Utah Statewide Clinical Health Information Exchange

Strategic Plan

A Project Proposal for the Office of the National Coordinator

for Health Information Technology

Department of Health and Human Services

State Health Information Exchange Cooperative Agreement Program

CFDA #93.719

Opportunity #EP-HIT-09-001

Prepared By: The Utah cHIE Planning and Implementation Project Team
Utah Department of Health (Designated State Entity)
Utah Health Information Network (Designated State HIE)

Adopted By: Utah Health Information Technology (HIT) Governance Consortium and Liaison Organizations, March 2010

Version: 3, Updated July 2012

Plan Date: July 2012

CONTENTS

INTRODUCTION 5
- Statewide Vision 5
- State Plan Updates 5
- HIT/HIE and Health Care Reform 5
- Utah HIT Governance Consortium 6
- Statewide HIT/HIE Architecture 7

UTAH HIE ENVIRONMENTAL SCAN 8
- Administrative Health Information Exchange 8
- Electronic Health Records Adoption and Use 8
- Clinical Health Information Exchange (cHIE) 9
  - EHR/EMR (including medication history and some laboratory interfaces) 9
  - E-prescribing and refill requests 10
  - Clinical summary exchange for care coordination 10
- Utah Telehealth Network 10
- HIE Standards 11
- Transparency, Quality Reporting, and Health Care Value Exchange 11
- Utah Medicaid Participation in the Statewide HIE 12
  - Medicaid Promotion of EHR 12
  - Assistance for Integrating the Long Term Care Population into State Grants to Promote Health IT 13
  - State Medicaid/CHIP Programs 13
- Coordination of Medicare and Federally Funded, State Based Programs 13
  - Epidemiology and laboratory Capacity Cooperative Agreement Program 13
  - Maternal and Child Health (MCH) State Systems Development Initiative (SSDI) 13
  - Indian Health Services and Tribal Activity 14
  - State Mental Health Data Infrastructure Grants for Quality Improvement 14
  - State Offices of Rural Health Policy and Primary Care 14
- Participation with Federal Care Delivery Organizations 15
- Coordination of Other ARRA Programs 15
  - HIT Regional Extension Center 15
  - Workforce Development Initiative 15
  - Broadband Mapping and Access 16
  - Health Informatics Research Grants 16

HIE DOMAIN REQUIREMENTS 16
- Project Goal from 2009 to 2013 17

Project Objectives from 2009 to 2013 17
Domain 1: Governance 18
Utah Governor-designated State HIT Coordinator 19
State Designated HIE Entity 19
Collaborative Public-Private Governance Model 20
Improving Accountability and Transparency Under the Cooperative Agreement 23
Domain 2: Finance 24
Sustainability: Finance model for Utah's cHIE 24
Fully Develop the Business Case for cHIE 24
Challenges for Sustainability 25
Request for ONC's Cooperation 26
Domain 3: Technical Infrastructure 27
Technical Architecture/Approach 27
Major Technical Challenges 29
Request for ONC's Cooperation 30
Domain 4: Business and Technical Operations 30
Business Operations Capacity 30
Technical Operations Capacity 31
Implementation 31
Challenges and Strategies of Adoption 31
Statewide Shared Services and Directories 32
Operational Responsibility 32
Program Evaluation 33
Assist HIE Adopters to Achieve Meaningful Uses of the cHIE for Better Outcome 36
Integrate Public Health Information Exchange in cHIE 37
Domain 5: Legal and Policies 37
Privacy and Security 37
Trust Agreements 42
State Laws 43
State Audit Policies and Procedures 43
Oversight of Information Exchange and Enforcement 44
ONGOING STRATEGIC PLANNING 45
Dynamic Approach 45
Oversight and Management 45
Planning Process and Procedure 45
Work Plan in 2013 45

CONCLUSION 45
ATTACHMENTS 47
A. State Plan Updates 47
B. Utah Statewide Clinical Health Information Exchange Program Evaluation Plan 49
C. Privacy and Security Framework Alignment 54

INTRODUCTION

Statewide Vision

Utah Health Information Technology (HIT) Governance Consortium vision for health and health care in Utah:

"Utah is a place where

all people can enjoy the best health possible, where

all can live, grow and prosper in clean and safe communities."

The application of Health Information Technology (HIT) and Health Information Exchange (HIE) throughout our state are essential tools to achieve our vision that,

"*Utah is a place where*

secure and efficient use and exchange of electronic health information will

result in improved health status,

better health care,

lower cost and healthier communities."

State Plan Updates

The Utah Strategic Plan for the State Health Information Exchange Program contains program provides program guidance and direction for state health information exchange activities to aid providers with affordable and usable options for meeting the meaningful use requirements. For a summary of plan updates see Attachment A. Changes to HIE Strategy.

HIT/HIE and Health Care Reform

Governor Gary Herbert has made health system reform a priority with a goal that all Utah citizens have health insurance coverage, and in the process assist businesses in Utah to become more successful in reducing their health care costs. The Utah legislature has passed legislation to promote using HIT and HIE to transform the health care delivery system and support health care reform. The legislative reforms are:

- House Bill 25 Patient Identity Validation (2012)
- House Bill 46 Electronic Personal Medical Records (2012)
- House Bill 144 Health System Reform Amendments (2012)
- House Bill 52 Health Reform – Uniform Electronic Standards – Insurance Information (2010)
- House Bill 294 Health System Reform Amendments (2010)
- House Bill 165 Health Reform – Administrative Simplification (2009)
- House Bill 128 Electronic Prescribing Act (2009)
- House Bill 47 Standards for Electronic Exchange of Clinical Health Information (2008)
- House Bill 133 Health System Reform Act (2008)

- House Bill 9 Health Care Cost and Quality Data (2007)
- Senate Bill 132 Health Care Consumer's Report (2005)

Utah HIT Governance Consortium

The Utah HIT Governance Consortium formed to rapidly improve the quality and efficiency of health care in Utah through the use of the ARRA funds. Utah is ready to use the economic stimulus funds to:

- Rapidly build our infrastructure to connect all the health care 'dots' in Utah; Increase employment in health care and IT sectors;
- Build a highly qualified workforce both in HIT and in informatics;
- Be innovative yet fully accountable for ARRA project outcomes;
- Add value and strength to Utah's economy by reducing health care costs for Utah businesses, large and small.

The organization members of the Governance Consortium are:

State of Utah, Department of Health
Utah Association of Local Health Officers
Utah Chartered Value Exchange at HealthInsight
Utah Department of Insurance
Utah Department of Technology Service
Utah Health Information Network
University of Utah
Utah State Office of Education (USOE)
Utah State University

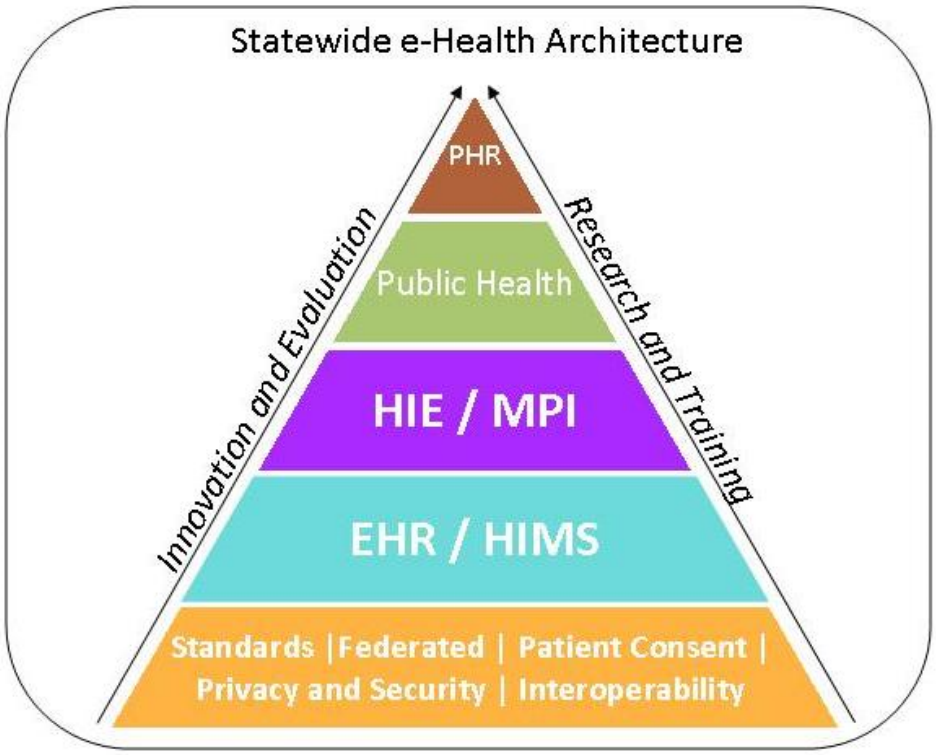
American Association of Retired Persons (AARP)
ARUP Laboratories
Association for Utah Community Health (AUCH)
Department of Health and Human Services (DHHS) Tribal Governments
Utah Association for Home Health Care (UAHC)
Utah Hospice and Palliative Care Organization (UHPCO)
Utah Digital Health Services Commission
Utah Health Care Association
Utah Life & Health Insurance Guaranty Association
Utah Hospitals and Health Systems Association
Utah Medical Association (UMA)
Utah Pharmacists Association (UPhA)
Utah Telehealth Network
Veterans Affairs Medical Center (VAMC)

The Consortium goal is to ensure the efficient use of HITECH funds. Developed to serve a coordinating role in an advisory capacity, the Consortium is comprised of core members from organizations with expertise and interest in the ARRA HITECH opportunities.

Statewide HIT/HIE Architecture

The Consortium's active community partnerships have developed a strategic statewide e-Health Architecture that utilizes:

- Utah's history of statewide cooperation and regional sharing, including urban and rural practitioners and research partners;
- New legislation for health care reforms that support HIT, e-prescribing, and standards;
- A relatively high penetration of Electronic Health Records (EHR) and Hospital Information Management Systems (HIMS);
- The Utah Health Information Network (UHIN), the statewide Health Information Exchange infrastructure (HIE) which will be enhanced with a Master Person Index (MPI) and virtual health records;
- Nationally recognized standards, a federated and interoperable electronic network, and federal and state requirements for patient consent, privacy and security safeguards;
- Public health information exchange with health care providers; and
- Patient Health Records (PHR) as a component of the HIT/HIE architecture.



UTAH HIE ENVIRONMENTAL SCAN

HIT initiatives in Utah are mature and widespread. Our major health systems, such as Intermountain Healthcare, have invested years building their HIT systems. These efforts are supported by experts from the University of Utah, Department of Biomedical Informatics, one of the oldest Biomedical Informatics programs in the nation. We have an existing administrative health information exchange through Utah Health Information Network (UHIN) and the clinical exchange is in pilot stage. Multiple efforts undertaken to assist outpatient practices in adoption and effective use of EHR systems have produced EHR adoption rates much higher than the national average.

Administrative Health Information Exchange

The Utah Health Information Network (UHIN) has been operating since 1993 as a broad-based coalition of Utah health care insurers, providers, and other interested parties, including the state government. They created a successful and self-sustained exchange of administrative information between health care providers and payers. Currently 90% of all insurers' administrative claims, remittance, and eligibility data are exchanged through the UHIN electronic communication system.

Electronic Health Records Adoption and Use

Utah has two major health systems: Intermountain Healthcare and the University of Utah Health System. Both systems have incorporated EHR systems into their outpatient practices. The Utah Medical Association (UMA) has developed formal strategies around HIT adoption. In fall of 2004, two resolutions were adopted by the UMA. The first established a committee, the UMA Technology Committee, to create formal policies around HIT adoption. The second resolution encouraged physicians to engage *HealthInsight* for support in selecting, implementing and effectively using information technology. The UMA has also negotiated discounted group rates made available to their members on EHR software packets and hardware support services and vetted EHR contracts. The Utah chapters of the American Academy of Family Practice and the American College of Physicians have encouraged their members to work with *HealthInsight* in the adoption of HIT.

HealthInsight, the quality improvement organization (QIO) for Utah and Nevada, has worked extensively to facilitate EHR adoption and use for improving health care. Utah is one of the original pilot sites for the Centers for Medicare & Medicaid Services (CMS) demonstration, Doctors Office Quality – Information Technology (DOQ-IT). Through the DOQ-IT contract in Nevada and Utah's QIO 8th Scope of Work (SOW), *HealthInsight* promoted a more reliable delivery of preventive services and the effective management of patients with chronic diseases through the adoption, implementation and effective use of health information technology in conjunction with redesigned patient care processes. *HealthInsight* worked with primary care clinics in both states to help them prepare for, choose, implement, and utilize electronic health records to improve care. Many of the DOQ-IT clinics chose to participate in the Medicare Care Management Performance demonstration, a national pay for performance pilot program implemented in Utah by *HealthInsight*. The first year of this project recently paid out over $1.5 million dollars to 106 practices throughout the state. Utah is one of four states selected for this influential national initiative.

The UMA Foundation funded *HealthInsight* to provide DOQ-IT like support to interested specialty clinics and lobbied the state legislature for additional funding. With that, the Utah Department of Health (UDOH) contracted with *HealthInsight* to help thirty-five practices that serve Medicaid clients adopt

EHRs. The program was so successful and demand so high that the state provided another year of funding and the contract was extended to assist an additional forty-five practices. Through the DOQ-IT programs, and the UMA and UDOH grants, *HealthInsight* has been able to help over 200 physician practices transition to electronic health records and make better use of those systems.

As part of *HealthInsight's* current QIO contract, they are assisting physician offices in Nevada, New Mexico and Utah that have implemented EHRs to improve the quality and frequency of preventive health care services in order to optimize quality of life and health care efficiencies.

Clinical Health Information Exchange (cHIE)

In 2004 Utah was awarded an Agency for Healthcare Research and Quality (AHRQ) State and Regional Demonstration project which enabled UHIN to expand participation to clinicians, public health, and consumers by developing the clinical health information exchange (cHIE). For the past five years UHIN has engaged the community in planning for and building clinical exchange capacity. With key partners such as the UMA, Utah Hospital and Health Systems Association (UHA), UDOH, and HealthInsight, UHIN is developing a cHIE designed to provide statewide access and exchange of clinical information to improve health care quality while reducing costs. The clinical health information exchange (cHIE) went live on September 1, 2009 as a pilot with eight providers in two rural communities. The cHIE went into full operation in Utah in January 2010 and is open to any health care entity interested in participating as a cHIE member. A list of organizations participating as a cHIE data source is available at http://www.mychie.org/community/.

EHR/EMR (including medication history and some laboratory interfaces)

HealthInsight interviewed staff from most of the approximately 350 primary care clinics in the state in spring 2004 as part of the DOQ-IT pilot project. During these interviews, *HealthInsight* staff assessed current state of HIT adoption and future plans regarding HIT. In 2004, we estimated about 30 percent of the outpatient primary care practices in the state were using EHRs. This information has been supplemented over time as *HealthInsight* has worked with nearly 200 of these clinics on the DOQ-IT and Medicare Care Management Performance (MCMP) projects. We last updated this environmental scan in June 2009 and estimate that 61 percent of all outpatient primary care practices in Utah now have EHR systems in place. This is more than double the national average. Specialty practices' EHR adoption rate is estimated to be closer to 22 percent.

