverse set of services. The Institute of Medicine in its 1988 report *The Future of Public Health* defines public health in terms of three core functions: 1) assessment, 2) policy development, and 3) assurance.⁵ A working definition and framework for local public health systems developed in 1994 by the Core Public Health Functions Steering Committee, provides a more detailed description of the ten essential services performed by public health.⁶ The ten essential public health services are:

1. Monitor health status to identify and solve community health problems.
2. Diagnose and investigate health problems and health hazards in the community.
3. Inform, educate, and empower people about health issues.
4. Mobilize community partnerships and action to identify and solve health problems.
5. Develop policies and plans that support individual and community health efforts.
6. Enforce laws and regulations that protect health and ensure safety.
7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable.
8. Assure competent public and personal health care workforce.
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
10. Research for new insights and innovative solutions to health problems.

These core functions serve to inform and guide the National Public Health Performance Standards Program (NPHPSP). NPHPSP is a collaborative effort of seven public health organizations whose charge is to enhance the nation's public health systems.⁷ The mission of the NPHPSP is to improve the quality of public health practice and the performance of public

³ Beitsch, L.M., Brooks, R.G., Grigg, M., Menachemi, N. Structure and Functions of State Public Health Agencies. *American Journal of Public Health*. January 2006, Vol 96, No.1.

⁴ Leep, C.J. 2005 National Profile of Local Health Departments. National Association of County and City Health Officials. July 2006.

⁵ Institute of Medicine. *The Future of Public Health*. Washington, DC: National Academy Press, 1988.

⁶ Public Health Functions Steering Committee (1994). *Public Health in America*. Washington, DC: U.S. Public Health Service.

⁷ The NPHPSP is a collaborative effort between the CDC, the Office of the Chief of Public Health Practice (CDC / OCPHP), the American Public Health Association (APHA), the Association of State and Territorial Health Officials (ASTHO), the NACCHO, the National Association of Local Boards of Health (NALBOH), the National Network of Public Health Institutes (NNPHI), and the Public Health Foundation (PHF). For more information see: <http://www.cdc.gov/od/ocphp/nphpsp/index.htm>

health systems by providing performance standards for public health systems, conducting systematic collection and analysis of performance data, and developing a science-base for public health practice improvement.⁸

State Employee Health Plans

State employee health plans (SEHP) are large-scale employment based health plans providing health care benefits to state employees and their families. In some states SEHPs are the largest purchasers of health care. The California Public Employees' Retirement System (CalPERS), for example, is the third largest purchaser in the nation covering 3 million member and dependent lives. Eligible persons for SEHPs include active state employees, covered dependants, local government employees, public universities, state government retirees, and other quasi-state government related organizations. In some states the SEHPs also provide health insurance coverage for local employers.

SEHPs are financed through a variety of mechanisms including state and county revenues, legislative appropriations, pension investment funds, and premiums collected from employers, employees, and dependants. The organizational reporting structure of SEHPs varies from state to state. In many states the SEHPs are not associated with other health and human service agencies and are considered special fund units. In these cases, SEHPs act much like third party payers, billing each employee unit based on negotiated rates. In other states the SEHP is part of the umbrella state health and human services agency, with employee benefits being integrated with public benefit plans. The commissioner/administrator of a SEHP may report either to the legislature or to a cabinet level position or may serve at the cabinet level.

Health Information Technology and Electronic Health Information Exchange in Publicly Funded Programs

The substantial challenges and opportunities to improve the quality of health care in the U.S. made national headlines in 1999 and 2001 with the release of the milestone reports from the Institute of Medicine (IOM): *To Err is Human*⁹ and *Crossing the Quality Chasm*.¹⁰ These reports highlighted medical errors as a major cause of death in the United States and revealed that health care quality in the nation "falls short of established benchmarks based on the best available evidence."¹¹ They concluded that a fundamental redesign of the health care delivery system is necessary to improve quality. One of the primary recommendations from the Institute of Medicine (IOM) was the creation of an information infrastructure to support evidence-based decision-making by providers, patients, and members of the health care delivery team.¹²

The information infrastructure recommended by the IOM represents a complex set of administrative and clinical health information technologies and electronic health information exchange tools, many of which are in use today. Administrative HIT and HIE are becoming common place, but IOM and other experts pointed out the need to enhance the development and use of clinical HIT and HIE to support medical error reduction and quality improvement across the health care system.

⁸ See: <http://www.cdc.gov/od/ocphp/nphpsp/index.htm>

⁹ Institute of Medicine, (1999): *To Err is Human: Building a Safer Health System*. Washington, DC: The National Academies Press.

¹⁰ Institute of Medicine, (2001): *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: The National Academies Press.

¹¹ Institute of Medicine (1999).

¹² Institute of Medicine, (2001).

Administrative HIT and electronic HIE tools currently support an estimated 30 billion health care transactions in the U.S. each year.¹³ These fiscal and administrative systems function to support the complex health care billing (claims) and scheduling processes. The creation of the Medicare and Medicaid programs in 1965 provided a significant impetus for the use of electronic administrative systems by substantially increasing fee-for-service billing and pushing large healthcare providers to automate functions related to generating bills to improve the accuracy and timeliness of payments.^{14,15} As of 1997 the U.S. Department of Health and Human Services (DHHS) estimated that there were over 400 different formats used in the U.S. for claims processing.¹⁶ Advancement and standardization of administrative systems across the health care industry were later prompted by improvements in computing capability and the administrative simplification provisions of the Health Insurance Portability and Accountability Act (HIPAA) of 1996.

As of October 16, 2003 all healthcare entities utilizing electronic transactions were required to be HIPAA compliant. Nevertheless, because HIPAA rules did not require covered health entities to submit administrative transactions electronically, a number of providers are not submitting claims electronically or are submitting non-HIPAA compliant claims through health care clearinghouses.¹⁷ Health care purchasers, both public and private, have demonstrated support for administrative HIT and electronic HIE. This support is largely due to the expected financial return on investment. A recent study from the New England Electronic Data Interchange Network found that the average labor and material cost of a single claim transaction submitted via paper or fax was \$5, whereas the same transaction exchanged electronically was \$0.25, representing a 95% savings moving to electronic transactions.¹⁸

Clinical HIT and electronic HIE tools are the primary focus of many recent HIT and electronic HIE efforts. While significant attention is paid to these tools today, the development of clinical HIT systems dates back to the 1960s when the first clinical information technology systems were developed to provide electronic access to patient-specific information, such as procedure and laboratory results, and access to medical information in the form of protocol-based reminders and rudimentary forms of clinical decision support.¹⁹ Challenges such as the high costs related to these technologies, clinician concerns over value, and constrained functionality of the technologies limited adoption to large academic medical institutions, many of which serve

¹³ Stires, D.: Technology Has Transformed the VA. May 15, 2006. Internet address: http://money.cnn.com/magazines/fortune/fortune_archive/2006/05/15/8376846/ (Accessed February 2008).

¹⁴ Bernier, E.S., Detmer, D.E., and Simborg, D.: 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, Jan/Feb 2005.

¹⁵ Stagers, N., Thompson, C.B., and Snyder-Halpern, R.: History and Trends in Clinical Information Systems in the United States. *Journal of Nursing Scholarship* 33(1):75-81, March, 2001.

¹⁶ Banks, D.L.: The Health Insurance Portability and Accountability Act: Does it Live Up to the Promise? *Journal of Medical Systems* 30(1):45-50, February 2006.

¹⁷ A health care clearinghouse, as defined by HIPAA, is an entity that takes health care transactions, converts them into standardized formats, and forwards them to the insurer, or performs this function in reverse. See: 45 C.F.R. § 160.103

¹⁸ Halamka, J., Aranow, M., Ascenzo, C., Bates, D., Debor, G., Glaser, J., Goroll, A., Stowe, J., Tripathi, M., and Vineyard, G.: Health Care IT Collaboration in Massachusetts: The Experience of Creating Regional Connectivity. *Journal of American Medical Informatics Association* 12(6):596-601, Nov/Dec 2005.

¹⁹ Bernier, E.S., Detmer, D.E., and Simborg, D.: 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, Jan/Feb 2005.

as models of successful implementations today.²⁰ The applications referred to as clinical HIT include electronic medical records (EMR), electronic health records (EHR), computerized provider order entry (CPOE), and electronic prescribing (eRx).²¹

Recent studies have demonstrated that HIT and electronic HIE can enhance the effectiveness of healthcare delivery by helping providers make informed decisions via access to patient specific evidenced-based guidelines for preventive and other types of care, decision support tools for chronic care, and real-time access to laboratory, radiology, and other test results. A recent meta analysis of HIT literature revealed that increased access to information through the use of clinical HIT contributed to a statistically significant enhancement of primary and secondary preventive care measures, chronic care treatment, appropriate laboratory testing, and the use of advance directives. There was also evidence that EHRs and CPOE, and the electronic exchange of the information contained within them, can better inform providers and reduce medical errors.²² Nearly half of serious medication errors in the country have been associated with providers' lack of information on medications and patients' medical histories at the point of care.²³

Despite the potential for benefit, recent surveys estimate that the current adoption and use of these technologies is low, with only 17-25% of physicians in the ambulatory setting using EMRs and only 4-21% of hospitals using CPOE.²⁴ The increased focus on healthcare safety and quality as evidenced in recent IOM reports, combined with the need to control healthcare costs, has elicited a national drive toward supporting the adoption and appropriate use of administrative and clinical HIT and electronic HIE adoption across the healthcare continuum. There are multiple efforts at the national level to assist in and organize these efforts. The Office of the National Coordinator for HIT has provided significant guidance and funding to support these initiatives. The Agency for Healthcare Research and Quality (AHRQ) has provided seed funding through multiple HIT and electronic HIE initiatives such as its Patient Safety and Health IT program. The Health Resources and Services Administration, through its Office of Health IT, has been providing technical support and seed grants for HIT and electronic HIE implementation by safety net providers and clinics. CMS has also allocated resources for HIT and electronic HIE in the Medicaid program by promoting the Medicaid Information Technology Architecture (MITA)²⁵; and in the Medicare program by providing grants for eRx, quality measurement and improvement initiatives, and physician adoption of EMRs.

²⁰ Ibid.

²¹ See the Glossary at the end of this paper for definitions of these technologies.

²² Chaudhry, B., Wang, J., Wu, S., Maglione, M., Mojica, W., Roth, E., Morton, S.C., and Shekelle, P.G.: Systematic Review: Impact of Health Information Technology on Quality, Efficiency, and Costs of Medical Care. *Annals of Internal Medicine* 144(10):742-752, May 16, 2006.

²³ Bates, D.W. and Gawande, A.A.: Improving Safety with Information Technology. *The New England Journal of Medicine* 348(25):2526-2534, June 19, 2003.

²⁴ Jha, A.K., Ferris, T.G., Donelan, K., DesRoches, C., Shields, A., Rosenbaum, S. Blumenthal, D. How Common are Electronic Health Records in the United States? A Summary of the Evidence. *Health Affairs, Web Exclusives*, 25, no. 6 (October 2006): pp. w496-w507.

²⁵ MITA is a CMS led Medicaid Management Information System (MMIS) modernization initiative. The goal of MITA is to promote an integrated Medicaid IT infrastructure that supports data exchange between state agencies, public and private payers and providers, and other stakeholders by minimizing the technical barriers to data exchange between systems and organizations. MITA provides a mechanism whereby state Medicaid agencies can use their federal matching funds for IT development and maintenance to incorporate infrastructure within the MMIS system that supports interoperability with the wider healthcare community. For more information on MITA see:

www.cms.hhs.gov/MedicaidInfoTechArch/

These and other federal initiatives coupled with multiple provider and multi-stakeholder projects aimed to support the use of HIT and electronic HIE²⁶ have created a critical mass of activity in the policy formulation process, reviewing and addressing the appropriate mechanisms that all stakeholders, including federal and state governments, can use to support, oversee, regulate, and assure consumer participation in these initiatives.

The State Alliance for eHealth, supported by the National Governors Association with funding from ONC, took on the task of reviewing and making initial recommendations on how to facilitate state government action to support these technologies. This research and the findings presented here, represents one of many such projects under way nationally to develop appropriate policies for state and federal governments to support the use of HIT and electronic HIE to improve the quality and safety of health care delivery and reduce the increasing costs of health care services.

Research Methods

In order to facilitate specific policy interventions and development processes for state agencies regarding the use, support, governance, and regulation of HIT and electronic HIE, the State Alliance for eHealth charged the Health Information Communication and Data Exchange (HICDE) Taskforce to:

“Develop and advance actionable policy statements, resolutions, and recommendations for referral to the State Alliance to inform their decision-making process in addressing ways in which states can enhance Medicaid, employee health benefits, and public health through cooperative electronic HIE activities with the private sector.”

At its initial meeting in May of 2007 the HICDE Taskforce commissioned the University of Massachusetts Medical School to conduct, in collaboration with the NGA Center for Best Practices, a qualitative analysis of the opportunities and challenges for publicly funded healthcare programs to participate in and facilitate the use of HIT and electronic HIE. The Taskforce agreed that the particular challenges and opportunities for Medicaid/SCHIP²⁷, public health, and state employee health plans would be assessed using the following key principles:

- ❖ Structure of the HIT/HIE Initiative
- ❖ Leadership
- ❖ Financial and Contributory Responsibility
- ❖ Interoperability
- ❖ Consumer Involvement and Information Sharing

To support this assessment, the University of Massachusetts Medical School research team developed a semi-structured interview protocol that incorporated these five principles and feedback from the HICDE Taskforce. The general interview questions were modified to reflect specific differences between the state programs.²⁸ The interview protocol was designed to

²⁶ See the State-Level HIE Consensus project at www.staterhio.org/

²⁷ The qualitative interviews with key informants from Medicaid agencies included the request for representation from and discussions on the role of SCHIP and children's needs. In some states the SCHIP program was a part of the Medicaid program and therefore any HIT/HIE initiative included SCHIP information. Where the SCHIP program was separate from the Medicaid program, there were no specific SCHIP HIT or electronic HIE activities identified by interviewees. For the remainder of this document, when referring to these interviews we refer to them as Medicaid interviews.

²⁸ See Appendix 1 for the list of state agencies and persons interviewed. See Appendix 2 for the interview protocols used.

engage interviewees in a discussion to learn first hand what their respective states and agencies were doing with regard to HIT and electronic HIE and how their specific agency was involved.

The research team conducted an environmental scan to identify state agencies that had significant HIT and electronic HIE initiatives planned or underway. The agencies chosen for interview represented states of varying size, demographic characteristics, and unique strategies in supporting HIT and electronic HIE initiatives. Medicaid agencies included selected Medicaid Transformation Grantees and others with HIT and electronic HIE funding from other sources. Public health agencies included selected public health agencies exchanging data in an electronic HIE identified by the Association of State and Territorial Health Officers (ASTHO),²⁹ selected Robert Wood Johnson Foundation (RWJF) Common Ground grantees, Health Information Management Systems Society (HIMSS) Davies Award winners, as well as states that had received HIT and electronic HIE funding from the Centers for Disease Control (CDC). State employee health plans included state value-based purchasing initiatives reviewed by the Commonwealth Fund³⁰, and selected states identified as innovators in modernizing health insurance by the National Association of Insurance Commissioners.³¹ Interview participants were asked to give an overview of their HIT and electronic HIE initiatives and to describe the challenges and barriers to these efforts. Based on their experiences, interviewees were encouraged to make state and federal level recommendations that would address states' challenges in implementing HIT and electronic HIE efforts.

Twenty-nine interviews were conducted with agencies from 21 states, Washington DC, the New York City Department of Health and Mental Hygiene, the Los Angeles Department of Public Health, and the Delaware Health Information Network. Four states were interviewed twice: Indiana (Medicaid and public health); Minnesota (public health and state employee health plan); Tennessee (Medicaid and public health); and Wisconsin (Medicaid and state employee health plan). Participants in the interviews included agency directors, commissioners, and project and program staff. Interviews were conducted by phone and lasted one to two hours. A list of all interview participants can be found in Appendix 1. In addition to the interviews, a two-hour expert panel call was conducted involving representatives from eight states and New York City. The purpose of this expert panel call was to develop recommendations to address the challenges and issues related to intra state agency data sharing.

Table 1: State Agencies Interviewed

Medicaid Agencies	Public Health Agencies	State Employee Health Plans
AL, AZ, DE*, DC, IN, KY, MO, TN, VT, WV, WI	IN, LA, MN, NE, NY, OK, RI, TN, UT & Cities of LA, NYC †	CA, GA, MA, MN, NC, WA, WI

* Delaware's Medicaid agency referred the research team to the Delaware Health Information Network.

† The HICDE Taskforce requested the Los Angeles and New York City Health Departments to be interviewed.

²⁹ In 2007 ASTHO and the National Association of County and City Health Officials conducted a survey of Regional Health Information Organizations (RHIOs) to determine the level of participation of public health agencies. Paul Jarris, Executive Director of ASTHO, presented the unpublished results of this survey to the HICDE Taskforce on July 9, 2007. Additional information was then gathered about this survey in personal communications with ASTHO in August of 2007.

³⁰ S. Silow-Carroll and T. Alteras, Value-Driven Health Care Purchasing: Four States that Are Ahead of the Curve, The Commonwealth Fund, August 2007.

³¹ State Innovations in Modernizing Health Insurance and Extending Coverage to the Uninsured. The National Association of Insurance Commissioners, December 2006.

Findings from the interviews and the expert panel call were analyzed and presented to the HICDE taskforce in white papers and presentations at their meetings in July, September, and November of 2007, and January of 2008. These documents and presentations were then used to assist the Taskforce in developing and focusing its specific recommendations to the State Alliance for eHealth.

While much was learned about each state's HIT and electronic HIE initiatives, it was beyond the scope of this project to detail and inventory each and every program initiative mentioned by interview participants. Accordingly, the key findings summarized below represent a review of how the states interviewed are participating in HIT and electronic HIE initiatives, the successes and challenges related to their participation, and their recommendations on how the Taskforce and the State Alliance for eHealth can facilitate the further success of state agency involvement in HIT and electronic HIE.

