CONNECTICUT HEALTH INFORMATION TECHNOLOGY AND EXCHANGE STRATEGIC AND OPERATIONAL PLAN

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
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Executive Summary

The Connecticut Department of Public Health (DPH), as the federally-designated state Health Information Organization, presents the Connecticut Health Information Technology and Exchange Strategic and Operational Plan. Health information technology and exchange will play a central role in health care reform, and provides opportunities to reduce costs, increase quality and safety, and improve access to care.

Governor M. Jodi Rell and the Connecticut legislature have supported and directed the state health information exchange governance and planning process. The 2007 Connecticut General Assembly required DPH to develop the first statewide health information technology plan. In June 2009, DPH published the Connecticut State Health Information Technology Plan, setting the baseline agenda for health care information exchange and technology in the state. The 2009 legislature designated DPH as the lead health information exchange organization responsible for the State of Connecticut Health Information Technology and Exchange Development Project with advice and counsel from an appointed Advisory Committee.

By the end of 2009, DPH worked with the U. S. Department of Health and Human Services Office of the National Coordinator for Health Information Technology (ONC) to secure $7.29 million for a multi-year Cooperative Agreement to plan and build a coordinated, sustainable statewide health information exchange system for Connecticut.

The 2010 Connecticut General Assembly and Governor Rell created the Health Information Technology Exchange of Connecticut (HITE-CT) as a quasi-public agency managed by an appointed Board of Directors to coordinate and oversee Health Information Exchange (HIE) activities in the state. The vision for the HITE-CT is to facilitate secure health information exchange across the care continuum that supports patients' health needs at the point of treatment by providing immediate, direct and ongoing links between patients, their complete health records and their attending providers. The HITE-CT will initially prioritize support for all Connecticut's health care providers' meaningful use EHR requirements in close alignment with the State Medicaid Health IT Plan.

This Connecticut Health Information Technology and Exchange Strategic and Operational Plan (the Plan) will transform the Connecticut healthcare system by enabling substantial and measurable improvements in the quality of patient care, patient safety, and the overall efficiency and effectiveness of the healthcare system through health information technology and health information exchange. The Plan will promote regional and local health information exchange initiatives that align with the strategy, adopted at the State level, and in alignment with the national strategies and standards.

The Plan was prepared with significant contributions from the Health Information Technology and Exchange Advisory Committee (HITEAC) and its subcommittees (Finance, Technical Infrastructure, Business and Technical Operations, Legal/Policy, Governance and Special Populations), stakeholder interviews and surveys, and public comments. DPH contracted with Gartner, Inc. to facilitate the planning process and contribute their significant expertise in health information technology and exchange to the Plan.

The Plan provides an assessment of the capabilities and challenges for the development and implementation of a HIE for Connecticut. The Plan constitutes a road map for success, and includes a description of the current state of health information technology adoption within the State, such as Electronic Health Records (EHRs) and Health Information Exchange. Highlights of the assessment include:

- Many of Connecticut's acute care hospitals in Connecticut have the information technology systems to support HIE activities in the State.
- Provider HIT adoption is fractured in Connecticut. In 2008, nearly 80% of practices had electronic billing systems, while only 26% had an EHR.
- Small practice adoption of fully functional systems is not expected to reach 15% by 2015.
- DPH has identified 55 different databases.
- DSS has a portal for a single point of access to several different systems.
- In 2008, only 23% of CT physicians reported use of ePrescribing and 63% reported having Electronic Labs functionality in their practice.

Connecticut Strategic Plan

The Strategic portion of the Plan is aligned with the ONC's five domains for an HIE as summarized below.

Governance

- An interim governance structure has been well established under the leadership of DPH and a transition is planned to occur starting October 18, 2010, with the first meeting of the HITE-CT Board and concluding with hand-over of responsibilities from DPH to HITE-CT in the beginning of January 2011.
- The founding principles of HITE-CT include ensuring the clarity of decision making processes, inclusiveness, and provision of a governance role to those stakeholders that will support HITE-CT's mission and vision for the statewide HIE.
- The long-term governance of HITE-CT will be completed by a quasi-public agency that reflects the interests of all stakeholders and ensure the efficient and effective management of the statewide HIE.
- HITE-CT must be governed and operated in a clear and accountable manner to ensure stakeholder support and realize the promise of health information exchange is realized in Connecticut.

Finance

- There is a broad agreement among HITE-CT stakeholders that there needs to be a compelling value proposition for the HIE that sets realistic expectations and is articulated in both qualitative and quantitative benefits. This value proposition must demonstrate economic and health-outcome specific benefits, include performance indicators for reporting requirements and most importantly, enable tailoring of communication around the value of the HIE to each stakeholder group.
- Connecticut has developed a proposed multi-phased approach to ensure funding. The State plans to leverage the funding as the foundation and funds from fees levied on potential for-profit and non-profit HIE users or contributors to sustain the HIE in the short term.
- For long-term sustainability, Connecticut has developed a multi-phased methodology for funding with each phase aligned to the products and services being provided by the HIE,

the value being provided, the extent of participation and the overall level of maturity. This model will seek contributed income from various stakeholders in the form of universal assessment fees, subscription fees and transaction fees (based on services provided) to support HITE-CT's financial needs and growth of its HIE capabilities.

- HITE-CT must be able to meet all reporting requirements, especially those additional requirements for ARRA funding.

Technical Infrastructure

- HITE-CT will lead a broadly participative effort to define a comprehensive Enterprise Architecture.
- HITE-CT will acquire a Service Oriented Architecture (SOA) and standards-based, secure, feature-rich application that will enable providers to achieve meaningful use of EHRs.
- This solution requires a scalable technical platform and network capable of working with all providers, hospitals, and other care settings in the State.
- Connecticut has determined the initial prioritization of HITE-CT products and services as guidance for the Operational planning process in three Releases:
  - **Release 1 - Continuity of Care Documents/Records (CCD/CCRs) and Public Health Registries and Reporting**, to address components of meaningful use, provide benefits to all State residents and build a foundational infrastructure and data set.
  - **Release 2 – Quality/Gaps in Care Reporting**, to develop and implement metric-based Quality Reporting and the "care gaps" and provide access to and integration with data from multiple sources. This release also includes integrating data from auxiliary services (e.g. Lab results).
  - **Release 3 - Personal Health Records (PHRs)**, to allow all residents the ability to help manage their own care through the management of their health records.
- HITE-CT will work with DSS as the State Medicaid agency and eHealthConnecticut as the Regional Extension Center to encourage and support the adoption of EHR and HIE.

Business and Technical Operations

- Connecticut will create an incremental approach to deploying HITE-CT with an initial focus on ensuring the HITE-CT can support meaningful use requirements both by providing HIE services and by providing advice and guidance when these services are not yet available via the HIE. HITE-CT will work closely with stakeholders to develop a detailed deployment approach that will use the experiences and, where possible, assets of early adopters to ensure a successful deployment of HITE-CT across Connecticut.
- HITE-CT will create a detailed communications strategy designed to educate consumers and providers about how electronic records and electronic record exchange can improve the quality and efficiency of health care for Connecticut residents. This communication strategy will take advantage of multiple communications methods to spread the word about HITE-CT and its benefits.

- The technical deployment of HITE-CT will build upon deployment planning to ensure that the right technologies and services are developed, deployed and eventually maintained to high standards with appropriate levels of support and training.
  - HITE-CT will initiate an open procurement process for the acquisition of HITE-CT infrastructure as an immediate priority. Technical deployment will be achieved by a combination of HITE-CT and vendor resources.
  - HITE-CT will look to select a vendor with a proven HIE product who can ensure Connecticut health care providers are able to qualify for Medicare and Medicaid incentive funding within federal time-lines.

Legal/Policy

- The privacy and security of patient health information is of the highest possible concern in the development of HITE-CT as reflected in Connecticut's Public Act 10-117.
- The Legal and Policy Subcommittee has designed the framework for a consent model that is based on a presumptive inclusion of all PHI in the HIE with an individual having the right to prohibit disclosure of his/her PHI by the HIE to others.
- The policies, rules and agreements will define how the HITE-CT operates must be created within the boundaries of all applicable law and national standards. Of particular importance will be determining patient consent.
- The privacy and Security framework provided by both Health and Human Services (HHS) and the Health Insurance Portability and Accountability Act (HIPAA) provides a well-established body of law for HITE-CT. The HIPAA preemption analysis, which is currently being updated in light of HIE needs, will provide input for a future legal framework for HITE-CT.

Connecticut Operational Plan

The HITE-CT Strategic Plan, developed through a collaborative endeavor, will be implemented through the Operational Plan that outlines a corresponding and comprehensive set of activities that will achieve statewide HIE in Connecticut. Execution of the HITE-CT Operational Plan will enable and support Connecticut's health care providers to achieve and demonstrate meaningful use of Health Information Technology to improve the effectiveness and efficiency of health care. The HITE-CT's Operational Plan provides substantial detail with individual tasks and their interrelationships to successfully implement and sustain a health information exchange for Connecticut public health and healthcare providers to serve all consumers. The Plan identifies the following "sub-projects" to organize the required steps to reach that goal.

- Program Management
- HITE-CT Agency Development
- Funds Acquisition
- HIE Solution Architecture
- Contract for Systems and Services Vendor
- Standards Adoption and Setting
- Initial HIE Stand-up

- Connecticut HIE Release 1—CCD/CCR & Public Health (PH) Reporting
- Connecticut HIE Release 2—Quality Reporting
- Connecticut HIE Release 3—Personal Health Record (PHR)
- Relationship Management and Customer Service

Statewide HITE-CT HIE will be a standards-based, decentralized, hybrid model that supports distributed data. This model will allow statewide availability for the secure transfer of a defined set of clinical information between appropriate participating entities. HITE-CT will be substantially influenced by the Standards and Certification criteria and will be adopted in the following categories:

- Vocabulary Standards—standardized nomenclatures and code sets used to describe clinical problems and procedures, medications, and allergies;
- Content Exchange Standards—standards used to share clinical information such as clinical summaries, prescriptions, and structured electronic documents;
- Transport Standards—standards used to establish a common, predictable, secure communication protocol between systems; and
- Privacy and Security Standards—authentication, access control, transmission security) that relate to and span across all of the other types of standards.

The Plan recognizes the effective coordination efforts with other State ARRA programs. DPH has convened a workgroup with the Connecticut Department of Social Services as the state's Medicaid provider, the Connecticut Department of Higher Education (Capitol Community Technical College) and eHealthConnecticut as the Regional Extension Center to collaborate on HIE initiatives in Connecticut. Other collaborations that will support and complement the HIE projects include coordination with workforce development initiatives, State and Federal programs, and neighboring states.

In addition, the health care community within Connecticut must collaborate to choose an appropriate architecture that meets all current and future needs of established system while developing consistent standards and processes.

The Plan describes the activities required to finalize and operationalize the funding model and provides a cost estimate for the implementation of the Strategic Plan for a 4-year period. In addition the Plan describes activities to implement financial policies, procedures, and accounting controls and risk management.

HITE-CT will lead the effort to define a comprehensive enterprise architecture (including standards considerations) and document the full scope of required HITE-CT technology infrastructure and services. The architecture will permit the exchange of data between entities that house patient data and authorize health care providers in a manner that accommodates users at various stages of technology adoption.

Lastly, the Plan presents a comprehensive risk analysis based on industry standards and best practices, identified from the perspective of the HITE-CT with regard to the development of the Connecticut HIE.

Connecticut plans to continue to build on its HIT foundation and work closely with the State's private and public health community to achieve its vision.

1.0 Introduction

The Connecticut Department of Public Health (DPH) is the lead health information exchange organization for the State. DPH serves as advocate, regulator, and consumer of health information technology and exchange to serve public health and healthcare needs in Connecticut. In June 2009, DPH published the Connecticut State Health Information Technology Plan to set the agenda for healthcare information exchange and technology. By the end of 2009, DPH worked with the U.S. Department of Health and Human Services (HHS) Office of the National Coordinator (ONC) to secure $7.29 million for a multi-year Cooperative Agreement for planning and building a coordinated, sustainable statewide health information exchange system for Connecticut.

The American Recovery and Reinvestment Act (ARRA) signed by the President on February 17, 2009, includes the Health Information Technology for Economic and Clinical Health Act of 2009 (the HITECH Act) that sets forth a plan for advancing the appropriate use of health information technology to improve quality of care and establish a foundation for healthcare reform. The Act commits more than $48 billion[1] in grants, loans and incentives to encourage 'meaningful use' of health IT in a secure technology environment including an incentive framework for eligible medical providers. Connecticut is well position to respond to ARRA.

In June 2010 the Governor signed Connecticut Public Act No.10-117, "An Act Concerning Revisions to Public Health Related Statutes and the Establishment of the Health Information Technology Exchange of Connecticut" under Senate Bill No. 428 (see Appendix 4.6). The Act creates the Health Information Technology Exchange of Connecticut (HITE-CT), a quasi-public agency managed by an appointed Board of directors to coordinate and oversee Health Information Exchange (HIE) activities for the State. The members of the Board will include key Connecticut stakeholders representing healthcare providers, medical researchers, academia, payers, employers, attorneys, State agencies, consumers and consumer advocates.

On January 1, 2011, HITE-CT will become the lead health information exchange organization for the State. In addition to the funds through the Cooperative Agreement with the ONC, HITE-CT will seek other public and private funds for the development and operation of Connecticut's health information exchange and will be responsible for the implementation and periodic revisions of this Strategic Plan. HITE-CT will, through the HIE initiative; help to realize Connecticut's plans to transform its healthcare system to improve the quality, efficiency and accountability of healthcare in the State.

1.1 Purpose and Audience

The Connecticut HITE Strategic and Operational Plan builds upon the strategies defined in the Connecticut State Health Information Technology Plan that was published by the Department of Public Health in June 2009 and the significant contributions the State has facilitated with multiple stakeholders.

This Strategic Plan responds both to the requirements identified in the State's planning process and the requirements outlined by ONC in its "State Health Information Exchange Cooperative Agreement Program." In addition, the Plan reflects national trends and marketplace solutions to ensure the State's readiness and the leadership support required for the success of the HIE

[1] See estimate released May 2009 by the U.S. Department of Health and Human Services, available at http://www.hhs.gov/recovery/index.html. This includes an estimated $46.8 billion in Medicare and Medicaid electronic health record incentive payment funding and $2 billion to be distributed through the Office of the National Coordinator in a series of grants, loans, and technical assistance programs designed to support provider EHR use and to spur health information exchange

initiative. One of the core goals of the statewide HIE is to enable Connecticut's eligible Medicaid and Medicare providers to demonstrate 'meaningful use' through the Cooperative Agreement Program and receive the maximum incentive reimbursement while avoiding future reimbursement penalties.

The Strategic Plan section also provides the foundation for the HITE-CT Operational Plan section that describes the set of activities essential for the design, development and deployment of the statewide HIE. HITE-CT aims to link public health organizations and the State's health care community to bring together respective strengths and best practices to achieve shared benefits. Therefore, in addition to ONC, the intended audience for the Connecticut HITE Strategic and Operational Plan includes multiple stakeholders:

- The residents of Connecticut who will benefit from the implementation of the HIE, including consumer advocacy groups
- The Health Information Technology and Exchange Advisory Committee, transitioning to the HITE-CT Board of Directors
- State agencies and public health entities
- All health care providers including community-based health systems, hospitals, clinics
- Employers and health insurance entities
- The Regional Extension Center (REC) in Connecticut, assigned to eHealthConnecticut
- Independent laboratories, pharmacies and support organizations
- Local health information organizations
- Professional associations
- Academic and research institutions
- Future vendors who may be engaged to support the execution/implementation of the Strategic Plan road map activities

1.2 Strategic Plan Outline

The Strategic Plan (in Section 2 of this document) focuses on the State's vision, readiness and direction for the statewide HIE. The outline for the HITE-CT Strategic Plan, consistent with the ONC requirements for the Cooperative Agreement, includes:

- Section 2.1, "HITE-CT Vision, Goals and Strategic Imperatives" summarizes the HITE-CT's overarching vision
- Section 2.2, The "Environmental Scan" summarizes Connecticut's current HIT adoption and government/public health systems and describes the HIE initiatives in operations or in planning phase in the State as well as the level of adoption of HIT
- Section 2.3, "Coordination with State and Federal Programs" describes the HITE-CT's current/planned interactions and ongoing coordination with multiple State and federal organizations and programs including: the State's Medicaid agency (the Department of Social Services), State Department of Public Health, Medicare, relevant federally funded State based programs, federal care delivery organizations and other ARRA programs
- Sections 2.4 through 2.8, "Governance," "Finance," "Technical Infrastructure," "Business and Technical Operations," and "Legal/Policy" present a more detailed description of the current state and strategic initiatives for each of the ONC's HIE domains

- Section 2.9, “Evaluation Approach,” provides guidance on the work that needs to be done to define the measures and mechanisms that will be used to assess the near term effects and systemic impact of HITE-CT’s development effort
- Section 2.10, “HITE-CT Strategic Plan Road map and Recommendations,” provides a high level project plan for the HIE initiative and summarizes the next steps for addressing existing gaps, and for finalizing this Strategic Plan

1.3 Operational Plan Outline

The Operational Plan (in Section 3 of this document) details the planned actions for fulfilling the State’s vision for the HIE. The outline for the HITE-CT Operational Plan, consistent with the ONC requirements for the Cooperative Agreement, includes:

- Section 3.1 “Operational Plan Summary” describes the entire content of the detailed Master Schedule at a summary “sub-project” level describing the key goal and contents of each the 11 sub-projects in the Operational Plan
- Section 3.2 “Coordination with ARRA and other State and Federal Programs” provides a more detailed discussion of Connecticut’s plans for coordination and collaboration in key areas. This section contains an “Action Items” table that summarizes all the actions required to realize Connecticut’s strategy for coordination and cross references to the detailed tasks in the Master Schedule.
- Sections 3.3 through 3.7 “Governance,” Finance,” “Technical Infrastructure,” “Business and Technical Operations” and “Legal/Policy” describe key aspects of the Operational Plan from each of these domains. Each section contains an “Action Items” table that summarizes all the actions required to realize Connecticut’s strategy for that domain and cross references to the detailed tasks in the Master Schedule.
- Section 3.8 “Evaluation Approach” describes Connecticut’s plans for independent evaluation and describes an initial set of performance metrics. This section also contains an “Action Items” table that summarizes all the actions required to realize Connecticut’s strategy for evaluation and cross references to the detailed tasks in the Master Schedule.
- Section 3.9 “Operational Plan Master Schedule and Risk Analysis” contains the detailed task by task schedule in Microsoft Project format and a detailed risk analysis across all the domains of the Operational Plan.

1.4 Methodologies Employed

Over the course of six months, from March 2010 to August 2010, the State guided an open, inclusive, and transparent strategic and operational planning effort. This planning effort consisted of a five step methodology. The first critical step was to focus on establishing a specific framework for Connecticut organized around the definition and scope of the five ONC HIE domains[1].

Based upon this HIE domain framework, the next key steps were to identify the current capabilities in Connecticut that can be leveraged and the existing gaps and challenges that must be addressed to move forward with the statewide HIE. The fourth and fifth steps consisted of defining a set of alternatives for closing the gaps in each domain, and documenting the potential strategies and next steps. The planning process included:

- Review of ONC's Guidance on State Health Information Exchange Cooperative Agreement Program
- Review of documentation relevant to the State's HIE Initiative from State agencies and other stakeholders
- Meetings with the HITEAC and diverse stakeholders from the public to obtain their input and guidance
- An environmental scan of the existing statewide infrastructure and Electronic Health Records (EHR) systems in place or planned to assess the level of Health Information Technology (HIT) adoption and potential use of the HIE
- Applied current research, best practices and lessons learned from other HIE implementations in support of the development of the draft Strategic Plan and Road map for the five domains
- Definition of Connecticut's HIE vision and goals reflecting agreement among the State's stakeholders and striving for statewide coverage of providers for HIE meaningful use criteria
- Development of several reports that summarize Connecticut's leveragability of current initiatives, existing gaps, alternatives analysis, the process for prioritization of viable alternatives and "go forward" recommendations for Connecticut's HIE

A key component of the HITE-CT initiative focuses on the solicitation of input, concerns and recommendations from key stakeholders. Both the Strategic and Operational portions of this plan have undergone periods of public review. Feedback from these public review periods have been used to inform and finalize the agreed upon strategies required to ensure the success of the vision for the HITE-CT.

2.0 Strategic Plan

2.1 HITE-CT Vision, Goals and Strategic Imperatives

2.1.1 Vision Statement

The State of Connecticut plans to transform its health care system through the HITE-CT to improve the quality, efficiency and accountability of health care in Connecticut.

HITE-CT will establish and manage a statewide health information exchange to attain substantial and measurable improvements in several key areas including but not limited to:

- Public health outcomes
- Quality of care, medical outcomes and patient experience
- Patient access to health care and their medical records
- Continuity and coordination of care
- Effectiveness and efficiency of health care delivery

2.1.2 Strategic Goals and Principles

To achieve the vision for the HITE-CT, Connecticut has established the following goals:

- Demonstrate leadership with open communication and coordination among HIE stakeholders, including State agencies, consumers, payers, and providers
- Move toward patient-centricity in health care, where longitudinal patient care is enabled by readily available access to necessary information across care settings
- Promote the optimal use of health information to improve continuity of care, enabling coordinated, affordable and efficient health care by providing rapid access to patient health care information from multiple providers
- Strengthen current and future Connecticut health care initiatives to improve clinical outcomes and patient safety, minimize medical errors, and reduce redundancies and duplication of testing and services by linking the full continuum of providers in the State and across State borders—public, private providers and pharmacies, clinics, labs and medical facilities
- Improve access to quality health care services for under-served populations by strengthening the provision of health care through HIE and telehealth
- Empower consumers' active participation in their health care needs through channels of engagement, provision of educational information and ready access to their health care information in an understandable format
- Provide open and bi-directional information exchange between the participants in the entire network supporting patients and providers, including health systems, hospitals, payers, pharmacies and laboratories, regardless of location or affiliation
- Ensure all patient health information sharing is compliant with all applicable privacy and security standards
- Facilitate improved public health services by providing health data for mandatory reporting, monitoring of health status, and emergency responder information to DPH and Federal agencies

- Encourage the adoption of health information technologies, i.e., electronic health records systems in Connecticut, by making it easier and less costly to securely share information over statewide and regional electronic networks
- Provide a gateway for appropriately sharing patient information through the Nationwide Health Information Network (NHIN) with other providers outside of Connecticut
- Facilitate public reporting of patient outcomes and quality measures by enabling communication of this information for meaningful use of health IT as may be required by the ONC

The following Principles have informed, and will continue to inform, the strategic planning process and will provide critical guidance for the Operational Plan:

- **Consumer Confidence—**Connecticut health care consumers must be confident that their personal health information is secure and used appropriately
- **Foundational and Sustainable Infrastructure—**The HITE-CT does not stand alone—it is one of a number of important tools for improving the landscape of health care in the State. HITE-CT infrastructure will lead standards-based interoperability and provide secure, robust and resilient access to CT health information
- **Phased Implementation—**The State will maximize investment through strategic planning and phased implementation of the HIE
- **Inclusive and Transparent Governance and Approach—**The HITE-CT will support the entire health care community and will demonstrate sustained commitment to all health care constituents in the State:
  - HITE-CT will maintain representative, qualified and stable leadership across the full spectrum of health care stakeholders in the State through broad based stakeholder input and collaboration with full transparency, openness and trust
  - HITE-CT and its associated governance structure will provide guidance and support to local and regional health information exchange initiatives
  - HITE-CT will coordinate and align its efforts in support of State Medicaid and public health requirements for health information exchange and with the evolving Federal meaningful use criteria

2.1.3 HITE-CT Strategic Approach

Connecticut's strategy is to provide the HITE-CT as a full service, secure, accessible, patient-centered health information exchange aligned with the Vision and Strategic Goals for the State's HIE. The HITE-CT will initially prioritize support for all Connecticut's health care providers' meaningful use EHR requirements in close alignment with the State Medicaid Health IT Plan.

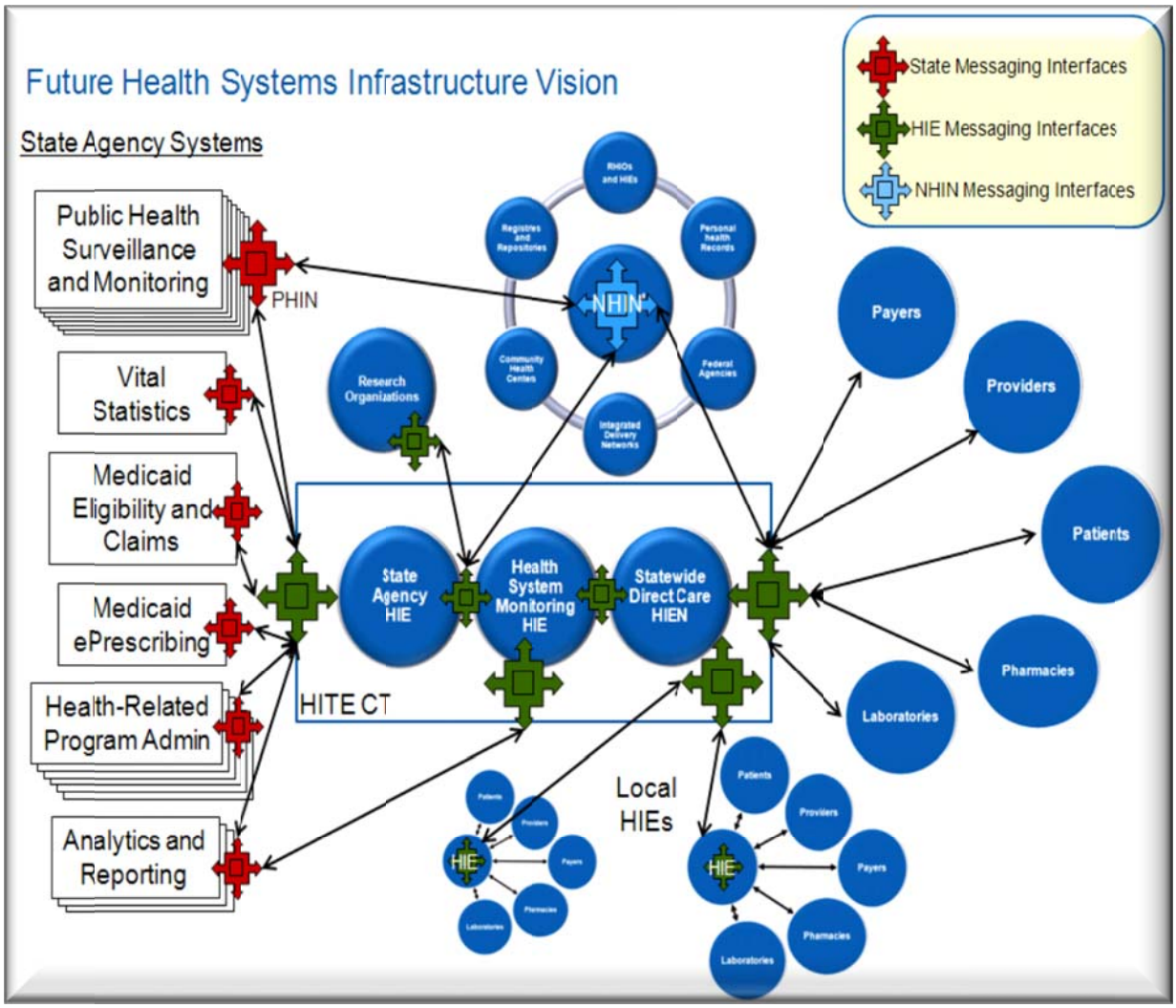
Full system functionality will be implemented in phases over a number of years. The HITE-CT will be built on an architectural foundation that will enable an incremental approach toward building a coherent and comprehensive capability for the HIE. The phased implementation approach must balance:

- Priorities related to achieving all aspects of "meaningful use" for Medicaid and Medicare providers
- Widely varying HIT adoption levels and rates of change across Connecticut's providers

- Leveraging existing State and local HIE capacity and statewide shared services and directories
- Improving consumers' access to medical services and their health records
- Supporting public health and vital statistics data needs
- Enabling data aggregation and analytics to improve health care quality and outcomes in Connecticut

The vision for the full implementation of the State's HIE (below)provides a multitude of services and capabilities and supports a very high proportion of Connecticut's health care system linking public and private systems for effective and efficient use of information and technology.

Figure 1. HITE CT Vision: Linking Private and Public Health Care



Connecticut's strategy is to provide all of the following services either directly or via a local information exchange:

- Shared directories for patients and health care/service providers for:
  - Patient matching
  - Provider authentication
  - Consent management
  - Secure routing
- Clinical summary exchange for care coordination and patient engagement
- Electronic public health registries and reporting
- Health care quality reporting
- Advance directives
- Messaging between participants
- Prescription fill status and/or medication fill history
- Electronic prescribing and refill requests
- Electronic clinical ancillary services (including laboratory and radiology) ordering and results delivery
- Electronic eligibility and claims transactions

2.1.4 Strategic Imperatives

To aid in the planning for the capacity development and use of the HIE among all health care providers in Connecticut, the HITE-CT will support health care providers' efforts to become meaningful users of EHR's as an imperative along with other strategic imperatives for each of the five ONC HIE domains outlined below.

2.1.4.1 Governance Domain

- Establish a strong State leadership group to mobilize and solicit stakeholder support and to lead the HIE initiative
- Create the HITE-CT
- Establish an open, transparent and accountable governance structure that achieves stakeholder collaboration, buy-in and trust
- Align with future nationwide HIE governance
- Ensure private and public sector participation and partnership, and define their roles
- Develop a solid value proposition for providers to encourage active HIE participation and adoption
- Promote the importance of electronic health record readiness
- Solicit broad participant (including patients and consumers) engagement and establish mechanisms for the exchange of ideas and for providing education
- Establish mechanisms to provide oversight and accountability of the HIE once established

- Establish the HITE-CT as a "safe harbor" and incubator for current initiatives that can be leveraged for new initiatives and interactions, to be supported by the HIE to ensure long term sustainability of the HIE over time and political changes

2.1.4.2 Finance Domain

- Minimize the impact of costs for the provider community to promote participation
- Minimize the burden on tax payers from the support of the HITE-CT
- Identify all viable avenues for financing the HITE-CT across all stakeholders. Ensure that all who benefit will help financially contribute to the support of the HIE. Stakeholders include:
  - Health care providers
  - Payers
  - Patient engagement and information service providers
  - Federal government—ONC, Centers for Medicare and Medicaid Services (CMS), Center for Disease Control (CDC)
  - State government—DPH, Department of Social Services (DSS) and other health and human services agencies
- Create a sustainable business model (including consideration of public/private financing mechanisms) for the HITE-CT to be executed after implementation of the required infrastructure for the HIE utility
- Develop a plan for sustainable funding in the short-term (1–2 years), medium-term (3–5 years) and long-term (5+ years) that will provide broad based and evolving revenue sources in line with the development of the HITE-CT
- Establish mechanisms to effectively manage the funding and provide for the required reporting, accountability and controls necessary to implement and manage the HITE-CT
- Ensure revenue sources can only be used to support the HIE
- Leverage existing State funding mechanisms for the collection of revenue

2.1.4.3 Technical Infrastructure Domain

- Leverage, where possible, existing State and public efforts and resources that exists to support the vision for HITE-CT, for example:
  - Master patient/client indexes
  - Public health registries and support systems, and compliance with the nationwide Public Health Information Network (PHIN)
  - Current and planned health information organizations and other HIE and HIE-like systems in place in Connecticut
  - State Medicaid HIT Planning efforts
  - State Medicaid Management Information System (MMIS)
- Establish an architecture for the State's HIE that is best suited to State, local and regional characteristics, complies with national interoperability, information exchange,

security and other standards that support the HIT efforts, and that are in line with Federal meaningful use requirements

- Identify existing HIE mechanisms that are scalable, ultimately enabling full interoperability and exchange of health information consistent with the State's Strategic Plan
- Consider hosted solutions for all or part of the HIE solution requirements
- Integrate with the Nationwide Health Information Network (NHIN) and the CMS CONNECT gateway

2.1.4.4 Business and Technical Operations Domain

- Ensure strong planning and project management through a Project Management Office (PMO), service level management and business support for the HITE-CT
- Create an effective organizational approach to managing the HITE-CT and its policy development, stakeholder participation and governance mechanisms to support the vision for the HIE
- Establish the mechanisms and processes for coordinating and aligning efforts to incrementally meet meaningful use requirements, Medicaid incentive program needs and public health registries and reporting requirements
- Develop approaches for utilizing HIE resources for academic research and analytics to assist in efforts to promote improved health care practices and outcomes across Connecticut
- Establish the metrics, internal controls and reporting capabilities necessary to meet ONC reporting requirements for the HITE-CT
- Provide technical assistance to other health information organizations and other current and planned HIE or HIE-like efforts within the State
- Coordinate with the Regional Extension Center and support the provision of training and technical assistance for HIT adoption and effective use of Connecticut's HIE and other HIE and HIE-like systems within the State

2.1.4.5 Legal/Policy Domain

- Identify and harmonize Federal and State legal and policy requirements that enable appropriate health information exchange services
- Create the legal framework for patient and provider participation in health information exchange
- Establish a statewide policy framework that allows for incremental and continuous development of information exchange policies
- Establish enforcement mechanisms to track and ensure statewide stakeholder compliance with federally adopted standards and all applicable policies for interoperability, privacy and security

2.2 Environmental Scan

2.2.1 Health Information Technology Adoption across Connecticut

As part of Connecticut's Strategic Planning process for HITE-CT, Connecticut completed a review of current HIT adoption in the State. This review included significant input from Federal government studies, independent society and association studies, and Connecticut studies documented in Appendix 0.

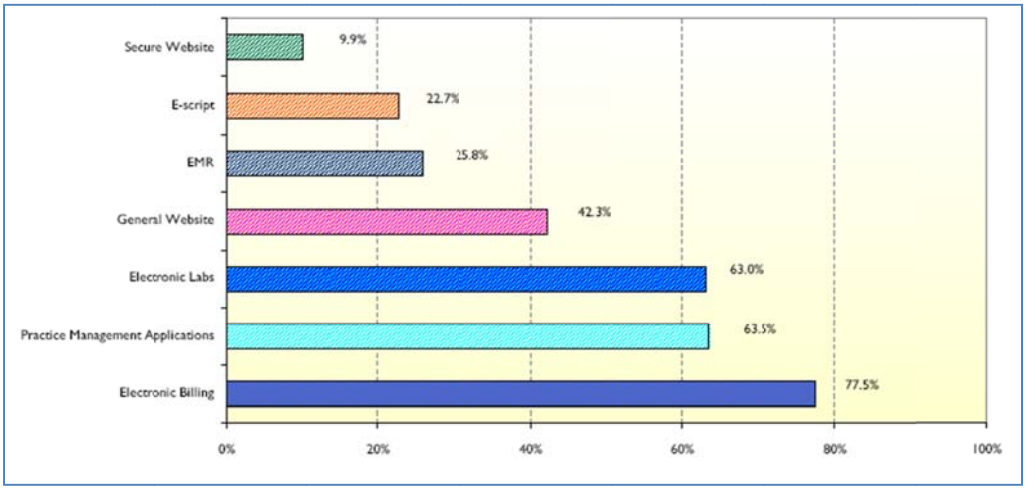
HIT Adoption Quick Facts

- **Hospitals and Health Systems**
  - Many of the 32 hospitals in Connecticut have the information technology adoption to support HIE activities in the State. 100% of responding hospitals (14 of 14) have functional EHRs in place, or were in the process of implementing one.
- **Provider Practices**
  - Provider HIT adoption is fractured in Connecticut. In 2008, nearly 80% of practices had electronic billing systems, while only 26% had an EHR.
  - Nationally, adoption is heavily skewed towards larger practices. Large practices have three times more adoption in any EHR system, and seven times more adoption in fully functional systems.
  - Small practice adoption of fully functional systems is not expected to reach 15% by 2015.
- **Government Agencies**
  - Agencies have a large number of HIE systems existing partially in "silos":
    - DPH has 55 different databases that have been identified.
    - DSS has a portal for a single point of access to several different systems.
- **ePrescribing and Laboratories**
  - In 2008, only 23% of CT physicians reported use of ePrescribing and 63% reported having Electronic Labs functionality in their practice.

Electronic Health Record (HER) Adoption

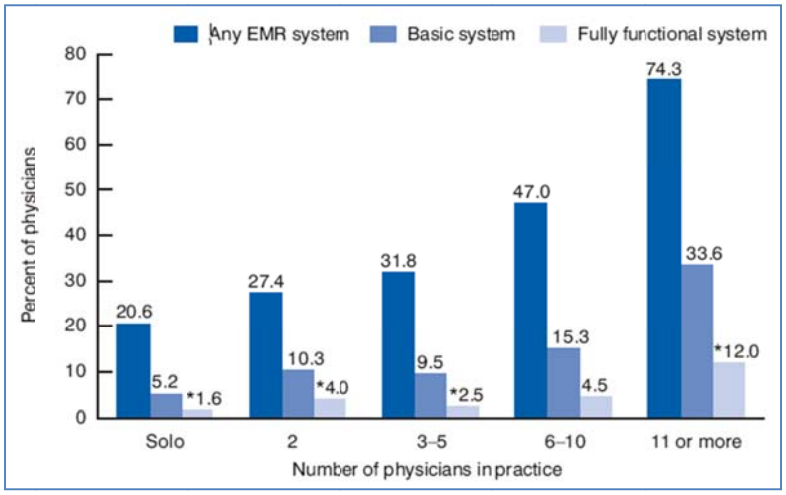
According to a 2008 study[2], Health Information Technology in Connecticut among providers has varying levels of adoption. Office technologies, including Practice Management Applications and Electronic Billing, are the two most utilized technologies with 63.5% and 77.5% adoption among practices, respectively. On the clinical side, Electronic Labs is the most utilized technology, with 63.0% practice adoption; however, only 26% of practices use an Electronic Medical Record.

Figure 2. Percent of Connecticut Physicians Using Technologies in Practice



The figure above provides an overview of the State's physicians HIT adoption. Nationally, the CDC reports that HIT adoption is proportional to the number of providers in a practice. As shown below, in 2007 solo practices showed only a 20% adoption rate of any EHR system (even with single-modal basic functionality) while practices of 11 or more reported an adoption rate over three times as high[3]. The dichotomy in fully functional systems is even more dramatic, where expectation of adoption is over seven times as high in large practices as solo practices.

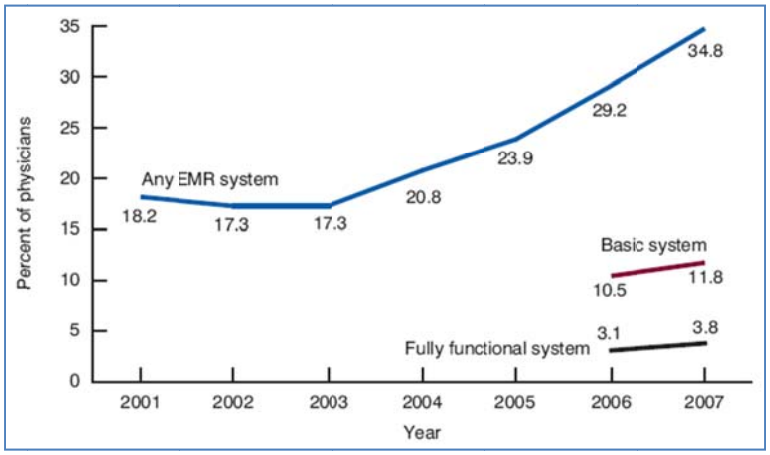
Figure 3. National HIT Adoption by Office based Physicians in the United States,



This adoption curve is expected as smaller practices are generally less able to make a jump financially to EHR and, therefore, are less willing to take the risk of adoption. This dichotomy between practice sizes is likely to continue, even with governmental assistance. As Connecticut HIT adoption are well aligned with the national statistics, these statistics are assumed to be true for the State.

Adoption rates have increased steadily for the past five years, though the rate of adoption will not yield a high overall adoption of HIT in the next few years, especially in small practices. In 2007, only 1 out of 3 physicians in small practices had any EHR system, while less than 12% had "basic systems" and less than 4% had a fully functional system[4]. A projection of this trend, even with increased support from Federal funding, may not provide the desired adoption to effectively support a State HIE. The figure below shows past adoption metrics for limited to fully functional systems.

Figure 4. EHR Adoption by Office-based Physicians in the United States: 2001 2007



In April 2010, to help address this inconsistent adoption of HIT, eHealthConnecticut was assigned as a REC for Connecticut, receiving $5.75 million in ARRA monies to promote HIT adoption among providers in the State. Through the efforts of the REC in collaboration with the HITE-CT, the inconsistent adoption of HIT within the State will be addressed so as to support providers' readiness and adoption.

In a study supporting the 2009 Connecticut State Health Information Technology Plan[5], 14 of 32 hospitals in the State responded. Of those, 13 had functional Electronic Health Record systems in place. The 14th hospital was then in the process of implementing one. Of all 14 hospitals, all have electronic data interfaces in most departments, with the lowest concentration of interfaces in Emergency and Acute Care departments.

Laboratory Systems

Lab exchange of data in hospitals responding to the survey showed that all had IT systems in laboratories and had interfaces available to communicate electronically outside the laboratories. All but one had this functionality as part of their EHR, but fewer than half (6 of 14) shared data with outside laboratories.

A New England Journal of Medicine (NEJM) study showed that 77% of hospitals nationally had the ability to view lab results electronically; however, only 20% could order lab tests electronically[6]. A 2007 American Hospital Association (AHA) study showed similar results viewing statistics, though over 70% demonstrated implementation of lab order entry[7].

Physicians as a whole, however, have a relatively high level of adoption of lab reporting usage, with 63% reporting use of Electronic Labs technologies in their practices[8]. Nationally, the

capability to view lab results electronically was reported by 44% of office-based physicians[9], suggesting that Connecticut is advanced in this area.

Though this functionality is one of the more adopted technologies among physicians and hospitals, full electronic exchange of lab orders and results between systems is still very limited, and will likely trend with overall EHR adoption. DPH is working with DSS to understand what is currently available and compliant with Meaningful Use requirements.

ePrescribing

As with lab adoption and usage, 13 of 14 hospitals responding to the 2009 survey have pharmacy IT applications, 12 have pharmacy order functions built into their EHR with the other two planning on implementing this functionality within 2-3 years. All but two of those have pharmacy interfaces to communicate with other systems, but only one shares data with retail pharmacies.[10]

Physician practices report a low adoption rate as well, with only 23% reporting use of an E-script technology in their practice.[11] In 2009, DSS introduced its Medicaid ePrescribing system, which will likely serve to drive this adoption higher in applicable physician groups. This system is described in more detail later in this document.

Statistics from 2009 from a national ePrescribing leader show that only 16% of physicians are ePrescribing, 14% of all eligible prescriptions are electronically routed, and 29% of patient visits include electronic pharmacy benefits requests[12]. These adoption and usage metrics are especially encouraging given that since 2007, physicians that ePrescribe have increased over 100%, and electronic prescriptions and benefits requests have increased nearly 400%. The same study showed that approximately 100% of community pharmacies are activated for ePrescribing.

In March 2010, the Drug Enforcement Administration released the Interim Final Rule on e-Prescribing of Controlled Substances which requires electronic signatures and authentication of the prescribing provider using at least two independent and approved methods. EHR systems used by Connecticut's providers will need to offer this functionality for e-Prescribing to be extended in this way. It is anticipated this will happen, though not immediately.

Interoperability

The 2009 Connecticut hospital survey showed a dedication to providing access to providers currently or in the near future. This was especially true within the hospital setting, including on-site clinics (93–100%), though to a lesser degree outside the hospital environment, to off-site clinics, long-term and post acute care facilities (57–93%)[13]. The 2007 national AHA study showed about half of hospitals shared data with others (53% in 2005 and 49% in 2006)[14].

A surprising point in this study is that though almost all have the capability to share data with other entities, relatively few actually do. The largest use is between the hospitals and laboratories, Connecticut State agencies and payers (43%, 50% and 57%, respectively). There is even less sharing of data with other health entities within the State.

Health Information Technology Attitudes

The 2009 Connecticut Hospital study queried hospitals as to the perceived barriers to adoption of EHRs and HIE. The two most significant barriers were the investment required and the lack of time and resources to complete the implementation. This matches statistics from the national

2007 AHA study, which added a discrepancy between more financially stable, urban and teaching hospitals and those with less stable finances, smaller and rural hospitals.

The AHA study also noted that although the financial burden is often solely on the hospital, much of the financial benefit from decreased need for repeat tests, lower readmission rates, and shorter lengths of stay is realized by the payers of health care.

In a 2008 Workforce Survey, a significant portion of physicians are contemplating leaving the State or the industry due to the environment within the State. Patient wait times and difficulty obtaining referrals are limiting the ability to access health care across the State and in some specialties the liability premiums are very burdensome. Given the clinical and process concerns that many providers in Connecticut have, HIT is comparatively a low priority[15].

Gartner[16] analysts also suggest that, although HIT adoption is growing, it will not be ubiquitous in the United States for some time, especially in small practices. [17]

Combining all sources, Connecticut should assume that adoption of EHRs is growing and will continue to grow; however, large scale adoption should not be expected for several years, especially for small practices, even with changes in legislation and the introduction of incentives designed to increase these statistics.

Stakeholder Interactions in Connecticut

There are a variety of stakeholder groups in Connecticut that are aimed at achieving the same ultimate goal, though through several complementary methods. Some of the groups within the State include the HITEAC, the future HITE-CT Board of directors, eHealthConnecticut and others.

All of the entities that have interfaced with the HITEAC in the development of this Strategic Plan have expressed interest in collaborating with and supporting the development of the State HIE.

HITEAC and HITE-CT

In July 2009, Connecticut passed Public Act 09-232[18] to designate the Department of Public Health as the leader for the HIE initiative in the State. Part of this bill established the HITEAC. The HITEAC is an appointed advisory committee of twelve voting members across stakeholder constituencies, including hospitals, payers, community health centers, legal counsel and researchers. In addition, there are seven Ex Officio, non-voting members representing the Connecticut Departments of Public Health, Social Services, Consumer Protection, Information Technology, the Office of Health Care Access and the Healthcare Advocate. Most of the members are also part of six subcommittees—one for each of the five ONC domains and one to represent special populations in the State.

Of the twelve appointed HITEAC seats available, 10 are currently filled. The current members are listed in Section 4.2.

The State is also creating State resources through legislation, including a quasi-public Agency to execute the HIE initiative. In June 2010, the Governor signed Public Act 10-117. The Act establishes the Health Information Technology Exchange of Connecticut[19], with broad latitude to operate, with emphasis on strong oversight by a Board of twenty representatives, either appointed or named in statute, representing a specific State agency or stakeholder group. The Board is similar in construction to the HITEAC. The Board's makeup may be found in Appendix 4.2.

Connecticut Department of Social Services (DSS)

In 2007, DSS was awarded a Medicaid Transformation Grant to implement ePrescribing, a Health Information Exchange (HIE) Pilot and a Comprehensive Active Medication Profile (CAMP) project for the Connecticut Medicaid program. DSS, in collaboration with HP Enterprise Services and Surescripts, implemented a statewide e-Prescribing system with Connecticut's Medicaid enrolled providers on October 14, 2009. DSS also teamed with the University of Connecticut, School of Pharmacy and the Connecticut Pharmacist Association (CPA) to build a Comprehensive Active Medication Profile (CAMP) for Medicaid patients.

DSS, in collaboration with eHealthConnecticut, has been working toward implementing a HIE pilot with a targeted group of hospitals and federally qualified health centers. Many stakeholders have contributed to the development of privacy and security requirements for the HIE pilot, including:

- CT Health Policy Project
- Office of State Comptroller
- Trusted Medical LLC
- Alcohol and Drug Recovery Centers, Inc.
- AARP CT
- CT AIDS Resource Coalition
- Office of Healthcare Advocate
- CT Legal Services
- CT Center for a New Economy
- Hispanic Health Council
- CT Hospital Association

Connecticut Hospital Association (CHA)

The CHA convenes a meeting of hospital Chief Information Officers (CIO) into a multi-disciplinary workgroup to bring together stakeholders from across the State to align projects and to encourage collaboration between them.

eHealthConnecticut Board

eHealthConnecticut is a non-profit organization established in 2006 with stakeholders across the health care industry. The group has three major projects: 1) A DSS HIE pilot through the Medicaid Transformation Grant with several State providers; 2) Quality Reporting and Improvement (Connecticut Health Quality Cooperative [CHQC]) project; and 3) Assignment as a REC for the State with funding from the ONC.