Several EHRs are widely used in the state. Intermountain Healthcare, the dominant provider in the state has produced its own EHR, HELP2 Clinical Desktop, but has started the process of moving all providers to General Electric's ECIS system. Intermountain is planning to certify their legacy systems (HELP and HELP2) and GE ECIS system through the Certification Commission for Health Information Technology (CCHIT). GE-ECIS was available to emergency room physician in the spring of 2008. The University of Utah operates several clinics along the urban Wasatch Front and nearby smaller communities. These clinics use the certified EPIC system. Some of the other popular systems in Utah include NextGen, Allscripts, eClinical Works, e-MDs, and Greenway.

E-prescribing and refill requests

Adoption of software that strictly provides e-prescribing capacity is not widespread in Utah. Almost every provider prescribes through their EHR or by hand. Prescriptions from the EHRs are mostly printed or faxed to the pharmacy, or transmitted over local networks with little adoption of true e-prescribing. Notably the two largest health care systems in the state (Intermountain and the University of Utah) do not e-prescribe through Surescripts to external pharmacies, although they both have the capacity to e-prescribe to pharmacies located in their system. Intermountain Healthcare released E-prescribing within its HELP2 EHR, which includes Surescripts certification, Q2 2011.

Pharmacists in the state, especially smaller independent pharmacists, find the costs for the systems and transactions a barrier. Other pharmacies, including most chain pharmacies (which process >80% of the prescriptions in the state), still have such low e-prescription volumes that they have not adapted their workflows to this newer way of processing prescriptions requested. A Surescripts report indicates that by the end of 2011, 91.7% of the community pharmacies in the state are activated for e-prescribing yet only 15.7% of the total prescriptions in the state were routed electronically. (Source: Medco e-prescribing statistics for Utah). In the few areas of the state with more widespread e-prescribing, pharmacists appreciate the considerable time saving when they are able file refill requests electronically.

Surescripts reported in December 2010 that Utah ranked 44th in e-prescribing declining from 19th in 2006 and 34th in 2007. Source: http://www.surescripts.net/e-prescribing-statistics-for-Utahcharts.aspx?name-UT2010). Certain geographic areas of the state have much higher true e-prescribing due to the efforts of early adopters to inform and influence their patients and the pharmacies in their service areas to accept e-prescribing transactions--most notably the St George area in southern Utah and pockets of rural Utah participating in e-prescribing research projects. The UHIN and the HIT Regional Extension Center incorporated the successful efforts in those areas to assist practitioners incommunicating with their local pharmacists and patients to promote the benefits of e-prescribing.

Clinical summary exchange for care coordination

Electronic exchange of clinical information for coordination of care currently occurs most often within a health care system (e.g., Intermountain, University of Utah, Central Utah Clinic). Access to laboratory information is provided online by most major labs including Intermountain. Widespread exchange of clinical information for care coordination is what we hope to achieve through widespread adoption of the cHIE and use of the web accessible virtual health record (VHR).

Utah Telehealth Network

In support of its mission to improve access to health care services and resources through the innovative use of technology, UTN links hospitals, clinics, and health departments throughout the state of Utah. It also serves as a regional hub in the Intermountain west for connecting health care providers, patients, experts and students to deliver patient care and share educational content. Telemedicine supports critical emergency care, with services such as telestroke and teleburn, and provides a practical solution to provider shortages, via teleradiology and telepharmacy. Videoconferencing and other media tools

are used to train the healthcare workforce, from graduate programs for nurses to providing up-to-date information on topics such as MRSA or, more recently, H1N1 for health professionals in the field.

UTN provides a secure network infrastructure that physically connects health care facilities throughout Utah. The Utah ARCHES project, selected by the FCC to participate in its Rural Health Care Pilot Program, will expand these capabilities in order to facilitate the adoption of health information technology in rural Utah and will connect Utah into a national backbone for healthcare. This will enable more Utah health care providers to be active participants in HIE.

Telehealth is not without its challenges. Meaningful adoption of telehealth is thwarted by a variety of issues, including: scant reimbursement, even though a telehealth visit costs less than a patient transport; draconian credentialing requirements on critical access hospitals and other small health care facilities; and a lack of licensure portability across state lines. Telehealth has also been limited on a functional level by a lack of HIE. The future availability of HIE, combined with the growing array of telehealth technologies, will advance the efficient, cost-effective delivery of health care for patients regardless of where they live, but especially in Utah and the Intermountain west.

HIE Standards

It is widely acknowledged that standardized HIE will reduce health care cost. While waiting for national implementation guidelines, the Utah legislature authorized UDOH to adopt standards for the exchange of electronic clinical health information within the state of Utah in 2008. UHIN, as a federally-registered Standard Developmental Organization (SDO), submitted the community-developed standards for exchanging clinical laboratory test results to the state. Through the rule-making process, standards for the exchange of clinical information have been in effect in accordance with Utah Administrative Rulemaking procedures: R380-70 Standards for Electronic Exchange of Clinical Health Information. (Source: http/health.utah.gov/phi/?formname=laws)

The State of Utah and UHIN support all national standards to enable interested and eligible providers and hospitals meet meaningful use criteria. In the absence of national standards and driven by business need, UHIN convenes a formal community committee of stakeholders, Standards Committee, to understand, define and agree to implementation specifications that become a specific standard operationalized across the community to meet the business need. The Standards Committee convenes bi-monthly and addresses business needs raised by the community at-large. State standards are promulgated when the standard is required to meet the business need or at the request of the community. It is the intent of the state of Utah to go through the rules change process to ensure state standards for exchange of clinical health information comply with HHS approved standards. Utah will use UHIN's process for setting standards. Detailed information about this process is included in the Operational Plan.

Transparency, Quality Reporting, and Health Care Value Exchange

Transparent health care cost and quality information for consumers is an important component of the health care report in Utah. Since 2005, the Utah Legislature passed legislation to mandate the UDOH's Health Data Committee to produce health care reports for consumers and collect health care cost data from all payers for transparency reporting. Expanded data sources enable the state of Utah to expand its

public reporting to involve consumers in health care system reform and also pose technical challenges to us to manage the data efficiently and reduce reporting burden for the private sector. To address these challenges, UDOH reached an agreement with the UHIN to accept public health data reporting through the UHIN's communication channel.

Created in 2006, the Utah Partnership for Value-Driven Healthcare (UPV), hosted by HealthInsight, became an AHRQ-designated Chartered Value Exchange (CVE) in 2008. The Steering Committee for the CVE is comprised of a broad set of community partners, including the state (departments of health and insurance, Medicaid program), UHIN, hospital systems, physician leaders, health plans, employers, business coalitions, and many other entities. UPV/CVE promotes adoption of health information technology and meaningful use, public reporting of quality and cost information, and use of that information to realign incentives. The robust HIT infrastructure Utah is building will optimize our ability to access accurate information on health care quality indicators, which supports transparency of quality and cost, and can be used for health payment reforms.

Utah Medicaid Participation in the Statewide HIE

The Utah Medicaid program is a charter member of the Board of Directors of UHIN since 1993 when administrative data began to flow through the UHIN connection between health care providers and payers. Medicaid assumed a leadership role in the development and implementation of standards for the eight Health Insurance Portability and Accountability Act (HIPAA) transactions as well as the 5010 implementation. Like other payers, Medicaid pays transaction processing fees to UHIN, and in this way contributes significantly to the financial sustainability of the Utah HIE.

Medicaid has continued its active participation in health information exchange planning including planning for clinical information exchange. The primary planning body/community consensus group for clinical exchange is the UHIN Community Program Management Committee, which is co-chaired by a representative of Utah Medicaid. The committee is comprised of a mix of subject matter experts interested in either administrative or clinical information exchange, because they continue to see advantages to bringing both of these perspectives to bear on the problems of exchanging clinical information. As noted elsewhere, much clinical data, such as laboratory results, are used for both clinical and claims payment decisions.

Medicaid Promotion of EHR

Utah Medicaid matched funds from the 2007 and 2008 legislature for *HealthInsight* to provide consultation to medical practices (serving Medicaid clients) investigating adoption of EHR systems, as well as technical assistance to eighty of these practices that adopted systems during this period. These efforts included an EHR readiness inventory of 350 practices that serve Medicaid patients. Clearly, Utah Medicaid is committed to promoting EHR adoption among Medicaid providers.

The Utah State Medicaid HIT Plan approved April 4, 2011 defines the overall framework for implementing EHR and health IT and the EHR Incentive Program. Utah Medicaid State attestation procedures under the EHR Incentive Program launched October 5, 2011. As of March 15, 2012 350 attestations were received. Utah Medicaid has processed just over $10M dollars in payments to eligible hospitals and providers for adopt, implement or upgrade of the EHR and HIT technologies under the EHR

Incentive program. Utah Medicaid works closely with the cHIE and requests eligible providers and hospitals applying for the incentives consider connecting with the cHIE.

Integrating the Long Term Care Population

Utah Medicaid's interest in EHR adoption extends to providers of long term care. The program provided incentives in 2009 for nursing homes to adopt HIT, and these incentives have been extended for 2010. The president of the Utah Health Care Association, whose members are long term care providers, participates in the overall State Grant governance body, the Utah HIT Governance Consortium, and will receive some funding to ensure coordination with projects supported under this State Grant. Currently some long term care facilities are connected to the cHIE. A small pilot with Long Term Care facilties to send prior authorizations to Medicaid using the cHIE is expanding to meet the demand for this service.

State Medicaid/CHIP Programs

Medicaid staff and staff of the Utah HIT Coordinator are jointly working to ensure the State Medicaid Health Information Plan prepares the Medicaid program to provide incentives for meaningful use of EHR and aligns with state plans for HIE. The Utah Department of Health, Utah Medicaid and UHIN are working to define rules to implement the enrollment of State Medicaid and CHIP beneficiaries in the cHIE as required under House Bill 46.

Coordination of Medicare and Federally Funded, State Based Programs

Epidemiology and laboratory Capacity Cooperative Agreement Program

The Utah State Health Laboratory participates actively in planning the Public Health participation in the cHIE. The state lab intends to transmit laboratory results to ordering providers using the HL7 laboratory results message standard required to meet Meaningful Use.

Maternal and Child Health (MCH) State Systems Development Initiative (SSDI)

The Utah MCH Bureau uses SSDI funding to promote integration of child health information systems. Since 2001 the Child Health Advanced Records Management (CHARM) system has provided the architecture for applications that involve data sharing among Early Hearing Detection and Intervention, Vital Records, Newborn Screening and other programs utilizing child health data. To date, this information exchange has been entirely within Utah Public Health.

Since a number of public health programs in Utah have already achieved connectivity through CHARM, these programs will use CHARM to interface to UHIN to provide authorized private health care providers access to public health newborn screening results. A pilot is underway at twelve clinics for health care provider single sign on to UHINet to access newborn hearing screening results through the CHARM interface link. In addition, development is on-going to push newborn heelstick and hearing result information to the cHIE for health care provider access.

Indian Health Services and Tribal Activity

The UDOH coordinates partnerships with IHS and tribal governments through its Indian Health Liaison Office. That office has approached tribal governments in Utah to participate in the Utah HIT Governance Consortium as a Liaison Organization to the Consortium. The Tribes have expressed an interest in the exchange of clinical health information, though they have not yet formally agreed to participate in the Consortium. UDOH meets quarterly with the tribal council to address questions and concerns about HIE issues and expect eventual participation in the Utah cHIE.

State Mental Health Data Infrastructure Grants for Quality Improvement

The Division of Substance Abuse and Mental Health (DSAMH) is the Single State Authority for the public substance abuse and Mental Health programs in Utah, and is charged with ensuring that prevention and treatment services are available throughout the state. As a part of the Department of Human Services (DHS), DSAMH manages and has oversight for state general fund appropriations for services as well as management and oversight for the SAMHSA block grants and other federally funded state based programs such as the Data Infrastructure grant. DSAMH has direct authority for the Utah State Hospital, which is a state operated inpatient psychiatric facility, and by statute contracts with local county governments to provide community based services.

DSAMH is responsible for the clinical monitoring and oversight of these services and for compliance with state and Federal funding requirements. Federal and state funding requires providers to comply with client level data reporting requirements for services provided to all clients in publically funded facilities. Data reporting standards include data for services, demographics, financial, and clinical data. Local Authorities and community based providers in Utah are very progressive and advanced in their use of EHRs, and their ability to comply with numerous reporting and billing entities. The provider network as well as the Utah State Hospital, are fully automated and have made significant investments in technology in order to advance the quality of their services.

General wellness and integration with other health care providers is a top priority for DSAMH, and is essential for recovery and the overall wellness of clients. It is essential that technology investments be considered and properly prepared to fully participate in advancing health care through the ability to acquire consented health care records. DSAMH is coordinating with the cHIE for this effort to ensure that specific standards for Substance Abuse and Mental Health records are included in the planning and operational phases on this project, and to the extent possible, partner in the overall effort so that essential health care records are available to all consented health care providers. A workgroup is working to address 42CFR Part 2 consent requirements with the goal of reaching full integration of behavioral/mental health with primary care.

State Offices of Rural Health Policy and Primary Care

The Utah Office of Primary Care and Rural Health has provided resources for some time through Health Information Technology Grants programs to a number of rural hospitals for the adoption of HIT and EHR. Legacy EHR systems in Utah rural hospitals require interface development with the UHIN cHIE so that rural hospitals can exchange data with providers in their communities in national standard formats. To help coordinate the successful interface of these systems, the Utah Office of Primary Care and Rural

Health will participate in planning by the Utah Medicaid Program for the extension of incentives for meaningful use of health information technology.

Participation with Federal Care Delivery Organizations

Veterans Affairs Medical Center (VAMC) in Salt Lake City is a formal organizational member of the UHIN and the cHIE project as well. The VA Salt Lake Medical Center initiated a partnership with UHIN to pilot a project for the exchange of a clinical care document among treating care providers for consented patient. The goal of this project is to improve the care veterans in rural Utah receive by making a VA electronic summary of care record available to non-VA clinicians who care for veterans, and to enable VAMCs to access similar summaries from non-VA care settings. Key aspects of achieving this goal include providing a physician practice and community hospital serving veterans in rural Utah with an electronic medical record (EMR) system capable of exchanging information with the Utah Health Information Network (UHIN); and to connect the UHIN with the Nationwide Health Information Network (NwHIN) to electronically exchange a summary of veterans health information. The UHIN cHIE VA pilot is in production.

Coordination of Other ARRA Programs

HIT Regional Extension Center

HealthInsight, Utah's Health Information Technology Regional Extension Center in Utah and Nevada works closely with Utah Statewide HIE Program and the cHIE to coordinate the most effective strategy for resource deployment to support the maximum number of providers in meeting meaningful use criteria. The Utah REC identified 834 primary care physicians for services spanning 204 clinics/practices. Full EMR implementation has been reached for 519 of the identified providers. The REC has documentation for 102 primary care providers that have reached meaningful use stage 1 and an additional 75 primary care providers are awaiting their documentation. In addition, UHIN will contract with the REC to support specialists and other health care providers that do not qualify for REC services under the ONC contract to meet meaningful use stage 1 criteria.

