

Roadmap for the Mobilization of Electronic Healthcare Information in Texas

Final Report Of the Texas Health Information Technology Advisory Committee

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Dear Texans,

Each year in the United States, there are more than 900 million doctor office visits. Think about the last time you visited your doctor or a doctor's office for someone in your family. Upon checking in with the receptionist at the front desk, what did you have to do before you were actually seen by the doctor?

1. Show proof of your health care coverage by producing your insurance card.
2. Sign a form that informs you of your rights and allows you to give your consent for release of information.
3. Fill out a series of forms which ask you to provide the following:
 - Name, address, phone number, reason for visit
 - Family history
 - Listing of current medications and allergies
 - Immunization history
 - Insurance and billing information
 - Emergency contact information....and the list goes on.

How much time does it take for you to fill out these forms? How many times do you fill out the same type of forms at every health care visit, throughout your life? What happens in the case of emergency and you are unable to provide critical information? Every second counts! What could you do with that time if you had it back? What if you and your physician had access to your health information when you needed it in a secure electronic format, and the ability to share your information with your consent to other health care providers to ensure quality and safety? These are several of the benefits of health information technology (HIT) and electronic health information exchange (HIE).

Health information exchange is a way to electronically move your personal health and medical information securely between your doctors, hospitals and other health care providers when it is needed for your care. With your consent, your health information will be protected and exchanged under current medical privacy and confidentiality standard procedures. Secure electronic HIE allows you to make sure your health information is available when and where you need it while seeking medical care or treatment.

Americans support the creation of an HIE for patients and physicians and believe it will enhance quality and efficiency of the health care system. A recent survey of patients illustrates how they feel about such a system:

- "Great way for health information to get from doctor to doctor to improve treatment"
- "It gives your doctor and hospital the ability to treat you faster. It may save our lives one day"
- "All of my doctors would have access to all of my records. HIE would help everyone participating in the event of a disaster."

Texas' progress in HIT adoption is well underway. Many Texas hospitals are already using electronic medical records (EMRs). In addition, many of Texas' major metropolitan areas are planning for or are also underway with HIT and HIE projects. The continued improvement of the Texas healthcare system through HIT will require every Texan's awareness and willingness to continue to improve upon communication in the healthcare system.

The Texas Legislature has directed a statewide council to establish an advisory committee to develop a plan for the use of information technology (IT) in Texas. This plan called, The Roadmap for the Mobilization of Electronic Healthcare Information in Texas, was written for Texas policymakers as a guide outlining recommendations for accelerating the use of EMRs and electronic healthcare data sharing in pursuit of better patient healthcare services and outcomes. Although the recommendations made in the Roadmap may not seem relevant to the average Texan, the improvements that will be made possible through the implementation of these recommendations by policymakers will transform the healthcare system to the benefit of all Texans.

While the public's support for HIE is widely known, it is recognized that Texans have a strong concern for the privacy and security of their personal health records. In the Roadmap, we have made this a top priority and have begun to address these concerns by identifying core patient principles that need to be recognized in the development of HIT or HIE projects in Texas. An example of one of these many principles is that "Employers must not have access to medical records without patient authorization." As this process continues to evolve, these and additional principles will evolve and should provide you with the comfort of knowing that your personal health information will be secure and private.

Health information technology and health information exchange have emerged as a solution to the challenges posed by the need to communicate across the fragmented healthcare system, ensuring that healthcare providers have the right information about you at the right time. What happens when information is not available when you need it most? HIT and HIE results in a win-win strategy for patients and physicians, working together in partnership to ensure a safer, more efficient and cost effective health care delivery environment. We strongly encourage each and every Texan to take part in future planning activities relating to HIT and HIE projects for Texas.

When it comes to your health...every second counts!

Sincerely yours,

Members of the Texas Health Information Technology Advisory Committee

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I. Executive Summary

In the 79th Regular Session of the Texas Legislature, Senate Bill 45 was passed, which directed the Texas Statewide Health Coordinating Council (SHCC) to establish and appoint members to the Texas HIT Advisory Committee (HITAC). Senate Bill 45 further directed the HITAC to develop a long-range plan for the use of HIT in Texas.¹ The SHCC established and appointed members to the HITAC in late 2005. This report, the Roadmap for the Mobilization of Electronic Healthcare Information in Texas (the Texas Roadmap), is the long-range HIT plan in response to Senate Bill 45.

There is a growing consensus in the healthcare and health policy communities that the healthcare system of the future will be supported by an infrastructure made up of ubiquitous, interoperable, electronic health records (EHRs) composed of structured data elements, and a secure network to support the exchange of health information among providers and patients, regardless of location. Activities relating to the development of an electronic health information infrastructure are increasing at national, state, and regional levels. Mobilizing health information electronically has the potential to improve the quality, efficiency, and safety of healthcare by providing ready access to clinical data at the point of care and reducing adverse drug events.

In addition, the greater availability of electronic health information also has the potential to contain rising healthcare costs through the reduction of administrative costs and duplicative testing. Ultimately, reliable and secure systems for aggregating health information will allow more robust and timely descriptions of community and population health status, and help protect and improve the health of the people of Texas.

To realize the benefits of an electronic health information infrastructure, two conditions must be met. First, the use of EHRs by providers must become widespread. Second, the organizational, technical, and social capacities for enabling HIE must be developed. The Texas Roadmap articulates an initial strategy for meeting these conditions by accelerating the adoption and use of HIT², such as EHRs and building a framework for the statewide electronic HIE. As required by Senate Bill 45, this strategy includes recommendations for the use of EMRs, computerized clinical decision support systems, computerized physician order entry, and regional data sharing in pursuit of greater cost-effectiveness and better patient healthcare outcomes in Texas.

As further directed by Senate Bill 45, the advisory committee also studied the effect of HIT on price disparities in insurance coverage for Texas residents. To accomplish its task, the HITAC established three subcommittees – People, Process, and Technology – with two to three workgroups under each subcommittee to address specific issues and provide preliminary recommendations. Overall, 35 healthcare leaders and experts representing major healthcare organizations, providers, healthcare buyers and payers, health informatics, academia, and others contributed their time and expertise to developing this Texas Roadmap.

Activities during the eight-month project time period involved a combination of face-to-face and conference call meetings, interviews with Texas healthcare industry leaders, research of national and state HIE efforts, presentations by various Texas HIE initiatives, and frequent consultation with subject matter experts.³ All meetings of the HITAC and subcommittees were conducted pursuant to the rules and requirements of the Texas Open Meeting Acts. As a final review, the HITAC's Preliminary Report was published in the Texas Register in July 2006 for public comments. A total of 11 organizations presented substantive comments and several were incorporated into the Final Report as presented herein.

Also during this time period, a statewide assessment of the current status in Texas for the adoption and

implementation of HIT and HIE. The assessment process included the following components:

- interview summary representing input from 21 Texas healthcare industry stakeholders (representatives from hospitals, physician groups, health plans, employers, and academic medical centers);
- inventory of current HIE initiatives identified in Texas; and
- organizational readiness assessment survey conducted with various Texas healthcare participants.⁴

A copy of this statewide assessment, entitled Health Information Exchange in Texas: Current Status and Future Potential, may be accessed by going to the following link: <http://workspace.ehealthinitiative.org/medigent/collaborate/category/default.aspx?CID=261>.

A. Principles

In developing the long-range plan for HIT in Texas, the HITAC followed a number of key principles. The HITAC recommends the planning and development of the electronic health information infrastructure should:

1. **Be Patient-Centric:** First and foremost, all HIT efforts should focus on patient privacy, patient outcomes, and patient safety.

2. **Engage Stakeholders:** Create value for all participants - statewide, regionally, and for each stakeholder interest.
3. **Emphasize Market-based Solutions:** Market forces should be permitted to drive HIT and HIE adoption and implementation in regional initiatives to the fullest extent possible.
4. **Promote Regional HIE Solutions:** Every region of Texas is different and should be given the freedom to fit into the emerging electronic health information infrastructure in the most appropriate way to protect patient health data.
5. **Leverage Existing HIT Initiatives and Resources:** A coordinated effort, leveraging existing initiatives and resources would provide the greatest potential for improving HIT adoption rates and HIE success.
6. **Recognize IT as an Enabler:** An HIT strategy for Texas should support and enable a broader healthcare vision; rather than expending resources on technology without specific clinically identifiable benefits associated with the technology.
7. **Proceed via an Incremental and Evolutionary Process:** The capacity for transformational change of an industry of this magnitude, including technical capacity, system capacity, and most importantly, social capacity needs to proceed via an incremental, evolutionary process.
8. **Remain Cognizant of Federal Efforts:** The HIT strategy should be mindful of and support, but not duplicate the work and activities surrounding HIT and HIE implementation at the federal level.
9. **Recognize Effect of HIT on a Culturally Diverse Population:** As a foundation for all other principles and as part of the design, development, and implementation of all HIT activities, sensitivity to the culturally and linguistically diverse population of the State of Texas must be considered.

With the active participation of healthcare providers, healthcare purchasers, and most importantly, patients in Texas, HIT has the potential to significantly transform the healthcare system as we know it today and hence positively impact point of care, continuity of care, patient safety and healthcare efficiency.

B. Increasing Provider Adoption and Implementation of HIT

While the use of EHR systems by healthcare providers is increasing in Texas, there are noted challenges and barriers to adoption and implementation. The three major concerns expressed by providers, in order of significance, are cost, the lack of a sufficient return on investment, and the potentially unreliable nature of an electronic system. Healthcare providers perceive that they will not recognize the financial

benefits from the costly conversion to EHRs and those laboratories, pharmacies, patients, payers, and purchasers are more likely to benefit after doctors and hospitals switch to EHRs. As perceived by providers, incentives are misaligned under the current healthcare system. Providers will remain reluctant to adopt new technologies until they believe their investment will yield a positive return. Many providers are concerned about implementing technology without interoperability standards in place.

As part of its charter and mission, the HITAC developed a set of recommendations to address these barriers and offer ways to increase HIT adoption and implementation by physicians. Some of the recommendations assumed that some state-level entity – existing or emergent, public or private – will establish HIT goals and promote the HIT agenda. The HITAC referred to this entity as the “statewide coordinating body.”

Recommendation 1.1

Create a statewide coordinating body, which will work with Texas partners and practicing physicians to determine financial incentives to increase EHR adoption across Texas that meet patients’ expectations for privacy and control of access to their records.

Recommendation 1.2

Empower the statewide coordinating body to work with Texas partners and advisory groups to explore policy changes that should occur to increase the adoption of EHRs.

Recommendation 1.3

Charter the statewide coordinating body to partner with Texas organizations that are already focused on HIT adoption.

Recommendation 1.4

Encourage the statewide coordinating body to provide guidance, direction, and education to the stakeholders as part of the effort of HIT adoption.

Recommendation 1.5

Support EHR education and training in health profession schools and across the provider community using an entire spectrum of educational media (e.g., internet, print, classroom).

Recommendation 1.6

Create Centers of Excellence (at regional or state-level) to facilitate the sharing of information between stakeholders (e.g., patients, providers, vendors, health plans) through list serves and other online forums.

Recommendation 1.7

Leverage existing state and national HIE initiatives.

Recommendation 1.8

Encourage Texas’ U. S. Congressional delegation to actively support final regulations creating new safe harbors in the rules implementing the federal anti-kickback and physician self-referral statutes to enable greater adoption of EHRs.