Research Findings

The nature and degree of state agency involvement with HIT and electronic HIE varies from state to state, and findings from the interviews and current research demonstrate that the nation is still in a nascent stage of administrative and clinical HIT and electronic HIE use. Multiple factors affect states' participation with HIT and electronic HIE efforts. These factors include the availability of federal and state funding, the nature of state leadership (executive, legislative, and agency), the level of collaboration among key stakeholders (e.g., state government, providers, private purchasers, vendors, consumers), and the significant concerns around the security and privacy of personal health information stored and shared in these systems. States' confusion as to the goal of the national HIT agenda and the lack of federal standards to assist all levels of electronic HIE: architecture design, data exchange, and security and privacy protections were also found to be significant factors.

Structure of HIT and HIE Initiatives in State Agencies

The HICDE Taskforce was interested in the structure of the state agency HIT and electronic HIE initiatives currently underway to inform their discussions on the level of integration and alignment of state programs with one another and to assess the barriers that impede agency participation in HIT and electronic HIE initiatives. The interview protocol included several questions asking the respondent to describe the HIT and electronic HIE initiatives that the state agency (Medicaid, public health, SEHP) was involved in.

The state agencies interviewed demonstrated multiple intersections with complex and varied HIT and electronic HIE initiatives. Medicaid, public health, and SEHP agency programs are involved with projects that range from assessing and upgrading their legacy systems to organizing and leading large statewide multi-stakeholder electronic HIE projects. How agencies are involving themselves with HIT and electronic HIE depends on a variety of factors:

- ❖ **Internal agency factors:** These include an agency's readiness for involvement in HIT and electronic HIE initiatives and its ability to influence the strategic planning, design, and implementation of initiatives.
 - Staff and leadership competencies in the areas of HIT and electronic HIE, health informatics, project management, change management, systems thinking, vendor management, provider and consumer outreach and involvement, and grant RFP, and contract writing were viewed by the interviewees as integral to the successful implementation of HIT and electronic HIE projects in the state agencies.

- The current IT system maturity and its capacity for interoperability was an important factor in the planning and design of many HIT and electronic HIE projects in state agencies.
 - The internal structure and organizational culture including its attitude towards collaboration and information sharing were cited as important considerations when considering data sharing and complex IT initiatives.
- ❖ **Internal state government factors:** These include the organizational environment within which each agency operates under the larger state government umbrella, which impact the scope of its HIT and electronic HIE activities.
- Executive and legislative branch coordination was viewed as crucial to driving and supporting state agency HIT and electronic HIE initiatives.
 - The organizational and reporting structure of state health agencies directly affects agency decision-making and influence. Some agencies are structured as stand-alone units with cabinet-level reporting directly to the governor, other agencies are part of a larger umbrella agency that has oversight and reporting accountability at the cabinet-level, and other states have hybrid models with an umbrella agency and stand-alone agencies. Of the 22 states interviewed, 9 states have an umbrella agency overseeing public health and Medicaid, while public health and Medicaid are stand alone or in separate agencies in the other 13 states and Washington D.C. The seven state employee health plans were either stand alone agencies or within a different agency altogether. In Georgia both Medicaid and the SEHP are under one agency. Examples of HIT and electronic HIE activities where umbrella agencies are representing state agencies include:
 - Serving as a board member of the state eHealth governing body
 - Offering grants to providers, RHIOs, etc to develop local and statewide interoperability capacity
 - Offering financial incentives to providers who adopt HIT/EMRs
 - Relationship dynamics, the political environment, and culture of state government also play important roles in shaping the HIT and electronic HIE activities undertaken by agencies.
- ❖ **External factors affecting state agency electronic HIE initiatives:** All state HIT and electronic HIE initiatives were subject to influence from multiple stakeholders outside state government. These stakeholders exert considerable influence over state HIT and electronic HIE initiatives, but with adequate preparation, monitoring, collaboration, and management they add significant value to HIT and electronic HIE activities.
- All interviewees recognized that local, regional, and statewide healthcare markets, comprised of providers, health systems, payers, vendors, etc., must be provided a voice in electronic HIE discussions and planning. Important factors that were dealt with include the dynamics of stakeholder relationships, which are often highly competitive, and stakeholder willingness to share information and provide contributory funding.
 - There was consensus that consumers and consumer needs must be accounted for in all electronic HIE projects, however this was difficult to put into practice.
 - The federal government exerts enormous influence, as expressed through laws, regulations, funding mechanisms, policy agendas, etc. There was significant

conversation and discussion on the appropriate role of the federal government. The most salient points include broadening the funding streams state agencies can access for HIT and electronic HIE, the need for federal standards for data format and data exchange, and the need for federal action to support and clarify the legal and regulatory issues around sharing personal information, especially for persons with disabilities, HIV/AIDS, and behavioral health issues.

As a group, the state agencies interviewed have a wide array of HIT and electronic HIE initiatives underway. However, only a few agencies have conducted formal needs assessments or return on investment (ROI) studies. Others stated they would be performing a needs assessment in the near future as their project moved through the planning process. Two agencies were hiring outside parties to conduct ROI studies through their state's procurement process. Some interviewees emphasized their responsibility to serve the needs of their populations and found limited utility in a formal ROI study. ROI was redefined by one interviewee as "return on information: how is the provider and/or consumer benefitting from this information?"

In general, interviews with state agencies indicate that there remain many unanswered questions regarding the return on investment (ROI) and sustainability of HIT and electronic HIE in publicly funded programs. Many of the initiatives outlined in the remainder of this report will require significant sustainability planning as they evolve into operational phases.

The following section presents the types of initiatives that the Medicaid agencies, public health agencies, and SEHPs are involved in and the challenges they have encountered regarding the planning, development, and implementation of the initiatives. The information presented here represents the information provided by the interviewees and is not meant to be a comprehensive profile of the HIT and electronic HIE initiatives in the states interviewed. Specific information regarding leadership, financial and contributory responsibility, interoperability, and consumer involvement are presented in other sections of this report.

Medicaid

The ten Medicaid agencies interviewed discussed a number of HIT and electronic HIE activities. Many of the initiatives were in the planning and implementation stages. Table 2 presents a list of the HIT and electronic HIE activities that state Medicaid agencies were involved in and the number of states involved in those types of initiatives. The Medicaid initiatives have been organized into five categories:

- ❖ Convening, Coordinating, Organizing Activities
- ❖ Electronic Health Record Systems and Other HIT Tools
- ❖ Health Information Exchange / Building Interoperability Capacity
- ❖ MMIS and Eligibility Systems Modernization
- ❖ Other HIT and Electronic HIE Related Activities

Table 2: Types of HIT and electronic HIE Initiatives Undertaken by Medicaid Agencies

Convening, Coordinating, Organizing Activities	# of Agencies
• State eHealth Governing Body – Medicaid is Board Member	7
• State eHealth Governing Body – Umbrella Agency Represents Medicaid on Board	2
• Leader of Multi State Collaboration of State Medicaid Agencies to Share Information on HIT and electronic HIE	1
• Interagency HIT and electronic HIE Coordinating Activities / Committees	3
Electronic Health Record Systems and Other HIT Tools	# of Agencies
• Reconfiguring Operational Claims Based EHR System into Clinical EHR System	1
• Implementing Clinical EHR Systems that Incorporate Claims Data	3
• Operational Claims Based EHR System	1
• Implementing Claims Based EHR Systems	2
• Online Disease Management / Case Management Tools	4
• Implementing e-Prescribing Among Rural Providers (a stand alone initiative)	1
Health Information Exchange / Building Interoperability Capacity	# of Agencies
• Building an HIE Data Hub / Network	4
• Sharing Claims Data (HIEs / RHIOs / Providers)	10
• Enabling Interoperability with Other Agencies / Organizations (e.g., Public Health Departments, School Clinics, Long Term Care, Mental Health)	5
• Enabling Hospitals to Access Claims Data	2
• Building a Central Interagency Data Hub	1
• Planning for a Master Patient Index	4
MMIS and Eligibility Systems Modernization	# of Agencies
• Operational MITA Compliant MMIS	2
• Planning / Developing a New MITA Compliant MMIS	4
• Replacing the Claims Processing Module of the MMIS	1
• Eligibility Systems Upgrade	1
• Developing an All Claims Database	1
Other HIT and electronic HIE Related Activities	# of Agencies
• Offering Financial Incentives to Providers who Adopt HIT	1
• Participant in AHRQ's Health Information Security and Privacy Collaboration (HISPC) Project	6

Convening, Coordinating, and Organizing Activities

Most Medicaid agencies are members of their states' ehealth governing body or they are represented by the umbrella health agency that they report to. These eHealth bodies have played key roles in structuring statewide ehealth initiatives and they often lay out the state's ehealth priorities, goals, and strategies in an ehealth road map. Interviewees viewed the process of putting together a roadmap as an essential structuring tool for their states' ehealth initiatives.

- ❖ In 2005, the Vermont General Assembly authorized the development of the Vermont Health Information Technology Plan (VHITP).³² With more than 30 stakeholders contributing, the VHITP work group created five guiding principles to help with the development of recommendations and to provide a framework for all future HIT initiatives in Vermont:
 - Vermonters will be confident that their health care information is secure and private and accessed appropriately.
 - Health information technology will improve the care Vermonters receive by making health information available where and when it is needed.
 - Shared health care data that provides a direct value to the patient, provider or payer is a key component of an improved health care system. Data interoperability is vital to successful sharing of data.
 - Vermont's health care information technology infrastructure will be created using best practices and standards, and whenever possible and prudent, will leverage past investments, and will otherwise be fiscally responsible.
 - Stakeholders in the development and implementation of the health care technology infrastructure plan will act in a collaborative, cooperative fashion to advance steady progress towards the vision for an improved health care system.

Some states, like Indiana, Rhode Island, and Vermont, are using their legislative and regulatory authority to develop statewide HIE organizations and are supporting their incorporation as non-profit corporations governed by a board.

- ❖ The Indiana Health Informatics Corporation, a not for profit organization, was recently created by legislative mandate to operate the statewide HIE as a business that will promote appropriate data exchange standards. The Secretary of Family and Social Services, which oversees Medicaid, is a board member, as is the Commissioner of Health.

One unique Medicaid initiated collaborative is the *Multi-State Collaboration for Medicaid Transformation*³³, convened by the National Association of State Medicaid Directors (NASMD) and chaired by Arizona's Medicaid Director. Through this collaborative, Medicaid Transformation Grantees and other states are working to share their experiences and best practices regarding the development, implementation, and deployment of HIT and electronic HIE. Almost all Medicaid agencies interviewed are participating in the Multi-State Collaboration for Medicaid Transformation.

³² *Vermont Health Information Technology Plan*, Available at: www.vitl.net/interior.php/pid/7. Last accessed 3/2008.

³³ For more information on the Multi-State Collaboration for Medicaid Transformation, see: www.nasmd.org/issues/medicaid_transformation.asp. Last accessed 3/2008.

Electronic Health Record Systems and Other HIT Tools

Medicaid Transformation Grants were viewed as a significant funding source for state Medicaid efforts supporting HIT and electronic HIE. Several Medicaid Transformation Grant awardees had already begun planning their HIT and electronic HIE initiative when the Medicaid Transformation Grants were announced and were able to capitalize on the planning and organization already in place.

Over half of the Medicaid agencies that received a Transformation Grant will be implementing some type of claims based EHR. Two states, Missouri and Tennessee, already have claims based EHRs available through a web portal. A few states are planning to build EHR systems that combine clinical and claims data.

- ❖ Missouri began its initiative in 2002 with the introduction of a “Smart PA” prior authorization project for pharmacy, which garnered an initial \$42 million savings on an \$800 million program. This led to the implementation of CyberAccess, a claims based EHR, in 2006. CyberAccess gives providers access to an eRx platform, full medical and pharmacy claims history, care management alerts and intervention opportunities, and a link to SmartPA prior authorization capabilities. In 2007, the Medicaid agency received a Transformation Grant to integrate a home and community based services web tool with CyberAccess. The state is funding the CyberAccess initiative primarily through general revenues.
- ❖ Tennessee’s Medicaid agency, through a collaborative effort with Blue Cross Blue Shield of Tennessee (BCBSTN), has implemented a claims based EHR system through Shared Health, a subsidiary of BCBSTN. Shared Health currently operates the nation’s largest public-private electronic HIE using a scalable NHIN-modeled IT infrastructure and serves over a third of state residents, including both Medicaid and private employer based populations. It strategically coordinates with Tennessee’s eHealth Advisory Council, the state’s eHealth body created by executive order, and uses a web-based portal through which providers, consumers, and purchasers can access a centralized repository of healthcare data. Shared Health recently reported a 17% improvement in provider practice efficiencies due to the electronic HIE.³⁴

Some Medicaid agencies are implementing disease management and/or care management initiatives that will utilize claims data and HIT tools. ERx efforts are also underway in some states, either in combination with an EHR system or as a stand-alone effort.

Health Information Exchange / Building Interoperability Capacity

All agencies interviewed have in one form or another made administrative claims data available to providers, HIEs, and/or other agencies, and over half of interviewees were building some form of HIE data hub. The Medicaid agencies implementing clinical EHR systems were also working through the architectural design challenges associated with clinical and administrative data exchange. An issue related to electronic HIE in Medicaid agencies was provider access to appropriate high-speed Internet service, a significant challenge in many rural regions of the country.

- ❖ Arizona’s Medicaid agency, the Arizona Health Care Cost Containment System (AHCCCS), received an \$11 million dollar Medicaid Transformation Grant to build a web-based electronic health record and electronic HIE utility to give providers access to Medicaid members’ health information via internet connection at the point of service. The

³⁴ Shared Health. “Shared Health White Paper”, December 2007.
<http://www.tennesseeanytime.org/ehealth/pressreleases.html> Last accessed 1/2008.

EHR will include patient demographics, eligibility information, patient history, patient problem lists, medications, lab tests orders/results, radiological results and images, inpatient discharge summaries, clinical notes and findings, and case management information. Arizona's application service provider (ASP) EHR system will use open source software and the system architecture will be designed using Medicaid Information Technology Architecture (MITA) guidelines with an open architecture. The EHR utility will be interoperable with the current MMIS (Arizona's MMIS includes eligibility processing) and will align with work already initiated by the Arizona Health-E Connection, Southern Arizona Health Information Exchange, the Indian Health Service, the Veteran's Administration, Federally Qualified Health Centers, and several local hospital systems.

- ❖ The New York Department of Health awarded \$105 million in grants to 19 electronic HIE projects across the state. Thirteen of the projects will be featuring the Medicaid Use Case, which is designed to facilitate interoperable clinical data exchange between physicians and Medicaid. Participating physicians' EHRs will be linked to Medicaid data so that they may electronically receive a patient's Medicaid-reimbursed prescriptions, Medicaid eligibility and recertification period, and information on Medicaid's preferred drug list.

In addition some Medicaid agencies are participating in initiatives to share data with other agencies such as public health and mental health, and with other organizations such as school clinics and those involved with long term care services. One state, Kentucky, is planning to build a dedicated data hub to interconnect its state agencies. Four states are working on developing a Master Patient Index.

MMIS and Eligibility Systems Modernization

Almost every Medicaid interviewee made reference to their Medicaid Management Information System (MMIS), the core processing claims systems used by all Medicaid agencies. Both Kentucky and West Virginia³⁵ have MITA compliant MMIS systems. Several interviewees stated that their MMIS would be interoperable with their statewide HIE network and most were already using their MMIS to push claims data out to providers to improve care delivery. One agency's, MMIS was integrated with its eligibility system (most MMIS and eligibility systems are separate systems).

Other HIT and Electronic HIE Related Activities

While more and more states are offering some form of financial incentive or pay for performance program to stimulate HIT and electronic HIE adoption, only one Medicaid agency interviewed reported their involvement in this activity. About half the Medicaid agencies interviewed mentioned their state's involvement with AHRQ's Health Information Security and Privacy Collaboration (HISPC) Project³⁶. The HISPC project helped participating states gain a better understanding of the privacy and security issues facing their state, including the variation in business practices, policies, and laws, and assisted in developing solutions to these barriers that both protect and preserve consumer privacy while enabling interoperable electronic HIE. Several interviewees were enthusiastic about the work their respective states were able to

³⁵ West Virginia's Medicaid Transformation Grant application states that its MMIS is "the only Windows-based commercial off-the-shelf unified relational database, software application, and claims processing system in the nation, and certified as MITA compliant by CMS".

³⁶ For more information visit AHRQ's HISPC website:

http://healthit.ahrq.gov/portal/server.pt?open=512&objID=654&&PageID=13062&mode=2&in_hi_userid=3882&cached=true

accomplish through HISPC and commented that the project allowed them to increase consumer involvement with their states' ehealth activities.