Workforce Development Initiative

The UDOH and Utah Department of Workforce Services (DWS) are committed to working together to address the growing demand to teach the necessary skills and develop education and training programs to sustain the growing HIT sector and support a statewide health information industry. DWS and the State Workforce Council coordinated a competitive grants process that drew proposals from Utah's HIT Governance Consortium member organizations to support programs and services including job training within the health care sector and specifically health information technology. The conversation on workforce training continues to focus on the shortage of health care professionals with little emphasis on the changing environment of the existing, emerging or re-entering health care workforce. UDOH, UHIN, and HealthInsight actively promoted the HIT training with members and partner organizations.

UDOH and DWS will continue to work together to support the health care sector and specifically HIT to identify needs for 1) re-entry training programs for displaced workers; 2) curriculum in higher education to support emerging workers; and 3) incumbent worker training through association and professional education programs. The partnership between the Consortium and DWS enables increased communication to improve capacity to fill critical staffing for growing Utah companies within the health

care industry and adequate numbers of people who are properly trained to fill emerging and changing jobs.

Broadband Mapping and Access

The Utah Public Service Commission (PSC) in collaboration with the Department of Technology Services (DTS) and the Automated Geographic Reference Center (ARGC) are leading an effort to improve Utah's broadband mapping, analysis and planning capacity. Utah submitted a proposal in response to a Notice of Funding Availability to apply for stimulus funds as part of the National Telecommunications and Information Administration's (NTIA) State Broadband Data and Development Grant Program. If funded, the project will 1) collect, maintain and verify broadband mapping data, 2) develop publicly accessible broadband maps and web mapping applications; and 3) develop a planning framework for to assess and expand accessibility to broadband infrastructure and services. Utah recognizes the importance of available of broadband technologies to health, economic development, efficient government, public safety and education and is aggressively pursuing a wide range of technology solutions.

Currently Utah does have a comprehensive statewide up-to-date map of broadband service access and/or availability. Available broadband access may be problematic for some urban and rural centers as clinics and physicians more often lack the last mile connection. While all twelve local health districts and rural area critical access hospitals, local governments and libraries have broadband access it is less clear what resources are needed to allow for the critical last mile connection necessary for the providers to connect to the HIE. The Utah HIT Governance Consortium supports with UTN's work with PSC to understand the gaps in the broadband service availability and work to address the service needs.

Health Informatics Research Grants

Utah received two HIE related research grants. University of Utah in partnership with UDOH, UHIN, and Intermountain Healthcare received the ARRA National Library of Medicine (NLM)/National Institute of Health (NIH) GO grant to develop a statewide master patient index to support the clinical health information exchange. In 2012 the Utah Legislature passed House Bill 25 to authorize the UDOH to establish methods for patient identity validation through a statewide master patient index service. Administrative rule is expected no later than November 2012.

UDOH in partnership with University of Utah, Intermountain healthcare, and UHIN received an award from the Health Research and Service Administration (HRSA) to participate in the three states' demonstration – Effective Follow-up in Newborn Screening Project, to electronically share newborn screening result information with treating health care providers. Electronic access to newborn hearing screen results and immunizations is in pilot with twelve practice sites. Web access to newborn heelstick, hearing, and immunizations using the CHARM web interface is currently in test. Development is near completion for sharing newborn heelstick and hearing result. Newborn screen results will be shared with the cHIE using the HL7 2.5 ORU message with LOINC and Snomed vocabularies.

HIE DOMAIN REQUIREMENTS

According to the requirements from the U.S. Office of National Coordinator (ONC) for HIT, the strategic plan from 2009-2013 is presented in five domains: Governance, Finance, Technical Infrastructure,

Business and Technical Operations, and Legal/Policy. Utah's planning targets the activities that will be funded by the ONC State HIE Cooperative Agreement (CA) Program.

Project Goal from 2009 to 2013

- Fully implement the statewide clinical health information exchange (cHIE) to improve health care delivery system in the state of Utah

The vision of the cHIE is to improve the quality of care and reduce the cost of care by "connecting the dots" in Utah. The number of other successful HIE efforts around the country illustrate that "connecting the dots" – making more complete health information available at the point of service –significantly impacts the community in reduced number of prescriptions[1], reduced cost of care[2], reduced duplicate tests[3], and gaining administrative efficiencies[4] and reduced adverse drug reactions[5]. The key advantage to using a cHIE is that it does not matter whether or not the patient has insurance. It only matters that the patient receive care and that the provider giving that care be a participating entity in the cHIE. Therefore, patients without insurance will benefit from coordination of care.

We believe that a fully-implemented cHIE in Utah will make significant inroads in our goals to reduce the cost of care while improving the quality. A fully operational cHIE could also provide the infrastructure for quality reporting to support quality improvement and health payment reform. We are working with many other organizations[6] in Utah to coordinate the cHIE roll out during the course of this state HIE CA program. In addition, Utah believes that no door can be considered the wrong door for health information exchange. As such UHIN, in early Q1 implemented Direct secure point to point message exchange. UHIN is the health information service provider for Utah and will market Direct as one of the service options available to its members. Several use cases are under consideration for promoting Direct services including: attachments to insurers, mammography results to the VA, long-term care facilities authorization documents to Medicaid, Utah Poison Control communications to and from emergency departments, care summary documents between providers.

Project Objectives from 2009 to 2013

- Objective 1. Connect a preponderance of health care providers - defined as 80% or more of the health care entities in the state of Utah - to the cHIE to exchange clinical health information for treatment purposes at the point of care ("Connection")

[1] Report in *Modern Healthcare,* February 18, 2008, Florida Agency for Health Care Administration, "Florida 2007 Electronic Prescribing Report." January 2008
[2] V. Willey, Gregory, "An Economic Evaluation of Use of a Payer-Based EHR within an Emergency Department," *HealthCore*, vol. July, 2006.
[3] T. Matthews, Senior Policy Advisor, Kentucky Cabinet Health and Family Services, "States Make Plans for Health IT to Improve Quality, Lower Costs," The Council of State Governments 2007.
[4] J. Conn, "RHIOs Make It Work," in *Modern Healthcare*, 2006.
[5] M. Kolbasuk McGee, "Why Progress Toward Electronic Health Records is Worse Than You Think," in *InformationWeek*, 2007.
[6] Utah Medical Association, the Utah Hospital Association, the Utah Pharmacists Association, the Utah Nurse Practitioner and Physician Assistant Association, the Association for Utah Community Health, HealthInsight, the American Association for Retired Persons, the Utah Home Health Care Association have actively supported the cHIE.

- Objective 2. Expand the cHIE services to include electronic prescribing, laboratory order and result delivery, and medication history to provide better quality and cost-effective health services and to support providers to meet federal meaningful use requirements ("Expanded HIE Services")

- Objective 3. Develop a sustainable governance and business model to operate the cHIE ("Sustainability")

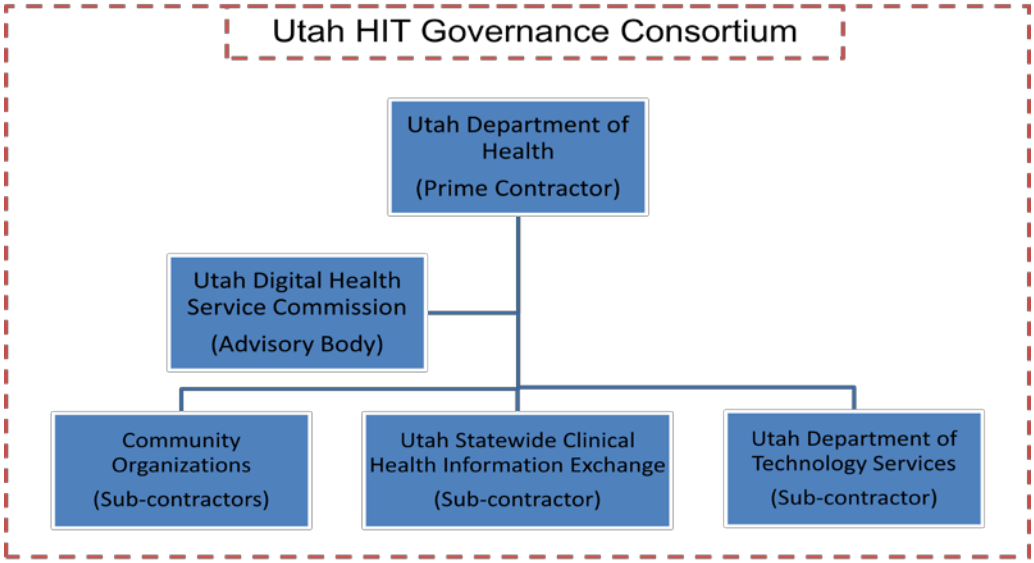
- Objective 4. Conduct ongoing strategic planning and evaluation in order to implement initiatives that efficiently use technology to transform the health care delivery system ("Planning & Evaluation")

- Objective 5. Integrate public health data exchange with clinicians to reduce the burden on providers, increase timely and completed reporting, and protect population health ("Public Health")

For detailed discussions on implementing these objectives please see the Utah cHIE Operational Plan and the application for the State HIE CA Program Application.

Domain 1: Governance

The Utah statewide HIE governance structure reflects its practice-based, private-public collaborative model. Figure 1 depicts the relationship among the major players in this Cooperative Agreement program.



The role of the HIT Governance Consortium is to build sustainable long-term partnerships and support for the Statewide HIE which includes cHIE, Regional Extension Center, broadband initiative, and workforce development, etc. The Consortium's vision for Utah drives the State Plan. While the UDOH staff support the drafting and editing of State Plan content, the Consortium is responsible for the review and adoption of the plan. The State Plan is adopted by the Consortium without dissent. The Statewide Plan will continue to be circulated to the Consortium for review, discussed in meetings, and approved/adopted by the Consortium until plans are approved without dissent.

The Consortium members serve at the request of the State HIT Coordinator, on a voluntary basis and in an advisory capacity only. The Consortium meets quarterly with additional meetings scheduled at the request of the chair, the State HIT Coordinator..

Utah Governor-designated State HIT Coordinator

Dr. Robert T. Rolfs, Deputy Director for the State of Utah Department of Health and Chair of the Utah HIT Governance Consortium is the Governor-designated State HIT Coordinator. Governor Gary Herbert designated UDOH "to serve as the accountable agency to coordinate and implement applications for the Health Information Technology for Economic and Clinical Health (HITECH) Act Section 3013 'State Grants to Promote HIT' in the Recovery Act of 2009." . The Utah Department of Health will serve as the accountable agency under the State HIE Grants.

The Utah Digital Health Service Commission, an eleven member governor appointed commission whose mission is to facilitate and promote the adoption of the secure, effective and efficient exchange of electronic health data and services, as a means to reduce health care costs, enhance quality, increase access, and improve medical and public health services serve in an advisory capacity to the Utah Department of Health for HIT/HIE. The Commission membership is governed by statute[7]. Meetings are held bi-monthly, open to the public with announcements and agendas posted on the Utah Public Meeting Notice website (http://www.utah.gov/pmn/index.html).

State Designated HIE Entity

To leverage existing HIE efforts in the State of Utah and with support from the Utah HIT Governance Consortium, the Utah Health Information Network (UHIN) is designated "to serve as the accountable entity to implement the Operational Plan submitted with the Utah applications for the State Health Information Exchange Cooperative Agreement Program for the Health Information Technology for Economic and Clinical Health (HITECH) Act Section 3013 'State Grants to Promote HIT' in the Recovery Act of 2009." See http://health.utah.gov/phi/ehealth/Jan%20Roots%20Letter.pdf. UHIN has been the community leader to develop the cHIE in the State and has proven to be a trusted partner and convener since 2003.

The State of Utah and Utah Health Information Network began to envision the cHIE in 2004. The cHIE and UHIN, a private not for profit entity and the responsible party for the cHIE community, will be significantly enhanced through this State HIE Cooperative Agreement Program. As a private enterprise with public entity participation, UHIN has approached HIE development in a disciplined, results oriented fashion placing a premium on solutions that will bring value to members.

[7] Utah Code Annotated §**26-9f-103. Utah Digital Health Service Commission.**

The Utah Department of Health will subcontract with UHIN to develop and operate defined components of the clinical health information exchange infrastructure as approved in the operational plan for the State HIE Cooperative Agreement Program. The direct operation and governance of the cHIE aspects funded as part of the State HIE program are governed by the UDOH contract with UHIN. UDOH and UHIN signed an MOA delineating responsibilities for the HIE CA Program.

UHIN's planned approach includes plans for long-term sustainability of the cHIE. Utah is looking to leverage UHIN's expertise with the administrative health information exchange (aHIE) to continue to operate cHIE and aHIE, as an independent, but highly participatory entity with the UDOH, HIT Governance Consortium, Utah Department of Insurance, Utah Department of Technology Services, and most of providers, payers, and health systems in the State of Utah.

UDOH requires cHIE to operate in accordance with state and federal law and meet and report on milestones for development and operations.

Collaborative Public-Private Governance Model

Utah's HIE governance is a community-driven, government participatory, consensus-based, non-profit business model that uses an incremental development strategy. This model is rooted in and energized by the health care community and has evolved over the last 17 years.

The State HIE Program Utah has a two-layered governance model.
1) The HIT Consortium, led by the Utah State HIT Coordinator, Dr. Rolfs, Deputy Director of UDOH, functions as a collaborative consensus-building body that serves to guide statewide HIE policy, assess needs, monitor progress, and provide a neutral venue for stakeholder participation. The Consortium focus is to ensure state HIT and HIE projects are on track to reach projected outcomes, coordinated across the state, ensure stakeholders buy-in and participate, and resources are appropriately allocated.

2) UDOH, as the state administrative agency is responsible for the State HIE Program and holds contractual oversight and accountability over the state designated HIE, the Utah Health Information Network (UHIN), for operating the clinical health information exchange under the State HIE Program. UDOH and UHIN have signed a MOA delineating responsibilities for the State HIE CA Program. UDOH requires that cHIE operate according to state and federal laws and meet privacy and security requirements and milestones for development.

UHIN: A Community-driven Organization

UHIN is governed by a coalition of diverse health care entities and state agencies. UHIN also is a convener of the Utah health care community. In 1993 Utah passed a law[8] that required the Utah Insurance Department to adopt standards for administrative health care exchanges. In the Rule[9] promulgated under this law, UHIN was designated as the entity that would convene the health care community to develop the administrative data exchange standards that the state would then adopt. In 2008, Utah passed another similar law[10] that required the UDOH to adopt standards for clinical health care exchanges. Although not named in the Rule[11] UHIN convenes the community representatives who

[8] Utah Code 31A-22-614.5 Uniform claims processing – Electronic exchange of health information
[9] Utah Rule 590.164 Uniform Electronic Clinical Information Exchange Rule
[10] Utah health Code §26-1-37 Duty to establish standards for the electronic exchange of clinical health information
[11] Utah Rule 380-700. Standards for Electronic Exchange of Clinical Health Information

have created the Standards that the UDOH has adopted under this authority. UHIN practices a consensus-based decision-making model that builds trust among all members, large and small.