C. Effect of HIT on Price Disparities

It is anticipated that increased HIT adoption will generate downward pressure on healthcare costs. Overall, this should lead to fewer employers dropping health coverage for their employees and thus, yield greater health insurance coverage than would have existed in the absence of HIT. One example of HIT decreasing costs is the adoption of ambulatory computerized physician order entry (ACPOE) in which providers can use clinical evidence at the point of care fully utilizing IT for quality improvement and disease management programs.⁵ There are demonstrated cost savings and improved patient outcomes from reductions in medical errors, decreases in mortality and morbidity, and expedited recovery times. For example, the Center for IT Leadership (CITL) estimates that a typical provider using an advanced ACPOE system would save approximately \$28,000 per year, including more than \$17,000 in medications, \$7,000 in radiology, and \$3,000 in laboratory expenditures.⁶

Another study by CITL, Value of HIE and Interoperability, identified \$78 billion in annual savings based on electronically sharing health care data between providers and stakeholders, which resulted in saving time and avoiding duplicate tests.⁷ With administrative and clinical data available and in EMRs, HIT can promote greater standardization of clinical care across populations and regions through the use of electronic clinical decision support, including order sets, alerts and reminders, mandatory data fields, and clinical guidelines in EHRs.

This standardization of clinical care should lead to similar utilization patterns across populations and regions to produce better health outcomes.

D. Statewide and Regional Strategies for HIT and HIE Implementation

The HITAC recommends a regional strategy for the implementation of health information networks for two key reasons. First, with the diversity of geographic regions and varied healthcare delivery systems across Texas, a grassroots effort will more likely lead to the development of the complex relationships, agreements, mechanisms, process, and trust required for a successful HIE and be responsive to specific regional healthcare market needs. Second, a regional approach will allow existing HIEs throughout the state to continue and potentially to serve as the foundation for future expansion. However, there is an important role for state-level leadership to provide necessary guidance, coordination, and direction to support regional needs, such as common policy and legal issues.

Like many other states, Texas is confronted with challenges concerning the implementation of HIE networks, including the lack of financial incentives and interoperable standards, compliance with anti-kickback regulations, ensuring privacy laws and regulations are followed, and the additional challenges that a competitive provider market presents. Overcoming these challenges will require significant investments of time, advocacy,

and leadership, as well as the right political and financial environment to align incentives and create the opportunity for change.

E. Recommendations for HIE Implementation

To accelerate the implementation of HIE in Texas and address many of the challenges listed above, the HITAC has formulated a number of recommendations categorized under the following functional areas:

- Governance
- Financial
- Clinical – Use Cases
- Technology
- Privacy and Security
- Outreach and Marketing

Individual Workgroup reports discussing each of these topics in more detail will be included in the Final Report as a separate accompanying attachment.

Governance

Governance involves forming a legal entity or organization to provide oversight and direction in the design and implementation of regional HIE initiatives. A governance structure should represent all major stakeholders in that particular market and activities should address the initialization (or start-up) phase,

planning and design phase, and the development and operational phase of an HIE, while also developing business, financial, and implementation plans, as well as defining legal and tax structures.

Recommendation 2.1

Establish a statewide coordinating body that includes public and private stakeholders to provide governance, guidance, direction, and coordination to the design and implementation of the electronic HIE framework for regional stakeholders in Texas.

This organization would perform state-level activities and functions, including: setting technology and data standards; acting as a federal liaison; developing privacy and confidentiality protocols; evaluating whether targeted policies are necessary for special-needs populations (children, geriatric, and individuals with disabilities) and/or the providers that serve them; coordinating state agency HIT activities; assisting in the coordination and collaboration of regional HIT and HIE initiatives; administering designated statewide funds for HIT and HIE; promoting and educating regional HIEs about national standards (technical and privacy); providing marketing and media materials; and providing an education plan working with existing HIT and HIE resources.

Recommendation 2.2

Encourage regional governance structures and activities to address activities in phases: initialization (or start-up); definition, planning, and design; and development and operational phases.

Financial

The HITAC recommends for the State to appropriate funds to initiate and sustain a statewide organization and to provide funding assistance to existing and new Texas initiatives. Due to the high prevalence of medical errors and adverse events, providing funding for HIT and HIE can have wide-spread public benefit. Adverse events are estimated to occur in 3.7 percent of hospitalizations and up to 13.6 percent of those hospitalizations lead to death.⁸ Studies and reports sponsored by the Agency for Healthcare Research and Quality (AHRQ), the Institute of Medicine (IOM), and other highly regarded organizations show that patient safety is among the top healthcare system challenges. While there are many opportunities to improve care through the use of clinical guidelines and decision support, currently very few healthcare providers utilize available clinical decision support (CDS) due to a lack of experience with implementing and monitoring CDS and the readiness of the clinicians for adoption.

Bringing clinical knowledge and information about the patient to the point of care through HIT will help close the gap between what the evidence tells us in accordance with guidelines and treatment protocols, as well as the care, interventions, and procedures that are actually delivered. Leading authorities and some of the nation's largest employers, providers, and physician groups across the country, Members of Congress and nearly every federal government healthcare agency have called for investment in electronic health information systems and HIE deployment.

Regional HIEs should, to the extent possible, implement sustainable revenue models to fund ongoing operations. The state and private healthcare purchasers should employ incentives for participation in HIE such as payment and cost differentials. Funds should be appropriated to monitor and measure improvement in patient outcomes and benefits resulting from HIEs. The HITAC recommendations to address initial and ongoing financing for regional and certain state-level activities:

Recommendation 3.1

The state should appropriate funding for planning and implementation grants for regional HIE initiatives that can demonstrate a significant level of regional stakeholder funding and should carefully administer grants from this budget as a means to encourage regional HIEs to conduct effective initial planning, implementation, and sustaining activities, as well as to share their experiences with others. Grants from this budget should be available to currently operational HIEs and to plan for and develop innovative projects that further the adoption and use of HIEs by communities, providers, and patients.

Recommendation 3.2

Representatives of the state should collaborate with the finance workgroup counterparts of other states and with financial officers of regional HIE entities in Texas to examine cost and revenue drivers for HIE projects to identify typical start-up activities and costs and to develop selection criteria for start-up funding grantees.

Recommendation 3.3

Develop an inventory of possible Medical Trading Areas (MTA) that are candidates for an HIE.⁹ Each MTA should be evaluated based on characteristics that predict success of HIEs in terms of financial viability and benefit to the community. The state should use these criteria to prioritize candidates and to develop a budget for initial planning grants to be awarded to fund HIE planning efforts.

Recommendation 3.4

Regional HIEs should strive to implement sustainable revenue models based on charging participants (i.e., those who receive services through the HIE) for value added services. The state should commission studies to identify and quantify the value of HIE services, as well as encourage realistic business and financial plans for regional HIEs.

Recommendation 3.5

The proposed statewide HIE coordinating body should be funded initially by state (public) appropriations or a combination of public and private funds. Continued monitoring of the progress and activities of the statewide HIE coordinating body is recommended to determine whether future government oversight and or regulation is necessary and to monitor appropriate future funding models for the statewide HIE coordinating body, including the reversion to a totally private funding model.

Recommendation 3.6

The state should appropriate funds to establish an initial

baseline of health economics and quality and patient safety metrics and to monitor and measure the HIE improvement on patient outcomes, costs, benefits, and patient control of records and privacy protections.

Recommendation 3.7

The state and private insurers should employ payment and cost differentials as incentives for participation in HIE and adoption of HIT, regardless of historical utilization of such systems.

Recommendation 3.8

Regional HIEs should proactively work to reduce the cost and risk of implementing EHR systems in physician offices.

Clinical – Use Cases

In the context of regional HIT and HIE planning and development, regional initiatives often begin with a fairly simple clinical application of HIT or HIE, often referred to as a use case, which is similar to a scenario. In Texas, local, regional, or metropolitan areas, rather than the state itself, have been identified as the appropriate location and governing/supervising body for the sort of planning and implementation envisioned for these use cases. Regional HIT planners should consider the particular problems the HIT planning process is trying to solve, the economic and competitive aspects of the healthcare ecosystem, and regional strengths as they review them.

While there are many potential use cases, the HITAC examined eight use cases targeted for regional healthcare providers, purchasers, and other stakeholders that could be implemented as the first stage of a larger HIE. These eight cases include:

1. Clinical messaging
2. Document management
3. Electronic prescribing
4. Electronic registration
5. Laboratory ordering and results delivery
6. Medication history
7. EHR – patient health summary
8. Personal health record

Recommendation 4.1

Explore opportunities to increase patient safety and privacy, as well as quality and efficiency of healthcare delivery systems through the various use cases. Evaluate the technical feasibility of the use cases and identify regions willing to pilot one or more of the use cases.

Recommendation 4.2

Continue to monitor HIE use cases implemented throughout the United States and identify additional use cases that could be added to, or integrated with, the Texas initiatives.

Recommendation 4.3

Create vehicles to facilitate the communication and sharing throughout the state of best practices and successful regional implementations of the various use cases.

Recommendation 4.4

Determine financial strategies that support potential pilot funding through regional, state, and federal funding streams.

Technology

All participants to an HIE must agree to certain policy and technical standards in order for interoperability to occur. Although a number of technical data and messaging standards have been defined for HIT, at this time, there is not a single universal set of standards. There can be a variety of technical, logistical, business, legal, and regulatory issues that slow the achievement of interoperability and increase costs due to a lack of uniform standards and different technologies implemented for each point-to-point connection.

The HITAC identified three primary considerations for the Texas health information infrastructure: 1) ensuring widespread connectivity to the internet; 2) developing a mechanism for common patient identification; and 3) storing and managing health data for individuals and organizations, regardless of size. In addition, any HIE implementation should adhere to certain principles. The HIE infrastructure should: allow for the addition of

new users (scalable) and the addition of new functions (extensible); be non-invasive and minimally impact existing systems; be secure and private; and be redundant and survivable in the case of a regional disaster.

Some common data elements and functions that may prove useful in the use cases and for many other activities are: positive (credible, reliable) identity information for patients and all other participants in the care delivery process; list of patient visits to participants in the care delivery process; secure authentication for participants; Health Information Portability and Accountability Act (HIPAA) compliant audit capabilities; and a web-based access method for each of the functions.

Recommendation 5.1

Identify interim HIE standards, including but not limited to data and messaging standards. Monitor and actively participate in various Federal initiatives and HIT and HIE forums.

Recommendation 5.2

Ensure secure methods to uniquely identify individuals and practitioners.

Recommendation 5.3

Adopt a “hybrid” connectivity model for HIE. While the hybrid connectivity model allows for the use of legacy systems, common data and messaging standards will be necessary for interoperability.

Recommendation 5.4

Strengthen public health information infrastructure to interconnect sources of health and healthcare data, and where necessary, extend the public health information infrastructure in the underserved areas of Texas.

Recommendation 5.5

State agencies should be required to implement interoperable HIT and HIE systems so information can be shared between agencies.

Privacy and Security

A variety of federal and state statutes and regulations affect the formation of an HIE in Texas such as ensuring that the health information included in an HIE is private and secure and that patients, including special-needs populations (e.g., children, geriatric, individuals with disabilities) are protected. Rigorous adherence to these laws is essential to protect an individual’s right to privacy and the secure transfer of personal health information. Texans should control the use and access of their protected health information. This protected health information should only be used and accessed based on an individual’s expressed consent as currently required by Texas law and medical ethics.

The rights to medical privacy and the control of access to personal health information are primary expectations of patients. They may want the right to participate in systems and networks, segment sensitive data, access and correct health information, audit trails of all disclosures

with notification of suspected or actual privacy breaches, and privacy enforcement at the state and federal levels, including a private right of action for alleged breaches. The definition of the right of privacy from the Original HIPAA Privacy Rule is, “the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated” (65 Fed. Reg. at 82,465).

Recommendation 6.1

As part of the next stage of HIT planning in Texas, an advisory group (composed of a broad cross-section of healthcare participants) should be established to develop policies relating to medical privacy and patient control of personal medical information, which accurately reflects the relative preferences of Texas patients.

Recommendation 6.2

In order for the HITAC to fulfill its statutory responsibilities, which require the creation of a “long-range plan for HIT,” the HITAC must create state legislative awareness of the legal issues surrounding medical privacy, HIPAA, and HIE through further research and customized education geared towards State legislators.