Connecticut Health Information Network (CHIN)

The University of Connecticut, in cooperation with several State agencies, has developed a data warehouse project to connect and perform research with several State databases. The effort is designed to allow identified data research for internal use, and has the ability to release de-identified data for outside research and commercial partners.

Aetna PHR

Aetna has launched a PHR for its members in Connecticut. The project gathers information that is available to the company, including claims data, lab results data and member reported data, and presents it to the member for review and control. It also provides members with reminders and opportunities for disease management programs, customized to the member. Aetna has been involved in the development of the State HIE and will be evaluating methods to use the HIE to augment the current offering.

Safety.Net Planning

The goal of Safety.Net Planning is to establish collaboration between providers to plan the implementation of EHR systems. Providers include the Ethel Donahue TRIPP (Translating Research Into Practice and Policy) Center (UConn Health Center), Asylum Hill Family Practice Center, Fair Haven Community Health Center, St. Francis Medical Center, Community Health Center, Inc., Generations Family Health Center, Hill Health Center, Community Health Center Association of Connecticut, Staywell Health Center and the Burgdorf/Bank of America Health Center. The effort has been funded by the Connecticut Health Foundation.

2.2.2 Governmental/Public Health Activities in Connecticut

The responsibilities of government agencies to collect, process, and report health information cross jurisdictions of public health, social services, and clinical operations. In Connecticut, there are multiple health information systems with a variety of health related data that can contribute to, and will be affected, by HIE implementation. Several State agencies, including the Connecticut Departments of Public Health, Social Services, Children and Families, Developmental Services, Mental Health and Addiction Services, Veterans Affairs, have health information systems and data warehouse capabilities that can leverage the HIE or be leveraged by other users of the Exchange.

Many of these systems operate in technology and information silos because their development was based on independent, program-focused funding with limited interaction among the systems. As a result, the data collected are fractured in multiple databases and are, therefore, difficult and costly to integrate, aggregate and use beyond the original program purpose. Although there is State and Federal momentum to connect or consolidate these systems and to establish standards for the collection and use of these data, a state HIE will secure the success of the consolidation.

The baseline and critical asset to health information exchange in Connecticut is managed by the DPH with data collection, processing, and reporting responsibility to federal, state, and local agencies with secure, quality systems. Public health information can be categorized into vital statistics, disease surveillance, case management, environmental monitoring, and emergency response systems. DPH is responsible to transform the data collected into information that drives policy and program development.

The DPH data services support preventive services; registries of cancer incidence, immunizations, and trauma services; reportable and infectious diseases; laboratory testing; and program administration to promote health and prevent disease. The inclusion of the DPH data services into health information exchange provides real-time access to:

- prenatal and birth information
- mortality by cause and community
- epidemiologic information to improve diagnostic accuracy and treatment decisions;
- outbreak alerts
- patterns of contagions and drug-resistant organisms
- laboratory testing results
- access to federal and state screening, practice, and treatment guidelines or directives
- immunization histories

The State does have a variety of HIT systems that can leverage a HIE, given the development of interfaces and standard communication. A brief description of some of the assets the State manages is listed in Appendix 4.3.

2.2.3 HIE Initiatives in Connecticut

There are several instances of HIE initiatives in Connecticut as well as other related efforts for sharing information between organizations. The projects range from offering external access to a central system, expanding rollout of a centralized system to aligned providers, to true disparate systems with interfaces and a centralized Master Patient Index (MPI). Some of the notable HIE initiatives at various stages of planning and implementation in Connecticut are summarized in this section.

HealthLink

Danbury Hospital, in cooperation with many of the area practices, laboratories and pharmacies, has developed a working HIE. The system now incorporates over 250 providers, 500 support staff and 500,000 patient records. This equates to approximately one-third of the medical community in the area.

The HIE incorporates several services, including:

- HealthLink Print/Fax—Print/fax capabilities for providers who do not have electronic capabilities
- HealthLink VHR—A Virtual Health Record (VHR); a migration from their legacy system which has 80-90% adoption
- HealthLink eRx—ePrescribing, with a goal for 80% adoption by the end of 2010 and 100% by the end of 2011
- HealthLink EMR—An Electronic Medical Record including an “EHR lite” offering
- HealthLink EMR Connector—A “last mile” two-way task interface
- HealthLink Image Exchange—An imaging and report repository exchange, which is expected to launch later in 2010.

Additional information regarding the HealthLink HIE is listed in Appendix 4.4.

Medicaid Transformation Project—A Health Information Exchange pilot through the Department of Social Services

Funded by a Medicaid Transformation Grant ($1.35M), the program aims to link Federally Qualified Health Centers (FQHCs), acute care hospitals, and private physicians within the State, eventually connecting to the statewide HIE and the National Health Information Network for continuity of care. This project is being run by eHealthConnecticut and is being developed in three areas: New London, Hartford and Waterbury.

In the New London area, Lawrence & Memorial Hospital is working with Community Health Centers, Inc. to connect their respective EHRs. This is expected to assist the transition of care between the local clinics and the hospital. In Hartford, Hartford Hospital and St. Francis Hospital and Medical Center are coordinating EHRs using Misys® open source software to develop a coordinated HIE. Both hospitals will benefit due to the overlap of patients between the two hospitals. In Waterbury, transition of care for pregnant women from the Staywell Community Health Center to Naugatuck Valley OBGYN is planned via the pilot.

Additional information regarding the DSS pilot is listed in Appendix 4.5.

Middlesex Hospital

Middlesex Hospital in Middletown, in coordination with local provider groups, pharmacies and laboratories, is in the process of creating an HIE around the hospital's eClinicalWorks® implementation. The group has implemented the eClinicalWorks proprietary HIE software, eEHX, in an ongoing effort to exchange data among the local providers and support organizations.

Yale New Haven Health System (YNHHS)

Yale New Haven Health System (YNHHS) includes the delivery networks of Yale New Haven Hospital, Bridgeport Hospital and Greenwich Hospital. It has in place a common Physician portal and MPI in use for 1400 employed and affiliated physicians.

YNHHS is in the final stages of agreeing to license and implement Epic EHR systems enterprise wide. This implementation of Epic is expected to start within the next few months and take four years to complete. The vision is to make Epic the EHR of all YNHHS physicians and provide HIE connectivity to the statewide HIE and NHIN.

The William W. Backus Hospital

The William W. Backus Hospital is creating a regional health HIE in eastern Connecticut. The hospital and its Medical Staff have been planning this exchange for over two years. Implementation started in January 2010 and pilot projects are expected to go live starting in October, 2010. The HIE is expected to support over 300 physicians in the area.

Charlotte-Hungerford Hospital

Charlotte-Hungerford Hospital and upper Litchfield County physicians are currently reviewing various EHR, PM and HIE vendors, configurations and pricing models. This group has set aside considerable funds for this year to build an integrated community of providers sharing patient data and using hospital services (lab, radiology, referrals, etc.). The group is also looking at using the HIE to connect to a shared billing service.

They expect to conclude a market review of options, approve a configuration and operational plan and begin phasing in ambulatory EHR implementation and a functioning HIE configuration (with possible billing services) over the second half of 2010 and into 2011 as they collectively move toward meaningful use and clinical integration. The hospital is also expanding its in-house EHR and HIE capabilities to achieve meaningful use in 2011/2012.

NHIN Direct – Pilot Project

The Nationwide Health Information Network (NHIN) is a set of standards, services and policies that enable secure health information exchange over the Internet. The project itself will not run health information exchange services. The NHIN Direct project develops specifications for a secure, scalable, standards-based way to establish universal health addressing and transport for participants (including providers, laboratories, hospitals, pharmacies and patients) to send encrypted health information directly to known, trusted recipients over the Internet. The NHIN Direct project will expand the standards and service descriptions available to address the key Stage 1 requirements for Meaningful Use, and is intended to provide an easy "on-ramp" for a wide set of providers and organizations looking to adopt.

Since mid-2010 a number of Connecticut organizations taking a leading interest in HIT and HIE have formed a group to sponsor one of the NHIN Direct pilots for the “Central CT Geography”. This project is being led by Medical Professional Services (MPS) Inc. and lists eHealthConnecticut as the major stakeholder. The following organizations are participating:

- Quest/MedPlus
- DocSite
- Middlesex Hospital
- The Kibbe Group, LLC
- American Academy of Family Physicians (AAFP)
- eClinicalWorks
- Microsoft Health Vault (MHV)
- Community Health Center, Inc. (CHC)

The objective of this project is to demonstrate the feasibility of using NHIN Direct protocols to connect and securely share clinical information among a diverse group of physicians in small practices in Connecticut who have a heterogeneous set of HIT tools (from web access with email, modular EHR components to fully functional EHRs), a hospital, a Federally Qualified Health Center (FQHC) and a large laboratory provider in support of Meaningful Use and the continuity of care.

2.2.4 Statewide HIE Readiness

Several efforts in Connecticut will be consolidated to support and document HIE readiness and development. First among these is the Cooperative Agreement between the Connecticut Department of Public Health and ONC, from which $7.29 million in capital has been secured to lay the groundwork for HIE readiness and development in Connecticut. Second, as the Regional Extension Center, e-HealthConnecticut received $5.75 million from ONC to assist the overall adoption of EHRs in the State. These federal funds will be leveraged with existing State support, capital investments and operational funds of hospitals, physician groups, community health

centers, and other healthcare providers to affect the entire health information exchange system in Connecticut.

The Connecticut General Assembly established the Health Information Technology Exchange of Connecticut as the State HIE agency to develop and sustain governance and operations of health information exchange well into the future.

Several local HIE-like initiatives to connect providers in a variety of State locales provide a foundation of connections and networks that can be leveraged by the State's HIE initiatives. Key stakeholders from these initiatives have been involved in the planning of the statewide HIE. State, private and non-profit leaders have been in discussions in how best to leverage and integrate all of the initiatives and assets in a way to maximize the effectiveness of an exchange.

All of these efforts serve to provide the building blocks from which a statewide HIE can develop. These efforts have strongly informed the Strategic Plan and will be the inherent structure of a well formed exchange of information.

2.2.5 Environmental Scan Summary

- **Health Information Technology Adoption across Connecticut**
  - Information Technology is increasing in hospitals and in provider settings in Connecticut, though the rate of adoption is slow, and is heavily skewed towards larger practices. Recent developments, such as the assignment of eHealthConnecticut as the REC for the State will increase adoption in smaller practices.
- **Governmental/Public Health Activities in Connecticut**
  - Many information systems are established in State agencies, though most were developed independently based on different funding sources and do not have direct interfaces.
  - DSS has made progress with consolidating system interfaces in Connecticut Medical Assistance Programs, with a portal that allows for real-time claim submission, provider enrollment, authorization inquiries, claims submission and status, client eligibility verification, and other self-service features.
- **HIE Initiatives in Connecticut**
  - Several HIE and HIE-like initiatives in the State are either active or will be active shortly. Danbury hospital and surrounding providers and business have a well-developed HIE that is a paradigm of HIE success; eHealthConnecticut, with hospitals and providers in Hartford, Waterbury and New London, currently piloting systems. Other hospitals, such as Middlesex Hospital and The William W. Backus Hospital, are developing systems and hope to launch service this year.
- **Statewide HIE Readiness**
  - Several pieces of HIT and HIEs, and the administrative and legislative activities that support them, are present in Connecticut. This which provides a solid foundation for the State's development of a statewide HIE. The adoption of HIT in provider and hospital settings varies significantly. Providers and hospitals in larger practices, in urban areas and in teaching roles have better adoption than their counterparts.
  - State agencies employ many systems and databases, though most are varied and not interconnected. Agencies with the most public systems and information are aware of the HIE initiative and are ready to collaborate with DPH and thenew quasi-public agency. .
  - Several hospitals, clinics and provider groups have developed HIEs or HIE-like systems, or are in the process of doing so. These will provide a strong base for the development of a statewide HIE.
  - There has been, and continues to be, significant legislative and administrative effort behind the development of HIEs in Connecticut. The development of the HITEAC and the HITE-CT are legislative actions with State and volunteer support. eHealthConnecticut has also made great strides in bringing stakeholders together and starting pilots in several areas in collaboration with DSS focusing on HIT adoption.
  - All of these efforts are the building blocks upon which a statewide HIE can be built. Although a statewide HIE in Connecticut will not be immediately effective for health care stakeholders in the State, preparation is undoubtedly moving steadily in the right direction.

2.3 Coordination with State and Federal Programs

2.3.1 Medicaid Coordination

The Department of Social Services (DSS) Medical Care Administration has gained approval of its Planning-Advance Planning Document (P-APD) from the Center for Medicare and Medicaid Services (CMS) in order to proceed with the planning phase for the development of Connecticut's State Medicaid HIT Plan (SMHP) and road map. It is DSS's intention that the SMHP will align with and exercise opportunities for economy and efficiency with Connecticut's HIE efforts; support provider adoption, including technical assistance and provider incentives; leverage the availability of clinical data for administrative efficiencies; and implement reporting for healthier Medicaid members and Connecticut residents. At the same time, a robust and viable State HIE is essential to the success of the SMHP.

Once the SMHP and road map, and required Implementation Advanced Planning Document (IAPD) are developed and approved by CMS, HITE-CT will move forward with the implementation of the SMHP to address the specific integration requirements between Connecticut's HIE and Medicaid to promote and achieve widespread adoption and meaningful use of HIT, including the use of the HIE for the exchange of health information by eligible providers.

This Strategic Plan describes the ongoing collaboration and coordination efforts with the State's Medicaid Agency (DSS).

DSS has been an active participant in health information technology workgroups and collaborative efforts, including but not limited to:

- Contributing to the development of the statewide Health Information Technology Plan as a member of the Steering Committee overseeing the initiative
- Collaborating with eHealthConnecticut to implement a health information exchange pilot with a targeted group of hospitals and FQHCs
- Participating in HITEAC meetings and as an active member of the HITE-CT Strategic Plan State project team for the development of this Strategic Plan and the Operational Plan

The following list includes the initial set of activities that DSS plans will be in the SMHP to support the integration of the statewide HIE with the Medicaid program's HIT adoption efforts:

- Through December 31, 2010, continue to be a member of HITEAC to help ensure Connecticut's HIE supports Medicaid needs in terms of program activities promoting HIT adoption and meaningful use
- Beginning October 1, 2010, as a member of HITE-CT Board of Directors to provide the oversight of the HIE initiative to promote the long term sustainability of HITE-CT and the Connecticut HIE
- Ensure that clinical data is shared across Connecticut's health care system, including Medicaid
- Administer the Medicaid HIT adoption and meaningful use incentive program and link providers into the Connecticut HIE.

2.3.2 Coordination of Medicare and Federally Funded, State Based Programs

The Connecticut State Government HIT Coordinator has begun to coordinate with a number of the federally funded programs across the State. Some of these programs are summarized in Table 1.

Table 1. HITE-CT Program Coordination

Program	HITE-CT Coordination
Epidemiology and Laboratory Capacity (ELC) Cooperative Agreement Program	The State Epidemiologist has expressed interest in collaborating even further to develop capabilities that would support ELC efforts.
Connecticut Prescription Monitoring and Reporting System	Significant coordination already exists between this program and the HITEAC. The CT Commissioner of the Department of Consumer Protection is a member of the HITEAC and the HITE-CT Board of directors and the manager of the CPMRS is a HITEAC attendee.
Maternal and Child Health State Systems Development Initiative programs	There is currently collaboration between this program and DSS, DCF, UCONN and the Connecticut State Department of Education. All have expressed interest in integrating further with the HIE for increased data availability
State Office of Rural Health Policy	The Office has connections to DPH and is eager to collaborate with HITE-CT to promote HIT and HIE services to rural providers.
State Offices of Primary Care	The State Office of Primary Care in Connecticut is part of the Department of Public Health and has been involved in the development of this Strategic and Operational plan, and will be seeking opportunities to work further with the HIE.
State Mental Health Data Infrastructure Grants for Quality Improvement (SAMHSA)	The Connecticut Department of Mental Health & Addiction Services (DMHAS) is the recipient of Federal SAMHSA grants. Through past grants, DMHAS has strong working relationships with other State agencies, and will consistently evaluate opportunities to integrate with the HIE.
State Medicaid/CHIP Programs	The Department of Social Services is the provider for State Medicaid and CHIPS programs. DSS has been an active participant in the planning of the HITE-CT and is including all programs in its purview in the planning for the HIE.
Indian Health Service (IHS) and tribal activity	The State has working relationships with the two Indian tribal nations in Connecticut. As part of the interaction with the nations, the HITE-CT will work with the nations to enable information exchange with the tribal care providers.

2.3.3 Statewide Participation with Federal Care Delivery Organizations

Connecticut is actively planning to coordinate with federal care delivery organizations, including the Department of Veterans Affairs, and the Department of Defense.

HITE-CT has begun to craft an approach to reach out to key stakeholders from these organizations with the purpose of coordinating their participation in Connecticut's HIE activities.

2.3.4 Coordination with other ARRA Programs

Regional Extension Centers

In April 2010, eHealthConnecticut was assigned as the REC for Connecticut. The assignment included a $5.75 million grant to allow them to offer technical assistance, guidance, and information on best practices to support and accelerate health care providers' efforts to become meaningful users of EHRs.

DPH and HITEAC members, some of whom are also on the Board of Directors of eHealthConnecticut, are coordinating assets to encourage HIE adoption along with EHR adoption to ensure the most effective use of HIT for beneficiaries of the REC's services.

Broadband Mapping and Access

Broadband coverage is not complete in Connecticut. Rural areas in the northeast and northwest corners of the State have lagged behind in propagation of high speed Internet access. Many of these towns have been identified by the Office of Rural Health.

The Connecticut Recovery Working Group, established to coordinate ARRA funded activities, is in the process of completing the Broadband Mapping exercise and has applied for additional funds to increase broadband coverage in the State. Representatives of the Working Group are in close contact with members of the HITEAC and are actively looking for opportunities for the two to work together, along with HITE-CT, to enable broadband coverage for providers, especially in rural areas of the State.

Community Health Centers

Thirteen of Connecticut's fourteen active federally qualified community health centers were awarded grants from ARRA funds totaling nearly $40 million. The community clinics and their representatives have been active participants in the HITEAC and in exchange discussions in the State, and have expressed interest in continuing to do so.

2.4 Governance

The vision, strategic goals and principles described in Section 2.1 will be the guide for the governance of the HITE-CT. Governance for the HITE-CT must be highly transparent and maintain high standards of accountability to ensure that the full network of stakeholders and participants are able to build the vital consensus and trust necessary for this kind of information sharing enterprise. DPH is moving forward with creating a governance framework that will support the development and facilitation of collaboration among the initiative's stakeholders, ensure compliance with legal and policy requirements and also provide for the appropriate degree of accountability to the residents of Connecticut.

There is already a demonstrated support for the HITE-CT concept and vision across a variety of stakeholders in Connecticut, including the major medical provider representative organizations. Productive relationships have been developed among State of Connecticut agencies that operate in the Health IT arena. Considerable progress has been made in the collaborative development of the original State HIT Plan in 2009 and the establishment of the 2010 legislation in support of the current interim governance and the sustainable ongoing governance for the HITE-CT.

The governance structure must continuously work to maintain and enhance support for the HIE concept from within the Connecticut medical provider community, patient advocacy groups, and most importantly patients themselves.

The governance model for HITE-CT will also address collaborative relationships beyond Connecticut. This will involve establishing the mechanisms necessary to ensure effective coordination with the Nationwide Health Information Network. It will also include defining and supporting HIE collaboration across state lines, particularly in areas with shared populations and health care markets in Rhode Island, Massachusetts and New York.

2.4.1 Current State Assessment

Starting in 2008, the State of Connecticut established a team representative of health care stakeholders and led by the Department of Public Health to address Connecticut's strategy for HIT. The result of this was the CT State Health Information Technology Plan published in June 2009. This Plan articulated Connecticut's need for a statewide HIE and recommended, among other things, the formation of the CT State RHIO to include *..." a diverse governing body representative of its key constituencies"*[20] to be responsible for implementing the other recommendations of the Plan.

Subsequent legislation assigned the Department of Public Health as the lead health information exchange organization for the State with responsibility for the creation of *..."an integrated state-wide electronic health information infrastructure for the sharing of electronic health information among health care facilities, health care professionals, public and private payers and patients"*[21].

2.4.1.1 Interim Governance

Initial legislation established the current interim governance structure, the HITEAC, which includes wide stakeholder representation with the purpose of advising the Department of Public Health in HIE activities. Members and their appointing authorities are as follows:

- The Lieutenant Governor
- (a) A representative of a medical research organization, (b) an insurer or health plan representative, and (c) an attorney with experience in privacy, health data security, or patient rights, each appointed by the governor
- (a) A person with experience with a private sector health information exchange or HIT entity and (b) a person with expertise in public health, each appointed by the Senate President pro tempore
- (a) A representative of hospitals, an integrated delivery network, or a hospital association and (b) one person with expertise with federally qualified health centers, each appointed by the House speaker
- A primary care physician whose practice uses electronic health records, appointed by the Senate majority leader
- A consumer or consumer advocate, appointed by the House majority leader
- A person with experience as a pharmacist or other health care provider that uses electronic health information exchange, appointed by the Senate minority leader; and
- A large employer or business group representative, appointed by the House minority leader.

- The Commissioners of Public Health, Social Services, Consumer Protection, and Health Care Access, the Chief Information Officer, the Office of Policy and Management Secretary, and the Health Care Advocate, or their designees, are ex-officio, non-voting Committee members.

Since its inception in October 2009, the HITEAC has been meeting in public sessions monthly. In December 2009, it formed several subcommittees to increase stakeholder participation and buy-in and increase the experience and expertise available to the Committee on the many subjects the Committee has under consideration.

In the short term, subcommittees are responsible for making recommendations to the Committee with respect to development of the HIE Strategic and Operational Plans. In the longer term, the Committee may want to consider using the subcommittees to assist in monitoring and evaluating the State HIE Cooperative Agreement, or in addressing the other responsibilities of the Committee as articulated in statute.

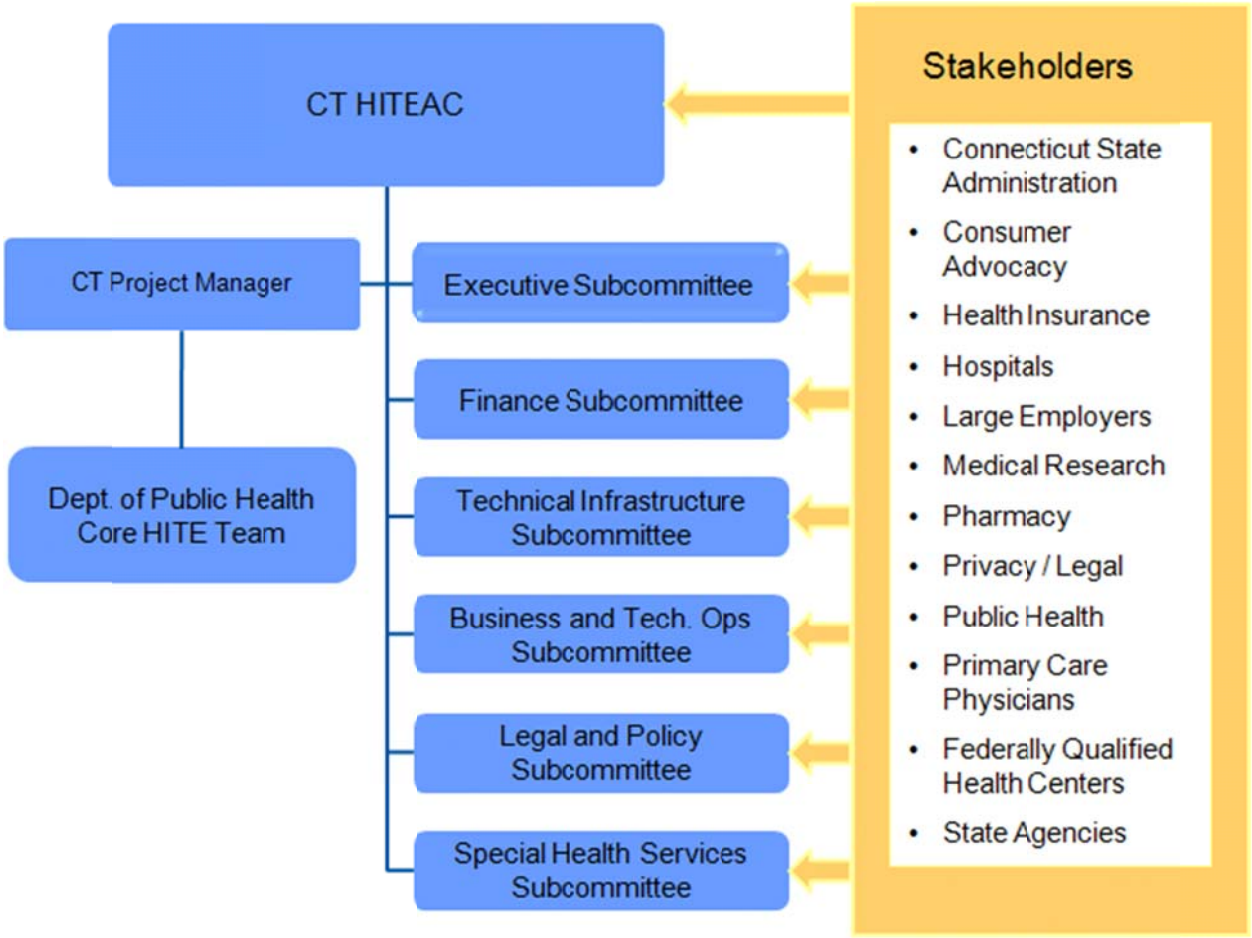
Committee members chair the subcommittees, subject to the approval of the HITEAC Chair. The subcommittee chairs make appointments to the subcommittees from the vast wealth of available stakeholder expertise. State agency personnel can also staff subcommittees.

The Committee addresses the governance issues specified by the ONC. Each subcommittee addresses one of the following areas:

- Finance
- Technical Infrastructure
- Business and Technical Operations
- Legal/Policy
- Executive/Governance
- Special Health Services

Figure 5 on the following page, presents the Interim Governance Diagram.

Figure 5. Interim Governance Diagram



2.4.1.1.1 Finance Subcommittee

The Finance Subcommittee is responsible for making recommendations to the Committee regarding the identification and management of financial resources necessary to fund the health information exchange. This domain includes public and private financing for building HIE capacity and sustainability. This also includes, but is not limited to, pricing strategies, market research, public and private financing strategies, financial reporting, business planning, audits and controls.

As part of the short term strategic and operational planning processes, the Finance Subcommittee makes recommendations addressing the following objectives:

- Developing the capability to effectively manage funding necessary to implement the State Strategic Plan. This capability should include establishing financial policies and implementing procedures to monitor spending and provide appropriate financial controls
- Developing a path to sustainability, including a business plan with feasible public/private financing mechanisms for ongoing information exchange among health care providers and with those offering services for patient engagement and information access

2.4.1.1.2 Technical Infrastructure Subcommittee

The Technical Infrastructure Subcommittee is responsible for making recommendations to the Committee on the statewide architecture, hardware, software, application, network configuration and other technological aspects that physically enable the technical services for HIE in a secure and appropriate manner. All recommendations to the Committee need to address the long term (> 2 years) and the short term (6 months–2 years) goals to support the planning and implementing phases of the overall project. Short term goals will identify the local and State level requirements that can be achievable by the end of year 2 and long term goals that will address interoperability with the NHIN.

Specifically, this Subcommittee must address, but is not limited to addressing, the following objectives:

- Establish mechanisms for ensuring and establishing interoperability with the NHIN
- Ensure adherence to HHS adopted standards and certifications
- Define and develop the technical architecture approach for the State HIE

2.4.1.1.3 Business and Technical Operations Subcommittee

To achieve successful interoperability at the local, state and national levels, statewide business practices necessary to support the delivery of HIE services must be developed. The Business and Technical Operations Subcommittee is responsible for making the recommendations to the Committee regarding how the project will be managed, evaluated and what will be reported. This domain also includes activities such as procurement, requirements identification, process design, functionality development, help desk establishment, system maintenance, change control and others as deemed necessary to fulfill its objectives. This Subcommittee will recommend a process that prioritizes all necessary HIE services and propose how the State will leverage existing regional and State efforts.

For example, the Subcommittee must review and describe the planning and implementation phases necessary to recommend to the Committee on topics including:

- Determine the current state of readiness and how it will build capacity
- Map a critical path to develop HIE services for all health care providers throughout the State
- Define and describe the incremental progress of each domain and how it will be evaluated and reported on
- Identify the potential barriers and describe how resolution/agreement will occur

Specifically, the Subcommittee must address, but is not limited to addressing, the following objectives:

- Support meaningful use EHR adoption in collaboration with the Regional Extension Center
- Leverage existing statewide and regional capacity
- Leverage statewide services and directories
- Establish the HIE infrastructure and interoperability with the NHIN

2.4.1.1.4 Executive/Governance Subcommittee

The Executive/Governance Subcommittee consists of the chairs of each of the other subcommittees, as well as the Chair of the HITEAC. The subcommittee recommends ways to will build a comprehensive governance model to address:

- Advocating for HITE-CT and encouraging public participation
- Encouraging stakeholder participation in HITE-CT including individuals, enterprises and stakeholder representative bodies such as associations
- Promoting health information technology adoption across all health care providers, payers, and patients to provide the structured health information that will be the life blood of HITE-CT
- Strategic planning to ensure HITE-CT is at the forefront of Health IT in Connecticut and Nationwide
- Managing the HIE utility by overseeing technical operations to ensure availability, adaptability, and usability and the organization required to support that
- Conducting business operations including financing and accountability mechanisms
- Providing accountability and oversight of the exchange of health information to ensure legal and policy requirements are satisfied
- Fostering nationwide and interstate collaboration on health information exchange and related standards development

2.4.1.1.5 Legal/Policy Subcommittee

The Legal/Policy Subcommittee is responsible for making recommendations to address privacy and security issues related to health information exchange within the State, and between states. Such recommendations should address the need to:

- Analyze and/or modify State laws
- Develop policies and procedures
- Develop trust agreements such as data sharing, data use and reciprocal support agreements necessary to enable information exchange

The recommendations should also address how non-compliance with Federal and/or State law or policy applicable to HIE will be addressed.

This Subcommittee is also charged with making recommendations regarding how the statewide HIE will comply with all applicable Federal and State legal and policy requirements, including how policy requirements will be developed and implemented to enable appropriate and secure HIE statewide as well as on an interstate basis.

2.4.1.1.6 Special Health Services Subcommittee

This Subcommittee is responsible for making recommendations regarding how to involve community based service providers in the development of the statewide HIE. The Subcommittee will also make recommendations specific to the following:

- Medically underserved populations

- Newborns, children and youth, including those in foster care
- Elderly
- Persons with disabilities
- Limited English Proficiency persons
- Persons with mental and substance abuse disorders
- Persons in long term care

2.4.2 Role of the Governance Entity

The governance structure for HITE-CT must foster a collaborative and entrepreneurial spirit in the development of initiatives and projects in health information sharing. The HITE-CT governance structure must balance these sometimes competing objectives and allow for the appropriate exchange of health information for State agencies and Connecticut health care providers.

Governance for achieving the HITE-CT vision will effectively support planning and startup, HITE-CT development and implementation and the oversight and governance of HITE-CT ongoing management and operations.

Three critical principles drive the governance requirements for the HITE-CT. These are: 1) clarity and transparency of the decision making processes and responsibilities; 2) inclusiveness of stakeholder participation from the onset, and 3) strong interdependency between the governance of the HITE-CT and financing mechanisms.

2.4.2.1.1 HITE-CT Board of Directors

In June 2010, Governor M. Jodi Rell signed legislation creating the HITE-CT as a quasi-public agency that will take over responsibility for the implementation and management of the statewide HIE from DPH in January 2011 and become the lead health information organization for the State. The HITE-CT has a governing Board of a similar structure to the HITEAC but with some expansion of stakeholder representation. The new Board will add a second consumer or consumer advocate, and a physician from a small practice. It also provides full voting Board membership to representatives from the Connecticut Departments of Public Health, Social Services, Consumer Protection and Information Technology, and eliminates membership from the Office of Health Care Access, as this office has been subsumed under the DPH. (This results in a HITE-CT Board with 18 full voting members and 2 ex-officio non-voting members. Of the voting members, 5 are government employees of the State and 13 are unpaid stakeholder representatives with limited terms appointed by the Governor and the legislature.

The Board shall select, appoint and determine remuneration for a Chief Executive Officer (CEO). The HITE-CT CEO will be responsible for building an organization and administering the agency's programs and activities in accordance with policies and objectives established by the Board including:

- Implementation and periodic revisions of the health information technology plan including the implementation of an integrated statewide electronic health information infrastructure for the sharing of electronic health information among health care facilities,

health care professionals, public and private payers, State and federal agencies and patients

- Appropriate protocols for health information exchange
- Electronic data standards to facilitate the development of a statewide integrated electronic health information system for use by health care providers and institutions that receive State funding

The CEO of the HITE-CT will report in writing annually to the Governor and the General Assembly, on funding and the status of health information exchange and health information technology in Connecticut.

HITE-CT has the ability to create subsidiaries which will also be quasi-public agencies with their own boards and at least 50% representation from the HITE-CT Board.

2.4.2.1.2 Governance Model

HITE-CT will build a comprehensive governance model that expands upon the legislative definition and description of the HITE-CT Board roles and responsibilities. This model will categorize HITE-CT decision making into a number of "decision domains." The model will address specific decision makers by role (e.g., HITE-CT CEO) and decision making groups (e.g., HITE-CT Board and subcommittees) and specify the roles and responsibilities of the decision makers for decisions in each domain.

The governance model for HITE-CT must address all possible areas of decision making including:

- Advocating for HITE-CT and encouraging public participation
- Encouraging Stakeholder participation in HITE-CT, including individuals, enterprises and stakeholder representative bodies such as associations
- Promoting health technology adoption across all health care providers, payers, and patients to provide the structured health information that will be the life blood of HITE-CT
- Strategic planning to ensure HITE-CT is at the forefront of Health IT in Connecticut and Nationwide
- Managing the HIE utility by overseeing technical operations to ensure availability, adaptability, and usability, and the organization required to support that
- Conducting business operations, including financing and accountability mechanisms
- Providing accountability and oversight of the exchange of health information to ensure legal and policy requirements are satisfied
- Fostering nationwide and interstate collaboration on health information exchange and related standards development

2.4.3 Accountability and Transparency

It will be vital to ensure that the governance of HITE-CT operates in a highly open, accountable and transparent fashion to maintain the high levels of trust and consensus necessary to create and maintain HITE-CT.

HITE-CT must be accountable to all stakeholders, including participants, supporters (including funders), and the residents of Connecticut. As such, it will be essential to develop clear performance metrics for HITE-CT that will identify the inputs, outputs, and outcomes of the HITE-CT initiative and have the capacity to provide clear accountability for the initiative.

This will include meeting ONC and ARRA reporting requirements. The evaluation approach detailed in Section 2.9 provides additional information on these requirements.

The HITE-CT will place significant effort to meet these requirements by identifying and building consensus on the appropriate measures needed across all stakeholders. This will include developing measures that align with HITE-CT strategic objectives, and providing a clear means for the evaluation of the HITE-CT that will allow for the ongoing updating of strategic and operational plans. An effective accountability approach will require the adoption of business intelligence capabilities within the technical solution for HITE-CT.

All current participants in the HITE-CT initiative are supportive of a high level of transparency for HITE-CT to provide the maximum visibility into planning and development activities and decisions. At a minimum, the HITE-CT will provide a publicly available policy manual detailing HITE-CT's operating and management procedures and will establish an open communications strategy, including public awareness/education campaign and the HITE-CT annual report.

In addition a process has been put in place by contracting with the University of Connecticut Health Center to conduct continuous and structured evaluation of the HITE-CT activities and governance model to ensure effectiveness of decision making and accountability.

2.4.4 State Government Leadership Changes

Connecticut will hold a gubernatorial election in November 2010. As the current Governor, M. Jodi Rell is not seeking re-election, the election of a new Governor is inevitable and the administration will change. This results in a level of uncertainty as a number of key leadership positions in Connecticut State government will change incumbents during a critical time in the development and transition of HITE-CT's governance structures and processes. It is critical that a communications process be initiated to ensure newly elected and appointed leadership are fully briefed in a timely manner. Part of this communications process includes the development of a State Leadership Awareness, Education and Participation Plan. The process to develop this must include:

- Understanding of stakeholder groups, viewpoints and needs of newly elected and appointed leadership
- Tailoring of communication around the value proposition of the HIE to each stakeholder group
- Developing and sharing case studies that demonstrate the value of the HIE
- Coordinating with the Strategic and Operational planning process to ensure strong, compelling and fully aligned messages are presented.

2.4.5 Governance Summary

- **HITE-CT Legislation**
  - An interim governance structure has been well established under the leadership of DPH and a transition is planned to occur between the first HITE-CT board meeting in October and hand-over of responsibilities from DPH to HITE-CT in the beginning of January 2011.
- **Roles of Governance**
  - The founding principles of HITE-CT include ensuring the clarity of decision making processes, inclusiveness, and that those organizations that will support HITE-CT are provided a voice in governing HITE-CT.
- **Quasi-public Agency**
  - The long-term governance of health information exchange in Connecticut will be completed by a quasi-public agency, the HITE-CT, that will reflect the interests of all stakeholders and ensure the efficient and effective management of the HIE.
- **Accountability and Transparency**
  - HITE-CT must be governed and operated in a clear and accountable manner to ensure stakeholder support and that the promise of health information exchange is realized in Connecticut. This will mean meeting, and going above and beyond, all State and Federal reporting requirements. A process has been put in place by contracting with the University of Connecticut Health Center to conduct continuous and structured evaluation of the HITE-CT activities and governance model to ensure effectiveness of decision making and accountability.

2.5 Finance

Connecticut is focused on the core issue of securing and maintaining adequate long term financial sustainability, as it presents a key risk for the development of the HIE. The State HIE cooperative agreement grant goes a long way to help set the foundation necessary to get HITE-CT initiative moving forward because it will provide $7.29M plus approximately $1.16M in matching funds or in-kind services for a total of $8.45M. Ensuring that the required matching funding for the cooperative agreement is available will be a key priority for HITE-CT along with establishing an effective cost allocation methodology, where necessary, to meet Federal requirements.

2.5.1 Current State Assessment

Connecticut has begun to address the issue of financial sustainability of the HIE. The plan to address this issue has the following key components:

- To address the need for long term sustainability, Connecticut studied other State's approaches to providing ongoing sustainable funding for health information and constructed a number of scenarios
- Connecticut has developed a proposed, multi-phase approach to funding. Each phase is aligned to the products and services being provided by the HIE, the value being provided, the extent of participation and the overall level of maturity
- The proposed model will seek income from various stakeholders in the form of assessed fees, subscription fees and transaction fees (based on services provided) to support its financial needs and growth of its HIE capabilities
- It will be necessary to establish clear financial controls and reporting so as to ensure that the financing of HITE-CT is economical and sustainable over time
- Connecticut believes that the financial sustainability plan must be coordinated with the deployment of the HIE functionality that in turn is connected directly to the value proposition (e.g., providing secure transmission of clinical results will be a cost saving for hospitals, providers and laboratories)

2.5.2 Value Proposition of HITE-CT

There is a broad agreement among HITE-CT stakeholders that there needs to be a strong and compelling value proposition for the HIE that sets realistic expectations and that is articulated in both qualitative and quantitative benefits. This value proposition must demonstrate economic and health outcome specific benefits, include performance indicators for reporting requirements and more importantly, enable tailoring of communication around the value of the HIE to each stakeholder group.

Table 2 provides an initial view of the future users of the HIE with examples of corresponding benefits they can expect to obtain from the HIE. This table will be revised and maintained as new stakeholders are identified and new services created.

Table 2. Initial Mapping of Users and Value Proposition

Connecticut HIE Stakeholder/User	Examples of Value/Benefit
■ Patient or Caregiver	■ Improved quality in care delivery and health outcomes, including: ❑ Fewer visits through better disease management ❑ Shortened length of stays ❑ Fewer adverse drug events ❑ Reduction of duplicative and unnecessary tests, visits, referrals ■ Reduced health care expense ■ Support devices in patients' homes ■ Improved health care services to rural and underserved populations
■ Nurses ■ Primary Care Physicians ■ Specialty Care Physicians (behavioral, mental health, therapists, etc.) ■ Pharmacists	■ Improved quality of patient care through: ❑ Improved transition of care ❑ Medical errors avoided ❑ Reduction of unnecessary clinical tests ❑ Remote monitoring and telehealth ❑ Improved communications with other providers ■ Lives saved (mortality reduction) ■ Improved reimbursement rates ■ Improved customer service/patient loyalty ■ Hospitalization avoided ■ Productivity and efficiency gains
■ Hospitals and Health Systems ■ Community Health Centers ■ Clinics ■ Ambulatory Surgery ■ Skilled Nursing Facilities ■ Long-Term Care Facilities ■ Department of Correction Provision of Health Care ■ Pharmacies	■ Improved quality of patient care through: ❑ Improved transition of care ❑ Medical errors avoided ❑ Reduction of unnecessary clinical tests ❑ Remote monitoring and telehealth ❑ Improved communications with other providers ■ Improved reimbursement rates ■ Improved customer service/patient loyalty ❑ Improved competitive market position ❑ Lives saved (mortality reduction) ❑ Hospitalization Avoided ❑ Productivity and efficiency gains
■ Independent Laboratories ■ Independent Radiology Centers ■ Independent Pharmacies	■ Improved quality of patient care ■ Improved customer service/patient loyalty ■ Improved competitive market position
■ Employer/Plan Administrator ■ Health Plans ■ Pharmacy Benefits Managers (PBMs)	■ Improved regional health quality ■ Reduced expense in delivering care ■ Improve quality in care delivery

Connecticut HIE Stakeholder/User	Examples of Value/Benefit
■ CMS/Medicare ■ State Medicaid ■ State Agencies (Department of Public Health, DMHAS, etc.)	■ Support achieving meaningful use measures ■ Improved public health services ■ Improved regional health quality ■ Reduced expense in delivering care ■ Improved quality in care delivery ■ Availability of data for various purposes ■ Compliance achieved with productivity and efficiency gains
■ Federal Agencies and Care Providers (Department of Veterans Affairs, Department of Defense, Indian Health Services, etc.)	■ Improved regional health quality ■ Reduced expense in delivering care ■ Improved quality in care delivery ■ Availability of data for various purposes

2.5.3 Short Term Startup Funding for the HITE-CT

Connecticut has developed a proposed multi-phased approach to funding. The first phase consists of a startup funding required to implement limited HIE functionality. The State plans to leverage the ARRA funding as the foundation and funds from fees levied on potential for profit and non-profit HIE users or contributors. In addition, HITE-CT will make a priority to identify the required matching funding for the cooperative agreement is available along with other short term funding sources as required.

2.5.4 Long Term Sustainability for HITE-CT

Connecticut's HITEAC has agreed on a key set of principles for creating a clear plan for sustainability as the State's initial funding source will eventually become depleted. These principles require the HIE to: 1) offer services that the future HIE users will want, 2) at a price they will be able to bear, 3) in a way that revenue exceeds expenses to further invest in ongoing value creation initiatives, and 4) deliver services at a level that health care organizations and other stakeholders have come to expect from suppliers. In addition, once funding has been invested in the development of the HIE infrastructure, these assets must be leveraged and reused to deliver as many value-added services as necessary to achieve sustainability.

Connecticut's multiphase approach to funding was arrived at after evaluation of different long term funding options for HITE-CT operations that may require various combinations of legislative mandates and voluntary participation by stakeholders. These potential revenue sources include continuation of direct funding from sponsoring government and/or charges, fees, and payments based on the actual utilization of HITE-CT by participants. The funding structure has been developed to encourage, not discourage, participation by as many health providers and organizations as possible. The funding structure needs to be adaptable to increases in HITE-CT network participants and the maturity increases of the HITE-CT network.

2.5.4.1 Working Assumptions

A number of key working assumptions were made when developing the proposed multiphase approach. These are listed below:

- The State will require all Providers of Care that participate in the HIE to be able to submit PHI to the HIE or retrieve PHI from the HIE

- Technically challenged providers unable to electronically provide or receive PHI should be able to obtain technical assistance from the Regional Extension Center
- Incentives to participate include a Phase 1 mandatory universal assessment fee[22] and ties to meaningful use
- Legislation must be enacted to establish the universal assessment fee

- Providers of Care include Payers
- Patient consent will be captured, stored and transmitted to the HIE by the provider
  - The HIE will require a Uniform State policy on restrictions within the consent policy
  - The HIE will also need additional administrative capacity within HIE to handle restrictions
- There will be a “break the glass” capability
- PHR capabilities should be offered through commercial products
  - The PHR capability has the potential to generate a significant revenue stream for providers of care
  - This capability will require administrative oversight
  - Consent will be handled at the patient level
  - Oversight will be required for public protections
  - Education will be critical to successful utilization and roll out of PHRs
- All information that flows through the CT HIE needs to identify source
  - Updates can only be made at the source
  - Need administrative process to update information if source is no longer available
- Value generated in Year 1 will be insufficient to achieve sustainability of health information exchange
- Proposed funding model will mature over time in concert with the maturing value of the exchange

2.5.4.2 Multi-Phased Funding Model

The details of the current proposed multi-phased funding model are included in Table 3.

Table 3. Multi Phased Funding Model

Phase	Funding Overview
Phase 1: Public Health Reporting ■ Exchange based on the development of All Providers of Care Database and a Records Locator Service—all constituents submit identified data directly to DPH ■ Value Proposition: Improved monitoring of population based health data, improved mandatory reporting, enhanced public health research	■ Federal ARRA and State Funding, (including State match) ■ Flat and/or %- based fees from all Connecticut Health Plans (Claims %), Hospitals (Bed or Discharge), Physicians (Flat Licensure Fee), CHCs (% claims), Pharmacies, Labs, LTC facilities and other potential for profit and non-profit HIE users or contributors ■ No fee to consumers or patients ■ Legislation required mandating assessments ■ Assessment to sunset at TBD date ■ The HITEAC Finance subcommittee will continue to explore the possibility of foundation/grant funding to reduce the need for Assessment funds
Phase 2a: Continuity of care documents/records (CCD/CCR) ■ Exchange based on further development of HIE, including Master Patient Index and Master Provider Index, Record Locator and Security. ■ Value Proposition: Clinical user access to current summary patient data, follows patient through health care delivery system, improved communication between care providers, continued enhancement of public health reporting	■ Hybrid Funding Model ❑ Plan to sunset the assessment fees at TBD date during Phase 2 ❑ Transition to a Subscription Model ■ Potential users have incentive to connect to HIE since they already pay to support it ■ Requires more robust HIE
Phase 2b: Quality Reporting ■ Exchange approach and data topology of the HIE depends on the granularity of Quality Reporting required ■ Value Proposition: Improved patient outcome at the practice or patient level. This might enable pay for performance, which, when implemented, might result in further improved outcomes	■ As per Phase 2a—Continue Hybrid funding mechanisms ■ Expect to complete the transition to a Subscription Model
Phase 3: Personal Health Records (PHR) Enabled ■ Value Proposition: Improved patient outcome at the patient level, patient centered health care. Significant Potential Revenue Stream for Providers of Care	■ Continuation of the Subscription Model ■ Add payment for services where possible (e.g., may be possible to charge PHR vendors transaction fees) ❑ PHRs to be generated through commercial products ❑ Consent to be handled at the patient level, personal choice of PHR provider ❑ Oversight required to protect public ❑ Education required

Before HITE-CT moves forward on this approach, the Finance Subcommittee will work collaboratively to develop a four year financial sustainability model based on estimates of the level implementation of services and ongoing support.