At the core of UHIN's governance principles is the belief that UHIN must use the services to bring value to *every* UHIN member. *The mission of UHIN is to reduce health care costs and improve quality and access of health care for the community by assuring that patients, providers and payers can securely exchange information electronically.* UHIN is committed to making HIE available to any health care entity in Utah. Improving the quality of health care is critically important but any improvement in quality must also be accompanied by a reduction in operating costs for UHIN members. UHIN cHIE is developing under this principle.

Consumer Participation and Consent

The Health Care Consumer Committee, a permanent subcommittee of the UHIN Board and comprised of 8 individuals that understand complex HIT systems, are invested in improving health care for patients, and met extensively for six months to develop a consent model. The approved consent policy aligned with State and federal privacy requirements[12], which do not require patient consent for authorized health care providers' access to patient health information for treatment, payment of health care operations. The initial consumer consent model developed and approved by the community and piloted was an opt-out model which defaulted all consumers as participating unless the consumer affirmatively indicated the contrary. This provided authorized health care providers with access to patient information available on the cHIE. In February 2011 a UHIN Board of Directors vote changed the participation model to an opt-in model requiring an affirmative consent decision by the consumer to enable health care providers' access to consumer health information via the cHIE. As a result of the change in consent policy all consumers are initially assigned a consent status of "unkown" until the consumer has affirmed a consent decision.

Currently, the consumer consent choices are as follows:

- In/Participating: consumer is participating unless otherwise indicated and health information is shared with authorized clinicians who have attested to a treatment relationship with the patient.
- Limited (Emergency, One-time consent): consumer has indicated a preference for limited participation and health information is not shared with authorized clinicians who have attested to a treatment relationship with the patient with two exceptions:
    1. It is an emergency situation
    2. The patient has given the clinician 'one time consent' to query their record.
- Out/Non-participating: consumer health information is not accessible and cannot be shared using cHIE.

Participating health care providers store a copy of a defined dataset of their patient health data on the cHIE. Consumer health information can only be accessed by an authorized treating health care provider. Information about cHIE and health care consumer options for participating are provided by the health care provider at the point of care. The provider collects, records, maintains and transmits patient preference to the cHIE.

[12] HIPAA TPO 45 CFR §164.506

In addition, with funding from the Veteran's Administration and the Regence Foundation, UHIN launched a cHIE public education campaign along the Wasatch Front corridor, Utah's primary population center. The campaign includes television and radio information spots, interviews on local talk shows, advertisements in local newspapers and other types of outreach. UHIN staff are conducting open enrollment with various benefit providers, health fairs and benefit fairs.

Attempting to gather consumer consent decisions from a large population is an enormous and costly task. To help with this effort, UHIN has implemented an electronic consent plan that includes optical character recognition (OCR) for scanning paper consent forms collected at the point of care and an electronic plug and play software for interested organizations to add to the organization's employee portal that provide validation of the consumer identity. The e-Consent plan focus is to greatly ramp us the rate of consent. The plan is a targeted effort that includes:

1. cHIE e-consent for organizations with an existing employee portal that requires employee log-in for access and provides employee identity validation.
2. On-line consumer validation by a third party vendor service available to consumers participating in Utah Beacon Community.
3. Third party (insurance brokers) validation of consumer identity and use of a consumer PIN for web access to the e-Consent portal.

The Utah Legislature support of cHIE is evidenced by the passage of House Bill 46 which requires the enrollment of Utah Medicaid, CHIP, and state employees covered under the Public Employee Health Plan (PEHP) in the cHIE as a participant unless the person elects an alternate consent choice. House Bill 46 goes into effect July 2012 and cHIE consumer participation is anticipated to rise by approximately 300,000.

A participating consumer's health information is only accessible to authorized users. Should a consumer elect to not participate, access to the consumer health information is prohibited though the information still resides on the cHIE servers. Consent decisions are processed by the cHIE. The consumer can change their consent decision at any time should they choose.

State's Role

The UDOH was a founding member of the non-profit UHIN in 1993. The Utah HIE model has operated with the state government's ongoing oversight and active participation from Utah Medicaid and public health programs. In 2008, the Utah legislature mandated the UDOH to publicly report the cHIE project's progress annually. UDOH and UHIN presented their first joint-report to the legislature in October 2008. In March 2009, UDOH led the establishment of the Utah HIT Governance Consortium. It's comprises UHIN and 20 major health organizations in Utah. Through its consensus-building process, the Consortium recognized UHIN as "the statewide HIE infrastructure" in its statewide vision and partnership statement in May 2009.[13]

A publicly transparent and accountable governance process has been under development in Utah, which will ensure Utah rapidly implements the cHIE through efficient use of the HITECH funds. Public reporting about the cHIE progress will be made available through the course of the project in the HIT Governance Consortium, Governor-appointed Digital Health Services Commission public meetings and reports to the Utah Legislature and the public in general.

[13] Utah HIT Governance Consortium Statewide Vision and Partnership, Adopted May 2009.

As the state designated agency for the State HIE Program UDOH*'s role as oversight and program administrator includes:*

- Review, monitor and evaluate the development and operations of the cHIE
- Support cHIE development and operations with planning and risk mitigation
- Manage and coordinate resources and additional funding opportunities to maximize cHIE success
- Provide analysis/ implications of statewide policy options under consideration
- Facilitate state alignment with interstate, regional, and national HIE strategies
- Foster collaborative public/private approaches to harmonize health care quality improvement efforts

UDOH will utilize contractual mechanisms, to ensure that particular services, specifications, and accountability mechanisms are in place for electronic HIE stakeholders and ensure the state meets significant accountability responsibilities to citizens for system privacy, security, universal access, and interoperability. UDOH will implement ongoing monitoring of the State HIE program and transparency of the initiative with its public reporting of cHIE progress.

In sum, the key roles for the state of Utah in HIE activities are as:

- Regulator to assure the statewide HIE meets legal requirements and maintains the public interests;
- Stakeholder to use HIE to improve quality of care and reduce cost for Medicaid and other state-funded health services; and
- Developer of interoperability between public health information infrastructure and the health care industry.

Improving Accountability and Transparency Under the Cooperative Agreement

This public-private HIE governance model is a newly articulated concept and will evolve with the implementation of the State HIE CA Program. In 2010, the HIT Governance Consortium will:

- further define the scope and content of the state's HIE accountability;
- develop process and procedure to assure accountability;
- establish ongoing procedure and process for HIE transparency;
- expand public participation through open meetings, internet tools, or public hearings; and
- monitor, evaluate and report on progress in fully implementing the cHIE in Utah.

The state of Utah will be an engaged partner of the health care industry when it comes to HIE. In general, the state agencies should be accountable for using HIE to enhance public infrastructure for better implementing the public sector's mission, participating in HIE to improve population health, and promulgating appropriate law and regulation to protect the interests of the public.[14]

[14] Nangle, B., Xu, W. & Sundwall, D.N. Forthcoming. "Mission-Driven Priorities: Public Health in Health Information Exchange." Accepted by the 2009 AMIA Annual Symposium Proceedings.

Domain 2: Finance

Sustainability: Finance model for Utah's cHIE

UHIN is the designated entity to run the Utah statewide cHIE operation and is responsible for long-term financing of the cHIE. The initial start-up funds for cHIE came from the federal AHRQ Regional Health Information Organization Demonstration awards for about $5 million dollars from 2004-2009. The Utah legislature appropriated one-time funds ($500,000) in 2008 for UHIN to start the implementation of the cHIE. In addition, a $500,000 draw down of administrative matching funds from the CMS Medicaid Program was used to support the early development of the cHIE.

However, UHIN's business model is to support cHIE through member fees and has done so since its inception. Member fees include all services offered through UHIN including Direct secure messaging. UHIN membership fees do not include vendor costs to providers to develop the interface. Vendor costs are set by each provider vendor and agreements between EHR/EMR vendors and the practice.

The UHIN board of directors is primarily composed of business people who have required that UHIN offer value to businesses as UHIN's primary mission. The administrative exchange of UHIN's business has been fully developed through this business model and will not need any financial assistance in this CA.

UHIN intends to continue with the same business approach to exchange clinical information through the cHIE. UHIN has spent the last 2 years working intensely with three stakeholder groups – clinicians, hospitals and payers, including Medicaid and the state Public Employees Health Plans– to build a sustainable business case for the cHIE.

Fully Develop the Business Case for cHIE

During 2009-2013, UHIN will fully develop then test the proposed cHIE business case with a fee/price structure among all cHIE participating organizations. Negotiation, revision, and compromise will be part of the expected normal process to build a consensus-based business case for cHIE. If it is successful, it is our goal that by 2013, UHIN will not depend upon federal funds to support the core services of the cHIE. As a non-profit entity, UHIN will only charge the cHIE users to cover the operational costs. Currently the cost is allocated in thirds by user groups: 1/3 payers, 1/3 clinics 1/3 hospitals. No additional mark-up in fees is in included in the annual member fee scale. Safety net providers are charged at the 1 clinician fee category. Safety Net Providers include Community Health Centers, free clinics, the County Jail systems and Indian Health Services clinics.

In 2010, UHIN reduced its cHIE membership fees to encourage early adoption. However, this proved to be premature. With no direct mandate or clearly defined business-driven need for health care providers to connect to an HIE to meet Meaningful Use, connecting hospitals and clinics with EHRs is a lengthy and difficult process to negotiate. Utah is a state with 60-80% EHR adoption rate among ambulatory care providers. UHIN has made significant progress over the past couple of years, it is difficult and resource intense.

While UHIN is investigating additional funding sources through secondary use cases for the cHIE, cHIE is reliant on member fees for sustainability. Members are charged fees on an annual calendar-year basis for the use of all cHIE services. At present time, July 2012, the estimated revenue timeline is as follows:

Calendar year 2012: $2,052,000

Calendar Year 2013: $2,440,000

Calendar Year 2014: $3,100,000

Beyond: $3,100,000 to $4,000,000

Please note that the figures listed above represent approximations and estimates based on anticipated adoption and operating plans.

UHIN will engage new stakeholders in the clinical health information exchange through the course of the program through

1. A discounted fee schedule for safety net clinics (SNP). SNP includes Community Health Centers, free clinics, the County Jail systems and Indian Health Services clinics.
2. Outreach to the Indian Health Council and working with Indian Health Services and Tribes across Utah.
3. EMR Connection Grants to enable cHIE connections where existing resource gaps in community-based organizations' hamper the communities' ability to establish sustainable HIT progress. Funds are available to connect up to 60 small clinics in Yr 1 and 20 in Yr 2. Currently, $272,417 in grants has been approved/awarded by the Grant Committee; $20,400 is pending approval by the Grant Committee. All of the EMR Connection Grant funds must be allocated and distributed to Grantees by December 31, 2012.

Challenges for Sustainability

Financial sustainability determines cHIE's fate. Both UHIN's Board of Directors and the Utah Partnership for Value-driven healthcare/Utah Chartered Value Exchange require evidence that the cHIE system is providing savings over time (especially payers and policy makers) in order to assure their long-term commitment to cHIE. Providers need assistance, both technical and monetary, in building and effectively using their EHR connections to the cHIE. Employers and public stakeholders need to understand the cHIE's benefit to the public to support necessary public funding for the cHIE.

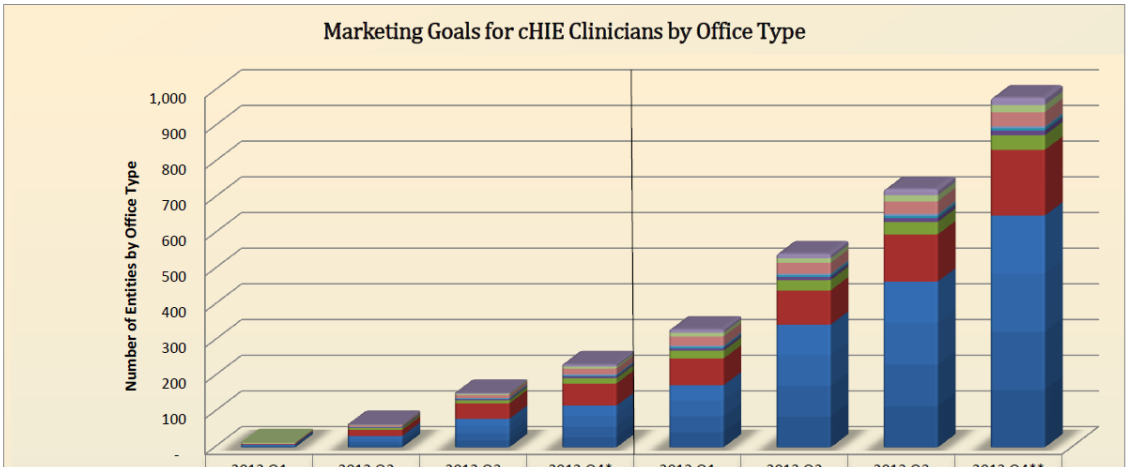
UHIN is working through different use cases that bring value to members of the cHIE including payer use of the cHIE. Currently one payer plan is using the cHIE to receive medical records in support of a wellness program in pilot with the clinic. These records are sent electronically using the exchange. Two payers groups are considering use of the cHIE in conjunction with their disease/case management programs. These payer-based care managers will use the virtual health records to get the needed information to better manage their cases. Certain programs require medical documentation for approval of payment and the provider will send these needed records using Direct. Medicaid uses services of the Direct function to receive attachments in support of claims. Lastly, one of the most successful projects has been the long term care facilities using the cHIE to send prior-authorizations and supporting documents to Medicaid.

Successful value-added use cases include the Medicaid prior authorization for long-term care, medical records exchange with group medical insurers, aggregation of a person's medical information from multiple data sources.

The statewide decisions about cHIE's financing are impacted by financing decisions made at each individual participating organization. Members of the Utah Chapter of the American Academy of Pediatrics found that the biggest challenges for primary care pediatric practices to participate in cHIE include: resources and time to acquire/understand the technology, learn how to use it to accomplish

what they currently do (i.e., see patients efficiently), and, most importantly, to use it to improve practice and care.

Table 1. cHIE Market Goals



	2012 Q1	2012 Q2	2012 Q3	2012 Q4*	2013 Q1	2013 Q2	2013 Q3	2013 Q4**
Pharmacies	-	1	3	6	10	13	17	20
Long-term Care	2	1	3	6	10	13	17	20
Home Health	1	4	8	17	26	30	36	40
Over 200 Clinicians	-	1	2	2	3	4	5	5
100-200 Clinicians								
50-100 Clinicians	-	1	2	3	4	5	6	7
25-49 Clinicians	-	2	3	5	7	9	11	13
10-24 Clinicians	-	5	9	15	22	29	35	41
2-9 Clinicians	2	17	43	62	75	96	132	184
1 Clinician	8	32	80	117	174	344	465	650

*2012 Q4 totals represent approximately 1,600 clinicians and $300,000 in cHIE clinician revenue.
**2013 Q4 totals represent approximately 4,800 clinicians and is at breakeven in dollar amount for cHIE clinicians.
Assumes no change in composition of member categories relative to the total.
Assumes cHIE Clinician composition has the same relative proportions as the admin. provider membership.