Recommendation 6.3

Any privacy ruling by the State Supreme Court of Texas that pertains to EMRs and the application of HIPAA should be monitored by the state coordinating body. The state coordinating body should inform the regional

HIEs of the interpretations and changes in privacy law as determined by the State Supreme Court.

Recommendation 6.4

Establish a patient ombudsman for medical privacy in the Texas Attorney General’s Office to develop model privacy notices, handle and investigate complaints of privacy violations, and to suggest legislative remedies, including penalties and enforcement.

Recommendation 6.5

Consent must be consistent with state, Constitutional, and common laws and grounded in medical ethics. The Texas Attorney General should develop and disseminate Model Privacy Notices and Patient Consent Forms.

Recommendation 6.6

Provide formal training for Texas patient and consumer organizations so they can become informed stakeholders and provide leadership to HIT systems and networks. A state HIE coordinating body or regional HIE initiative should develop a statewide plan for public debate, education, and discussion of HIE implications on medical ethics, Constitutional law, state and common law, and the physician-patient relationship.

Outreach and Marketing

In addition to education, marketing, and outreach will be critical for the adoption and implementation of HIT and HIE across the state of Texas. Clear information for patients, physicians, and other stakeholders should be developed as part of a media kit that is specific to Texas. Specifically, the media strategy for patients should include messaging about their privacy rights under Texas law and medical ethics. As this field of HIE is fast paced, always changing, and without a single proven solution, effective communications strategies are key. Several Workgroups made recommendations pertaining to education and marketing and the need to keep up with the rapid changes that occur. (Note: For the purposes of this document, education and marketing are viewed as separate items.)

A marketing and outreach strategy and dissemination plan is critical to the various stakeholders (e.g., patients, policy makers, physicians, employers). Examples of activities to be performed as part of the strategy include, but are not limited to, establishing and training a speaker's bureau, developing HIE marketing tools and templates, and reaching out to key stakeholders and partnering with existing groups in Texas to disseminate marketing information. In addition to the development of marketing and outreach tools, a mechanism needs to be in place to refresh these materials periodically for redistribution.

Recommendation 7.1

Develop a marketing and outreach/media

communications strategy, including HIT and HIE messaging and a dissemination plan.

F. Texas Roadmap Implementation

The Roadmap contains phased, actionable items, which will enable Texas to reach critical milestones to share healthcare information regionally and statewide. The recommendations are presented in four phases and are listed in perceived importance and dependence and many are interrelated and require simultaneous efforts to accomplish successfully. Some recommendations listed in the Roadmap may require legislative action and/or state funding appropriations. In addition, there are recommendations that may require establishing new regulations, modifying existing law, or enacting new law.

G. Conclusion

This report is a call to action for Texas in response to the Texas Legislature, which through Senate Bill 45 from the 79th Regular Legislative Session directed the Texas SHCC to establish an advisory group (HITAC) to develop a long-range plan for the use of HIT in Texas. There is a groundswell of local and regional Texas HIT and HIE initiatives currently in operation or in the planning stages. Now is the time to take action to ensure these local and regional initiatives are coordinated across the state and do not develop into "islands of information." The most pressing challenges have been addressed by the above recommendations: securing upfront funding, developing

a sustainable business model, addressing privacy and security, addressing organization and governance, engaging practicing clinicians, and addressing technical aspects.

No matter what our individual day-to-day roles are, the adoption and implementation of HIT and HIE is important to all – patients, providers, payers, and employers. The workgroup recommendations emphasize the following themes to ensure success:

- Provide appropriate level of statewide leadership, guidance, and convening
- Create HIT and HIE education for patients, providers, and lawmakers
- Eliminate or mitigate financial and technical barriers
- Leverage existing Texas HIT and HIE initiatives
- Engage all Texas stakeholders; encourage multi-stakeholder coordination and collaboration
- Focus on quality, safety, and efficiencies first - how can HIT and HIE address Texas' most pressing healthcare challenges

The healthcare industry, businesses both large and small, and government leaders throughout the state are excited and enthusiastic about the opportunity to improve patient care and delivery through a coordinated HIE initiative and the ability to reduce the rapid growth in state healthcare expenditures.

Texas has the potential to make significant progress in the widespread adoption of HIT and the implementation of HIE. The Roadmap offers recommendations for Texas to realize the benefits of HIT and HIE. It is time to demonstrate Texas' leadership and initiate an incremental approach to lay the foundation for continuously improving the quality and effectiveness of healthcare for the citizens of Texas.





II. Project Approach

A. Introduction

To advance Texas' emphasis on improving the quality and cost-effectiveness of healthcare delivery in recent years, the 79th Session of the Texas Legislature, through Senate Bill 45, established the HITAC as an advisory committee to the SHCC and charged this advisory group with developing a long-range plan for the use of HIT in Texas. The Texas SHCC subsequently named 11 members from the Texas healthcare community (representing the public, academic community, health plans, pharmacies, hospitals, physicians, and nurses) to the HITAC in late 2005. Senate Bill 45 directed the HITAC to make recommendations about the use of EMRs, computerized clinical support systems, computerized physician order entry, regional data sharing and other methods of incorporating IT in pursuit of greater cost-effectiveness and better patient healthcare outcomes in Texas. In developing the plan, the advisory committee is directed to study the effect of HIT on price disparities in insurance coverage for Texas residents.

Pursuant to developing the long-term plan, the SHCC charged the HITAC with the following:

- Study HIT needs and resources in Texas;
- Develop a plan for future needs in the area of HIT;
- Draft a long-range HIT plan and recommendations for legislative actions;

- Maximize the opportunity for stakeholder involvement in the development of the long-range plan; and
- Provide resources for future planning.

During the development of this plan, the HITAC was asked to give consideration to a number of specific issues, including: 1) improving patient quality of care; 2) cost containment; 3) policies that respect patient privacy and achieve interoperability; 4) possible HIE frameworks for Texas; 5) ways to promote EHRs within the medical community; 6) developing a strategic plan on how to best integrate Texas into a national health information network (NHIN); and 7) adopting principles of market-based solutions, regional decision making, flexibility, and consumer empowerment.

B. Project Methodology

To accomplish its mission, the HITAC established a project management subcommittee and workgroup structure. The three subcommittees each chaired by a HITAC member are: People; Process; and Technology, and each subcommittee included two to three workgroups. HITAC members and individuals representing a cross section of Texas healthcare and business stakeholders served on each workgroup. Overall, 35 Texans volunteered their time and expertise to accomplish the HITAC's charges (see Appendix A for list

of participants). Below is a listing of the subcommittee charges.

People Subcommittee (Governance, Consumer, and Finance Workgroups)

Subcommittee responsibilities included reviewing governance and financing issues for HIT and HIE. The Consumer Workgroup was responsible for developing principles from the patient’s (consumer’s) view, including the identification of privacy and security concerns, the promotion of patient-centered approaches to the use of HIT, and the development of recommendations for addressing legal barriers and protections. Overall charges for the People Subcommittee included:

- Identify key conceptual challenges, barriers, and issues
- Develop a mission for the HIT system
- Determine strategies for implementation funding
- Discuss options for governance and business models
- Identify barriers to regional participation
- Document legal, regulatory, and business practice barriers to information exchange
- Identify security and privacy concerns.

Process Subcommittee (EHR Adoption, EHR Implementation, and Use Case Workgroup)

Subcommittee responsibilities included determining clinical priorities and strategies for the adoption and implementation of EHRs. The Use Case Workgroup focused on defining and developing informal use cases

(clinical scenarios) for Texas. This workgroup prioritized the use cases based on apparent feasibility and benefit in Texas. Overall charges for the Process Subcommittee included:

- Identify key logistical challenges and barriers;
- Identify barriers to individual physician adoption;
- Provide recommendations for supporting EHR adoption and improving implementation and utilization; and
- Define and develop (in terms of reach, feasibility, urgency) prioritized use cases of key “product types” such as laboratory data exchange, Computerized Physician Order Entry (CPOE), patient summary data, or e-Prescribing to be implemented.

Technology Subcommittee (Technology Workgroup)

This subcommittee was responsible for advising on the use of standards and technical strategies to promote HIT and HIE in Texas. Overall charges for the Technology Subcommittee included:

- Identify key technological challenges/barriers/issues;
- Discuss options for interoperability, including options for patient identifiers and authentication and architecture (statewide and regional);
- Discuss connectivity and usability options for small or rural providers; and
- Establish options for ensuring security and privacy.

Project management and oversight of all three subcommittees was provided by a team comprised of the HITAC Chairman, representatives from the Texas Health Care Policy Council in the Governor’s Office of Budget, Planning, and Policy, the Texas Department of State Health Services, and the Foundation for eHealth Initiative partner team.

C. Summary of Activities

Activities during the six-month project time period involved a combination of face-to-face and conference call meetings, interviews with Texas healthcare industry leaders, research of national and state HIE efforts, presentations by various Texas HIE initiatives, and frequent consultation with subject matter experts.¹⁰

All meetings of the HITAC and subcommittees were conducted pursuant to the rules and requirements of the Texas Open Meeting Acts and all public documents are available online at <http://workspace.ehealthinitiative.org>. The HITAC held four meetings and the subcommittees held a total of eight meetings. Numerous workgroup specific meetings were held on a regular basis. In all, a total of approximately 30 meetings were conducted during the project timeframe.

An assessment of the current status of the environment in Texas for the adoption and implementation of HIT and HIE was conducted and presented to the HITAC by the Foundation for eHealth Initiative team. This assessment included input obtained through individual interviews

with 21 Texas healthcare industry stakeholders (e.g., representatives from hospitals, physician groups, health plans, employers, academic medical centers), and an inventory of current HIE initiatives identified in the state. Another part of the assessment included an electronic survey evaluating HIE readiness that was conducted with a small sample size of Texas stakeholders. Considering the early stage of HIE development in Texas, the overall score of “medium” readiness was not surprising.¹¹ Also, previously conducted was an inventory of the use of HIT by state agencies in particular agencies and programs using EHR systems or collecting significant amounts of clinically relevant data (see Appendix B).



Texas Roadmap



III. Federal Initiatives

President Bush, during an address in April 2004, declared that every American should have an EHR within ten years.¹² Towards this objective, the Administration has launched a number of initiatives to accelerate the development and adoption of both HIT and HIE. In addition to the work currently conducted and/or sponsored by the Department of Health and Human Services (HHS), other agencies such as the Department of Defense, the Department of Veterans Affairs, and the Office of Personnel Management are leading initiatives.

In furtherance of an overall Framework for Strategic Action, HHS awarded four contracts in 2005 to public and private groups that will accelerate the adoption of HIT and the secure portability of health information across the U.S.¹³ These contracts involve: the architecture and design of a web-based NHIN; privacy and security assessment and solutions; process for harmonizing health information standards; and certification criteria for EHRs and other HIT components.¹⁴

Other significant activities include efforts by HHS Secretary Leavitt that address a variety of issues. One is the Secretary's efforts to articulate a vision of HIT that conveys the benefits to patients, providers, and payers. A second effort involves convening a national collaboration to further develop, set, and certify HIT standards and outcomes for interoperability, privacy, and data exchange. Additional activities involve addressing ways to realize the near-term benefits of HIT in adverse drug-incident reporting, e-prescribing, lab and claims-sharing data, and clinic registrations.¹⁵ The Secretary chairs a 16-member federal advisory commission on HIT called the American Health Information Community (AHIC).¹⁶ Since the announcement of its Commissioners in September 2005, the AHIC has held multiple meetings and commissioned supporting workgroups (e.g., EHRs, biosurveillance, consumer empowerment, chronic care) to discuss and further develop breakthroughs for HIT and its use. The workgroups presented final recommendations to HHS in May and June 2006, on how to make health records interoperable and assure that the privacy and security of those records are protected.¹⁷

Last November, HHS announced an agreement with the Southern Governor’s Association (SGA) and the Gulf States to establish the Gulf Coast HIT Task Force. This Task Force is a collaborative composed of governor’s appointees and other participants from the Gulf Coast region. Through the SGA, the southern governors and their representatives have a unique opportunity to exchange ideas, explore common issues, and address pressing problems. The primary objective of the Task Force is to develop a plan, leveraging intrastate exchange of electronic health information to develop activities necessary for interstate exchange during natural disasters and the appropriate “day to day” operational applicability.