Public Health

The eleven public health agencies interviewed discussed a number of HIT and electronic HIE activities that they are involved in. The primary purpose of many of the public health HIT and electronic HIE initiatives was to make current systems interoperable in order to more fully leverage the data currently collected and stored in the many separate systems and subsystems both within public health agencies and outside the agency walls. Most public health interviewees viewed HIT and electronic HIE as the means to more fully integrate public health systems with clinical systems so all stakeholders, including providers and public health departments, may benefit from the increased population based data available. Many of the initiatives described were in the planning and implementation stages. Table 3 presents a list of HIT and electronic HIE activities in which state and local public health departments were involved in and the number of states that were involved in those types of initiatives. The public health initiatives have been organized into four categories:

- ❖ Convening, Coordinating, Organizing Activities
- ❖ Electronic Health Record Systems and Other HIT Tools
- ❖ Health Information Exchange / Building Interoperability Capacity
- ❖ Other HIT and Electronic HIE Related Activities

Table 3: Types of HIT and Electronic HIE Initiatives Undertaken by Public Health Agencies

Convening, Coordinating, Organizing eHealth Activities	# of Agencies
• State eHealth Governing Body – Public Health is Board Member	3
• State eHealth Governing Body – Public Health as Leading State Agency Board Member	4
• Educating / Informing State Legislature (including Identifying Statutes that Need Updating)	2
• Serving on an American Health Information Community (AHIC) Committee	2
• Statewide eHealth Summit Meeting Sponsored by Public Health	2
• Collaboration with Local Public Health Departments / RHIOs / Other Organizations	11
• Interagency HIT and electronic HIE Coordinating Activities / Committees	6
Electronic Health Record Systems and Other HIT Tools	# of Agencies
• Implementing a Clinical EHR System with Public Health and Quality Reporting Functionalities (State and Local Health Department Collaboration)	1
• Supporting the Development of a Clinical EHR System for Health Clinics	1
• Providing Technical Assistance to Hospitals Implementing Information Systems	1
• Planning the Development of a PHR Tool	1
• Pilot Study to Assess the Value of PHRs	1
• Implementing an e-Prescribing Pilot Among Rural Health Clinics	1

Health Information Exchange / Building Interoperability Capacity	# of Agencies
• Participating in the Creation of a Statewide Health Information Exchange Network	2
• Modernizing an Operational HIE Handling Administrative Data and Public Health Data (e.g., Immunization, Disease & Lab Reporting) to Incorporate Clinical Data and Serve as a Statewide HIE	1
• Operational Statewide Telehealth Network Linking All Hospitals	1
• Building Telehealth Networks to Link Health Clinics and Hospitals	2
• Developing a Community Clinical Exchange Project to Integrate Public Health Data Sources	1
• Enabling Interoperability with Other Agencies / Organizations (e.g., Public Health Departments, School Clinics, Long Term Care, Mental Health)	3
• Operational Interoperable Emergency Medical Services Registry	1
• Linking Hospital Emergency Departments to Exchange Clinical Data and Improve Biosurveillance and Disease Reporting with Public Health	2
• Operational Data Warehouse Linking 9 Child Health Registries (Lead Screening, Early Screening, Immunization, Prevention, etc)	1
• Planned Linking of Child Health Registries	2
• Improving Registries' Interoperability Capacity with Health Related Agencies (e.g., Health Clinics, Schools, DMH, Indian Health Service, Local Public Health)	7
• Modernizing Disease Surveillance Reporting	4
• Modernizing Electronic Laboratory Reporting	5
• Planning for a Master Patient Index	2
• Operational Health Alert Network (HAN)	2
• Implementing Web Based Birth and Death Registries	3
• Web Based Licensing for Medical Professionals	1
• Web Based Marriage Licensing	1
• Enabling Electronic Medical Error Reporting	1
• Online Directory of Providers and Professionals to Contact in Case of State Emergency	2
• Implementing an Epidemiological Tracking System	1
• Modernizing Public Health Laboratory Information Systems	2
• Improving Broadband Connectivity: FCC Rural Health Care Pilot Program	1
Other HIT and Electronic HIE Related Activities	# of Agencies
• Quality Reporting Initiative Using Bridges to Excellence	1
• Monitoring / Assessing Gaps in HIT Adoption and electronic HIE Interoperability Capacity	1
• Participant in AHRQ's Health Information Security and Privacy Collaboration (HISPC) Project	9

Convening, Coordinating, Organizing eHealth Activities

Public health agencies are participating in eHealth coordinating and organizing activities similar to those involving Medicaid. In the states of Minnesota, Rhode Island, Utah, and New York the public health agencies/departments have taken on a significant leadership role for that state's eHealth activities.

Other public health collaborative activities involve coordinating data exchange with other state agencies. Indiana's Department of Health is sharing data with the state judicial system as well as the departments of transportation, Medicaid, corrections, and environmental management. New York State's Department of Health recently formed an interagency HIT coordinating council to align both internal electronic HIE initiatives and to coordinate electronic HIE across state health agencies. Tennessee's Health Commissioner chairs an interagency leadership taskforce to discuss ehealth activities. Louisiana's Department of Health and Hospitals has a committee that is reviewing the legal and regulatory issues regarding data exchange between state agencies. This committee is also working on documents that will outline data sharing agreements among agencies.

All state public health interviewees made references to coordinating some of their agency's HIT and electronic HIE initiatives with local health departments and RHIOs. Some local health departments are actively involved in regional HIT and electronic HIE initiatives; some of which are sponsored by RHIOs or local health systems. A few interviewees stressed that the state health agency could improve the way it coordinates and communicates with local health departments.

Electronic Health Record Systems and Other HIT Tools

Most state public health agencies are not involved with the development and implementation of clinical EHR systems (although some public health agencies are part of an umbrella agency that is doing so). However, Tennessee's Department of Health is in the planning stages to implement a fully integrated certified³⁷ EMR in all of its health clinics.

The most significant public health directed EHR initiative reported by interviewees is underway at the local level. The New York State Department of Health and the New York City Department of Health and Mental Hygiene (DOHMH) have jointly initiated a \$30 million project to implement EHRs at as many as 1,500 primary care practices serving 30% or more Medicaid members and uninsured individuals in the city. The DOHMH has worked with EHR vendors to add public health and quality reporting functionalities to the EHR software systems to make them interoperable with public health information systems like immunization registries, school health, disease surveillance, and Medicaid medication history. The DOHMH is providing the software and offering technical support to practices. Correctional health providers will also be receiving the EHR software. Future plans include the development of a PHR tool.

In Louisiana, the Department of Health and Hospitals is providing technical support to hospitals implementing hospital information management systems. The department wants to ensure that all hospitals that purchase hospital information systems will be able to connect with the statewide HIE in development.

Health Information Exchange / Building Interoperability Capacity

³⁷ The Certification Commission for Healthcare Information Technology (CCHIT) is a recognized certification body for electronic health records and their networks, and an independent, voluntary, private-sector initiative. For more information see: <http://www.cchit.org>

Public health has created multiple types of information systems to help meet its broad mission of serving the multiple public health needs of state populations. These information systems are at varying levels of maturity. Upgrading and replacing older systems present barriers to health agencies as they participate in HIT and electronic HIE initiatives to improve population health. All public health interviewees described in one way or another the ways in which their agencies were either modernizing legacy systems or implementing entirely new and innovative IT solutions that would improve their capacity to monitor and have a positive impact on population health.

Two public health agencies are participating in the creation of a statewide HIE. The Rhode Island Department of Health (DOH) has been working in close partnership with the state's ehealth body, the Rhode Island Quality Institute (RIQI), to develop RIQI's capacity as the RHIO that will administer, support, and finance the state's HIE. The Rhode Island DOH has also spent the last several years linking nine child health registries (e.g., lead screening, immunization, early screening, and prevention) into an integrated registry database system known as "KIDSNET". The department intends to link this database with the state HIE in the future. Other agencies mentioned their plans to link similar registries, and to make these registries more interoperable with schools, the Indian Health Service, Department of Mental Health, local health agencies, and/or consumers.

Public health agencies in Indiana and Tennessee are participating in projects that have linked hospital emergency departments in order to share clinical data. The emergency departments are also being linked with health departments in order to enable automatic disease and biosurveillance reporting. Nebraska's public health department has rolled out an emergency medical services registry to connect over 400 providers and hospitals.

Disease surveillance and laboratory reporting modernization initiatives are other common activities among health agencies. Indiana is using a web-based tool to track disease and intends to add decision support and portal based reporting functionalities to the system. Public health agencies are also looking to the CDC and its PHIN messaging standards to enable electronic laboratory reporting, though just as many interviewees commented on the difficulties of convincing laboratories in their states to follow standards or report electronically.

Other HIT and Electronic HIE Related Activities

A few public health agencies were addressing business process interoperability issues regarding authorization, access, authentication, and audit through their work with HISPC. Minnesota has developed 19 principles in 4 domains and the state hopes to receive funding to develop and test protocols and best practices.

State Employee Health Plans

The seven state employee health plans (SEHP) interviewed discussed a limited number of HIT and electronic HIE activities that they are involved in. Most SEHP HIT and electronic HIE efforts revolved around improving member health through quality/cost/transparency initiatives including measuring provider quality performance, providing members greater access to information and support tools in order to change behavior and improve outcomes, and using the contracting process to drive electronic HIE to improve health outcomes. Table 4 presents a list of HIT and electronic HIE activities SEHPs were involved in and the number of states that were involved in those types of initiatives. These initiatives have been organized into four categories:

- ❖ Convening, Coordinating, Organizing Activities
- ❖ Electronic Health Record Systems and Other HIT Tools
- ❖ Health Information Exchange / Building Interoperability Capacity

❖ Other HIT and Electronic HIE Related Activities

Table 4: Types of HIT and Electronic HIE Initiatives Undertaken by State Employee Health Plans

Convening, Coordinating, Organizing eHealth Activities	# of Agencies
• State eHealth Governing Body – SEHP is Board Member	1
• State eHealth Governing Body – Umbrella Agency Represents SEHP on Board	2
• Partnered with Other Agencies and External Employers to Align Purchasing Strategies	1
• Member of a Healthcare Stakeholder Alliance that Promotes Quality Reporting and the Alignment of Purchasing Strategies	1
• Board Member of a Health Information Exchange	1
• Signing Memorandums of Understanding with Healthcare Entities to Enable Data Sharing	1
• Interagency HIT and electronic HIE Coordinating Activities / Committees	3
Electronic Health Record Systems and Other HIT Tools	# of Agencies
• SEHP Represented by Umbrella Agency in the Development of an EHR System For Regional Implementation Using a Health Record Bank Model	1
• Supporting EHR Tool Use and Interoperability by Vendor Plans	5
• Supporting PHR Tool Use by Vendor Plans	5
• Providing Online Health and Wellness Tools for Members	1
Health Information Exchange / Building Interoperability Capacity	# of Agencies
• Member of a Collaborative Building a Statewide HIE	1
• Planning for a SEHP IT System Upgrade that Improves Interoperability	1
Other HIT and Electronic HIE Related Activities	# of Agencies
• Leading a Statewide Collaborative that Will Track Provider Performance on Chronic Care Quality Measures and Provide Assistance to Underperforming Providers	1
• Participant in Bridges to Excellence Pay For Performance Program	2
• Monitoring Performance of Providers and Plans using Claims Data and Tiering Payments Based on Performance	4
• State Mandate for eRx: SEHP Will Not Contract with Pharmacies Who Lack eRx in 2009 and Providers Who Lack eRx in 2011	1
• Participating in the Development of a Health Care Transparency (Quality and Cost) Website	2
• Participant in AHRQ's Health Information Security and Privacy Collaboration (HISPC) Project	2

Convening, Coordinating, Organizing eHealth Activities

There were a few HIT and electronic HIE coordinating and organizing activities undertaken by the SEHPs interviewed. The Wisconsin Department of Employee Trust Funds is the only SEHP to serve directly on an ehealth governing body. Minnesota's Department of Employee Relations has partnered with other agencies and private employers on the Smart Buy Alliance, which lays

out voluntary purchasing strategies including HIT and electronic HIE related strategies for group members to align behind.

The Washington Health Care Authority (HCA), which oversees the state's SEHP, is the lead agency for Washington's HIT and electronic HIE initiatives. HCA oversees four programs, including the SEHP, but it is not an umbrella agency. HCA is a member of the state's ehealth body, which developed the state's ehealth roadmap. One of the major electronic HIE initiatives of Washington's ehealth body and the HCA is the design and implementation of a health record bank (a repository of EHRs controlled by consumers, who are responsible for "banking" their records and authorizing consent for providers and other healthcare stakeholders to access). The HCA is also part of a public-private partnership called the Puget Sound Health Alliance, an organization dedicated to promoting healthcare transparency and aligning purchasing strategies.

Electronic Health Record Systems and Other HIT Tools

Many SEHPs are indirectly promoting EHRs, PHRs, and other HIT tools by supporting vendor health plans that have these services available. Georgia's SEHP stated that its most recent RFP is requesting vendor plans to describe their efforts to get physicians to adopt and use eRx and EHRs. The SEHP is currently contracting with three vendor health plans whose EHRs are interoperable with one another's systems. North Carolina's SEHP has its own website that offers health and wellness tools directly to members. SEHP members in that state can log on and take a health risk assessment and access other features offered by Health Dialog and WebMD.

Other HIT and Electronic HIE Related Activities

SEHPs are involved in HIT and electronic HIE related activities not commonly cited by Medicaid and public health. SEHP interviewees identified their interest in HIT and electronic HIE as a necessary part of their quality improvement and cost containment activities. SEHPs were more often participating in and driving initiatives that employ the use of HIT and electronic HIE for clinical performance measurement, quality improvement programs (e.g., pay for performance), transparency initiatives (e.g. cost and quality websites), and consumer wellness tools (e.g., PHRs). Many of these initiatives use claims based data with the intent to build in capacity for clinical data when it becomes available.

- ❖ North Carolina described the implementation of a state-wide provider practice support program that includes training and assistance tools for providers not meeting minimum performance standards. This "carrot only" approach, where providers are not penalized but supported, has resulted in significant buy-in and support for the implementation of the program.
- ❖ Some SEHPs are tiering payments to providers based on performance on claims-based quality measures. Massachusetts is tiering individual providers, Wisconsin is tiering health plans, and Minnesota is tiering its health clinics.
- ❖ Two SEHPs, Minnesota and North Carolina, are participating in the Bridges to Excellence pay for performance program.
- ❖ Because of a state mandate that requires eRx technology to be installed at all pharmacies by 2009 and at all provider sites by 2011, Minnesota's Department of Employee Relations will be unable to contract with those who do not meet the deadlines.

Evaluation of HIT/HIE Initiatives: How States Are Measuring Results

Evaluating success was widely recognized by interviewees as an important component of their projects. Most interviewees stated that an evaluation of their HIT and electronic HIE initiative would be conducted, and several had contracted with academic institutions to oversee the process. Two SEPHs stated they would be hiring third party evaluators to ascertain the success of their specific initiatives.

Some agencies had conducted informal evaluations of specific projects. All Medicaid Transformation Grantees are required by CMS to conduct an evaluation of their projects. A few Transformation Grantees specifically mentioned that they would produce ROI data as part of their evaluations in order to assess the sustainability of their initiatives.

- ❖ The Minnesota Medicaid Program evaluators will address specific questions around 1) technology acquisition; 2) utilization functionality - how well is the HIT actually being used; and, 3) interoperability – assessing organizational readiness for supporting HIE and its ability to exchange data. Minnesota plans to evaluate its HIT and electronic HIE initiatives across 16 different domains for health care safety.

Many of the state agency HIT and electronic HIE initiatives were in the late planning and implementation stages. At the time of the interviews there were few evaluation results available to share.

Challenges Identified by State Agencies Specific to Structure

While most interview questions were designed to collect data on the five HICDE Taskforce principles of analysis, interviewees were given the opportunity to discuss the challenges and barriers they have encountered as they have undertaken their various HIT and electronic HIE initiatives. The challenges presented in this section are varied and reflective of the many approaches state agencies have taken regarding their HIT and electronic HIE initiatives. State agency interviewees were also given the opportunity to make recommendations to the State Alliance for eHealth on ways to address their challenges; all recommendations are listed at the end of this report.

State agency challenges regarding the structure of their initiatives include:

- ❖ Lack of communication and data sharing between state agencies ('agency silos'). A primary challenge cited was the difficulty in developing consensus between state agencies on realistic expectations regarding the role, use, and implementation of electronic HIE. Another related challenge identified by interviewees is getting state agencies to share data with each other – a cultural shift is needed to get staff to understand that sharing data is a necessity if the benefits of improved health care quality and effectiveness are to be achieved. Sharing knowledge and keeping current about all the various electronic HIE and HIT initiatives at the state and federal level were also viewed as challenges.
 - State Medicaid agencies often do not communicate freely with other state agencies, due in part to their individual missions and different priorities.
 - State and local public health agencies do not collaborate enough with one another. Interviewees expressed the need for improved and/or more frequent collaborations between state and local public health departments in order to leverage shared resources and effectively address the broad scope of public health functions across state(s).
- ❖ There was no consensus on how specific clinical and population health data should be used by public health agencies. Support was voiced for the creation of a "practical

minimum data set for public health”. Specific data sharing challenges identified by interviewees include:

- Receiving pharmacy, mental health, and other high-risk population data.
 - Competitive stakeholders’ access to data (both at the individual and population level)
 - Interstate data sharing.
 - Difficulties in sharing data with federal agencies (CMS, HRSA, AHRQ, VA, DoD).
 - The potential for more data silos to be created because of different personal health records distributed by vendors, hospitals, and other stakeholders.
 - Secondary uses of clinical data from EMR/EHRs.
 - Educating providers on the value of sending and receiving public health data electronically to improve their patients’ health. As one interviewee reported, the financial value of providers reporting public health data electronically is low right now compared to current costs of reporting.
 - The costs of building IT system interfaces and replacing legacy systems were also cited as challenges.
- ❖ Actual and perceived legal and regulatory issues in regard to data sharing and ownership. Most laws and regulations regarding health information were enacted before the advent of electronic HIE, an issue requiring states to review their privacy and security laws and regulations, especially regarding “high-risk” populations. Medicaid agencies struggle to answer questions around data ownership; what types of data can be shared; how this information can be shared across state lines; and what responsibility Medicaid agencies have regarding data for persons no longer eligible for Medicaid coverage? Equally difficult for Medicaid agencies is the lack of understanding of how federal Medicaid regulations apply to states’ HIT and electronic HIE initiatives.
 - ❖ Security and privacy risks. Common issues expressed include: Who shoulders the cost and risks? Technology cannot manage opt-out very well across state lines or even outside of local communities. Consent authorization is a big challenge - what happens when one state has opt-in and another opt-out? How can Medicaid agencies share “high-risk” population data (mental health, HIV, etc.) if each state has different regulations?
 - ❖ EHRs, as currently being implemented at most provider sites, do not include adequate public health functionalities. EMR and EHR software systems are designed by vendors to meet clinical needs at the level of the provider practice. Most EHR vendors are not thinking beyond the needs of individual provider practices working at the patient level. Consequently, these EHRs are not designed to accommodate public health data needs and functionalities in order to improve population health. Examples of public health functionalities include linkages to public health information systems (e.g., immunization registry, school health, disease surveillance, Medicaid medication history), registry functions, automated clinical quality measurement for priority health issues, decision support tools and reminders at the point of care, and patient self-management tools.
 - ❖ Many EHRs also do not include adequate quality reporting functionalities and cannot adequately report out aggregated quality metrics. Quality measurement and reporting functionalities need to be embedded into EHRs and other clinical systems. Currently, clinical quality measures and clinical auditing are primarily conducted via expensive chart pulls. Even if a provider does have an EHR system, many such systems lack the functionality to produce aggregated quality reports.