UHIN is focused on provider adoption and defined cHIE adoption market projections for adoption (Table1). UHIN hospital adoption of cHIE includes finalizing all feeds for the 2 remaining large hospital systems and consumable patient summaries from the other large entity. UHIN plans to add 4 rural hospitals by end of Q4 2012. To date there are 244 members that have signed the clinical participation agreement. UHIN has contacted its full membership of 1222 entities as well as the Utah Medical Group Management Association (UMGMA), Utah Medical Association (UMA) and Utah Hospital Association (UHA) memberships. Resources for adoption and implementation include 4 provider consultants (responsible for sales and training); 1 marketing coordinator (responsible for materials); 1 technical lead (responsible to coordinate integration); 4 helpdesk technicians (to provide 24 by 7 assistance); 1 enrollment specialist; 1 Optum account executive; 1 Optum project manager; Optum assigned engineers as needed; a UHIN integration specialist and technical consultant are under consideration.

Request for ONC's Cooperation

Evidence-based economic and outcome research on HIE operation and utility is urgently needed to develop business sustainability within four years. However, research is beyond the scope of this application. Utah's application does not allocate any resource to these types of studies. We request the

ONC consider this urgent need and commission research in this area. Based on a mutual agreement, Utah's HIE Program would like to serve as a research site to provide practical evidence for advancing the national HIE agenda.

Domain 3: Technical Infrastructure

Technical Architecture/Approach

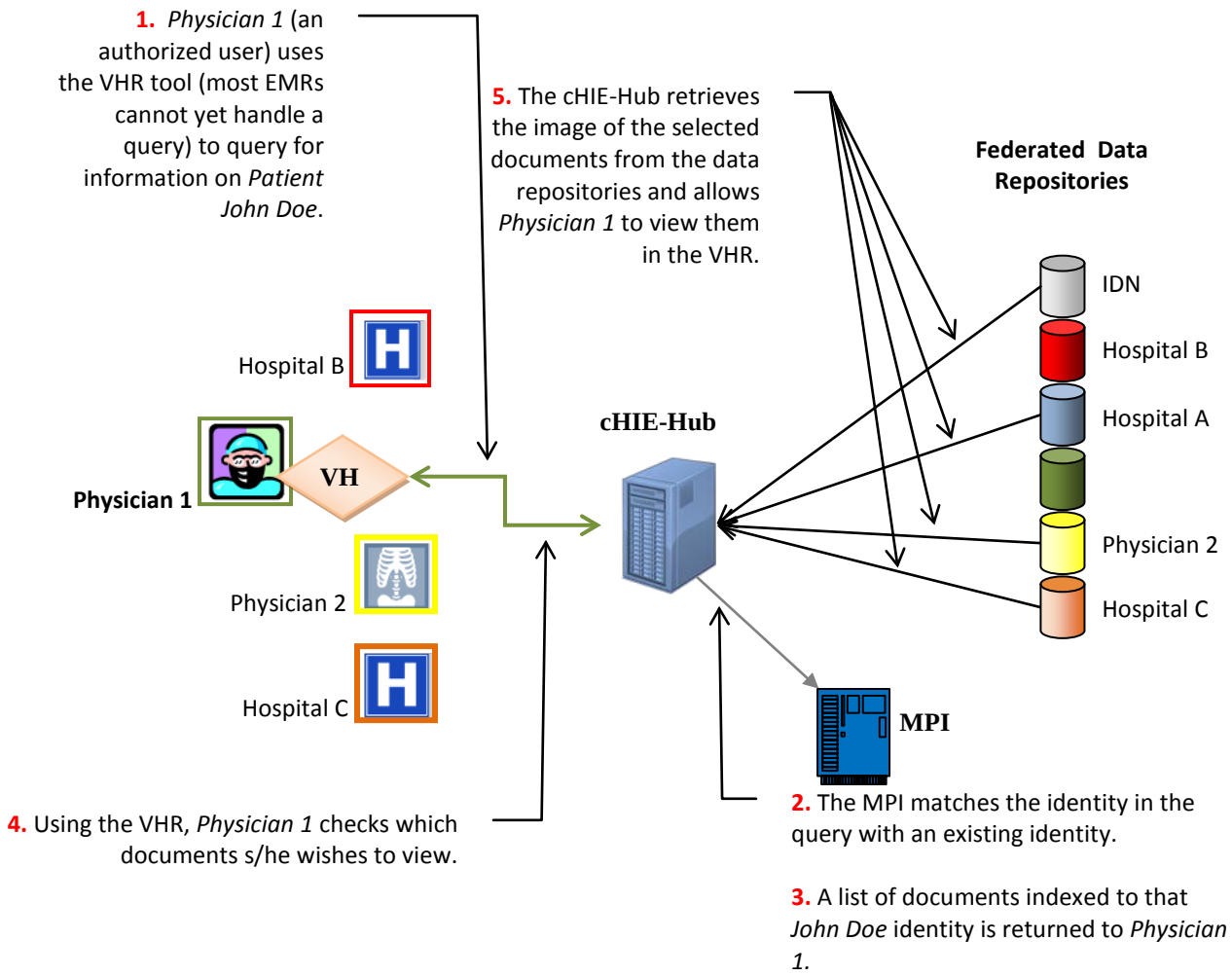
Utah statewide cHIE builds upon the UHIN existing technical health information exchange infrastructure. UHIN began operations in 1993 using a dial-up switch because it was the lowest common dominator available to all Utah health care providers and payers at that time. UHIN migrated to using the Internet in 2000. With funding from the State and Regional Demonstration Project (AHRQ) UHIN upgraded the Internet Gateway to the Web Services standard that is in operation now. The Gateway averages 99.98% up time over the past several years. UHIN's Gateway for administrative transactions is a fully redundant and mirrored system. Fail-over procedures are tested annually and have averaged 99.98% up time over the past several years. On the administrative side, all data (in motion and at rest) is encrypted to meet the CMS standards. UHIN offers members a 'free' tool to enable them to exchange administrative exchanges without investing in a practice management system if that is the best solution for them.

UHIN contracted with Axolotl, Inc., now Optum, as the UHIN's cHIE Strategic Partner to implement a statewide basic EHR (aka, E-lite) and clinical HIE with participating EHR networks. Axolotl, now Optum Insight, is a major HIE system supplier in several states. Axolotl underwent their first Electronic Healthcare Network Accreditation Commission (EHNAC) accreditation. They operate a mirrored, redundant gateway. All data (in motion and at rest) is encrypted to the CMS standards. Their UHIN EHNAC certification was completed in early 2012. The Axolotl Elysium applications use web services as well.

Below is a diagram of the technical structure of the cHIE. Members have the option of linking directly to the Optum hub (cHIE-Hub) or the cHIE via the existing UHIN administrative hub, UHINet. This second option enables members, if they chose to conduct both their administrative and clinical exchanges via a single link to UHINet.

The following diagram illustrates cHIE **"Query"** function, still in development**.**

Figure 2: Query: An authorized user uses cHIE to create a virtual health record for a selected patient. At this time a query can only happen via the CHIE-Hub connection. Any entity that uses the VHR is connected to the CHIE-Hub.



Interoperability

Currently, UHIN has installed, tested and is implementing the cHIE's central infrastructure, architecture of a federated data store, record matching/linking services, and central repository of MPI. Clinicians and their assistants will use cHIE in two ways. For those whose practice does not adopt an EHR, they can use the cHIE web service through the application called "E-lite." E-lite has basic EHR functions including electronic laboratory ordering and results receiving. For those whose practice uses an EHR, they can share or access patient information through their EHR-cHIE interface to query/view a Virtual Health Record (VHR). The E-lite tool is used by some clinic sites for its e-prescribing capabilities. The EHR-cHIE web service connections are in production with just under 1000 clinicians trained to access the VHR.

NwHIN and Direct Connectivity

As indicated in Section A. Utah HIE Environment Scan, Participation with Federal Care Delivery Organizations, UHIN has developed connectivity and interoperability using the NwHIN and Direct. Through a federally funded project in partnership with the Veterans Affairs Medical Center in Salt Lake

City, Utah, UHIN will exchange clinical documents with the VA using the NwHIN. If successful, UHIN can expand capacity to other cHIE members. Direct messaging services are in production however, no market has emerged to capitalize on this method of exchange.

Meaningful Use Criteria

Utah HIT Governance Consortium commits to develop an HIE to support health care providers in Utah to become "meaningful users of HIE/HIT." However, we are cautious about how much we can achieve to measure the meaningful uses based on the available funding from this HIE CA Program within the funded period.

Analysis on the meaningful use criteria[15] indicate the 10-page measures categorize into two types of indicators: 1) utilization measures (i.e. % of orders (for medications, lab test, procedures, radiology, and referrals) directly entered by physicians through CPOE) and 2) Health care outcome measures (i.e. report 30-day readmission rate). The generation of utilization measures may be relatively easier than outcome measures. This is especially true when considering that the calculation for readmission rates will require developing longitudinal patient records, possibly across providers utilizing the HIE.

The current cHIE system (formerly known as Axolotl's Elysium products) is designed for use for individual patient treatment at the point of care. To generate aggregated measures require new analytical models and programming. The vendor Axolotl, purchased by Optum, is under contractual obligation to meet milestones for developing a platform that enables Utah to meet established criteria for meaningful use as determined by HHS. Optum has begun the work for meeting the meaningful use criteria.

- Utah cHIE capabilities currently include electronic prescribing, refill requests, medication fill history and clinical summary exchange for care coordination.
- Results delivery is in production.
- Electronic clinical laboratory ordering is planned for completion by mid- 2013.
- Electronic public health reporting capacity is planned for 2012
- Quality reporting capacity is planned for 2012
- Prescription fill status capacity is planned for 2014

Major Technical Challenges

Three major challenges and/or service gaps exist in the current cHIE technical infrastructure and interoperability development:

1. Master Patient Index (MPI). Empirical tests conducted by the UHIN MPI Committee found that the current MPI matching algorithm has a less than optimal level of accuracy. The committee established a "trust model" to manage MPI data sources as a quality control tool until technical

[15] Meaningful use draft criteria downloaded from http://healthit.hhs.gov/portal/server.pt/gateway/PTARGS_0_10741_887553_0_0_18/Proposed_Revisions_to_Meaningful_Use_post_7_16_2009_FINAL_PT1_508.pdf

upgrades can be made. We will use the HIE program funds to implement the trust model and improve MPI accuracy.

2. Group Purchasing & Negotiation. Need to explore "group purchasing negotiation" with EHR vendors. Since Utah has high penetration in EHR adoption and use, to establish connections between the cHIE and various EHRs become the major challenge for the interoperability of the cHIE. As a state-designated HIE, UHIN plans to convene EMR customers to encourage group purchasing negotiations.
3. Successful production connection using the NwHIN. UHIN is in production to exchange data with the VA health care system. The connection using the NwHIN is a difficult process and though the project has successfully exchanged patient information, differences in the organization's matching process and requirements has proven to be a challenge.

Request for ONC's Cooperation

Utah's EHR vendor market is limited by the relatively small number of available clients. Consequently small states, like Utah, will have very limited bargaining power with national vendors. Therefore, we request assistance from ONC in negotiating the EHR-State HIE connections and interoperability cost during this CA period.

Utah recommends ONC consider commissioning the development of informatics decision-support tools to generate meaningful use measures. These tools should be open source, standard-based, platform independent and available for public uses. Ideally the State HIE entities would "plug-in" the tools in their operational systems and generate the measures for their HIE users.

In addition, ONC should encourage Medicare and other federal entities to collect their quality measure through state-wide health information exchanges, such as UHIN. This would greatly reduce the burden on providers submitting this information.

Domain 4: Business and Technical Operations

Business Operations Capacity

UHIN is a small but mature company. Currently UHIN employs 21 FTEs and has major contracts with three strategic partners – Relay Health, DirectPointe and Optum. Their total contracting with these three exceeds $6M annually. Except for development of the cHIE, UHIN is entirely supported through member fees. Fee structure is established by the board of directors and is published on the internet. UHIN estimated that UHIN's services save the Utah health care community approximately $50M annually in costs of doing HIE manually.

UHIN core business is exchanging administrative transactions (all HIPAA compliant) and exchanging provider credentialing information with payers. In 2004 through funding received from AHRQ, UHIN began to expand into health information exchanges that would be used for clinical purposes. UHIN discovered unexpectedly that there is no clear delineation of purpose of use between 'administrative' and 'clinical' exchanges. While a claim is only used to request payment for services, a lab result can be

used for both clinical and administrative purposes – using the lab findings to adjust medications (clinical use) and as a claim attachment (if requested by the payer (administrative use)). Same health exchange (lab result): two different uses. *Because of this, UHIN is pursuing a strategy for 'clinical exchanges' that serves both purposes: clinical and administrative but with clear guidance from privacy policies and consumer protection.*

As with administrative exchanges, the cHIE business strategy is designed to involve any Utah health care entity that wishes to participate. To this end, the cHIE functionalities will include, at no additional cost, an electronic medical record (EMR), e-Prescribing, e-Referrals, and a VHR to those clinics that need this functionality along with training, maintenance and support. Payers are also appropriately involved to meet their growing clinical data needs.

Technical Operations Capacity

UHIN carries administrative transactions: claims, remittance advices, eligibility, claim status, and enrollment transactions; as a value-added network[16] UHIN will continue to do so. UHIN utilizes EHNAC certified escalation and disaster recovery processes. The Utah cHIE core system has been installed and tested.

Implementation

Achievements as October 2009

As of October 12, 2009, Utah state-designated HIE entity (UHIN) has completed:

- procurement of the cHIE infrastructure and communication applications from Axolotl, Inc.;
- cHIE system requirements;
- process design; and
- functional development.

Incremental Implementations from Small Communities to the Entire State

Currently cHIE is accessible state-wide through the virtual health record query. The Allen Memorial Hospital, a county-owned rural hospital, is the central player for implementing cHIE in that community and serves as a data source for cHIE. With the funding from this Cooperative Agreement (CA), UHIN plan is to rapidly implement the cHIE and bring on additional data sources across the entire state within two years. A list of current data sources in production is available at www.mychie.org.

Challenges and Strategies of Adoption

The provider members of the Utah Chartered Value Exchange (CVE) at *HealthInsight* value the cHIE and many are planning to connect as soon as they can. However, barriers include the gathering consumer

[16] Value Added Networks (VANs) act like a post office delivering transactions: UHIN does not edit or store administrative data.

consent, consumer and provider education, funding of and time to develop technical interface and workflow updates at a practice site. Further compounding these constraints is the limited time to complete the contract funded activities given multiple and competing IT priorities.

UHIN connection grants have encouraged some development of technical interface for cHIE adopters. The State HIE Program in Utah is teams with *HealthInsight*, the Regional Extension Center, to provide technical assistance in workflow updates and business management of HIT/HIE priorities. HealthInsight is on contract with UHIN to provide REC services to providers that are outside the established criteria for the REC services.

HealthInsight pointed out that employers and public groups need to understand the benefit of - participating in the cHIE. Employers and consumer advocates enlisted to promote patient awareness, education and participation in the cHIE need to be well-acquainted with the benefits, consumer options for cHIE participation and be supplied with consumer focused promotional materials. The Consortium has allocated a small budget in our application to address this concern.