Throughout the process, it is envisioned that the Task Force will undertake a variety of specific activities that will allow it to act as a conduit of information between the individual participating states (Alabama, Louisiana, Mississippi, and Texas), offer input on common issues and areas of collaboration, and ensure that emerging principles, standards, and policies are taken into consideration within individual state-based efforts. The Task Force is led by participating state chairs. The chair for Texas is Stephen Palmer, Policy Analyst for the Texas Health Care Policy Council and the Governor’s Office of Budget, Planning, and Policy.

The inaugural Task Force meeting was held at the Vanderbilt Center for Better Health Innovation Center in Nashville, Tennessee, on June 15 and 16, 2006. During the meeting, participants were asked to establish a mission statement to define the role of the Task Force, discuss a governance model, including methods of involving participating governors, and to begin to develop an action plan that will include how the Task Force will approach all aspects addressed under the mission statement (i.e., privacy, security, legal, interoperability, financial, and clinical issues).

Congress is now attempting to conference House and Senate-passed versions (S. 1418, H.R. 4157) of federal legislation to support the development of a NHIN and IT infrastructure. In order to be enacted into law, a unified bill must be drafted by conferees, approved by both the House and Senate by the end of the 109th Congress, and signed by President George W. Bush. Key issues to be resolved in conference are differences between the House and Senate bills in the areas of sustained funding for HIT, HIT-related safe harbors, specific standards and interoperability provisions (in particular, whether or not a switch from ICD-9 to ICD-10 will be included), and requirements that the HHS Secretary develop healthcare quality measures. Key Senate and House Committee staff held an open forum on Capitol Hill on September 1, 2006, and announced their intention to get the bill conferenced and passed this year. As of September 2, 2006, no conferees had been named.





IV. Texas Roadmap Concepts

There is growing consensus in the healthcare and health policy communities that the healthcare system of the future will be supported by an electronic infrastructure composed of ubiquitous, interoperable, EHRs composed of structured data elements, and a secure network to support the exchange of health information among providers, regardless of location. A robust electronic health information infrastructure with these characteristics would be able to:

- Improve the quality of clinical care and patient safety by allowing providers access to relevant clinical data at the point of care;
- Contain healthcare costs by reducing duplicate tests and adverse drug events and improving the management of patient care;
- Improve emergency preparedness by making medical records portable;
- Support bio-surveillance activities by making symptom-level information from across the population available in real time;
- Lower administrative costs for healthcare providers by reducing paperwork and manual reporting; and

- Provide consistent and reliable aggregate health information for describing population health status and developing targeted community-based health improvement initiatives and services.

There are two prerequisites to realizing the full benefits of an electronic health information infrastructure. First, the use of EHRs by providers must become widespread. Second, the technical and social capacities for enabling HIE must be developed. This Texas Roadmap lays forth an initial strategy for Texas that will help facilitate the adoption and implementation of HIT and HIE towards achieving these goals.

A. Vision

The Texas Roadmap presents a strategy to accelerate the adoption and use of HIT and build a framework for the statewide electronic exchange of healthcare information thereby improving healthcare quality, increasing patient safety, and reducing healthcare costs.

B. Principles

In developing the recommendations contained herein, the HITAC embraced the following key principles. A long-range HIT plan should:

- 1. Be Patient-Centric:** First and foremost, all HIT efforts should focus on patient privacy, consumer outcomes, and patient safety. Any initiative should empower patients to have access and the ability to control personalized health information. Patient control over personal health information must be protected and patient privacy must be respected.
- 2. Engage Stakeholders:** Create value for all participants - statewide, regionally, and for each stakeholder interest.
- 3. Emphasize Market-based Solutions:** Market forces should be permitted to drive HIT and HIE adoption and implementation in regional initiatives to the fullest extent possible. State government participation should generally be limited to catalyzing relevant markets, facilitating collaborations, easing regulatory burdens, and assisting in the appropriate alignment of incentives.
- 4. Promote Regional HIE Solutions:** Every region of Texas is different and should be given the freedom to fit into the emerging electronic health information infrastructure in the most appropriate way to protect patient health data.
- 5. Leverage Existing HIT Initiatives and Resources:** There are numerous HIT adoption programs and HIE initiatives in the planning, implementation, and operations phases in Texas. A coordinated effort, leveraging these existing initiatives and resources would provide the greatest potential for improving HIT adoption rates and HIE success. Professional associations representing key stakeholder groups within the healthcare industry have developed miscellaneous programs designed to increase the use of EHRs and other clinical informatics by their members. Additionally, there are a number of regional HIE initiatives currently operational or under development in Texas.
- 6. Recognize IT as an Enabler:** An HIT strategy for Texas should support and enable a broader healthcare vision, rather than expending resources on technology without specific clinically identifiable benefits associated with the technology.
- 7. Proceed via an Incremental and Evolutionary Process:** The capacity for transformational change of an industry of this magnitude, including technical, system, and most importantly, social capacity needs to proceed via an incremental, evolutionary process.
- 8. Remain Cognizant of Federal Efforts:** The HIT strategy should be mindful of and support, but not duplicate the work and activities surrounding, HIT and HIE implementation at the federal level. This will help to ensure the HIT strategy for Texas fits

within the Federal framework and does not require participants in Texas to incur additional cost or effort.

9. Recognize Effect of HIT on a Culturally Diverse Population: As a foundation for all other principles and as part of the design, development, and implementation of all HIT activities, sensitivity to the culturally and linguistically diverse population of the State of Texas must be considered.

HIT has a great deal of potential to transform the healthcare system as we know it, but it cannot do so without the active participation of healthcare providers, healthcare purchasers, and most importantly, patients in Texas.

C. Effect of HIT on Price Disparities

It is anticipated that increased HIT adoption will generate downward pressure on healthcare costs. Overall, this should lead to fewer employers dropping health coverage for their employees and thus, yield greater health insurance coverage than would have existed in the absence of HIT. One example of HIT decreasing costs is the adoption of ambulatory computerized physician order entry in which providers can use clinical evidence at the point of care fully utilizing IT for quality improvement and disease management programs.¹⁸ There are demonstrated cost savings and improved patient outcomes from reductions in medical errors, decreases in mortality and morbidity, and expedited recovery times. HIT also has the potential to promote greater standardization of clinical care across populations and regions through the use of tools, such as embedded clinical decision support and clinical guidelines in EHRs. This standardization of clinical care should lead to similar utilization patterns across populations and regions.





V. HIT Physician Adoption and Implementation

As previously mentioned, the Process Subcommittee included two workgroups focused on EHRs. Both workgroups (EHR Adoption and EHR Implementation) were chaired by practicing physicians, and both were chartered to focus on the specific challenges experienced by physicians practicing outside of the hospital environment. This non-hospital environment was prioritized by the HITAC because hospitals are generally well ahead of independent physician practices in their adoption of HIT. Specific charges for these two workgroups included:

- Identify key logistical challenges and barriers;
- Identify barriers to individual physician adoption; and
- Provide recommendations for supporting EHR adoption and improving implementation and utilization.

This Texas-based research and problem solving strategy was built upon an understanding of the national- and state-level efforts underway to understand and assist in the adoption and implementation of HIT by physicians. A committee of the IOM of the National Academies has identified a set of eight core care delivery functions that EHRs should be capable of performing to promote greater safety, quality, and efficiency in healthcare delivery. The eight core functions include:

1. Health information and data
2. Electronic communication and connectivity
3. Result management
4. Patient support
5. Order management
6. Administrative processes and reporting
7. Decision support
8. Reporting and population health

The Process Subcommittee recognized that HIT adoption (i.e., the decision to invest in clinical HIT) and HIT implementation (i.e., the process by which a provider's practice is transformed to actually use clinical HIT) are two different processes and generate unique challenges. Therefore, the Process Subcommittee established separate workgroups to tackle the separate challenges of HIT adoption and HIT implementation.

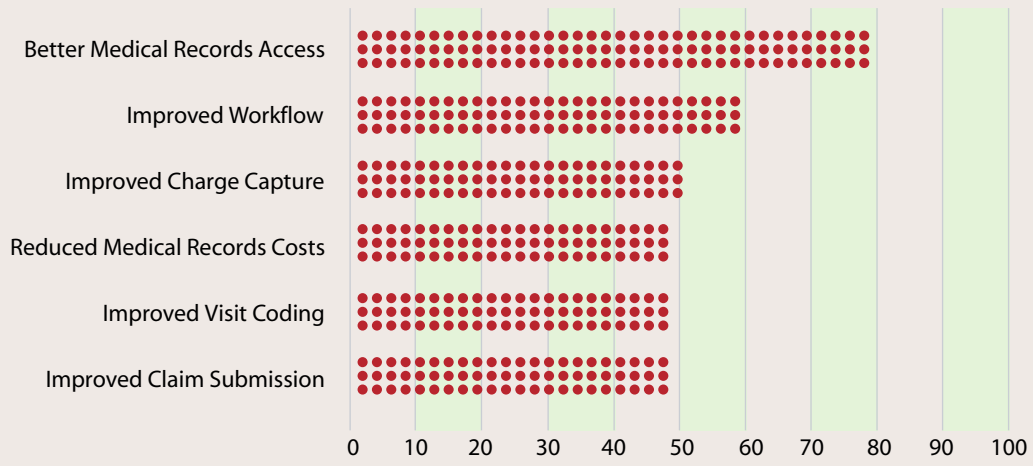


Figure 1: Most Important Benefits of the EHR- User's Experiences

A. HIT Adoption

Physicians are increasingly adopting EHR systems. Specific to Texas, a recent study from the Texas Medical Association 2005 Member Survey demonstrated that 27 percent of physicians are using an EHR. The most important EHR features based on users' experiences from the Texas survey are depicted in Figure 1.

The healthcare industry needs to increase the use of IT, but many doctors and hospitals are concerned about implementing technology such as EHRs without interoperability standards in place. In addition, healthcare providers perceive that they will not see direct benefits from the costly conversion to EHRs –and that laboratories, pharmacies, third party payers, and patients are more likely to benefit after doctors and hospitals switch to EHRs. As perceived by providers, incentives are misaligned under the current healthcare system. Providers will remain reluctant to adopt new technologies until they believe that their investment will yield a positive return.

The HIT adoption recommendations were created within four categories: 1) financial; 2) legal and regulatory; 3) psychosocial and usability; and 4) education and training. Some of the recommendations developed by the HITAC assume that some statewide entity, existing or emergent, will establish HIT goals and promote the HIT agenda. The HITAC referred to this entity as the “statewide coordinating body.”

The activities and functions of this statewide coordinating body are fully discussed in Section VI. Statewide and Regional Strategies for HIT and HIE Implementation.

Recommendation 1.1(Financial)

Create a statewide coordinating body that will work with Texas partners and practicing physicians to determine financial incentives to increase EHR adoption across Texas that meets patients' expectations for privacy and control of access to their records.

There are many areas in which an organization could become involved in HIT adoption in terms of financial aspects, return on investment studies, HIT tax credits, low interest loans, and reimbursement strategies for HIT adoption. Creation and maintenance of medical records are overhead expenses for providers. The initial costs are high for conversion to HIT and the impact on workflow during conversion decreases productivity and cash flow. Benefits, both financial and non-financial, accrue slowly to practices and medical groups. The state organization should support demonstration projects or studies on the ability of savings in both clinical and non-clinical domains to generate positive return on investment (ROI). The relative contributions to ROI from reductions in duplicative testing, improved disease management, streamlined workflow, and changes in staffing are areas that could be considered. The organization may also seek an increase in governmental subsidies of EHRs.