- ❖ Lack of common HIT and electronic HIE terminology definitions. Common language definitions (e.g., what is the difference between an electronic health record, an electronic medical record, and a personal health record; what exactly does the term ‘electronic HIE’ encompass; does ‘electronic HIE’ also include the sending of faxes; what is public health informatics?) were frequently cited as lacking.
- ❖ State agencies face internal operational issues with respect to HIT and electronic HIE initiatives. State agency business processes will change due to electronic HIE. Interviewees cited a lack of internal resources for strategic planning and policy related to electronic HIE. In addition, in regard to implementation, difficulties with project management and the RFP process were often cited.
 - Public health disaster systems are not integrated into the daily workflow of most employees. To successfully use integrated IT platforms in the event of a disaster, staff need to be competent in the use of these response systems. The best way to achieve this is by integrating the use of these systems into the staff’s daily workflow.
 - Medicaid agencies and SEHPs recognized the significant leverage they have over their vendors but are challenged and have requested assistance in writing RFPs and contracts that address their current, and more importantly, future informatics needs.
- ❖ Medicaid, public health, and SEHP agencies face great challenges regarding staffing issues:
 - Public health agencies (local and state) expressed that these technologies require new informatics skills and education for both leadership and front-line staff. The current workforce is already strained. The average age of the public health workforce is increasing and many experienced employees are nearing retirement. States are limited in their ability to hire experienced staff as they cannot offer competitive compensation. In addition, some state regulations impede the hiring of public health staff for federally funded projects.
 - Medicaid agencies are often understaffed for large-scale HIT and electronic HIE projects. Finding staff, consultants, or vendors with the appropriate expertise was cited as a particular concern. Related issues have to do with addressing expectations of staff, developing realistic project goals and objectives, as well as managing time and material resources.
 - Staff need education and training on the appropriate uses of data made available through HIT and electronic HIE for quality measurement and improvement purposes. Developing the technical expertise and core competencies necessary to implement and operate new data applications made possible through HIT and electronic HIE is critical.
- ❖ Many SEHP legacy systems are outdated and will require significant upgrades and/or replacement as they participate in electronic HIE. The mechanisms by which SEHPs can pay for these upgrades along with more broad based initiatives are not clear. Some interviewees suggested that state agencies are competing over limited funding streams, thereby impeding collaboration.
- ❖ SEHPs are challenged as to how to support the upfront investments in HIT systems. SEHP officials accept their broader responsibility to pay for their appropriate share of quality improvement. However, HIT and electronic HIE direct investments were not viewed as the role of SEHPs. Many officials interviewed expressed the need for market-based mechanisms to support HIT adoption by providers themselves rather than expecting the

state agencies to purchase the systems. There was also consensus that SEHPs should not be subsidizing other state program investments in HIT and electronic HIE.

- ❖ Lack of Medicare participation in HIT and electronic HIE quality initiatives. With Medicare covering most acute services provided to the disabled and the elderly, a comprehensively designed quality measurement program must include information on these encounters. Currently few states have access to accurate and current Medicare claims data. With Medicare being the largest purchaser of healthcare in the nation, it could also have significant leverage in driving HIT and electronic HIE adoption in clinical settings if it were to participate with state partners.
- ❖ Limited provider adoption of HIT tools such as EHRs. Providers face many challenges with respect to purchasing and operating HIT tools, including access to high-speed connectivity. Computer literacy, IT maintenance, and loss of productivity related to the adoption and use of HIT by providers were highlighted as challenges related to Medicaid initiatives involving providers.

Leadership

The role of state governments and their respective health agencies, including Medicaid, public health, and state employee health plans, in regard to supporting HIT and electronic HIE is not clearly defined. In order to facilitate its decision-making processes in developing recommendations for state action in regard to these tools, the Taskforce requested that the interviews gather information on the types and level of leadership demonstrated by the state agencies. As a result multiple questions were added to the interview protocol to assess the nature of state agency leadership with respect to the HIT and electronic HIE initiatives.

State governments, in their varying capacities, have a significant stake in supporting HIT and electronic HIE adoption and use. State governments are healthcare stakeholders in several ways: as purchasers for Medicaid and state employees, as one of the largest employers in the state, as providers of health care through public hospitals, as regulators of services and providers, and as overseers of the public health of all citizens. In addition to the health and human services agencies and state employee health plan, the governor's offices, the agencies for education, aging, mental health, and corrections, as well as the state CIO's offices, all have important links to healthcare interests that can benefit from HIT and electronic HIE. Moreover, state legislatures, as the legislative arm of state government, must also be involved for electronic HIE to succeed.

Executive Branch Leadership

Gubernatorial leadership was consistently recognized by interviewees as being integral to state HIT and electronic HIE efforts. The nature of Governors' involvement varied. The strongest forms of gubernatorial leadership have involved using their position as a "bully pulpit:" to drive attention to the need and utility of electronic HIE, issuing executive orders supporting electronic HIE at multiple levels, and convening eHealth committees and workgroups involving both intrastate agency stakeholders and non-state agency public/private stakeholders. Some governors have demonstrated a very clear understanding of the value of HIT and electronic HIE by outwardly advocating for its adoption and use and setting clear priorities. In some cases governors have highlighted importance of HIT and electronic HIE in their State of the State address. For example, Governor Mitch Daniels of Indiana mentioned HIT in his state of the state address in each of the last three years. Several governors have issued executive orders to create eHealth advisory bodies and promote electronic health records. Governor Tim Pawlenty of Minnesota signed a law requiring all providers and hospitals in the state to have an

interoperable EMR by 2015. Governors have also been instrumental in coordinating specific state agency IT integration activities. For example, Governor Daniels of Indiana created an Office of Technology to oversee the consolidation of the state IT system. Finally, some state executives have championed the provision of state appropriations for HIT and electronic HIE initiatives and grant programs.

In some states, other executive office personnel have had leadership roles in moving HIT and electronic HIE projects forward. The Chief of Staff and legal counsel for Governor Donald L. Carcieri of Rhode Island played a significant role in helping to move issues along when they got bogged down in contracting requirements and negotiations.

Successful mechanisms by which Governors have moved electronic HIE and HIT efforts forward in their states have included the use of:

- ❖ Executive orders: Executive orders have been used by Governors to convene eHealth bodies, to initiate road map development, and to promote the advancement of electronic HIE as a step towards improving safety, quality, and efficiency.
- ❖ EHealth road maps: Road maps were viewed by interviewees as being particularly important tools for establishing state priorities and agenda setting. Convening and organizing multiple stakeholders charged with creating a state road map was viewed as an important process both for building trust amongst all parties involved and for establishing an eHealth plan that maps out the current baseline of eHealth activities and informs decision-makers of the priorities and best approach for their state to take in the future.
- ❖ Convening an eHealth collaborative: Governors have been instrumental in supporting and convening eHealth bodies, sometimes through an executive order. These entities are usually comprised of public and private stakeholders who help to align statewide priorities for electronic HIE, often by developing road maps, agreeing to data sharing principles, and initiating joint ventures.

Legislative Branch Leadership

The state legislature is equally important for state HIT and electronic HIE efforts. Legislative authority to make, appeal, and amend laws, as well as its power to appropriate funds for government functions, institute taxes, and regulate commerce make its input integral to the success of many HIT and electronic HIE projects. In addition, the legislature is responsible for the representation of its constituents. Therefore, legislative input is a mechanism through which the consumer can impact state HIT and electronic HIE projects.

Examples of legislative leadership from interviewees include:

- ❖ Enacting comprehensive legislation that supports HIT and electronic HIE among multiple stakeholders. The organization of public agencies in each state differs, resulting in a variety of procedures and rules regarding intra-state agency projects, procurements, and information sharing. The legislature has the capacity and responsibility to enact legislation that enables greater intra-state partnerships between agencies on HIT and electronic HIE projects. In addition, legislative action is needed to support public/private HIT and electronic HIE projects.
- ❖ Addressing issues concerning the privacy and security of protected health information (PHI). The privacy and security issues regarding the sharing of PHI pose significant challenges to state agencies. The current lack of specificity in the current laws and jurisdictional boundaries, for example between HIPAA and the Medicaid Privacy Statute,

act as impediments to some state agencies' participation in HIT and electronic HIE projects.

- ❖ Enacting new legislation or updating antiquated laws to enable interoperability. Many laws and regulations written before the advent of eHealth are inappropriate for electronic healthcare data exchange and therefore act as barriers to electronic HIE across different systems of care delivery
 - An example of an important area for legislative action cited by SEHP leadership was a mandate for uniform administrative coding across all state plans and providers. In one state, legislative mandating of uniform administrative coding has resulted in the inclusion of Medicare claims data into the HIE efforts.
 - To better inform all Tennessee policy makers including the State Legislature, the Director and Chairman of Tennessee's eHealth Advisory Council conducted an assessment of 200 Tennessee laws that impacted interoperable EHRs, especially regarding laboratory data. As a result of this effort, the State Legislature removed a barrier impeding the electronic exchange of laboratory data.
- ❖ Addressing the issues around inter-state data sharing. Although state agency laws and regulations regarding PHI and data sharing are geographically bound, consumer health care consumption is not. In many, if not all states, there are cross-boarder health care services being delivered to consumers. There was consensus on the need for legislative action to enable inter-state electronic HIE to allow personal health information to follow the consumer.
- ❖ Providing funding for state HIT and electronic HIE activities. Legislative appropriations and the enactment of other funding mechanisms for HIT and electronic HIE projects were viewed as essential to moving state agency HIT and electronic HIE initiatives forward. Other funding mechanisms mentioned include giving state agencies the authority to accept matching funds, donations, grants, equipment and services; creating loan and grant programs; defining electronic HIE initiatives as infrastructure eligible for certificate of need programs; and supporting electronic HIE through bond creation.

Agency Leadership

Agency directors and leaders are responsible for organizing and coordinating the resources with which to undertake HIT and electronic HIE projects, and in some cases they fulfill a dual role of being among the top HIT and electronic HIE content knowledge experts. There were common views that agency directors and leaders were playing key roles in educating and informing executive and legislative leadership. Interviewees expressed that agency leaders should have strong leadership skills and a firm grasp of the discipline of health informatics and the potential opportunities and pitfalls associated with complex and resource intense HIT and electronic HIE projects.

- ❖ With a shortage of trained health informaticians around the nation³⁸ and the rapid evolution of HIT and electronic HIE, not to mention state agency challenges with respect to hiring and staff training practices, the health informatics and HIT and electronic HIE technical knowledge base at the state agency leadership level varies. Most agency leadership officials interviewed felt that executive level workforce competencies in the areas of health informatics and project management need to be strengthened.

³⁸ Charles Friedman, Office of the National Coordinator for Health IT, DHHS, "*Building the Workforce: An Imperative for Public Health Informatics*", PHIN Conference 2007, Atlanta, Georgia. August 27, 2007.

Specific state agency involvement with state-level electronic HIE depends on the mission of the particular agency in question. Medicaid agencies, as healthcare purchasers, are particularly focused on addressing deficiencies in their care delivery systems to improve member health, reduce costs and increase the overall value of health care purchased. In other states the (public) health department is playing an active role in electronic HIE development and implementation. The multiple public health functions of the state require, in many cases, formal relationships with county and local health departments. These relationships make public health uniquely positioned to drive appropriate health data sharing between providers, purchasers, and public health entities. Many information sharing partnerships have been developed between public health and other stakeholders for purposes including biosurveillance, screening, the development of health care registries, as well as various health promotion initiatives. Moreover, many public health agencies currently collect critical health information, such as immunization data, that is useful to providers and their patients. Many public health agencies are leading or playing significant roles in the electronic HIE initiatives underway in their respective states.

- ❖ The Rhode Island Department of Health (RIDOH) was the lead organizer and awardee of an AHRQ HIT State and Regional Demonstration Grant (SRD). The Rhode Island Quality Institute (RIQI) was contracted by RIDOH to serve as the community governing entity responsible for developing a statewide electronic HIE system. As the RIQI assumes greater operational responsibilities for the statewide electronic HIE, the RIDOH is moving away from its formal public-private partnership with the RIQI to assume more of an oversight role. Meanwhile, the RIQI continues to receive support funding from other major private and public stakeholder participants to develop and operate the HIE (along with other quality health care initiatives) and is working to develop a long-term sustainable business model for the HIE.

SEHP leadership interviewed understood the value of HIT and electronic HIE in improving quality care. They are often using their investment funds to support a range of electronic HIE related activities, from using their contracting process to drive HIT and electronic HIE adoption with vendor health plans, to participating in multi stakeholder collaborative groups that leverage HIT and electronic HIE, and the information collected within these tools, to drive improvements in quality care delivery at provider practices through pay for performance and transparency initiatives.

Interagency HIT Coordination and Organization

To better coordinate and organize HIT and electronic HIE projects, and with the recognition that successful electronic HIE requires appropriate data sharing across all levels of government, some states are empowering a single state coordinator, either an individual or a specific office, for HIT and electronic HIE activities across all government agencies. Interagency collaboration is also being stimulated through the use of eHealth committees comprised only of government representatives. These committees may collaborate directly or indirectly with the efforts of larger public-private eHealth bodies.

Examples of such collaborative efforts include:

- ❖ Tennessee's Commissioner of Health leads a taskforce of agency leadership that meets frequently to discuss local and national issues.
- ❖ Indiana's Governor formed the Office of Technology, which will plan the IT architecture for the state.
- ❖ New York recently formed an internal HIT coordinating council, which will work to align Department of Health strategies involving HIT and also act as a liaison for HIT with other state agencies and the New York City Department of Health and Mental Hygiene. As a

first priority, this council is working to improve children's health by streamlining and aligning redundant IT systems for immunization registries, lead and newborn screening, and vital records.

Some states are convening statewide eHealth summits to bring together state agencies, payers, providers, policy makers, consumers and other interested stakeholders to share and discuss state HIT and electronic HIE efforts.

- ❖ In December 2007 the Kentucky eHealth Network Board played host to its second statewide eHealth Summit. State and community leaders involved in eHealth initiatives throughout Kentucky were brought together to learn more about the efforts of the state's eHealth Network Board and other national, state and local eHealth efforts. The summit offered educational sessions on privacy and security protections, how to implement electronic health records, federal HIT and electronic HIE activities and plans, and updates on various regional and community exchange efforts in the state.

Collaborative eHealth Governing Bodies

A collaborative eHealth governing body was viewed as essential for convening and coordinating state-level electronic HIE. Governors and/or state legislatures in many cases have initiated the creation of these bodies through executive orders and/or legislative mandates. The oversight and direction provided by these multi-stakeholder collaborations is viewed as essential to the successful implementation of many state-level electronic HIE initiatives. These partnerships foster trust among the various public and private stakeholders, who may not share data and in some cases have competitive relationships with others at the table. In some states these committees are collaborative, with all stakeholders having an equal voice, while in other states one particular stakeholder may be leading or coordinating the group.

- ❖ The North Carolina state employee health plan highlighted the need for physician involvement in the development and leadership of their HIT and electronic HIE initiatives as a way to build trust in the provider community. Appointing physicians as chairs and co-chairs of committees within eHealth projects helped to generate greater community buy-in for the implementation of provider tiering and quality measurement/benchmarking programs. By positioning these initiatives as "physician driven", the negative perception that government and purchaser interests dictate clinical care guidelines was diminished.

Key functions of multi-stakeholder collaborations include building consensus, aligning priorities, and developing recommendations for states' HIT and electronic HIE initiatives. These groups also helped to advance agreements and protocols for statewide interoperability structures, standards, and data and technology stewardship. An eHealth governing body may:

- ❖ Serve as a conduit for communicating and developing consensus on the roles of and need for all stakeholders involved in electronic HIE efforts.
- ❖ Support community-wide strategies that promote provider adoption and use of HIT, particularly in rural and underserved regions.
- ❖ Facilitate workgroup committees comprised of program, planning, IT, and project management staff from each stakeholder group.
- ❖ Empower non-governmental participants to have a controlling stake and role in the electronic HIE initiative.
- ❖ Promote intra-state agency partnerships.
- ❖ Allow for the development of statewide interoperable systems and collaborative quality improvement and transparency initiatives.

Examples of eHealth bodies:

- ❖ The Tennessee eHealth Advisory Council was created by the Governor through Executive Order 35 to facilitate HIT. The eHealth Council is a collaborative internal-external stakeholder model comprised of 16 members, with the Governor, Medicaid (TennCare), and the Department of Health actively involved. The Council comes to consensus and presents findings to the state for ratification; all recommendations to date have been unanimously approved by the state. According to the Chair of the Tennessee eHealth Council, the Council works with the state to first incubate, and then implement, appropriate HIT and electronic HIE projects.
- ❖ In some states the public sector is not a driving force of electronic HIE collaboration and investment. In Massachusetts, for example, electronic HIE leadership and investments are primarily being driven by the private sector (though this may change in the near future). The Massachusetts eHealth Collaborative (MAeHC) was formed in 2004 using \$50 million from Blue Cross Blue Shield of Massachusetts to design and implement a fully interoperable EHR system in three communities. Although the Massachusetts Executive Office of Health and Human Services is a member of MAeHC, primary direction and execution of this project has been led by private stakeholder involvement.
- ❖ The New York State Department of Health (NYSDOH) has asked the New York eHealth Collaborative, based in New York City, to coordinate a new HIT public-private partnership to help the NYSDOH collaborate with public and private health care leaders on HIT. This partnership will meet to discuss ideas, build consensus, and serve a convening function for Health NY HIT grantees. It is organized to balance a bottom up approach to HIT implementation with a top down structure.

State agency leadership and staff interviewed highlighted the need for leadership at all levels of state government. There was consensus that the State Alliance for eHealth needed to provide support to state leadership at the executive, legislative and state agency levels. The needed support identified in interviews included:

- ❖ Education about health care informatics:
- ❖ Reputable and vetted return on investment studies for technologies considered for state program use;
- ❖ Guidance on the mechanisms, financial and non-financial, that can be used to support these technologies;
- ❖ Guidance on standards to promote and negotiate the complex privacy and security issues related to sharing personal health information; and,
- ❖ A clear and consistent message and vision from the federal government as to what its HIT and electronic HIE goals are and what the federal government anticipates the states' roles to be in that vision.