Statewide Shared Services and Directories

Two statewide services based on common directories are planned for sharing through the cHIE. First, UHIN will share its statewide provider directory with the authorized users within the UDOH and Local Health departments to enable public health programs to send public health alerts to and receive public health reporting from clinicians.

Secondly, the cHIE project created a secure patient directory (SPD). The UHIN administrative exchange delivery method functions much like the post office and does not provide matching services. The clinical health information exchange relies on a SPD system, as a component of the entire cHIE developed by Axolotl, Inc. The cHIE participating organizations such as providers and payers will submit their patient demographic information to populate the central SPD database/registry at the cHIE. The SPD system will automatically process merging, matching and linking of the submitted identity records to create a unique index for an individual in the central MPI. When a patient-level clinical information exchange occurs, the system will automatically compare the incoming identity information to the central SPD to decide whether this is a new patient or query clinical data repositories for this individual's clinical information. The cHIE SPD includes the rules to update the SPD information. Utah Department of Health programs will act as a cHIE user and follow all operational procedure and process. UDOH program data is not centrally stored and no overlap exists in identity services between UHIN/cHIE and UDOH.

The UHIN MPI Subcommittee has brought all interested parties, including the MPI research community and the state, together to develop strategies for improving quality of the current cHIE secure patient directory system. Optum is expected to complete upgrades to the SPD function in Q4 2012.

Operational Responsibility

UHIN is the state designated HIE for the State HIE Program in Utah and will be under contract to meet all operational responsibilities of the cHIE, including project management, help-desk function, system

maintenance, change control, and progress reporting to the Utah HIT Governance Consortium and UDOH (CA Applicant).

Program Evaluation

The UDOH will take the lead to design the program evaluation in conjunction with the UHIN Research/Quality Improvement/Evaluation Committee according to the ONC requirements. See Attachment B. Utah Evaluation Plan.

Performance Measures

Utah collects and monitors key performance measures for health information exchange capabilities and submits regular reports to the ONC as required by the Notice of Grant Award. Data for the following performance measures are provided by the ONC.

	Measure 1	**Measure 4 (roll-up)**	**Measure 4a**	**Measure 4b**	**Measure 5**
	% of **pharmacies** participating in e-prescribing (Surescripts)	% of **hospitals** sharing electronic care summaries with providers outside their system (AHA)	% of **hospitals** sharing electronic care summaries with hospitals outside their system (AHA)	% of **hospitals** sharing electronic care summaries with ambulatory providers outside their system (AHA)	% of **ambulatory providers** electronically sharing care summaries with other providers (NAMCS)
Utah	**89.10%**	**62.76%**	**.**	**62.76%**	**52.92%**
National average	89.58%	26.55%	13.47%	23.12%	31.20%
Quartiles					
75% Q3	93.90%	33.27%	19.34%	28.84%	37.74%
50% Median	92.45%	25.02%	13.83%	22.62%	28.83%
25% Q1	90.00%	20.27%	8.35%	16.29%	24.54%

	Lab Results Exchange				
	% of **hospitals** sharing laboratory results electronically with providers outside their system (AHA; roll up)	% of **hospitals** sharing laboratory results electronically with hospitals outside their	% of **hospitals** sharing laboratory results electronically with ambulatory providers	% of office-based **physicians** able to view lab results electronically (NAMCS)	% of office-based **physicians** able to send lab orders electronically (NAMCS)

		system (AHA)	outside their system (AHA)		
Utah	**81.48%**	**41.15%**	**81.48%**	**85.51%**	**39.97%**
National average	43.25%	19.02%	38.94%	67.43%	35.29%
Quartiles					
75% Q3	59.38%	27.11%	50.87%	74.55%	42.31%
50% Median	40.69%	17.78%	36.49%	67.99%	34.53%
25% Q1	34.28%	12.95%	29.18%	61.78%	28.39%

	e-prescribing		
	% of **physician**s actively using an electronic health record to e-prescribe via SS network (SS)	% of **physician**s actively e-prescribing via SS network (SS)	% of new and renewal **prescription**s e-prescribed (SS)
Utah	**31.00%**	**38.10%**	**20.56%**
National average	44.30%	54.70%	31.89%
Quartiles			
75% Q3	51.75%	66.55%	37.16%
50% Median	43.70%	55.45%	31.23%
25% Q1	37.25%	47.35%	25.62%

	Patient Engagement	
	% of ambulatory care **physicians** able to provide patients with clinical summaries for each visit. (NAMCS, Q19l)	
Utah	**47.04%**	**67.80%**
National average	38.32%	50.37%
Quartiles		
75% Q3	42.49%	56.06%
50% Median	37.09%	49.64%
25% Q1	31.33%	42.87%

Utah performance targets as required by ONC PIN #002 for 2012 are below.

	2012 SOP update	
Utah Program Priority	**Status as of December 2011**	**Target for December 2012**
1. % of pharmacies participating in e-prescribing	88%	89%
2. % of labs sending electronic lab results to providers in a structured format[17]	58%	64%
3. % of labs sending electronic lab results to providers using LOINC	36%	45%
4. % of hospitals sharing electronic care summaries with unaffiliated hospitals and providers	62.76%	65%
5. % of ambulatory providers electronically sharing care summaries with other providers	52.92%	54%
6. Public Health agencies receiving ELR data produced by EHRs or other electronic sources. Data are received using HL7 2.5.1 LOINC and SNOMED. Yes/no or %	Yes	Yes
7. Immunization registries receiving electronic immunization data produced by EHRs. Data are received in HL7 2.3.1 or 2.5.1 formats using CVX code. Yes/no or %	Yes	Yes
8. Public Health agencies receiving electronic syndromic surveillance hospital data produced by EHRs in HL7 2.3.1 or 2.5.1 formats (using CDC reference guide). Yes/no or %	No	No
9. Public Health agencies receiving electronic syndromic surveillance ambulatory data produced by EHRs in HL7 2.3.1 or 2.5.1. Yes/no or %	No	No

[17] **Structured format:** Documentation of discrete data using controlled vocabulary, creating fixed fields within a record or file, or another method that provides clear structure to information (is not completely free text).

Assist HIE Adopters to Achieve Meaningful Uses of the cHIE for Better Outcome

Utah physician community supports the national initiative to strive to reach meaningful uses of HIT and HIE. Chuck Norlin, MD, Chief of General Pediatrics in University of Utah and Director for Utah Pediatrics Partnership to Improve Healthcare Quality (UPIQ) said in his assessment for pediatricians to participate in cHIE:

> *"I think the biggest challenges for primary care pediatric practices will include: resources and time to acquire/understand the technology; learn how to use it to accomplish what they currently do (i.e., see patients efficiently); and, most importantly, to use it to improve practice and care. I believe that most EMRs focus on replicating what is currently done in practice, particularly documentation and billing, and that their utility for advancing practice is rudimentary. Connectedness is critical to improving practice - with consultants, labs, pharmacies, other providers, and with patients/families. But avoiding being completely overwhelmed by the information implied by that connectedness and learning how to communicate efficiently and effectively using the new tools will be a huge challenge.*
>
> *Our greatest needs are time, technical support, ongoing help with implementation and using the tools to improve care, service, and outcomes."*

Utah supports the ONC's requirement, "to coordinate and align efforts to meet Medicaid and public health requirements for HIE and evolving meaningful use criteria." Sharon Donnelly, *HealthInsight* Vice President for Development expressed the Value Exchange members' wishes for coordination of various related efforts in Utah:

> *"All members would benefit by seeing clear connections between various efforts going on across the state to not only implement HIT but use it to support improved care and health care reform efforts. This would include collaborations to calculate quality data from clinical information and provide actionable reports that can be used by the public, health plans, and the providers."*

We have discussed previously the alignment of various technical efforts among the state HIE program, Regional Extension Center, and Medicaid HIT Incentive Program. Under this Cooperative Agreement, we need to further develop a comprehensive strategy to promote meaningful uses of the implemented cHIE among all participating providers.

The following Utah member organizations/associations have committed to work with the Utah HIT Governance Consortium to complete the strategic plan for meaningful use, develop an operational plan, and support the implementation. These organizations are:

- Association for Utah Community Health (AUCH)
- Utah Association for Home Health Care (UAHC)/Utah Hospice and Palliative Care Organization (UHPCO)

- Utah Association of Local Health Officers (Not confirmed yet)
- Utah Chartered Value Exchange at HealthInsight (Also representing AARP and Utah Health Insurance Association)
- Utah Health Care Association (UHCA)
- Utah Hospitals and Health Systems Association (UHA)
- Utah Medical Association (UMA)
- Utah Pharmacists Association (UPhA)

Integrate Public Health Information Exchange in cHIE

Developing state- and nationwide health information exchange (HIE) is one of the health priorities defined in the American Recovery and Reinvestment Act (ARRA). States are expected to take leadership in statewide planning and implementation. To balance limited resources among mandated responsibilities and emerging HIE accountability, UDOH maintains that state public health practitioners must integrate HIE into public health's mission-driven practice in five priority areas: 1) connecting real-time disease surveillance and notifiable case reporting through HIE to better **protect citizens**; 2) sharing public health-managed clinical information through HIE for **preventive services**, 3) conduct health education for targeted populations via HIE to **promote healthy lifestyles**; 4) leverage public health informatics with Medicaid information system to **provide quality health care**; and 5) serve as a regulator for standardized HIT to **participate in health care reform**.[18]

UHIN has been a partner with the Utah public health information exchange through the immunization registry and electronic death registration system. This CA will strengthen and expand the existing public-private collaboration in HIE and enable small providers to meet mandated public health reporting requirement through a cHIE connection.

Domain 5: Legal and Policies

Privacy and Security

Participation in the Health Information Privacy and Security Collaborative (HISPC) provided Utah an opportunity to address variation in interpretations of privacy and security regulation that constrain intrastate and interstate exchange. Utah adheres to a common set of privacy and security principles essential for establishing workable information exchange standards and practices within and among states. This statewide privacy and security approach supports the use of health information technology such that the potential for reduced health care cost and improved health care outcomes are realized while protecting patient identifiable health information. This approach is guided by core privacy and security principles that operate in a consistent and coordinated manner to support and enable a successful state-wide health information exchange (HIE).

The statewide architecture for HIE encompasses principles consistent with the ONC's Nationwide Privacy and Security Framework. A summary of Utah's principles and alignment with the Privacy and

[18] Nangle, B., Xu, W. & Sundwall, D.N. Forthcoming. "Mission-Driven Priorities: Public Health in Health Information Exchange." Accepted by the 2009 AMIA Annual Symposium Proceedings.

Security Framework is included in Attachment C. Utah retains an established environment of trust among its health care stakeholder community. The privacy and security principles facilitate and promote public trust in Utah's statewide HIE activities by defining the common values used to guide HIE activity across the state. The values guide the development of consensus-based community business rules for exchange of health information and enable Utah to maintain and grow the public trust in implementing electronic HIE.

Utah's statewide strategic plan encompasses the following core principles[19]:

INDIVIDUAL ACCESS AND CORRECTION

Individual Access. Individual access to their patient health information is required by Utah Annotated Code §78B-5-618. Pursuant to 45 C.F.R., Parts 160 and 164, Standards for Privacy of Individually Identifiable Health Information (HIPAA), a patient or a patient's personal representative may inspect or receive a copy of the patient's records from a health care provider when the health care provider is governed by the provisions of 45 C.F.R., Parts 160 and 164. The Utah statewide HIE provide for connections to personal health records applications. An individual may access their combined medical information accessible through the cHIE by request at their health care provider's office. Direct access by an individual consumer to cHIE is not available. Policies for consumer direct access are vetted through the UHIN Community. Recommendations for consumer access procedures are discussed in open meetings and recommendations on policy and procedures are made to the UHIN Board of Directors for consideration.

Correction to existing medical records information. Individuals are afforded the right to request an amendment to their existing medical information as required by HIPAA. Because cHIE is not the source system providing the information, individuals are required to contact the source directly to request an amendment be made to their record. The request to amend is made at the record source. Responsibility for amending, correcting or otherwise determination is the responsibility of the source. cHIE does not have an operational policy to process amendments to patient health information.

OPENESS AND TRANSPARENCY

cHIE Notice of Privacy Practices and Policies are publically posted on the cHIE web site (http://www.uhin.org/media/pnp/PnPv1_0Final%2020120120.pdf) . cHIE policies governing information collection, use or disclosure and consumer consent management are accessible at the point of care in paper form as well as electronically on the web. Member organizations participating in the cHIE must sign the same agreement to comply with UHIN policy and procedures as well as federal and state laws and rules governing protected health information.

Governance of statewide HIE activities is open and transparent; The Utah Health IT Governance Consortium, a public-private consensus-building body led by the Utah Department of Health, comprises 22 major public and private health organizations to provide vision and oversight of statewide HIE activities funded under ARRA. Consortium meetings are open to the general public.

UHIN is a private not for profit organization. Organizational committee meetings regarding business operations are closed to the public to protect operational procedures and proprietary business knowledge to remain competitive and sustainable. Committee meetings open to the public include all meetings concerned with a) setting standards that are aimed at promulgating State Administrative Rule,

[19] http://healthit.hhs.gov/portal/server.pt/community/healthit_hhs_gov_privacy_security_framework/1173

b) collecting public comment on federal proposed rules (NPRMs), c) consumer consent and access to information, and d) Clinician meetings.

INDIVIDUAL CHOICE

Individuals/patients have a choice to participate in electronic HIE. Ensuring patient participation rights and consumer choice protections are afforded in the current architecture and policy for the cHIE. Consumers are provided clear notice of the HIE and the ability to make a consent decision regarding their participation in the statewide exchange. The patient/consumer makes an informed decision about their participation in the cHIE at the point of care enabling the patient to determine who can access and exchange their information via the statewide HIE. Though House Bill 46 enables automatic enrollment, provisions are included to ensure the consumer receive advance notice and have the right to make a consent decision regarding participation. Consumer consent decisions may be changed at any time.

In general, consumers must make an affirmative choice to participate in the cHIE. The consumer must sign the consent form and actively choose their consent preference. The consumer consent decision is made at the point of care. Efforts are underway to limit the burden to the provider for collecting consent. E-consent processes are in various stages of deployment and a consent hotline is available to address any consumer or provider questions regarding the consent management process and consumer choice. Consumer consent decisions may be changed at any time. Current policy requires consumers to review and update their consent decision every five years.

The current consent options provide the consumer with the ability to limit which providers are able to access their information. However, no technical solution is in place to provide the more granular options of limited specific data from access. Type and amount of patient data that may be accessible given consumer consent is determined by each participating data source contributing to the cHIE.

COLLECTION USE AND DISCLOSURE LIMITATIONS

The UHIN Board of Directors has established limitations on the collection, use and disclosure of patient health data via the cHIE. The Board approved the use of the cHIE for treatment including, treatment planning, care coordination, point to point results delivery, e-prescribing, and referral. Other approved uses are quality improvement, HEDIS reporting, meaningful use, case/disease management and public health reporting of reportable conditions. Safeguards are in place to ensure patient health data use and disclosure is in accordance cHIE policy, state and federal privacy regulations include the provider attestation, key stroke audit capabilities and access logging. Access by a health care provider to patient health data requires the provider make an affirmative attestation to having a treatment relationship with the subject whose data the provider is accessing. The Utah Medical Practice Act requires health care providers use their professional judgment in determining the minimum data necessary for treatment of the patient.