2.5.5 Financial Management and Reporting

Connecticut will establish and maintain the necessary financial accounting of the HIE project, the appropriate organizational reporting structure and ensure that the required audit and control mechanisms are established and sustained as ongoing operations of HITE-CT. HITE-CT will ensure that mechanisms are in place and maintained to:

- Comply with audit requirements of the Office of Management and Budget
- Submit annual Financial Status Reports
- Submit semi-annual progress reports to ONC
- Submit quarterly reports as specified in section 1512(c) of the Recovery Act, including detailed information on any subcontracts or subgrants awarded

2.5.6 Finance Summary

- Value Proposition
  - There is a broad agreement among HITE-CT stakeholders that there needs to be a compelling value proposition for the HIE that sets realistic expectations and that is articulated in both qualitative and quantitative benefits. This value proposition must demonstrate economic and health-outcome specific benefits, include performance indicators for reporting requirements and most importantly, enable tailoring of communication around the value of the HIE to each stakeholder group.
- Short-Term Start-Up Funding
  - Connecticut has developed a proposed multi-phased approach to ensure funding. The first phase consists of start-up funding required to implement limited HIE functionality. The State plans to leverage the ARRA funding as the foundation along with funds from fees levied on potential for-profit and non-profit HIE users or contributors. In addition, HITE-CT will make a priority to identify the required matching funding for the cooperative agreement is available along with other short-term funding sources as required.
- Long-term Sustainability
  - For long-term sustainability Connecticut has developed a multi-phased approach to funding with each phase aligned to the products and services being provided by the HIE, the value being provided, the extent of participation and the overall level of maturity. This model will seek contributed income from various stakeholders in the form of universal assessment fees, subscription fees and transaction fees (based on services provided) to support HITE-CT's financial needs and growth of its HIE capabilities. Before HITE-CT moves forward on this approach, the Finance Sub-committee will work collaboratively to develop a four-year financial sustainability model based on estimates of the level implementation of services and on-going support.
- Financial Management and Reporting
  - HITE-CT must be able to meet all reporting requirements, especially those additional requirements for ARRA funding. HITE-CT must be able to demonstrate to all of its stakeholders the realization of the value proposition of the HIE and a positive cost-benefit analysis.

2.6 Technical Infrastructure

HITE-CT is envisioned as providing the connecting network for the exchange of health information across Connecticut, connectivity with other states and with the NHIN platform. The infrastructure will be built on a secure, service oriented architecture that enables health care data transfer using recognized Federal and State health information technology standards. The technical design will enable connection to regional HIEs and integrated health systems to leverage existing investments in their HIE efforts.

Connecticut's approach to defining and establishing the technical infrastructure for HITE-CT is focusing on key areas:

- Defining at a high level the complete set of products, capabilities and services that the HITE-CT infrastructure will provide in support of the overall vision
- Establishing the appropriate authentication, credentials and consent management mechanisms to ensure the protection of consumer privacy
- Augmenting the understanding of Connecticut's HIE readiness, including HIT adoption across health care providers
- Ensuring HITE-CT meets the security, integrity, availability and reliability requirements
- Considering the integration with existing and planned State agency infrastructure, such as Maven®, Public Health Information Network (PHIN) and Medicaid Management Information System (MMIS)
- Investigating the inter-state linkages that will be necessary for the effective development of the HIE to connect across state lines
- Leveraging existing patient and provider directories to avoid redundant work and costs

2.6.1 Current State Assessment

Planning for a Connecticut statewide HIE began in 2008 and resulted in the publication of the State HIT Plan in June 2009. During the development of the State HIT Plan, Connecticut achieved broad agreement that true transformation of the Connecticut health care system will depend on the conversion of a traditional, disparate, paper based system into the Nationwide Health Information Network based on the electronic exchange of data and compatible with national data standards in order to allow for interstate interoperability, serving the needs of patients, providers and health care decision makers.

Connecticut is committed to build upon the State HIT Plan by leveraging progress made to date in developing multiple local HIE and HIE-like systems, provider information surveys and various registries. The State realizes, however, that much work still needs to be done to gain a better understanding of the level of EHR adoption in physicians' practices—especially smaller practices (more than 60% of practices have less than five physicians)—to develop a collaborative process with strong technical representation from stakeholders to achieve a consensus based, practical HIE architecture and to define the resulting infrastructure requirements.

2.6.2 EHR Adoption

Increasing the use of EHRs by primary care practitioners, hospitals and other health care providers is a critical ingredient for achieving successful statewide exchange of health care information, including supporting the meaningful use requirements for eligible providers.

As highlighted in Connecticut's environmental scan findings, health care providers, providers and other entities in Connecticut have a wide variety of maturity levels with respect to HIT and EHR readiness and adoption. Therefore, it is important to conduct a robust readiness assessment that will inform a transition plan aligned with EHR adoption. This will support the change management necessary for successful HIT adoption and HIE utilization in Connecticut.

To improve the current level of understanding of Connecticut's health care provider's HIT adoption level and to supplement the data currently available, HITE-CT will work with the DSS SMHP project to leverage any additional HIT adoption knowledge uncovered.

Connecticut is a relatively compact sate geographically, with an estimated 95% of the geographical area having access to Broadband. However, there are 65 towns designated as rural concentrated in the Northeast and Northwest corners of the State. Anecdotal evidence indicates that a number of providers do not have ready access to high speed Internet connectivity. The Department of Public Utility Control (DPUC) is currently engaged in a comprehensive mapping of broadband connectivity for Connecticut. Both HITE-CT and SMHP planning efforts will coordinate with the efforts of DPUC and to extend the Connecticut Education Network to fully understand connectivity issues and build them into the roll-out plans.

To support and promote HIE adoption across the State, the State's Regional Extension Center will assess individual providers' levels of EHR use, and readiness to participate in an HIE. Because EHR adoption is a fundamental building block for achieving the exchange of health information, HITE-CT is committed to working closely with the Regional Extension Center(s) to define the mechanisms needed to encourage and support the adoption of certified systems in Connecticut. In addition, HITE-CT will work in partnership with the State Medicaid Agency to support eligible providers' adoption of EHRs and achieving meaningful use requirements through the use of the statewide HIE.

2.6.3 Interoperability

HITE-CT will adopt nationally recognized standards and protocols to enable the interoperability and connectivity with existing investments of current HIEs (e.g., Danbury Hospital's HealthLink), envisioned future regional and local community health information exchanges, health care providers, and integrated health delivery systems and hospitals. HITE-CT will connect to, accommodate, and/or assist the operations of these participants through an array of services.

HITE-CT will be able to provide essential services to physicians and patients, including, in the short term:

- Clinical summary (e.g., discharge summary) exchange for care coordination across health care settings
- Clinical data sharing between disparate systems containing patient data via those connected to the Statewide HIE, other local HIEs, other HIEs connected to the NHIN and systems connected to NHIN using NHIN Direct standards
- EHR interfacing with the ability to provide data to Personal Health Records for patient engagement
- Electronic public health and quality reporting
- HITE-CT will also provide focused outreach and support for providers to use connectivity and EHR-related services in the following areas in support of Meaningful Use objectives:
- Subscription and service for e-Prescribing

- Direct connection to auxiliary service providers to obtain and integrate structured data from Lab results

Key public health information systems can benefit from HITE-CT's ability to access disparate information sources such as:

- Maven® (a package being used to collect an expanding set of disease related screening and surveillance) which gets data via HL7 messages using the PHIN messaging infrastructure including Orion Rhapsody integration engine and the CDC NEDSS brokering tool
- Other CDC standardized and legacy registry systems
- Electronic Lab Reporting (ELR)
- Lab Information Management Systems (LIMS)
- Other DPH systems including: HIV/AIDS, EMS/Trauma and Cancer incidence monitoring systems, Newborn Hearing and Screening, Vital Records Birth/Deaths systems,

HITE-CT will provide the opportunity to streamline these data collection and data sharing efforts and make the approved and appropriate utilization of health information more efficient and effective. The statewide HIE should make it easier for providers to analyze health care indicators on an individual patient level and a statewide level to support the continuous improvement of health care practices and outcomes in Connecticut, and provide a streamlined and consistent source of data for UCONN's Connecticut Health Information Network health research data capability and other health research facilities.

There are also a number of future interoperability opportunities for State agency systems:

- Connecticut's e-License system (which includes all State medical licenses) to be a key source of HITE-CT data
- The Connecticut Prescription Monitoring and Reporting System for key prescription information
- Medicaid Eligibility and Claims Systems (EMS and MMIS)
- Medicaid e-Prescribing
- Medicaid Meaningful Use Incentives System
- State agency systems for Connecticut's various behavioral health programs

2.6.4 Standards Adoption Process

HITE-CT will specify and adopt health care related interoperability and data interchange standards for use within Connecticut. This will facilitate consistent and appropriate use of HITE-CT services. HITE-CT will be responsible for ensuring these standards and related guidelines are widely disseminated and understood.

2.6.5 HITE-CT Architecture Approach

HITE-CT will be the State authority for defining a comprehensive enterprise architecture (including standards considerations) and document the full scope of required HITE-CT technology infrastructure and services. HITE-CT will be required to have the expertise and correct skill sets at the leadership level in order to ensure that the architecture is in alignment with the Connecticut Enterprise Architecture—Technology Architecture (CTEA-TA) Standards.

The architecture will permit the exchange of data between entities that house patient data and authorized health care providers in a manner that will accommodate users at various stages of technology adoption.

To achieve the vision for the statewide HIE architecture, HITE-CT will follow the principles listed below in addition to the DOIT published "Conceptual Architecture Principles."

- **Open Process:** Establish an open and inclusive process for defining the statewide HIE architecture, identifying the needs of the community (patients, providers, payers, government, etc.) and clearly stating the value proposition of HITE-CT
- **Minimum Redundancy:** Build a data sharing/exchange environment where redundancies are minimized and the:
  - Level of data collected will be patient/event focused
  - Data collection process will be providing organization focused
  - Data aggregation for analysis and reporting will be objective/metric focused
- **Incentives:** Support eligible providers “meaningful use” of EHRs
- **Service Oriented:** The target architecture should consist of a number of services that are compliant with industry standards for service oriented architecture to facilitate reuse, adaptability and interoperability.
- **Standards:** Build upon Federal standards and implementation efforts, including the ONC HIT Standards Committee and those for the NHIN, and comply with emerging national interoperability standards from connectivity to semantic reconciliation
- **Investment Protection:** Provide the ability to integrate with existing platforms and health information exchanges
- **Independence:** Keep architecture skills separate from product and implementation vendors’ dependencies to maintain vendor and technology neutrality in the development of architecture
- **Ease of Use:** The future CT Health Systems Infrastructure will meet user defined criteria for ease of learning, use, and support
- **Real Time Integrated Enterprise:** The future CT Health Systems Infrastructure will allow providers, payers and the State to have current and up to the second information regarding all health care interactions
- **Scalable and Extensible:** Provide incremental expansion of data exchange functionality over time on a base that is scalable to accommodate additional users and extensible in expanding capabilities to meet future business needs and Federal and State mandates

Starting with the requirements and technical conceptual architecture developed as part of the State HIT Plan, HITE-CT will follow the Connecticut Enterprise Architecture-Technology Architecture (CTEA-TA) processes and develop a "Common Requirements Vision" or a similar process that will create an Enterprise Solution Architecture described from the following viewpoints:

- Business Architecture
  - Business Architecture represents the requirements, principles and models for the enterprise's people, financials, processes and organizational structure.
  - The goal of describing Business Architecture is to ensure that changes and enhancements to business functions, processes, financials, people and organizational structure are fully optimized along with information and technology, in support of the business strategy.
- Information Architecture
  - Information Architecture is that part of the architecture process that describes (through a set of requirements, principles and models) the current state, future state, and guidance necessary to flexibly share and exchange information assets to achieve effective enterprise change.
- Technology Architecture
  - Technology Architecture describes how technology components from multiple technology domains are deployed within technology patterns to provide the required technology services and that compliance to technology standards is upheld.

Systems that are built to change are more valuable than systems that are built to last, and, in reality, are the only ones that last. Service Oriented Architecture (SOA) is used to build systems that are intended to change. Connecticut has determined that the HITE-CT system requirements will only be properly satisfied by an SOA solution. Specifically, the proposed solution must adhere to the following five principles:

- **The system must be modular—**Each component is a service consumer, service provider or both. Modules will exist at a variety of levels of granularity e.g., at a business process level such as certification and benefits issuance to simplify alignment with key business processes and at lower levels such as data services for a single database table to enable reuse across the application and the whole architecture. As with business services, the capabilities to specialize, mix and match, and swap components are key benefits.
- **The modules must be distributable—**Each module must be able to run on disparate computers and communicate with each other by sending messages over a network at runtime. This will enable edge servers on providers and other HIE sites.
- **Module interfaces must be clearly defined and documented—**Software developers write or generate interface metadata that specifies an explicit contract so that another developer can find and use the service (this helps enable loose coupling).
- **Modules must be swappable—**A module that implements a service can be swapped out for another module that offers the same service and interface. This is an aspect of loose coupling and it enables incremental maintenance and enhancements and means that HITE-CT's technology capabilities can be easily evolved over time.
- **Service provider modules must be shareable—**Modules are designed and deployed in a manner that enables them to be invoked successively by disparate service

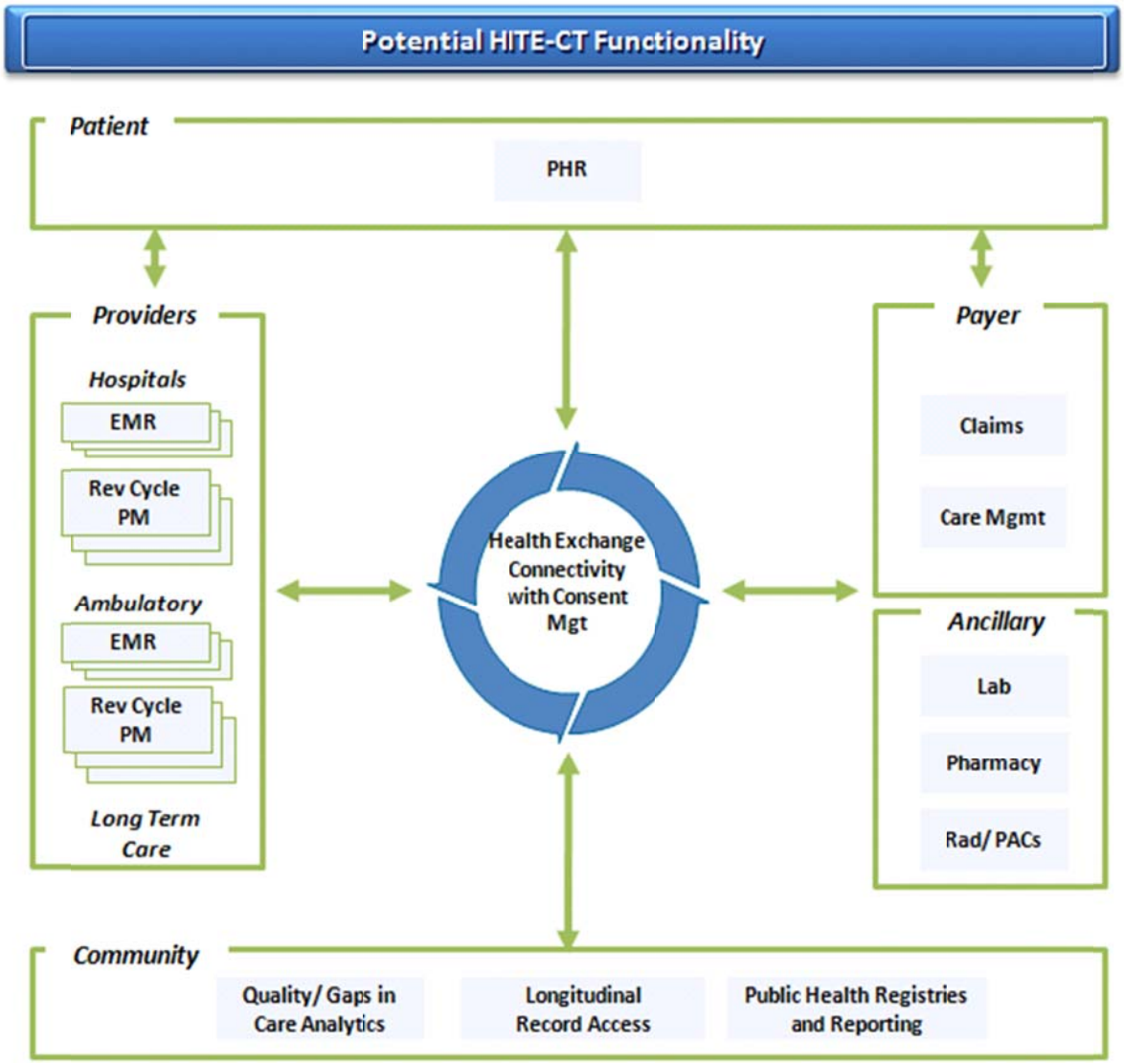
consumer modules engaged in somewhat diverse, although partially related, business activities.

The fundamental concepts of modularity, reuse of in-house or externally developed IT modules and services and ubiquitous connectivity through the Internet position HITE-CT to continuously adapt and evolve the HIE capability as the Connecticut health care needs of the diverse customer community evolves.

2.6.6 Products and Services Portfolio

HITE-CT will enable authorized users to view and exchange relevant patient data and information over a secure Internet-based connection. Ultimately this will become a "full service" HIE where information from different sources, such as physician offices, laboratories, pharmacies, hospitals, health systems, payers and other HIE systems, can be used regardless of source. Additionally, consumers of health care may also elect to connect their PHRs offered by various entities. The diagram below provides a high level view of HITE-CT's initial target functional capabilities.

Figure 6. HITE CT Initial (First 3 Years) Target Functionality



Connecticut plans a phased deployment of the statewide HIE and considered the following drivers in establishing the phased plan for the first 3 years of the HITE-CT:

- **Meaningful use—**providing services aligned to the needs of Connecticut's eligible providers in qualifying for Medicare and Medicaid meaningful use incentive payments
- **Critical mass—**considering the potential level of HIE usage and resultant dependencies
- **Customer variety—**balancing stakeholder capability differences and competing stakeholder needs
- **Existing investments—**leveraging what the hospitals provide locally

The high level phased planning process made the following assumptions:

- The following services are well established and widely available outside of the statewide HIE and therefore not considered a useful focus for HITE-CT infrastructure capabilities in the immediate term, but will be considered in future phases:
  - E-Prescribing services
  - Health care plan eligibility and claims processing
- EHR adoption by physicians and demand for HIE use will rise above 50% of physicians by 2015; HITE-CT will be poised to support an increased number of users even if this assumption is too conservative
- In the short term, the HITE-CT will provide outreach and support for certified EHR adoption in general and, in particular, help providers make use of commercially available e-Prescribing services, connect directly to their main Lab service providers, and integrate their EHR systems with Lab results provided electronically in compliance with related CT standards
- PHR services should be offered in the later releases when there is a critical mass of data to make available, the demand exists and the revenue to support development has been accrued during the previous releases
- Services to integrate ancillary services (e.g., laboratory, pharmacy and radiology) orders and results needs harmonization across providers before it should be considered part of the HITE-CT services. This may be in Releases 2, 3 or later. Consideration of whether this can be included earlier will continue as part of the transparent planning process

Connecticut has determined the initial prioritization of products and services and has grouped these into a number of releases as guidance for the operational planning process shown in Table 4.

Table 4. HITE-CT Initial Service Releases

Planned Service Releases	Services Planned
Initiation	■ Procurement of services to build, maintain and operate the statewide HIE infrastructure ■ Initial phase to build a statewide infrastructure that will support connections to local HIEs, the NHIN including Network Services, Master Patient/Provider Indexes and Record Locator Service
Release 1: Continuity of Care and Public Health Registries and Reporting	■ Ability for connecting providers, payers and ancillary service providers to exchange Continuity of Care Documents ■ Clinical data within the statewide HIE automatically feeds Public Health Registries and Reporting needs ■ Interfaces to main EHRs supported and subsidized by the HIE
Release 2: Quality/Gaps in Care Reporting	■ Main focus of this phase is development and deployment of metric-based Quality Reporting and the “care gaps” ■ Will include access to and integration with data from other sources, e.g., State systems, the RxHub ■ Will include a methodology that uses information from pharmacies, EHRs and other sources to ensure a complete and up-to-date medication record is available via the HIE ■ Further strengthening of the underlying infrastructure services, including additional EHR interfaces ■ Further develop the various dimensions of CCD/CCR to allow for additional useful data interchange ■ Include ancillary services orders/results, offering integration with those service providers in the State with standards compliant systems that subscribe to the HITE-CT statewide HIE
Release 3: Personal Health Records	■ Main focus of this phase is to support consumer (patient) access to their information by harmonizing interfaces to PHR services ■ May include ancillary services orders/results—to be decided based on a common approach across enough providers

2.6.7 Procurement Approach

HITE-CT will work in collaboration with the State to review the State’s procurement processes to determine their suitability as processes to support HITE-CT’s procurement needs.

HITE-CT will review Connecticut State procurement vehicles and existing contracts to identify any suitable for HITE-CT.

HITE-CT will work in collaboration with the Connecticut State HIT Coordinator, the Connecticut Department of Administrative Services, the Connecticut Department of Information Technology and the Office of Policy and Management to develop a suitable procurement strategy/road map.

2.6.8 Technical Infrastructure Summary

- **Solution Architecture**
  - HITE-CT will lead a broadly participative effort to define a comprehensive Enterprise Architecture.
  - HITE-CT will acquire an SOA and standards-based, secure, feature-rich application that will enable providers to achieve meaningful use of EHRs.
  - This solution will require a scalable technical platform and network capable of working with all providers, hospitals, and other care settings in the State.
- **HITE-CT Products and Services**
  - Connecticut has determined the initial prioritization of HITE-CT products and services as guidance for the Operational planning process in 3 Releases:
    - **Release 1—Continuity of Care Documents (CCDs) and Public Health Registries and Reporting**, to address components of meaningful use, provide benefits to all State residents and build a foundational infrastructure and data set.
    - **Release 2—Quality/Gaps in Care Reporting**, to develop and implement metric-based Quality Reporting and the “care gaps” and provide access to and integration with data from multiple sources. This release also includes integrating data from auxiliary services (e.g., Lab results).
    - **Release 3—Personal Health Records (PHRs)**, to allow all residents the ability to help manage their own care through the management of their health records.
- **Standards**
  - The nature of solution will require numerous interfaces to inpatient and ambulatory EHR products, hospital clinical information systems, laboratory systems, and other clinical and State Agency systems. HITE-CT will take a leadership role in Connecticut in using and encouraging the use of standards for interoperability, privacy and security.
- **HIT and HIE Adoption**
  - HITE-CT will work with DSS as the State Medicaid agency and eHealthConnecticut as the Regional Extension Center to encourage and support the adoption of EHR and HIE.

2.7 Business and Technical Operations

Connecticut is establishing strategies for supporting 'meaningful use' EHR requirements developed by the Federal government, integrating with existing State and local HIE capacity, leveraging statewide shared services and directories. In consultation with a broad set of stakeholders, Connecticut has defined an overall implementation strategy that enables the connectivity of existing health information exchanges along with integrated delivery networks/health systems/point to point connections through HITE-CT. Capabilities and capacity will also be created for an interface with NHIN.

Connecticut realizes that full service HITE-CT deployment to all targeted participants will not be possible at initial deployment due to differences in participants' varying level of adoption and readiness. The preferred option, developed by the State agencies and private sector stakeholders, is to initially ensure that the services delivered address at a minimum the requirements for 'meaningful use.' HITE-CT will continue to add incremental capabilities in phases based upon participant's needs and recommendations in support of fuller adoption. Finally, Connecticut will develop a deployment strategy that incrementally rolls out HIE services by provider type and geography based on their readiness levels.

Working collaboratively with Connecticut State agencies and private sector HIE stakeholders, the HITE-CT will continue to refine the implementation strategy and determine the full range of HIE participants.

2.7.1 Current State Assessment

Starting in 2008 the State of Connecticut established a team led by the Department of Public Health and representing the continuum of health care stakeholders to address Connecticut's strategy for HIT. The result of this was the Connecticut State Health Information Technology Plan published in June 2009. This Plan articulated Connecticut's need for a statewide HIE.

Subsequent legislation made the Department of Public Health the lead health information exchange organization for the State with responsibility for the creation of ... "an integrated state-wide electronic health information infrastructure for the sharing of electronic health information among health care facilities, health care professionals, public and private payers and patients"[23].

This legislation also created the Connecticut Health Information Technology and Exchange Advisory Committee (HITEAC), including wide stakeholder representation, with the purpose of advising the Department of Public Health in HIT and HIE activities.

Legislation in May 2010 created the HITE-CT as a quasi-public agency that will assume responsibility for the implementation and management of the statewide HIE from DPH in January 2011. The HITE-CT has a governing Board of a very similar structure to the HITEAC.

Until the HITE-CT Board of Directors and Chief Executive Officer are fully appointed and the transition of responsibilities can begin DPH has responsibility for managing the strategic and operational planning process for the HIE and moving the project to the implementation phase.

DPH Commissioner J. Robert Galvin, MD, MPH, MBA dedicated DPH staff resources to manage the $7.29 million cooperative agreement with ONC and to begin the process of planning and building a statewide HIE. These resources include a HIT coordinator, project manager, contracts officer, attorney, and technical advisors to work with the HITEAC on these critical planning efforts. The DPH HIE team reports to the Chief of the DPH Planning Branch.

Across Connecticut there are a number of HIE initiatives already under way at various stages of planning and development. The HITE-CT planning process is coordinating with the furthest

advanced of these efforts to learn from their experiences and to leverage initiatives where possible.

There is sufficient information available regarding potential user readiness to participate in the HIE to inform the planning process and allow for planning the level of support to be provided by HITE-CT. The planning process is open and transparent causing considerable public interest and information flow. The need for communication strategy and planning is understood, but execution is at a very early stage.

2.7.2 HITE-CT Communication Strategy

Goals of the HITE-CT communication strategy includes:

- Educating health care consumers and providers about how electronic records and electronic record exchange can improve the quality and efficiency of health care for Connecticut residents, drawing on what has been learned during the DSS Transformation initiatives and Danbury HealthLink
- Gathering inputs on how to best operate, manage, and govern the statewide network
- Providing a forum to discuss systems for safeguarding personal health information
- Engaging consumers about their preferred options for exercising control over their personal health information
- Gathering suggestions and reactions to options for ongoing financing and governance of HITE-CT
- Ensuring that providers are aware of funding and technical assistance opportunities and are knowledgeable about the Regional Extension Center
    - Using all traditional and new media resources for communication

HITE-CT will use all communication means at its disposal to communicate information to the public about plans for promoting and supporting adoption of EHRs and the HIE. These include:

- Continuing work with the HITEAC to expand the understanding of unique stakeholder needs, current and proposed capabilities, and potential barriers to implementing health information exchange
- Publishing the Strategic and Operational Plan components for comment and making them available through the DPH website
- Attending numerous stakeholder meetings, such as the associations and societies of Hospitals, facility based and home health providers, nursing homes, consumers and others
- Coordinating and synchronizing where possible, the overall State HIT strategic planning and communication activities with the DSS Medicaid State health information technology planning activities are as follows:
    - Concurrent with this planning process, DSS is working to develop Connecticut's SMHP; the Connecticut HITE Strategic and Operational Plan must be supportive of, and consistent, with the Medicaid plan
    - The DSS SMHP project team participates in the HITEAC and HITE-CT project meetings on a weekly basis

2.7.3 HIE Infrastructure Procurement and Implementation

HITE-CT will develop a full set of requirements based on the established architecture that will support the HIE products and services that may be deployed over the first 3 years, thus retaining flexibility to support the actual deployment plans.

HITE-CT will conduct a full and open procurement process to acquire:

- Software, hardware, and services for the design, build and implementation of the HIE and the ongoing maintenance required
- Services and facilities required to host and operate the HIE systems and related services

The resulting contract will retain flexibility for the future allowing HITE-CT to change vendors or bring these capabilities in-house in subsequent years.

2.7.4 Technical Operation Approach

HITE-CT will design and create an operational organization reporting to the HITE-CT Chief Executive Officer including, but not limited to, performing the following key functions. These functions are not meant to dictate the structure of the HITE-CT organization:

- Identify Participants and Plan Deployment
- Coordinate Standards and Adoption
- Administer and Manage Utility

2.7.4.1 Identify Participants and Plan Deployment Processes

HITE-CT will enable the connectivity of existing local health information exchanges, integrated delivery networks, health systems, individual hospitals and health centers. It is fundamental to consider the diverse and complex health care delivery system in Connecticut and to be strategic in the technical implementation of HITE-CT.

Local HIEs, health systems and hospitals that have provided HIE-like connectivity to their community physicians should have opportunities for connection to HITE-CT in order to take advantage of these already established networks of providers. The best strategy for connecting health systems and other organizations that have established HIE capacity will be identified during implementation planning in partnership with the engaged implementation vendor. The implementation strategy must include encouraging early adopters who will be able to assist in driving acceptance of HITE-CT and to ensure that there will be HIE access for all Medicaid providers. The early adopters are likely to include DSS Medicaid Operations (as a payer), several community hospitals, health centers and physician groups. Where possible, the HITE-CT implementation will leverage existing directories and shared services such as the Master Patient indexes from the DSS's MMIS and Danbury's HealthLink.

Full deployment to all participants will not be possible, or even desirable at the initial launch of the first release, therefore an incremental implementation is necessary. This is due to several factors including differences in users' levels of HIT adoption and the time required to connect each regional HIE, health system, hospital, practice and other health care entity. The strategy is to initially ensure that the HIE services address the requirements for meaningful use at a minimum and continue to add incremental capabilities in well-articulated phases based upon user's needs. This incremental approach will also allow HITE-CT to apply lessons learned from early experiences and continually adapt its approach to changing conditions.

HITE-CT customer segmentation analysis, priorities determined by the HITE-CT Board of Directors for the implementation of HITE-CT portfolio of product and services, the State Medicaid HIT Plan (SMHP) and readiness information available will be used to devise a comprehensive phased implementation roll-out plan.

The implementation roll-out plan, under the direct control of the HITE-CT Board of Directors, will be adjusted during the early phases of deployment based on the levels of success achieved and changing market circumstances.

2.7.4.2 Coordinate Standards and Adoption

A key aspect of implementation will be HITE-CT's ability to identify, agree and promulgate information sharing, privacy/security and interoperability standards required for the smooth operation of the HIE and the ability to connect to existing HIE and HIE-like systems and the Nationwide Health Information Network. Standards will include those adopted by both State and Federal entities involved in information exchange. This work will be driven by policy decisions taken by the HITE-CT Board of Directors within the context of the legal and policy framework.

Connecticut will follow a coordinated approach to provide technical assistance and broad support for the HIE initiative to its participants. The approach will consist of building technical advisory capability using the existing surveys and data from the SMHP planning process. In addition, Connecticut will work directly with larger providers and with the Regional Extension Center to determine HIT readiness.

The readiness assessment will be based on a maturity model that will position integration with HITE-CT in each provider's ongoing plans—immediate or later. The model will have various levels related to the size and complexity of the provider (e.g., small practice [5 or less physicians] with minimal support staff; a large multi-physician practice with shared nursing and other support staff; a community based clinic; a small general hospital; a large acute care hospital; etc.) and address the following questions:

- **Vision and Strategy—**How is HITE-CT participation perceived and valued in the provider organization? How well does HITE-CT participation support the provider's strategic initiatives and plans? Does the provider have an EHR strategy across the enterprise?
- **Governance and Organization—**Are decision rights and controls in place within the provider organization to manage and secure clinical information assets? What HIE-centric roles and departments exist?
- **Process Automation—**Is the clinical information life cycle within the provider organization managed and what types of clinical information is managed by automated systems? What is the level of systems certification?
- **Enabling Infrastructure—**What information management technologies are in place in the provider organization to support current needs? What clinical information interchanges are already in place? Is there a technology strategy and plans to address the specific needs of HITE-CT participation?
- **Metrics—**Are there specific metrics within the provider organization to determine the impact of HIE on the bottom line? How much clinical information is redundant? How much poor quality clinical information exists and what impact does it have on the business and outcomes?

As the role of Health IT expands in the delivery of health care services in Connecticut, it will be important to monitor the availability of the IT skills required. The availability of highly skilled

practitioners in areas such as database management and health informatics is especially important. Ensuring Connecticut's workforce is able to support and benefit from the developments in Health IT will require a comprehensive approach that engages medical providers, educational institutions and the resources of the State.

2.7.4.3 Administer and Manage the Utility

HITE-CT staff will conduct day to day management of a number of critical functions:

- Relationship Management designed for each participant type to ensure each participating organization is ready and able to live up to their side of working with the HIE. This function will also provide extensive support for important connectivity needs of participants that will not be immediately be served directly by the HIE (e.g., e-Prescribing, structured lab results and local transfer of care summaries. These are connected services required to meet "meaningful use" requirements.
- Customer service functions to support users and resolve problems as they occur, analyze root causes and implement lasting solutions to operational problems and effectively communicate service levels attained.
- Provide training and education to HIE service users on a timely basis to ensure efficient on boarding and continuing operations.
- Administration of security and access control and provide reporting to demonstrate compliance with all privacy and security policies.
- Contract and service-level agreement management with service providers to ensure the providers live up to their contracts and service levels are maintained.

2.7.5 Business and Technical Operations Summary

- **Deployment Strategy for HITE-CT**
  - Connecticut will create an incremental approach to deploying HITE-CT with an initial focus on ensuring the HITE-CT can support meaningful use requirements both by providing HIE services and by providing advice and guidance when these services are not yet available via the HIE. HITE-CT will work closely with stakeholders to develop a detailed deployment approach that will use the experiences and, where possible, assets of early adopters to ensure a successful deployment of HITE-CT across Connecticut.
- **HITE-CT Communications Strategy**
  - HITE-CT will create a detailed communications strategy designed to educate consumers and providers about how electronic records and electronic record exchange can improve the quality and efficiency of health care for Connecticut residents. This communication strategy will take advantage of multiple communications methods to spread the word about HITE-CT and its benefits.
- **HITE-CT Technical Implementation Approach**
  - Deployment Planning—The technical deployment of HITE-CT will build upon deployment planning to ensure that the right technologies and services are developed, deployed and eventually maintained to high standards with appropriate levels of support and training.
  - Infrastructure Procurement—
    - HITE-CT will initiate an open procurement process for the acquisition of HITE-CT infrastructure as an immediate priority. Technical deployment will be achieved by a combination of HITE-CT and vendor resources.
    - HITE-CT will look to select a vendor with a proven HIE product who can ensure that Connecticut health care providers are able to qualify for Medicare and Medicaid incentive funding within federal time-lines.
    - HITE-CT will look to select a vendor with a proven HIE product who can ensure that Connecticut health care providers are able to qualify for Medicare and Medicaid incentive funding.

2.8 Legal/Policy

Connecticut's approach to establishing the appropriate legal and policy framework and requirements consists of working toward adopting and harmonizing Federal and State legal and policy requirements, creating the legal and policy framework to ensure policies meet standards of definition and consistency and are comprehensive across the needs of the HITE-CT (e.g., privacy and security, patient consent, data sharing and indemnification), and establishing the enforcement mechanism necessary to enable a successful adoption and implementation of HIE services in the State. To accomplish this, the State plans to leverage emerging national interoperability standards and protocols for data exchange, lessons learned from Connecticut's existing HIEs and from other states as well as the expertise of the HITEAC Legal/Policy Subcommittee members.

2.8.1 Current State Assessment

Connecticut has adopted an Act that establish the HITE-CT Board of Directors to direct the agency regarding appropriate protocols for health information exchange and electronic standards to facilitate the development of a Statewide integrated health information system[24]. Section 82 of the Act establishes the seven principles for the adoption of electronic data standards. HITE-CT, as the agency establishing Connecticut's HIE, will encourage adoption by its participants and will itself comply with those principles related to HITE-CT's role in health information exchange. Specifically, these principles are:

1. Include provisions relating to security, privacy, data content, structures and format, vocabulary and transmission protocols
2. Limit the use and dissemination of an individual's Social Security number and require the encryption of any Social Security number provided by an individual
3. Require privacy standards no less stringent than the "Standards for Privacy of Individually Identifiable Health Information" established under HIPAA[25]
4. Require that individually identifiable health information be secure and that access to such information be traceable by an electronic audit trail
5. Be compatible with any national data standards in order to allow for interstate interoperability
6. Permit the collection of health information in a standard electronic format
7. Be compatible with the requirements for an electronic health information system

Connecticut, to develop the current legal framework, reviewed the approaches taken by other states in the development of their HIEs and debated the advantages and disadvantages of each of the various models. While some of the state's closest geographically to Connecticut have employed an opt-in model, an opt-out model is the consent model used by the most states in the country who have adopted HIEs. An opt-out consent model is generally recognized as the model most likely to result in a successful, viable HIE over time since requiring patients to take affirmative action in the form of consent before PHI can be collected by the HIE has proven to be a significant impediment in other states.

2.8.2 Consent and Disclosure Model

In accordance with the principles laid out above, the proposed consent model for the HIE is consistent with current federal and Connecticut laws and regulations regarding confidentiality. The only major change to the handling of PHI is the addition of the HIE as a mechanism to

move the PHI. In some respects, the consent model provides patients greater control over the use and disclosure of their PHI through the HIE, above and beyond what the law current requires for the use and disclosure of PHI generally. The HITEAC has deliberately refrained from labeling the consent model as "opt-in" or "opt-out," or some variation of the two, in order to avoid confusion and to focus on the functions of the HIE as it relates to patient consent. The consent model allows for all PHI to be indexed or collected in the HIE, but gives an individual the right to prohibit disclosure of his/her PHI by the HIE to others. This means that all or some pre-defined set of data (e.g., labs, summary record information) will be eligible automatically for exchange (i.e. collected), with a provision that patients must be given the opportunity to opt out of the exchange (i.e. disclosure) of the data. The benefits of this model include, but are not limited to:

- Respecting patients' right to privacy by giving patients the right to prevent the disclosure of their PHI through the HIE--even with respect to disclosures for treatment, payment or health care operations, which HIPAA permits without patient authorization or the right to opt out;
- Improving the quality and efficiency of care provided to patients by increasing a health care provider's access health information on a real-time basis and reducing redundancy;
- Creating a robust database of health information which can be used on a de-identified basis to develop policy and new programs or to conduct research; and
- Facilitating public health activities.

The Legal & Policy Subcommittee of the HITEAC is actively working on the consent model to enhance, clarify and strengthen its foundation as described. Much additional work must be done to address the details that accompany the model, including but not limited to, addressing certain existing federal and Connecticut laws. The subcommittee is in the process of performing a HIPAA preemption analysis to identify the Connecticut laws that provide more stringent privacy and/or security requirements than HIPAA with respect to the use and disclosure of PHI. The results of the preemption analysis may result in recommendations for changes in existing or new Connecticut legislation.

The details of the proposed consent model are as follows:

1. <u>Collection of Health Information into HIE</u>
   - Participation in the HIE will be optional for providers; providers will not be able to submit PHI to the HIE or retrieve PHI from the HIE unless they agree to participate in the HIE. PHI will flow from all participating providers for all of the providers' patients into the HIE with no exceptions.
   - The HIE will enter into a business associate agreement with each participating provider that addresses all HIPAA and federal and State law issues, including but not limited to, inappropriate and appropriate use of the HIE and consequences of misuse. The business associate agreement will meet the requirements of HIPAA but will also serve as a participation or data use agreement, setting forth the terms and conditions for participation in the HIE.
   - The HIE will maintain a Master Patient Index and a Patient Registry.
     - MPI and Patient Registry will be maintained on separate servers for security reasons.
     - The Patient Registry will use the MPI to identify locations of PHI.

2. Disclosure of Health Information from the HIE

- HIPAA allows a provider to disclose PHI for treatment, payment and health care operations without patient authorization, except for 1) certain information subject to heightened confidentiality (HIV, alcohol and drug abuse, mental health, etc.)("Sensitive PHI") and 2) information subject to a restriction requested by a patient and agreed to by a provider. HIPAA allows a patient to request restrictions on disclosure of the patient's PHI to a person or entity. A provider is not required to agree to the requested restrictions, except in very limited circumstances.
- Unless a patient has signed a form requesting that his or her PHI not be disclosed by the HIE, the HIE will disclose PHI that is not Sensitive PHI ("Generic PHI") for treatment, payment and health care operations as permitted by HIPAA, subject to a specific restriction on disclosure agreed to by a provider. Disclosure of Generic PHI will be determined in accordance with existing federal and State laws governing such disclosure.
- If a patient signs a form requesting that his or her PHI not be disclosed by the HIE, the patient's opt-out of HIE disclosures is global. No PHI of a patient who has opted out will be disclosed to any party by the HIE, except as required by law (i.e. public health reporting requirements, etc.). In addition, even if the patient has opted out of HIE disclosures, the HIE may allow for disclosures of Generic PHI in emergency treatment situations. Any disclosure of Generic PHI in an emergency treatment situation will be accompanied by heightened auditing to ensure an emergency situation existed.
- Disclosure of Sensitive PHI (for HIV, alcohol and drug abuse, mental health, etc.) will be determined according to existing federal and State laws governing such disclosure. Sensitive PHI will be disclosed by the HIE only if a proper authorization is on file with the HIE. A standard form authorization that is compliant with applicable federal and State law will be developed for the HIE.
- The provider who transmits the PHI to the HIE will be responsible for identifying any Sensitive PHI prior to transmission. Under current law, prior to disclosing PHI from the medical record, providers must identify any Sensitive PHI in the medical record and determine whether disclosure of such Sensitive PHI is permitted by law. The identification of the Sensitive PHI prior to transmission to the HIE, and therefore in advance of disclosures from the HIE, is comparable to the review that the provider is required to undertake prior to disclosure from a medical record today. The HIE will not determine which health information is Sensitive PHI. The HIE will adopt the provider's identification of Sensitive PHI.
- A provider who agrees to a restriction requested by a patient must convey such restriction to the HIE.
- The different purposes for disclosing PHI from the HIE have been categorized. The priority for disclosure of PHI collected in the HIE is as follows (based on disclosing PHI from the HIE within 1 year, 3 year and 5 year timeframes) Note that some of the disclosures identified below may require a separate authorization covering the specific disclosure (e.g., research):
  - ❑ Patient Care and Services (need to access data to reduce redundancy and improve care) - Within 1 year

- ❑ Public Health - Within 1 year but recognize could be 3 years due to feasibility issues; Timing of submission of public health data should be split with some data having a higher priority than others.
- ❑ Quality Reporting - Within 3 years
- ❑ Research - 5 years
- ❑ Legal Investigation or inquiry - Future to be determined
- ❑ Other authorized uses

3. Patient Education

- Each patient will receive a notice from their provider explaining the HIE and the patient's rights regarding disclosure of PHI from the HIE ("Special Notice") at the patient's first visit following the provider's participation in the HIE. The Special Notice will:
  - ❑ be required to be provided by a provider to a patient only one time (like a Notice of Privacy Practices ("NPP") under HIPAA).
  - ❑ be combined with a form for a patient to elect not to have his or her PHI disclosed by the HIE.
  - ❑ include a telephone number and website to obtain more information.

4. Privacy and Security Measures

- The HIE will develop detailed privacy and security policies and procedures which will address without limitation, auditing, access controls, integrity controls and enforcement mechanisms to provide privacy and security protections for PHI that is transmitted to and through the HIE.

2.8.3 Development of Policies, Rules and Trust Agreements

Connecticut feels that it is imperative to develop widely accepted legal and business rules and uniform consent forms and procedures that will enable the exchange of health information for clinical purposes while assuring confidentiality and security.

- HITE-CT will establish a process for development of statewide policy guidance in the area of privacy and security, and a contractual framework for assuring adherence to the legal, business and technical rules that are developed through that process.

HITE-CT will manage data quality and integrity by implementing a proactive, ongoing data quality strategy. Data will be managed according to institutionalized rules, policies and continual monitoring and published information will be accurate and clear with a demonstrable audit trail. HITE-CT will provide a more complete proposal that addresses data collection and data access by purpose. In addition, Connecticut is considering providing enhanced obligations upon participants HIE by contractually binding the participants to comply with its terms and conditions, including encryption and breach notification requirements.

2.8.4 Framework for Enforcement of Privacy and Security Policy

The HITECH Act establishes new security and privacy requirements for notifying patients in the event a breach does occur. Under HITECH, these requirements and previous HIPAA requirements are specifically extended to include providers' business associates, such as HIEs, vendors of Personal Health Records, and other service providers.

During the next nine months, HITE-CT plans to leverage ONC guidance on 'nationally recognized standards' and on creation of HIE policies and regulations (e.g., Health Information Security and Privacy Collaboration, March 2009), and develop policies and legal agreements to govern the oversight of HITE-CT and enforcement and to guide technical services prioritized by the State. In addition, HHS Privacy and Security framework and HIPAA provides a well-established existing body of law for HITE-CT. The HIPAA preemption analysis, which is currently being updated in light of HIE needs, will provide input for a future legal framework for HITE-CT.

The HITE-CT will be governed by a Board of directors that includes broad community representation. The HITE-CT intends to work collaboratively with Connecticut's Regional Extension Center to provide education to both users of the health information exchange and for individuals whose information may be disclosed through the State HIE.

2.8.5 Legal/Policy Summary

- **Privacy and Security is a High-Priority for the HITE-CT**
  - The privacy and security of patient health information is of the highest possible concern in the development of HITE-CT, as reflected in Connecticut's Public Act 10-117.
  - The Legal and Policy Sub-committee has designed the framework for a consent model that is based on a presumptive inclusion of all PHI in the HIE with an individual having the right to prohibit disclosure of his/her PHI by the HIE to others.
- **HITE-CT Policies, Rules and Trust Agreements**
  - The policies, rules and agreements that will define how the HITE-CT operates must be created within the boundaries of all applicable laws and national standards. Of particular importance will be determining patient consent. The HITE-CT plans to review and leverage the work done by eHealthConnecticut in certain policy areas.
- **Enforcement Framework**
  - HHS Privacy and Security framework and HIPAA provides a well-established existing body of law for HITE-CT. The HIPAA preemption analysis, which is currently being updated in light of HIE needs, will provide input for a future legal framework for HITE-CT.

2.9 Evaluation Approach

Connecticut is committed to demonstrating the progress to be achieved through HITE-CT by employing a robust evaluation program. The goal of the evaluation effort is to demonstrate the economic and quality value of health information exchange investments. Evaluation will also show the effects of these investments on providers and consumers, determine what is working and what needs to be improved, disseminate these lessons learned broadly within the State and establish processes for continuous improvements.

HITE-CT will work to define the details of the evaluation process as part of the Operational Plan. At a minimum, the evaluation process will include:

- A review of, and periodic revisions to the State Strategic and Operational Plans after being submitted to ONC
- An annual evaluation coordinated with the national program evaluation
- Compliance with reporting requirements specified in the State HIE Cooperative Agreement program plus additional reporting requirement identified during the development of the Operational Plan
- Reporting of performance metrics specified in the State HIE Cooperative Agreement program plus additional performance metrics identified during the development of the Operational Plan
- Coordination with national program evaluation and leverage of technical assistance from the Federal government in an effort to implement lessons learned that will ensure appropriate and secure HIE, resulting in improvement in quality and efficiency

2.9.1 Reporting Requirements

The American Recovery and Reinvestment Act (ARRA) calls for the HITE-CT to submit program performance reports consistent with the HIE Cooperative Agreement Program. Table 5 shows the initial reporting requirements for HITE-CT. This list will be augmented with program guidance and technical assistance from ONC on specific reporting requirements, performance and evaluation measures and methods to collect data and evaluate project performance.