Financial and Contributory Responsibility

State agencies rely on several types of funding streams to support their HIT and electronic HIE initiatives. States recognize that they have a substantial role in facilitating the adoption and use of HIT and electronic HIE, but they also have a responsibility to account for public dollars spent. Consequently, public investment lags private investment. Interviewees reported that as a function of their public duty they had fiduciary responsibility to support innovations that promote the public good. In the case of HIT and electronic HIE it was widely accepted that these tools

are becoming a necessary investment to both ensure the safety and quality of healthcare delivery to their constituents and to rein in costs. However, finding the financial resources to pay for these technologies presents a significant challenge. State agencies also expressed the need for better return on investment (ROI) studies that incorporate the unique issues and requirements of state agencies to facilitate more informed financial decision-making on specific HIT and electronic HIE investments.

Federal Funding Mechanisms for HIT and Electronic HIE Initiatives

States receive federal funds through a variety of mechanisms, each of which has a specific purpose and set of requirements. Some of the more common mechanisms include:

- ❖ Entitlement programs (e.g., Medicaid);
- ❖ Formula or block grant capped funding (e.g., SCHIP);
- ❖ Contracts (e.g., Public Health Preparedness and Response for Bioterrorism Initiatives);
- ❖ Discretionary or project grants (e.g., Medicaid Transformation Grants);
- ❖ Demonstration grants (e.g., AHRQ State and Regional Demonstration grants);
- ❖ Direct payments (e.g., Social Security-Disability Insurance); and,
- ❖ Loan or loan guarantee programs (e.g., Rural Broadband Access Loans and Loan Guarantees).

The majority of federal funds received by Medicaid and public health agencies for their HIT and electronic HIE efforts were from grants and contracts. State employee health plans did not mention receiving any federal funding, although some were part of larger umbrella agencies that had received federal grant awards for related HIT and electronic HIE initiatives. The following is a list of the federal agencies and award programs cited by interviewees.

- ❖ U.S. Department of Health & Human Services (DHHS)
 - Centers for Disease Control and Prevention (CDC): Many public health agency interviewees were recipients of CDC grants and contracts. These awards cover a range of public health initiatives, including BioSense (early detection of health threats), Centers of Excellence in Public Health Informatics, National Electronic Disease Surveillance System (NEDSS), and others not specifically named by interviewees. These and other CDC grants that involve information exchange generally require adherence to CDC Public Health Information Network (PHIN) messaging standards. PHIN messaging standards are aligned with national standards (e.g., HITSP and HL7).
 - Agency for Healthcare Research and Quality (AHRQ) HIT and electronic HIE grants have been awarded to many of the Medicaid and public health agencies interviewed. AHRQ's multi-year \$166 million HIT initiative funded two projects frequently mentioned in interviews:
 - Health Information Security and Privacy Collaboration (HISPC) was highly praised by several agencies as playing a major role in helping their respective states think through privacy and security issues. States also found HISPC to be a great outlet for involving consumers with state HIT and electronic HIE activities.
 - State and Regional Demonstration grants had been awarded to five states (DE, IN, RI, TN, UT) interviewed.
 - Centers for Medicare and Medicaid Services (CMS):

- State leaders consistently viewed Medicaid Transformation Grants (MTG) as an important funding stream for building state momentum and involvement in electronic HIE and HIT. The MTG grant program was authorized by Congress under Section 6081 of the 2005 Deficit Reduction Act to help Medicaid agencies develop and implement innovative methods for improving the effectiveness and efficiency of the care delivery system for Medicaid members. Of the \$150 million in grants awarded in 2007, a significant portion was allocated to electronic HIE related projects. Several interviewees recommended that the MTG grant program should be made available again to state Medicaid agencies.
- Federal Financial Participation (FFP) is available to help states cover costs related to their Medicaid management information systems (MMIS). MMIS systems are eligible for a 90 percent FFP match on design, development, and installation, and a 75 percent match for operation and ongoing maintenance.
- Health Resources and Services Administration (HRSA) grants were funding safety net HIT and electronic HIE efforts in many states interviewed, not only at the state agency level but also in local communities and healthcare systems, especially those in rural and/or underserved areas. In particular, HRSA grants have been aimed at improving provider adoption, broadband connectivity, and telehealth capacity across the nation.
- Office of the National Coordinator for HIT (ONC) grants: At least one state, Louisiana, received a grant from ONC to help establish an electronic HIE organization in two regions of the state following Hurricane Katrina.
- ❖ Federal Communications Commission’s Rural Health Care Pilot Program (RHCPP) awarded over \$417 million for the construction of 69 statewide or regional broadband telehealth networks in 42 states and three U.S. territories. Although the RHCPP is primarily focused on promoting telemedicine among rural health centers and providers, the lack of connectivity in these regions is a barrier to any form of electronic HIE. Over 6,000 public and non-profit healthcare providers nationwide are due to get access to broadband networks through this program. Some agencies interviewed were members of partnerships that had been awarded these grants.
- ❖ Social Security Administration: Several states have received SSA funding to assist with the implementation of electronic death registries.
- ❖ Department of Homeland Security (DHS): Three public health agencies interviewed received support from DHS to build emergency preparedness capacity and increase responsiveness to potential bioterrorism and pandemic events.

Challenges Identified by State Agencies Specific to Federal Funding Mechanisms

As important as federal funding has been to states, several factors were identified by state agency leadership that diluted the success of projects funded through these grants. Most federal grants are targeted at individual programs and do not allow for IT infrastructure to be built that would provide benefits across agencies, programs, or public/private stakeholder groups. Many agency leadership interviewees stated that federal grants often perpetuated data silos between and within agency programs and sometimes acted as impediments to achieving the full potential of electronic HIE.

- ❖ Medicaid leadership expressed frustration with the inflexibility of MITA’s “Medicaid only” rule that restricts how state Medicaid programs can receive federal financial participation

(FFP) when they upgrade to a new Medicaid Management Information System (MMIS). Other remarks included a desire for increased FFP to cover expenses for Medicaid eligibility systems.

- In contrast, several Medicaid interviewees were very enthusiastic about the flexible approach allowed by the Medicaid Transformation Grants. Although awarded projects are Medicaid-centric, several have been strategically designed to integrate with their states' vision for electronic HIE.
- ❖ Public health leadership expressed appreciation for the multiple public and private funding sources that facilitated their participation in electronic HIE, yet there was consensus that these grants frequently promoted the development of siloed IT systems specific to one program area only. Public health agencies, with their multiple core functions and multiple legacy IT support systems (one state reported 186 separate data sets spread across multiple public health IT systems that were not interoperable) have much to gain from an IT infrastructure that promotes the exchange of data across the entire agency and beyond.

Another issue raised by agencies concerned the short timelines of these grants. Despite a state's best efforts, often there is not enough time for strategic planning, further dulling the promise of a grant's outcome. Also cited by interviewees was the lack of ongoing funding to sustain these grant-initiated projects. Some states remarked that it was not uncommon for a new grant funded IT system to be left without staff and/or IT support once the grant was exhausted.

Despite these drawbacks, federal grants were viewed as very important to state agencies, and many have or are in the process of implementing a variety of electronic HIE projects with federal start-up funds.

State Funding Mechanisms for HIT and Electronic HIE Initiatives

Every state agency interviewed was contributing some amount of state funding for HIT and electronic HIE related activities. The funding mechanisms vary significantly. The complexity of state agency organization juxtaposed with both the number of HIT and electronic HIE tools available and the varying healthcare marketplaces in each state, force states and state agencies to be creative with the funding of infrastructure initiatives such as HIT and electronic HIE.

Specific state funding for HIT and electronic HIE initiatives comes from many sources and mechanisms. Examples of state funding mechanisms that were used by states interviewed include:

- ❖ **Appropriations (budgetary spending, revenue bond authorization)** – Many state legislatures have allowed funds to be appropriated for state HIT and electronic HIE projects and/or to stimulate private electronic HIE organizations (Regional Health Information Organizations (RHIOs)) and provider adoption through grant programs.
 - The Louisiana Legislature, spurred on by Hurricane Katrina's impact on the state's healthcare system, earmarked \$53 million for HIT in 2007.
 - Massachusetts' state employee health plan, the Group Insurance Commission, is in the queue to have a state bond released in order to upgrade its IT infrastructure.
 - In Rhode Island, the State Legislature was uncomfortable with covering the entire startup costs for its electronic HIE and RHIO, as it was expected that many of the benefits would accrue to both private and public stakeholders (purchasers and providers). Thus, when the Governor and Legislature authorized a \$20 million bond

- article in summer 2006 to facilitate the RHIO's creation, it was contingent upon other large healthcare stakeholders making contributions too. The state's contribution over 10 years will be proportional to the number of statewide lives covered by Medicaid or the state employee health plan, or about \$8 million with interest over 10 years.
- ❖ **Grant and Contract Funding** – Providing startup grants as seed funding for the creation of electronic HIE organizations and to support provider adoption of HIT is a funding mechanism in use by some states. Georgia recently awarded grants to help initiate a statewide electronic HIE. In Washington State small grants were given to specific providers to facilitate rural HIT adoption.
 - ❖ **Program and Agency Operational Funding** – Some states are using programmatic and agency operational funding to support HIT and electronic HIE initiatives. Indirect HIT initiatives such as pay for performance in Medicaid and SEHPs are funded through operational mechanisms. Immunization registries are often created with public health operational funding. In other circumstances state agencies are using their programmatic budgets to participate in and contribute user fees to electronic HIE efforts.
 - ❖ **Public/Private Contributions** – In some states public/private funding mechanisms are in place to support electronic HIE projects.
 - The operations of a claims based EHR for Tennessee Medicaid members are funded as an operational cost under TennCare at standard match rates. The system was created, however, with funding from the Blue Cross Blue Shield Foundation of Tennessee.
 - Even with a sizable Medicaid Transformation Grant award, the Arizona Medicaid agency is considering what kind of membership dues and/or transaction fees would be appropriate initially while it works on securing long term funding.
 - Some public health agencies have received awards from private foundations to initiate new projects and provide additional funding and functionality to existing projects. Two specific grants from the Robert Wood Johnson Foundation (RWJF) were identified: the Information Links Project: Connecting Public Health with Health Information Exchanges, and the Common Ground Project: Transforming Public Health Information Systems.
 - ❖ **Using Vendor Purchasing Options** – Medicaid and SEHPs, due to their large size, have significant purchasing power and economies of scale to align priorities across state agencies and to support HIT and electronic HIE related projects. States can use their contracting process to regulate the technologies purchased and the functionality and interoperability of these technologies. The contracting process can also be used to streamline purchasing regulations among state agencies. The vendor contracting mechanism was seen as a successful means for encouraging vendor plans to report performance related data and drive the use of HIT tools such as EHRs and electronic prescribing (eRx). For vendors who currently use EHRs, the contracting process was viewed as a means to promote interoperability and electronic HIE between plans. This process was also viewed as an important means to address consumer movements among plans and providers.
 - The Puget Sound Alliance was formed in 2004 and includes the Washington State Health Care Authority (HCA), which administers benefits for about 350,000 state employees and higher education staff. The Puget Sound Health Alliance in Washington seeks to improve the quality of health care by 1) using guidelines for

- evidence-based medicine to develop performance reports and 2) aligning incentives in purchasing and consumer decision-making to promote quality and reduce costs.
- The Minnesota's Smart Buy Alliance is a coalition between state government (including Medicaid, the Department of Employee Relations, and other agencies), private employers, and business groups that have agreed to align their healthcare purchasing strategies in order to contain costs and improve quality. The Alliance uses its bargaining power to purchase healthcare services.
 - To anticipate future HIT and electronic HIE needs the Minnesota Department of Employee Relations has developed limited time-frame vendor contracts to allow for expedited contract changes when necessary. In addition placeholders have been included within the contracts for specific parameters such as standards, vendor relationships, etc, that can then be easily incorporated at a later date.

Challenges Identified by State Agencies Specific to State Funding

Sustainability models are lacking for HIT and electronic HIE initiatives. A common problem identified by state agency officials was that federal and state funding streams for HIT and electronic HIE are generally for startups –programs/initiatives are left to their own devices to develop sustainable business models, of which there are not many.

In spite of the federal, state, and private funding streams, many electronic HIE initiatives, particularly RHIOs, are struggling to develop sustainability models. Multiple interviewees also expressed concern over the fact that cost savings from electronic HIE will negatively affect some stakeholder revenue streams. For example, if the number of hospital laboratory tests are reduced by 10-20% due to fewer duplicate tests being ordered as a result of a hospital's participation in an electronic HIE project, then that hospital will face a reduction in revenues. The anticipation of reduced revenues may impede some hospitals and other stakeholders from participating in electronic HIE efforts.

A few states are working to address the electronic HIE sustainability challenges.

- ❖ The Nebraska Division of Public Health has implemented a sustainable telehealth network using state universal service funds to fund hospital purchase of these tools. The state agency used grants, federal funds, and private dollars to initially build the T1 and broadband networks, and helped to pass legislation allowing Medicaid to reimburse for telehealth services and network/line use. The model is still under development but is currently sustained by the unique funding streams.
- ❖ The Utah Health Information Network (UHIN) has been in operation since 1993 and is one of the few statewide electronic HIEs to have developed a sustainable business model. The Department of Health has been a major participant in the ongoing development of UHIN, which is governed by a broad based coalition of public and private stakeholders.

An approach to sustainability raised by some interviewees was the public utility model. Should a sustainable national infrastructure for electronic HIE be built by recreating the Rural Electrification Administration (REA) model³⁹, which was successful in bringing electricity and telephone service to rural regions of the country in the 1930s and 1940s? Who should fund it to be sustainable? Should it be national infrastructure that all partners fund? These questions have yet to be answered. There was consensus among all interviewees that these issues need to be taken up at the federal level and aligned with national HIT and electronic HIE priorities. In

³⁹ D. Linda Garcia and Neal R. Gorenflo. "Rural Networking Cooperatives: Lessons for International Development and Aid Strategies", *The First Mile of Connectivity*, Don Richardson and Lynnita Paisley, (eds). 1998. Available at: www.fao.org/docrep/X0295E/X0295E00.htm

addition, interviewees stressed that if a public utility model is to be developed, it must be developed in a collaborative way and competition for use of the utility should be discouraged.

Interoperability

The National Alliance for Health Information Technology (NAHIT) defines ‘Interoperability’ for use in policy and legal contexts:

In healthcare, interoperability is the ability of different information technology systems and software applications to communicate, to exchange data accurately, effectively, and consistently, and to use the information that has been exchanged.⁴⁰

The structuring of data for electronic HIE affects the value of the data. The Center for Information Technology Leadership described four different levels of data structure:⁴¹

Level 1: Non-electronic data. Examples include paper, mail, and phone call.

Level 2: Machine transportable data. Examples include fax, email, and unindexed documents.

Level 3: Machine organizable data (structured messages, unstructured content). Examples include HL7 messages and indexed (labeled) documents, images, and objects.

Level 4: Machine interpretable data (structured messages, standardized content). Examples include the automated transfer from an external lab of coded results into a provider’s EHR. Data can be transmitted (or accessed without transmission) by HIT systems without need for further semantic interpretation or translation.

The current drive to improve interoperability in the healthcare arena is targeted at having clinical and other types of data structured as machine interpretable data (Level 4). This level of structured data affords computers the best opportunity to identify errors in data accuracy and quality, as they are able to provide automated decision support, active guidance, and pattern analysis. The Healthcare Information and Management Systems Society (HIMSS) developed a definition for interoperability in the context of a National Health Information Network (NHIN):

Interoperability means the ability of health information systems to work together within and across organizational boundaries in order to advance the effective delivery of healthcare for individuals and communities.⁴²

The HIMSS definition emphasizes *business process* interoperability, whereas the NAHIT definition is about *technical* interoperability. Interoperability is not only predicated on exchanging data between IT systems, but also across organizational entities, like hospitals, payers, government agencies, and states. These entities have to agree upon a set of standards, or rules of the road, that determine how information is to be exchanged across their organizational boundaries depending on the specific technology in use. Standards create the framework upon which interoperability is built. They are crucial to all forms of information exchange.

⁴⁰ National Alliance for Health Information Technology, “Alliance Interoperability Definition”. Accessed on January 31, 2008 at: www.nahit.org/cms

⁴¹ Walker J, Pan E, Johnston D, Adler-Milstein J, Bates D, Middleton B. The Value Of Health Care Information Exchange And Interoperability. *Health Affairs*. Web Exclusive, January 19, 2005.

⁴² Healthcare Information and Management Systems Society, “Interoperability Definition and Background”, June 9, 2005. Accessed on January 31, 2008 at: www.himss.org/Content/files/InteroperabilityDefinition.pdf

Interoperability in the Context of State Agencies

Most state agencies interviewed for this project are in the early stages of addressing interoperability. Some are involved with initiatives that are already sharing electronic data with multiple stakeholders in their state, while most electronic HIE projects still in the planning and early implementation phases. All agency staff and leadership recognized that interoperability will occur iteratively, building off of key milestones, and that all stakeholders need to play a role in addressing interoperability challenges across state agencies, healthcare markets, and state borders.

- ❖ Delaware was the first state to go live with a statewide health information exchange in spring 2007. When UMMS spoke with representatives of the Delaware Health Information Network (DHIN) in August 2007, Delaware state agencies were not connected to the network, though this is being planned for as the DHIN matures.

Some states are planning or implementing processes to foster greater interoperability among state programs and agencies, though little specific information was provided in the interviews as to how this is being conducted at the technology level.

- ❖ Kentucky has a promising cross-agency infrastructure initiative that is expected to begin soon. The Governor signed into law a project proposal known as the Cabinet Health Information System, which would create an inter-agency data exchange hub for state healthcare related agencies. It would also be interoperable with the state's electronic HIE organization and regional RHIOs.