DATA QUALITY AND INTEGRITY

cHIE data source participants and users, have an obligation and responsibility according the member agreement to ensure data quality and integrity. This is vital to the developing statewide HIE, as patient data is supplied from numerous sources and users. Clinicians, people responsible for recording patient information, and other members of the statewide HIE understand that patient data stored in the HIE is the same data that would be present in a paper chart. The same standards of accuracy apply. Patient data is supplied from numerous sources and there is general agreement among users, not to solely rely on data accessed through the statewide HIE for the provision of patient care. This is no different than

current practice; users (clinicians) must apply their professional judgment in evaluating the accuracy of medical data.

Organizations engaged in HIE activities are accountable for complying with federal and state regulations for safeguarding and securing patient health information. Compliance is clearly stipulated as part of the Electronic Commerce Agreement each member must sign to participate as a member of UHIN/statewide HIE.

A formal position on correction of patient health information will be addressed in the early stage of implementing the State HIE CA Program. The individual consumer has the responsibility to know/understand what information is contained in their record. Health care entities holding the record and the consumer share responsibility for maintaining accurate health information. Processes are in place to correct errors in patient information that result from an linking error. However, in situations where the patient may disagree with information in the data source record, the patient must address the issue directly with the data source. Utah values the individual's role in ensuring the accuracy and integrity of patient health information and will address this issue as it moves forward with patient access to virtual health records.

The statewide long-term vision for Utah adopted by the HIT Governance Consortium includes consumer access to the cHIE via a personal health record to provide all citizens with practical, efficient and timely means to access and review their health information. Providing individuals access to their health information with the expectation of responsibility to maintain accurate health information necessitates procedures for that process.

As the virtual health record moves forward UDOH, UHIN and their stakeholder community will draft, publically vet, and pilot a policy and guidance for consumers on the reasonable steps to ensure that information is accurate, complete, and up-to-date.

SAFEGUARDS

Administrative, physical and technical safeguards are in place for the operation and management of the cHIE. The cHIE Privacy and Security Committee developed business policy and procedure to comply with federal and state requirements for ensuring the protection of health information. Security management processes are in place to prevent, detect, contain and correct security violations. UHIN operates a clinical and administrative business operations accredited by the Electronic Healthcare Network Accreditation Commission (http://ehnac.org). As part of the accreditation process all business operational policies and procedures[20] are reviewed for compliance with federal privacy requirements.

UHIN and its strategic partners work diligently to mitigate physical access to systems. Both UHINet II and cHIE are housed in Tier IV data centers. Security measures are in place to ensure the physical infrastructure is secure and integrity is maintained and monitored around the clock. Specifics on the security of the cHIE are contained in the Operational Plan.

Technologies used to prevent network and system attacks include firewalls, antivirus software, anti mal-ware software, intrusion detection systems, SSL certificates and Operating system hardening solutions

[20] http://ehnac.org/files/Criteria/Criteria_2012/HIEAP_Criteria_V1.1_MODULES.pdf

and techniques. How these solutions are implemented to protect UHINet II and cHIE are discussed in greater detail in the Operational Plan.

UHIN administrative and cHIE are built from the ground up with security and privacy as the primary goal. Mechanism used by the cHIE to protect health data include encryption of data at rest and in transit, separation of stored information, logging and auditing, and authentication and access control. Application Infrastructure details are included in the Operational Plan. In addition to technical safeguards, UHIN, its strategic partners, and its community members adhere to policies and procedures designed to safeguard sensitive information in any form.

Authorized Access to PHI

UHIN believes that protecting the privacy of PHI is not only a prudent legal requirement but also a sound business principle. UHIN and its strategic partners take every precaution to ensure that protected health information is handled with the utmost care.

UHIN employs reasonable and appropriate privacy and security safeguards to prevent use or disclosure of PHI. No one is granted access to confidential information unless he/she has both a right to access such information and legitimate need to know its content. UHIN provides annual security and privacy training for all employees. UHIN complies with all federal and state requirements for the privacy and security of protected health information as applicable to UHIN's business and with the requirements of its Electronic Commerce Agreement.

Protected health information (PHI) is not permanently maintained at UHIN's administrative office. UHIN may temporarily store transaction data for subscribers; may copy, read, and reformat coded non-identifiable information as approved by the UHIN Board; and may maintain minimal identifiable information as approved by the Board. UHIN's procedures include regular review of records such as audit and access reports and security incident tracking reports. Any access to PHI is logged.

Procedures have been established to notify the appropriate affected parties of the improper use or disclosure of PHI, including any reportable security incident involving electronic PHI or the Network. Upon notification of a reportable security incident, UHIN will promptly report the incident to the affected parties. UHIN will also indemnify and defend its members for all claims caused by UHIN's privacy or security violation (see Electronic Commerce Agreement for more details).

Disposition of Equipment/Media

Equipment and media used in the operation of the cHIE and UHINet II are occasionally retired for various reasons (end-of-life, upgrade, etc.). When equipment or media is retired or reused the items containing sensitive data (hard drives, tape drives, etc.) are sanitized using a process in accordance with U.S. Department of Defense 5220.22M. This process ensures that sensitive data is not inadvertently mingled or released.

Password Strength Requirements

According to industry best practices UHIN requires all passwords for UHIN employees, members, and users of the system to use a strong password. This consists of at least 8 characters, with at least one uppercase alpha character, one lowercase alpha character, one number, and one special character (e.g. @, #, $, !).

Passwords are set to expire every 90 days. Users are notified ten days prior to the expiration date. UHINet II Users are required to contact UHIN to reset expired passwords. Clinical users have password security questions in which allow users to recover and reset their passwords. Users may also contact UHIN to reset passwords. The policies set forth for password security can be found in UHIN Specification #38.

Annual Privacy and Security Audits
UHIN uses a trusted third party accreditation agency known as the Electronic Healthcare Network Accreditation Commission (EHNAC). EHNAC is a 501(c)(6) not-for-profit accrediting agency.

EHNAC provides accreditation to third-party entities such as electronic health networks and value added networks (VANs) that electronically exchange healthcare data. EHNAC Network accreditation indicates that a Value Added Network (VAN) or electronic health network has met or exceeded EHNAC's performance criteria for EDI - a combination of speed, accuracy, security, and data integrity. EHNAC accreditation is based on independent peer evaluation of an entity's ability to perform at levels based on industry-established criteria. Since 2004 UHIN has consecutively received the EHNAC HNAP Accreditation bi-annually. Annual privacy and security training is provided to all UHIN staff. Interim training for specific issues is done as healthcare needs change and evolve.

Disaster Recovery
It is UHIN's policy that UHIN and its strategic partners shall have a complete business continuity plan and disaster recovery plan in place for all services. The plans are tested annually and are applicable to both the UHINet II system as well as the cHIE. Disaster recovery plans are developed in compliance with the Disaster Recovery Institute International guidelines.

User authentication and validation
Current community consensus for user authentication and validation is to use the resources in place with hospital credentialing. Those clinicians with hospital privileges will be able to use the authentication and validation already done by the hospital credentialing entity. In the case of a clinician without hospital privileges, the UHIN community would look to payer validation information. If hospital credentialing or payer data information is available, an in-person authentication is required.

Trust Agreements

UHIN, as the statewide HIE, will use an electronic commerce agreement (ECA) that serves as the HIPAA Business Associate Agreement for all members. All members sign identical ECA's alleviating the need to sign separate agreements for everyone on the network with whom information is exchanged. The ECA is created by the UHIN Legal Committee, comprised of Utah's Assistant Attorney General and a team of legal experts who represent UHIN's diverse membership. The ECA is vetted by many member organizations and deemed to meet their legal requirements.

Recently the UHIN legal committee revised the ECA to include provisions for use of the clinical information exchange which is signed by all participating members and delineates roles and responsibilities for ensuring the confidentiality, integrity, and availability and to prevent unauthorized or inappropriate access, use or disclosure.

ACCOUNTABILITY

Accountability for statewide cHIE under the State HIE Program falls to UDOH. UDOH will utilize contractual mechanisms, to ensure that cHIE services are compliant with federal and state law, mechanisms are in place for corrective measures, if necessary, and reasonable mitigation measures exist for privacy and security breaches that pose substantial risk of harm to such individuals. UDOH will implement ongoing monitoring of the cHIE and provide transparency of the initiative with public reporting of cHIE progress.

UHIN Privacy and Security Committee has developed incident management procedures and policy[21] to monitor, assess, review and respond to any breach of security.

State Laws

Deployment of Utah's statewide plan for HIE and development of the statewide community health information exchange is an iterative process. Review of Utah state laws and health information exchange activities during the Health Information Privacy and Security Collaborative indicates Utah's plan for intrastate HIE is compatible with Utah law. In December of 2008, the Office of Civil Rights of the Department of Health and Human Services, issued a series of related papers on the HIPAA Privacy Rule and Health Information Technology (the "Guidance")[22] that deals with a model of HIE that is, in operational terms treatment purpose focused and with the HIE as a conduit for the exchange of information among participants, not as a central repository of participants information. The Guidance favors allowing individuals the opportunity to opt-in or to opt-out of having their information flow through the HIE. The HIE will respond to concerns about patient control over health information in two ways: by executing transactions to pull health information on an encounter-by-encounter basis and by providing the patient clear notice of the HIE and a right to opt-out of participation in the exchange.

Interstate exchange will require additional planning and review. The findings from the multi-state HISPC efforts informed Utah regarding the constraints and possible cross organization agreements that can serve as the foundation necessary to resolve discrepant policies and/or propagate consistent policies using agreed upon standards. Utah is developing the capacity to connect to the National Health Information Network and will leverage agreements like the data use and reciprocal support agreement (DURSA) to begin to negotiate disparate requirements in an interstate exchange environment.

While no current plan exists to modify or write new legislation specific to HIE activities, future modifications are not precluded. Future legal analysis, modification to existing state law/administrative rule and/or new legislation will be considered as necessary and advised by legal counsel as issues of concern arise and/or requirements dictate.

State Audit Policies and Procedures

The Utah Health IT Governance Consortium, through consensus, recognizes UHIN as an industry leader in health information exchange designating the organization "the statewide Health Information Exchange (HIE)," for Utah. The Utah Department of Health takes part in an annual independent single

[21] Incident Management Policy I.VII. http://www.uhin.org/media/pnp/PnPv1_0Final%2020120120.pdf

[22] The HIPAA Privacy Rule and Health Information Technology (HIT), posted on the website of the Office of Civil Rights on December 15, 2008.

audit performed by the Office of the Utah State Auditor. The Single Audit Report describes procedures used by State auditors to ensure compliance with GAAP accounting standards and OMB circulars. A copy of the most recent audit report is available online at the following URL: http://www.sao.state.ut.us/reports/08-43.pdf.

UHIN, its strategic partners, and its community members adhere to policies and procedures designed to safeguard sensitive information in any form. As the designated statewide HIE, UHIN holds a trusted third party EHNAC accreditation and will continue to comply with all federal and state requirements for the privacy and security of protected health information as applicable to UHIN's business and with the requirements of its Electronic Commerce Agreement. A copy of the most recent EHNAC required criteria is available online at the following URL: http://www.ehnac.org/ehnac/AccreditationProcess/imageGallery.ashx?id=6cbd14a6-50af-de11-b3ac-001ec947db8d

Oversight of Information Exchange and Enforcement

Statewide oversight of health information planning and activities under the State HIE Program is provided by the Utah HIT Governance Consortium and the Utah State Department of Health. The Consortium meets quarterly and receives operational status briefs from UHIN, a sitting member of the HIT Consortium. Currently the Consortium is advisory only. As a HIPAA state neither the UDOH nor the advising Consortium, have the broad authority to enforce sanctions or penalties in cases where policy and or procedures have been violated for statewide HIE.

UDOH will use contractual mechanism to ensure UHIN and its business associates comply with applicable state and federal laws. In addition, UHIN's governance structure provides oversight of its members and has in place a mature process for ensuring members are in compliance with applicable procedures and policies for exchanging health information. In the event that policy or procedures are violated and result in the violation of state/federal law, procedures are in place for notification of the appropriate officials. The enforcement of sanctions and penalties would depend on the circumstances.

Utah recognizes that a gap exists in the statewide plan for sustainable long-term oversight and will work with its stakeholders in the Utah health care community to evaluate the current governance and discuss, through public discourse, a long-term solution to address this gap. Utah will rely on contractual mechanism to ensure compliance with state and federal laws while discussions and reviews regarding appropriate oversight and enforcement for statewide cHIE reach an agreeable solution. The advancing Utah HIE efforts rely on consensus and collaboration among diverse interests and stakeholders and a belief that the cHIE will offer improved quality of care and economic value to the participants. Changes in state policy and enforcement can have resounding and sustained long-term unintended consequences. It is not clear that Utah would benefit from additional statutory oversight above and beyond that offered in the federal privacy law which currently governs health information exchange in Utah.

Utah is pragmatic and uses an incremental strategy to build and expand HIE that is based upon a strong business case. Utah is committed to adhering to federal interoperability standards. Utah will address gaps in oversight and develop an enforcement mechanism to support the long-term viability of statewide HIE that works within the cultural environment of the State of Utah. In the long term, this requires consideration in balancing critical stakeholder relationships as Utah's early statewide HIE planning and implementation continue to advance to define the value proposition and long range sustainability model while maintaining trust.

ONGOING STRATEGIC PLANNING

Dynamic Approach

The Consortium adopts a dynamic approach to the statewide strategic planning on HIT and HIE implementation. Key elements of this method include:

- Establish shared long-term vision, principles, and roadmap to guide planning;
- Involve all stakeholders from statewide communities;
- Keep it simple and flexible;
- Plan short-term incremental development based on available resources; and
- Adopt consensus-based and sustainable plans.

Oversight and Management

The HIT Governance Consortium is the oversight body to approve and adopt the Utah HIE Strategic Plan. UDOH will be the convener and facilitator to develop, update and revise the Plan as directed by the Consortium. UDOH will serve as the accountable agency responsible for reporting to the Office of the National Coordinator for the State HIE Program.

Planning Process and Procedure

The strategic plan will be published on the Consortium's web site. All interested parties will be invited to provide feedback and participate in its revisions. We plan to update the plan annually. The planning process will be open and transparent to the public.

Work Plan in 2013

We expect to receive feedback on this 2012 plan from the U.S. Office of National Coordinator for HIT in early 2012. The Consortium will immediately organize revisions among all stakeholders accordingly. The Consortium will formally adopt the updated 2012 Utah HIE Strategic Plan when all stakeholders are satisfied with the revisions.

CONCLUSION

"Our nation is at a crossroads in reforming health care systems. To ensure that health care reform leads to better health, as well as better quality care, all stakeholders have to actively participate in efforts to reform the health care system. While waiting for a nationwide reform, states have been active in implementing their own incremental reform initiatives, mostly focused on increased coverage of the uninsured, transparency of care quality and cost, and better use of information technology to transform health care practice.