Table 5. Reporting Requirements

ONC Domain	Reporting Requirement
Governance	■ Proportion of HITE-CT organization represented by public stakeholders ■ Proportion of HITE-CT represented by private sector stakeholders ■ HITE-CT representation including: government, public health, hospitals, employers, providers, payers and consumers ■ Designated governance role of the State Medicaid agency (DSS) in HITE-CT ■ HITE-CT's adoption of a Strategic Plan for statewide HIT ■ HITE-CT's approval/implementation of Operational Plan for statewide HIE ■ Status of HITE-CT meetings (minutes posted and meetings open to the public) ■ Designated governance role of regional HIE initiatives in HITE-CT
Finance	■ Development/implementation status of financial policies and procedures consistent with State and federal requirements ■ Revenue received from both public and private organizations

ONC Domain	Reporting Requirement
	■ Proportion of the sources of funding to advance statewide HIE obtained from Federal assistance, State assistance, other charitable contributions and revenue from HIE services ■ From the charitable contributions listed above, proportion of funding that comes from health care providers, employers, health plans and others ■ Development of a business plan that includes a financial sustainability plan ■ HITE-CT's budget review with the oversight board on a quarterly basis ■ Compliance with the Single Audit requirements of OMB ■ Secure revenue stream to support sustainable business operations throughout and beyond the performance period
Technical Infrastructure	■ Development/implementation of statewide technical architecture for the HIE according to HIE model(s) chosen by the HITE-CT ■ Integration of Connecticut's technical infrastructure with state specific Medicaid management information systems ■ Integration of Connecticut's technical infrastructure with regional HIE ■ Proportion of health care providers in the State able to send electronic health information using components of the statewide HIE technical infrastructure ■ Proportion of health care providers in the State able to receive electronic health information using components of the statewide HIE Technical infrastructure
Business and Technical Operations	■ Technical assistance available to those developing HIE services ■ HITE-CT's monitoring and planning activities for remediation of HIE as necessary throughout the State ■ Percent of health care providers have access to broadband ■ Development/implementation of statewide shared services or other statewide technical resources to address business and technical operations
Legal/Policy	■ Development/implementation of privacy policies and procedures consistent with State and Federal requirements ■ Number of trust agreements that have been signed ■ Incorporation of provisions in privacy policies, procedures and trust agreements allowing for public health data use

2.9.2 Performance Measures

Table 6 shows the measures applicable to the implementation phase of the cooperative agreement as defined in the ONC State HIE Cooperative Agreement Program. Connecticut understands that these are an initial set of measures intended to provide a State specific and national perspective on the degree of provider participation in the HIE and the degree to which pharmacies and clinical laboratories are active trading partners in the HIE. E-Prescribing and laboratory results reporting are two of the most common types of an HIE within and across states. Additional performance measures will be identified as part of the development of the operational plan.

Table 6. Initial Implementation Performance Measures

Performance Measures	■ Percent of providers participating in HIE services enabled by Connecticut's statewide directories or shared services[26]
	■ Percent of pharmacies serving people within Connecticut that are actively supporting electronic prescribing and refill requests
	■ Percent of clinical laboratories serving people within Connecticut that are actively supporting electronic ordering and results reporting

Connecticut will also be required to report on additional measures indicating the degree of provider participation in the HITE-CT, particularly those required for meaningful use. Future areas for performance measures will include but are not limited to:

- Providers' use of HIE to exchange Continuity of Care Documents (CCD)
- Exchange of clinical data within the statewide HIE automatically feeding public health registries and reporting needs
- Access to, and integration with, data from multiple sources, (e.g., State systems, RxHub, etc.)
- User access to personal health records

2.9.3 Evaluation Approach Summary

- **Reporting Requirements**
  - HITE-CT must be able to meet all reporting requirements for the cooperative agreement program and also other Federal and State requirements
- **Evaluation and Performance Measures**
  - The implementation, operation, and impact of HITE-CT will be monitored closely and continuously in order to demonstrate deployment, effectiveness and results. Performance measures will be selected, continuously refined and augmented to meet Connecticut's vision and strategic goals for health information exchange

2.10 HITE-CT Strategic Plan Road Map and Recommendations

After the formal commencement of the HITE-CT in January 2011, the Agency is planning an aggressive integration and rollout schedule with three releases in three years. The Strategic Plan proposed schedule is shown in the diagram below and further described in the Table 7 below. The Operational Plan will further refine the schedule into a detailed work plan.

Figure 7. HITE CT Strategic Plan Road Map

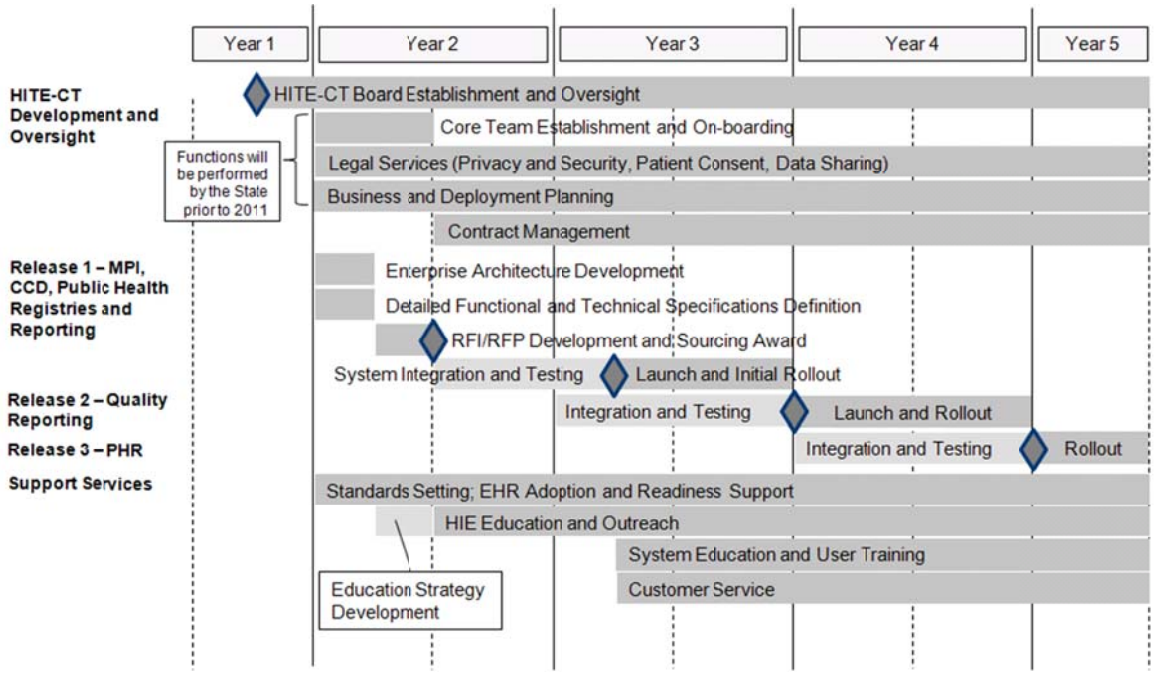


Table 7. HITE-CT Strategic Plan Road Map Details

HITE-CT Development and Oversight
HITE-CT Board of Directors Establishment and Oversight
■ Per the legislation enabling the HITE-CT, establish the HITE-CT to develop and support the HIE ■ Define HITE-CT's governance structure, including roles, responsibilities and processes to: provide oversight for entire HITE-CT initiative; establish the appropriate mechanisms for stakeholder input; provide oversight for planning and operations, and make operational decisions; and establish channels for existing or future organizations, e.g., REC, HIEs, hospital organizations to provide stakeholder representation
Core Team Establishment and Onboarding
■ Staff the Agency with leadership and employees in anticipation of system development and deployment
Legal Services (Privacy and Security, Patient Consent, Data Sharing)
■ Create an HIE policy framework that will ensure policies:

HITE-CT Development and Oversight
❑ Meet standards of definition and consistency ❑ Are comprehensive across the needs of the Agency and HITE-CT (e.g., privacy and security, patient consent, data sharing etc.) ❑ Are reviewed and refreshed in a timely manner, and have suitable and effective enforcement methods and compliance metrics defined ■ Define principles for data ownership by type of data and population impacted (including special population) and determine: ❑ Usage allowed by type of data and population ❑ Type of consent opt-in vs. opt-out ❑ When sharing agreements are required ❑ Privacy and security requirements ■ Create an oversight and enforcement framework, and identify compliance metrics and associated sanctions ■ Identify requirements to meet security and privacy policies and ensure compliance with Federal and State policies for data protection
Business Deployment Planning
■ Establish standards governance structure and supporting processes to identify requirements for review of established and adopted standards for leveragability, and monitoring of adoption of these standards ■ Determine priorities for the implementation of HITE-CT portfolio of products and services, and use readiness information available to devise a phased implementation strategy ■ Conduct segmentation analysis of the customer base and markets for each service area ■ Build measurement capability into the HITE-CT that would enable the State to report on Government Performance Reporting Act (2003) and ARRA specific measures and Cooperative Agreement specific reporting aligned with demonstrating meaningful use
Contract Management
■ Establish the appropriate processes and mechanisms to conduct oversight and management of vendor contracts and performance
Enterprise Architecture Development
■ Create enterprise architecture and associated processes for the HITE-CT using industry standards and identify the skill sets required
Detailed Functional and Technical Specifications Definition
■ Develop detailed specifications to define the technical and functional aspects of the technology supporting the HIE
RFI/RFP Development and Sourcing Award
■ In collaboration with the State's Procurement Office, develop procurement strategy/road map that includes identification of existing usable contracts by HITE-CT
HIE Infrastructure Stand-up
■ Vendor planning and foundational services such as Master Provider Index, Master Patient Index and a Record Locator Service created to enable subsequent releases of HIE functionality and services
Release 1—MPI, CCD/CCR, Public Health Registries and Reporting
System Integration and Testing; Launch and Initial Rollout
■ Develop the technology necessary to support the HIE, test the system and roll the system out to all clients
Release 2—Quality Reporting/Gaps in Care Reporting

HITE-CT Development and Oversight
Integration and Testing; Launch and Rollout
■ Develop additional functionality on the system as part of the second phase of the HIE development, including Quality and Gaps in Care Reporting, and rollout the system to current and new users
Release 3—PHR
Integration and Testing; Launch and Rollout
■ Develop additional functionality on the system as part of the third phase of the HIE development, including Personal Health Records, and rollout the system to current and new users
Support Services
EHR Adoption and Readiness Support
■ Establish collaboration between HITE-CT and Connecticut's Regional Extension Center, eHealthConnecticut, to create awareness and education, provide certification of interfaces and support, provide education on meaningful use to future HIE participants and build readiness understanding and outreach. ■ Build tools for determining and improving readiness of potential participants
HIE Education and Outreach
■ Concurrent with the development of the HIE and with other education channels, proactively educate providers, hospitals and the public about the existence, benefits of, and use of, the HIE ■ Develop timely public education/communication for a successful HIE implementation and the sustainability of the HIE. Key activities for consideration include: defining audience, types of communication channels and sequencing of communication artifacts; identifying trusted messengers (e.g., patients tend to trust their health care providers); researching major concerns and potential legal challenges to understand and develop mitigation strategy, and working with legislators to establish strategy for diffusing potential issues ■ Design a Public Awareness, Education and Participation Plan that includes understanding of stakeholder groups, viewpoints and needs; tailoring of communication around the value proposition of the HIE to each stakeholder group; developing and sharing case studies that demonstrate the value of the HIE; and coordinate with legal and policy domain to ensure strategy is in alignment with consent decision
User Education and Training
■ Concurrent with release rollouts, start training programs for user to develop client capabilities on, and comfort with, the system

3.0 Operational Plan

3.1 Operational Plan Summary

The HITE-CT Strategic Plan, developed through a collaborative endeavor, will be implemented through this Operational Plan, which outlines a corresponding and comprehensive set of activities to achieve statewide HIE in Connecticut. Execution of the HITE-CT Operational Plan will enable and support Connecticut's health care providers to achieve and demonstrate meaningful use of Health Information Technology (HIT) to improve the effectiveness and efficiency of health care. Connecticut, through the HITE-CT and ongoing collaboration with public and private stakeholders, plans to continue the practice of sharing information and coordinating with the HIE initiatives in other states, as well as supporting the NHIN initiatives.

In the following sections, HITE-CT's Operational Plan is described in substantial detail down to the level of individual tasks and their interrelationships. The Operational Plan Master Schedule has been developed using Microsoft Project® and is provided as a companion document with this document. A list of all the tasks in the Master Schedule is included in Section 3.9.1 of this document. The Operational Plan is organized into 11 sub-projects—illustrated and described below.

Figure 8. Operational Plan Master Schedule Top Level Summary

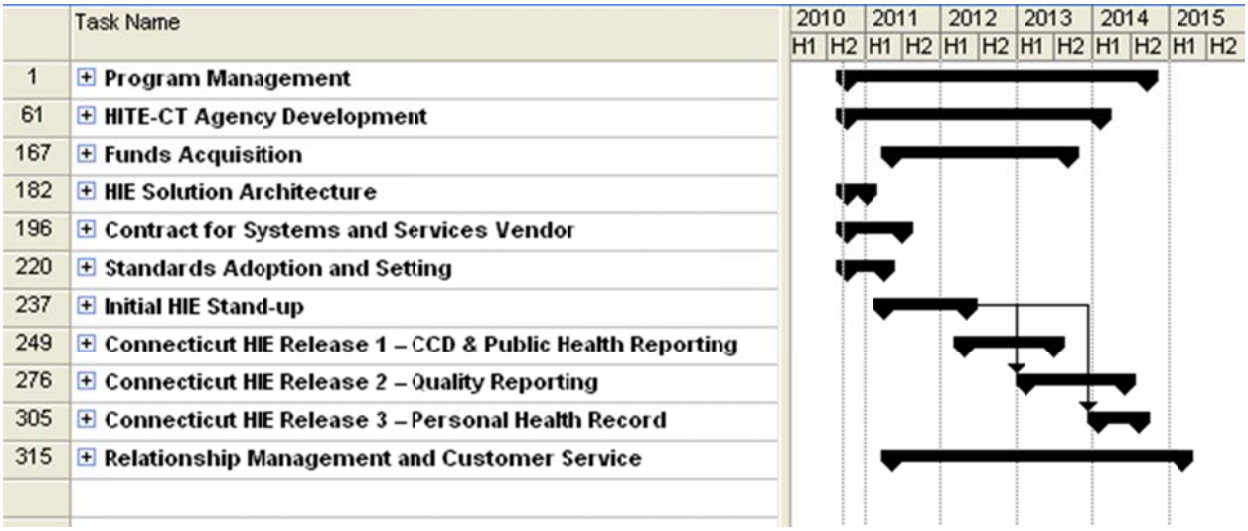


Table 8. Subproject Overview and Goals

Subproject	Overview	Primary Goal
Program Management	■ Overall Program Management, Project Status and Risk Assessment and Project Milestone Review ■ Producing the business plans required to enable the HITE-CT Board to 1) make investment decisions, 2) provide the planning information required by ONC and 3) maintain the plans required to drive the business of HITE-CT	Ensure Program Quality and Compliance with the Requirements of the Cooperative Agreement and support Project Assessment and Project Modifications as necessary to ensure success
HITE-CT Agency Development	■ Establishing the organization, staffing and processes that are required for the effective operation of the HITE-CT Agency	Resource and Organizational Readiness and Oversight
Funds Acquisition	■ Processes and operations required to access and secure the funds identified in the sustainable funding plan	HITE-CT Sustainability
HIE Solution Architecture	■ Creating an enterprise solution architecture and associated processes for the HITE-CT using industry standards in alignment with the Connecticut Enterprise Architecture—Technology Architecture (CTEA-TA) standards	Validating the Feasibility and Compatibility with Industry Standards of Connecticut's HIE Approach
Contract for Systems and Services Vendor	■ Open competitive procurement of the software, hardware and services required to operate Connecticut's HIE ■ Contact finalization	Get the Best Value for Connecticut
Standards Adoption and Setting	■ Managing the CT adoption of a variety of standards required to effectively operate Connecticut's HIE and support the NHIN initiative	Investment Protection and Compatibility with Other HIE Efforts
Initial HIE Stand-up	■ Vendor planning and foundational services such, as Master Provider Index, Master Patient Index and a Record Locator Service created to enable subsequent releases of HIE functionality and services	HIE Infrastructure Stability
Connecticut HIE Release 1—CCD/CCR & Public Health (PH) Reporting	■ Implementation of Services for Connecticut HIE Release 1—Continuity of care documents/records (CCD/CCR) and Public Health Registries and Reporting ■ For each major area of functionality (CCD/CCR and PH Reporting) the schedule assumes there will be 5 "waves" of releases based on the characteristics of the functionality being rolled out	Improved Continuity of Care and Public Health Outcomes

Subproject	Overview	Primary Goal
Connecticut HIE Release 2—Quality Reporting	■ Implementation of services for Connecticut Release 2—Quality Reporting ■ For each major area of functionality (Quality Reporting and Ancillary Service Results) the schedule assumes there will be five (5) "waves" of releases based on the characteristics of the functionality being rolled out	Improved Coordination of Care, Quality of Care, Medical Outcomes and Patient Experience
Connecticut HIE Release 3—Personal Health Record (PHR)	■ Implementation of services for Connecticut Release 3—Integration with Commercially available Personal Health Record (PHR) offerings ■ The schedule assumes there will be an implementation "wave" for each PHR product integrated. Total number of "waves" not defined as number of PHR products remains an unknown at this stage.	Improved Patient Access to and Control of Health Records
Relationship Management and Customer Service	■ Introduction of the required level of customer service and provided to participants aligned with the implementation of new services and participants	Leadership for Improvement in Health Information Exchange

3.2 Coordination with ARRA and other State and Federal Programs

3.2.1 Coordination with ARRA Programs

HITE-CT has established effective coordination efforts with other State ARRA programs. Three ARRA-funded core HIT groups in the state, DPH, DSS and eHealthConnecticut, have formed a working group to collaborate on statewide HIT. Other entities, described below, are also active on projects that support and complement the HIE project and the HITE-CT is collaborating as much as possible with each of them.

3.2.1.1 Coordination with the Regional Extension Center and DSS

In April 2010, eHealthConnecticut was awarded the funds and designation as the Regional Extension Center (REC) for Connecticut. The award was a $5.75 million grant to allow them to offer technical assistance, guidance, and information on best practices to support and accelerate health care providers' efforts to become meaningful users of EHRs.

Some members of the HITE-CT Board of Directors are also on the board of eHealthConnecticut and are coordinating resources to encourage HIE adoption along with EHR adoption to ensure the most effective use of HIT for beneficiaries of the REC's services.

Increasing the use of EHRs by primary care practitioners and other health care providers is a critical ingredient for achieving successful statewide exchange of health care information.

To support and promote HIE adoption across the State, the State's Regional Extension Center will assess individual providers' levels of EHR use and readiness to participate in an HIE. Because EHR adoption is a fundamental building block for achieving the exchange of health information, HITE-CT is committed to working closely with the Regional Extension Center to

define the mechanisms needed to encourage and support the Statewide adoption of certified systems in Connecticut.

As highlighted in Connecticut's environmental scan findings, health care providers in Connecticut are at a wide variety of maturity levels with respect to HIT and EHR readiness and adoption. Therefore, it is important to conduct a robust readiness assessment that will inform a transition plan aligned with EHR adoption. This will support the change management necessary for successful HIT adoption and HIE utilization in Connecticut.

To improve the current level of understanding of Connecticut's health care provider's HIT adoption and to supplement the data currently available, HITE-CT is working with both the State Department of Social Services (DSS) and the REC have formed working group labeled 3C3 (Collaboration, Coordination and Cooperation between DPH, DSS and eHealthConnecticut). This group recently added a representative of Capitol Community College, which is overseeing HIE workforce development in the state (see section 3.2.1.2 below).The 3C3 group will continue to support coordination activities between the three organizations including:

- Creating communications and evaluation subcommittees that focus on specific aspects of coordination for the programs
- Coordinating communications to providers, hospitals and the public on health exchange, Meaningful Use, the Medicare and Medicaid Incentive Programs and Regional Extension Center activities
- Developing and aligning key messages to serve as the base of message vehicles for all entities
- Developing a comprehensive Environmental Scan of the HIT landscape in Connecticut to identify opportunities, gaps and challenges for all programs
- Creating a Master Work Plan for all coordinated activities
- Sharing of contacts, channel partners and stakeholders for coordination, sharing and maintenance purposes
- Sharing of key audiences that will benefit from the HIE, REC and Incentive Programs
- Planning and executing conferences for providers, health care entities and the public on meaningful use, HIE and other HIT topics

3.2.1.2 Coordination with Workforce Development Initiatives

Capitol Community College in Hartford was the recipient of a $471,000 ARRA Workforce Development grant under the Community College Consortia to Educate Health Information Technology Professionals in Health Care Program. The stated purpose of the program is to "develop or improve non-degree health IT training programs that students can complete in six months or less." The program is expected to serve 300 individuals with 175 hours of non-degree HIT training over a two-year period.

Capitol Community College is part of a 12-state, 23-college consortium of these grants. This inter-state coordination of ARRA funding will likely yield additional benefits to program development and ultimately to students' training.

The HITE-CT plans to reach out to other non-ARRA workforce development programs in the State to coordinate efforts, align messaging and leverage shared work.

3.2.1.3 Coordination on Broadband Access

Connecticut is a relatively compact State geographically with access to broadband in an estimated 95% of the geographical area. There are, however, 65 towns designated as rural by the Connecticut Office of Rural Health. Based on 2000 census data, most of these rural areas are concentrated in the Northeast and Northwest corners of the State, and there is anecdotal evidence that a number of providers in these areas do not have access to high speed Internet connectivity. The Connecticut Department of Utility Control is currently engaged in a comprehensive mapping of broadband connectivity for Connecticut as part of an ARRA funded program. Both HITE-CT and SMHP planning efforts will coordinate with both the DPUC and DOIT, in their plans to extend the Connecticut Education Network, to fully understand connectivity issues and build them into the roll-out plans.

The Connecticut Recovery Working Group, established to coordinate ARRA funded activities, is in the process of completing the Broadband Mapping exercise and has applied for additional funds to increase broadband coverage in the State. Representatives of the Working Group are in close contact with members of the HITEAC and are actively looking for opportunities for the two entities to work together to enable broadband coverage for providers, especially in rural areas of the State.

3.2.2 Coordination with State Programs

Due to its size compared with other U.S. states, Connecticut has the benefit of being able to share information comparatively easy between its government agencies, commercial organizations and non-profit groups. This easy of access, open communication and collaboration is evidenced by the large number of leaders, from diverse groups, that have contributed to the development of this Plan. DPH and the HITE-CT plan to fully utilize the close relationships that have been built to continue the current level of communication and collaboration and expand it as much as possible.

3.2.2.1 Medicaid Coordination

The DSS (the State's designated Medicaid Agency) has received approval for its Planning-Advance Planning Document (P-APD) from the Centers for Medicare and Medicaid Services and is now proceeding with the development of Connecticut's State Medicaid HIT Plan (SMHP) in support of the Medicaid Incentive Program for the meaningful use adoption of EHRs.

It is DSS's intention that the State Medicaid HIT Plan, and the associated Medicaid Incentive Program, will align with, and exercise opportunities, for:

- Achieving economy and efficiency with Connecticut's HIE efforts
- Supporting provider adoption, including technical assistance and implementation of provider incentives
- Leveraging the availability of clinical data for administrative efficiencies
- Implementing reporting that focuses on healthier Medicaid members and Connecticut residents.

The HIE will also support and promote HIT for Medicaid providers and provide a platform that will support Meaningful Use requirements, especially in the two later stages of the CMS definition of Meaningful Use, which are expected to be released in 2012 and 2014 respectively, and are likely to increase the requirements to meet Meaningful Use.

DSS is also the grantee of a Medicaid Transformation Grant to create a HIE pilot, which is under contract to eHealthConnecticut.

3.2.2.2 State Coordination of Medicare and Federally Funded, State Based Programs

The Connecticut State Government HIT Coordinator has begun to coordinate with a number of the federally funded programs across the State. Some of these programs are summarized in Table 9.

Table 9. HITE-CT Coordination

Program	HITE-CT Coordination
Epidemiology and Laboratory Capacity (ELC) Cooperative Agreement Program	The State Epidemiologist has expressed interest in collaborating even further to develop capabilities that would support ELC efforts. Current processes for the collection of reportable diseases, studies including data outside of these data sources, and the dissemination of information electronically have historically been challenging in Connecticut. The State Epidemiologist will be pursuing opportunities to work with the HIE for collection and dissemination of data for effectiveness and efficiency.
Connecticut Prescription Monitoring and Reporting System	Significant coordination already exists between this program and the HITEAC. The CT Commissioner of the Department of Consumer Protection is a member of the HITEAC and the HITE-CT Board of directors and the manager of the CPMRS is a HITEAC attendee. It is being proposed that this program will be extended to include non-controlled substance prescriptions (within Connecticut and on an inter-state basis). If the plan is approved this will be considered by HITE-CT as a potential source of prescription history that can be supplied by the Statewide HIE to providers EHR systems.
Maternal and Child Health State Systems Development Initiative programs	The programs that are part of this initiative currently collaborate with DSS, DCF, UCONN, the Department of Education and the State Laboratory. The programs use data and systems such as the Connecticut Pregnancy Risk Assessment Tracking System (PRATS), the Pregnancy Risk Assessment Monitoring System (PRAMS), WIC program data, pregnancy related mortality surveillance data, the child health profile database, children & youth with special health care needs data, fetal and infant mortality, vital records data, newborn lab screening and Medicaid program data including Health care for Uninsured Kids and Youth (HUSKY). The programs are prepared to integrate as possible with the HIE to better leverage data sources and systems.
State Offices of Rural Health Policy	The Connecticut State Office of Rural Health supports 65 of 169 towns in the State that are listed as rural, as defined by the 2000 Census. The Office has been providing support for providers in the rural areas of the State, among other entities, and will likely be providing support for foundational broadband Internet access in parts of the State that do not currently have access. The Office has connections to DPH and is eager to collaborate with the Agency to promote HIT and HIE services to rural providers.
State Offices of Primary	The State Office of Primary Care in Connecticut is part of the

Program	HITE-CT Coordination
Care	Department of Public Health. The Office is currently developing databases of physicians in underserved areas and, in coordination with the HITE-CT, will look for opportunities to leverage the data gathered by the Office in the HIE and for the Office to leverage the statewide connection to providers in underserved areas.
State Mental Health Data Infrastructure Grants for Quality Improvement (SAMHSA)	The Department of Mental Health & Addiction Services is the recipient of Federal SAMHSA grants. Through past grants, DMHAS has strong working relationships with other State agencies, and will consistently evaluate opportunities to integrate with the HIE.
State Medicaid/CHIP Programs	The Department of Social Services is the provider for State Medicaid and CHIP programs. DSS has been an active participant in the planning of the HITE-CT and is including all programs in its purview in the planning for the HIE. They are actively pursuing the Medicaid Incentive Program planning and are coordinating with both DPH and eHealthConnecticut to complete enhanced environmental scans and plans for outreach and maximized program impacts within the State. DSS is also the recipient of a Medicaid Transformation Grant, part of which funded the HIE pilot, also run by eHealthConnecticut. As part of this initiative, members of DPH and State providers have been coordinating with DPH.
Indian Health Service (IHS) and tribal activity	The State has working relationships with the two Indian tribal nations in Connecticut. The Mashantucket Pequot Tribal Nation Tribal Health Services, funded in part by IHS, have installed EHRs and are connected to the IHS HIE. As part of the interaction with the nations, the HITE-CT will work with the nations and the IHS to enable information exchange with the tribal care providers, through both direct interaction with the nations and the IHS.

3.2.2.3 Coordination of State Workforce Development Programs

The Connecticut Partnership for Public Health Workforce Development promotes and facilitates collaborative education and training programs among academic institutions, state and local public health agencies and organizations to enhance the quality of public health services, especially for underserved areas and populations in the region.

The Yale School of Public Health formed the Partnership in 2000 and expanded to cover the State of Rhode Island in 2006. The Partnership is a member of the New England Alliance for Public Health Workforce Development, one of 14 regional public health training centers across the country funded by the Federal Health Resources and Services Administration. The regional training centers work to improve the Nation's public health system by strengthening the technical, scientific, managerial and leadership skills and abilities of the current and future public health workforce.

The HIT Coordinator and HITE-CT will coordinate with the Partnership to drive further healthcare workforce training in Connecticut and in other neighboring states.

3.2.3 Participation with Federal Care Delivery Organizations

The State of Connecticut is just beginning to explore opportunities to work with and integrate with EHRs and HIEs that Federal Care Delivery Organizations are currently utilizing. The VA, Indian nation's health services within and the Department of Defense (DoD) all operate functional EHRs and have connections to Federal HIEs. The State is proactively seeking opportunities to understand the structure of these systems and collaborate on ways to develop interconnections to them, either directly, or through the NHIN.

3.2.4 Coordination with Other States

Staff at CT DPH have initiated informal and formal calls and conversations with colleagues in others states that are further along in their developments of HIEs, including Maine, Vermont and New York to discuss "lessons learned," ideas, hurdles, "best practices" and coordinated activities. The discussions have been holistic, encompassing all of the five ONC domains for the HIE. Members of DPH have also been actively attending HIE meetings that bring together other states, in particular the ONC Regional Meetings.

The interaction with other states has yielded information and advice that the HITEAC and the HITE-CT can use to strengthen and enhance the HIE being developed in Connecticut.

The HITEAC is an active participant in the New England States Consortium Systems Organization (NESCSO) a New England and New York collaborative with the stated purpose to exchange information, share ideas and plans and promote coordination in matters pertaining to the development of a Health Information Exchange Architecture and related initiatives that include, but are not limited to, the development of a Regional Master Provider Index. The benefits of this collaborative include:

- Providing established conduits for information between all of the states instead of the one-off communications that might happen otherwise
- Establishing coordinated standards that can be adopted in all states preventing the adoption on incompatible standards, requiring future rework
- Providing consistency in content and format between states for ease of interoperability
- Providing pre-planned consistency in technology between states for ease of technical interconnections in syntax, semantics and metadata
- Coordinating to reduce repetitive development for connection to the Nationwide Health Information Network (NHIN)
- Coordinating across states with Medicaid MITA architectures to reduce conflicting requirements
- Sharing definitions for health information exchange for terms such as "exchange," "sharing," "transmit" and "interoperate"

The Connecticut Department of Social Services is also coordinating with several states, as part of the Medicaid Incentives Program including the working with other states that are using HP's (formerly EDS') MMIS solution. The states that are collaborating in this effort are Connecticut, Pennsylvania, New Hampshire, Rhode Island, Vermont, Delaware, Alabama, Florida, Kentucky, North Carolina, Tennessee, Indiana, Wisconsin, Arkansas, California, Oklahoma, Kansas, Idaho and Oregon.

The purpose of this collaboration includes:

- Sharing HIT plans

- Coordinating requirements around development and planning
- Leveraging technical work done to the MMIS's across states
- Working together on NLR interfaces
- Sharing "best practices" and lessons learned
- Bringing forward new information regarding program developments Collectively building knowledge

CMS has been active in these discussions and Connecticut is attempting to take full advantage of the opportunity to work with peer states and the Federal government.

3.2.5 Coordination Action Items

Table 10 summarizes the actions included in the Operational Plan that relate specifically to Coordination.

Table 10. Coordination Action Items

Action Item	Master Schedule ID and Task Name	Scheduled Completion Date
1. Develop formal links to REC.	41—Stakeholder Coordination	4/29/2011
2. Assist REC with assessing providers' levels of EHR use and readiness.	41—Stakeholder Coordination	4/29/2011
3. Ensure Connecticut Recovery Working Group completes its broadband mapping exercise.	41—Stakeholder Coordination	4/29/2011
4. Coordinate Connecticut Recovery Working Group application for additional funds to increase broadband access.	41—Stakeholder Coordination	4/29/2011
5. Coordinate with Department of Utility Control and Department of Information Technology to understand broadband connectivity issues.	41—Stakeholder Coordination	4/29/2011
6. Coordinate with the Department of Utility Control and Department of Information Technology to extend the Connecticut Education Network and build further healthcare broadband access	41—Stakeholder Coordination	4/29/2011
7. Work with DSS SMHP project to leverage and uncover HIT adoption knowledge.	41—Stakeholder Coordination	4/29/2011
8. Align with the Department of Social Services Medicaid HIT Plan	41—Stakeholder Coordination	4/29/2011
9. Develop collaborations with:	50—Develop collaborations with the following Programs	1/7/2011
a. Epidemiology and Laboratory Capacity (ELC) Cooperative Agreement Program		
b. Connecticut Prescription Monitoring and Reporting System		
c. Maternal and Child Health State Systems		

Action Item	Master Schedule ID and Task Name	Scheduled Completion Date
Development Initiative programs		
d. State Offices of Rural Health Policy		
e. State Offices of Primary Care		
f. State Mental Health Data Infrastructure Grants for Quality Improvement (SAMHSA)		
g. State Medicaid/CHIP Programs		
h. Indian Health Service (IHS) and tribal activity.		
i. Connecticut Partnership for Public Health Workforce Development		
j. Capitol Community College in Hartford		

3.3 Governance

3.3.1 Background

As of January 1, 2011, the Health Information Technology Exchange of Connecticut (HITE-CT), a quasi-public agency will be the State Designated Entity (SDE) for Health Information Exchange (HIE) in Connecticut. Governance for the HITE-CT will be provided by its legislatively appointed Board of Directors responsible for implementing and sustaining a private, secure and robust statewide HIE in Connecticut.

The HITE-CT Board of Directors, as prescribed in Public Act 10-117, is a 20-member Board, chaired by the Commissioner of the Department of Public Health and consisting of a cross-section of appointees representing the interests of consumers, public health, drug enforcement, insurance, State Medicaid, private sector HIT/HIE, information technology, federally qualified health centers, large employers, medical research, providers (including small practice MDs and practices currently using HIE), hospitals, and pharmacists as well as elected and appointed State officials. Eighteen Board members have full voting rights, while representatives of the Connecticut Office of Policy and Management (OPM) and the Connecticut Office of the Health Care Advocate shall serve as Ex Officio, non-voting members of the Board.

With respect to direct and specific oversight of a health information exchange, it is important to note that the HITE-CT Board, in consultation with its subcommittees and with public input, must oversee the development of policies for privacy and security. In particular, the HITE-CT Board will establish policies regarding consumer authorization and consent, user access and control, provider access, financing, and secondary uses of data. The HITE-CT Board will develop policies that ensure a high level of protections for the statewide HIE.

In its previous form as HITEAC, there has been active involvement in developing the Strategic and Operational Plans that the Board is charged with putting in place pending approval by the federal ONC.

Until the HITE-CT is established on January 1, 2011, the CT DPH is the SDE, and will fulfill those duties in accordance with its Cooperative Agreement with ONC. Planning and operational oversight through December 31, 2010 comes under the DPH Planning Branch. After January 1, 2011, DPH will have the ability to contract with the HITE-CT to carry out the implementation of the State's HIE Operational Plan. This contract process provides DPH with financial oversight responsibility of the HITE-CT.

As per the Cooperative Agreement with ONC, the State will continue to maintain the position of the State Government HIT Coordinator to carry out the following:

- Develop and advocate for statewide HIT policy to achieve statewide goals.
- Coordinate HIT efforts with public health, Medicaid and other federally funded State programs.

3.3.2 Governance and Policy Structures

3.3.2.1 Governance Model

As described in the Strategic Plan, HITE-CT will build a comprehensive governance model to address:

- Advocating for HITE-CT and encouraging public participation

- Encouraging stakeholder participation in HITE-CT, including individuals, enterprises and stakeholder representative bodies such as associations
- Promoting health information technology adoption across all health care providers, payers, and patients to provide the structured health information that will be the life blood of HITE-CT
- Strategic planning to ensure HITE-CT is at the forefront of Health IT in Connecticut and nationwide
- Managing the HIE utility by overseeing technical operations to ensure availability, adaptability, and usability and the organization required to support that
- Conducting business operations, including financing and accountability mechanisms
- Providing accountability and oversight of the exchange of health information to ensure legal and policy requirements are satisfied
- Fostering intrastate and interstate collaboration on health information exchange and related standards development

3.3.2.2 Planning and Operational Oversight

The HITE-CT Board of Directors will have the authority to hire and dismiss staff needed to carry out its mission. Per legislation, staff is "responsible for administering the agency's programs and activities in accordance with policies and objectives established by the Board. The chief executive officer shall serve at the pleasure of the Board and shall receive such compensation as shall be determined by the Board. The chief executive officer (1) may employ such other employees as shall be designated by the Board of directors; and (2) shall attend all meetings of the Board, keep a record of all proceedings and maintain and be custodian of all books, documents and papers filed with the agency and of the minute book of the agency."

The HITE-CT Board of Directors must also develop by-laws that will govern the quasi-public agency, and will have the ability to develop subcommittees and workgroups to carry out its stated mission.

3.3.2.3 Ensuring Stakeholder Input and Influence

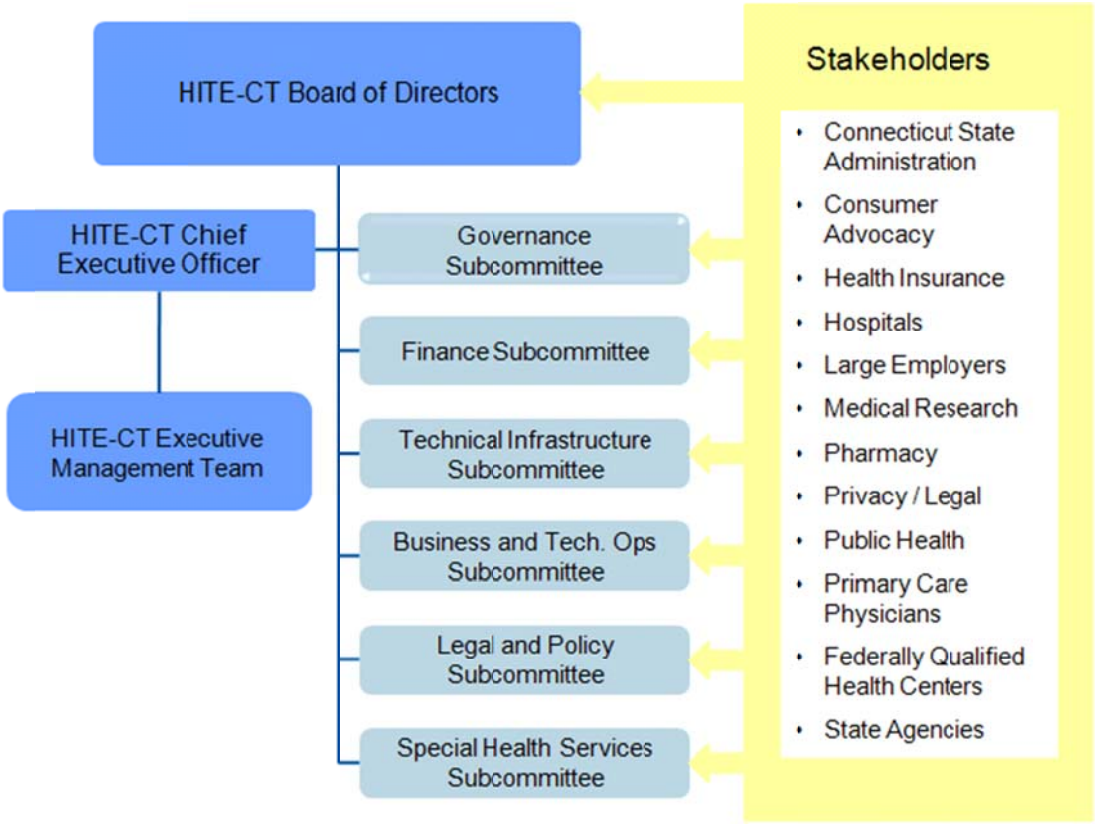
The HITE-CT Board of Directors will be responsible for creating subcommittees of the Board to advise on issues related to HIE development and maintenance, initially including (but not limited to):

- Governance
- Finance
- Technical Infrastructure
- Technical & Business Operations
- Legal & Policy
- Special Populations

Subcommittee members shall be drawn from the Board and from stakeholder and consumer communities based upon their expertise and the need of the HITE-CT. Each subcommittee shall have at least 3 members, including the subcommittee chair, who will be a Board member. There is to be a strong emphasis on achieving both broad stakeholder representation and a strong consumer orientation. Bi-directional communication between the subcommittees and the Board

is important, and will help ensure a path toward strong, effective, and stakeholder driven policy creation. Additional policies regarding the establishment of subcommittees (e.g., for CT Standards adoption) must be addressed through the by-laws of the HITE-CT Board, as developed in accordance with PA10-117. The figure below provides an organization chart of HITE-CT Governance structure.

Figure 9. Stakeholder Interaction with HITE CT Governance



It should be noted that “cooperation, coordination and collaboration” between the current SDE (DPH), the Connecticut Department of Social Services (DSS, as the State CMS entity), the Regional Extension Center, eHealthConnecticut, Inc., and the Community College Consortium are both a priority and a business imperative. These agencies are funded by ARRA HITECH programs and are committed to examine areas of overlapping responsibility and funding so as to positively leverage these public assets, thereby avoiding waste through duplication of effort.

With the addition on January 1, 2011 of the HITE-CT, such cooperation, coordination and collaboration, along with communication, can and will be an essential partnership, as this is critical to the overall success of the HIE/HIT, as led by the State Government HIT Coordinator.

3.3.2.4 HITE-CT Board of Directors and CEO

The Board shall select, appoint and determine remuneration for a Chief Executive Officer (CEO). The HITE-CT CEO will be responsible for building an organization and administering the

agency's programs and activities in accordance with policies and objectives established by the Board including:

- Implementation and periodic revisions of the health information technology plan, including the implementation of an integrated statewide electronic health information infrastructure for the sharing of electronic health information among health care facilities, health care professionals, public and private payers, State and federal agencies and patients
- Appropriate protocols for health information exchange
- Electronic data standards to facilitate the development of a statewide integrated electronic health information system for use by health care providers and institutions that receive State funding

HITE-CT has the ability to create subsidiaries which will also be quasi-public agencies with their own boards and at least 50% representation from the HITE-CT Board.

3.3.2.5 Reporting and Success Measures for Accountability

The CEO of the HITE-CT will report annually in writing, to the Governor and the General Assembly, on funding and the status of health information exchange and health information technology in Connecticut.

The federal government mandates strict accountability measures on the part of ARRA funded programs, including HITE-CT. Consistent with the ONC Cooperative Agreement, the CT DPH will continue ARRA reporting on a quarterly basis for the duration of the 4-year Cooperative Agreement. With regard to the governance domain, the following are required reporting for HITE-CT with regard to ARRA:

- Proportion of HITE-CT organizations represented by public stakeholders
- Proportion of HITE-CT represented by private sector stakeholders
- HITE-CT representation including: government, public health, hospitals, employers, providers, payers and consumers
- Designated governance role of State Medicaid agency (DSS) in HITE-CT
- HITE-CT's adoption of a Strategic Plan for statewide HIT
- HITE-CT's approval/implementation of Operational Plan for statewide HIE
- Status of HITE-CT meetings (minutes posted and meetings public)
- Designated governance role of regional HIE initiatives in HITE-CT

HITE-CT program metrics for the second quarter of 2010 (April 1, 2010 through June 30, 2010) are as follows:

- Finalize Connecticut HIE Strategic Plan with CT Health Information Technology and Exchange Advisory Committee
- Request informal review of the CT HIE Strategic Plan from the ONC Program Officer
- Develop Connecticut HIE Implementation Plans with CT Health Information Technology and Exchange Advisory Committee
- Collaborate with all HIE partners in Connecticut to address obstacles to efficient HIE
- Complete contractual requirements with vendor to deliver evaluation services.

In addition, as part of the Cooperative Agreement, the CT DPH is engaging the University of Connecticut Health Center (UCHC) in a 4-year Memorandum Of Agreement (MOA) for the purpose of conducting a comprehensive evaluation for the Health Information Technology and Exchange (HITE) Cooperative Agreement to assess the process of developing all aspects of the HITE-CT.

Finally, Connecticut has made significant in-roads toward stakeholder engagement. At the present time, approximately 150 individuals from 53 distinct agencies/entities[27] are involved in one or more aspect of HITE-CT planning. These individuals represent consumers, governmental agencies, hospitals, payers, non-profit groups, for profit businesses, providers, educational/research institutions, community health centers and, in some cases, themselves as individuals. All are welcome.

Stakeholders participate in the HITE-CT building process in a variety of ways: membership in the full Board (by appointment only), membership in subcommittees of the Board, attending meetings of the Board and/or its subcommittees, and/or providing feedback to the Board and its committees with regard to its work. All meetings of the Board and its subcommittees will be publicly noticed, with agendas and minutes for each meeting posted on a publically accessible website.

3.3.2.6 Public Awareness, Education and Participation Plan

The first priority of the Coordination Committee is to develop a communications plan (draft version included as an Appendix to this document) that meets the needs and federal requirements of three taxpayer funded HIE entities in Connecticut. Such coordination will ensure that messaging is disseminated in a consistent fashion. Development of such a plan is to begin in July 2010 and be completed in early 2011. This plan shall include, but not be limited to, the following:

- Understanding of stakeholder groups, viewpoints and needs
- Tailoring of communication around the value proposition of the HIE to each stakeholder group
- Developing and sharing case studies that demonstrate the value of the HIE
- Coordinate with the legal and policy domain to ensure that the strategy is in alignment with consent decision

3.3.3 HITE-CT Organization Structure

For the purposes of operational planning and budgeting, an operational organization structure has been developed and is illustrated below and described in Table 11 in terms of the key functional roles and their reporting relationships.

Figure 10. HITE CT Key Functional Roles and Organizational Hierarchy

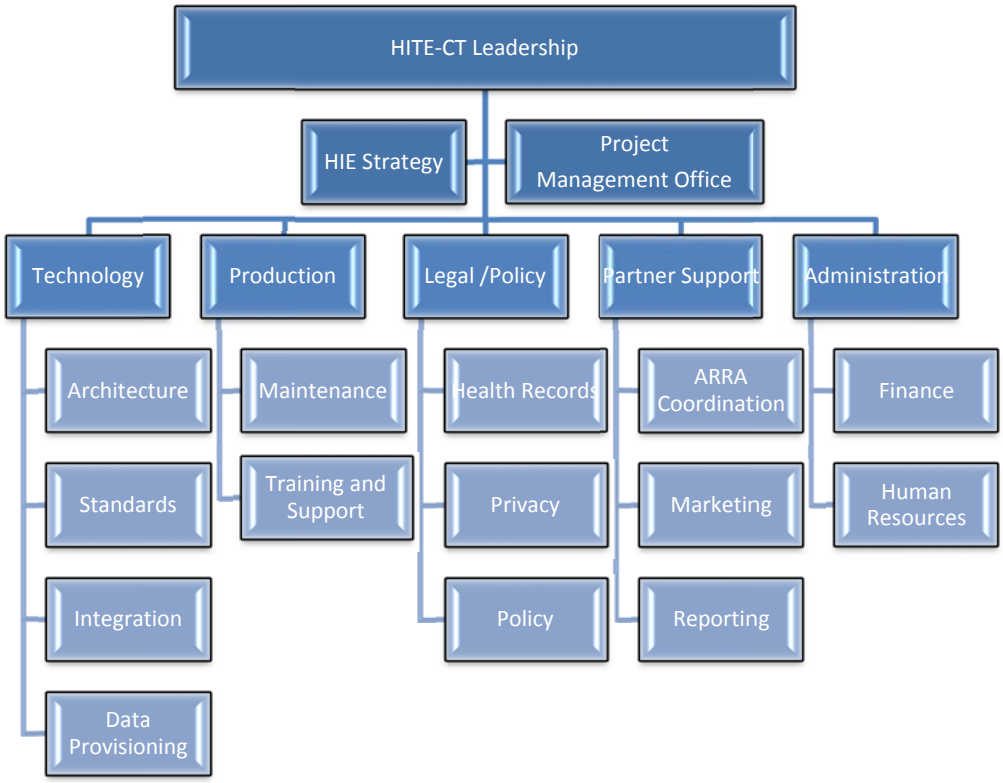


Table 11. HITE-CT Organizational Structure Functional Roles

Role	Description
HITE-CT Leadership	■ Strategic road map and business plan (project) approval ■ Multiyear budget development and approval ■ Major project oversight and accountability ■ Integration and culture ■ Standards approval ■ HITE-CT Scorecard, satisfaction, quality and value review and accountability ■ HITE-CT Board relationship
HITE-CT Strategy	■ Annual Business Plan development ■ Requirements analysis ■ HITE-CT road map development ■ Health Informatics and NHIN Lead ■ Clinical Informatics leadership ■ Performance scorecard development, usage and user satisfaction survey ■ Evaluation and benefits demonstration ■ Standards process development
Project Management Office	■ Project portfolio oversight

Role	Description
	■ Project management ■ Project reporting ■ Contractor management ■ Vendor management
Technology	■ Application architecture development ■ Data architecture development ■ Product Procurement Lead ■ Interface and integration design ■ IT Security ■ Standards development
Production	■ Implementation Lead ■ Change management ■ Data load ■ Data quality management ■ Maintenance ■ Interface maintenance ■ Subscriber support ■ Partner training
Legal/Policy	■ Legal Officer ■ Chief Privacy Officer ■ Health records ■ Contracting ■ External policy and regulation development and coordination ■ Enterprise Risk Management
Partner Support	■ Relationship Management with Partners (information suppliers and consumers) ■ HIE marketing and outreach ■ ARRA coordination ■ Communications ■ Quality Reporting and Analytics
Administration	■ Long term sustainability model development ■ HIE financial management ■ Human Resources ■ Administration

3.3.4 Governance Action items

Table 12 summarizes the actions included in the Operational Plan that relate specifically to Governance.