***Recommendation 1.2 (Legal/Regulatory)
Empower the statewide coordinating body to work with Texas partners and advisory groups to explore policy changes that should occur to increase the adoption of EHRs.***

Legal and regulatory issues are related to finance, as a lack of legal protection deters physicians and other potential investors from investing in HIT. Hospitals, managed care organizations, pharmaceuticals and other potential investors must be afforded statutory and regulatory protections to directly assist with EHR adoption in their referring physician community. Some policy strategies that can increase HIT adoption include education of physicians on existing law and addressing potential liability issues.

***Recommendation 1.3 (Psychosocial/Usability)
Charter the statewide coordinating body to partner with Texas organizations that are already focused on HIT adoption.***

The governance body will coordinate HIT adoption activities with other Texas partners (e.g., Texas medical associations, Texas chapters of the Healthcare Information and Management Systems Society (HIMSS), TMF Health Quality Institute, Texas QIO) for their support to small and medium-sized primary care practices in implementing an EHR system through the Doctor's Office Quality - IT (DOQ-IT) initiative. HIT adoption activities can include generating and maintaining a list of EHR vendors that meet usability

standards, a list of CCHIT certification criteria for EHRs in ambulatory settings, and a list of legal and ethical standards for patient consent that maximize patient control of access at a granular level. Additional adoption activities could include creating means by which a patient can track disclosures, segment sensitive records, opt-in or opt-out of EHRs, and maximize physician and staff productivity. A training program can also be created and deployed for physicians on adoption, benefits, implementation, how to assure informed consent for disclosures, and patient-physician EHR interaction.

***Recommendation 1.4 (Education and Training)
Encourage the statewide coordinating body to provide guidance, direction, and education to the stakeholders as part of the effort of HIT adoption.***

A variety of educational services can be offered to the clinician community to encourage HIT adoption and incorporate HIT training programs into existing health professional schools (e.g., chiropractic, dental, medical, nursing, optometry, pharmacy, physician assistant, physical and occupational therapy) and health science center colleges of allied health in Texas (e.g., coders, nursing assistants, medical secretaries). The statewide body can point stakeholders to these programs. One way of achieving efficient statewide communication is by developing a website that directs clinicians to online EHR courses and schedules, program descriptions, online tool kits, and other information and services dealing with HIT adoption and medical privacy. In summary,

the statewide body could maintain a clearinghouse/ collaborative of the available state and national services to support an open-source learning community. A number of academic settings may support this activity, including the University of Texas School of Health Information Sciences. Academic settings willing to build the infrastructure could also provide training programs and continuing education for healthcare professionals.

B. HIT Implementation

The 2005 Texas Medical Association Special Survey: Electronic Medical Record System Implementation identified cost as the most common impediment to EHR implementation. The median implementation cost per physician was found to be \$20,000. However, a quarter of respondents reported costs of over \$30,000. Moreover, large groups of physicians (five or more working within the same practice) reported even higher implementation costs, reaching \$36,000 on average. Another striking fact is that over ten percent of those polled reported their actual implementation costs as exceeding the amounts initially proposed by their vendors by over fifty percent.

The three major concerns expressed by this group, in order of significance, were 1) cost; 2) the lack of a clear return on investment; and 3) the potentially unreliable nature of an electronic system. Over half (56 percent) of the physicians in this group admitted the one thing that could get them to change their minds on EHR implementation would be receiving a grant. The next

most influential factor would be evidence of a greater ROI in terms of practice operations (52 percent) and quality of patient care (49 percent). Response rates do not add up to 100 percent because respondents selected multiple factors.

Most interestingly, half of the doctors polled who were considering implementation, felt as though their practices would not be able to afford the process on their own while only 36 percent of doctors with EHR systems say the cost was too much for them to bear alone. Across every single area of concern, more doctors are anticipating problems than are actually reporting those problems afterwards. This calls for better communication between the two sides and possibly a forum whereby some of these unnecessary fears can be alleviated. The HIT implementation recommendations are summarized below.

Recommendation 1.5 (Education and Training)
Support EHR education and training in health profession schools and across the provider community using entire spectrum of educational media (internet, print, and classroom).

With a lack of “new system training” expressed as a regret by 44 percent of physicians who have already implemented EHRs and a concern for 63 percent of those planning to implement EHRs (according to TMA), education was identified by the workgroup as the primary recommendation. First and foremost, curriculum alterations need to be made within all clinical training institutions (e.g., medical schools, nursing schools) to

implant the concept of EHR implementation in the minds of future healthcare providers.

Furthermore, a comparable education system needs to be developed for physicians and staff currently practicing at all levels of the healthcare system. Training for future and current physicians, nurses, and other clinicians, as well as allied health needs to span the entire spectrum of educational media, including print, internet, and the classroom environment. The Texas Medical Association, Texas Nurses Association, and specialty organizations have access to a number of pertinent educational resources, as do academic facilities across the state. Partnership between the professional organizations, academic facilities, and consumer and privacy organizations may result in added potential.

***Recommendation 1.6 (Education and Training)
Create Centers of Excellence (at regional-
or state-level) to facilitate the sharing of
information between stakeholders (e.g.,
patients, providers, vendors, health plans)
through list serves and other online forums.***

The TMA also indicated that advice on which products to purchase as well as how to best optimize those systems were high on the list of concerns and regrets for future and past implementers. This information led the workgroup to recommend the formation of a Center of Excellence (COE). This recommendation was seen as optimal due to the fact that no statutory changes would

be required and investments would be relatively minimal. The COE could be state-funded, with additional private sector support. Another interesting option would be to develop the COE as a fee-supported public utility.

Regardless of funding structure, since the state is such a powerful player as both an employer and a payer, it should lead the campaign for the formation of such an organization. The purpose of this COE would be to provide electronic distribution lists and other online forums to facilitate the sharing of information and advice on best practices and common pitfalls associated with EHR implementation. It could also make available and update the following tools and templates:

- Circulate system vendor assessments as to which vendor products work best for a given practice size and culture;
- Promote and guide the regional HIEs about national standards;
- Serve as the primary resource for HIE information and the dissemination of a Texas HIE “toolkit”;
- Provide policy templates and technical implementation guides;
- Support and exchange industry knowledge such as lessons learned and best practices;
- Assist statewide, regional, and local organizations in obtaining assistance from national experts; and
- Establish and train a speakers bureau.

Developing multiple COEs on a regional level may make the costs more palatable than initially trying to establish one statewide body. These COEs could support the efforts of current organizations such as the initiatives being led by the TMA and TMF. These centers could also represent a great business opportunity for non-vendor private sector entities.

Quite often, peer-to-peer interactions are the best way to share information. This is the role that a COE would be expected to serve. This would further reinforce the educational efforts mentioned above. Moreover, it would allow physician champions to reach a larger audience when promoting EHR implementation and its inherent benefits to efficiency and patient care.

***Recommendation 1.7 (Education and Training)
Leverage existing state and national HIE initiatives.***

This would include Medicaid and numerous other initiatives outlined by the HITAC Use Case Workgroup. In addition, there is a large amount of state-level information that may be made available to HIEs, particularly on children (e.g., vaccines (IMMTRAC), newborn metabolic and hearing screens, lead levels, hemoglobin levels, prescription drug payments). Access to this type of information would provide an enormous boost to data sharing. While the primary purpose of this recommendation is educational in nature, these

relationships may also be used to further transform HIE from a standalone initiative into a stepping stone for EHR implementation. This can most effectively be achieved through a clear illustration of clinical improvement and efficiency experienced by those who have implemented an EHR system.

***Recommendation 1.8 (Legal / Regulatory)
Encourage Texas' U. S. Congressional delegation to actively support final regulations creating new safe harbors in the rules implementing the federal anti-kickback and physician self-referral statutes to enable greater adoption of EHRs.***

Since healthcare facilities, such as hospitals, have significantly greater access to capital and IT expertise than physicians, it has been suggested that physician adoption of HIT may be expedited through partnerships with facilities. In August 2006, The Centers for Medicare and Medicaid Services (CMS) and the HHS Office of the Inspector General (OIG) issued final regulations relative to safe harbors that have been adopted under the physician self referral regulations (or Stark law) and the federal anti-kickback statute (71FR45140 and 71FR45110, respectively) to facilitate HIT adoption. The two rules set up means for healthcare organizations to share technology and systems.

Concurrently, the House of Representatives HR 4157 also includes legislation about these same provisions. Both rules are effective October 10, 2006. The CMS and OIG final rules were published in the Federal Register on August 8, 2006 (www.access.gpo.gov/su_docs/fedreg/a060808c.html). Permitted support should be defined as the provision of any equipment, item, information, right, license, intellectual property, software, training, education, or service used for developing, implementing, operating, or facilitating the adoption of EHRs and the electronic exchange of health information for those providers.



VI. Statewide and Regional Strategies for HIT and HIE Implementation

A. Regional HIE Strategy

One of the key principles of the HITAC is the importance of regional HIE solutions. While the ultimate aim is to share data statewide and, eventually, across state lines, it is important for this process to start at the regional level for several compelling reasons. First, effective health information sharing requires an elaborate set of relationships, agreements, mechanisms, processes, and trust across a diverse set of healthcare stakeholders. With the diversity of geographic and societal regions and healthcare delivery systems across Texas, each region should be allowed to fit into the emerging HIE infrastructure in the most appropriate and effective manner for that particular area. This grassroots approach will be more likely to lead to the development of these complex relationships and, therefore, increase the likelihood of successful HIEs being established. Second, there are already a number of existing HIE projects and pilots in various stages of development across Texas. A regional approach will allow these efforts to continue and potentially serve as the foundation for future expansion and the leveraging of relationships and resources for other HIEs. However, there is an important role for state-level leadership to provide the necessary guidance, coordination, and direction to support regional needs such as common policy and legal issues.

Much has been written about the challenges and barriers to the adoption of HIT and the implementation of HIEs, ranging from the lack of financial incentives to privacy concerns, from increased risk of liability in a litigious society to compliance with anti-trust laws, and competitive interests versus a need to collaborate toward technology standards. Texas is confronted with most, if not all of these same challenges. Overcoming these barriers will require significant investments in time, advocacy, and leadership, as well as the right political and financial environment to increase incentives and the opportunity for change.

To further the implementation of HIEs in Texas, the HITAC has formulated a number of recommendations. These recommendations are categorized under the following functional areas:

- Governance
- Financial
- Clinical
- Technology
- Privacy and Security
- Outreach and Marketing

The individual Workgroup reports discuss these topics more fully and are included as separate attachments.

B. Governance

Governance involves the formation and structure of an organization that will promote and coordinate HIE implementation. HIE involves cooperation, collaboration, and compliance from a large number of diverse participants (e.g., clinicians, health service providers such as hospitals and laboratories, purchasers, health plans, health departments, patients). There is no single correct organizational structure for HIE efforts. Potential governance models include government authorities, membership and non-membership non-profit organizations, private for-profit firms, cooperatives, and contractual agreements with an academic institution, among others. Successful HIE governance organizations should:

- Represent a diverse and broad set of stakeholders within the region or community, including practicing clinicians;
- Develop and assure adherence to a common set of principles and standards for the technical and policy aspects of information sharing and compliance in accordance with all legal and ethical privacy standards;
- Develop privacy controls and response policies;
- Develop and maintain a model for sustainability that aligns the costs and benefits of HIE; and
- Use metrics to measure performance from the various stakeholders' perspectives of: patient care, public

health, provider value, privacy protections, and economic value.

Recommendation 2.1

Establish a statewide coordinating body that includes public and private stakeholders to provide governance, guidance, direction, and coordination in the design and implementation of the electronic health information exchange framework for regional stakeholders in Texas.