Policymakers are challenged to be accountable for linking HIE investment with health care reform and better health outcome. Whether the comparison is to the health care industries of other rich countries, or to other American industries, health care in this country is way behind in use of information

technology. A lot of money has been spent in recent years to jump start EHR/HIE in the United States. The HITECH allocates an additional $2 billion into the investment. As we enter a period of greater competition for public resources, it is important to focus on what works and what is sustainable.

Limited by the space, we kept the discussion at the public health enterprise level. Public health practitioners often have to synthesize overwhelming and competing demands with limited resources into timely actions. This paper illustrates our reasoning process of strategic prioritization. We intend to stimulate more discussion among federal and state agencies, public and private partners of HIE to share perspectives and align strategies."[23]

[23] Nangle, B., Xu, W. & Sundwall, D.N. Forthcoming. "Mission-Driven Priorities: Public Health in Health Information Exchange." Accepted by the 2009 AMIA Annual Symposium Proceedings.

ATTACHMENTS

A. State Plan Updates

Domain/Sections	Short Description of Approved Portion of SOP that Grantee is Proposing to Change (include page numbers)	Proposed Changes	Reason for the Proposed Changes	Budget Implications of Proposed Changes
Include in First and Subsequent SOP Updates				
Overall HIE Strategy including Phasing	Consent Model change Additional technology for exchange	UHIN Board votes to change consent to require consumer to opt-in Implementation of Direct as an exchange service option	Board vote	No change requested
Governance	Change in leadership	State HIT Coordinator is now Robert T. Rolfs Addition of performance measures	Requested by PIN #002	
Technology	Add the use of Direct for secure point to point message	UHIN implemented Direct Q1 2012	Encouraged to do so by ONC and was available from the contracted provider	No change requested
Financial				
Business Operations		Member Services listed p/11 Operational Plan	Requested by ONC	
Legal/Policy	New legislation to support HIE	Utah legislature authorizes the following: HB25 (patient identity validation), HB 46 (cHIE enrollment for Medicaid, Chip and PEHP covered state employees, HB	Changes implemented by State Legislature	No Change requested

		144 (Health System Reform Task Force), HB 52 (allows the sharing of demographic and insurance coverage with state designated SPD), HB 294 (all payer database)		
Strategies for e-Prescribing				
Strategies for Structured Lab Results Exchange				
Strategies for Care Summary Exchange				
The Core Documents Are Required As Part Of First SOP Update. Changes Should be Indicated in Subsequent SOP Update				
Sustainability				
Privacy and Security Framework		Addition of required templates Attachment C		
Evaluation Plan		Addition of Performance Measure template and Plan		

B. Utah Statewide Clinical Health Information Exchange Program Evaluation Plan

A. Overall Aim, Approach and Method

The overall aim of the evaluation is to provide the grant funder and policy-makers an assessment of the project accomplishments by the end of the ONC HIE CA grant for their future policy and funding decisions.

This evaluation will focus on the project output and perceived short term impact using a logic model. The overall performance evaluation of the Utah statewide clinical Health Information Exchange (cHIE) will be measured and reported by the Utah Health Information Network's (UHIN) dashboard.

This evaluation will focus on the ONC required program priority areas – Electronic structured lab results, e-prescribing, and electronic patient summaries. Study populations for each area are defined by the targeted cHIE participating populations in each area. UHIN will provide the quantitative data to Utah Department of Health (UDOH) for the evaluation. The UDOH will conduct descriptive analysis for the output measures. UDOH will interview 6-8 key informants from each priority area to collect information on perceived short term impact of the cHIE in the respective area in 2013. The interview instruments will be designed in early 2013.

Lack of adequate resources to timely achieve a higher goal is a general barrier for the cHIE as a whole and three priority areas. Our coping strategies include: 1) Utah Medicaid has participated in cHIE with the CMS match funds, 2) we have set up a realistic operational plan and implement the plan without scope creep, and 3) we have coordinated with and leveraged other resources such as the Regional Extension Center, Beacon Community, and other federal grants.

B. Laboratories participating in delivering electronic structured lab results

B.1 Long-term Vision and the Grant Goal

Long-term Vision: The Utah cHIE will deliver electronic structured lab results for all participating hospital clinical laboratories and independent clinical laboratories.

Grant Goal: The Utah cHIE will deliver electronic structured lab results for all Utah hospitals (n=55) and all large national independent clinical laboratories in Utah (n=4). If this goal is met, approximately 80% or more structured lab results would be delivered in the state of Utah.

B.2 Strategies

Utah cHIE strategies on delivering electronic structured lab results are:

B.2.1 To connect the cHIE with 55 hospital clinical laboratories and four large independent clinical laboratories

Status as December 2011:

- 36 (65%) hospitals were connected to cHIE.
- 2 large labs were connected to cHIE

B.2.2 To deliver electronic structured lab results to providers

Status as December 2011:

- 31 (56%) hospitals were under test or quality assurance of lab results deliveries.

- 2 large lab interfaces with cHIE were under test or quality assurance of lab results deliveries.

- A total of 315,524 laboratory messages were transmitted through cHIE in March 2012.

UHIN and UDOH have jointly identified the study population. UHIN provides the data to UDOH.

B.3 Identify barriers and solutions

B.3.1 Lack of resources at cHIE and targeted laboratories is one of the major barriers.

B.3.2 LOINC Coding. Most of laboratories use local codes that are not mapped to LONIC codes. UHIN has hired an in-house LONIC mapper to first map the common commercial tests into the LONIC codes for participating laboratories.

B.4 HIE performance and impact in this area (Lab)

B.4.1 Aims of the evaluation

B.4.1.1 Measure cHIE's performance of delivering electronic laboratory results

Monthly number of electronic lab results received from hospitals, labs, and clinics

Monthly number of electronic lab results delivered from cHIE

B.4.1.2 Understand the perceived values and problems of cHIE delivered electronic laboratory results from key users

B.4.2. Data collection method

Performance measures (B4.1.1) were designed jointly by the UDOH and UHIN members. The data will be derived from the cHIE log/audit files. Technical capacity to pull those measures out of the cHIE system log/audit files may be developed from July 1 to September 30, 2012. Testing the capacity to produce the measures may begin on October 1, 2012 through December 31, 2012. We hope we can start "analytically" monitoring the lab result deliveries in January 2013.

We will conduct key informant interviews with users' representatives to collect their perceived values and problems in this area (B.4.1.2 questions) in 2013.

B.4.3. Analytic method

Descriptive analysis will be used for the performance measures by participating organizations, transaction period, data quality and other variables.

Qualitative analysis will be used for the key informant interviews.

B.4 Lessons Learned

The lessons learned from this area will be collected through the key informant interviews in 2013. We will recruit 6-8 representatives/key informants from 6-8 top participating organizations in consultation with the cHIE laboratory workgroup.

C. E-prescribing

C.1 Aim and Strategies

The UDOH's role in the e-prescribing area is monitoring and supporting as resources permit. Our long-term goal for the state of Utah is to have more than 80% prescribers and pharmacies doing e-prescribing for permissible prescriptions. Current Utah strategies on e-prescribing are:

C.1.1 To provide technical assistance to high-volume prescribers for adopting and using e-prescribing through the Surescripts network

Status as of Quarter 4 of 2011 based on MedCo data

- 2,562 (30%) out of 8,555 prescribers in Utah were connected for e-prescribing.
- 18.7% of all prescriptions were e-prescriptions.

MedCo has provided quarterly updates to HealthInsight that are reported to UDOH. Data lags by 2 quarters.

C.1.2 To monitor non-e-prescribing pharmacies

Status (March 2012 Scurescripts data):

- 43 retail pharmacies in Utah were not connected to the Suresripts network.

ONC has provided monthly updates to UDOH for this measure.

C.2 Identify barriers and solutions

C.2.1 HealthInsight and UHIN only can provide limited technical assistance within the available resources to those high-volume prescribers who did not adopt e-prescribing or low utilizers.

C.2.2 Some health systems' pharmacies have not rolled out e-prescribing outside of their network yet, which is expected to occur no later than July 1, 2013.

C.3 Statewide performance and impact in this area (e-Prescribing)

C.3.1 Aims of the evaluation

C.3.1.1 Assess the needs and barriers of prescribers who have not adopted e-prescribing by July 1, 2013

C.3.1.2 Assess the needs and barriers of the pharmacies that have not adopted e-prescribing by July 1, 2013

C.3.2 Data collection method

C.3.2.1 HealthInsight and UHIN hold the lists of high-volume but non-e-prescribing prescribers in Utah. They provide on-site technical assistance (TA) to those prescribers. For those prescribers who do not accept the TA, HealthInsight and UHIN will record the reasons and report the de-identified information to the UDOH by September 1, 2013.

C.3.2.2 UDOH will work with the Utah Board of Pharmacy and Utah Pharmacists Association to decide how to contact the pharmacies that are not on Surescripts Network in the ONC Surescript July 2012 Pharmacy Data File.

C.3.3 Analytic method

Descriptive and qualitative analysis will be performed.

C.4 Lessons Learned

The lessons learned from this area will be collected and categorized through the Utah e-Prescribing Task Force and the e-Health Community Meetings.

D. Providers exchanging patient summary of care records

D.1 Aims and Strategies

The Aims of the cHIE in this area are to enroll 700,000 consented patients by the end of grant period and to increase the number of patients having clinical information (usable identities) in the cHIE.

Utah cHIE strategies for providers exchange patient summary of care records are:

D.1.1 To collect patient consents through providers, payers, and employers

Status as of March 2012:

- 51,200 received consent records with 4,059 (7.9%) not-participating in cHIE.

D.1.2 To connect the health systems and clinic-EHRs to cHIE

Status:

-36 (65%) hospitals were connected to cHIE, as of December 2011

-43 EHRs working with the cHIE and 20 connected, as of March 2012

D.1.3 To populate clinical information in the cHIE

Status:

- A total of 408,241 clinical messages were transmitted in March 2012

D.1.4 To support authorized users to view VHRs

D.2 Identify barriers and solutions

D.2.1 Patient consent is the major challenge to timely implement cHIE and provide useful information to providers. See the state plans for "solutions."

D.2.2 Connection to EMRs is the second challenges to make cHIE useful to EHR users. See the state plans for "solutions."

D.3 HIE performance and impact in this area (Patient Summary)

D.3.1 Aims of the evaluation

D.3.1.1 Measure the utilization of Virtual Health Records from the cHIE administrative log/audit files

- Monthly number of patients having clinical information (usable identities)
- Monthly number of VHR reviewed monthly by users (VHR access by clinic/users/patients, type of data accessed)
- Monthly number of VA patient summaries (inbound-outbound CCD) being reviewed

D.3.1.2 Assess the values and problems of exchanging patient summaries through key informant interviews

D.3.2. Data collection method

The above utilization measures (D.3.1.1) were designed jointly by the UDOH and UHIN members. Technical capacity to pull those measures out of the cHIE system log/audit files may be developed from July 1 to September 30, 2012. Testing the capacity to produce the measures may begin on October 1, 2012 through December 31, 2012. We hope we can start "analytically" monitoring uses in January 2013.

We will conduct key informant interviews with users' representatives to collect their perceived values and problems in this area (D.3.1.2) in 2013.

D.3.3. Analytic method

Descriptive analysis will be used for the utilization measures by participating organizations/users, transaction period, data quality and other variables.

Qualitative analysis will be used for the key informant interviews.

D.4 Lessons Learned

The lessons learned from this area will be collected through the key informant interviews in 2013.

C. Privacy and Security Framework Alignment

HIE Architectural Model: Data Aggregation (HIE entities that store, assemble or aggregate individually identifiable health information, whether centrally or in a federated model)

Domain	**Description of approach and where domain is addressed in policies and practices**	**Description of how stakeholders and the public are made aware of the approach, policies, and practices**	**Description of gap area and process and timeline for addressing** *(if needed, use additional documents to describe and insert reference here)*
Required to address			
Individual Access	Individual access to medical record information is provided in State Medical Practice Act and HIPAA. No direct individual access provided to cHIE. Consumers may access a combined record contained in cHIE by making a request to their treating care provider	Rulemaking process Open meetings for cHIE cHIE Privacy and Security Policy cHIE Consumer education materials Provider Notice of Privacy Practice	
Correction	HIPAA provides for amendments to medical information held by a provider Requests for amendment must be made to the data source Corrections to inaccurate linked information by the cHIE are the responsibility of the cHIE	Notice of Privacy Practice Open meetings for cHIE cHIE materials and consent printed in alternate languages	Operational policy and procedures for processing consumer identified inaccuracies in linked medical information
Openness and Transparency	UHIN cHIE meetings not operational in nature are open to public Governance meetings are open and publicly posted meetings	Agendas and meeting minutes are posted on line and accessible	
Individual Choice	Consumers must make an affirmative consent decision to participate. Consent is a separate, stand alone, form in plain language. A hotline is in operation to aid consumers or providers in the consent process. HB 46 will automatically enroll segments of the	Consumer outreach at fairs and community health events Point of care consent collection Public relations campaign to educate consumers about the cHIE and the need to make a consent decision regarding participation	

	Utah population but will also allow the individual to choose to not participate. Consumer consent can be changed or revoked at any time.		
Collection, Use and Disclosure Limitation	Use of health information limited by HIPAA cHIE use is UHIN Board approved. cHIE established limitations set by trust agreements signed by all participating members	Notice of Privacy Practices at point of care Approved cHIE uses posted on web site	Policy to inform participating consumer on changes to Board-approved uses.
Data Quality and Integrity	Required processes and controls established in the trust agreements Key stroke tracing of use	Procedures developed in committee, approved by Board	Policy and procedures for flagging updates and amendments in patient health record
Safeguards	Data contained in the cHIE is encrypted at rest and in transit Users are authenticated and only authorized members can access the cHIE. Providers may only access patient health information for participating patients with whom they have a treatment relationship. Requires provider to attest to the relationship.	Developed in committee and approved by the UHIN Board.	
Accountability	State monitoring Independent audit of cHIE Violations stipulated in trust agreements	Public meetings for monitoring cHIE Electronic Commerce Agreement	

HIE Architectural Model: Point-to-Point Directed Exchange

Domain	**Description of approach and where domain is addressed in policies and practices**	**Description of how stakeholders and the public are made aware of the approach, policies, and practices**	**Description of gap area and process and timeline for addressing** *(if needed, use additional documents to describe and insert reference here)*
Required to			

address			
Openness and Transparency	UHIN cHIE meetings not operational in nature are open to public Governance meetings are open and publicly posted meetings Providers are required to provide consumers with information about use and disclosure of patient information	Agendas and meeting minutes are posted on line and accessible	
Collection, Use and Disclosure Limitation	Use of heatlh information limited by HIPAA cHIE use is UHIN Board approved. cHIE established limitations set by trust agreements signed by all participating members	Notice of Privacy Practices at point of care Approved cHIE uses posted on web site	Policy to inform participating consumer on changes to Board-approved uses.
Safeguards	Data is encrypted in transit Users are authenticated and only authorized members can access the cHIE. Providers may only access patient health information for participating patients with whom they have a treatment relationship.	Developed in committee and approved by the UHIN Board.	
Accountability	State monitoring Independent audit of cHIE Violations stipulated in trust agreements	Public meetings for monitoring cHIE All members using cHIE services are required to sign the Electronic Commerce Agreement	