Table 12. HITE-CT Governance Action Items

Action Item	Master Schedule ID and Task Name	Scheduled Completion Date
1. Select, determine remuneration for, and hire the CEO (HITE-CT Board)	80—Recruit and hire HITE-CT Chief Executive Officer	1/6/2011
2. With Board oversight and approval, the CEO will build the HITE-CT organization	67—Develop Organizational Structures	1/27/2011
3. CEO will administer the agency's programs in accordance with policies and objectives established by the Board, including:		
4. Implementation and periodic revisions of health information technology plan	16—Revise and Update Strategic and Operational Plans on a regular basis	Ongoing
5. Appropriate protocols for health information exchange	118—(Policy and Processes) Standards Adoption and Setting 220—Standards Adoption and Setting	2/3/2011 3/31/2011
6. Electronic data standards to facilitate the development of a statewide integrated electronic health information system for use by health care providers and institutions that receive State funding	221—Create CT HIT Operability and Data Management Standards Governance Structure and Processes	2/3/2011
7. CEO will report annually to the Governor the General Assembly and the Board on the overall status of health information exchange and health information technology in Connecticut	89—State Legislature Annual Reporting	Annually
8. CEO will build comprehensive governance model that expands upon the legislative definition and description of the HITE-CT Board roles and responsibilities	64—Define the Governance Model	10/14/2010
9. Advocate for HITE-CT and encourage public participation	142—Marketing & Communication	6/22/2011
10. Encourage Stakeholder participation in HITE-CT	142—Marketing & Communication 65—Establish Governance Entities and Subcommittees (develop charters and appoint members) 315—Relationship Management and Customer	6/22/2011 10/28/2010 Ongoing

Action Item	Master Schedule ID and Task Name	Scheduled Completion Date
	Service	
11. Promote health technology adoption across all health care providers, payers and patients to provide the structured health information that will be the pillar of the HITE-CT	142—Marketing & Communication 108—Ongoing Coordination with other Agencies and Programs	Ongoing Ongoing
12. Engage in strategic planning to ensure HITE-CT is at the forefront of Health IT in Connecticut and Nationwide	16—Revise and Update Strategic and Operational Plans on a regular basis	Ongoing

3.4 Finance

This section describes activities required to finalize and operationalize the funding model included in the Strategic Plan, and provides a cost estimate for the implementation of the Strategic Plan for a period of four years. It includes an analysis of HITE-CT staffing needs used in creating these estimates. In addition, this section describes activities to implement financial policies, procedures, and accounting controls and risk management.

3.4.1 Finalize the Funding Model

The Finance subcommittee will undertake the following steps in finalizing the most viable financing mode for the State's HIE for both the initial development and deployment and for the ongoing sustainability of the HIE:

- Identify the quantifiable value of the HIE to various constituencies
- Finalize the HIE revenue estimates for the design, development and implementation of the HIE and for its ongoing sustainability
- Identify the universe of potential funding mechanisms for the State's HIE financial sustainability
- Develop detailed funding scenarios and assessment formulas for the viable alternatives for initial development and implementation and ongoing financial sustainability for the HIE
- Conduct an alternatives analysis of viable funding alternatives
- Finalize and institutionalize the finance mode for funding the initial development and deployment of the HIE and for its ongoing financial sustainability

3.4.2 HITE-CT HIE Cost Estimates

The approach to estimating the costs for overseeing, implementing, operating, and improving the HITE-CT statewide HIE was developed using a Total Cost of Ownership (TCO) approach. The estimated costs include the costs of the HITE-CT organization and the costs of the statewide HIE solution infrastructure and operations. It is expected that the HIE solution will be provided, implemented, and possibly operated by one or more vendors. HITE-CT will contract with one or more vendor(s) for the required products and services, and such vendor costs are reflected in the cost estimates below.

The intent of the TCO approach was to identify all costs associated with HITE-CT and the implementation and operation of the statewide HIE over a four year period. The costs include direct costs such as staff salaries and benefits, as well as indirect costs such as facilities and staff supplies. The costs also include one-time costs such as associated with the purchase and implementation of a technology solution, as well as ongoing costs such as associated with vendor provided support and maintenance of the solution.

The four year cost estimates were developed using the following inputs:

- Rule of thumb guidelines for HIE costs based on level of participation across resident and physician communities
- Observations of other State reported costs of planned and implemented HIE initiatives
- Input from the HIE vendor community on establishing budgetary estimates for a statewide HIE with the size and characteristics of HITE-CT

When developing these cost estimates the State assumed it would follow a Software-as-a-Service (SaaS) model (which is likely to have the advantage of providing a fast implementation). This does not impact the total cost estimate but tends to spread the costs more evenly over the time periods under consideration.

The results of the four year costs estimates are provided in Table 13.

Table 13. HITE-CT Four Year Costs

HITE-CT Four-Year Cost Estimates	2011	2012	2013	2014	TOTAL
HITE-CT Organziation					
Direct Costs					
Staff Salaries- 10 FTE positions	$ 1,200,000	$ 1,236,000	$ 1,273,080	$ 1,311,272	$ 5,020,352
Benefits (35% of Salaries)	$ 420,000	$ 432,600	$ 445,578	$ 458,945	$ 1,757,123
Indirect Costs					
Rent and Utilities	$ 75,000	$ 75,000	$ 75,000	$ 75,000	$ 300,000
Office Equipment	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 60,000
Outreach and Communications	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 200,000
Travel	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 80,000
Legal	$ 75,000	$ 50,000	$ 50,000	$ 25,000	$ 200,000
Supplies and Miscellaneous	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 80,000
Sub-Total HITE-CT Organziation	$ 1,875,000	$ 1,898,600	$ 1,948,658	$ 1,975,218	$ 7,697,476
HITE-CT HIE Software as a Service (SaaS) Solution					
One-Time Costs					
Implementation	$ 1,000,000	$ 1,000,000	$ 500,000	$ -	$ 2,500,000
Interfaces	$ 750,000	$ 500,000	$ 500,000	$ -	$ 1,750,000
Oversight	$ 500,000	$ 500,000	$ 300,000		$ 1,300,000
Ongoing Costs					
Hosted Solution	$ 2,000,000	$ 3,000,000	$ 4,000,000	$ 4,000,000	$ 13,000,000
Technical Operations	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 4,000,000
User Support	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 2,000,000
Enhancements	$ -	$ -	$ -	$ 500,000	$ 500,000
Sub-Total HITE-CT HIE SaaS Solution	$ 5,750,000	$ 6,500,000	$ 6,800,000	$ 5,500,000	$ 24,550,000
Total	$ 7,625,000	$ 8,398,600	$ 8,748,658	$ 7,475,218	$ 32,247,476

3.4.3 HITE-CT Staffing Plan

Approximately 24 FTEs (including the Chief Executive Officer) are required to resource HITE-CT effectively. Some of these roles can be resourced by partners, while others can be resourced by contractors or vendors. About 10 Full-Time Equivalents (FTEs) will be full time staff to ensure continuity and alignment with the strategic direction of the HITE-CT as illustrated in Table 14.

Table 14. HITE-CT Staffing Plan

Level	Function	FTEs	Staff
HITE-CT Leadership		1	1
	Strategic road map and business plan (project) approval		
	Multiyear budget development and approval	0.5	0.5
	Major project oversight and accountability	0.5	
	Integration and Culture		
	Standards approval		
	HITE-CT Scorecard, Satisfaction, Quality and Value Review and Accountability		
	HITE-CT Board relationship	0.5	
HITE-CT Strategy		1	1
	Annual Business plan development	0.5	0.5
	Requirements analysis	1	
	HITE-CT Road map development		
	Health Informatics and NHIN lead	0.5	
	Clinical Informatics Leadership	0.5	
	Performance Scorecard Development, Usage and User Satisfaction Survey	0.5	
	Evaluation and Benefits Demonstration		
Project Management Office		1	1
	Project Portfolio oversight		
	Project Management	1	
	Project Reporting	0.5	
	Contractor Management	0.5	
	Vendor Management	0.5	
Technology		1	1
	Application Architecture Development	0.5	
	Data Architecture Development	1	
	Product Procurement lead	0.5	
	Interface and Integration Design		
	IT Security	0.5	

Level	Function	FTEs	Staff
	Standards Development	0.5	
Production		1	
	Implementation Lead		
	Change Management	0.5	
	Data load	1	
	Data Quality Management		
	Maintenance	1	
	Interface Maintenance		
	Subscriber Support	0.5	
	Participant training		
Legal/Policy		1	1
	Legal Officer		
	Chief Privacy Officer	1	1
	Health Records	0.5	
	Contracting		
	External Policy and Regulation Development and Coordination		
	Enterprise Risk Management	0.5	
Participant Support		1	2
	Relationship Management		
	HIE Marketing and Outreach	0.5	
	ARRA Coordination	0.5	
	Communications		
	Quality Reporting and Analytics		
Administration		1	1
	Long Term Sustainability Model Development		
	HIE Financial Management	0.5	
	Human Resources	0.5	
Totals		**25**	**10**

3.4.4 Controls and Reporting

HITE-CT Connecticut will establish and maintain the necessary project financial & reporting structure and audit & control mechanisms required for establishing and sustaining the operation of the statewide HIE. HITE-CT will manage and track spending for the HIE and will put in place policies, procedures, and controls compliant with Generally Accepted Accounting Principles (GAAP) and relevant OMB circulars.

HITE-CT will engage annually an independent auditor. The auditor will perform an annual audit to ensure proper procedures and controls are in place and to ensure compliance with GAAP

and OMB circulars. HITE-CT will be responsible for tracking and reporting all spending associated with the statewide HIE efforts. HITE-CT will monitor spending through budget process, monthly financial reporting, and review and approval of all invoices.

HITE-CT will complete reports due to ONC as related to the overall progress of the HIE, use of funding, and other reports as required. HITE-CT will ensure that mechanisms are in place to:

- Comply with audit requirements of the Office of Management and Budget
- Produce and submit annual quarterly and annual financial reports
- Produce and submit progress reports to ONC
- Produce and submit quarterly reports as specified in section 1512(c) of the Recovery Act, including detailed information on any subcontracts or sub-grants awarded

3.4.5 Risk Management

The Program Management Office within HITE-CT will be responsible for managing risks of the statewide HIE implementation and operations, including management of vendors associated with the implementation and operation of the HIE solution. Risks will be managed at every major phase of HIE life cycle, including strategy, planning, implementation and operations phases. HITE-CT may choose to bring in an independent third-party advisor to provide program assurance services in addition to the evaluation services described in the Evaluation Approach section. The third-party advisor would bring experience and insight to managing large, complex programs in the health care and public health environments to help ensure critical risks are proactively managed and that the project remains on track to achieve its desired outcomes.

The broad categories of risks to be managed by the PMO include:

- Benefit Risk: Defined as risks, that when the program is complete, of not delivering the benefits as expected at the outset of the effort and/or as revised over the course of the project. Mismanagement of these risks results in a large amount of money spent without the expected benefits.
- Budget Risk: Defined as risks that prevent the project from being completed on time, on scope, and on budget. Mismanagement of these risks results in projects that are significantly over budget or projects that run out of funding before addressing the project objectives in full.
- Execution Risk: Defined as risks arising from not performing the correct tasks, performing them in the wrong order, and/or performing them incorrectly. There are known best practices for executing complex programs and technology projects. Assessing completed, in process, and planned tasks for completion and quality ensures what is done is truly complete and what is planned for is on track. When mismanaged, these risks often present significant issues at the point of a “go live” for the new HIE solution.
- Stakeholder Risk: Defined as risks associated with stakeholder disengagement. Understanding and managing the impact to each distinct stakeholder community is critical. When mismanaged, stakeholder views and needs are often not taken into account, resulting in dissatisfied and disengaged stakeholders, which in turn has a significant impact on successfully meeting program objectives and desired outcomes.
- Organizational Risk: Defined as the risks associated with organizations not being ready to benefit from a new solution or capability once it is deployed. Most of the risk has to do with effectively managing the complexities of change within organizations so they are in

a position to benefit from newly deployed capabilities. Mismanagement of these risks often leads to new solutions that are not adopted and put to use by the end user communities.

An initial analysis of risks is included in the Operational Plan Master Schedule and Risk Analysis section that follows.

3.4.6 Finance Action items

Table 15 summarizes the actions included in the Operational Plan that relate specifically to Finance.

Table 15. HITE-CT Finance Action Items

Action Item	Master Schedule ID and Task Name	Scheduled Completion Date
1. Consider scenarios and combinations for ongoing sustainability	18—Develop Full Multi-year Funding and Sustainability Model	12/10/2010
2. Develop a three year financial sustainability model based on a gradual implementation of services an ongoing support	18—Develop Full Multi-year Funding and Sustainability Model	12/10/2010
3. Establish clear financial controls and reporting to ensure that the financing of HITE-CT is economical and sustainable over time	74—(Develop Organizational Structures) Administration 87—(Reporting) Determine Requirements, Measures and Systems 115—(Policies and Processes) Finance	1/27/2011 2/17/2011 12/23/2010
4. Ensure required matching funding for the cooperative agreement is available along with other short and medium term funding sources as required	167—Funds Acquisition	8/29/2013
5. Establish and maintain necessary project financial and reporting structure, audit and control mechanisms required for establishing and sustaining HITE-CT	74—(Develop Organizational Structures) Administration 87—(Reporting) Determine Requirements, Measures and Systems 115—(Policies and Processes) Finance	1/27/2011 2/17/2011 12/23/2010
6. Ensure mechanisms are in place and maintained to:	74—(Develop Organizational Structures) Administration 87—(Reporting) Determine Requirements, Measures and Systems 115—(Policies and Processes) Finance	1/27/2011 2/17/2011 12/23/2010

Action Item	Master Schedule ID and Task Name	Scheduled Completion Date
a. Comply with audit requirements of the Office of Management and Budget		
b. Submit annual Financial Status Reports		
c. Submit semi-annual progress reports to ONC		
d. Submit quarterly reports as specified in section 1512(c) of the Recovery Act, including detailed information on any subcontracts or sub-grants awarded		
7. Continue to evolve the risk analysis included in the Operational Plan as part of the ongoing planning process	16—Revise and Update Strategic and Operational Plans on a regular basis	Ongoing

3.5 Technical Infrastructure

3.5.1 Standards and Certifications

HITE-CT will be the State Agency for specifying and adopting health care related interoperability and data interchange standards for use within the State of Connecticut. These standards will facilitate current and future use of HITE-CT services. HITE-CT will be responsible for ensuring these standards and related guidelines are widely disseminated, understood and adopted.

HITE-CT will endeavor to ensure that all standards deployed by the statewide HIE are accepted by HHS and will support widespread interoperability among providers in Connecticut and with the NHIN. NHIN includes a collection of standards that will be interoperable between a wide range of entities, including standards such as ASC X12 for administrative transactions, NCPDP SCRIPT for ePrescribing, HITSP C32 construct including HL7 CDA, ASTM CCR and others, and terminologies such as ICD, CPT and SNOMED. HITE-CT will leverage this national agreement on structured communication and align with it as closely as possible.

As part of the technology evaluation and procurement process, HITE-CT will complete an assessment of the technology for compliance with HHS standards and will only integrate technology that meets these requirements. HITE-CT will be substantially influenced by the Standards and Certification criteria published in July 2010 as the Final Rule[28].

Policies making any standards mandatory for HITE-CT users will be enacted by the HITE-CT Board of Directors. Lessons learned regarding the technical infrastructure and other aspects of data sharing will be communicated directly with ONC and through collaboration with the designated Regional Extension Center, eHealthConnecticut.

Connecticut will adopt Standards in the following categories:

- Vocabulary Standards—standardized nomenclatures and code sets used to describe clinical problems and procedures, medications, and allergies
- Content Exchange Standards—standards used to share clinical information such as clinical summaries, prescriptions, and structured electronic documents
- Transport Standards—standards used to establish a common, predictable, secure communication protocol between systems
- Privacy and Security Standards—authentication, access control, transmission security which relate to and span across all of the other types of standards

The adopted standards are likely to include all those adopted in the ONC Final Rule and are expected to include:

- HITSP C32 construct;
- Health Level 7 (HL7);
- Digital Imaging and Communications in Medicine (DICOM);
- Electronic Data Interchange X12 (EDI X12);
- National Council on Prescription Drug Plans (NCPDP);
- Standard Object Access Protocol (SOAP);
- Representational State Transfer (REST);
- electronic business Extensible Markup Language (ebXML);

- Secure Sockets Layer (SSL);
- Transport Layer Security (TLS); and
- Connecticut Enterprise Architecture—Technology Architecture (CTEA-TA).

HITE-CT views some standards as having more relevance to the early phases of the HIE implementation than others. HITE-CT subscribes to the HL7 (HL7.org) Clinical Document Architecture (CDA), the HL7 standard that provides an exchange model for clinical documents (such as discharge summaries and progress notes). By leveraging the use of XML, the HL7 RIM and coded vocabularies, the CDA makes documents both machine readable, so they are easily parsed and processed electronically, and human readable, so they can be easily retrieved and used by the people who need them. The CDA is capable of informing decision support and other sophisticated applications, while retaining the simple rendering of legally authenticated narrative.

HITE-CT also views the HL7 Continuity of Care Document (CCD) as important to capture a patient's health summary. CCD adds content to the CDA structure by describing various document sections such as patient demographics, insurance information, diagnosis and problem list, medications, allergies and care plan that collectively can represent a snapshot of a patient's health data. The CCD is the result of a collaborative effort between the HL7 and ASTM organizations to harmonize the data format between ASTM's Continuity of Care Record (CCR) and HL7's Clinical Document Architecture (CDA) specifications. HITE-CT plans to cater to both the Continuity of Care (CCD) and the Continuity of Care Record (CCR) standards as per the standards described in the Final Rule.

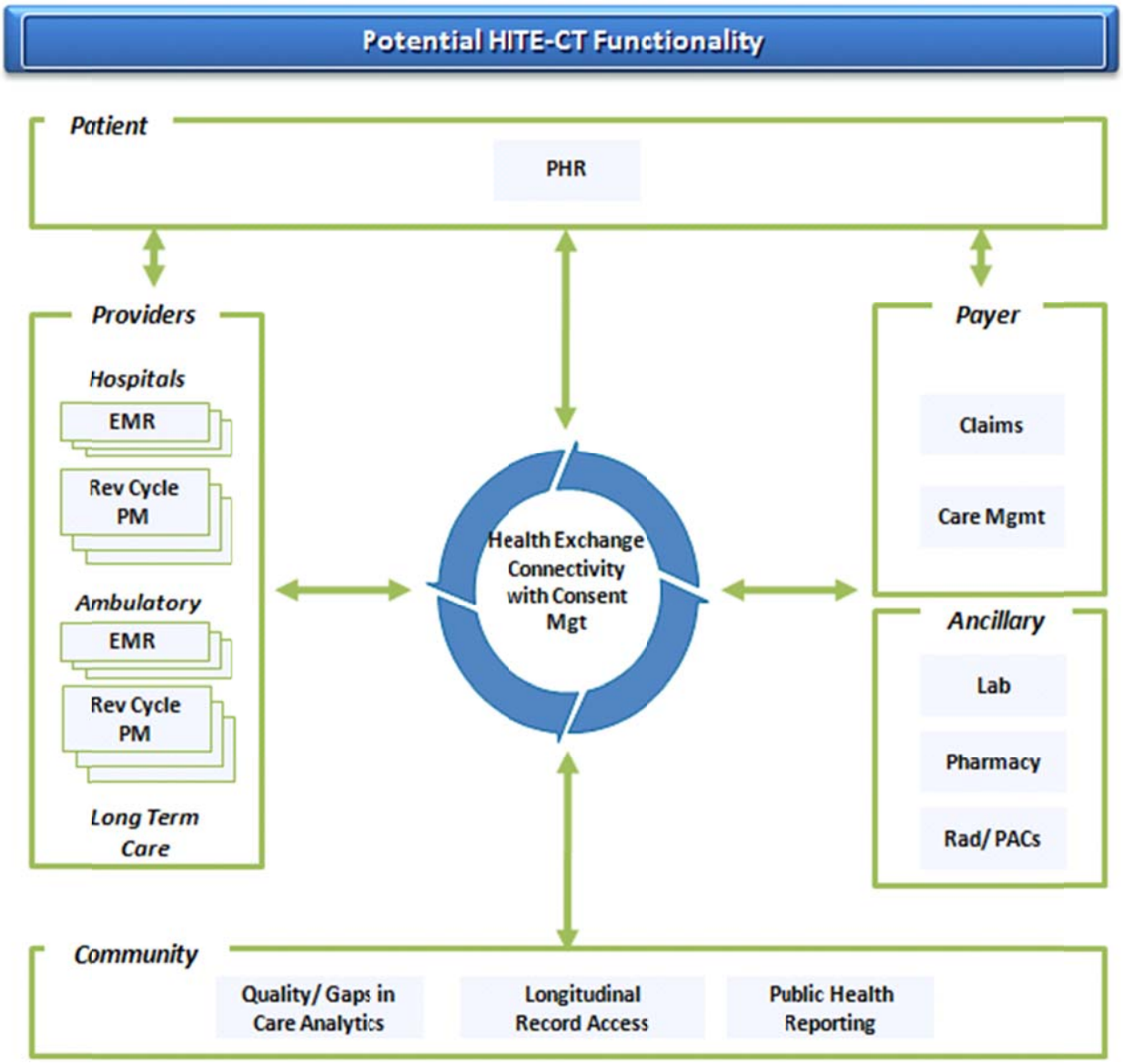
3.5.2 HITE-CT Technical Architecture

3.5.2.1 Overview

There are a number of established HIE or data sharing systems in Connecticut that range from fully operational HIEs to remote systems operations. To include all of the established systems while developing consistent standards and processes, the health care community within Connecticut must collaborate to choose an appropriate architecture that meets current and future needs.

HITE-CT will lead the effort to define comprehensive enterprise architecture, including standards considerations, and document the full scope of required HITE-CT technology infrastructure and services. The architecture will permit the exchange of data between entities that house patient data and authorized health care providers in a manner that will accommodate users at various stages of technology adoption. The figure below provides a high level view of HITE-CT's initial target functional capabilities.

Figure 11. HITE CT Initial (First 3 Years) Target Functionality



Starting with the requirements and technical conceptual architecture developed as part of the State HIT Plan, HITE-CT will follow the Connecticut Enterprise Architecture—Technology Architecture (CTEA-TA) processes and develop a "Common Requirements Vision" including the following:

- Statewide HIE and HIT Environmental Trends
- HITE-CT Business Strategies
- Environmental Trends/HITE-CT Business Strategies Relationship Matrix
- HITE-CT Information Requirements
- HITE-CT Business Strategies/HITE-CT Information Requirements Relationship Matrix

- Information Technology Requirements
- HITE-CT Information Requirements/IT Requirements Relationship Matrix
- Summary graphic Vision including Business, Information and Technology viewpoints

This will provide an HITE-CT Solution Architecture described from the following viewpoints:

- Business Architecture: A representation of the requirements, principles and models for the enterprise's people, financials, processes and organizational structure. The goal of describing Business Architecture is to ensure that changes and enhancements to business functions, process, financials, people and organizational structure are fully optimized along with information and technology, in support of the business strategy.
- Information Architecture: That part of the architecture process that describes (through a set of requirements, principles and models) the current state, future state, and guidance necessary to flexibly share and exchange information assets to achieve effective enterprise change.
- Technology Architecture: How technology components from multiple technology domains are deployed within technology patterns to provide the required technology services and the technology standards complied with.

3.5.2.2 Technology Objectives and Guidelines

The key objectives that will be pursued in the HITE-CT architecture will include:

- To enable an open and standards-based architecture that can address the key performance, robustness, economic, semantic as well as the privacy and security challenges associated with the deployment of EHR solutions in Connecticut
- To create a framework where solutions can evolve progressively to meet the ultimate goal of a network of interconnected HIE infrastructures. This framework needs to allow for solutions to concentrate first on sharing clinical information between a limited number of participants and then grow to include all health organizations within the State
- To clearly delineate where standards are required for interoperability. Point of Service (PoS) applications must be able to rely on standards-based communications to connect and obtain services from the HIE
- To exchange and interpret security, privacy, transactional, policy and administrative metadata similarly between systems connected to the HIE

Systems that are built to change are more valuable than systems that are built to last, and, in reality, are the only ones that last. A Service Oriented Architecture (SOA) is used to build systems that are intended to change. Connecticut has determined that the HITE-CT system requirements will only be properly satisfied by an SOA solution. Specifically, the proposed solution must adhere to the following five principles:

- **The system must be modular—**Each component is a service consumer, service provider or both. Modules will exist at a variety of levels of granularity (e.g., at a business process level such as certification and benefits issuance to simplify alignment with key business processes and at lower levels such as data services for a single database table to enable reuse across the application and the whole architecture). As with business services, the capabilities to specialize, mix and match, and swap components are key benefits.

- **The modules must be distributable—**Each module must be able to run on disparate computers and communicate with each other by sending messages over a network at runtime. This will enable edge servers at providers' and HIE sites.
- **Module interfaces must be clearly defined and documented—**Software developers write or generate interface metadata that specifies an explicit contract so that another developer can find and use the service (which helps enable loose coupling).
- **Modules must be swappable—**A module that implements a service can be swapped out for another module that offers the same service and interface. This is an aspect of loose coupling and it enables incremental maintenance and enhancements and means that HITE-CT's technology capabilities can be easily evolved over time.
- **Service provider modules must be shareable—**Modules are designed and deployed in a manner that enables them to be invoked successively by disparate service consumer modules engaged in somewhat diverse, although partially related, business activities.

The fundamental concepts of modularity, reuse of in-house or externally developed IT modules and services, and ubiquitous connectivity through the Internet position HITE-CT to continuously adapt and evolve the HIE capability as the Connecticut health care needs of the diverse customer community evolves.

The architecture and resulting requirements have not yet been defined. The HIE Services, Interoperability and Privacy described below provide only a flavor of what will be included and should not be seen as comprehensive or definitive.

3.5.2.3 HITE-CT HIE Services

Categories of services that will be represented in the HIE System Architecture will include but not limited to those described in Table 16.

Table 16. Core HITE-CT Service Categories

Service Category	Description
Registries Data & Services	This category groups the services that manage the information about people, places, and resources that need to be identified uniquely in order to compile health event information in an EHR. It includes people acting as clients or providers of care, as well as locations where health events occur and terminologies as key resources required making normal the meaning of information kept about such health events. Client registry services are integral to the successful operation of the HITE-CT to ensure that clients, whose information is recorded, are uniquely identified and their data is consistently managed and never lost. Provider registry services are primarily used to validate the unique identity of a provider that is involved in the provision care to a patient, usually in the context of a transaction emanating from a point of service application.
EHR Data & Services	This category groups all the core EHR data repositories that make up an Electronic Health Record Solution. This includes the Shared Health Record repository that keeps the basic clinical profile information that any caregiver would expect to find in a clinical record such as blood type, allergy, immunization profile, critical observations, diagnosed chronic conditions, health encounter summaries,

Service Category	Description
	diagnosis, etc
Ancillary Data & Services	This includes the data shared about orders and results for key clinical domains of information, such as diagnostic imaging, drug information, laboratory tests information and prescription data.
Community Data & Services	This category groups services that generally require the presence of core EHR data and are able to bring added value to such data to support specialized functions that are part of the health system. Current examples include services related to Public Health Surveillance, like outbreak management and Communicable Disease Reporting. In the future, this group of services could incorporate capabilities such as enterprise scheduling services.
Data Warehouse Services	This category groups services that enable a separate data repository capability where data is compiled and classified based on diverse requirements for aggregation and consolidation. The objective of these services is to support data analysis research and reporting that could not otherwise be served directly by the operational data repositories that support online transaction processing, or where de-identification is required
Longitudinal Record Services (LRS)	The LRS capabilities orchestrate services that provide a coordinated and centralized view of the data in the HIE for any single patient/client and coordinate and execute any transaction that needs to have a longitudinal perspective of the clinical data of a patient/client. This category of services include: ■ Services to manage and record patient data within the HIE repositories and registries ■ Record Locator Services (RLS) to pull appropriate records from different repositories ■ Business rules services to perform data validation ■ Assembly Services to format HIE response information ■ Normalization services to standardize data content ■ Orchestration services to manage the process flow of an HIE interaction
Business Services	This category groups services that enable the HIE to function administratively. These services include: ■ Identification services ■ Authentication services ■ Digital signature services ■ Consent management services

In addition to the core services, the HITE-CT architecture will include and describe the following components:

Point of Service Application is the clinical application software that operates at many locations where healthcare services are delivered to patients/clients. There are a myriad of PoS applications including:

- Electronic Health Record (EHR)—applications used by physicians for recording and recalling medical information for patients
- Hospital Information Systems (HISs)—transaction systems for running hospitals
- Picture Archiving and Communications (PACs) systems—Systems for storing and managing clinical images

- Laboratory Information Systems (LIS)—Systems to support the workflows of laboratories and integrate with EHRs

These applications may have human—computer interfaces or be medical equipment, generating or collecting data about a client. Some of this data is deemed relevant for sharing and is copied to the HIE by way of an active communication interface. It is expected that PoS applications will evolve to not only feed data to the HIE but also to be able to access, download and integrate HIE data into the data displayed in the PoS user interface.

HITE-CT will not fund or implement PoS applications. These are the responsibility of HITE-CT partners. Considering the criticality of physician EHR adoption to the success of the HIE as a whole, HITE-CT will focus on understanding the actions it can take to promote certified EHR adoption in Connecticut.

Repositories store all kinds of data required by HITE-CT and its provider partners. Types of repositories that HITE-CT may implement include, but will not be limited to:

- **XDS Repositories** that store all manner of documents, but is primarily focused on the storage of Continuity of Care Documents/Records (CCD/CCR)
- **Clinical Data Repositories** (CDR) that store discrete clinical information. Using an XDS parser, XDS documents can be parsed for discrete clinical information and stored in the CDR or made available to other applications. By maintaining or enabling CDRs, HITE-CT will create tremendous opportunities for discovery and learning. For example, discrete data can be used to generate patient utilization reports that help identify frequent ED utilization
- **Domain repositories** that store, maintain and provide subsets of clinical information that pertain to the clinical picture of a patient/client such as drugs or medication profiles, laboratory orders and tests results, shared diagnostic imaging orders and results including image repositories
- **Data Warehouse and Data Marts** that store clinical and administrative data integrated and aggregated to support quality reporting and analytical needs

Master Data Registries provide unique and unambiguous identification of key entities in the HIE: clients, providers, service delivery locations, terminologies and documents. Registries can be used actively by both PoS applications (for their local use) and the different components of the HIE. Each registry has the ability to manage and resolve the identification of singular entities using multiple identifiers. The registries hold, as one of those unique identifiers, internal unpublished identifiers unique to a particular EHR instance, that are used to represent the specific client, provider, or location data (or any other key system entities) in the HIE repositories.

Two particularly important registries to HITE-CT are:

- **Client Registry** (sometimes known as Master Patient Index): The system where current patient health identification numbers, demographic information (i.e., name, address, etc.) is securely stored and maintained and made available to other systems and users that interact with an HIE infrastructure. The existence of an HIE Client Registry is predicated upon the definition and existence of State level strategies, plans and associated governance policies for assigning and managing unique identifiers to support the delivery of EHR services. The Client Registry plays two main roles in the HITE-CT HIE infrastructure:
  - It is the single authoritative source and, as to the extent possible and practical, the only source of demographic information about persons recognized as clients/patients

of the various health systems. The bulk of transactions handled in an HIE infrastructure are patient-centric, so this registry is one of the foundational pieces of the HIE

- It is the engine that allows discrimination between multiple potentially overlapping unique data sets. Its role is to distinguish individual patients from limited and often mistakable data sets; to ensure that each patient is associated with all of his or her data, and only his or her data

- **Provider Registry** (sometimes known as the Master Provider Index): A provider is a person or organization that is authorized to provide goods or services patients in Connecticut and a member of a recognized authority or agency who also participates in the HITE-CT
  - The HITE-CT Provider Registry will be a single directory service providing a comprehensive and unambiguous identification of all providers practicing in Connecticut including doctors, dentists, pharmacists, nurses, health records professionals, lab clinicians, diagnostic imaging technicians and any other health care professionals. The HITE-CT Provider Registry will securely store and maintain health care providers' information (i.e., name, address, individual and practice licenses, etc.) and will make it available to other systems and users that interact with the HIE
  - The existence of the HIE Provider Registry is predicated upon the definition and existence of State level strategies, plans and associated governance policies for identifying authorities, professional associations and other licensing bodies in charge of the management of unique identifiers, practice rights and other identifying or demographic data on providers. HITE-CT will begin this process with a dialogue with the Department of Public Health in order to leverage their physician licensure database and their credentialing process
  - HITE-CT plans to leverage the work of the NESCSO in the development of a Regional Master Provider Index

The **Exchange Gateway** acts as a layer to isolate the HITE-CT infrastructure from the world of the PoS applications. In creating this layer of independence, the Gateway isolates any of the PoS applications from the intricacies and complexities associated with the connectivity and integration between the large information systems that will make up the HITE-CT infrastructure. As an example, once a PoS application has implemented a set of interfacing standards to communicate with the HITE-CT Exchange Gateway, it will be able to send requests for information and obtain responses.

Within the HITE-CT infrastructure, an intricate network of systems will manage multiple calls between systems that may have to occur in order to fulfill a comprehensive response to the request. The calling PoS application will be isolated from these interactions for simplicity and security, and it instead will only be aware of a single bulk response from the HITE-CT through the Exchange Gateway. As time goes by, the HITE-CT infrastructure will likely see a lot of its components evolve as well. New data domains will appear, new registry capabilities will appear and some components may be replaced with enhanced ones. The isolation enabled by the gateway ensures that these changes will have minimal impact on the transaction interfaces already implemented in any PoS application.

The Exchange Gateway also offers a platform within HITE-CT to centralize many common reusable functions so that they can be applied consistently for any system participating in HITE-CT. For example, HITE-CT will implement a unique and common authentication service to

be used throughout the system that will be applied consistently to any transaction coming through the Gateway.

The **Clinical Portal** will be a Web-based clinical application that allows providers to access their patients' longitudinal record contained in the HIE. Some potentially important portal features are:

- Access Controls and Consent Management, which is critically relevant to the use any data access tool in any field that touches personal health information. Features that allow for the management and application of privacy related requirements and policies need to exist as integral and not second thought add-on capabilities to these portal environments.
- Personalization, which is a critical feature of the clinician portal. Personalization allows each physician to have his/her specific view of what is seen and how it is displayed. Power users of the system are more likely to customize their view to enhance workflow and get quick and easy access to patients' data.
- Workflow Management, which is the ability to appropriately pull disparate information together in a productive view. Data coming from several systems can be displayed on one view for the physician or clinician. This assists with medical decision making, time spent finding information and ease of use. The customization of workflow by role is considered an important portal feature.
- Single sign on (SSO), which is a key benefit for users. Clinicians do not want to individually authenticate to every system he or she looks for information.
- Context Management, which provides a time saving capability. It is unproductive for clinicians to look for an individual patient in separate systems and it also avoids the possibility of errors that can occur due to the different approaches systems have to identifying patients.
- Integration broker capability, which allows management of business partner relationships with the potentially thousands of cooperating entities. This will allow a high degree of self-service for trading partners, reducing the personnel costs for setting up and maintaining secure communication.

Public Health Systems (PHS) include public health laboratory systems and immunization management systems. Public health oriented clinical events can occur in multiple settings and be performed by a variety of providers using a variety of PoS system types. Key public health information types to be shared in the HIE are reportable diseases and immunizations which are communicated between PHS and PoS applications via structured HL7 messages from public health labs and immunization management systems. HITE-CT expects that commercial software applications will have these functions and that HITE-CT will provide a portal to access these services.

3.5.2.4 Interoperability

The primary purpose of the HITE-CT is to provide interoperability between providers, hospitals, local and national health information exchanges, State health departments and ancillary services. HITE-CT will connect to and accommodate and/or assist the operations of these participants via the array of services described above.

HITE-CT proposes to implement a hybrid model for data sharing that has certain centralized elements, supports distributed elements that obviate the need for organizations to expose their data in its entirety to another stakeholder and adds the concept of edge proxy servers that act

as a repository for the data of a specific member organization operated under the control of that organization.

HITE-CT must be able to communicate by way of exchanging messages across any number of systems. HITE-CT will take an incremental approach to messaging interoperability and will begin with messaging that is only machine readable in simplistic ways but will encourage incremental improvements in the quality and structure of data without the need to replace established interfaces. This will allow HITE-CT to obtain early successes through more rudimentary forms of information sharing, but realize the most important long term benefits of clinical information interchange—those that can be achieved when coded structured data can be exchanged. Over time, HITE-CT will:

- Establish semantic interoperability principles, guidelines and standards so that all participants in the HIE can agree on the semantic meaning of the shared information placed and accessed in the HIE repositories.
- Define the comprehensive interoperability needs between the core components and all other components of the HIE and ancillary services so that they can work in a coordinated fashion to deliver HIE services.
- Establish a reference framework to allow for discussions and definitions to take place on the operational requirements of an EHR solution, including:
  - Policies, guidelines and agreements within the area of coverage where the HIE infrastructure will operate and where multiple PoS organizations will be in scope
  - Policies, guidelines and agreements for the organizations and entities operating different parts of the HIE infrastructure. For example the client registry service may be operated by a different department or organization then the diagnostic imaging EHR domain
  - Policies, guidelines and agreements between entities and governing authorities that maintain and operate HIE infrastructure
  - Policies, guidelines and agreements with external governing authorities that are touched by the scope of an HIE service in Connecticut, another state or the NHIN

In addition, for the purposes of providing HIE services, HITE-CT may augment CT adopted standards with consideration of the IHE IT Infrastructure domain[29] and, at a minimum the following profiles:

- Patient Identifier Cross Referencing (PIX) for creating Global Unique Identifiers (GUIDs) and mapping to them
- Cross-Enterprise Document Sharing (XDS) for storing and sharing documents
- Patient Demographics Query (PDQ) for looking up information about patients that are not registered in the querying system

As health record banks and personal health records take shape, HITE-CT will also look to deploy the XPRH IHE integration profile, which supports interoperability between personal health record systems used by patients and the information systems used by providers. HITE-CT will also consider patient authentication standards to ensure accurate and reliable delivery of patient records into health record banks.

3.5.2.5 Privacy

HITE-CT represents provider organizations that view the security of the data as paramount. They will help guide the HITE-CT as it develops a compliance process. In the first year of operation, HITE-CT will define what security rules need to be implemented for the exchange of electronic patient information. Vendor technology partners will be required to demonstrate that their solutions meet or exceed the security requirements. Participation agreements stipulate that users comply at a minimum with the HIPAA requirements.

In principle, HITE-CT will rely on organizational trust established by operating agreements and governance of the HIE to determine who can view what clinical data. To illustrate: HITE-CT 'Member A' trusts that any inquiry coming from HITE-CT 'Member B' is from a user with the privilege and an appropriate need to know. HITE-CT will establish cross-member authentication security protocols to ensure that the inquiry that putatively comes from 'Member B' is authentically coming from an authorized system operated by 'Member B'. HITE-CT will take on the obligation to verify the identity and maintain authentication information for all of the HITE-CT portal users.

Additional privacy methods and standards that HITE-CT may use are listed below:

- The IHE Audit Trail and Node Authentication (ATNA) profile establishes security measures including both TLS secure transactions and security audit logging using an audit record repository.
- HITE-CT will require edge servers to keep audit logs for their system and will keep audit logs for the HITE-CT portals.
- HITE-CT will initially use consent tracking mechanisms such as IHE Basic Patient Privacy Consents (BPPC) as the mechanism for the users to record the patient privacy consent(s). Consent tracking policies are a method to mark documents published to document sharing repositories with the patient privacy consent that was used to authorize the document, and a method for recipients to enforce the privacy consent appropriate to the access and use of the document.
- HITE-CT will establish non-repudiation by requiring that the system identified as the data source apply a digital signature to each message. Likewise, when a data source, such as a clinical laboratory makes use of the facilities of the HIE to pass a report to the system of a care delivery organization, HITE-CT will require the data source to be able to prove that it met its legal or contractual requirement for timely delivery of the data through an acknowledgment from the receiving system that will also be digitally signed.

HITE-CT will also ensure that it follows industry best practices in physical and network security in all data centers housing its data. These include:

- Physical machine security
- Network security configured for high availability and minimum vulnerability
- Network transfer security and reduced threats of third party interception of sensitive data
- Platform and application security
- Authentication and authorization

3.5.3 Technology Deployment

The deployment of the Connecticut HIE is intended to incrementally ensure that participants can meet the requirements of meaningful use where a mature HIE capability is required. Efforts to align functionality of the HIE will closely parallel the planned activities of the NHIN.

Connecticut has determined the initial prioritization of products and services and has grouped these into a number of releases as guidance for the operational planning process shown in Table 17.

Table 17. HITE-CT HIE Releases

Planned Service Releases	Services Planned
Initiation and HIE Stand-up	■ Procurement and contracting for services to build, maintain and operate the statewide HIE infrastructure ■ Initial phase to build a statewide infrastructure that will support connections to local HIEs ❑ Network Services ❑ Master Patient/Provider Indexes ❑ and Record Locator Service ❑ XDS Repository ❑ Gateway ❑ Clinical Portal
Release 1: Continuity of Care Document/Record (CCD/CCR) and Public Health Reporting	■ Interfaces to main EHRs supported by the HIE ■ Ability for connecting providers, payers and ancillary service providers to exchange Continuity of Care Documents ■ Clinical data within the statewide HIE automatically feeds public health reporting needs
Release 2: Quality/Gaps in Care Reporting	■ Main focus of this phase is development and deployment of metric-based quality reporting and the “care gaps” ■ Will include access to and integration with data from other sources, e.g., State systems, ePrescribing hubs and services, etc. ■ Further strengthening of the underlying infrastructure services including additional EHR interfaces ■ Further develop the various dimensions of CCD/CCR to allow for additional useful data interchange ■ Include ancillary services orders/results offering integration with those service providers in the State with standards compliant systems that subscribe to the HITE-CT statewide HIE
Release 3: Personal Health Records	■ Main focus of this phase is to support consumer (patient) access to their information by harmonizing interfaces to PHR services ■ May include ancillary services orders/results—to be decided based on agreeing a common approach across enough providers

HITE-CT will be compliant with United Stated Department of Health and Human Services standards and implementation specifications as described in the standards and certification section above.

Connecticut is undertaking planning coordination efforts with federal care delivery organizations, including the Department of Veterans Affairs, and the Department of Defense. HITE-CT has

begun to craft an approach to reach out to key stakeholders from these organizations with the purpose of coordinating their participation in Connecticut's HIE activities.

3.5.4 Technical Infrastructure Action items

Table 18 below summarizes the actions included in the Operational Plan that relate specifically to the Technical Infrastructure.

Table 18. HITE-CT Technical Infrastructure Action Items

Action Item	Master Schedule ID and Task Name	Scheduled Completion Date
1. Complete an assessment of the technology in the State for compliance with HHS standards	193—Test out each technology component with an independent technology and market assessment	12/30/2010
2. Adopt nationally recognized standards and protocols, aligned with those recommended by HHS, to enable the interoperability and connectivity with existing investments of current EHRs and HIEs, envisioned future regional and local health information exchanges and hospitals. These standards and protocols must align with and support HITE-CT's policies for data sharing, interoperability, privacy and security.	222—Define Required Standards 223— Develop Standards Proposals and Obtain Approval via the Governance process	2/3/2011 3/3/2011
3. Ensure that standards and related guidelines for interoperability and data interchange standards are widely disseminated and understood.	233—Standards Communication and Support	3/31/2011
4. Enact policies making any required standards mandatory for the HITE-CT users.	118—Standards Adoption and Setting	2/3/2011
5. Work with the Regional Extension Center, DSS and directly with providers to encourage and support the adoption of certified EHR systems, connection to/use of e-Prescribing services and connection/use of electronic delivery of Lab results.	26—(Market Analysis & Deployment Planning) Meaningful Use Support 318—Relationship Management for Meaningful Use Support	3/2/2012 8/2/2012
6. Lead the effort to define a comprehensive enterprise architecture (including standards considerations) and document the full scope of the required HITE-CT technology infrastructure services.	182—HIE Solution Architecture	1/6/2011
7. Ensure that the architecture is in alignment with DOIT's Connecticut Enterprise Architecture—Technology Architecture (CTEA-TA) standards.	182—HIE Solution Architecture	1/6/2011
8. Follow the DOIT CTEA-TA processes and develop a "Common Requirements Vision"	184—Develop the HIE Common Requirements	11/18/2010

Action Item	Master Schedule ID and Task Name	Scheduled Completion Date
	Vision (CRV)	
9. Determine HITE-CT's procurement strategy for the acquisition of products and services required to establish the infrastructure and run the HIE in accordance with the enterprise architecture.	201—Establish Procurement Strategy and Procurement Process	12/9/2010
10. Connect to and accommodate and/or assist the operations of participants in the use of the HITE-CT statewide HIE and associated facilities and services.	258, 269, 287, 298, (and similar within the roll-out plans of each release)—Participant Technology, Process and Change Management Preparation 315—Relationship Management and Customer Service	

3.6 Business and Technical Operations

3.6.1 Current HIE capacities

Planning for a Connecticut statewide HIE began in 2008 and resulted in the publication of the State HIT Plan in June 2009. During the development of the State HIT Plan, Connecticut achieved broad agreement that true transformation of the Connecticut health care system will depend on the conversion of a traditional, disparate, paper based system into the Nationwide Health Information Network based on the electronic exchange of data, compatible with national data standards in order to allow for interstate interoperability, serving the needs of patients, providers and health care decision makers.

A number of leading Connecticut providers have made significant progress establishing HIE capabilities within their local areas. HITE-CT plans to leverage and integrate aspects of a number of these endeavors in developing HIE infrastructure and services, including but not limited to, the following.

- **Danbury Hospital,** in cooperation with many local area practices, laboratories and pharmacies, has developed a working and open HIE. The system now incorporates over 250 providers, 500 support staff and 500,000 patient records which equates to approximately one-third of the medical community in the area. The Danbury HIE serves three purposes: A patient-centric technology platform; a repository for critical patient information, including medications, allergies, diagnoses, test results, and others; and a physician toolkit to easily allow ordering and tracking of tests, e-Prescribing, access to clinical documentation and communications between providers involved in a patient's treatment. The Danbury HIE is based on technologies and services from Axolotl Corporation. HITE-CT plans to glean general lessons on the setup and development of HIE from the Danbury HealthLink experience and directly obtain a "kick start" in Master Patient and Provider data.
- The **Medicaid Transformation HIE Project** run by eHealthConnecticut aims to link Federally Qualified Health Centers (FQHCs), acute care hospitals, and private physicians within the State, and, eventually, between the HIE and the Nationwide Health Information Network (NHIN) for continuity of care. **eHealthConnecticut's Health Information Infrastructure (HII)** is based around an IHE Core developed by Misys Open Source Solutions (MOSS), and includes a Web-based portal that provides access to the HII for those who do not have an EHR. As part of eHealthConnecticut's build, it will create a Record locator service, an XDS registry and a Clinical Data Repository. In June 2010 eHealthConnecticut demonstrated the HIE platform. Three eHealthConnecticut participants were involved in the alpha pilot: Hartford Hospital, St. Francis Hospital, and ProHealth.

  Each participant demonstrated the following services:

  - ❑ Publish a Continuity of Care Document to an edge document repository;
  - ❑ Publish an ADT feed or other PIX source data to the PIX consumer
  - ❑ Query for a patient using the PIX/PDQ
  - ❑ View patient documents using eHealthConnecticut's HIE Portal

In addition to the technology platform, this effort has produced:

- Privacy policies and a Universal Medical Records Release Authorization (UMRRA) for the use of providers, developed by eHealthConnecticut through its legal, health care, State and consumer advocates constituents
- A Data Use and Reciprocal Support Agreement (DURSA) and Business Associate Agreement (BAA) for all participant entities in the HIE
- Online and written education collateral for providers and consumers for the purpose, processes, benefits and risks of participating in the HIE

HITE-CT plans to incorporate into the statewide HIE practical lessons regarding "transfer of care" summaries and work on data sharing agreements and educational material from the DSS pilot.