This organization would perform recommended activities and functions at a state-level including:

- Standard setting: Identify interim information exchange standards (including, but not limited to, data and messaging standards) to be used across the state for interoperability.
- Federal liaison: Monitor and actively participate in various Federal developments relating to HIT and HIE and ensure regional stakeholders in Texas are aware of these developments.
- Patient empowerment: Develop recommended standards relating to privacy and confidentiality of personal health information, including but not limited to consent/authorization protocols.
- Evaluate whether targeted policies are needed for special-needs populations and the providers who see them: Individuals with disabilities, children, and older patients may have special needs relating to HIE. Likewise, providers who specialize in treating these

populations may require different and particular policies to ensure their participation in HIE efforts.

- **Coordinate State Agency HIT activities:** Provide coordination and communication to HIT and HIE efforts through a combination of best practices and as a conduit for the influence of state policy. Assist state agencies in developing and coordinating approaches to sharing healthcare information collected by state agencies with HIEs.
- **Promote Tools and Templates:** Promote and guide the regional HIEs regarding national standards (technical and privacy) and serve as the primary resource for HIE information and the dissemination of lessons learned of common problems and solutions. It will also provide guidance about the interpretation of applicable laws and regulations, and when appropriate, seek definitive interpretations from state and federal regulators.
- **Statewide coordination:** Engage existing and emergent regional initiatives. Provide best practices, technical assistance, and serve as a source for a governance minimum standard for regional initiatives statewide. Foster regional HIT and HIE collaborations by serving as a convening body and the conduit for the state's input to the regional initiatives (see regional options below).
- **Fundraising and Administration of Statewide Funding:** Serve as the receptor for external funds. Administer HIT and HIE funds designated at a statewide level.
- **Marketing:** Provide standard marketing and media kit materials about HIE in various communication vehicles and for various audiences (e.g., consumer, patient, and medical privacy organizations, policy makers, clinicians and allied health).
- **Education:** Provide an education plan working with existing HIT and HIE resources in the state, including THI, TMF, Texas HIMSS Chapters, AHEC, TMA, TAFP, THA, and academic organizations, including Federally Qualified Health Centers, and Public Health Agencies. The education plan may include:
 - Organizing workshops for initial projects (such as results delivery)
 - Continuing to develop talent to serve as implementation leaders
 - Supporting and exchanging industry knowledge such as lessons learned and best practices
 - Advocating key implementation components (when needed)
 - Developing tools and templates to assist communities/regions with getting started.
- **Gulf Coast HIT Task Force Representation:** Provide official Texas representation to Gulf Coast Task Force on HIT and HIE.

Recommendation 2.2

Encourage regional governance structures and activities to address activities in phases: initialization (or start-up); definition, planning and design; and development and operational phases.

The key element behind the success of some regional HIE initiatives, both in Texas and in other states, seems to be the identification of a viable business model specific to the healthcare ecosystem that characterizes the region. Consideration must be given to key elements when establishing a regional governance structure and organization. These organizational elements include: establishing the legal and tax structure under which the organization will operate; establishing a board of directors to define roles and responsibilities and the decision making process; defining membership and participation rules; defining the HIE's capabilities and functionalities; and developing the business and financial plans. The statewide organization will provide guidance to the regional efforts to establish these HIE organizations.

C. Financial

Financing for HIE initiatives is complicated by the inability to identify customers (e.g., patients, payers, hospitals, employers) who value HIE services enough to pay the full cost of these services. Perhaps as a result, capital funding for HIE start-ups has been scarce and has

typically been assembled from a variety of philanthropic sources, namely grants from foundations and government entities, as well as contributions from institutional providers (mostly hospitals) and employer groups. The HIE entities that shared their experiences with the HITAC continue to move toward sustainable revenue models (i.e., models where some of the participants pay fees that are equal to or greater than ongoing operating costs).

Numerous studies have attempted to present the possible costs, benefits, and ROIs of HIE. One analysis estimated the total annual net value of HIE as \$77.8 billion per year once fully implemented.¹⁹ This report also went on to explain its cost-benefit model could not quantify the countless improvements to patient safety and quality that would result from HIE, including detection of future disease outbreaks and biosurveillance, fewer medical errors, and better continuity of care. Another report acknowledged the market has failed to address HIT standards.²⁰ It went on to argue HIE provides so many public benefits, similar to public transportation and the arts, public funds should be invested in HIE development. That said, the ability of HIEs to generate revenues sufficient to fund ongoing operations and invest in future development is certainly not yet proven.

Funding for HIT implementation in provider entities is a separate, but related issue. In general, most institutional providers (including hospitals, ambulatory surgery centers, commercial laboratories, and imaging centers) have implemented some form of HIT to the extent that clinical information on patients is stored electronically.

On the other hand, a high percentage of physician offices continue to use paper medical charts as a means to record clinical information.

While some HIE use cases can be implemented using the limited electronic information currently available, full implementation of the use cases (and realization of the resulting benefits) requires a much greater use of HIT, particularly in physician offices.

The recommendations that follow address initial and ongoing financing for regional HIE initiatives and for certain state-level HIE activities. These recommendations recognize the need to build on the experiences of others in financing these activities while conducting studies to design improved financing approaches for the future. The recommendations also address incentives and other assistance to providers (chiefly physicians) who participate in HIE initiatives and implement HIT capabilities.

Recommendation 3.1

The state should appropriate funding for planning grants for Regional HIE initiatives that can demonstrate a significant level of stakeholder funding and should carefully administer grants from this budget as a means to encourage Regional HIEs to conduct effective initial planning, implementation, and sustaining activities, and to share their experiences with others. Grants from this budget should be available to currently operational HIEs to plan

for and develop innovative projects that further the adoption and use of HIEs by communities, providers, and patients.

Initial funding for Regional HIEs will be required for the effective planning and development of HIE efforts. The state should consider appropriating a statewide budget for planning grants for Regional HIEs with grants awarded according to carefully structured guidelines. Grantees should be selected based on the degree of local participation, financial contribution, and other success factors. Grants should specify the types and results of planning activities that will result in successful HIE development. Regional HIE entities can compete for grants with the understanding that they will be required to share their results freely with others in a variety of venues. Initial grantees should receive larger grant amounts than later grantees as a way to encourage early innovation and in recognition of the significant learning curve that these early innovators will face. The state should attempt to obtain matching funds from foundations or employers and should require at least a portion of the funding to come from local stakeholders (e.g., providers, payers, employers). The following recommendations (3.2 and 3.3) support the administration of this grant program.

Recommendation 3.2

Representatives of the state should collaborate with the finance workgroup counterparts of other states and with financial officers of Regional HIE entities in Texas to examine cost and revenue drivers for HIE projects, to identify typical start up activities and costs, and to develop selection criteria for start-up funding grantees.

Texas can learn from the experience of other states and existing HIEs with regard to HIE financing. In particular, other organizations have valuable experience identifying key cost and revenue drivers, identifying which HIE services are chargeable and profitable, and understanding benefit measurements. Texas should collaborate with other states and existing HIEs to build on this experience, specifically to identify characteristics of a local healthcare market that tends to correlate with the long-term financial viability of an HIE. Discussions with financial officers of operating HIEs should help to predict financing requirements and trends for Texas. The outcomes of this recommendation are a pre-requisite to recommendation 3.3.

Recommendation 3.3

Develop an inventory of possible Medical Trading Areas (MTAs) that are candidates for an HIE. Each MTA should be evaluated based on characteristics that predict the success of HIEs in terms of financial viability and benefit to the community. The state should use these criteria

to prioritize candidates and to develop a budget for initial planning grants to be awarded to fund HIE planning efforts.

The state should proactively identify areas that could benefit from development of an HIE or from expansion of an existing HIE effort. While seeming straightforward, this will require sorting through various definitions and other concepts (e.g., metropolitan statistical areas, hospital districts, population size). It may be helpful to create a new definition for purposes of HIE planning based on the concept of an MTA as presented by the Arizona Health-e Connection initiative.

The healthcare market in each area (or MTA if this definition is used), can be characterized in terms of provider, patient, payer, and employer demographics; patient and consumer population and demographics; the degree of cooperation or competition among providers; previous attempts at cooperation between employers, providers and payers; and previous experience with HIE initiatives.

Recommendation 3.4

Regional HIEs should strive to implement sustainable revenue models based on charging participants (i.e., those who receive services through the HIE) for value added services. The state should commission studies to identify and quantify the value of HIE services, and should encourage realistic business and financial plans for Regional HIEs.

The HITAC does not envision that ongoing operations of Regional HIEs will be financed through state or federal government appropriations. Rather, each HIE should seek to generate revenue based on services that add value (or reduce cost) for HIE participants. The state should commission a study or studies to identify and quantify the value of these and other value added services that can contribute to sustainable revenue models for HIEs.

The value of HIE services may vary depending on the characteristics of the healthcare market. However, experiences of other HIEs indicate that value added services may include:

- Results delivery services – fees charged to commercial and hospital based laboratories and imaging services for delivering results to physicians;
- Access to Physician Credentialing information – fees charged to hospitals and payers who otherwise would have to collect and maintain their own physician credentialing information;
- Medication Reconciliation information – fees charged to hospitals that use HIE pharmaceutical data to perform medication reconciliation;
- Physician Referral services – fees charged to physicians who receive referral information in an electronic format; and
- Access to de-identified population based data – fees charged to researchers, state agencies, and others in lieu of the costs they would incur to collect these data.

The state should encourage HIEs to develop realistic business plans to identify and forecast cost and revenues for various services before these become operational. HIEs should consider implementing cost accounting mechanisms to track the actual cost of providing services and to assist in managing cost and prices for these services.

Recommendation 3.5

The proposed statewide HIE coordinating body should be funded initially by state (public) appropriations or a combination of public and private funds. Continued monitoring of the progress and activities of the statewide HIE coordinating body is recommended to determine whether future government oversight and/or regulation is necessary and to monitor appropriate future funding models for the statewide HIE coordinating body, including the reversion to a totally private funding model.

If the statewide HIE coordinating body provides standards setting and coordination functions that benefit all regional HIEs, and if regional HIEs are financially viable, they may eventually contribute to the ongoing operating cost of the state entity. At the point in time that several HIEs are fully operational and financially stable, the state should examine self-sustaining revenue models for the state coordinating body, based on the value this organization provides to operational regional HIEs.

Appropriating sufficient funds to operate the proposed state HIE entity will provide significant benefits, including improving the likelihood of success of regional HIE efforts, ensuring regional HIE efforts are able to communicate with each other, ensuring state and federal legislation and regulation in this area are aligned, and providing a convening entity to coordinate HIE efforts.

Recommendation 3.6

The state should appropriate funds to establish an initial baseline of health economics and quality and patient safety metrics and to monitor and measure the HIE improvement on patient outcomes, costs, benefits, and patient control of records and privacy protections.

The state should work to establish a way to measure the results of HIE initiatives as a way to justify state expenditures in this area and as a means to make adjustments to future funding and HIE strategies. In particular, the state should seek to measure patient outcomes, patient safety, care delivery costs and benefits resulting from chronic disease management programs, and the levels of patient control of records and privacy protections. This could be accomplished for a subset of the population (i.e., Medicaid, state employees, and others) where the state is the payer. However, a statewide study would be more effective as a means of evaluating the overall effectiveness and efficiency of the healthcare system.

As part of this effort, the state should consider prescribing uniform measures for entities to use to monitor the impact of HIE initiatives. Regional HIE entities should be encouraged to include benefit measures in process and technology designs for each HIE initiative so the results of these initiatives can be more easily measured. The state should consider requiring certain benefit measures to be part of any Regional HIE effort that receives state funds.

Recommendation 3.7

The state and private insurers should consider payment and cost differentials as incentives for participation in HIE and adoption of HIT, regardless of historical utilization of such systems.

To be effective, payment incentives and cost differentials must be significant and apply to a large percentage of the population. This implies that incentives and differentials should be included in state healthcare payment mechanisms such as Medicaid and state employee health plans. To the extent this happens, statutory changes and appropriations may be required. While there are numerous incentive structures possible, the following incentives are recommended and consideration should be given to their use:

- Payment differentials for physicians and hospitals could be conditioned on participation in an HIE, including accessing information for patients and sending certain types of digital data to an HIE.