Medicaid, public health, and state employee health plans are organized around different missions and different (but overlapping) populations. Not surprisingly, each agency also has a somewhat different view of interoperability. The perspective of each of the three types of agencies interviewed regarding interoperability is summarized below:

- ❖ Medicaid agencies most commonly viewed their interoperability efforts as being centered on their MMIS and claims-based EHR type tools.
- ❖ Public health interviewees expressed a broad programmatic view of interoperability and the need for all their varied programs to participate in electronic HIE.
- ❖ State employee health plans had fewer initiatives planned around interoperability and expressed the most hesitation at spending funds on interoperability initiatives due the lack of access to funding mechanisms like federal and state grants.
- ❖ Both Medicaid and SEHPs wanted to improve their interoperability capacities in order to engage their members and provider networks around issues of quality improvement and health management.

Medicaid Agency Interoperability

Medicaid agency leadership and staff indicated that the primary interoperability issue for Medicaid agencies was related to their Medicaid Management Information Systems (MMIS). A few states had newer MMIS systems that were already sharing data externally. Many states had received Medicaid Transformation Grants and were implementing claims based clinical tools that would be able to exchange data with their MMIS. Other states were in the process of re-bidding their MMIS and/or had only begun to plan for how their MMIS might exchange data with other systems.

Many Medicaid agencies are also building out their interoperability capacity through the implementation of claims-based EHR systems that are able to connect with their MMIS as well as external stakeholders including providers, pharmacies, labs, hospitals, payers, and

consumers. Medical diagnoses, procedures, allergy information, medication and patient histories, eligibility data, and lab results are some of the types of data being included in these utilities. Several of these claims-based EHRs are in the planning or implementation phases. Missouri and Tennessee already have operational claims based EHR systems.

Medicaid agencies often cited the alignment of their electronic HIE initiatives with national interoperability standards such as CCHIT, HL7, HITSP, and HIPAA. Existing legacy systems, however, were not necessarily using national standards. Some agencies were having interfaces built for specific legacy systems. Concern was expressed that published national standards were often untested and states were unsure if they would be able to implement them in the near future. National use cases, in particular, would take time to understand, test, revise, and implement.

Several agencies were planning to create a master patient index (MPI). There were not any operational MPIs in place at the time of the interviews. Washington D.C.'s Medicaid agency received a Medicaid Transformation Grant to develop an MPI application. Other agencies were earlier in the planning phase for an MPI.

Public Health Interoperability

The 1988 IOM report, *The Future of Public Health*, noted, “public health responsibilities have become so fragmented that deliberate action is difficult if not impossible.”⁴³ Since that call to action, many public health departments have made significant progress toward the goal of becoming integrated public health systems.

Although progress has been made to reduce the level of fragmentation at all levels of the public health system, the situation persists today, particularly with the technical infrastructure. This is confirmed by the interview responses of public health leadership and staff indicating that they have a larger and correspondingly more fragmented IT infrastructure than either Medicaid or SEHPs. Public health IT systems are not built around a core processing system. Instead, public health agencies rely on multiple systems in order to cover a diverse array of programmatic needs: immunization registries, provider licensing, emergency preparedness, laboratory results reporting, and biosurveillance, etc. One state had 186 datasets spread across multiple IT systems that were not interoperable, and which did not take into account public health data systems at the local level.

State public health agencies are improving their interoperability capacity; however, these capacities are being built piecemeal through limited grants and contract mechanisms. For example, the most advanced interoperable IT systems (which often are not interoperable enough according to interviewees) at public health agencies tend to be those funded by CDC's surveillance and communications initiatives.

From a technical perspective, all public health interviewees believed that interoperability will be driven by the implementation of national standards, such as those published by HITSP, the CDC Public Health Information Network (PHIN) initiative, CCHIT, and AHIC. However, in the absence of mature standards from these national organizations, states were often making assumptions as to what those national standards would be and addressing data exchange issues with their traditional communication networks comprised of laboratories, hospitals, local public health departments, CDC, etc, based on those assumptions.

- ❖ Interviewees most commonly brought up laboratory reporting in reference to standards. Several said their public health labs were complying with CDC's PHIN messaging standards like HL7 and LOINC. Some said labs in their state were not making

⁴³ Institute of Medicine. 1998. *The Future of the Public Health*. Washington, DC: National Academy Press.

interoperability a priority because they lacked the funding to do so. Other states said their labs were not so involved with electronic reporting. Although national standards were recognized as being important in the long run, at present it is unknown how they will be implemented.

- ❖ Mandatory disease reporting is a requirement for providers, hospitals, labs, and other health care providers. Public health agencies reported that their interoperability capacity with these and other stakeholders was mixed.
- ❖ Some interviewees were actively engaged in planning how their agency would become interoperable with their state's electronic HIE initiative.
- ❖ A few agencies were currently exchanging data with other departments like corrections, mental health, transportation, and environmental management.
- ❖ The New York State Department of Health's Health Commerce System is one of the most extensive public health communications networks in the country. It is a secure statewide web-based system allowing information exchange (though limited clinical exchange) with 57 local health departments and regulated health entities, (e.g., hospitals, nursing homes, clinics, clinical laboratories, adult and home care, and pharmacies, etc). In total, there are 28,500 organizations and 65,000 members authorized to use the system. Two hundred applications are supported through the Health Commerce System, including the following health preparedness applications:
 - Electronic Clinical Laboratory Reporting
 - Syndromic Surveillance
 - Health Alerting and Notification
 - Communicable Disease Surveillance
 - Health Emergency Response Data System (HERDS)

Several agencies had either linked or were in the process of linking child health registries (e.g., immunization, newborn, lead poisoning screening, etc). Rhode Island's Department of Health developed a centralized integrated child health information system, called KIDSNET, which links child specific data from 9 different child health programs (e.g., immunization, newborn, lead poisoning screening, etc) and makes it available to providers through a web based system. The department received a RWJF Information Links grant to create an immunization implementation guide that includes technical standards so KIDSNET can interface with electronic medical records and as well as the state's planned electronic HIE.

Some public health agencies were actively assessing the interoperability of their legacy systems. Nebraska has created "data marts" by taking systems that are not standards based and making them compliant and standards based. New York City is very much involved with an extensive EHR interoperability project among Medicaid providers and other entities, but it is not focused on internal changes at this time. Some public health interviewees felt their role in promoting interoperability was through public reporting initiatives that provide incentives to providers to become interoperable.

State Employee Health Plan (SEHP) Interoperability

Of the three types of state agencies interviewed, SEHPs have the least developed capacity to exchange data with other entities. SEHP interviewees were more cautious about making investments in electronic HIE, explaining that they were primarily funded by member and employer fees (and in some cases pension fund investments) and had fewer financial mechanisms like state and federal grants with which to fund projects.

Several SEHPs had a data warehouse populated with administrative and limited clinical data that was analyzed internally or by an external vendor in order to meet particular quality and cost objectives like provider quality measurement, quality reporting, physician tiering, and pharmacy benefits. Providing online eHealth tools and quality reporting results were common program functions for SEHPs, which may either contract with a vendor or perform the service internally.

Although the SEHPs interviewed have limited interoperability capacity at the present time, most are engaged in a planning process to address their future data sharing needs. A few interviewees are members of eHealth boards and/or are discussing how their members might benefit from EHRs. At least one SEHP was waiting for its statewide electronic HIE utility to go live before considering how it might best participate in the exchange.

Challenges Identified by State Agencies Specific to Interoperability

Agency leadership and staff recounted several significant barriers relevant to interoperability. Many of these challenges are not agency specific and relate to the broader vision of building interoperability capacity across all levels of the healthcare system. Only public health specifically identified a set of challenges that were wholly specific to their programmatic mission. However, addressing the public health specific challenges would also benefit the populations served by all three agencies. The challenges presented by state agency officials interviewed include:

- ❖ The lack of a common electronic HIE architecture/framework. Many interviewees indicated a lack of needed specificity in electronic HIE architecture planning at both the state and federal levels. More than one interviewee expressed concern that the current American Health Information Community (AHIC) use cases are academic and do not provide the specific information necessary to design an appropriate IT architecture.
- ❖ The lack of agreement on common standards for data creation and exchange. Limited agreement on national standards for specific clinical data and data exchange were also said to be a significant challenge. Interviewees expressed concern that state and local efforts, by necessity, needed to move forward and develop data exchange standards that have not already been addressed at the federal level. In these circumstances agencies have attempted to anticipate federal action, but the uncertainty was viewed as a barrier to moving forward.
 - Inconsistent use and promotion of electronic HIE standards by federal agencies. Public health agencies expressed concern that federal agencies were not being consistent or appropriately prescriptive in promoting technical standards development. An example given was related to the CDC Public Health Information Network (PHIN), where inconsistent communications led to the adoption of now obsolete HL7 standards by some states.
- ❖ Lack of data systems interoperability between state agencies and with external stakeholders ('data silos'). In addition to the cultural shift needed to get agencies to communicate more closely with one another, interviewees expressed concerns regarding the technical aspects of sharing data among state agencies and with other stakeholders (e.g., payers, providers, consumers).
- ❖ There is a lack of standardized reporting standards and applications for vital statistics and laboratory and disease reporting. There is no uniformity regarding public health reporting standards across the 50 states, Washington D.C., and the five territories, which presents a major obstacle to interoperability. Public health interviewees cited the lack of a standard application and reporting requirements from the National Center for Health Statistics for tracking vital statistics such as births and deaths as a challenge to integrated public health

electronic HIE. In addition, many cited the lack of common laboratory and disease reporting requirements and standards in states as a barrier to intra-state and inter-state electronic HIE.

- ❖ In many states there is a lack of high-speed internet connectivity for rural health care providers. Most states noted that many of their rural providers lacked the ability to obtain timely clinical information due to the absence of broadband internet access. This included receiving lab results, communicating with other healthcare stakeholders, and using telemedicine services. Interviewees also viewed this lack of connectivity as a significant obstacle to promoting state-wide use of HIT and electronic HIE tools. The varying connectivity between urban and rural settings presented challenges related to developing fair practices for holding plans and/or providers accountable for clinical performance metrics.

Consumer Involvement and Information Sharing

Consumer involvement in HIT and electronic HIE initiatives has been an integral facet of the national HIT agenda since President Bush's 2004 Executive Order calling for most Americans to have an EHR by 2014. That same year the Department of Health and Human Services issued a report, *The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care*,⁴⁴ which outlined a strategic vision for using HIT in the healthcare sector. One of the goals of the framework is to 'personalize care'. To achieve this goal requires the active involvement of consumers in the management of their healthcare and the availability of their personal health information in a readily accessible format.

More recently, the American Health Information Community's Consumer Empowerment Workgroup has been involved with developing consumer empowerment use cases. The first use case, involving medication histories and patients' registration data, was submitted to HITSP in December 2007, with more consumer empowerment use cases in development. Although the AHIC and other healthcare stakeholders are working out a variety of issues relating to functionality, access, accountability, disclosure, and the use of personal health information, agency interviews highlight the struggles that states are having in understanding how best to advance consumer involvement.

The electronic exchange of personal health information raises the question of consumer rights and protections, issues on the minds of all interviewees. But state activities with regard to electronic HIE are still in the early stages. With uncertainties surrounding sustainability, standards, and technology implementation, etc., state agency interviewees indicated that there is no universal message as to how to involve consumers in state electronic HIE initiatives.

State agencies interviewed were often planning the details of consumer consent, privacy, and security related to their individual projects. Regarding consumer consent, a few Medicaid and public health agencies were pursuing either an opt-in or opt-out strategy for electronic HIE initiatives. Two agencies had operational initiatives using one of these strategies: In Tennessee, the TennCare (Medicaid) program uses an opt-out model, with less than 1% of its members having opted-out. Vermont's medication history pilot chose an opt-in strategy, which made it easier for Medicaid to participate in the pilot. Early figures show that the pilot has a very high opt-in rate.

⁴⁴ Thompson, T.G., Brailer, D.J. *The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health*, Washington, DC: US Department of Health and Human Services, 2004

States agency leaders and staff recognized the need for consumer involvement, but expressed difficulty in doing so. Many state agencies are struggling to keep pace with deadlines and with the steep learning curves and have been challenged as to how to appropriately involve consumers. Many states, however, do have consumer representatives on their state eHealth bodies or other related committees.

AHRQ's Health Information Security and Privacy Collaboration (HISPC) Project was cited several times as an important grant initiative by which states have been able to involve and educate consumers. Some states had consumer representatives on their HISPC committees. Consumer education efforts were part of some state HISPC projects, and included focus groups, town hall meetings, outreach efforts, and online demonstrations of HIT tools.

States are also challenged to identify and retain consumer involvement. A question presented by one state agency official was reflective of this issue: "At what point does a consumer stop being a consumer due to their participation in these committees, etc?"

Finally, educating consumers on the benefits and realities of HIT and electronic HIE was viewed as a challenge to state programs implementing electronic HIE and HIT projects. State agency officials presented their difficulties in designing communication strategies regarding the value of HIT and electronic HIE for consumers, as many consumers assume that physicians already use EHRs and other HIT tools. In addition, communicating the value of electronic HIE while mitigating the significant consumer concerns over the privacy and security of their personal health information was viewed as a significant challenge.

Recommendations Made by State Agency Interviewees to the State Alliance

In the interviews, the state agencies were given the opportunity to make recommendations to the HICDE Taskforce and the State Alliance for eHealth to address the many challenges and needs they have identified as they pursue HIT and electronic HIE initiatives. These recommendations were presented to the HICDE Taskforce to assist in its deliberation process. The recommendations below are presented according to the five principles through which this analysis was organized: Structure, Leadership, Financing, Interoperability, and Consumer Involvement.

Recommendations Made by State Agency Leaders to Address Structure Challenges

Federal-Level Recommendations

- ❖ The Centers for Medicare and Medicaid Services (CMS) should develop a unified message and support integrated electronic HIE and quality improvement projects between Medicare and Medicaid. This includes the need to share Medicare data. Providers lose visibility (and put members at risk) when 65+ member data is not available in the electronic HIE network. Interviewees also felt that CMS should play a stronger role in:
 - Promoting interoperability and data sharing between agencies and with other appropriate healthcare stakeholders.
 - Supporting a unified approach to quality improvement across all federal electronic HIE initiatives.
- ❖ DHHS and CDC should use the certification process and their respective policy leverage to require both reportable and non-reportable clinical data useful to public health agencies be collected by and standardized within certified EHR and related tools. In addition, it was recommended that population level reporting *from* public health agencies also be

programmed into certified EHR and related tools. By doing so, certified EHRs would allow bilateral seamless health communications between public health and clinicians

- ❖ The Department of Health and Human Services (DHHS), the Institute of Medicine, and/or the Surgeon General should review existing performance and quality metrics and promote a standard “minimum set” of quality metrics and evidenced based practice guidelines to be incorporated into nationally supported HIT and electronic HIE efforts.
- ❖ DHHS, ONC, and other federal agencies should provide guidance to states on privacy standards beyond HIPAA that involve sharing data on “high risk” populations and from the evolving field of genomics.

State-Level Recommendations

- ❖ To facilitate more effective collaborations between state agencies involved in the planning, implementation, and operations of HIT and electronic HIE initiatives, state leadership should:
 - Develop strategic business process principles that information systems can process in order to meet current standards and definitions for interoperability and privacy, and create a framework for coordinating those efforts across agencies.
 - Designate one person or office whose role is dedicated solely to all issues related to ehealth and provide resources for them to:
 - Align accountability, responsibility, policy, legal issues, and resources for electronic HIE and HIT across all state agencies
 - Provide vision and strategic leadership
 - Clarify the roles of various state agencies
 - Bring subject matter expertise to the table
 - Develop the action plans and roadmaps
 - Provide guidance to RHIO and other public/private electronic HIE initiatives
 - Structure cross-agency HIT and electronic HIE efforts in such a way as to link social and clinical services.
 - Use state purchasing and regulatory power to assure that specific social and clinical functionalities are incorporated into EHR and other HIT systems supported and purchased by state agencies and that these systems are interoperable with other HIT systems and state agency systems.
 - Provide workforce development and other resources in order for state agencies to integrate informatics into their programmatic processes.
- ❖ Examine and clarify state agency business regulations and procurement rules that may impede public/private partnerships.
- ❖ Education at all levels of executive, legislative, and agency leadership is needed to support health informatics and HIT and electronic HIE initiatives. Policy makers should have a better understanding of the potential opportunities and pitfalls related to the use of these technologies, including the potential benefits related to higher quality health care and economic efficiencies, and the issues regarding sharing protected health care information among stakeholders and jurisdictions. In addition, policy makers should have a better understanding on how the use of the “new” data created in these systems can facilitate better business, program, and policy decision making.

Recommendation Made by State Agency Leaders to Address Leadership Challenges

State-Level Recommendations

- ❖ Visible leadership is required to help coordinate HIT and electronic HIE initiatives and break down silos.
 - Between states – More effort is needed to address issues concerning the interoperability of electronic HIE across state lines (e.g., licensing across state lines, data ownership, legal and regulatory issues, etc.).
 - Within state agencies – A cultural shift is needed within all state agencies to improve collaboration. Agencies need to align their individual priorities with respect to electronic HIE in order to facilitate interoperability.
 - Between state agencies and other payers, providers, and electronic HIE organizations (e.g., RHIOs) – Building a unified interoperable structure is essential to allowing all stakeholders to participate in electronic HIE.
- ❖ Executive leadership at the state, city, and local level should prioritize and champion the use of HIT and electronic HIE to improve both clinical care and population health. With many of the functions of public health occurring at the city and local level, public health leaders have to promote collaborations among all governmental public health agencies and help them to prioritize the use of HIT and electronic HIE.
- ❖ Governors should support the creation of a collaborative ehealth governing body to convene, facilitate, and direct state-wide electronic HIE efforts that include the needs of Medicaid, public health, and the SEHP. This body should serve as a multi-stakeholder convener, facilitator, and consumer advocate.
 - State eHealth governing bodies should develop return on investment studies that demonstrate the value and sustainability of electronic HIE.
- ❖ Executive leadership and state eHealth governing bodies should ensure that all electronic HIE and HIT projects appropriately integrate public health.
 - For the population to fully benefit from electronic HIE, all electronic HIE projects need to incorporate public health disease, vital statistics, population monitoring, biosurveillance and quality reporting data requirements and standards into the charter and/or regulations for existing and future infrastructure developments
 - Jurisdictional issues between local, city, and state public health departments have to be addressed to assure that data collection and reporting is integrated rather than siloed.
- ❖ State legislatures and executive branch leaders should address state laws and regulations that need updating.
 - State laws and regulations regarding health information were enacted before HIT and electronic HIE tools were available and therefore need to be updated. Sharing of behavioral health data, the exchange of data across state lines, and the licensing of providers across state lines are areas where particular attention is needed.