- The **Greater Bridgeport Primary Care Action Group (GBPCAG)** is a HIE project in greater Bridgeport (400,000 residents). The objectives are to increase access and enhance care for vulnerable populations. The initial phase of the GBPCAB is a Master Person Index and Record Locator service. The intent is to move to an interoperable HIE with clinical data available at the point of care. HITE-CT plans to take advantage, if possible, of the work done on master data for the GBPCAG project when developing master data for the statewide HIE.
- **DSS' Medicaid ePrescribing system** (provided by HP) was implemented in Fall 2009 and is a certified payer in the Surescripts network. Surescripts electronically routes up to date patient eligibility, medication history, and formulary information between the MMIS and the requesting Medicaid enrolled provider. The Medicaid provider can then make informed decisions relative to prescribing the appropriate medication for the patient. The provider can then submit an electronic prescription via Surescripts to the patients' pharmacy for dispensing. By extending e-prescriptions to include Medicaid. Connecticut has taken a significant step toward universal coverage for e-Prescribing, allowing HITE-CT to provide outreach so that providers know how to meet the Meaningful Use requirement for e-Prescribing while focusing infrastructure efforts on other areas.

3.6.2 Stage 1 Meaningful Use Focus

A variety of HIT-support and State level HIE services will be developed, added and rolled-out through HITE-CT in line with the overall priorities described in the Strategic Plan. The specific capabilities of these critical services will be aligned with the evolving focus for Federal Electronic Health Record Meaningful Use incentives such that Connecticut's program leverages, aligns with and strongly supports and reinforces the Federal incentives program.

Initially, and as the HITE-CT HIE infrastructure is being acquired and implemented, these developing capabilities will be achieved in parallel to the EHR Incentive Program's requirement for providers to demonstrate achievement of Stage 1 Meaningful Use measures. Consistent with national priorities, Connecticut has prioritized providing HIT support for achieving Meaningful Use in the following 3 areas:

- E-Prescribing
- Receipt of structured lab results
- Sharing patient care summaries across unaffiliated organizations

3.6.2.1 E-Prescribing

In parallel with standing up the HIE and the Release 1 roll-out and in cooperation with the State Department of Social Services Medicaid Incentive program and the Regional Extension Center, HITE-CT will provide outreach and support to help providers make use of commercially available e-Prescribing services.

HITE-CT will work with the main e-Prescribing consolidation service providers operating in Connecticut including the primary Medicaid E-Prescribing provider SureScripts to create and maintain records of Pharmacies and Payers that are connected for e-Prescribing and information regarding the e-Prescribing services they offer.

HITE-CT will act as a catalyst for the adoption of e-Prescribing by providing outreach for providers, including advice on the options available for E-Prescribing, such as the functionality and integration facilities supported.

3.6.2.2 Receipt of structured lab results

In parallel with standing up the HIE and the Release 1 roll-out, and in cooperation with the State Department of Social Services Medicaid Incentive program and the Regional Extension Center, HITE-CT will provide outreach and advice for end-to-end connections with a provider's Lab service of choice. That lab service can then integrate with the provider's EHR systems and deliver Lab results electronically in compliance with related Connecticut standards.

DPH is surveying Connecticut's licensed Labs to discover the extent to which they offer orders and results delivery via HL7 standard messages with providers EHR systems. HITE-CT will continue to work with Connecticut's Labs to create and maintain advice to providers on which Labs will facilitate their ability to qualify for Meaningful Use.

3.6.2.3 Sharing patient care summaries across unaffiliated organizations

The first priority of the new statewide infrastructure will enable use cases addressing providers need to exchange care summaries in line with Stage 1 Meaningful Use requirements. In parallel with standing up the HIE and the Release 1 roll-out and in cooperation with the State Department of Social Services Medicaid Incentive program and the Regional Extension Center, HITE CT will provide outreach and support for providers to use any available local HIE services and NHIN Direct to exchange care summaries.

DPH has surveyed CT's Hospitals and Health Systems to identify where local HIE's are operational or will become operational within 2011 and 2012. This is to facilitate HITE-CT's ability to offer these organizations expedited inclusion and involvement with the Statewide HIE and opportunities to leverage HITE-CT capabilities in support of achieving meaningful use. This also is helping to identify where providers can avail themselves of exchanges offering care summary exchange between unaffiliated organizations to comply with Meaningful Use Stage 1 requirements.

3.6.2.4 Bundled Services

HITE-CT will consider a number of "bundled services" configurations. This could include offering bundling a combination of the following capabilities along with the statewide HIE services:

- e-Prescribing services from the consolidation service providers
- Lab results services from local lab service providers who provide services in the provider's local area. If such products are constructed, these will eventually be

transformed into a consolidated offering where Labs and providers are connected via the HIE.

- NHIN Direct connections to providers who are not yet connected to either the statewide or a local HIE. If such bundles are constructed, these will eventually be transformed into the consolidated offering as the targeted providers are connected via the HIE.

3.6.3 State level Shared Services

The statewide HIE will be a standards based, decentralized, hybrid model that supports distributed data. This model will allow statewide availability for the secure transfer of a defined set of clinical information between appropriate participating entities.

In this proposed model for Connecticut, the hybrid system consists of a single core infrastructure vendor that provides as a platform for the utility supplemented by adding different vendor applications to the core system. The core infrastructure selected will consist of an exchange utility with a Master Patient Index (MPI) and Provider Registry. The infrastructure will be flexible and will accommodate a MPI and Registry to locate records within the HIE. The confederated model ensures that data can be centralized where required or can be held where it is created, therefore avoiding the negative perceptions and potential privacy and security consequences of storing all patient information in a large centralized HIE repository. In some cases such as laboratory results, radiology reports, pathology reports, and medication histories, clinical data will not be held in edge servers, but rather routed from the laboratory or imaging center to the ordering provider. The architecture of the statewide HIE is compatible with NHIN core services.

During the detailed architecture development process, HITE-CT will determine how best to realize the State level shared services, using the guidelines described below:

- **Patient and Provider Registries and Services:** HITE-CT will enter into a dialogue with organizations that have existing registry services, such as Danbury HealthLink, to determine whether those organizations can host State-wide registry services, or whether their assets can be procured and repurposed for use at the State level. If neither of these options is feasible, HITE-CT will investigate setting up new State level patient and provider registry services and the mechanism to leverage the data and processes that have been implemented by these early adopter initiatives.
- **Continuity of Care Document Management services:** The eHealthConnecticut pilot demonstrated CCD transfers to an edge repository and patient query using the IHE PIX profile. HITE-CT will leverage the eHealthConnecticut experience and lessons learned to define the business, information and technology architectures for State-wide CCD/CCR management services.
- **Laboratory Services:** HITE-CT will determine with its partners the role of regional systems in laboratory result transmissions and the expected role of the statewide entity in results transfers outside regional system boundaries. HITE-CT will work with Danbury, eHealthConnecticut, Yale New Haven, Middlesex and other Connecticut based organizations that have experience in electronically transferring lab results from laboratories to providers. In particular, HITE-CT will review the Danbury experience and will analyze: the extent to which it applicable statewide; the laboratory partners sending prerequisites; and the receiving provider business and technology prerequisites. HITE-CT will perform a survey of the 115 laboratories in Connecticut to establish the breadth of healthcare providers they serve and the extent to which they currently send results electronically. From this information, HITE-CT will develop the business,

information and technical architecture functional requirements and will establish how the proposed patient and provider registries and other components of the infrastructure can be leveraged to meet laboratory oriented meaningful use measures (Number of lab results sent through HIE or retrieved by EHRs in structured, coded format).

- **EHR services:** HITE-CT recognizes that EHR adoption is a critical success factor for the HIE. HITE-CT will work with eHealthConnecticut, the Regional Extension Center, to determine how best to partner with them in providing services needed to ensure robust EHR adoption by physicians across Connecticut, including:
  - EHR Readiness Assessment toolkits
  - EHR Procurement and Negotiation Advice
  - EHR comparative analysis
  - Interfacing toolkits, especially for lab results and CCD/CCRs
  - ePrescribing integration toolkits
  - EHR practice change management and value realization initiatives.
- **Portal services:** HITE-CT will work with eHealthConnecticut, Danbury, Yale New Haven, Middlesex and other Connecticut based organizations that have experience in implementing a clinical portal. HITE-CT will develop the business, information and technical architecture functional requirements for the portal, including access control, personalization, integration brokering, context management and single sign-on. HITE-CT will consider different approaches to delivering the EHR Viewer solution from extending the user interface of Commercial Off-the-Shelf (COTS) Clinical Information System (CIS) applications to using specialized applications for viewing images and other non-structured objects (e.g., videos, voice, etc.).

3.6.4 HITE-CT Standard operating procedures for the HIE

HITE-CT services are defined by Use Cases, which are services that provide benefits to patients, providers, and other stakeholders. The selection and prioritization of Use Cases is largely market driven. HITE-CT will consider recommendations on Use Cases from stakeholders, and make the final decision on the implementation of new Use Cases. Prioritization of Use Cases will be based on existing workflows, resources and potential revenue. Initially, HITE-CT will develop a prioritized list of Use Cases based on results from the planning processes.

HITE-CT will lead the efforts to define a comprehensive enterprise architecture (including standards considerations) and document the full scope of required HITE-CT technology infrastructure and services. HITE-CT will ensure that the architecture is in alignment with DOIT's Connecticut Enterprise Architecture—Technology Architecture (CTEA-TA) standards. The architecture will permit the exchange of data between entities that house patient data and authorized health care providers in a manner that will accommodate users at various stages of technology adoption.

HITE-CT staff will conduct day to day management of a number of critical functions:

- Customer service functions to support users and resolve problems as they occur, analyze root causes and implement lasting solutions to operational problems and effectively communicate service levels attained
- Provide training and education to HIE service users on a timely basis to ensure efficient on boarding and continuing operations

- Administration of security and access control and provide reporting to demonstrate compliance with all privacy and security policies
- Contract and service-level agreement management with service providers to ensure the providers live up to their contracts and service levels are maintained

3.6.5 HITE-CT Business and Technical Operations Action items

Table 19 summarizes the actions included in the Operational Plan that relate specifically to Business and Technical Operations.

Table 19. HITE-CT Business and Technical Operations Action Items

Action Item	Master Schedule ID and Task Name	Scheduled Completion Date
1. Use customer segmentation analysis, determined priorities, State Medicaid HIT Plan (SMHP), readiness information and leverage capabilities to devise a comprehensive phased implementation roll-out plan.	17—Further analyze and Document the Value Proposition & Business Case 19—Market Analysis & Deployment Planning	12/10/2010 3/2/2012
2. Support providers during the early stage of responding to and achieving Meaningful Use compliance while the statewide HIE is being established.	26—Meaningful Use Support within Market Analysis & Deployment Planning 318—Relationship Management for Meaningful Use Support	Starting 12/13/2010 Starting 6/10/2011
3. Establish a comprehensive communications strategy covering all stakeholders and aspects to ensure HIT and HIE are fully understood in a timely manner that will maximize adoption and sustainability of the approach.	37—Communication Plan	1/7/2011
4. Utilize a variety of media to execute the communications plan on an ongoing basis in alignment with the roll out of products and services.	40—Marketing Campaigns	4/1/2011
5. Coordinate HITE-CT communications activity with the REC, DSS and DPH integrating outreach on HIT adoption, meaningful use achievement, HITE-CT provided services and other required services.	108—Ongoing Coordination with other Agencies and Programs 252, 280, 308—Confirm proposed target participants, estimates and schedule	11/21/2013
6. Based on the agreed technical architecture, agreed utilization of available and leverage infrastructure and implementation priorities acquire the information technology products and services required to enable Connecticut's HIE.	196—Contract for Systems and Services Vendor	7/1/2011
7. Review and adjust the implementation roll-out plan in partnership with the chosen vendor and owners	10—Checkpoint 6—Initial	3/23/2012

Action Item	Master Schedule ID and Task Name	Scheduled Completion Date
of existing capabilities that will be leveraged.	HIE Stand-up 242—Review Implementation Plan with Vendor and Partners (Leveraged Capabilities)	6/9/2011
8. Stand up Connecticut's HIE infrastructure and utility.	237—Initial HIE Stand-up	5/4/2012
9. Adjust implementation roll-out plan during the early phases of deployment based on the levels of success achieved and changing market circumstances.	250, 277 & 306—Finalize Release Plan 11-15—Checkpoints 7 through 11	
10. Coordinate the usage of standards and the adoption of HIT to fine tune the implementation plan, recruit willing participants and execute.	256, 267, 285, 296 & 312—Participant Readiness Check, Recruitment and Sign-up	
11. Day to day operation and management of Connecticut's HIE in accordance with Service Level Agreements.	325—Connecticut HIE Operations	Ongoing
12. Relationship management to ensure the HIE's customers really get what they need, are supported in achieving their goals (e.g., meaningful use) and continue to see value after they have been recruited.	315—Relationship Management and Customer Service	Ongoing

3.7 Legal/Policy

3.7.1 Development of Policies, Rules and Trust Agreements to comply with policy requirements

Connecticut's strategy is to develop widely accepted legal and business rules and uniform consent forms and procedures that will enable the exchange of health information for clinical purposes while assuring confidentiality and security.

HITE-CT will define principles for data ownership by type of data and populations impacted (including special populations) and determine:

- Usage allowed by type of data and population
- How to manage disclosure based on an "opt-out" model as described in the Strategic Plan
- When sharing agreements are required
- Privacy and security requirements

3.7.1.1 HITE-CT Policy Framework

Until January 1, 2011, the Department of Public Health, by statute, is the State Designated Entity (SDE) for the development of health information exchange (HIE) in Connecticut. The Department assumes all responsibility as assigned, using the following guiding principles:

- The Connecticut Department of Public Health, as a public health advocate, regulator, and educator, is positioned as a leader in the development of a statewide health information exchange (HIE).
- The Department has a responsibility to ensure that the electronic exchange of health information improves the health status of our State's residents as part of an efficient and accessible health care system.
- The Department has an obligation to protect the medical information of all consumers and providers by ensuring the confidential and secure exchange of health information.
- In creating, building and sustaining Connecticut's HIE system, the Department is committed to a process that is open, inclusive and transparent to all stakeholders. Stakeholders participate in process through membership in the full Board (by appointment only), membership in subcommittees of the Board, attending meetings of the Board and/or its subcommittees, and/or providing feedback to the Board and its committees with regard to its work. All meetings of the Board and its subcommittees are open to the public, publicly noticed, and posted to Web, as are meeting minutes.
- The Department supports the creation of strong practices and protocols surrounding the privacy and security of electronic medical information, particularly during the current transitional phase from paper based records to a statewide and interstate electronic medical records system and health information exchange.
- The Department encourages current and future initiatives that develop and expand existing local and regional HIE systems. DPH continues to champion HIE systems serving provider groups, hospital service areas, and other healthcare settings if such exchange is performed in a manner consistent with State and federal laws, policies, protocols and standards.

- The Department supports the development of a quasi-public agency called the Health Information Technology Exchange of CT (HITE-CT). As of January 1, 2011, the HITE-CT is responsible for developing HIE policies and protocols, setting HIE standards and enforcement measures, and integrating current local and regional HIE systems into the statewide HIE.
- In recognition of the limited availability of HIE startup capital from the federal Office of the National Coordinator, the Department supports efforts of the HITE-CT to seek appropriate financial resources to sustain the HIE, and to assist local and regional providers in developing and implementing effective electronic medical records systems.
- The Department supports dialogue with the CT General Assembly, the insurance industry, public and private entities and all relevant stakeholders to identify potential funding sources.
- To educate and train providers about the meaningful use of electronic medical records, the Department supports the efforts of the ONC designated Regional Extension Center, eHealthConnecticut.
- The Department supports efforts of both the Connecticut Department of Social Services and the Centers for Medicare and Medicaid Services to provide incentives to eligible health care professionals and entities that achieve or implement the “meaningful use” of electronic medical records.

On January 1, 2011, by statute, the Health Information Technology Exchange of Connecticut (HITE-CT), a quasi-public agency for the development, implementation and operation of Connecticut’s statewide HIE is designated the SDE.

Under Connecticut Public Act 10-117, a Board of Directors, whose members are appointed by various legislative and executive branch leaders, governs the HITE-CT. The Board is tasked with:

1. Implementing the statewide health information Strategic and Operational Plans as approved by the Office of the National Coordinator
2. Reviewing and revising the Strategic and Operational Plans to meet the needs of consumers, and incorporate technological advances in the field of health information technology
3. Developing appropriate protocols for health information exchange
4. Setting electronic data standards to facilitate the development of a statewide, integrated electronic health information system. These standards shall:
    a. include provisions relating to security, privacy, data content, structures and format, vocabulary and transmission protocols
    b. limit the use and dissemination of an individual’s Social Security number and require the encryption of any Social Security number provided by an individual
    c. require privacy standards no less stringent than HIPAA
    d. require that individually identifiable health information be secure and that access to such information be traceable by an electronic audit trail
    e. be compatible with any national data standards in order to allow for interstate interoperability as defined in Connecticut General Statutes (CGS)

f. permit the collection of health information in a standard electronic format as defined in CGS

g. be compatible with the requirements for an electronic health information system as defined in CGS

Process:

Policy development for the HITE-CT will also rely upon input from the experts of the Board. The Board is ultimately responsible for reviewing and approving all agency policies, to ensure that the development of policies meets the standards of definition and consistency and are comprehensive across the needs of the HITE-CT. Such policies are to be reviewed and refreshed in a timely manner. Finally, defined within these policies and procedures for the HITE-CT must be suitable and effective enforcement methods with compliance metrics defined.

Policy Framework Outline:

Governance: Policies and procedures will need to be developed to establish and support the new governance model. They will include:

1. Bylaws
2. Personnel policies
3. Meeting and membership policies
4. Ethical conduct policy
5. Subcommittee policies
6. Strategic/operational planning and review policies

Legal Policies will include:

1. Privacy policies
2. Patient consent
3. Data sharing
4. Network security
5. User authentication and authorization

Business & Technical:

1. Procurement policies
2. Change control policies
3. Program evaluation and reporting policies
4. Communication and education policies

Finance:

1. Contracting policies
2. Financial reporting policies
3. Audit policies
4. Financial sustainability

Technical:

1. Technical standards
2. Data protection and privacy policies

In addition, HITE-CT plans to review and leverage the work done by eHealthConnecticut in certain policy areas for example:

- The Data Use and Reciprocal Support Agreement (DURSA) and the Business Associate Agreement (BAA) to be signed by all entities that participate in the HIE pilot. These documents are meant to clarify the responsibilities of all parties, including commitments to security and privacy practices. These contracts meet the current requirements of the federal HITECH legislation, and the same standard documents are meant to be executed by all HIE pilot participants
- The Universal Medical Records release Authorization (UMRRA) to be used by physicians, hospitals and other providers throughout the State.

3.7.2 Privacy and Security Harmonization

In addition to the policy standardization and consistency that is inherent in the policy framework outlined above, Connecticut has embarked upon an in-depth analysis (preemption analysis) of existing laws and regulations that govern privacy and security of health care information.

This is a comprehensive analysis covering the following topics:

- Use and disclosure of information in relation to
  - Testing and treatment for HIV or AIDS
  - Drugs and alcohol
  - Psychiatry and mental health
  - Minors
- Use and disclosure of information for the purposes of research
- Right to access one's own medical records
- Use and disclosure of information in relation to:
  - Decedent's records
  - Other health care givers
  - Pharmaceutical records
- Record-keeping requirements for facilities and providers
- Access or inspection by State agencies and other officials
- Reporting to State agencies and other officials
  - Registries and databases
  - Reporting of disease, injury or disability
  - Reporting of abuse
  - Reporting of vital statistics

- Disclosure of medical information in response to subpoenas, discovery requests or agency orders
- Examinations, certifications or other disclosures ordered by a court or agency
- Use and disclosure of information in connection with criminal proceedings
- Use and disclosure of information by Connecticut government agencies
- Protected health information under the Connecticut Freedom of Information Act
- Connecticut personal data act: State statutes and regulations
- Provisions of State law requiring the confidentiality of medical records
- Use and disclosure of information in connection with peer review proceedings
- Disclosure of health information to, and use by, insurers

The outcome of this analysis may result in recommendations for changes in existing or new Connecticut legislation to harmonize the legal environment with the privacy and security needs of Connecticut's chosen HIE approach.

To enable harmonization for interstate information exchange and information exchange with federal health care delivery organizations, HITE-CT plans to leverage the work of the Health Information Security and Privacy Collaboration in the further development of Connecticut's HIE Security and Privacy policies and standards.

HITE-CT plans to depend on the Nationwide Health Information Network (NHIN) for interstate and federal delivery organization information exchange. HITE-CT will work to ensure Connecticut's Security and Privacy policies and standards are compliant with NHIN to facilitate these categories of information exchange.

3.7.3 HITE-CT Legal and Policy Action items

Table 20 summarizes the actions included in the Operational Plan that relate specifically to Legal and Policy.

Table 20. HITE-CT Legal and Policy Action Items

Action Item	Master Schedule ID and Task Name	Scheduled Completion Date
1. Continue to develop and evolve the proposed consent and disclosure model outlined in the Strategic Plan to the point at which specific policies, governance, standards and processes for the management of information disclosure can be implemented.	117—(Policies and Processes) Health Information Privacy, Security, Use and Disclosure	12/23/2010
2. Work collaboratively with Connecticut's Regional Extension Center to provide education to both users of the health information exchange and for individuals whose information may be disclosed through the State HIE.	111—(Coordination with Other Agencies and Programs) Regional Extension Center	11/21/2013
3. Continue to evolve the HITE-CT Policy Framework as policies and standards are developed and adopted leveraging ONC guidance on 'nationally recognized standards' and on creation of HIE policies and regulations.	114—(Policies and Processes) Policy Framework	11/11/2010
4. Review and leverage work done by eHealthConnecticut and other Connecticut HIE projects developing HITE-CT's policies.	108—Ongoing Coordination with other Agencies and Programs	11/21/2013
5. Complete the legal preemptive analysis for a Connecticut legal framework for Privacy and Security for HIE.	117—(Policies and Processes) Health Information Privacy, Security, Use and Disclosure	12/23/2010
6. Develop and pursue legislative proposals (Privacy and Security, Funding etc.)	122—Legislative Proposal and Changes	2/3/2011
7. Implement a proactive, ongoing data quality strategy encompassing many aspects of quality including accuracy, timeliness and compliance. Determine obligations and controls for data suppliers.	119—(Policies and Processes) Data Quality 234—Data Quality	3/17/2011 10/1/2010

3.8 Evaluation Approach

In addition to the reporting requirements and measures described in the Strategic Plan Evaluation section of this document an independent evaluation process has been put in place by the DPH contracting with the University of Connecticut Health Center (UCHC).

3.8.1 University of Connecticut Health Center Evaluation

The DPH have contracted with UCHC from July 2010 until March 2014 to conduct continuous and structured evaluation of the HITE CT activities and governance model to ensure effectiveness of decision making and accountability.

The purpose of this arrangement is defined as conducting comprehensive evaluation for the Health Information Technology and Exchange (HITE) Cooperative Agreement to:

- Assess the process of developing the HITE CT Agency, and its Board of Directors.
- Demonstrate the economic and quality outcomes of Health Information Exchange (HIE) investments, including but not limited to:
    a. Development of policy, protocols and performance standards for HIE,
    b. Development of HIE systems and infrastructure that:
        i. Benefits consumers, providers, insurers, and purchasers
        ii. Improves financial performance at hospitals and healthcare provider entities implementing, using and offering HIE
        iii. Used phased implementation to allow tech development and system-testing
        iv. Prioritizes reporting requirements to avoid burdening physicians and hospitals
    c. Implementation of HIE programs
    d. Establishment of criteria to achieve and measure outcomes to:
        i. Improve health by (1) improving access to health care, (2) improving healthcare outcomes, (3) coordinating care, and (4) involving patients in health improvement
        ii. promote efficiency
        iii. motivate innovation
        iv. protect privacy
    e. The effects of such HIE investments on health care providers and consumers who use the health information exchange
- Determine (1) HIEs currently existing in Connecticut and (2) barriers to HIE implementation in Connecticut
- Determine appropriate recommendations for and development of processes for continuous improvement in HIE implementation in Connecticut
- Identify, analyze and disseminate these “lessons learned” broadly within the State and establish processes for continuous improvements
- Identify, monitor and track “meaningful use” Health Information Exchange capabilities in and throughout Connecticut

In order to achieve this purpose the DPH and UCHC have established a Memorandum of Agreement[30] which documents that UCHC will:

- Conduct stakeholder interviews, as required
- Develop, conduct, and analyze multiple surveys to measure metrics as described by the Strategic and Operational Plans, federal guidelines, and subsequent ONC documents
- Coordinate with the ONC's National Program Evaluation as stated in the Funding Opportunity Announcement and leverage technical assistance from ONC for Connecticut's evaluation in an effort to implement lessons learned to ensure appropriate milestone achievements
- Review and measure the collaboration, coordination and communication among DPH, DSS, and eHealthConnecticut, as well as the Health Information Technology Advisory Committee, subsequent Advisory Board of the HITE-CT Agency, and other key stakeholders, with respect to HITE-CT Cooperative Agreement
  - Develop and define the details of the process, protocols and tools for collecting information for the evaluation of the Health Information Technology and Exchange (HITE) Cooperative Agreement in effect in Connecticut
  - Analyze and quantify (measure) the effectiveness of the HITE-AC investment and leadership as it impacts the HITE-CT Agency's prospects for success
  - Evaluate the process mandated by Public Act 10-117 by which the HITE-CT Agency's is developed as a quasi-public agency
  - Create:
    - A "value proposition" for HIE and
    - A method to measure and assess such "value proposition"
    - To solicit support from legislators, consumers, providers, and others in use of HIE in Connecticut and to use when reports must be made on such "value" to the legislature
  - Assess the synergy created by the three ARRA funded projects and efforts related to health information technology in Connecticut
- Conduct continuous evaluation and reassessment of the State's Strategic and Operational Plan
- Analyze the barriers to "best practices" and achievement of milestones in HIE implementation in Connecticut
- Assess the effectiveness of the DPH and the HITE CT Agency in furthering information exchange capability within the State
- Meet reporting and performance requirements specified in the State HIE Cooperative Agreement, Federal Program Information Announcements and subsequent ONC documents. Additional requirements shall be identified during the development of the Strategic and Operational Plans
- Report on quality improvement through tracking key performance measures

3.8.2 HITE-CT Performance Metrics

An initial set of considerations for HITE-CT performance measures are outlined in Table 21. Some of the universe of potential performance measures identified are paired as a numerator and denominator rather than suggesting a target percentage due to the lack of clarity around some of these definitions. Other measures are raw numbers especially for expected high volume transactions (e.g., lab results). (D) = Denominator.

Table 21. HITE-CT Performance Metrics

Metric Type	Suggested Metrics
General Level of HIE Usage	■ Number of clinical results sent through the HIE (unsolicited) ■ Number of lab results sent through HIE in structured, coded format ■ Number of clinical results retrieved through the HIE (on demand) ■ Number of lab results retrieved by EHRs in structured, coded format ■ Number of patient summaries sent through the HIE (unsolicited) ■ Number of patient summaries sent through the HIE with structured problems and allergies ■ Number of patient summaries retrieved through the HIE (on demand) ■ Number of patient summaries retrieved by EHRs sent with structured problems and allergies ■ Number of medication profiles sent through the HIE (unsolicited) ■ Number of medication profiles sent through the HIE in structured, coded format ■ Number of medication profiles retrieved through the HIE (on demand) ■ Number of medication profiles retrieved by EHRs in structured, coded format
Level of Hospital Usage	■ Number of hospitals providing data to HIE ■ Total number of hospitals in State (D)
Average level of patient traffic per submitting system	■ Number of EHRs reporting patient ID data to HIEs ■ Total volume of patient ID transactions received and processed correctly (D)
Level of HIE Clinician portal usage	■ Number of licensed clinician logins to HIE portals ■ Number of licensed clinicians authorized to use HIE (D) ■ Number of licensed clinicians authorized to bill Medicaid covered by HIE (D) ■ Number of licensed clinicians authorized to bill Medicaid in the State (D)

Metric Type	Suggested Metrics
Level of Public Health Surveillance Usage	■ Number of surveillance transactions sent to public health department through the HIE ■ Number of surveillance transactions retrieved via the HIE (by portal lookup or directly to EHR) ■ Total number of surveillance transactions sent to public health department (D)
Level of Public Health Immunization Usage	■ Number of immunization records sent to State registry via the HIE ■ Number of immunization records retrieved via the HIE (by portal lookup or directly to EHR) ■ Total number of immunization records sent to State registry
Level of HIE usage for Personal Health Records	■ Number of unique people identified in consumer index file, ■ Number of consumers using the HIE to send data to the PHR of their choice ■ Total population of the State (D)
Speed of Implementation	■ Average time from completion of paperwork to bringing a clinician online
Service Levels (measured as the time required for 98% or more of all items measured)	■ Transit time for unsolicited clinical results ■ Response time for patient lookups, computer to computer ■ Response time for patient lookups, portal ■ Time for trouble calls to be answered ■ Time for trouble calls to be resolved
Service Levels (availability as a percentage of the total calendar time in a period)	■ Incoming message servers ■ Query servers ■ Clinician portal
Satisfaction Levels	■ Complaints by complainant type ■ Complaints by category (e.g., Privacy/Security, Data Quality, Service Level etc.)

The actual performance measures implemented will be fine-tuned over time and , dependent upon a number of factors, including ONC and CMS guidance on Meaningful Use, the actual services implemented by the Connecticut HIE, the levels of performance achieved and issues of concern raised by HIE participants, stakeholders and the public.

3.8.3 HITE-CT Evaluation Action items

Table 22 summarizes the actions included in the Operational Plan that relate specifically to Evaluation.

Table 22. HITE-CT Evaluation Action Items

Action Item	Master Schedule Task ID and Name	Scheduled Completion Date
1. A review of, and periodic revisions of, the State Strategic and Operational Plans after being submitted to and approved by ONC	16—Revise and Update Strategic and Operational Plans on a regular basis	Ongoing
2. An annual evaluation that will be coordinated with the national program evaluation	94—Quarterly Evaluation Coordinated with National Program	Ongoing
3. Definition of reporting requirements and performance metrics for compliance with the State HIE Cooperative Agreement program and additional State defined requirements	87—Determine Requirements, Measures and Systems	2/17/2011
4. Develop reporting systems as required to satisfy the requirements defined above	87—Determine Requirements, Measures and Systems	2/17/2011
5. Use the reporting systems for reporting of performance metrics specified in the State HIE Cooperative Agreement program plus additional State defined requirements	88—Iteratively Deploy Reporting Systems	Ongoing
6. Coordination with national program evaluation and leverage of technical assistance from the Federal government in an effort to implement lessons learned that will ensure appropriate and secure HIE resulting in improvement in quality and efficiency	94—Quarterly Evaluation Coordinated with National Program 108—Ongoing Coordination with other Agencies and Programs	Ongoing

3.9 HITE-CT Operational Plan Master Schedule and Risk Analysis

3.9.1 HITE-CT Operational Plan Master Schedule

The figure below is an excerpt from the HITE-CT Master Schedule that contains the latest version of the detailed Master Schedule for the HITE-CT Program. Carrying out this Master Schedule will be the responsibility of the Program Manager in DPH until the HITE-CT has been established. This will continue to be updated and is expected to change and evolve considerably.

Figure 12. HITE CT Master Schedule

ID	Task Name	Duration	Start	Finish
1	**Program Management**	**1027 days**	**Mon 10/4/10**	**Tue 9/9/14**
2	Program Management Office Set Up	20 days	Mon 10/4/10	Fri 10/29/10
3	Program Cehckpoints Preparation	850 days	Mon 11/1/10	Fri 1/31/14
4	**Program Checkpoints**	**936 days**	**Thu 1/6/11**	**Fri 8/8/14**
5	Checkpoint 1 - Business Case	0 days	Fri 5/27/11	Fri 5/27/11
6	Checkpoint 2 - HITE-CT Agency Readiness	0 days	Thu 5/12/11	Thu 5/12/11
7	Checkpoint 3 - Funding	0 days	Thu 9/1/11	Thu 9/1/11
8	Checkpoint 4 - Architecture	0 days	Thu 1/6/11	Thu 1/6/11
9	Checkpoint 5 - Vendor Acquisition	0 days	Fri 7/1/11	Fri 7/1/11
10	Checkpoint 6 - Initial HIE Stand-up	0 days	Fri 3/23/12	Fri 3/23/12
11	Checkpoint 7 - Release 1 - Public Health Deployment	0 days	Fri 11/2/12	Fri 11/2/12
12	Checkpoint 8 - Release 1 - Documents Sharing Deployment	0 days	Fri 3/8/13	Fri 3/8/13
13	Checkpoint 9 - Release 2 - Lab Results Deployment	0 days	Mon 2/10/14	Mon 2/10/14
14	Checkpoint 10 - Release 2 - Quality Reporting	0 days	Mon 10/7/13	Mon 10/7/13
15	Checkpoint 11 - Release 3 - Deployment	0 days	Fri 8/8/14	Fri 8/8/14
16	Revise and Update Strategic and Operational Plans on a regular basis	1027 days	Mon 10/4/10	Tue 9/9/14
17	Further analyze and Document the Value Proposition & Business Case	50 days	Mon 10/4/10	Fri 12/10/10
18	Develop Full Multi-year Funding and Sustainability Model	50 days	Mon 10/4/10	Fri 12/10/10
19	**Market Analysis & Deployment Planning**	**320 days**	**Mon 12/13/10**	**Fri 3/2/12**
20	**Business Deployment Planning**	**120 days**	**Mon 12/13/10**	**Fri 5/27/11**
21	Conduct segmentation analysis of the customer base and markets for each service area	60 days	Mon 12/13/10	Fri 3/4/11
22	**Initial Roll-Out Planning**	**60 days**	**Mon 3/7/11**	**Fri 5/27/11**
23	Determine Priorities for Products and Services	20 days	Mon 3/7/11	Fri 4/1/11
24	Analyze Readiness data	20 days	Mon 4/4/11	Fri 4/29/11
25	Map out phased implementation plan and schedule	20 days	Mon 5/2/11	Fri 5/27/11
26	**Meaningful Use Support**	**320 days**	**Mon 12/13/10**	**Fri 3/2/12**
27	**e-Prescribing**	**320 days**	**Mon 12/13/10**	**Fri 3/2/12**
28	Create and maintain register of Pharmacies and Payers	320 days	Mon 12/13/10	Fri 3/2/12
29	Compile e-Prescribing Advice for Providers	30 days	Mon 12/13/10	Fri 1/21/11
30	**Lab Results**	**320 days**	**Mon 12/13/10**	**Fri 3/2/12**
31	Create and maintain register of Labs	320 days	Mon 12/13/10	Fri 3/2/12
32	Compile Lab Results Advice for Providers	30 days	Mon 1/24/11	Fri 3/4/11
33	**Care Summaries**	**320 days**	**Mon 12/13/10**	**Fri 3/2/12**
34	Create and maintain register local HIEs offering Care Summaries Capability	320 days	Mon 12/13/10	Fri 3/2/12
35	Compile Care Sumaries Advice for Providers	30 days	Mon 3/7/11	Fri 4/15/11
36	**Marketing & Communication**	**100 days**	**Mon 12/13/10**	**Fri 4/29/11**
37	**Communication Plan**	**20 days**	**Mon 12/13/10**	**Fri 1/7/11**
38	Stakeholder identifcation	10 days	Mon 12/13/10	Fri 12/24/10
39	Stakeholder Analysis	10 days	Mon 12/27/10	Fri 1/7/11
40	Marketing Campaigns	60 days	Mon 1/10/11	Fri 4/1/11
41	**Stakeholder Coordination**	**100 days**	**Mon 12/13/10**	**Fri 4/29/11**
42	Develop formal links to REC.	30 days	Mon 12/13/10	Fri 1/21/11
43	Assist REC with assessing providers' levels of EHR use and readiness.	30 days	Mon 12/13/10	Fri 1/21/11
44	Ensure Connecticut Recovery Working Group completes its broadband mapping exercise.	30 days	Mon 12/13/10	Fri 1/21/11
45	Coordinate Connecticut Recovery Working Group application for additional funds to increase broadband access.	30 days	Mon 12/13/10	Fri 1/21/11
46	Coordinate with Department of Utility Control and Department of Information Technology to understand broadband connectivity issues.	30 days	Mon 12/13/10	Fri 1/21/11

ID	Task Name	Duration	Start	Finish
47	Coordinate with the Department of Utility Control and Department of Information Technology to extend the Connecticut Education Network	30 days	Mon 12/13/10	Fri 1/21/11
48	Work with DSS SMHP project to leverage and uncover HIT adoption knowledge.	50 days	Mon 12/13/10	Fri 2/18/11
49	Align with the Department of Social Services Medicaid HIT plan	50 days	Mon 2/21/11	Fri 4/29/11
50	**Develop collaborations with the following Programs**	**20 days**	**Mon 12/13/10**	**Fri 1/7/11**
51	Epidemiology and Laboratory Capacity (ELC) Cooperative Agreement Program	20 days	Mon 12/13/10	Fri 1/7/11
52	Connecticut Prescription Monitoring and Reporting System	20 days	Mon 12/13/10	Fri 1/7/11
53	Maternal and Child Health State Systems Development Initiative programs	20 days	Mon 12/13/10	Fri 1/7/11
54	State Offices of Rural Health Policy	20 days	Mon 12/13/10	Fri 1/7/11
55	State Offices of Primary Care	20 days	Mon 12/13/10	Fri 1/7/11
56	State Mental Health Data Infrastructure Grants for Quality Improvement (SAMHSA)	20 days	Mon 12/13/10	Fri 1/7/11
57	State Medicaid/CHIP Programs	20 days	Mon 12/13/10	Fri 1/7/11
58	Indian Health Service (HIS) and tribal activity.	20 days	Mon 12/13/10	Fri 1/7/11
59	Connecticut Partnership for Public Health Workforce Development	20 days	Mon 12/13/10	Fri 1/7/11
60	Capital Community College in Hartford	20 days	Mon 12/13/10	Fri 1/7/11
61	**HITE-CT Agency Development**	**870 days**	**Fri 10/1/10**	**Thu 1/30/14**
62	**Governance Structure - HITE-CT Board Establishment and Oversight**	**85 days**	**Fri 10/1/10**	**Thu 1/27/11**
63	Establish the HITE-CT (per the legislation - Public Act 10-117)	5 days	Fri 10/1/10	Thu 10/7/10
64	Define the Governance Model	10 days	Fri 10/1/10	Thu 10/14/10
65	Establish Governance Entities and Subcommittees (develop charters and appoint members)	10 days	Fri 10/15/10	Thu 10/28/10
66	Determine and establish any regulations and by-laws required	30 days	Fri 10/29/10	Thu 12/9/10
67	**Develop Organizational Structures**	**15 days**	**Fri 1/7/11**	**Thu 1/27/11**
68	HITE-CT Strategy	15 days	Fri 1/7/11	Thu 1/27/11
69	Project Management Office	15 days	Fri 1/7/11	Thu 1/27/11
70	Technology	15 days	Fri 1/7/11	Thu 1/27/11
71	Production	15 days	Fri 1/7/11	Thu 1/27/11
72	Legal/Policy	15 days	Fri 1/7/11	Thu 1/27/11
73	Partner Support	15 days	Fri 1/7/11	Thu 1/27/11
74	Administration	15 days	Fri 1/7/11	Thu 1/27/11
75	**Acquire Office Facilities**	**70 days**	**Fri 10/8/10**	**Thu 1/13/11**
76	Determine Office/Location Strategy	10 days	Fri 10/8/10	Thu 10/21/10
77	Develop Office/Location Plan	15 days	Fri 10/22/10	Thu 11/11/10
78	Execute Office/Location Plan	45 days	Fri 11/12/10	Thu 1/13/11
79	**Staff Acquisition**	**821 days**	**Fri 10/1/10**	**Fri 11/22/13**
80	Recruit and Appoint HITE-CT Chief Executive Officer	70 days	Fri 10/1/10	Thu 1/6/11
81	Core Team Establishment and On-boarding	90 days	Fri 1/7/11	Thu 5/12/11
82	Define Required Skill Sets and Staffing Requirements	25 days	Fri 5/13/11	Thu 6/16/11
83	Recruitment and Selection of Staff	90 days	Fri 6/17/11	Thu 10/20/11
84	Fulfill Staff Augmentation Requirements (State staff and Consultants)	130 days	Fri 6/17/11	Fri 11/22/13
85	**Reporting**	**860 days**	**Fri 10/15/10**	**Thu 1/30/14**
86	Establish External Evaluation Process	20 days	Fri 12/10/10	Thu 1/6/11
87	Determine Requirements, Measures and Systems	30 days	Fri 1/7/11	Thu 2/17/11
88	***Iteratively Deploy Reporting Systems***	360 days	Fri 2/18/11	Thu 7/5/12
89	**State Legislative Annual Reporting**	**795 days**	**Fri 1/14/11**	**Thu 1/30/14**
90	State Legislative Annual Reporting 1	15 days	Fri 1/14/11	Thu 2/3/11
91	State Legislative Annual Reporting 2	15 days	Fri 1/13/12	Thu 2/2/12
92	State Legislative Annual Reporting 3	15 days	Fri 1/11/13	Thu 1/31/13

ID	Task Name	Duration	Start	Finish
93	State Legislative Annual Reporting 4	15 days	Fri 1/10/14	Thu 1/30/14
94	**Quarterly Evaluation Coordinated with National Program**	**802 days**	**Fri 10/15/10**	**Mon 11/11/13**
95	Quarterly Evaluation Coordinated with National Program 1	20 days	Fri 10/15/10	Thu 11/11/10
96	Quarterly Evaluation Coordinated with National Program 2	20 days	Mon 1/17/11	Fri 2/11/11
97	Quarterly Evaluation Coordinated with National Program 3	20 days	Fri 4/15/11	Thu 5/12/11
98	Quarterly Evaluation Coordinated with National Program 4	20 days	Fri 7/15/11	Thu 8/11/11
99	Quarterly Evaluation Coordinated with National Program 5	20 days	Mon 10/17/11	Fri 11/11/11
100	Quarterly Evaluation Coordinated with National Program 6	20 days	Mon 1/16/12	Fri 2/10/12
101	Quarterly Evaluation Coordinated with National Program 7	20 days	Mon 4/16/12	Fri 5/11/12
102	Quarterly Evaluation Coordinated with National Program 8	20 days	Mon 7/16/12	Fri 8/10/12
103	Quarterly Evaluation Coordinated with National Program 9	20 days	Mon 10/15/12	Fri 11/9/12
104	Quarterly Evaluation Coordinated with National Program 10	20 days	Tue 1/15/13	Mon 2/11/13
105	Quarterly Evaluation Coordinated with National Program 11	20 days	Mon 4/15/13	Fri 5/10/13
106	Quarterly Evaluation Coordinated with National Program 12	20 days	Mon 7/15/13	Fri 8/9/13
107	Quarterly Evaluation Coordinated with National Program 13	20 days	Tue 10/15/13	Mon 11/11/13
108	**Ongoing Coordination with other Agencies and Programs**	**820 days**	**Fri 10/1/10**	**Thu 11/21/13**
109	Office of the National Coordinator of HIT	820 days	Fri 10/1/10	Thu 11/21/13
110	DSS & Medicaid (SMHP)	820 days	Fri 10/1/10	Thu 11/21/13
111	Regional Extension Center	820 days	Fri 10/1/10	Thu 11/21/13
112	Publiuc and Other Health Programs	820 days	Fri 10/1/10	Thu 11/21/13
113	**Policies and Processes**	**120 days**	**Fri 10/1/10**	**Thu 3/17/11**
114	Policy Framework	30 days	Fri 10/1/10	Thu 11/11/10
115	Finance	30 days	Fri 11/12/10	Thu 12/23/10
116	Human Resources	30 days	Fri 12/24/10	Thu 2/3/11
117	Health Information Privacy, Security, Use and Disclosure	30 days	Fri 11/12/10	Thu 12/23/10
118	Standards Adoption and Setting	30 days	Fri 12/24/10	Thu 2/3/11
119	Data Quality	30 days	Fri 2/4/11	Thu 3/17/11
120	HIT Adoption	30 days	Fri 11/12/10	Thu 12/23/10
121	HIE Relationship Management and Customer Service	30 days	Fri 12/24/10	Thu 2/3/11
122	**Legislative Proposals and Changes**	**39 days**	**Mon 12/13/10**	**Thu 2/3/11**
123	Funding	30 days	Mon 12/13/10	Fri 1/21/11
124	Privacy and Security	30 days	Fri 12/24/10	Thu 2/3/11
125	**Market Analysis & Deployment Planning**	**320 days**	**Fri 2/4/11**	**Thu 4/26/12**
126	**Business Deployment Planning**	**120 days**	**Fri 2/4/11**	**Thu 7/21/11**
127	Conduct segmentation analysis of the customer base and markets for each service area	60 days	Fri 2/4/11	Thu 4/28/11
128	**Initial Roll-Out Planning**	**60 days**	**Fri 4/29/11**	**Thu 7/21/11**
129	Determine Priorities for Products and Services	20 days	Fri 4/29/11	Thu 5/26/11
130	Analyze Readiness data	20 days	Fri 5/27/11	Thu 6/23/11
131	Map out phased implementation plan and schedule	20 days	Fri 6/24/11	Thu 7/21/11
132	**Meaningful Use Support**	**320 days**	**Fri 2/4/11**	**Thu 4/26/12**
133	**e-Prescribing**	**320 days**	**Fri 2/4/11**	**Thu 4/26/12**
134	Create and maintain register of Pharmacies and Payers	320 days	Fri 2/4/11	Thu 4/26/12
135	Compile e-Prescribing Advice for Providers	30 days	Fri 2/4/11	Thu 3/17/11
136	**Lab Results**	**320 days**	**Fri 2/4/11**	**Thu 4/26/12**
137	Create and maintain register of Labs	320 days	Fri 2/4/11	Thu 4/26/12
138	Compile Lab Results Advice for Providers	30 days	Fri 3/18/11	Thu 4/28/11
139	**Care Summaries**	**320 days**	**Fri 2/4/11**	**Thu 4/26/12**
140	Create and maintain register local HIEs offering Care Summaries Capability	320 days	Fri 2/4/11	Thu 4/26/12