- Cost differentials could be used as incentives to patients to select physicians and hospitals that participate in HIE initiatives.
- Incentives for participation in HIE initiatives and adoption of HIT could be incorporated in Pay for Performance (or “value based purchasing”) plans. To the extent that state healthcare programs such as Medicaid are affected by this recommendation, statutory changes may be required.

Recommendation 3.8
Regional HIEs should proactively work to reduce the cost and risk of implementing EHR systems in physician offices.

Regional HIEs should be proactive in evaluating and identifying proven EMR systems that can be easily interfaced to the HIE and promoting the use of these systems by providers in the HIE’s service area. Regional HIEs should seek to reduce the cost of software interfaces for providers in their service areas by negotiating discounts with EMR software vendors that have customers in that market. The Regional HIEs may ask the state HIE entity to coordinate the negotiations with vendors on a statewide basis as a means of increasing the purchasing power of Regional HIEs. Finally, the state HIE entity may encourage physician EMR vendors to offer products and services to rural physician offices (or other under-served areas) as a means of encouraging adoption of HIT by these physicians.

D. Clinical — Use Cases

When applied to HIE, the term “use case” typically refers to a single category of health information exchange or the exchange of a relatively narrow band of health information as a first step toward building a larger, and/or broader exchange of health information. Common use cases include laboratory results delivery and medication history delivery. Although exchange of a broad variety of health information is often discussed, especially within the context of regional health information exchange organizations, most operational regional health information exchange initiatives begin by sharing a relatively narrow range of health information for a narrow purpose (such as treatment).

While there are many potential use cases (including emergency department, immunization records, and collaborative care coordination) the most common use cases with successful implementations are clinical messaging, document management, medication history or reconciliation, and laboratory results delivery. Although a significant amount of infrastructure and technical capacity already exists for medication-oriented use cases, including medication history delivery, medication reconciliation, and electronic prescribing, these use cases do not appear to have been implemented extensively as a first step in a larger health information exchange strategy. The HITAC explored eight use cases as outlined and described below.

1. Clinical messaging
2. Document management
3. Electronic prescribing
4. Electronic registration
5. Laboratory ordering and results delivery
6. Medication history
7. EHR – patient health summary
8. Personal health record.

Several of the use cases have been implemented to varying degrees in Texas healthcare markets. Facility-based clinical messaging systems of different sizes operate in several Texas cities, although none of them are operated through a true regional initiative. Some individual providers and facilities use electronic prescribing, but none through regional initiatives. Generally, within facilities, hospital groups, or other closed health systems, most of the use cases appear in some form but they do not tend to be operated as regional initiatives.

In Texas, adoption of Computerized Physician Order Entry (CPOE) is consistent with national trends.²¹ Most hospitals and health systems have come to regard CPOE as part of a larger, more comprehensive EHR initiative, rather than as a standalone HIT effort. Accordingly, care

delivery organizations are laying the groundwork for CPOE by implementing clinical documentation systems and updating their ancillary information systems (e.g., radiology, laboratory, and pharmacy).

Recommendation 4.1

Explore opportunities to increase patient safety and privacy, quality and efficiency of healthcare delivery systems through the various use cases. Evaluate the technical feasibility of the use cases and identify regions willing to pilot one or more of the use cases.

Recommendation 4.2

Continue to monitor health information exchange use cases implemented throughout the United States and identify additional use cases that could be added to, or integrated with, the Texas initiatives.

Recommendation 4.3

Create vehicles to facilitate communication and sharing throughout the state of best practices and areas that are generating successes with the various use cases.

Recommendation 4.4

Determine financial strategies that support potential pilot funding through regional, state and federal funding streams.

All of the use case options listed below are targeted at regional healthcare providers and purchasers and other regional healthcare stakeholders and could be implemented as the first stage of a larger HIE. In Texas, local, regional or metropolitan area rather than the state itself have been identified as the appropriate location and governing / supervising body for the sort of planning and implementation envisioned for these use cases will vary based on factors that differ from region to region. In reviewing these use cases, regional HIT planners should consider the particular problems that the HIT planning process is trying to solve, the economic and competitive aspects of the healthcare ecosystem, and regional strengths. None of the options listed below necessarily require statutory change, appropriation, or other legislative action.

Use Case 1: Clinical Messaging

Clinical messaging is the capability to transfer clinical data—such as laboratory tests, radiology results, transcriptions, prescriptions, and clinical orders. Providers can begin with an ability to send and receive secure, HIPAA-compliant and state compliant (meeting security and privacy standards of federal and Texas laws and medical ethics) email messages and clinical reports to and from other providers, patients, and payers. This use case describes five different messaging types which have different standards and move information between different participants. Some are better defined and more readily implemented than others. For example, laboratory

results are better defined and standardized in current electronic exchange than clinical orders. As a provider or region considers clinical messaging, one of the more standardized and better defined messaging types should be considered as the first priority.

Use Case 2: Document Management

Providers can receive, process, and organize paper-based clinical information in an electronic database that potentially interfaces with an EHR or other HIT tool. The document management system is able to receive faxes as images and accept scanned versions of clinically relevant paper documents. Meta-data identifying each image can either be manually entered or extracted from machine-readable components of the image (such as barcodes on faxes or machine-readable digits and letters in a standardized position on the image). HL7 standards such as the Clinical Document Architecture (CDA) may facilitate the exchange of traditionally free-text or unstructured documents by structuring the characteristics of the unstructured documents. For example, the CDA can specify, in a structured manner similar to the previously mentioned meta-data, information such as the document type, the date it was created, where it was created, and the role of the professional creating it. Simpler versions of document management that do not require structured data are much more technically feasible and create value by improving operational efficiencies but deliver significantly less clinical value.

Use Case 3: Electronic Prescribing

The simplest form of electronic prescribing (e-prescribing) is essentially the electronic automation of the administrative prescribing process and does not provide clinical decision support, drug interaction information, or formulary content. Providers are able to enter prescriptions electronically and have the prescriptions electronically routed to pharmacies. In more sophisticated versions of electronic prescribing, the provider interfacing application or device can contain formulary information and provide clinical decision support, including checking for non-formulary prescriptions, drug-drug, drug-food, and drug-allergy interactions. Additionally, automated prescription re-fill reminders may be delivered to clinicians and physicians can be alerted to non-compliant patients (e.g. a prescription is written, but patient does not purchase).

The numbers of disparate, nascent technologies in the e-prescribing space pose a challenge to building a foundation for regional and statewide HIE because of difficulties with interfacing disparate information systems. The more limited e-prescribing process (lacking regional connectivity and clinical decision support) has limited clinical value and therefore may not be as readily accepted by the physician community.

Use Case 4: Electronic Registration

Patients are able to maintain electronic versions of their demographic and financial information to allow simpler, more complete registration at points of care. The value is largely administrative cost reductions and a streamlined admission process for the healthcare consumer (no more clipboards and less “hassle factor”).

Use Case 5: Laboratory Ordering and Results Delivery

Laboratory Ordering allows providers to enter lab orders into a single, secure clinical messaging system. With Laboratory Results Delivery, results are pushed back to the provider through the clinical messaging system and can appear in a virtual “inbox” on the provider’s computer desktop. It should be noted that currently, laboratory orders are variable and standards and consistent coding systems for laboratory tests have yet to be developed.

With implementation of a Record Locator System (RLS) and Master Patient Index (MPI) along with structured and standardized data, providers could be alerted to the presence of results and interpretations for similar, recent tests for the same patient, thus potentially reducing duplicative tests. This more sophisticated approach could also be used to support bio-surveillance activities with laboratory results routed to public health through HIPAA compliant protected health information (PHI) protection protocols (masking PHI) and building in a mechanism for tying back to unique identifiers by the provider for surveillance purposes.

Use Case 6: Medication History

Electronic records of all past and current medications will exist for patients so that providers will have more complete clinical perspectives of patients' medical situations. Some of this information is routed from either retail pharmacies that filled the prescriptions or through pharmacy benefit managers (PBMs) that maintain history of drug claims paid. Vendors supporting this use case maintain an MPI and RLS to link the medication history. This use case becomes more sophisticated and provides more linkage to the patient's medication history (increased hit rates) when this use case interfaces with additional data sources that provide hospital and clinic medication history supplementing the retail and PBM sources.

Use Case 7: EHR – Patient Health Summary

Providers are able to view a summary of a patient's clinical information from other providers and points of care by querying a system. Implementation is dependent on structured, standardized data with implementation of a RLS and MPI. Many of the vendors whose products have recently been certified by the Certification Commission for HIT are actively developing the ability to move Patient Health Summaries by using the ASTM Continuity of Care Record Standard.

Use Case 8: Personal Health Record (PHR)

Patients have electronic records of past and current medications, problems, and allergies so that providers will have a more complete perspective of a patient's health information. These personal health records are maintained by patients and help empower the patient to assume greater responsibility for the management of their health. Employers, managed care plans, payers, and providers are beginning to offer PHRs to patients. Some versions are pre-populated with diagnoses, procedures, lab results, medications, immunizations, clinicians and facilities used. These disparate systems, although potentially advantageous to healthcare providers and patients, present challenges with the portability and/or universal accessibility of the information as a patient moves from one plan or provider to another. A collaborative effort by health plans is underway to adopt standards to support portability between plans interoperability with EMRs and EHRs, access at points of service (via patient printed copy, electronic media, or internet access), security and patient control of access. One important consideration is whether or not to automatically populate the PHR with information entered by patients given this information may not be accurately reported by the patient. Analytic engines are needed to ensure data populated from administrative and claims systems are clinically relevant information.

E. Technology

To implement the goal of ubiquitous interoperability, all participants to the HIE must agree to adhere to certain policy and technical standards at a level of detail not often found today. Although a number of technical data and messaging standards have been defined for HIT, at this time, there is not a single universal set of standards. There can be a variety of technical, logistical, business, legal and regulatory issues which slow the achievement of interoperability and increase costs, due to a lack of uniform standards and different technologies implemented for each point-to-point connection.

Some of the Use Cases have both administrative and clinical elements, which can easily be observed in the marketplace. In support of this position, approximately 5 percent of hospitals have achieved computerized physician order entry, but 100 percent have some type of patient accounting system in place. Some common data elements and functions which could prove useful in the Use Cases and for many other activities are:

- Positive (credible, reliable) identity information for patients and all other participants in the care delivery process, including but not limited to insurers, employers, physicians, pharmacies, medical equipment suppliers, and administrative agencies
- List of patient visits to participants in the care delivery process

- Secure authentication for participants
- HIPAA compliant audit capabilities, and
- A web based access method for each of the functions.

The following principles must be incorporated into any HIE implementation:

- **Scalable and Extensible:** The technology of each component should allow the transparent addition of additional users (scalability) and new functions (extensibility).
- **Non-Invasive:** The use of the infrastructure must be sensitive to existing components and should not interfere with or, at worst, minimally impact the workflow of care delivery at the regional level.
- **Secure and Private:** All aspects of the infrastructure must utilize best-practice information security and audit techniques and should support compliance with applicable legal requirements relating to medical privacy.
- **Redundant and Survivable:** The underlying architecture must continue operating even when encountering system downtime (planned or unplanned) or catastrophe. In the case of a regional disaster, the infrastructure must survive and function.

Recommendation 5.1

Identify interim health information exchange standards, including but not limited to data and messaging standards. Monitor and actively participate in various Federal initiatives and HIT and HIE forums.

Recommendation 5.2

Ensure secure methods to uniquely identify an individual and practitioner.

Recommendation 5.3

Adopt a “hybrid” connectivity model for health information exchange. While the hybrid connectivity model allows for the use of legacy systems, common data and messaging standards will still be necessary for interoperability.