Recommendations Made by State Agency Leaders to Address Funding Challenges

Federal-Level Recommendations

- ❖ The Department of Health and Human Services (DHHS) should develop a broader funding model to foster cross DHHS agency collaborations. Funding initiatives that take into account the data needs of more than one agency will foster the electronic sharing of data across agencies and other healthcare related stakeholders.
 - DHHS should take a holistic approach to funding initiatives and break down the 'siloed' funding approaches of CMS, HRSA, SAMHSA, AHRQ, and CDC.
 - Funding models should be created to follow the person not the payer.
- ❖ The Department of Health and Human Services (DHHS) should support broad, flexible funding models that allow for integrated IT systems development that included Public Health. Flexible funding models that are not time or program limited were consistently cited by public health interviewees as being necessary for building a successful electronic HIE that will improve individual and population health outcomes. Funding aimed at a single system or program does not promote interoperability or sustainability. Other federal funding priorities identified by interviewees included:
 - Supporting public health informatics workforce development
 - Conducting rigorous ROI studies that demonstrate electronic HIE sustainability across the core functions of public health
 - Supporting the adoption of basic IT infrastructure, including connectivity, for hospitals and other providers
 - Using innovative funding mechanisms to support provider adoption of HIT
- ❖ The Department of Health and Human Services should align quality improvement and purchasing strategies involving HIT and electronic HIE among all federal agencies.
 - Secretary Leavitt's 'Four Cornerstones' are a good starting point for aligning purchasing priorities across federal and state agencies.
- ❖ CMS should update and clarify federal financial participation and MMIS/ MITA regulations. State Medicaid agencies need guidance in understanding the MITA framework, e.g., how MITA relates to electronic HIE outside the Medicaid agency and how MITA affects electronic HIE between Medicaid, other state agencies, and other healthcare stakeholders.
 - Promote more cross agency collaborations between state agencies.
 - Provide clarity on how MITA supports electronic HIE.
 - Provide enhanced matching funding and support for HIT and electronic HIE that go beyond "Medicaid Control".
 - Provide a 90/10 match for eligibility systems. When redesigning MMIS using a service oriented architecture platform, eligibility becomes an integral part of the technological design. The lack of a 90/10 match for eligibility systems is a barrier to states intending to integrate their IT systems.
- ❖ CMS should encourage joint electronic HIE ventures between states. Although CMS does allow states to collaborate, it could be doing more to encourage states to develop the functionality of electronic HIE across state lines.

State-Level Recommendations

- ❖ Executive leadership should make HIT and electronic HIE a priority across all levers of purchasing power for states. Public health officials suggested that states use all the levers of purchasing power to promote HIT adoption and electronic HIE participation for Medicaid, public health, employee benefits, schools, and correctional systems.
 - Improve bargaining/regulatory power with vendors and influence the inclusion of needed data within software packages (e.g. public health reporting functionalities, vital statistics, quality reporting in an EHR)
 - Support and fund integrated informatics training, project management, policy development, and project maintenance across state agencies
 - Mandate state and local public health collaboration at multiple levels
 - Use the contracting process to align state agency procurement (e.g. Medicaid and SEHP) as well as require health plans to systematically use standardized HIT systems.
 - Use language that gives payment preference to providers who have an EMR/EHR system that is connected to an electronic HIE.
 - Remove barriers to interstate data exchange by promoting joint contracting where possible and joint requirements where regulations act as barriers.
 - Consider the promotion of “Centers of Excellence.” Only pay for certain high cost treatments at specific centers that use technology.
 - Consider an EHR mandate.
- ❖ Executive leadership should support multi-year cross-agency funding models for public health informatics and other HIT and electronic HIE projects.
- ❖ Governors and legislatures should support funding mechanisms to address the software, hardware, and connectivity issues common among rural health care practices.
- ❖ State public health agencies should develop return on investment studies that demonstrate the value and sustainability of electronic HIE for state legislatures. Improve the transparency on the reasons for HIT and electronic HIE (i.e. it is about improving value (health outcomes/ dollars spent) and decreasing the rising health care cost trend).

Recommendation Made by State Agency Leaders to Address Interoperability Challenges

Federal-Level Recommendations

- ❖ DHHS should be more prescriptive on electronic HIE/HIT public health standards development. Many interviewees identified the need for specific federal guidelines to set the stage for a “practical minimum data set for public health”. In addition there was consensus on the need for federal support for specific:
 - Uniform national laboratory public health reporting standards
 - Uniform vital health statistic reporting systems and data sets across all states and territories
 - Uniform disease reporting standards across all states and territories
 - Consensus on disease classification terminology (e.g. ICD-9 or ICD-10)

- Development of public health data sets for inclusion in electronic HIE beyond the reportable diseases (e.g. negative laboratory results, prevalence rates, antibiotic rates etc.) that assist in broader public health monitoring and surveillance
- ❖ DHHS, ONC, and other federal agencies should offer guidance and/or a framework for creating master patient indices (MPI) that promote interoperability within and across states. Several agencies mentioned that their respective states were planning to develop an MPI, though none were beyond the early planning stages of development.

Recommendation Made by State Agency Leaders to Address Consumer Involvement Challenges

- ❖ Promote consumer involvement in electronic HIE initiatives. Consumer involvement with state electronic HIE initiatives varies (e.g., holding focus groups, giving consumers a voting seat, conducting surveys). However, there is consensus that consumers need to be involved with electronic HIE efforts from the beginning.

Conclusions

The findings from these interviews and meetings with state officials demonstrate a significant level of HIT and electronic HIE activity within state agencies, including not only Medicaid, public health, and state employee plans, but also, to a limited extent, corrections, school systems, and other ancillary state agencies that have a need to collect or use health related information. There are many challenges facing these agencies as they implement these complex technological innovations within their respective states. These challenges relate to organizing and structuring HIT and electronic HIE initiatives within states' complex and varied healthcare marketplaces; oversight and leadership of the initiatives between and among state agencies; promoting interoperability across all stakeholders; appropriately involving consumers; and providing financial and other resources for support of these technologies and the use of the data created by them, both at start up but even more importantly for long term sustainability.

In 2007 many states received various types of funding for their electronic HIE initiatives, which are generally still in the early stages of planning and implementation. Critical areas of electronic HIE development requiring both leadership and research include electronic HIE sustainability models, national technical standards, and uniform methods to ensure that adequate privacy and security measures are in place across all electronic HIEs. As more state electronic HIE initiatives begin implementation in 2008 and beyond, it is crucial that resources be devoted to developing electronic HIE sustainability models and accountability standards in order to sustain states' momentum toward achieving statewide electronic HIE.

These findings also indicate that there is a perceived lack of leadership at the federal level that has resulted in a 'wait and see' attitude by many states before committing state resources to HIT and electronic HIE activities. A common view expressed by interviewees was the lack of a clearly articulated national HIT and electronic HIE agenda with properly aligned priorities.

This research was conducted to inform the deliberation process for the Health Information Communication and Data Exchange (HICDE) Taskforce of the State Alliance for eHealth. As a result this report is meant to present a current view of the level of HIT and electronic HIE initiatives undertaken by Medicaid, public health, and state employee health plans in their respective states, the challenges and obstacles these agencies have encountered in the planning, development and implementation of these initiatives, and their recommendations to address those challenges and obstacles. The research team did not attempt to weight or prioritize these findings as that was the role of the HICDE Taskforce.

Throughout its appointment, the HICDE Taskforce received periodic updates and interim findings from this research to inform its deliberation process and assist it in making appropriate recommendations to the State Alliance for eHealth. In February of 2008 the HICDE Taskforce presented its final recommendations to the State Alliance for eHealth. These recommendations are included in Appendix 3.

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APPENDICIES

Appendix 1: State Agency Interviews

State Medicaid Interviews

Thirteen states were selected for interviews:

- Eleven interviews were conducted
- Delaware referred us to staff at the Delaware Health Information Network, with whom only a partial interview was conducted
- One state declined to be interviewed because the Medicaid agency felt it was not far enough along with its HIT and electronic HIE efforts
- One state canceled their interview and did not reschedule

State/Agency	Interview Date	Participants
Alabama	July 18, 2007	<ul style="list-style-type: none"> ▪ Mary Hayes Finch, Chief of Staff, Alabama Medicaid Agency ▪ Carol Hernan Steckel, Commissioner ▪ Kim Allen, Director Medical Services ▪ Kathy Hall, Co-Chair Policy Workgroup ▪ Kim Bath, Co-Chair Finance Workgroup ▪ Mary McIntyer, Medical Director, Co-Chair Clinical Workgroup ▪ Lee Maddox, Co-Chair Technical Workgroup
Arizona	August 3, 2007	<ul style="list-style-type: none"> ▪ Anthony Rogers, Director of the Arizona Health Care Cost Containment System
Delaware*	August 8, 2007	<ul style="list-style-type: none"> ▪ Robert White, Board Chair, Delaware Health Information Network / Chief Executive Officer, Delaware Physicians Care, Inc. ▪ Gina Perez, Project Manager, Delaware Health Information Network
District of Columbia	July 16, 2007	<ul style="list-style-type: none"> ▪ Robert Maruca, Senior Deputy Director of the Department of Health Medical Assistance Administration ▪ John McCarthy ▪ Sam Walker ▪ LaRah Payne
Indiana	July 27, 2007	<ul style="list-style-type: none"> ▪ Jeffrey Wells, Indiana Medicaid Director ▪ Mike Sharp, Director of Pharmacy ▪ Randy Miller ▪ Natalie Angel, Office of Federal Grants and Procurement, Indiana Family and Social Services Administration ▪ Emily Hancock, Health Policy Advisor, Indiana Office of Medicaid Policy and Planning

State/Agency	Interview Date	Participants
Kentucky	July 10, 2007	<ul style="list-style-type: none"> ▪ Trudi Matthews, Senior Policy Advisor for e-Health, Cabinet for Health and Family Services ▪ April Smith, e-Health project manager, Office of IT ▪ Laura Cole, e-Health project manager, Office of IT
Missouri	July 20, 2007	<ul style="list-style-type: none"> ▪ George Oestreich, Director of Clinical Services, Division of Medical Services, Department of Social Services Medicaid Program ▪ Rhonda Driver, Department of Social Services, Division of Medical Services ▪ Amy Wood, Deputy Director of Pharmacy and Clinical Services, Division of Medical Services, Department of Social Services
Tennessee	July 26, 2007	<ul style="list-style-type: none"> ▪ Brent Antony, TennCare Chief Information Officer ▪ Antoine Agassi, Director and Chairman of the State's eHealth Advisory Council ▪ Laurie Lee, Deputy Executive Director for the Department of Finance & Administration (SCHIP)
Vermont	July 25, 2007	<ul style="list-style-type: none"> ▪ Judy Higgins, Chief Information Officer, Office of Vermont Health Access (Medicaid)
West Virginia	July 23, 2007	<ul style="list-style-type: none"> ▪ Leonard Kelley, Deputy Commissioner, Bureau for Medical Services ▪ Jerry Roueche, Assistant to the Secretary of the Department of Health and Human Resources ▪ Michael Morris, Health Information Systems Coordinator for Bureau of Public Health
Wisconsin	July 18, 2007	<ul style="list-style-type: none"> ▪ Denise Webb, eHealth Program Manager, Department of Health and Family Services ▪ Kathleen Farnsworth, eHealth Policy Initiatives Advisor, Department of Health and Family Services ▪ Micca Hutchins, HIE Project Manager ▪ Cheryl McIlquham, Director, Office of Policy Initiatives and Budget

* Partial interview only and no Medicaid staff involved.

Public Health Interviews

Public health programs from nine states and two cities were selected for interviews:

- The HICDE Taskforce requested that the Los Angeles and New York City public health departments be interviewed

State/City	Interview Date	Participants
Indiana	September 21, 2007	<ul style="list-style-type: none"> ▪ Roland Gamache, Director, Indiana State Health Data Center ▪ Joe Hunt, Assistant Commissioner, Information Services and Policy Commission, Indiana State Department of Health
Los Angeles	October 10, 2007	<ul style="list-style-type: none"> ▪ Jim Green, Chief Information Officer, Los Angeles County Department of Public Health
Louisiana	September 21, 2007	<ul style="list-style-type: none"> ▪ Christina Streb, HIT Strategist, Executive Office, Louisiana Department of Health and Hospitals ▪ Anita Milling, Supervisor, Project Management Office, Louisiana Department of Health and Hospitals ▪ Mike Schmidt, PHIN Project Manager, Louisiana Department of Health and Hospitals ▪ Edward Driesse, Chief Information Officer, Louisiana Department of Health and Hospitals
Minnesota	September 7, 2007	<ul style="list-style-type: none"> ▪ Martin LaVenture, Director, Center for Health Informatics, Division of Health Policy, Minnesota Department of Health ▪ Bill Brand, Deputy Director, Center for Health Informatics, Division of Health Policy, Minnesota Department of Health
Nebraska	September 25, 2007	<ul style="list-style-type: none"> ▪ Joann Schaefer, Chief Medical Officer for Nebraska & Director, Division of Public Health, Nebraska Department of Health & Human Services ▪ David Lawton, Public Health Assurance, Nebraska Department of Health and Human Services ▪ Dennis Berens, Director, Office of Rural Health, Nebraska Department of Health and Human Services ▪ Jackie Miller, Deputy Director, Health Services, Nebraska Department of Health and Human Services
New York City	October 2, 2007	<ul style="list-style-type: none"> ▪ Farzad Mostashari, Assistant Commissioner and Chair Primary Care Information Project, New York City Department of Health and Mental Hygiene, Division of Health Care Access and Improvement, New York

State/City	Interview Date	Participants
New York State	November 7, 2007	<ul style="list-style-type: none"> ▪ Lori M. Evans, Deputy Commissioner, Office of Health Information Technology Transformation, New York State Department of Health ▪ Ivan J. Gotham, Director, Bureau of Healthcom Network Systems Management, New York State Department of Health ▪ James Figge, Medical Director, Office of Medicaid Management, New York State Department of Health
Oklahoma	November 7, 2007	<ul style="list-style-type: none"> ▪ Kelly Baker, Director, Center for Health Statistics, Oklahoma Department of Health ▪ Mike Ewald, Director, Record Evaluation & Support, Community Health Services, Oklahoma Department of Health ▪ Robn Mitchell Green, HIPAA Privacy Officer, Oklahoma Department of Health ▪ Keith Lindsey, HIT Software Development, Oklahoma Department of Health
Rhode Island	September 5, 2007	<ul style="list-style-type: none"> ▪ David Gifford, Director, Rhode Island Department of Health ▪ Amy Zimmerman, Chief of Rhode Island Health Information Exchange project ▪ Stephanie Kissam, Director's Office, Rhode Island Department of Health
Tennessee	October 31, 2007	<ul style="list-style-type: none"> ▪ Susan R. Cooper, Commissioner, Tennessee Department Of Health ▪ Antoine Agassi, Director and Chairman of the State's eHealth Advisory Council ▪ Mike Newman, Director, Office of Information Technology, Tennessee Department Of Health
Utah	September 10, 2007	<ul style="list-style-type: none"> ▪ Barry Nangle, Director, Center for Health Data, Utah Department of Health ▪ Wu Xu, Director, Office of Public Health Informatics, Utah Department of Health

State Employee Health Plan Interviews

State employee health plans from 8 states were selected for interviews:

- Seven interviews were conducted
- One state declined to be interviewed because it felt that it was not far enough along with its HIT and electronic HIE efforts

State/City	Interview Date	Participants
California	January 14, 2008	<ul style="list-style-type: none"> ▪ Gregory Franklin, Assistant Executive Officer, Health Benefit Services, California Public Employees' Retirement System
Georgia	January 7, 2008	<ul style="list-style-type: none"> ▪ Nancy Goldstein, Division Chief, State Health Benefit Plan, Georgia Department of Community Health ▪ Alicia McCord-Estes, Project Management Office Director, Georgia Department of Community Health ▪ Sonny Munter, Chief Information Officer, Georgia Department of Community Health ▪ Lisa Marie Shekell, Director of Communications, Georgia Department of Community Health ▪ Cheryl Williams, Clinical Director, State Health Benefit Plan, Georgia Department of Community Health
Massachusetts	November 26, 2007	<ul style="list-style-type: none"> ▪ Dolores Mitchell, Executive Director, Group Insurance Commission, Commonwealth of Massachusetts
Minnesota	October 30, 2007	<ul style="list-style-type: none"> ▪ Pat Anderson, Commissioner, Minnesota Department of Employee Relations ▪ Susan McDonald, Director, State of Minnesota Governor's Health Cabinet ▪ Nathan Moracco, Manager, SEMA4 Benefits Services, Minnesota Department of Employee Relations
North Carolina	January 8, 2008	<ul style="list-style-type: none"> ▪ Dan Soper, Chief Operating Officer and Deputy Executive Administrator, North Carolina State Health Plan
Washington	November 30, 2007	<ul style="list-style-type: none"> ▪ Steve Hill, Administrator, Washington State Health Care Authority ▪ Richard Onizuka, Health Care Policy Director, Washington State Health Care Authority
Wisconsin	November 19, 2007	<ul style="list-style-type: none"> ▪ Thomas Korpady, Administrator, Division of Insurance Services, Wisconsin Department of Employee Trust Funds ▪ Bill Kox, Director, Health Insurance Plans Bureau, Wisconsin Department of Employee Trust Funds ▪ Sonya Sidky, Project Manager, Division of Insurance Services, Wisconsin Department of Employee Trust Funds

Appendix 2: State Agency Interview Protocols

Medicaid Agency Interview Protocol

General:

1. Introduction of the team and purpose of the interview: To make actionable recommendations to Governors for the facilitation of health IT (HIT) and electronic health information exchange (HIE) use and adoption in state Medicaid and SCHIP programs.
2. What is your position and role in the Medicaid / SCHIP program?
3. Can you describe the organizational and reporting structure of the Health and Human Services agencies in your state?
4. Can you describe the HIT or electronic HIE efforts being planned or currently underway in your Medicaid and SCHIP programs? Please describe the goals of the project(s) (quality, cost, program improvement etc.) and expected outcomes.
5. Where are you in the implementation process? (Planning, Design & Development, Implementation, Fully Implemented)

Targeted Queries for Structure, Governance, Consumer Roles, Fiduciary Responsibility, and Interoperability:

1. Can you describe how your Medicaid and SCHIP programs became involved in this HIT/HIE initiative?
2. How is your project initially being funded? Are you taking advantage of federal match funding (FMAP) in this project? Using Medicaid Demonstration Waiver authority? State appropriation?
3. Have you conducted a needs assessment / return on investment (ROI) study? If so, please explain the methodology. (Are results available to be shared?)
4. In your opinion should Medicaid / SCHIP programs be fiscally responsible for supporting HIT adoption at provider sites?
5. How does the project address provider HIT adoption challenges? For practices serving a disproportionate share of Medicaid members or needing particular assistance (CHCs, RHC, small practices, LTC, etc.)? Are you providing, or planning to provide incentives or requirements for: Adoption? Implementation? Ongoing maintenance?
6. Are you collaborating with other publicly funded programs (Public Health, State Employee Benefits Plans, Others)? Public/Private partnerships? Private initiatives? HIE? States? Others? If so, How?
7. Who are the key stakeholders involved in the initiative? How are you building trust among the parties?
8. How have you incorporated stakeholder feedback in the planning and implementation phases? Have you solicited consumer feedback?
9. How are consumers involved in the project? Is there an opt-in or opt-out strategy developed? If so, why did you choose that model? Are you pursuing targeted efforts to reach diverse populations?
10. Is consumer education and outreach part of the project? If so, how is this being accomplished?