ID	Task Name	Duration	Start	Finish
141	Compile Care Sumaries Advice for Providers	30 days	Fri 4/29/11	Thu 6/9/11
142	**Marketing & Communication**	**100 days**	**Fri 2/4/11**	**Thu 6/23/11**
143	**Communication Plan**	**20 days**	**Fri 2/4/11**	**Thu 3/3/11**
144	Stakeholder identification	10 days	Fri 2/4/11	Thu 2/17/11
145	Stakeholder Analysis	10 days	Fri 2/18/11	Thu 3/3/11
146	Marketing Campaigns	60 days	Fri 3/4/11	Thu 5/26/11
147	**Stakeholder Coordination**	**100 days**	**Fri 2/4/11**	**Thu 6/23/11**
148	Develop formal links to REC.	30 days	Fri 2/4/11	Thu 3/17/11
149	Assist REC with assessing providers' levels of EHR use and readiness.	30 days	Fri 2/4/11	Thu 3/17/11
150	Ensure Connecticut Recovery Working Group completes its broadband mapping exercise.	30 days	Fri 2/4/11	Thu 3/17/11
151	Coordinate Connecticut Recovery Working Group application for additional funds to increase broadband access.	30 days	Fri 2/4/11	Thu 3/17/11
152	Coordinate with Department of Utility Control and Department of Information Technology to understand broadband connectivity issues.	30 days	Fri 2/4/11	Thu 3/17/11
153	Coordinate with the Department of Utility Control and Department of Information Technology to extend the Connecticut Education Network	30 days	Fri 2/4/11	Thu 3/17/11
154	Work with DSS SMHP project to leverage and uncover HIT adoption knowledge.	50 days	Fri 2/4/11	Thu 4/14/11
155	Align with the Department of Social Services Medicaid HIT plan	50 days	Fri 4/15/11	Thu 6/23/11
156	**Develop collaborations with**	**20 days**	**Fri 2/4/11**	**Thu 3/3/11**
157	Epidemiology and Laboratory Capacity (ELC) Cooperative Agreement Program	20 days	Fri 2/4/11	Thu 3/3/11
158	Connecticut Prescription Monitoring and Reporting System	20 days	Fri 2/4/11	Thu 3/3/11
159	Maternal and Child Health State Systems Development Initiative programs	20 days	Fri 2/4/11	Thu 3/3/11
160	State Offices of Rural Health Policy	20 days	Fri 2/4/11	Thu 3/3/11
161	State Offices of Primary Care	20 days	Fri 2/4/11	Thu 3/3/11
162	State Mental Health Data Infrastructure Grants for Quality Improvement (SAMHSA)	20 days	Fri 2/4/11	Thu 3/3/11
163	State Medicaid/CHIP Programs	20 days	Fri 2/4/11	Thu 3/3/11
164	Indian Health Service (HIS) and tribal activity.	20 days	Fri 2/4/11	Thu 3/3/11
165	Connecticut Partnership for Public Health Workforce Development	20 days	Fri 2/4/11	Thu 3/3/11
166	Capital Community College in Hartford	20 days	Fri 2/4/11	Thu 3/3/11
167	**Funds Acquisition**	**600 days**	**Fri 5/13/11**	**Thu 8/29/13**
168	**Assessment Process**	**50 days**	**Fri 5/13/11**	**Thu 7/21/11**
169	Identify assessment universe	10 days	Fri 5/13/11	Thu 5/26/11
170	Collect data for assessment	20 days	Fri 5/27/11	Thu 6/23/11
171	Determine individual assessments	10 days	Fri 6/24/11	Thu 7/7/11
172	Issue notices of assessment	10 days	Fri 7/8/11	Thu 7/21/11
173	**Collection Process**	**60 days**	**Fri 7/22/11**	**Thu 10/13/11**
174	Collect and process payments	30 days	Fri 7/22/11	Thu 9/1/11
175	Identify delinquents and follow-up	30 days	Fri 9/2/11	Thu 10/13/11
176	**Audit Process**	**40 days**	**Fri 10/14/11**	**Thu 12/8/11**
177	Audit Selection	10 days	Fri 10/14/11	Thu 10/27/11
178	Audit Execution	30 days	Fri 10/28/11	Thu 12/8/11
179	**Appeal Process**	**450 days**	**Fri 12/9/11**	**Thu 8/29/13**
180	Appeal Review	450 days	Fri 12/9/11	Thu 8/29/13
181	Appeal Determiniation	450 days	Fri 12/9/11	Thu 8/29/13
182	**HIE Solution Architecture**	**70 days**	**Fri 10/1/10**	**Thu 1/6/11**
183	Establish a multi-stakeholder architecture team	15 days	Fri 10/1/10	Thu 10/21/10
184	**Develop the HIE Common Requirements Vision (CRV)**	**20 days**	**Fri 10/22/10**	**Thu 11/18/10**

ID	Task Name	Duration	Start	Finish
185	Environmental Trends	20 days	Fri 10/22/10	Thu 11/18/10
186	Enterprise Business Strategies	20 days	Fri 10/22/10	Thu 11/18/10
187	Environmental Trends/Enterprise Business Strategies Relationship Matrix	20 days	Fri 10/22/10	Thu 11/18/10
188	Business Information Requirements	20 days	Fri 10/22/10	Thu 11/18/10
189	Enterprise Business Strategies/Business Information Requirements Relationship Matrix	20 days	Fri 10/22/10	Thu 11/18/10
190	Information Technology Requirements	20 days	Fri 10/22/10	Thu 11/18/10
191	Business Information Requirements/IT Requirements Relationship Matrix	20 days	Fri 10/22/10	Thu 11/18/10
192	Summarize into graphic Vision detailing Business, Information and Technology viewpoints	20 days	Fri 10/22/10	Thu 11/18/10
193	Test out each technology component with an independent technology and market assessment	30 days	Fri 11/19/10	Thu 12/30/10
194	Agree and sign-off the CRV through the HITE-CT Governance Process	5 days	Fri 12/31/10	Thu 1/6/11
195	Create mechanism for architecture compliance and future refresh	30 days	Fri 11/19/10	Thu 12/30/10
196	**Contract for Systems and Services Vendor**	**196 days**	**Fri 10/1/10**	**Fri 7/1/11**
197	**Market Scan**	**45 days**	**Fri 10/1/10**	**Thu 12/2/10**
198	Establish Scope	15 days	Fri 10/1/10	Thu 10/21/10
199	Research and Collect Market Data	15 days	Fri 10/22/10	Thu 11/11/10
200	Vendor Shortlist Analysis	15 days	Fri 11/12/10	Thu 12/2/10
201	Establish Procurement Strategy and Procurement Process	5 days	Fri 12/3/10	Thu 12/9/10
202	**Define Requirements**	**20 days**	**Fri 1/7/11**	**Thu 2/3/11**
203	Solution Architecture Requirements	20 days	Fri 1/7/11	Thu 2/3/11
204	Functional Requirements	20 days	Fri 1/7/11	Thu 2/3/11
205	Security Requirements	20 days	Fri 1/7/11	Thu 2/3/11
206	Technology Requirements	20 days	Fri 1/7/11	Thu 2/3/11
207	Implementation Requirements	20 days	Fri 1/7/11	Thu 2/3/11
208	Performance and Operational Requirements	20 days	Fri 1/7/11	Thu 2/3/11
209	Service Level and Support Requirements	20 days	Fri 1/7/11	Thu 2/3/11
210	**Procurement**	**106 days**	**Fri 2/4/11**	**Fri 7/1/11**
211	Develop RFP	20 days	Fri 2/4/11	Thu 3/3/11
212	Prepare Evaluation Model	10 days	Fri 3/4/11	Thu 3/17/11
213	Issue RFP	1 day	Fri 3/18/11	Fri 3/18/11
214	Vendor Questions and Answers	30 days	Mon 3/21/11	Fri 4/29/11
215	Establish and Train Evaluation Team	10 days	Mon 3/21/11	Fri 4/1/11
216	Evaluation and Selection	15 days	Mon 5/2/11	Fri 5/20/11
217	Best and Final Offer	10 days	Mon 5/23/11	Fri 6/3/11
218	Contract Negotiation	15 days	Mon 6/6/11	Fri 6/24/11
219	Contract Award	5 days	Mon 6/27/11	Fri 7/1/11
220	**Standards Adoption and Setting**	**130 days?**	**Fri 10/1/10**	**Thu 3/31/11**
221	Create CT HIT Operability and Data Management Standards Governance Structure and Processes	20 days	Fri 1/7/11	Thu 2/3/11
222	Define Required Standards	20 days	Fri 1/7/11	Thu 2/3/11
223	**Develop Standards Proposals and Obtain Approval via the Governance process**	**20 days?**	**Fri 2/4/11**	**Thu 3/3/11**
224	Basic Data Interchange and Interoperability Standards	20 days	Fri 2/4/11	Thu 3/3/11
225	Standards for Data Quality	1 day?	Fri 2/4/11	Fri 2/4/11
226	Standards for Master Data Interchange	20 days	Fri 2/4/11	Thu 3/3/11
227	Standards for Public Health Reporting	20 days	Fri 2/4/11	Thu 3/3/11
228	Standards for Patient Care interchange selected use cases	20 days	Fri 2/4/11	Thu 3/3/11
229	Standards for Lab and Auxiliary Orders	20 days	Fri 2/4/11	Thu 3/3/11
230	Standards for Lab and Auxiliary Structured Data Results	20 days	Fri 2/4/11	Thu 3/3/11

ID	Task Name	Duration	Start	Finish
231	Standards for Quality Reporting	1 day?	Fri 2/4/11	Fri 2/4/11
232	Standards for Personal Health Records	20 days	Fri 2/4/11	Thu 3/3/11
233	Standards Communication and Support	20 days	Fri 3/4/11	Thu 3/31/11
234	**Data Quality**	**1 day?**	**Fri 10/1/10**	**Fri 10/1/10**
235	Detrmine Accountabilities and Metrics	1 day?	Fri 10/1/10	Fri 10/1/10
236	Implement Audit Controls	1 day?	Fri 10/1/10	Fri 10/1/10
237	**Initial HIE Stand-up**	**286 days**	**Fri 4/1/11**	**Fri 5/4/12**
238	Vendor Operational Plan	20 days	Mon 7/4/11	Fri 7/29/11
239	Vendor Preparation and Initial Setup	60 days	Mon 8/1/11	Fri 10/21/11
240	Finalize solution design	20 days	Mon 10/24/11	Fri 11/18/11
241	Implement infrastructure and systems	90 days	Mon 11/21/11	Fri 3/23/12
242	Review Implementation Plan with Vendor and Partners (Leveraged Capabilities)	50 days	Fri 4/1/11	Thu 6/9/11
243	Develop, Negotiate and Agree SLAs	50 days	Fri 6/10/11	Thu 8/18/11
244	**Configure and Initiate Support Services:**	**30 days**	**Mon 3/26/12**	**Fri 5/4/12**
245	Master Provider Index	30 days	Mon 3/26/12	Fri 5/4/12
246	Master Patient Index	30 days	Mon 3/26/12	Fri 5/4/12
247	Records Locator Service	30 days	Mon 3/26/12	Fri 5/4/12
248	Messaging	30 days	Mon 3/26/12	Fri 5/4/12
249	**Connecticut HIE Release 1 – CCD & Public Health Reporting**	**310 days**	**Mon 4/23/12**	**Fri 6/28/13**
250	**Finalize Release 1 Plan**	**30 days**	**Mon 4/23/12**	**Fri 6/1/12**
251	Finalize Public Health Reporting Use Cases included in scope	10 days	Mon 4/23/12	Fri 5/4/12
252	Confirm proposed target participants, estimates and schedule	15 days	Mon 5/7/12	Fri 5/25/12
253	HITE-CT Board Approval	5 days	Mon 5/28/12	Fri 6/1/12
254	**Continuity of Care Documents**	**210 days**	**Mon 6/4/12**	**Fri 3/22/13**
255	**Sub-project Wave 1 – For 1st local group of providers (repeated for each local group)**	**110 days**	**Mon 6/4/12**	**Fri 11/2/12**
256	Participant Readiness Check, Recruitment and Sign-up	30 days	Mon 6/4/12	Fri 7/13/12
257	Infrastructure and Services Configuration, Testing and Preparation	30 days	Mon 7/16/12	Fri 8/24/12
258	Participant Technology, Process and Change Management Preparation	30 days	Mon 8/27/12	Fri 10/5/12
259	Participant Implementation and Sign-off	20 days	Mon 10/8/12	Fri 11/2/12
260	**Sub-project 2-5**	**160 days**	**Mon 8/13/12**	**Fri 3/22/13**
261	Sub-project Wave 2	100 days	Mon 8/13/12	Fri 12/28/12
262	Sub-projectWave 3	100 days	Mon 9/10/12	Fri 1/25/13
263	Sub-project Wave 4	100 days	Mon 10/8/12	Fri 2/22/13
264	Sub-project Wave 5	100 days	Mon 11/5/12	Fri 3/22/13
265	**Integrated Public Health Reporting**	**190 days**	**Mon 10/8/12**	**Fri 6/28/13**
266	**Sub-project Wave 1 – For 1st group of providers (repeated for each group)**	**190 days**	**Mon 10/8/12**	**Fri 6/28/13**
267	Participant Readiness Check, Recruitment and Sign-up	30 days	Mon 10/8/12	Fri 11/16/12
268	Infrastructure and Services Configuration, Testing and Preparation	30 days	Mon 11/19/12	Fri 12/28/12
269	Participant Technology, Process and Change Management Preparation	30 days	Mon 12/31/12	Fri 2/8/13
270	Participant Implementation and Sign-off	20 days	Mon 2/11/13	Fri 3/8/13
271	**Sub-project 2-5**	**160 days**	**Mon 11/19/12**	**Fri 6/28/13**
272	Sub-project Wave 2	100 days	Mon 11/19/12	Fri 4/5/13
273	Sub-project Wave 3	100 days	Mon 12/17/12	Fri 5/3/13
274	Sub-project Wave 4	100 days	Mon 1/14/13	Fri 5/31/13
275	Sub-project Wave 5	100 days	Mon 2/11/13	Fri 6/28/13
276	**Connecticut HIE Release 2 – Quality Reporting**	**341 days**	**Mon 2/11/13**	**Mon 6/2/14**

ID	Task Name	Duration	Start	Finish
277	**Finalize Release 2 Plan**	**31 days**	**Mon 2/11/13**	**Mon 3/25/13**
278	Finalize Quality Reporting Use Cases, External Data Sources included in scope	10 days	Mon 2/11/13	Fri 2/22/13
279	Determine the scope of Auxiliary Services Support in this Release	1 day	Mon 2/25/13	Mon 2/25/13
280	Confirm proposed target participants, estimates and schedule	15 days	Tue 2/26/13	Mon 3/18/13
281	HITE-CT Board Approval	5 days	Tue 3/19/13	Mon 3/25/13
282	**Quality Reporting**	**220 days**	**Tue 3/26/13**	**Mon 1/27/14**
283	**Sub-project Wave 1 – For 1st group of providers (repeated for each group)**	**140 days**	**Tue 3/26/13**	**Mon 10/7/13**
284	Infrastructure and Services Configuration, Testing and Preparation for External Data Sources	30 days	Tue 3/26/13	Mon 5/6/13
285	Participant Readiness Check, Recruitment and Sign-up	30 days	Tue 5/7/13	Mon 6/17/13
286	Infrastructure and Services Configuration, Testing and Preparation for Quality Reporting	30 days	Tue 6/18/13	Mon 7/29/13
287	Participant Technology, Process and Change Management Preparation	30 days	Tue 7/30/13	Mon 9/9/13
288	Participant Implementation and Sign-off	20 days	Tue 9/10/13	Mon 10/7/13
289	**Sub-project 2-5**	**160 days**	**Tue 6/18/13**	**Mon 1/27/14**
290	Sub-project Wave 2	100 days	Tue 6/18/13	Mon 11/4/13
291	Sub-project Wave 3	100 days	Tue 7/16/13	Mon 12/2/13
292	Sub-project Wave 4	100 days	Tue 8/13/13	Mon 12/30/13
293	Sub-project Wave 5	100 days	Tue 9/10/13	Mon 1/27/14
294	**Ancillary Service Orders/Results**	**190 days**	**Tue 9/10/13**	**Mon 6/2/14**
295	**Sub-project Wave 1 – For 1st group of providers (repeated for each group)**	**110 days**	**Tue 9/10/13**	**Mon 2/10/14**
296	Participant Readiness Check, Recruitment and Sign-up	30 days	Tue 9/10/13	Mon 10/21/13
297	Infrastructure and Services Configuration, Testing and Preparation	30 days	Tue 10/22/13	Mon 12/2/13
298	Participant Technology, Process and Change Management Preparation	30 days	Tue 12/3/13	Mon 1/13/14
299	Participant Implementation and Sign-off	20 days	Tue 1/14/14	Mon 2/10/14
300	**Sub-project 2-5**	**160 days**	**Tue 10/22/13**	**Mon 6/2/14**
301	Sub-project Wave 2	100 days	Tue 10/22/13	Mon 3/10/14
302	Sub-project Wave 3	100 days	Tue 11/19/13	Mon 4/7/14
303	Sub-project Wave 4	100 days	Tue 12/17/13	Mon 5/5/14
304	Sub-project Wave 5	100 days	Tue 1/14/14	Mon 6/2/14
305	**Connecticut HIE Release 3 – Personal Health Record**	**140 days**	**Mon 1/27/14**	**Fri 8/8/14**
306	**Finalize Release 3 Plan**	**30 days**	**Mon 1/27/14**	**Fri 3/7/14**
307	Finalize PHR Use Cases included in scope	10 days	Mon 1/27/14	Fri 2/7/14
308	Confirm proposed target PHRs, estimates and schedule	15 days	Mon 2/10/14	Fri 2/28/14
309	HITE-CT Board Approval	5 days	Mon 3/3/14	Fri 3/7/14
310	**Personal Health Record (repeated for each PHR product included)**	**110 days**	**Mon 3/10/14**	**Fri 8/8/14**
311	PHR Interfaces and Integration Design	30 days	Mon 3/10/14	Fri 4/18/14
312	Participant Group Recruitment and Sign-up	30 days	Mon 4/21/14	Fri 5/30/14
313	Infrastructure and Services Configuration, Testing and Preparation	30 days	Mon 6/2/14	Fri 7/11/14
314	Acceptance Testing, Implementation and Sign-off By Participant Group	20 days	Mon 7/14/14	Fri 8/8/14
315	**Relationship Management and Customer Service**	**996 days**	**Fri 5/13/11**	**Fri 3/6/15**
316	**Relationship Management (HITE-CT Core Staff) - RM**	**996 days**	**Fri 5/13/11**	**Fri 3/6/15**
317	RM Assignments	20 days	Fri 5/13/11	Thu 6/9/11
318	**RM for Meaningful Use Support**	**300 days**	**Fri 6/10/11**	**Thu 8/2/12**
319	e-Prescribing	300 days	Fri 6/10/11	Thu 8/2/12
320	Lab Results	300 days	Fri 6/10/11	Thu 8/2/12
321	Care Summaries	300 days	Fri 6/10/11	Thu 8/2/12

ID	Task Name	Duration	Start	Finish
322	RM adds Release 1 Support	250 days	Mon 7/16/12	Fri 6/28/13
323	RM adds Release 2 Support	300 days	Tue 5/7/13	Mon 6/30/14
324	RM adds Release 3 Support	200 days	Mon 6/2/14	Fri 3/6/15
325	**Connecticut HIE Operations**	**700 days**	**Mon 3/26/12**	**Fri 11/28/14**
326	Infrastructure Operations and Management	700 days	Mon 3/26/12	Fri 11/28/14
327	Service Level Reporting	700 days	Mon 3/26/12	Fri 11/28/14
328	**Stand-up Vendors Customer Service Function and Infrastructure**	**200 days**	**Mon 11/21/11**	**Fri 8/24/12**
329	Help and Problem Support	200 days	Mon 11/21/11	Fri 8/24/12
330	EHR Adoption and Readiness Support	200 days	Mon 11/21/11	Fri 8/24/12
331	HIE Education and Outreach	200 days	Mon 11/21/11	Fri 8/24/12
332	**Customer Service for Release 1**	**310 days**	**Mon 7/16/12**	**Fri 9/20/13**
333	User Education and Training	310 days	Mon 7/16/12	Fri 9/20/13
334	Preparation and Ramp-up for Release 1	310 days	Mon 7/16/12	Fri 9/20/13
335	Start support of Release 1 participants	310 days	Mon 7/16/12	Fri 9/20/13
336	**Customer Service for Release 2**	**341 days**	**Tue 5/7/13**	**Tue 8/26/14**
337	Preparation and Ramp-up for Release 2	341 days	Tue 5/7/13	Tue 8/26/14
338	User Education and Training	341 days	Tue 5/7/13	Tue 8/26/14
339	Start support of Release 2 participants	341 days	Tue 5/7/13	Tue 8/26/14
340	**Customer Service for Release 3**	**140 days**	**Mon 6/2/14**	**Fri 12/12/14**
341	Preparation and Ramp-up for Release 3	140 days	Mon 6/2/14	Fri 12/12/14
342	User Education and Training	140 days	Mon 6/2/14	Fri 12/12/14
343	Start support of Release 3 participants	140 days	Mon 6/2/14	Fri 12/12/14

3.9.2 HITE-CT Risk Analysis

The risk analysis described below is based on industry standards and best practices detailed in the Control Objectives for Information and related Technology (COBIT) and Information Technology Infrastructure Library (ITIL). The risks are identified from the perspective of the HITE-CT with regard to the development of the Connecticut HIE and no risks from the provider perspective or the DPH perspective are included. The analysis does not consider impact or probability in defining the mitigation strategies.

The risks identified summarized by category (reflecting the cooperative agreement domains):

- Core Business Hazards
  - Non Participation by providers
  - Value proposition
- Governance
  - Governance structure not representative
- Finance
  - Start Up financing
  - Financial Sustainability
- Technology
  - HIE functioning
  - Adaptability

- Business and Technical Operations
  - Timely solution delivery
  - Vendor Risks
  - Staggered Implementation
- Legal/Policy
  - Inappropriate Information Sharing
  - Privacy Safeguards
  - Participant Agreements
  - Breaches

3.9.3 HITE-CT Risk Classification Matrix

Table 23 provides a full list of the risks, along with the descriptions and prioritization. The risks are prioritized as follows:


Red: A high priority risk. If the risk is not mitigated it will impede the HIT-CT initiative from moving forward.


Yellow: A medium priority risk. If the risk is not mitigated, there may be challenges faced in moving the initiative forward.


Green: A low priority risk.

Table 23. HITE-CT Risk Analysis Table

Risk Category	Risk	Definition	Risk Priority
Core Business Hazards	Non participation by providers	Providers may choose to implement community sharing initiatives in their service area and or use NHIN Direct to bypass the statewide HIE Lack of EHR adoption by physicians HIE needs a critical mass to succeed	
	Value proposition	Health care providers may delay participation in the statewide HIE and impede implementation due to concerns over value and services.	
Governance	Governance structure is not representative	Governance structure is not representative of all stakeholder interests	
Finance	Startup funding availability	Short term, startup funding cannot be secured.	
	Long term financial sustainability cannot be achieved	This risk could be due to improperly setting user participation fees at a threshold where providers are willing to pay for the value they receive; insufficient numbers of providers signing up, which leads to increased costs for those who are participating; or inability to fund a sustainability model that is broadly acceptable.	

Risk Category	Risk	Definition	Risk Priority
Technology Infrastructure	HIE does not function properly or does not meet end user needs	This risk can be further broken down by considering the known technology functions that must interoperate. For example: ■ The core infrastructure gateway messaging does not allow participating POS systems to make requests or receive responses. ■ The core infrastructure common authentication source does not authenticate against its federated partners. ■ CT does not agree on the common unique identifier policy on which the client and provider registries depend. ■ The chart registry does not resolve multiple identifiers accurately. ■ The provider registry does not disambiguate providers accurately, or CT organizations' credentialing or licensing practices do not allow unique identification of providers. ■ The clerical portal access controls or workflow management features are not sufficiently well developed that providers will use the technology. ■ The XDS registry or clinical data repositories do not function well enough to allow continuity of care documents to be exchanged smoothly. ■ Another key aspect of the technology risk is agreement to provide data and obtaining realistic data for testing purposes.	
	Inability to adapt to support mandatory changes or requirements, growth and innovation	The solution must be capable of supporting changes in functionality due to innovation, growth of activities, increased complexity, changing data models and mandatory changes required by internal or external authorities.	
Business and Technical Operations	Solution cannot be delivered within the expected timeline	The vendor does not have the amount of resources required to deliver successfully on time and on budget. This risk will be particularly acute in the first two years of the HITE-CT mandate as all HITEs attempt to implement systems obtained from a limited set of vendors.	
	The use of vendors poses challenges related to meeting the milestones of the State Plan	The availability, sustainability and expertise/skills of vendors could influence the timelines and quality of this initiative.	
	Staggered implementation impacts functionality	Staggered implementation of component technology may impact the overall functionality of the statewide HIE.	

Risk Category	Risk	Definition	Risk Priority
Legal/Policy	Inappropriate information sharing	Insufficient insurance to cover risks associated with potential civil suits that could emerge as a result of sharing electronic health information.	
	Proposed solution does not meet industry standards or does not provide appropriate safeguards for security/privacy	This includes the risks that: ■ The opt-out consent policy is accepted by participating organizations and users of the Connecticut health system; ■ The consent policy can be supported by the core technology; ■ Patient privacy might be breached either through inadequate security processes or inadvertent breaches	
	Inadequate participant agreement	Developing a participant agreement that is enormously complex or too simplistic to appropriately address participant requirements.	
	Does not conform to inter-state requirements	Connecticut Privacy and Security practices, regulations and standards are unacceptable to other States who, therefore, cannot exchange data with Connecticut.	
	Breaches due to inadequate training	Improperly trained users can create system disruptions and breaches to best practices.	

3.9.4 Risk Mitigation

HITE-CT has considered the high and medium priority risks, and proposes the following mitigation strategies as an integral aspect of the Operational Plan.

3.9.4.1 Core Business Hazards

High Priority Risk: Non-participation by providers

- Providers may choose to implement community sharing initiatives in their service area, and /or use NHIN Direct to bypass the statewide HIE
- Lack of EHR adoption by physicians
- HIE needs a critical mass to succeed

Mitigation:

- Mitigation for this will largely depend on the type and characteristics of the provider:
  - ❑ Those providers applying for “meaningful use” incentives (including hospitals) may feel more comfortable depending on the State to help them qualify
  - ❑ Smaller physician practices will be offered substantial and focused support by the Regional Extension Center. HITE-CT will collaborate closely with the REC to ensure physicians are provided with the correct advice
  - ❑ Some providers will prefer not to be “locked in” to local hospitals or health systems for these services

- HITE-CT has identified the core participating organizations. As a preferred strategy, HITE-CT will work with Danbury and eHealthConnecticut to define a service offering that both leverages their existing investments and determines the role and scope of the statewide HIE.

Medium Priority Risk: Payers may delay implementation due to concern over value and services.

- There is a possibility that payers may have concerns about the overall value of the HITE-CT initiative, which may prevent them from engaging in the initiative and to start implementation.

Mitigation:

- HITE-CT intends to define a clear value proposition for different stakeholders and focus on providing those services that are of value to subscribers. HITE-CT will develop a communications strategy early in the process to ensure that the value proposition is defined and clearly articulated to payers.

3.9.4.2 Governance Risks

Medium Priority Risk: Governance structure is not representative.

- The governance structure of the HIE is not representative of all stakeholder interests.

Mitigation:

- HITE-CT has made a considerable effort to ensure that stakeholders are represented in its Board structure where appointments are the responsibility of elected representatives. In addition to this, HITE-CT will ensure that stakeholders are represented on advisory committees and on workgroups that develop business require e HIE-related development.

3.9.4.3 Finance Risks

High Priority Risk: Long term financial sustainability cannot be achieved

- This risk could be due to improperly setting user participation fees at a threshold where providers are willing to pay for the value they receive; insufficient numbers of providers signing up, which leads to increased costs for those who are participating; or inability to develop a sustainability model that is broadly acceptable.

Mitigation:

- The HITEAC Finance Committee (including broad stakeholder representation) has identified broadly acceptable sustainability approaches and will continue to assess various scenarios to test out detailed options and find specific approaches acceptable to the legislature and the stakeholder who will have to pay.
- The work of this group includes a review of marketplace trends and national efforts to determine price points for services provided by HITE-CT.

Medium Priority Risk: Short term, startup funding cannot be secured.

- Connecticut may not be able to receive the base ARRA funding for limited functionality.

Mitigation:

- Securing the short term, startup funding is essential for the HITE-CT initiative. HITE-CT has engaged with its stakeholders and with State bodies to develop the Strategic and Operational Plan necessary to secure short term funding.

3.9.4.4 Technology Infrastructure Risks

High Risk: HIE does not function properly or does not meet end user needs

- This risk can be further broken down by considering the known technology functions that must interoperate. For example:
  - The core infrastructure gateway messaging does not allow participating PoS systems to make requests or receive responses
  - The core infrastructure common authentication source does not authenticate against its federated partners
  - CT does not agree on the common unique identifier policy on which the client and provider registries depend
  - The client registry does not resolve multiple patient identifiers accurately
  - The provider registry does not disambiguate providers accurately or CT organizations' credentialing or licensing practices do not allow unique identification of providers
  - The clerical portal access controls or workflow management features are not sufficiently well developed that providers will use the technology
  - The XDS registry or clinical data repositories do not function well enough to allow continuity of care documents to be exchanged smoothly
  - Another key aspect of the technology risk is agreement to provide data and obtaining realistic data for testing purposes

Mitigation:

- HITE-CT is well aware of the highly complex technology infrastructure. Once the architecture is established and first phase plans are solidified, HITE-CT will perform a technology assessment of each individual component proposed and of the combined architecture. HITE-CT will also put in place a methodology, policy and procurement strategy that limits technological risks and the focuses on implementing known functionality with a track record of adoption and success.
- HITE-CT will recruit, and recompense appropriately, a small core of deep technology leadership skills and for additional skilled staffing will depend on the chosen vendor. A key here is a commitment to a proper and rigorous procurement process for the main technology partner.
- HITE-CT will ensure that the technology team focuses on data provisioning issues and will use standard, rigorous project management techniques to track the data acquisition and tasks.

Medium Priority Risk: Inability to adopt to support mandatory changes or requirements, growth or innovation.

- Solution selection will focus on solution capabilities supporting changes in functionality due to innovation, growth in activities, increased complexity, changing data models and mandatory changes required by internal or external authorities.

Mitigation:

- HITE-CT has selected a Service Oriented Architecture (SOA) approach specifically because SOA built systems are intended to change with requirements. HITE-CT will ensure that the proposed solution adheres to the principles of modularity and has swappable, distributable, loosely coupled and shareable modules. HITE-CT will continuously engage with other HIEs to understand and prepare for changes that might be required in the future

3.9.4.5 Business and Technical Operations Risks

High Risk: Solution cannot be delivered within the expected timeline because the vendor does not have the resources required to deliver successfully on time and on budget.

- This risk will be particularly acute in the first two years of the HITE-CT mandate, as all HITEs attempt to implement systems obtained from a limited set of vendors.

Mitigation:

- HITE-CT will mitigate this risk by continuing the dialogue with Danbury and eHealthConnecticut and other HIE capabilities to see if any parts of their existing infrastructure can be repurposed. In addition, HITE-CT will include vendor capacity as a key decision criterion in its vendor evaluations.

3.9.4.6 Legal/Policy Risks

High Risk: The proposed solution does not meet industry standards or does not provide appropriate safeguards for security or privacy.

- This risk includes the several possibilities:
  - The opt-out consent policy is accepted by participating organizations and users of the Connecticut health care system
  - The consent policy can be supported by the core technology
  - Patient privacy might be breached either through inadequate processes, unintended breaches, data spills between organizations or privacy policies that are not acceptable to subscribing organizations

Mitigation:

- DPH is responsible for administering the State HIE Cooperative Agreement Program. As a sub-recipient, HITE-CT will, under contract, develop and operate the services defined in the HITE-CT Strategic Plan. In accordance with Connecticut State policy, HITE-CT will comply with State and Federal requirements for HIE development and operation.
- HITE-CT plans to review and leverage the work done by eHealthConnecticut in crafting data sharing and trust agreements for the DSS HIE Pilot.
- Subscribers to HITE-CT will only exchange transactions that comply with State and Federal standards. Subscribers will police transactions to ensure that they are in compliance with HITE-CT standards.

High Risk: Inadequate participant agreement

- Developing a participant agreement that is enormously complex or too simplistic to appropriately address participant requirements.

Mitigation:

- HITE-CT will leverage guidance from the ONC HIT Policy Committee Privacy and Security Tiger Team to develop agreements that are comprehensive but not overly complex.
- HITE-CT plans to review and leverage the work done by eHealthConnecticut in crafting the policies and trust agreements for the DSS HIE Pilot. These policies and agreements include:
  - The Data Use and Reciprocal Support Agreement (DURSA) and the Business Associate Agreement (BAA) to be signed by all entities that participate in the HIE pilot.
  - The Universal Medical Records release Authorization (UMRRA) to be used by physicians, hospitals and other providers throughout the State.

  These contracts meet the current requirements of the federal HITECH legislation and the same standard documents are meant to be executed by all HIE pilot participants and are accepted by at least some of the main parties who would be involved in the HITE-CT HIE in its early stages.

High Risk: Does not conform to inter-state requirements

- Connecticut Privacy and Security practices, regulations and standards are unacceptable to other States who therefore cannot exchange data with Connecticut.

Mitigation:

- HITE-CT will continue to work with NESCSO and directly with neighboring States to share requirements and approaches.
- HITE-CT plans to depend on the Nationwide Health Information Network (NHIN) for interstate and federal delivery organization information exchange. HITE-CT will work to ensure Connecticut's Security and Privacy policies and standards are compliant with NHIN to facilitate these categories of information exchange.

Medium Risk: Inappropriate information sharing

- Insufficient insurance to cover risks associated with potential civil suits that could emerge as a result of sharing electronic health information.

Mitigation:

- HITE-CT is not a care delivery organization and will develop its risk profile to minimize and transfer the risks of information breaches
- Subscribers to HITE-CT will only exchange transactions that comply with State and Federal standards. Subscribers will police transactions to ensure that they are in compliance with HITE-CT standards.

Medium Risk: Breaches due to inadequate training

- Improperly trained users can create system disruptions and breaches to best practices.

Mitigation:

- HITE-CT recognizes that training will be a critical success factor for an effective HIE and will, in collaboration with the REC where appropriate, deliver comprehensive change management and user training to ensure that privacy breaches do not occur. Each participant's implementation plans will be reviewed by the relationship manager assigned by HITE-CT. HITE-CT will reserve the right to postpone or cancel an implementation where the risk of failure is determined to be too great.

4.0 Appendices

4.1 Appendix—Definition of Terms and Acronyms

American Recovery and Reinvestment Act of 2009 (ARRA): The Act is a $787.2 billion stimulus measure, signed by President Barack Obama on February 17, 2009 that provides aid to states and cities, funding for transportation and infrastructure projects, expansion of the Medicaid program to cover more unemployed workers, health IT funding, and personal and business tax breaks, among other provisions designed to "stimulate" the economy.

ATNA: IHE Audit Trail and Node Authentication profile

BAA: Business Associate Agreement

BPPC: IHE Basic Patient Privacy Consent

CCD: HL7 Continuity of Care Document

CCR: ASTM Continuity of Care Record

CDA: HL7 Clinical Document Architecture

CDR: Clinical Data Repositories

Centers for Medicare and Medicaid Services (CMS): A federal agency within the United States Department of Health and Human Services that administers the Medicare program and works in partnership with state governments to administer Medicaid, the State Children's Health Insurance Program (SHIP), and health insurance portability standards.

CEO: Chief Executive Officer

CGS: Connecticut General Statutes.

CIS: Clinical Information System

CMS: Center for Medicare and Medicaid Services

CHQC: Connecticut Health Quality Cooperative

CHA: Connecticut Hospital Association

CHIN: Connecticut Health Information Network

CHIP: Children's Health Insurance Program

COBIT: Control Objectives for Information and related Technology

Connecticut State Health Information Exchange Cooperative Agreement Program: A program established as part of the ARRA through the ONC. The purpose of this program is to continuously improve and expand HIE services over time to reach all health care providers in an effort to improve the quality and efficiency of health care. Cooperative agreement recipients evolve and advance the necessary governance, policies, technical services, business operations and financing mechanisms for HIE over a four year performance period. This program is intended to build off of existing efforts to advance regional and state level HIE while moving toward nationwide interoperability.

COTS: Commercial Off-the-Shelf

CPMRS: Connecticut Prescription Monitoring and Reporting System

CRV: Common Requirements Vision

CTEA-TA: Connecticut Enterprise Architecture—Technology Architecture

DICOM: Digital Imaging and Communications in Medicine

DMHAS: Department of Mental Health & Addiction Services

DPH: Department of Public Health

DSS: Department of Social Services

DURSA: Data Use and Reciprocal Support Agreement

ebXML: electronic business Extensible Markup Language

EHR: Electronic Health Record is an electronic record of health related information regarding an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization.

ELR: Electronic Lab Reporting

EMR: Electronic Medical Record is an electronic record of health related information regarding an individual that conforms to nationally recognized interoperability standards and that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health care organization.

Electronic Prescribing (ePrescribing): A type of computer technology whereby physicians use handheld or personal computer devices to review drug and formulary coverage and to transmit prescriptions to a printer or to a local pharmacy. E-Prescribing software can be integrated into existing clinical information systems to allow physician access to patient specific information to screen for drug interactions and allergies.

FTE: Full-Time Equivalents

FQHC: Federally Qualified Health Center

GAAP: Generally Accepted Accounting Principles

GBPCAG: Bridgeport Primary Care Action Group

GUID: Global Unique Identifiers

HEDSS: Hospital Emergency Department Syndromic Surveillance

Health Information Exchange (HIE): As defined by the Office of the National Coordinator and the National Alliance for Health Information Technology (NAHIT), Health Information Exchange means the electronic movement of health related information among organizations according to nationally recognized standards.

Health Information for Economic and Clinical Health (HITECH) Act: Collectively, health information technology provisions included at Title XIII of Division A and Title IV of Division B of the ARRA.

Health Information Organization: An organization that oversees and governs the exchange of health related information among organizations according to nationally recognized standards

Health Information Technology (HIT): As defined in the ARRA, Health Information Technology means hardware, software, integrated technologies or related licenses, intellectual property, upgrades, or packaged solutions sold as services that are designed for or support the use by health care entities or patients for the electronic creation, maintenance, access, or exchange of health information.

Health Information Technology Regional Extension Center (REC): As set out in the ARRA, Regional Health Information Technology Extension Centers will be established and may qualify for funding under ARRA to provide technical assistance and disseminate best practices and other information learned from the Health Information Technology Research Center to aid health care providers with the adoption of health information technology.

Health Insurance Portability and Accountability Act (HIPAA): An Act enacted by Congress in 1996. Title I of HIPAA protects health insurance coverage for workers and their families when they change or lose their jobs. Title II of HIPAA, known as the Administrative Simplification (AS) provisions, requires the establishment of national standards for electronic health care transactions and national identifiers for providers, health insurance plans, and employers. The Administration Simplification provisions also address the security and privacy of health data. The standards are meant to improve the efficiency and effectiveness of the nation's health care system by encouraging the widespread use of electronic data interchange in the U.S. health care system.

HII: Health Information Infrastructure

HIS: Hospital Information Systems

HIT: Health Information Technology

HITE: Health Information Technology and Exchange

HITEAC: Health Information Technology and Exchange Advisory Committee

HITE-CT: Health Information Technology Exchange of Connecticut

HL7: Health Level 7

HUSKY: Health care for Uninsured Kids and Youth

IHS: Indian Health Service

Interface: A means of interaction between two devices or systems that handle data

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

ITIL: Information Technology Infrastructure Library

LIMS: Lab Information Management Systems

LIS: Laboratory Information System

LRS: Longitudinal Record Service

MPI: Master Patient Index; or Master Provider Index

Meaningful Use: The American Recovery and Reinvestment Act of 2009 (Recovery Act) authorizes the Centers for Medicare & Medicaid Services (CMS) to provide reimbursement incentives for eligible professionals and hospitals who are successful in becoming "meaningful users" of certified electronic health record (EHR) technology. The Medicare EHR incentive program will provide incentive payments to eligible professionals (EPs), eligible hospitals, and critical access hospitals (CAHs) that are meaningful users of certified EHR technology. The Medicaid EHR incentive program will provide incentive payments to eligible professionals and hospitals for efforts to adopt, implement, or upgrade certified EHR technology or for meaningful use in the first year of their participation in the program and for demonstrating meaningful use during each of five subsequent years. The CMS regulations announced on 07-13-2010 specify

the objectives that providers must achieve in payment years 2011 and 2012 to qualify for incentive payments; the ONC regulations specify the technical capabilities that EHR technology must have to be certified and to support providers in achieving the "meaningful use" objectives.

MMIS: Medicaid Management Information System

MOA: Memorandum of Agreement

MOSS: Misys Open Source Solutions

Nationwide Health Information Network (NHIN): A national effort to establish a network to improve the quality and safety of care, reduce errors, increase the speed and accuracy of treatment, improve efficiency, and reduce healthcare costs.

NCPDP: National Council on Prescription Drug Plans

NEJM: New England Journal of Medicine

NESCSO: New England States Consortium Systems Organization

ONC: Office of the National Coordinator for Health Information Technology

OPM: Connecticut Office of Policy and Management

P-APD: Planning-Advance Planning Document

PAC: Picture Archiving and Communications systems for storing and managing clinical images

PHIN: Public Health Information Network

PDQ: Patient Demographics Query

Personal Health Record (PHR)—An electronic record of health related information regarding an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual. PHR: Personal Health Record.

PH: Public Health

PHS: Public Health Systems

PIX: Patient Identifier Cross Referencing

PoS: Point of Service

PRATS: Pregnancy Risk Assessment Tracking System

PRAMS: Pregnancy Risk Assessment Monitoring System

Privacy: In December 2008, the Office of the National Coordinator for Health IT released its "Nationwide Privacy and Security Framework For Electronic Exchange of Individually Identifiable Health Information," ("Framework") in which it defined privacy as, "An individual's interest in protecting his or her individually identifiable health information and the corresponding obligation of those persons and entities that participate in a network for the purposes of electronic exchange of such information, to respect those interests through fair information practices." This language contrasts with the definition of privacy included in the National Committee on Vital and Health Statistics' ("NCVHS") June 2006 report, entitled, "Privacy and Confidentiality in the Nationwide Health Information Network." In its report, NCVHS recommended the following definition for "privacy": "Health information 'privacy' is an individual's right to control the acquisition, uses, or disclosures of his or her identifiable health data."

Provider: A person and organizations employing persons who performs services upon other persons for the purpose of bettering their physical or mental state. Professions encompassed in this include physicians, physician assistants, dentists, nurses, nurse practitioners, pharmacists, dietitians, therapists, psychologists, chiropractors, optometrists, paramedics, and a wide variety of others.

REC: Regional Extension Center

REST: Representational State Transfer

RLS: Record Locator Services

SaaS: Software-as-a-Service

Safe Harbor: An establishment that allows for protection against unwanted changes from outside entities

SDE: State Designated Entity

Security: The Health Insurance Portability and Accountability Act Security rule defines “Security or Security measures” as “encompass[ing] all of the administrative, physical, and technical safeguards in an information system.

SMHP: State Medicaid Health Information Technology Plan

SOA: Service Oriented Architecture

SOAP: Standard Object Access Protocol

Sourced: Refers to the selection and engagement of a vendor for the development, deployment or management of PHIX technical infrastructure. Sourced can refer to a variety of contracting vehicles such as fixed-term contracts or fully outsourced services provided by a vendor in entirety.

SSL: Secure Sockets Layer

SSO: Single sign on

TCO: Total Cost of Ownership

TLS: Transport Layer Security

UCHC: University of Connecticut Health Center

UMRRA: Universal Medical Records Release Authorization

U.S. Department of Health and Human Services (HHS): The federal government department responsible for protecting the health of all Americans and providing essential human services. HHS, through CMS, administers the Medicare (health insurance for elderly and disabled Americans) and Medicaid (health insurance for low income people) programs, among others. The Office of the National Coordinator for Health Information Technology is also organizationally located within the Office of the Secretary of HHS.

U.S. Department of Health and Human Services—Office of the National Coordinator for Health Information Technology (ONC): This office serves as principal advisor to the Secretary of HHS on the development, application, and use of health information technology; coordinates HHS’s health information technology policies and programs internally and with other relevant executive branch agencies; develops, maintains, and directs the implementation of HHS’ Strategic Plan to guide the nationwide implementation of interoperable health information technology in both the public and private health care sectors, to the extent permitted by law; and provides comments and advice at the request of OMB regarding specific Federal health

information technology programs. ONC was established within the Office of the Secretary of HHS in 2004 by Executive Order 13335.

VHR: Virtual Health Record is a health record implemented in some distributed fashion but made to appear centralized to any user.

WIC: Women, Infants and Children

XDS: Cross-Enterprise Document Sharing

X12 (EDI X12): Electronic Data Interchange X12

3C3: Collaboration, Coordination and Cooperation between DPH, DSS and the State REC (eHealthConnecticut)

4.2 Appendix—CT DPH HITE Advisory Committee and HITE-CT Board of Directors Membership

2009-2010 HITEAC Membership and State Agency Representatives

Member	Affiliation
Michael Fedele	Lieutenant Governor Office of the Lieutenant Governor
Thomas Agresta, M.D.	Associate Professor and Director of Medical Informatics Department of Family Medicine University of Connecticut School of Medicine
Lisa M. Boyle	Robinson & Cole, LLP
Daniel P. Carmody	CIGNA Corporation
Kevin Carr, M.D.	Waterbury Hospital Primary Care
Peter Courtway	Chief Information Officer Danbury Hospital
Kenneth Dardick, M.D.	Mansfield Family Practice
Michael Hudson	President, Northeast Region, Health Care Management Aetna
Mark Masselli	President and CEO Community Health Center, Inc.

Representative	Representing
Rick Bailey	Department of Information Technology
John Gadea, Jr.	Department of Consumer Protection
Jamie Mooney	Office of the Healthcare Advocate
J. Robert Galvin, M.D./Meg Hooper	Department of Public Health
Cristine Vogel	DPH/Office of Health Care Access
Barbara Parks Wolf	Office of Policy and Management
Marcia Mains	Department of Social Services

2011 HITE-CT Board of Directors

Appointer	Representing
Connecticut General Statute	Lieutenant Governor
Connecticut General Statute	Commissioner of Public Health -Chairperson
Connecticut General Statute	Commissioner of Social Services
Connecticut General Statute	Commissioner of Consumer Protection
Connecticut General Statute	Chief Information Officer of the Department of Information Technology
Governor	A representative of a medical research organization
Governor	An insurer or representative of a health plan
Governor	An attorney with background and experience in the field of privacy, health data security or patient rights
President pro tempore of the Senate	One with background and experience with a private sector health information exchange or health information technology entity
President pro tempore of the Senate	One with expertise in public health
President pro tempore of the Senate	A physician licensed under chapter 370 of the general statutes who works in a practice of not more than ten physicians and who is not employed by a hospital, health network, health plan, health system, academic institution or university
Speaker of the House of Representatives	A representative of hospitals, an integrated delivery network or a hospital association
Speaker of the House of Representatives	One with expertise with federally qualified health centers
Speaker of the House of Representatives	A consumer or consumer advocate
Majority leader of the Senate	A primary care physician whose practice utilizes electronic health records
Majority leader of the House of Representatives	A consumer or consumer advocate
Minority leader of the Senate	A pharmacist or a health care provider utilizing electronic health information exchange
Minority leader of the House of Representatives	A large employer or a representative of a business group
Secretary of the Office of Policy and Management (ex-officio, nonvoting)	His or her self
Office of the Healthcare Advocate (ex-officio, nonvoting)	His or her self

4.3 Appendix—State HIT Assets

Databases

The Department of Public Health maintains a large and diverse set of data systems (55 databases have been identified[31]) covering a wide range of Connecticut health information including the following areas:

- Vital records on Connecticut residents, including the State-wide registry of births, deaths, marriages, paternity and adoptions. A new Electronic Death Registry System using Netsmart will provide coordination with reporting hospitals, nursing homes, physicians, and municipal registrars of vital statistics to implement the immediate reporting of deaths in Connecticut
- Disease-related screening and surveillance is moving to Maven (a Commercial Off-The-Shelf [COTS] package) to support disease surveillance which is implemented for vaccine-preventable diseases, occupational health, environmental public health metadata, hospital emergency department-based syndromic surveillance system (HEDSS), influenza, Lyme disease, vulnerable populations and HASS (infectious disease admissions—excluding ED).
- The system is now planning to include childhood/adult lead poisoning, the immunization registry, Varicella and TB messaging. Newborn screening for genetic abnormalities and hearing impairments is also moving to Maven. Outbreak management capacity is planned for implementation in late 2010.
- Maven receives data via HL7 messages using the PHIN messaging infrastructure, including Orion Rhapsody integration engine and the CDC NEDSS brokering tool. DPH collects this data and transmits the de-identified data monthly to the CDC database through a CDC-supplied system for Electronic HIV/Aids Registry.
- DPH also maintains an EMS/Trauma Registry System for EMS providers to upload data all 911 calls. This system also for the uploading of trauma data. A State tumor registry contains data on reportable tumors in CT residents and contains over 500,000 records dating back to 1973. Data from this Registry are reported annually to the National Cancer Institute
- Analysis and reporting on a variety of health topics including population statistics, annual vital statistics, hospital discharge patterns, hospital quality of care indicators, health disparities, and morbidity & mortality indicator trends

Licensing of Facilities and Providers

The State recently migrated to a cross-agency licensing platform that will soon encompass all State public health practitioners and facilities. It was developed by the Department of Public Health in coordination with the Connecticut Department of Consumer Protection (DCP)

Other Systems and Uses

- Connecticut uses systems to administer programs such as the Women, Infants and Children programs
- Laboratory Information Management System—A ChemWare product currently being implemented that will provide real-time laboratory results to the private sector, State and Federal officials. This will use the PHIN messaging infrastructure
- The DPH Office of Health Care Access (OHCA) maintains databases containing information on the delivery of medical care and financial information from Connecticut's

hospitals including patient level data obtained from discharge records collected from all of Connecticut's acute care hospitals. OHCA receives these data semi-annually from the Connecticut Hospital Association/CHIME with names removed

A more comprehensive list of DPH Health data systems can be found in "*Connecticut Health Database Compendium: A Profile of Selected Databases Maintained by The Connecticut Department of Public Health, Third Edition*."

Connecticut Medical Assistance Program

The Department of Social Services has developed a portal with self-service features to support a number of Connecticut Medical Assistance Programs, including Medicaid, the State-Administered General Assistance (SAGA) program, the Connecticut DSS Pharmaceutical Assistance Contract to the Elderly and Disabled (ConnPACE) and the Connecticut AIDS Drug Assistance Program (CADAP).

In 2008, DSS implemented Hewlett Packards (HP) federally certified Medicaid Management Information System, interChange, for the services provided under Medicaid Fee-For-Service (FFS) and the Connecticut AIDS Drug Assistance Program, ConnPACE, the Katie Beckett Waiver Program, SAGA, the Connecticut Home Care Program and the Connecticut Behavioral Health Partnership Program.

Hewlett-Packard Enterprise Services provides full fiscal agent services, including claims processing, provider relations and enrollment, ConnPACE participant relations and enrollment, Federal and State financial management reporting and surveillance and utilization review reporting to DSS. Access is provided to the CT interChange MMIS for providers and the public via a Web portal.

The Automated Eligibility Verification System (AEVS) provides a comprehensive source of DSS client eligibility information to all enrolled providers. By using any method of the AEVS to verify client eligibility, the provider can access important information including third party insurance, Medicare coverage, waiver program eligibility, managed care eligibility, and Medicare covered services only information.

The Eligibility Management System manages and provides current Medicaid eligibility information to be used by the MMIS for claims adjudication, or for providing benefit coverage information to health care providers prior to providing treatment. The eligibility information is also used by physicians for Electronic Prescribing (ePrescribing).

DSS' Medicaid ePrescribing system (provided by HP) was implemented in Fall 2009 and is a certified payer in the Surescripts network. Surescripts electronically routes up-to-date patient eligibility, medication history, and formulary information between the MMIS and the requesting Medicaid enrolled provider. The Medicaid provider can then make informed decisions relative to prescribing the appropriate medication for the patient. The provider can then submit an electronic prescription via Surescripts to the patients' pharmacy for dispensing.

4.4 Appendix—Danbury Hospital's HealthLink

Danbury is a distinct geographic part of western Connecticut, somewhat separate from the rest of the state. This geographic segregation inherently ties local practitioners to the city's one hospital, Danbury Hospital. . Iin cooperation with many of the area practices, laboratories and pharmacies, Danbury Hospital has developed a working HIE. The system now incorporates over 250 providers, 500 support staff and 500,000 patient records equating to approximately one-third of the medical community in the area.

The program is a suite of products that strive to improve quality, reduce health care costs and facilitate business growth. It serves three purposes: A HIE through a patient-centric technology platform; a repository for critical patient information, including medications, allergies, diagnoses, test results, and others; and a physician toolkit to easily allow ordering and tracking of tests, e-Prescribing, access to clinical documentation and communications between providers involved in a patient's treatment.

The technology of the HIE is robust and flexible, with the following benefits:

- The platform is built on standards-based technologies
- It has achieved interoperability with existing and emerging data standards
- It can support both centralized and federated models
- The solution is light-weight—a provider needs only access to the Internet to access
- Will connect to the State HIN and NHIN when available
- Provides access to DICOM images
- Provides patient privacy and individual choice
- HIPAA-compliant.

The HIE incorporates several services, including:

- HealthLink Print/Fax—Print/fax capabilities for providers who do not have electronic capabilities
- HealthLink VHR—A Virtual Health Record (VHR); a migration from their legacy system which has 80-90% adoption
- HealthLink eRx—ePrescribing, with a goal for 80% adoption by the end of 2010 and 100% by the end of 2011
- HealthLink EMR—An Electronic Medical Record including an "EHR lite" offering
- HealthLink EMR Connector —A last mile two-way task interface
- HealthLink Image Exchange—An imaging and reports repository exchange, which is expected to launch later in 2010

The success in adoption has been partially due to negotiated contracts with multiple vendors for EHR connector interfaces at a significantly reduced price. These negotiated prices have allowed practices to integrate with the HIE for considerably less than custom designed interfaces and has barred any one vendor from blocking other vendors from service.

The Program has identified the following benefits for the community:

- Enhance patient safety through e-Rx
  - ❑ Drug interaction and allergy checking

- Legible prescriptions
- Spans all settings, Inpatient, Emergency Department, Clinics, Practices
- Improve office workflow efficiency
- Less paper to handle, drives tasking within the practice

- Reduce costs
  - Eliminate paper charts and associated overhead expenses for providers
  - Reduces duplicative testing for patients
  - Reduces costs for Medicare, Medicaid, insurers, consumers
  - Easily collaborate with other health care stakeholders in the community
  - Immediately route clinic documents to treating providers
  - Speeds delivery of care and care decision making

The consent model meets the needs of all the stakeholders that are involved in the process. All information is tracked or stored at the central repository, allowing access at any time by any authorized provider or entity, but also allows patients to opt-out of the project if they so choose.

4.5 Appendix—The Medicaid Transformation Project: A Health Information Exchange pilot through the Department of Social Services

Initially funded by a Medicaid Transformation Grant ($1.35M), the program aims to link Federally Qualified Health Centers (FQHCs), acute care hospitals, and private physicians within the State, and eventually between the HIE and the Nationwide Health Information Network (NHIN) for continuity of care. This project is being run by eHealthConnecticut.

Several key assets have been developed already to support this effort, including:

- A technology platform developed cooperatively by Hartford Hospital and Misys Open Source Solutions, hosted at the Connecticut Hospital Association
- Privacy policies and a Universal Medical Records Release Authorization (UMRRA) for the use of providers, developed by eHealthConnecticut through its legal, health care, State and consumer advocates constituents
- A Data Use and Reciprocal Support Agreement (DURSA) and Business Associate Agreement (BAA) for all participant entities in the HIE
- Online and written education collateral for providers and consumers for the purpose, processes, benefits and risks of participating in the HIE

The pilot is being developed in three general areas: New London, Hartford and Waterbury.

In the New London area, Laurence & Memorial Hospital is working with Community Health Centers, Inc. (CHC) to connect their respective EHRs. This is expected to assist the transition of care between the local clinics and the hospital.

In Hartford, Hartford Hospital and St. Francis Hospital and Medical are coordinating EHRs using a Misys open source software to develop a coordinated HIE. Both hospitals will benefit due to the overlap of patients between them .

In Waterbury, transition of care for pregnant women from the Staywell Community Health Center to Naugatuck Valley OBGYN is planned via the pilot.

Other entities have expressed interest, such as Oak Hill Residential Services, who have group homes and assisted living facilities. Because the facilities do not staff physicians, they transport residents to local hospitals for care. A migration from paper-based records could significantly benefit both the facilities and the hospital.

4.6 Appendix—Connecticut Public Act No. 10-117

The following excerpt includes the sections from Connecticut Public Act No. 10-117 regarding the creation of the Health Information Exchange of Connecticut:

> Sec. 82. (NEW) (Effective from passage) (a) There is hereby created as a body politic and corporate, constituting a public instrumentality and political subdivision of the state created for the performance of an essential public and governmental function, the Health Information Technology Exchange of Connecticut, which is empowered to carry out the purposes of the authority, as defined in subsection (b) of this section, which are hereby determined to be public purposes for which public funds may be expended. The Health Information Technology Exchange of Connecticut shall not be construed to be a department, institution or agency of the state.
>
> (b) For purposes of this section, sections 83 to 85, inclusive, of this act and section 19a-25g of the general statutes, as amended by this act, "authority" means the Health Information Technology Exchange of Connecticut and "purposes of the authority" means the purposes of the authority expressed in and pursuant to this section, including the promoting, planning and designing, developing, assisting, acquiring, constructing, maintaining and equipping, reconstructing and improving of health care information technology. The powers enumerated in this section shall be interpreted broadly to effectuate the purposes of the authority and shall not be construed as a limitation of powers. The authority shall have the power to:
>
> (1) Establish an office in the state;
>
> (2) Employ such assistants, agents and other employees as may be necessary or desirable, which employees shall be exempt from the classified service and shall not be employees, as defined in subsection (b) of section 5-270 of the general statutes;
>
> (3) Establish all necessary or appropriate personnel practices and policies, including those relating to hiring, promotion, compensation, retirement and collective bargaining, which need not be in accordance with chapter 68 of the general statutes, and the authority shall not be an employer, as defined in subsection (a) of section 5-270 of the general statutes;
>
> (4) Engage consultants, attorneys and other experts as may be necessary or desirable to carry out the purposes of the authority;
>
> (5) Acquire, lease, purchase, own, manage, hold and dispose of personal property, and lease, convey or deal in or enter into agreements with respect to such property on any terms necessary or incidental to the carrying out of these purposes;
>
> (6) Procure insurance against loss in connection with its property and other assets in such amounts and from such insurers as it deems desirable;
>
> (7) Make and enter into any contract or agreement necessary or incidental to the performance of its duties and execution of its powers. The contracts entered into by the authority shall not be subject to the approval of any other state department, office or agency. However, copies of all contracts of the authority shall be maintained by the authority as public records, subject to the proprietary rights of any party to the contract;
>
> (8) To the extent permitted under its contract with other persons, consent to any termination, modification, forgiveness or other change of any term of any contractual right, payment, royalty, contract or agreement of any kind to which the authority is a party;

(9) Receive and accept, from any source, aid or contributions, including money, property, labor and other things of value;

(10) Invest any funds not needed for immediate use or disbursement in obligations issued or guaranteed by the United States of America or the state and in obligations that are legal investments for savings banks in this state;

(11) Account for and audit funds of the authority and funds of any recipients of funds from the authority;

(12) Sue and be sued, plead and be impleaded, adopt a seal and alter the same at pleasure;

(13) Adopt regular procedures for exercising the power of the authority not in conflict with other provisions of the general statutes; and

(14) Do all acts and things necessary and convenient to carry out the purposes of the authority.

(c) (1) The Health Information Technology Exchange of Connecticut shall be managed by a Board of directors. The Board shall consist of the following members: The Lieutenant Governor, or his or her designee; the Commissioners of Public Health, Social Services and Consumer Protection, or their designees; the Chief Information Officer of the Department of Information Technology, or his or her designee; three appointed by the Governor, one of whom shall be a representative of a medical research organization, one of whom shall be an insurer or representative of a health plan and one of whom shall be an attorney with background and experience in the field of privacy, health data security or patient rights; three appointed by the president pro tempore of the Senate, one of whom shall have background and experience with a private sector health information exchange or health information technology entity, one of whom shall have expertise in public health and one of whom shall be a physician licensed under chapter 370 of the general statutes who works in a practice of not more than ten physicians and who is not employed by a hospital, health network, health plan, health system, academic institution or university; three appointed by the speaker of the House of Representatives, one of whom shall be a representative of hospitals, an integrated delivery network or a hospital association, one of whom who shall have expertise with federally qualified health centers and one of whom shall be a consumer or consumer advocate; one appointed by the majority leader of the Senate, who shall be a primary care physician whose practice utilizes electronic health records; one appointed by the majority leader of the House of Representatives, who shall be a consumer or consumer advocate; one appointed by the minority leader of the Senate, who shall be a pharmacist or a health care provider utilizing electronic health information exchange; and one appointed by the minority leader of the House of Representatives, who shall be a large employer or a representative of a business group. The Secretary of the Office of Policy and Management and the Healthcare Advocate, or their designees, shall be ex-officio, nonvoting members of the Board. The Commissioner of Public Health, or his or her designee, shall serve as the chairperson of the Board.

(2) All initial appointments to the Board shall be made on or before October 1, 2010. The initial term for the Board members appointed by the Governor shall be for four years. The initial term for Board members appointed by the speaker of the House of Representatives and the majority leader of the House of Representatives shall be for three years. The initial term for Board members appointed by the minority leader of the House of Representatives and the minority leader of the Senate shall be for two years.

The initial term for the Board members appointed by the president pro tempore of the Senate and the majority leader of the Senate shall be for one year. Terms shall expire on September thirtieth of each year in accordance with the provisions of this subsection. Any vacancy shall be filled by the appointing authority for the balance of the unexpired term. Other than an initial term, a Board member shall serve for a term of four years. No Board member, including initial Board members, may serve for more than two terms. Any member of the Board may be removed by the appropriate appointing authority for misfeasance, malfeasance or willful neglect of duty.

(3) The chairperson shall schedule the first meeting of the Board, which shall be held not later than November 1, 2010.

(4) Any member appointed to the Board who fails to attend three consecutive meetings or who fails to attend fifty per cent of all meetings held during any calendar year shall be deemed to have resigned from the Board.

(5) Notwithstanding any provision of the general statutes, it shall not constitute a conflict of interest for a trustee, director, partner, officer, stockholder, proprietor, counsel or employee of any person, firm or corporation to serve as a Board member, provided such trustee, director, partner, officer, stockholder, proprietor, counsel or employee shall abstain from deliberation, action or vote by the Board in specific respect to such person, firm or corporation. All members shall be deemed public officials and shall adhere to the code of ethics for public officials set forth in chapter 10 of the general statutes.

(6) Board members shall receive no compensation for their services, but shall receive actual and necessary expenses incurred in the performance of their official duties.

(d) The Board shall select and appoint a chief executive officer who shall be responsible for administering the authority’s programs and activities in accordance with policies and objectives established by the Board. The chief executive officer shall serve at the pleasure of the Board and shall receive such compensation as shall be determined by the Board. The chief executive officer (1) may employ such other employees as shall be designated by the Board of directors; and (2) shall attend all meetings of the Board, keep a record of all proceedings and maintain and be custodian of all books, documents and papers filed with the authority and of the minute book of the authority.

(e) The Board shall direct the authority regarding: (1) Implementation and periodic revisions of the health information technology plan submitted in accordance with the provisions of section 74 of public act 09-232, including the implementation of an integrated state-wide electronic health information infrastructure for the sharing of electronic health information among health care facilities, health care professionals, public and private payers, state and federal agencies and patients; (2) appropriate protocols for health information exchange; and (3) electronic data standards to facilitate the development of a state-wide integrated electronic health information system, as defined in subsection (a) of section 19a-25d of the general statutes, for use by health care providers and institutions that receive state funding. Such electronic data standards shall: (A) Include provisions relating to security, privacy, data content, structures and format, vocabulary and transmission protocols; (B) limit the use and dissemination of an individual’s Social Security number and require the encryption of any Social Security number provided by an individual; (C) require privacy standards no less stringent than the "Standards for Privacy of Individually Identifiable Health Information" established under the Health Insurance Portability and Accountability Act of 1996, P. L. 104-191, as amended from time to time, and contained in 45 CFR 160, 164; (D) require that individually identifiable health information be secure and that access to such information

be traceable by an electronic audit trail; (E) be compatible with any national data standards in order to allow for interstate interoperability, as defined in subsection (a) of section 19a-25d of the general statutes; (F) permit the collection of health information in a standard electronic format, as defined in subsection (a) of section 19a-25d of the general statutes; and (G) be compatible with the requirements for an electronic health information system, as defined in subsection (a) of section 19a-25d of the general statutes.

(f) Applications for grants from the authority shall be made on a form prescribed by the Board. The Board shall review applications and decide whether to award a grant. The Board may consider, as a condition for awarding a grant, the potential grantee's financial participation and any other factors it deems relevant.

(g) The Board may consult with such parties, public or private, as it deems desirable in exercising its duties under this section.

(h) Not later than February 1, 2011, and annually thereafter until February 1, 2016, the chief executive officer of the authority shall report, in accordance with section 11-4a of the general statutes, to the Governor and the General Assembly on (1) any private or federal funds received during the preceding year and, if applicable, how such funds were expended, (2) the amount and recipients of grants awarded, and (3) the current status of health information exchange and health information technology in the state.

Sec. 83. (NEW) (Effective from passage) (a) The Health Information Technology Exchange of Connecticut may establish or designate one or more subsidiaries for the purpose of creating, developing, coordinating and operating a state-wide health information exchange, or for such other purposes as prescribed by resolution of the authority's Board of directors, which purposes shall be consistent with the purposes of the authority. Each subsidiary shall be deemed a quasi-public agency for purposes of chapter 12 of the general statutes. The authority may transfer to any such subsidiary any moneys and real or personal property. Each such subsidiary shall have all the privileges, immunities, tax exemptions and other exemptions of the authority. A resolution of the authority shall prescribe the purposes for which each subsidiary is formed.

(b) Each such subsidiary may sue and shall be subject to suit, provided the liability of each such subsidiary shall be limited solely to the assets, revenues and resources of such subsidiary and without recourse to the general funds, revenues, resources or any other assets of the authority or any other subsidiary. Each such subsidiary shall have the power to do all acts and things necessary or convenient to carry out the purposes for which such subsidiary is established, including, but not limited to: (1) Solicit, receive and accept aid, grants or contributions from any source of money, property or labor or other things of value, subject to the conditions upon which such grants and contributions may be made, including, but not limited to, gifts, grants or loans from any department, agency or quasi-public agency of the United States or the state, or from any organization recognized as a nonprofit organization under Section 501(c)(3) of the Internal Revenue Code of 1986, or any subsequent corresponding internal revenue code of the United States, as amended from time to time; (2) enter into agreements with persons upon such terms and conditions as are consistent with the purposes of such subsidiary; and (3) acquire, take title, lease, purchase, own, manage, hold and dispose of real and personal property and lease, convey or deal in or enter into agreements with respect to such property.

(c) Each such subsidiary shall act through its Board of directors, not less than fifty per cent of whom shall be members of the Board of directors of the authority or their designees.

(d) The provisions of section 1-125 of the general statutes, as amended by this act, and this section shall apply to any officer, director, designee or employee appointed as a member, director or officer of any such subsidiary. Neither any such persons so appointed nor the directors, officers or employees of the authority shall be personally liable for the debts, obligations or liabilities of any such subsidiary as provided in said section 1-125. Each subsidiary shall, and the authority may, provide for the indemnification to protect, save harmless and indemnify such officer, director, designee or employee as provided by said section 1-125.

(e) The authority or any such subsidiary may take such actions as are necessary to comply with the provisions of the Internal Revenue Code of 1986, or any subsequent corresponding internal revenue code of the United States, as amended from time to time, to qualify and maintain any such subsidiary as a corporation exempt from taxation under said Internal Revenue Code.

(f) The authority may make loans or grants to, and may guarantee specified obligations of, any such subsidiary, following standard authority procedures, from the authority's assets and the proceeds of its bonds, notes and other obligations, provided the source and security, if any, for the repayment of any such loans or guarantees is derived from the assets, revenues and resources of such subsidiary.

Sec. 84.The state of Connecticut does hereby pledge to and agree with any person with whom the Health Information Technology Exchange of Connecticut may enter into contracts pursuant to the provisions of sections 82 to 85, inclusive, of this act that the state will not limit or alter the rights hereby vested in the authority until such contracts and the obligations thereunder are fully met and performed on the part of the authority, provided nothing contained in this section shall preclude such limitation or alteration if adequate provision shall be made by law for the protection of such persons entering into contracts with the authority.

Sec. 85. The Health Information Technology Exchange of Connecticut shall be and is hereby declared exempt from all franchise, corporate business, property and income taxes levied by the state or any municipality, provided nothing in this section shall be construed to exempt from any such taxes, or from any taxes levied in connection with the manufacture or sale of any products which are the subject of any agreement made by the authority, any person entering into any agreement with the authority.

Sec. 86. Section 19a-25g of the 2010 supplement to the general statutes is repealed and the following is substituted in lieu thereof (Effective from passage):

(a) The Department of Public Health shall be the lead health information exchange organization for the state from July 1, 2009, to December 31, 2010, inclusive. The department shall seek private and federal funds, including funds made available pursuant to the federal American Recovery and Reinvestment Act of 2009, for the initial development of a state-wide health information exchange.

(b) On and after January 1, 2011, the Health Information Technology Exchange of Connecticut, created pursuant to section 82 of this act, shall be the lead health information organization for the state. The authority shall continue to seek private and federal funds for the development and operation of a state-wide health information exchange. The Department of Public Health may contract with the authority to transfer

unexpended federal funds received by the department pursuant to the federal American Recovery and Reinvestment Act of 2009, P.L. 111-05, if any, for the initial development of a state-wide health information exchange. The authority shall, within available resources, provide grants for the advancement of health information technology and exchange in this state, pursuant to subsection (f) of section 82 of this act.

[(b)] (c) The department shall facilitate the implementation and periodic revisions of the health information technology plan after the plan is initially submitted in accordance with the provisions of section 74 of public act 09-232, including the implementation of an integrated state-wide electronic health information infrastructure for the sharing of electronic health information among health care facilities, health care professionals, public and private payers, state and federal agencies and patients until December 31, 2010. On and after January 1, 2011, the Health Information Technology Exchange of Connecticut shall be responsible for the implementation and periodic revisions of the health information technology plan.

Sec. 87. Subsection (l) of section 1-79 of the general statutes is repealed and the following is substituted in lieu thereof (Effective from passage):

(l) "Quasi-public agency" means the Connecticut Development Authority, Connecticut Innovations, Incorporated, Connecticut Health and Education Facilities Authority, Connecticut Higher Education Supplemental Loan Authority, Connecticut Housing Finance Authority, Connecticut Housing Authority, Connecticut Resources Recovery Authority, Lower Fairfield County Convention Center Authority, Capitol City Economic Development Authority, Connecticut Lottery Corporation and Health Information Technology Exchange of Connecticut.

Sec. 88. Subdivision (1) of section 1-120 of the general statutes is repealed and the following is substituted in lieu thereof (Effective from passage):

(1) "Quasi-public agency" means the Connecticut Development Authority, Connecticut Innovations, Incorporated, Connecticut Health and Educational Facilities Authority, Connecticut Higher Education Supplemental Loan Authority, Connecticut Housing Finance Authority, Connecticut Housing Authority, Connecticut Resources Recovery Authority, Capitol City Economic Development Authority, Connecticut Lottery Corporation and Health Information Technology Exchange of Connecticut.

4.7 Appendix—Excerpt from the MEMORANDA OF AGREEMENT Between The Department of Public Health And University of Connecticut Health Center

STATE OF CONNECTICUT
MEMORANDA OF AGREEMENT
Between

The Department of Public Health

And

University of Connecticut Health Center

DPH Log #2011-0130

1. Purpose and Parties

a. This Memorandum of Agreement (hereinafter "Agreement") is for the purpose of conducting comprehensive evaluation for the Health Information Technology and Exchange (HITE) Cooperative Agreement to:

i) Assess the process of developing the Connecticut HITE Agency, and its Board of Directors.

ii) Demonstrate the economic and quality outcomes of health information exchange investments and the effects of these investments on providers and consumers.

iii) Determine what is currently working and what needs to be improved.

iv) Disseminate these lessons learned broadly within the state and establish processes for continuous improvements.

v) Monitor and track meaningful use Health Information Exchange capabilities in the state.

b. The parties to this Agreement are the State of Connecticut Department of Public Health (hereinafter "DPH") and the University of Connecticut Health Center (hereinafter "UCHC").

c. Background**:** The Health Information Technology and Exchange Cooperative Agreement was created through a Cooperative Agreement from the United States Department of Health and Human Services Agency Office of the National Coordinator. The purpose of the Cooperative Agreement is for planning and building a coordinated, sustainable statewide Health Information Exchange (HIE) system for Connecticut.

2. Definitions

For the Purpose of this Agreement, the following definitions shall apply:

a. **American Recovery and Reinvestment Act (ARRA):** This statute includes the Health Information Technology for Economic and Clinical Health Act (HITECH) of 2009 that sets forth a plan for advancing the appropriate use of health

information technology to improve quality of care and establish a foundation for health care reform. Also, referred to as the Stimulus or the Recovery Act.

b. **Department of Social Services (DSS):** DSS is authorized by the Centers for Medicare and Medicaid Services, through ARRA, to administer incentives to eligible professionals and hospitals for meaningful use of electronic health records. DSS is a partner of DPH for the Health Information Technology and Exchange Cooperative Agreement Health.

c. **eHealthConnecticut:** eHealthConnecticut is the designated Regional Extension Center, through ARRA, to provide technical assistance and education in the selection, acquisition, implementation, and meaningful use of an electronic health record to improve health care quality and outcomes. eHealthConnecticut is a partner of DPH for the Health Information Technology and Exchange Cooperative Agreement Health.

d. **Funding Opportunity Announcement:** A publicly available document by which a Federal Agency makes known its intentions to award discretionary grants or cooperative agreements, usually as a result of competition for funds. Funding opportunity announcements may be known as program announcements, requests for applications, notices of funding availability, solicitations, or other names depending on the Agency and type of program.

e. **Health Information Exchange (HIE):** The mobilization of healthcare information electronically across organizations within a region, community or hospital system.

f. **Health Information Technology and Exchange Advisory Committee (HITE-AC):** Advises the DPH on the development and implementation of the HITE Cooperative Agreement.

g. **Connecticut Health Information Technology and Exchange Agency (HITE-CT or Agency):** From January 2011, the Agency and its Board of Directors will fulfill the development and implementation of the health information exchange in Connecticut. The Agency will replace the Health Information Technology and Exchange Advisory Committee.

h. **Health Information Technology and Exchange Cooperative Agreement:** The DPH has entered into an agreement with the Office of the National Coordinator to develop strategic and operational plans for the implementation of a statewide HIE.

i. **National Program Evaluation:** ONC will conduct a national program evaluation and offer technical assistance for state-level evaluations in an effort to implement lessons learned to ensure appropriate and secure HIE resulting in improvement in quality and efficiency.

j. **Office of the National Coordinator (ONC):** Statutorily created by the HITECH Act and is located with the U.S. Department of Health and Human Services. ONC serves as the principal federal entity charged with coordinating the overall effort to implement a nationwide health information technology infrastructure that allows for the electronic use and exchange of health information.

3. Term Of Agreement

This Agreement shall begin on **July 1, 2010** and shall terminate on **March 14, 2014**, unless extended by Amendment.

4. Cancellation

Either Party may cancel this Agreement, without cause, by providing written notice of such intention to the other party with thirty (30) days advance notice.

5. Statutory Authority

The statutory authority for the agencies to enter into this Agreement is as follows:

a. for the DPH, Connecticut General Statutes §§ 4-8 and 19a-2a;

b. for the UCHC, Connecticut General Statutes § 10a-104.

6. Funding Availability

DPH assumes no liability for payment under the terms of this Agreement until and unless any federal/state funds for this Agreement are authorized and available.

7. Budget Compliance

a. The University of Connecticut Health Center shall submit a budget of estimated costs to include staff to be assigned and their credentials, approximate hours needed and hourly costs, as applicable to the provisions of Section 9: Responsibilities of University of Connecticut Health Center below.

b. Expenditures under this Agreement must be in accordance with the budget approved in writing by DPH.

c. Any increase in a budget line item in excess of 10% of the maximum amount allowed under the approved budget shall require prior written approval by DPH.

8. Responsibilities of DPH

a. Monitor the progress of the activities conducted by UCHC under this Agreement.

b. Assist UCHC's Principal Investigator in providing quantitative data.

c. Receive and review required expenditure reports pursuant to Section 7 of this Agreement.

9. Responsibilities of University of Connecticut Health Center

The UCHC agrees to:

a. Conduct stakeholder interviews, as required.

b. Develop, conduct, and analyze multiple surveys to measure metrics as described by the Strategic and Operational Plans, federal guidelines, and subsequent ONC documents.

c. Coordinate with the ONC's National Program Evaluation as stated in the Funding Opportunity Announcement and leverage technical assistance from ONC for Connecticut's evaluation in an effort to implement lessons learned to ensure appropriate milestone achievements.

d. Review and measure the collaboration, coordination and communication among DPH, DSS, and eHealthConnecticut, as well as the Health Information Technology Advisory Committee, subsequent Advisory Board of the CT HITE Agency, and other key stakeholders, with respect to CT-HITE Cooperative Agreement.

i) Develop protocols and tools for collecting evaluation information and define details of the evaluation process.

ii) Measure the effectiveness of the HITE Advisory Board's investment and leadership for the HITE-CT Agency's success.

iii) Evaluate how the HITE-CT Agency is developed as a quasi-public agency.

iv) Create a measure for assessing the "value proposition" to garner support from legislators, consumers, providers, and others.

v) Assess the synergy created by the three ARRA funded projects and efforts related to health information technology in Connecticut.

e. Continuous evaluation and reassessment of the State's Strategic and Operational Plan.

f. Analyze issues and challenges.

g. Assess the effectiveness of the DPH and the HITE-CT Agency in furthering information exchange capability within the state.

h. Meet reporting and performance requirements specified in the State HIE Cooperative Agreement, Federal Program Information Announcements and subsequent ONC documents. Additional requirements shall be identified during the development of the Strategic and Operational Plans.

i. Report on quality improvement through tracking key performance measures.

j. UCHC will provide the following deliverables:

i) Annual report on the establishment of HITE-CT Agency and/or its progress.

ii) Quarterly formative evaluation reports.

iii) Annual evaluation report.

iv) Attendance at the CT-HITE Advisory Committee meetings, HITE-CT Agency meetings, meetings between DPH, DSS and eHealthConnecticut as related to this initiative as well as additional meetings as deemed appropriate.

10. Reporting Requirements

a. UCHC shall submit to DPH **written deliverables, progress and financial reports** according to the following schedule each year for this Agreement:

REPORTING PERIOD	REPORTS DUE BY
January 1st through March 31st	April 15th
April 1st through June 30th	July 15th
July 1st through September 30th	October 15th
October 1st through December 31st	January 15th

b. UCHC shall submit to the DPH a **written final financial Expenditure Report** detailing all program costs, no later than 30 days after completion of all scheduled work under this Agreement or after expiration of this Agreement, whichever is earlier.

11. Subcontractors

a. Written approval must be obtained from DPH, prior to entering into subcontracts. Any subcontracts made pursuant to this contract, must require the subcontractor to comply with all provisions of this original contract, as may be subsequently amended.

i) Each such subcontractor's identity, services to be rendered and costs shall be detailed in the **Budget Detail** of this Agreement. No subcontractor may be used or expense under this Agreement incurred prior to identification of the subcontractor or inclusion of a detailed budget statement as to subcontractor expense, unless expressly provided in this Agreement.

ii) No subcontractor shall acquire any direct right of payment from the DPH by virtue of the provisions of this Section or any other Section of this Agreement. The use of subcontractors, as defined in this Section, shall not relieve the UCHC of any responsibility or liability under this Agreement.

iii) The UCHC shall make available copies of all subcontracts to the DPH upon request. All subcontracts issued using funds from this Agreement shall include provisions requiring such subcontractors to comply fully with all applicable terms and conditions of this original Agreement.

iv) The UCHC shall be responsible for monitoring the fiscal and programmatic activities of any subcontractor. Reports of subcontractor activities and expenditures must be submitted in the format and at the times required by the DPH.

12. Unspent Funds

Any funds unspent upon termination of this Agreement will be returned to the DPH within 90 days after the date of termination.

13. Revisions and Amendments

a. A formal amendment, in writing, shall not be effective until executed by both parties to this Agreement and, where applicable, the Attorney General.

b. Such amendments shall be required for extensions to the final date of the Agreement period and changes to Terms and Conditions of this Agreement, including but not limited to revisions to the maximum Agreement payment, to the unit cost of service, to the Agreement's objectives, services, or plan, to due dates for reports, to completion of objectives or services, and to any other Agreement revisions determined material by the DPH.

c. No amendments may be made to a lapsed Agreement.

14. Delinquent Reports

a. UCHC shall submit reports as required by the DPH and by the designated due dates identified in this agreement.

b. After notice to the UCHC and an opportunity for a meeting with a DPH representative, DPH reserves the right to withhold payments for services performed under this Agreement, if the DPH has not received acceptable progress reports, expenditure reports, refunds, and/or audits as required by this Agreement or previous agreements for similar or equivalent services UCHC has entered into with the DPH.

4.8 Appendix—Draft HIE Communications Plan

1. Current Situation/Background

The Connecticut Department of Public Health (DPH) currently oversees the development of the state's health information exchange system. As of January 1, 2011, that role moves to a quasi-public agency called the Health Information Technology Exchange of Connecticut (HITE-CT). Established by the Connecticut General Assembly and signed into law by Governor M. Jodi Rell, The HITE-CT is responsible for advancing health information exchange within state borders, and between other states, in a way that is secure, private and useful to all stakeholders.

2. Overall Program/Project Objectives

"The vision for the HITE-CT is to facilitate secure health information exchange across the care continuum that supports patients' health needs at the point of treatment by providing immediate, direct and ongoing links between patients, their complete health records and their attending providers."

3. Purpose

This communications plan is designed to support activities related to the HITE-CT initiative and to the extent possible support other associated health IT and e-health initiatives. This plan leverages resources to coordinate communications efforts with eHealthConnecticut, the Connecticut Department of Social Services, the Office of the National Coordinator, the Centers for Medicare and Medicaid Services, as well as any and all national and Connecticut-specific health reform efforts.

All communications, education and public outreach efforts produced by the HITE-CT must be:

- Accurate, honest and transparent,
- Responsive to the needs of HIE stakeholders,
- Up-to-date at all times
- Coordinated with appropriate HIE partners, such as eHealthConnecticut and CT DSS.

4. Communications Goals

Coordinated, collaborative communication is foundational to the development of a successful HIE in Connecticut. Therefore, the goals of this communications plan are to:

- Build consumer and stakeholder confidence and trust in Connecticut's HIE by informing them about the benefits of electronic health records and health information exchange as well as about protections in place to ensure the privacy and security of their health information.

- Establish an effective statewide network of EMR/HIE communications channels that build on existing relationships and create new relationships between consumers, health care providers, hospitals and other relevant audiences.
- Coordinate and integrate multi-directional communication efforts with consumers and stakeholders from across the health care continuum, particularly eHealthConnecticut, as the Regional Extension Center, and the Connecticut Department of Social Services as the CMS state entity.

5. Communications Objectives

There exists a Communications Workgroup, which is made up of staff from the communications and public affairs offices of DPH (as the SDE; later, the HITE-CT), DSS (representing CMS) and eHealthConnecticut (as the statewide Regional Extension Center).

The communications objectives that support these goals for the HITE-CT are as follows:

- Inform and educate eligible health care providers and hospitals of opportunities to access Medicare and Medicaid incentive program payments for meaningful use of electronic medical records.
- Inform and educate all health care providers about the benefits of EMR/HIE, including providing information on resources and technical assistance available through the Regional Extension Center to achieve meaningful use,
- Implement a public education campaign on HIE that outlines the benefits of HIE, and addresses concerns about privacy and security of health information data.
- Develop a network of HIE stakeholders who will create and implement communications strategies and support priority HIE initiatives within their organizations,
- Promote transparency and offer inclusion into the HIE development and maintenance process,
- Inform consumers and stakeholders of state and national HIE activities.

6. Target Audiences

External target audiences include, but are not limited to, the following stakeholders and partners:

- Business coalitions
- Consumers
- Federally Qualified Health Centers and look-alikes,
- General public
- Health plans
- Hospitals
- Large employers,
- Local health departments

- Patients and caregivers,
- Provider practices and groups
- School-based health centers,
- State government (all branches)

Internal target audiences include, but are not limited to, the following stakeholders and partners:

- HITE-AC, its subcommittees and workgroups
- HITE-CT Board of Directors, its employees, subcommittees and workgroups
- Core DPH HIE team
- Board and membership of the statewide Regional Extension Center, eHealthConnecticut.
- Connecticut Department of Social Services

7. Key Messaging

- Health Information Exchange (HIE):
  - Provides for the electronic movement of health-related information utilizing nationally recognized standards and policies.
  - Provides a key building block for improved patient care, quality and safety.
  - Provides the means to reduce duplication of services, resulting in lower health care costs to call,
  - Enables the integration of sick care with that of well care, resulting in a more proactive and holistic approach treatment at the point of service.
- The HITE-CT has a responsibility to ensure that the electronic exchange of health information improves the health status of our state's residents as part of an efficient and accessible health care system.
- The HITE-CT has an obligation to protect the medical information of all consumers and providers by ensuring the confidential and secure exchange of health information.
- In creating, building and sustaining Connecticut's HIE system, the HITE-CT is committed to a process that is open, inclusive and transparent to all stakeholders.
- The HITE-CT supports the creation of strong practices and protocols surrounding the privacy and security of electronic medical information.
- The HITE-CT encourages current and future initiatives that develop and expand existing local and regional HIE systems.

8. Communications Channels

The HITE-CT is responsible for communication regarding statewide HIE to stakeholders and consumers. As part of the 3C3 Communications subcommittee, it is working (through DPH, later, through the HITE-CT) to develop specific communication strategies to support the Connecticut's priority HIE initiatives and to educate stakeholders with regard to HIE in the state. This group will leverage available resources within respective organizations as well as from outside entities (for example, ONC and CMS) in order to coordinate communications and public outreach efforts.

These coordinated strategies include, but are not limited to, the team development of the following:

- Key HIE messaging
- General audience Frequently Asked Questions (FAQs)
- Topic specific FAQs (for example, privacy & security, meaningful use, CMS incentives, EMRs, etc.)
- Press Releases (proactive & reactive)
- Opinion pieces/op-eds
- Editorial board/news room tours
- Proactive print, online, radio & TV interviews and features
- Common contact e-mail lists

In order to serve all, the HITE-CT will seek active input from the Special Populations subcommittee of its Board in order to make certain that all communications materials are culturally and linguistically appropriate.

When the HITE-CT is established on January 1, 2011, its first and most immediate communications step is to establish at HITE-CT Website, which is the anchor for its overall communications channel matrix.

External Communications Channels

Channel	Description	Priority Audiences	Tools & Information within channel	Launch time frame
Website	Create and maintain a website for information about statewide HIE in Connecticut and information for meaningful use and Medicaid incentive. Site to include links to relevant partner websites particularly ONC, CMS, DSS and eHealthConnecticut.	■ Consumers ■ Health Care Providers ■ Stakeholders (general)	■ Newsletter ■ FAQs ■ Meeting schedule ■ Meeting minutes & transcripts ■ Press releases ■ Laws/regs ■ Presentations/Plans ■ CEO Blog ■ Photo galleries ■ Webinars ■ RSS feeds	Winter 2011

Channel	Description	Priority Audiences	Tools & Information within channel	Launch time frame
			■ Discussion forums ■ Secure "members only" section	
Speakers Bureau	Identify and train stakeholder champions charged with carrying key messages to peer stakeholder groups. Book participants to speak before key constituent group meetings (for example, meetings of partner organizations, community group meetings, legislative hearings, etc.) and the press, as needed.	■ Health care providers ■ Consumers	■ FAQs ■ Key messaging	Spring 2011
Social media	In order to create and maintain an interactive relationship with consumers and stakeholders for the purpose of ongoing education, the HITE-CT will develop and actively populate various social media sites with key messaging, and request feedback from followers and friends with regard to current HIE topics.	■ Consumers	■ Facebook ■ Twitter ■ YouTube ■ Flickr	Winter 2010/11
Print	Producing print materials in small numbers remains an imperative, for there are members of the community without access to printers and/or computers. All print materials will also be made available in a printable format on the HITE-CT website.	■ Consumers ■ Stakeholders ■ General public	■ Posters ■ Letters ■ Reports ■ Brochures	Winter 2010/11
Public relations	Events such as press conferences, HIE Board and subcommittee meetings, conferences and forums allow for the participation of consumers and stakeholders from across the spectrum of interested	■ Consumers ■ Health care providers ■ Legislators ■ Stakeholders	■ Events ■ Endorsements ■ Conferences ■ Forums	Ongoing

Channel	Description	Priority Audiences	Tools & Information within channel	Launch time frame
	HIE partners. Having active and ongoing face-to-face feedback provides transparency to the development process and gives a voice to all.			
Press	A proactive and positive relationship between the HITE-CT and local, state and national media is essential to successfully communicating to general audiences about topics associated with the development and operation of Connecticut's HIE.	■ TV ■ Radio ■ Newspaper ■ Online publications ■ Partner newsletters	■ Press releases ■ Interviews with HIE champions ■ Features ■ Op-ed/articles	Autumn 2010

Internal Communications Channels

Channel	Description	Priority Audiences	Tools & Information within channel	Launch time frame
E-mail listservs	In coordination with eHealthConnecticut, create and maintain a master e-mail listserv of all HIE stakeholders.	■ Stakeholders (general)	Seek ways to increase e-mail listserve numbers through HITE-CT website as it is being developed.	Ongoing development
Consumer communications workgroup	Workgroup to ensure that consumers are informed about HITE-CT, and how consumers may participate in HIE for the betterment of the care they receive and the care delivered to the underserved.	Consumers		Winter 2010/11
Board and subcommittee meetings	Ensure that all meetings publicly noticed, posted to HITE-CT website and are inclusive of a public audience.	■ Stakeholders (general)	■ Notice the office of the Secretary of the State. ■ Post agenda and meeting notice to HITE-CT website in a prominent and timely manner. ■ E-mail notifications of all meetings to listserv and partner organizations. ■ Post meeting minutes and/or	

Channel	Description	Priority Audiences	Tools & Information within channel	Launch time frame
			transcripts to HITE-CT website ■ Provide electronic access to meetings when stakeholders cannot be there in person (for example, phone or webinar)	

9. Evaluating Success

To determine the success of a communications plan, it is essential to periodically revisit and review the plan's objectives.

Formal evaluation methods include focus groups, phone polls or online surveys targeted at specific audiences to determine changes in the level of knowledge about topics surrounding HIE and HIT in Connecticut. While such methods of communication evaluation are often expensive, it is clear that the use of online surveys (such as those available through www.surveymonkey.com) could produce valuable data in a cost-effective manner.

Less formal evaluation tools may also be put in place to measure the success of the communications plan, including the continued tracking of:

- Practitioners and hospitals participating in meaningful use incentive program
- Participation in educational programs, conferences, forums, etc.
- Visits to HITE-CT website/Web pages
- Unsolicited media inquiries
- No-cost media placements
- Use of social media sites
- Nature of incoming phone/e-mail inquiries to HITE-CT

4.9 Appendix—List of References

- Aseltine, R H., et al. Connecticut Physician Workforce Survey 2008: Final Report on Physician Perceptions and Potential Impact on Access to Medical Care. Connecticut State Medical Society, 2008. 11.
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- Connecticut State Health Information Technology Plan. Connecticut Department of Public Health. June, 2009.
- Jha, A.K. Use of Electronic Health Records in U.S. Hospitals. The New England Journal of Medicine. Volume 360: 1628-1638. Number 16. April 16, 2009.
- Continued Progress: Hospital User of Information Technology. American Hospital Association. 2007.
- Shaffer, VI, et al. Predicts 2010: Health care Providers and Governments Seek the Benefits and Address the IT Implications of Electronic Health Records. December 7, 2009. Gartner Industry Research G00173300.
- Connecticut Public Act 09-232 "An Act Concerning Revisions to Department of Public Health Licensing Statutes." July, 2009. http://www.cga.ct.gov/2009/ACT/PA/2009PA-00232-R00HB-06678-PA.htm
- Connecticut Public Act 10-117 "An Act Concerning Revisions To Public Health Related Statutes And The Establishment Of The Health Information Technology Exchange Of Connecticut." May, 2010. http://www.cga.ct.gov/2010/ACT/PA/2010PA-00117-R00SB-00428-PA.htm
- Health Insurance Portability and Accountability Act of 1996, P.L. 104-191, as amended from time to time, and contained in 45 CFR 160, 164

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[1] See guidance on these domains in the Office of the National Coordinator (ONC) for Health Information Technology's *State Health Information Exchange Cooperative Agreement Program* issued in August 2009.

[2] Aseltine, R H., et al. Connecticut Physician Workforce Survey 2008: Final Report on Physician Perceptions and Potential Impact on Access to Medical Care. Connecticut State Medical Society, 2008. 11.

[3] Hing, Esther, et al. Electronic Medical Record Use by Office-based Physicians and Their Practices: United States, 2007. National Health Statistics Reports. Number 23. March 31, 2010

[4] Hing, et al.

[5] Connecticut State Health Information Technology Plan (CT SHITP). Connecticut Department of Public Health. June, 2009.

[6] Jha, A.K. Use of Electronic Health Records in U.S. Hospitals. The New England Journal of Medicine. Volume 360: 1628-1638. Number 16. April 16, 2009.

[7] Continued Progress: Hospital User of Information Technology. American Hospital Association. 2007.

[8] Aseltine, et al.

[9] Hing, et al.

[10] CT SHITP

[11] Aseltine, et al.

[12] Connecticut Progress Report on E-Prescribing: E-Prescribing adoption and use statistics for years 2007–2009. http://www.surescripts.com/about-e-Prescribing/progress-reports/state.aspx?state=ct&fulls. Accessed 7/29/2010

[13] Based on the number of respondents to individual questions

[14] American Hospital Association.

[15] Aseltine, et al. 11.

[16] Gartner is a leading global provider of research and advice on the use of Information Technology in a wide variety of business contexts including health care

[17] Shaffer, VI, et al. Predicts 2010: Health care Providers and Governments Seek the Benefits and Address the IT Implications of Electronic Health Records. December 7, 2009. Gartner Industry Research G00173300.

[18] Connecticut Public Act 09-232 "An Act Concerning Revisions to Department of Public Health Licensing Statutes", July, 2009. http://www.cga.ct.gov/2009/ACT/PA/2009PA-00232-R00HB-06678-PA.htm

[19] Connecticut Public Act 10-117 "An Act Concerning Revisions To Public Health Related Statutes And The Establishment Of The Health Information Technology Exchange Of Connecticut." May, 2010. http://www.cga.ct.gov/2010/ACT/PA/2010PA-00117-R00SB-00428-PA.htm

[20] CT SHITP

[21] Connecticut Public Act 09-232

[22] The Universal Assessment Fee is a mandatory fee that will be assessed for each provider of care in Connecticut to obtain initial funding from all the many organizations expected to benefit from the HITE-CT approach to HIE. Examples of how this fee will be assessed include: Flat and/or %- based fees from Connecticut Health Plans (Claims %), Hospitals (Bed or Discharge), Physicians (Flat Licensure Fee), CHCs (% claims), Pharmacies, Labs, LTC facilities and other potential for-profit and non-profit HIE users or contributors.

[23] Connecticut Public Act 10-117

[24] Connecticut Public Act 10-117

[25] Health Insurance Portability and Accountability Act of 1996, P.L. 104-191, as amended from time to time, and contained in 45 CFR 160, 164

[26] ONC will negotiate with each state to determine best way to further specify this measure based on the statewide directories and shared services pursued within each State under this program.

[27] As of July 8, 2010, the HITE-CT stakeholder agencies/groups are as follows:

Accenture
Advance Behavioral Health
Aetna
Anthem

Cardiology Associates of Waterbury
Cigna
Community Health Center Assoc. of CT
Community Health Centers, Inc.
Connecticut Department of Consumer Protection
Connecticut Department of Information Technology
Connecticut Department of Public Health
Connecticut Department of Social Services
Connecticut Office of Policy & Management
CT Area Health Education Center
CT Assoc. of Not-for-Profit Providers for the Aging
CT Association of Health Care Facilities
CT Center for Primary Care
CT Development Authority
CT Health and Educational Facilities Authority
CT Health Policy Project
CT Hospital Association
CT Pharmacist's Association
Danbury Hospital
David O'Leary Group
East Granby Family Practice
Eastern Connecticut Health Network
eHealth Connecticut
Gartner
Hartford Hospital
Hewlett Packard
Hospital for Special Care
Lawrence & Memorial Hospital
Libertas
Middlesex Hospital
Midstate Medical Center
Milford Hospital
MISYS Open Source
Nexus Resources
Office of the CT Lt. Governor
Office of the National Coordinator
Qualidigm
Quest
Robinson & Cole
SMC Partners
St. Francis Hospital
St. Luke's Lifeworks
St. Vincent's Medical Center
Stamford Hospital
StayWell Health Care
University of Connecticut Health Center

Women's Health USA
Yale University
Yale-New Haven Hospital

[28] 45 CFR Part 170 Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology; Final Rule

[29] In the nomenclature of the IHE:

- a profile is a collection of standards and supporting specifications that are brought together to define interoperability among specific "actors" for a specific use case
- a domain is a group of profiles that support a specific community

[30] State Of Connecticut Memoranda of Agreement between the Department of Public Health and University of Connecticut Health Center—DPH Log #2011-0130

[31] Connecticut Health Database Compendium: A Profile of Selected Databases Maintained by the Connecticut Department of Public Health. Third Edition. March 2010