11. What is the governance model of the initiative?
 - a. Transformational (i.e., traditional governance structures are being realigned significantly so as to bring about a new system that has the potential to greatly improve processes and outcomes through new structures, procedures, technologies)?
 - b. Collaborative (i.e., governance is distributed equally among all stakeholders)?
 - c. Coordinated (i.e., where one primary stakeholder has governing responsibility)?
12. Is Medicaid /SCHIP leading the initiative?
13. How is the Governor / Governor's office involved?
14. How does this project relate to your MMIS and the MITA initiative? Your current data systems?
15. How is your project addressing interoperability and data exchange? Interdepartmental? Intrastate? Interstate? Public/Private (RHIO)? Others? How are members/beneficiaries being identified (Master Patient Index etc.)?
16. What HIE technical standards are in use? Are there additional standards planned for the future?
17. What is the governance structure of the electronic HIE if you are participating in one. How is your organization represented?
18. How is your project addressing access control, audit protocols, and appropriate purposes of data use?
19. Are there risk management strategies included in your project? Please describe.
20. Have you built in an evaluation plan? How are you measuring results?
21. What kind of sustainability plan do you have in place for this initiative? Financial? Programmatic (if a pilot project: future rollout)? Growth / Maturity? Maintenance of relationships and trust?
22. What are your plans for future HIT / HIE initiatives?
23. What are the primary challenges and barriers that you have encountered during the project to date? Cultural? Training/Workforce? Technological? Process or project management? Engagement with vendors? Engagement with Providers? Others?

Recommendations:

1. What changes in Federal Medicaid policies would be useful to support HIT / HIE in your Medicaid and SCHIP program? MMIS / MITA? Procurement? Medicare? Other?
2. What changes in State Medicaid / SCHIP policies would be useful to support HIT / HIE in your Medicaid program? Legal and Regulatory? Other?
3. What recommendations would you make to Governors to provide greater support and assistance for HIT / HIE initiatives in the Medicaid / SCHIP programs?
4. What other needs have you identified regarding HIE / HIT in Medicaid and SCHIP that would require action?

Public Health Interview Protocol

General:

1. Introduction of the team and purpose of the interview: To make actionable recommendations to Governors for the facilitation of health IT (HIT) and electronic health information exchange (HIE) use and adoption in state Public Health Departments.
2. What is your position and role in the Department of Public Health?
3. Can you describe the organizational and reporting structure of the Health and Human Services agencies in your state?
4. Can you describe the primary roles of the department of public health in your state? Clinical care? Prevention? Biosurveillance? Etc.
5. Can you describe the HIT or electronic HIE efforts being planned or currently underway in the Department of Public Health? Please describe the goals of the project(s) (quality, cost, program improvement etc.) and expected outcomes.
6. Where are you in the implementation process? (Planning, Design & Development, Implementation, Fully Implemented)

Targeted Queries for Structure, Governance, Consumer Roles, Fiduciary Responsibility, and Interoperability:

1. Can you describe how your Department of Public Health became involved in this HIT/HIE initiative?
2. How is your project initially being funded? Are you taking advantage of federal funding in this project? State appropriation?
3. Have you conducted a needs assessment / return on investment (ROI) study? If so, please explain the methodology. (Are results available to be shared?)
4. In your opinion should the Department of Public Health be fiscally responsible for supporting HIE/HIT adoption at provider sites? How does this project(s) address provider HIT adoption challenges?
5. Are you collaborating with other publicly funded programs (Medicaid/SCHIP, State Employee Benefits Plans, Others)? Public/Private partnerships? Private initiatives? HIE? States? Others? If so, How?
6. Who are the key stakeholders involved in the initiative? How are you building trust among the parties?
7. How have you incorporated stakeholder feedback in the planning and implementation phases?
8. Who are your consumers and how are they involved in the project? Are you pursuing targeted efforts to reach diverse populations including the uninsured? Is consumer education and outreach part of the project? If so, how is this being accomplished?

9. What is the governance model of the initiative?
 - a. Transformational (i.e., traditional governance structures are being realigned significantly so as to bring about a new system that has the potential to greatly improve processes and outcomes through new structures, procedures, technologies)?
 - b. Collaborative (i.e., governance is distributed equally among all stakeholders)?
 - c. Coordinated (i.e., where one primary stakeholder has governing responsibility)?
10. Is the Department of Public Health leading the initiative?
11. How is the Governor / Governor's office involved?
12. How does this HIE/HIT project relate to your current data systems?
13. How is your project addressing interoperability and data exchange? Interdepartmental? Intrastate? Interstate? Public health laboratories? RHIO?
14. What HIE technical standards are in use? Are there additional standards planned for the future? Are you involved with PHIN, Bio-sense, or other national initiatives?
15. What is the governance structure of the electronic HIE if you are participating in one? How is your organization represented?
16. How is your project addressing access control, audit protocols, and appropriate use of data?
17. Are there risk management strategies included in your project? Please describe.
18. Have you built in an evaluation plan? How are you measuring results?
19. What kind of sustainability plan do you have in place for this initiative? Financial? Programmatic (if a pilot project: future rollout)? Growth / Maturity? Maintenance of relationships and trust?
20. What are your plans for future HIT / HIE initiatives?
21. What are the primary challenges and barriers that you have encountered during the project to date? Cultural? Training/Workforce? Technological? Process or project management? Engagement with vendors? Engagement with Providers? Others?

Recommendations

1. What changes in Federal policies would be useful to support HIT / HIE in your Public Health Department?
2. What changes in State Public Health policies would be useful to support HIT / HIE in your Public Health Department?
3. What recommendations would you make to Governors to provide greater support and assistance for HIT / HIE initiatives in Public Health?

4. What other needs have you identified regarding HIE / HIT in Public Health that would require action?
5. What recommendations would you make to Governors to provide greater support and assistance for HIT / HIE initiatives in the Medicaid / SCHIP programs?
6. What other needs have you identified regarding HIE / HIT in Medicaid and SCHIP that would require action?

State Employee Health Plan Interview Protocol

General:

1. Introduction of the team and purpose of the interview: To make actionable recommendations to Governors for the facilitation of health IT (HIT) and electronic health information exchange (HIE) use and adoption in state employee benefits programs.
2. What is your position and role in the program?
3. Can you describe the organizational and reporting structure of the agency overseeing your state employee benefits program and its relationship with the Health and Human Services agency in your state?
4. Can you describe the mission of the state employee benefits program, the coverage options and populations served?
5. Can you describe the HIT or electronic HIE efforts being planned or currently underway in the employee benefits program? Please describe the goals of the project(s) (quality, cost, program improvement etc.) and expected outcomes.
6. Where are you in the implementation process? (Planning, Design & Development, Implementation, Fully Implemented)

Targeted Queries to assess the Structure, Governance, Consumer Roles, Financial and Contributory Responsibility, and Interoperability strategies of the initiative:

1. Can you describe how your employee benefits program became involved in this HIT/HIE initiative?
2. How is your project initially being funded? Are you taking advantage of federal funding in this project? State appropriation?
3. Have you conducted a needs assessment / return on investment (ROI) study? If so, please explain the methodology. (Are results available to be shared?)
4. In your opinion should the employee benefits program be fiscally responsible for supporting HIE/HIT adoption at provider sites? How does this project(s) address provider HIT adoption challenges?
5. Are you collaborating with other publicly funded programs (Medicaid/SCHIP, Public Health Programs, Others)? Public/Private partnerships? Private initiatives? HIE? States? Others? If so, How?
6. Who are the key stakeholders involved in the initiative? How are you building trust among the parties?
7. How have you incorporated stakeholder feedback in the planning and implementation phases?

8. Who are your consumers and how are they involved in the project? Are you pursuing targeted efforts to reach diverse populations including the uninsured? Is consumer education and outreach part of the project? If so, how is this being accomplished?
9. What is the governance model of the initiative?
10. Is the state employee benefits program leading the initiative?
11. How is the Governor / Governor's office involved?
12. How does this HIE/HIT project relate to your current data systems?
13. How is your project addressing interoperability and data exchange? Interdepartmental? Intrastate? Interstate? Public health laboratories? RHIO?
14. What HIE technical standards are in use? Are there additional standards planned for the future? Are you involved with other national initiatives?
15. What is the governance structure of the electronic HIE if you are participating in one? How is your organization represented?
16. How is your project addressing access control, audit protocols, and appropriate use of data?
17. Are there risk management strategies included in your project? Please describe.
18. Have you built in an evaluation plan? How are you measuring results?
19. What kind of sustainability plan do you have in place for this initiative? Financial? Programmatic (if a pilot project: future rollout)? Growth / Maturity? Maintenance of relationships and trust?
20. What are your plans for future HIT / HIE initiatives?
21. What are the primary challenges and barriers that you have encountered during the project to date? Cultural? Training/Workforce? Technological? Process or project management? Engagement with vendors? Engagement with Providers? Others?

Recommendations

1. What changes in Federal policies would be useful to support HIT / HIE in your state employee benefits plan?
2. What changes in State policies would be useful to support HIT / HIE in your program?
3. What recommendations would you make to Governors to provide greater support and assistance for HIT / HIE initiatives?
4. What other needs have you identified regarding HIE / HIT in state employee benefits programs that would require action?

Appendix 3: HICDE Taskforce Recommendations Presented to the State Alliance on February 22, 2008

Health Information Communication and Data Exchange Taskforce Recommendations

	Recommendation	Adoption date
<i>Health Information Communication and Data Exchange (HICDE) Taskforce</i>		
1.	Each state should develop or adopt a vision for state electronic health information exchange that leverages existing and planned public and private health information exchange efforts and outline an electronic health information exchange roadmap by the end of 2008 that must be implemented by 2014. Components of the roadmap should, at the least, include how the state plans to (1) organize the implementation of electronic health information exchange in the state; (2) engage diverse stakeholders, including consumers, providers and payers; (3) develop and test exchange architectures incorporating existing and approved standards; (4) build financial, political support, and legislative authority for electronic health information exchange development; (5) ensure consumer protections are in place; (6) train and sustain an health IT-capable workforce; and (7) enable intrastate collaboration and data exchange.	10/3/2007
2.	Governors should designate a single authority for the state to coordinate state government based electronic health information exchange implementation activities and work, in collaboration, with public/private electronic health information exchange efforts.	10/3/2007
3.	To successfully implement health IT and electronic health information exchange initiatives and to adopt MITA, state Medicaid agencies will require new technology, project management, policy, legal, consumer protection and programmatic competency development. Therefore, states should fund greater development of technical assistance resources for state Medicaid/SCHIP and information technology agencies to build workforce competency for electronic health information exchange.	10/3/2007
4.	State Medicaid agencies implementing electronic health record systems in the Medicaid program, should implement a standards-based personal health record function that is portable and includes appropriate privacy and other consumer protections. When available, state Medicaid programs should require use of certified electronic health records and networks with standards-based information exchange capabilities.	10/3/2007

	Recommendation	Adoption date
5.	States should provide human and financial resources to develop cultural and linguistic competency required to engage diverse Medicaid/SCHIP enrollees.	10/3/2007
<i>NEW - HICDE Taskforce - Public Health and State Employee Health Plans</i>		
6.	States must review their policies and laws for intra- and interstate data exchange and remove barriers as appropriate to ensure that public health information systems are interoperable across state jurisdictions (e.g., local, county, state). These information systems must have the capability to document and track, as appropriate, demographic information that reflect the needs of a diverse population for the purposes of identifying opportunities for community interventions, reducing health disparities and improving overall health outcomes. In addition, public health information systems that depend on population data must be linked with data from all relevant state agencies.	In development
7.	States should require that public health systems conform to HITSP standards as recognized by the Secretary of the U.S. Department of Health and Human Services for standards-based clinical documentation, messaging and laboratory reporting.	In development
8.	All electronic health records systems supported by state funding must have public health functionalities to support objectives for bi-directional exchange of data across clinical care and public health. Upon purchasing or upgrading publicly purchased health information systems, states should establish a specific plan for continuing maintenance and staffing.	In development
9.	Governors should make available resources (e.g., funding made available in state budgets) to public health agencies under state jurisdiction to support their ability to secure staff experienced and educated in public health informatics and train their existing workforce to develop leadership and maintain competency in this area. As staff expertise is being developed states should consider multi-state collaboration (e.g., networking and sharing expertise) to increase workforce capacity.	In development
10.	Governors should make available resources and seek outside expertise to support the development of executive leadership and programmatic management in the areas of public health informatics, change management, project management, health IT provider and consumer communication, outreach and involvement, vendor management, and systems thinking competencies.	In development

	Recommendation	Adoption date
11.	State public health departments should expand their mission to engage consumers and promote the benefits of health information technology and health information exchange. Public Health should avail itself the opportunity that EHRs provide and connect with providers and assist them in pushing consumer-specific information and health education. Public health should enable direct consumer access to personal health information databases that they operate (e.g., immunization registries, newborn screening, lead testing programs). As a participant in e-Health activities, public health also should provide resources to build health literacy and ensure cultural and linguistic appropriateness.	In development
12.	Governors should ensure that in the planning and collaboration around health information exchange that every child must have a patient-centered electronic health record that is transferable to other providers and accessible to individuals by 2014. At a minimum, the record should include guardianship information, newborn screening, family history, growth, immunization, birth history, problem lists, medications, and allergy data.	In development
13.	As states – in cooperation with private sector efforts – plan quality and health outcomes improvement initiatives and redesign the care delivery system by establishing patient-centered primary care medical homes in their Medicaid and state employee health programs, they should also drive electronic HIE development and health IT adoption.	In development
14.	State Medicaid agencies and state employee health plans should develop consumer engagement tools, including education materials that provide information on the benefits, content and functions of health IT systems, as well as safeguards and protections for consumer health data.	In development
REVISED – Adopted HICDE Taskforce Recommendations		
15.	Governors and state legislators should align to establish flexible financing mechanisms (e.g. pooling funds across relevant state agencies, bridge funding between federally-funded programs) across public agencies and within state jurisdictional boundaries to develop and support electronic health information exchange and ensure that state data partners (e.g. Medicaid, public health, state employee health plans) can operationally and financially sustain electronic health information exchange for the purposes of it being a necessary public benefit and utility to improve public health and healthcare value to state residents. (<i>Adopted 10/3/2007. Revised by the HICDE Taskforce.</i>)	10/3/2007, Revised by Taskforce

	Recommendation	Adoption date
16.	<p>States should issue executive orders and adopt legislation that advances health IT adoption and health information exchange development. At a minimum, this should include:</p> <ul style="list-style-type: none"> • Specific objectives for Medicaid/SCHIP participation in electronic health information exchange related to quality, transparency, and cost containment; • Procedures for designing an electronic health information exchange roadmap; • An indemnity provision for electronic health information exchange; • Requirements for state agencies to adopt and utilize interoperable HIT; • Consumer protections to ensure appropriate access to health data; • Commitment to inclusiveness and diversity in electronic health information exchange activities amongst health care providers, payers, and consumers; and • State procurement rules that enable fair and flexible innovations, require the adoption of interoperable health IT applications, and align with any state-wide electronic HIE/HIT policies. <p>NGA and NCSL should provide technical assistance to states (e.g., create forums for discussion and conduct research) to help implement electronic health information exchange, relative to the role of publicly funded programs. In addition, the State Alliance for e-Health, in close coordination with ONC and other federal agencies (e.g. CMS), should facilitate the coordination of state activities in the context of a nationwide interstate electronic health information exchange strategy. <i>(Adopted on principle by the State Alliance on 10/3/2007, revised language per State Alliance discussion.)</i></p>	10/3/2007, Revised per request of the State Alliance
17.	<p>State Medicaid agencies and state employee health plans should ensure portable, private and secure access to personal health information to their enrollees through health IT systems such as personal health records. <i>(Adopted 10/3/2007. Revised by the HICDE Taskforce)</i></p>	10/3/2007, Revised by Taskforce
18.	<p>State Medicaid agencies and state employee health plans, in cooperation whenever possible, should implement incentive programs and, or reimbursement policies such as pay for participation, rate adjustment and quality incentives that will encourage provider adoption and use of health IT systems and participation in electronic health information exchange. <i>(Adopted 10/3/2007. Revised by the HICDE Taskforce.)</i></p>	10/3/2007, Revised by Taskforce



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