Recommendation 5.4

Strengthen public health information infrastructure to interconnect sources of health and healthcare data, and where necessary, extend the public health information infrastructure in the underserved areas of Texas.

Recommendation 5.5

State agencies should be required to implement interoperable HIT and HIE systems so that information can be shared between agencies.

There are three primary components to be considered when examining the Texas infrastructure. First, from a connectivity perspective, the public utility companies and other vendors do offer access to the Internet. Though some rural areas may have lower speeds or lack connectivity altogether, the appeal of the Internet as a delivery mechanism is obvious. If the rural areas are underserved, the State (Governor and Legislature) could work to extend the infrastructure to underserved areas. Such efforts would help connectivity, a foundational element to most communications (hand carried records such as smart cards and compact discs, being the exception). Another factor related to infrastructure is how to store and manage data for individuals and organizations, regardless of size. Some stakeholders will not have archival abilities or data storage capacity. Finally, the development of a mechanism for identifying common patients - while many individuals are easily identifiable, several common names, same names and misidentified patients do exist. Developing such a mechanism would be required to keep accurate records for each patient.

F. Privacy and Security

A variety of state and federal regulations and statutes (including HIPAA and the Children’s Online Privacy Protection Act, or COPPA) will affect electronic health information exchange in Texas. Among the key implications of these laws is the requirement that health information included in an electronic health information exchange must be private and secure. Implementation of the Texas Roadmap requires that various legal issues be addressed. Rigorous privacy protection for the health information handled by an electronic health information exchange is essential to the long-term success of the mission. HIT should be used to promote high quality, effective healthcare for the people of Texas. HIT systems must first and foremost serve the needs of patients. Furthermore, Texas should expressly recognize and enforce the individual’s right to privacy and security with respect to the electronic disclosure of identifiable health information.

State Medical Privacy Law

State laws cover several areas related to privacy of health information. These include regulation of health insurance, regulation of organizations that perform certain administrative functions such as utilization review or third-party administration, licensure requirements for various medical specialties and medical organizations (including requirements for record-keeping and disclosure), access to medical records by patients,

guardians and other interested parties, reporting of information to the state and local authorities, e.g., birth and death or disease incidence, use of information for quality assurance and health care operations, issuance of notices of privacy practices, and reporting and providing access to law enforcement authorities. In recent years many states have also passed confidentiality laws related to specific conditions or types of health information. Examples include laws related to mental health records, HIV/AIDS, reproductive rights and genetic testing.

Federal Medical Privacy Law

Chief among federal laws relating to medical privacy is the Health Information Portability and Accountability Act (HIPAA). HIPAA explicitly addresses interaction between federal and state law. Generally, “covered entities” are required to comply with both HIPAA and state law whenever possible. If it is not possible to comply with both, HIPAA preempts any contrary provision of state law, including state law provisions that require written records rather than electronic ones. State law is not preempted in the following circumstances:

- When state law is necessary for regulation of insurance or health plans, prevention of fraud and abuse, or reporting on health care system operations and costs;
- When state law addresses controlled substances;
- When a state law relates to reporting of disease or injury, child abuse, birth, or death, public health

surveillance, or public health investigation or intervention; and

- When a provision of state law is more stringent than the requirements of the federal Privacy Rule.

The most difficult of these exceptions is the stringency exception. A provision of state law is defined to be more stringent if it prohibits or restricts use or disclosure of PHI that would be permitted under the Privacy Rule.

Specifically, a more stringent state law:

- Permits greater rights of access and amendment to the individual who is the subject of the PHI;
- Provides more information about use, disclosure, rights and remedies to the individual;
- Narrows the scope or duration of express legal permission required from the individual for use or disclosure or reduces the coercive effect of the requirement for legal permission for use or disclosure of PHI;
- Increases the duration or requires more detailed accounting of disclosures; and
- Provides greater privacy protection to the individual.

Patient expectations are very clear: the right to medical privacy and the right to control access to PHI, patient safety, and quality healthcare are their primary expectations. Patients may also want the right to opt-in and opt-out of HIEs, the right to segment sensitive data, the right to access and correct PHI, audit trails of all

disclosures, notification of suspected or actual privacy breaches, and meaningful penalties and enforcement at the state and federal levels, including a private right of action.

The Consumer Workgroup considered the issues of HIT and HIE from a purely patient-based perspective. The members of the HITAC recognize that the recommendations and priorities developed by the Consumer Workgroup represent an ideal that must be balanced against public health, public safety, healthcare quality, and patient safety priorities. Core principles that need to be in place include:

- Texans should have control and disclosure over the uses of their protected health information in electronic systems;
- Texas patients should control who can access their personal health information in electronic networks and systems, unless otherwise required by law;
- Texas patients' right of consent, as currently codified in Texas law and medical ethics, must be incorporated into the design of any HIT system in Texas;
- Texas patients must have the right to either opt-in or opt-out of having their records in local, regional, or state health information exchange systems, unless otherwise required by law;
- Audit trails of all disclosures should be required;
- Employers must not have access to medical records;

- Banks and financial institutions must not have access to patient medical records without informed consent; and
- Texas patients should be notified of all suspected or actual privacy breaches.

Important Consideration

Currently, a “best practice” for systems to filter or exclude specific clinical data with 100 percent accuracy is not attainable. There are too many ways to make inferences from most clinical data to completely filter specific types of data. For example, if a patient says “do not tell them about my psychiatric history,” almost one’s entire health record would have to be deleted. How much of the patient’s medication profile infers a psychiatric history, any history and physical or clinical notes may mention the psychiatric history, laboratory tests and results that are associated with a psychiatric diagnosis, and even Radiology procedure notes may contain this information. Hence, the only way to be 100 percent certain of suppression of specific data elements is to opt-out of all sharing that is not mandated by law (e.g., administrative transactions, reportable diseases).

Recommendation 6.1

As part of the next stage of HIT planning being done in Texas, an advisory group should be established to develop policies relating to medical privacy and patient control of personal medical information that accurately reflect the relative preferences of Texas patients.

The advisory group should represent a broad cross-section of participants in the healthcare system. The advisory group should establish a set of baseline requirements regarding privacy of personal medical information as defined in state and federal law and medical ethics. The advisory group should develop a survey designed to accurately assess the relative preferences of Texas patients with respect to privacy of medical information, healthcare quality, patient safety, and convenience. The recommendations of this advisory group should be provided to the statewide coordinating body, Texas Legislature, or any group involved in HIT or HIE planning at the state-level to be used in their development of medical privacy policies relevant to an electronic health information environment.

Recommendation 6.2

In order for the HITAC to fulfill its statutory responsibilities, which require the creation of a “long-range plan for Healthcare Information Technology,” the HITAC must create state legislative awareness of the legal issues surrounding medical privacy, HIPAA and HIE through further research and customized education geared towards State legislators.

The Texas State Legislature should be made clearly aware of all security and confidentiality issues and solutions from existing health information exchanges. This may be accomplished through further research and customized education geared towards State Legislators. The HITAC should recommend continuing education for State Legislators on the federal interpretation and use of the HIPAA regulations as they develop and impact individuals and organizations in the state of Texas. This program could be used to educate the public and stakeholders as well. This may include education on how to actually comply with this complex legislation, taught in laymen’s terms.

Legal justification for this recommendation, specific to HIT, relate to the HITAC’s enabling statute, which states:

“The advisory committee, [HITAC], shall develop a long-range plan for HIT, including the use of EMRs, computerized clinical support systems, computerized physician order entry, regional data sharing interchanges for health care information, and other methods of

incorporating IT in pursuit of greater cost-effectiveness and better patient outcomes in health care.”

Any legislation that may result from the HITAC’s work, must take into consideration the constitutional protections that surround medical information on the Federal level to prevent litigation and the redrafting of legislation. Any legislation related to HIE and HIT as a result of the HITAC’s efforts, must comply with all appropriate HIPAA regulations and requirements.

Recommendation 6.3

Any privacy ruling by the State Supreme Court of Texas that pertain to EMRs and the application of HIPAA should be monitored by the state coordinating body. The state coordinating body should inform the regional HIEs of the interpretations and changes in privacy law as determined by the State Supreme Court.

The recent right to privacy ruling by the State Supreme Court of Texas should be monitored in relation to the case law development of that right as it relates to medical records.

Recommendation 6.4

Establish a patient ombudsman for medical privacy in the Texas Attorney General’s Office to develop model privacy notices, handle and investigate complaints of privacy violations, and to suggest legislative remedies, including penalties and enforcement.

There is a need to establish an entity for patient medical privacy, housed in the Texas Attorney General's Office to handle the complaint process. The Texas Attorney General should develop and disseminate model Privacy Notices that tell patients how to exercise their rights to medical privacy under stronger Texas law and medical ethics. The Texas Attorney General should develop Privacy Notices with input from a broad base of stakeholder organizations. There should be ample opportunity for public comments and participation in the process. Communication will be critical to Texas patients and possibly a website for "Texas patients" should be developed and maintained for two-way communications.

Recommendation 6.5

Consent must be consistent with state and common law, Constitutional law and grounded in medical ethics. The Texas Attorney General should develop and disseminate Model Privacy Notices and Patient Consent Forms.

The Texas Attorney General should develop and promote model patient consent forms with input from a broad base of patient stakeholder organizations. There should be ample opportunity for public comments and participation in the development process. The forms need to be simple and clear.

Recommendation 6.6

Provide formal training for Texas patient and consumer organizations so they can become informed stakeholders and provide leadership

to HIT systems and networks. A state HIE coordinating body or regional HIE initiative should develop a statewide plan for public debate, education, and discussion of HIE implications on medical ethics, Constitutional law, state and common law, and the physician-patient relationship.

Texas should build a patient-centered HIT system. The primary function of an HIT system is for the storage and transmission of medical records and to serve the needs of patients for effective, quality medical treatment. Texas patients must be meaningfully engaged and have a forum for questions and feedback.

Implementation of any regional or national electronic health information network should be accompanied by a significant patient education program so people understand their rights to control access to medical records, how the network/databases will operate, what information will and will not be available on the network/databases, the value of the network/databases, privacy and security protections, how to opt-in and opt-out, and the rights, benefits, and remedies afforded to them. These efforts should include outreach to those without health insurance coverage.

G. Outreach and Marketing

A marketing and outreach/media communications strategy will ensure key stakeholders and the public hear and understand the message about how HIT and HIE can improve the quality, safety, and effectiveness of healthcare. The way an organization communicates (messaging) and raises awareness (dissemination plan) of an issue can directly impact patient and physician behavior. However, messaging and communication channel strategies cannot be created in a vacuum; they must be developed based upon past and current knowledge of the group(s) that the organization is seeking to influence, as well as through focus groups and research with the very audience whose awareness, attitudes, and behaviors the organization is seeking to change.

Several Workgroups made recommendations pertaining to education and marketing. For the purposes of this document, education and marketing are viewed as separate items. The overall marketing recommendation is described below.

Recommendation 7.1

Develop a marketing and outreach/media communications strategy, including HIT and HIE messaging and a dissemination plan.

A marketing and outreach/media communications strategy and dissemination plan is critical to the various stakeholders (e.g., patients, physicians, employers). The responsibilities listed are essential to generating a clear and consistent message and to building enthusiasm.

In addition, it will be necessary to maintain resources to respond to public inquiries and public relations opportunities. Examples of activities to be part of the communications strategy (marketing plan) include, but are not limited to, the following:

- Developing standard presentations
- Establishing and training a speakers bureau
- Establishing media contact(s)
- Developing a media plan
- Distributing quarterly newsletter
- Assisting Governor's office (as requested)
- Reaching out to key stakeholders (especially rural constituencies)
- Maintaining a contact database
- Partnering with existing Texas groups for additional marketing coverage
- Information as to the practice groups/organizations that are using electronic record systems.





VII. Roadmap Implementation

The *Texas Roadmap* contains phased, actionable items, which will enable Texas to reach critical milestones in order to share healthcare information regionally and statewide. The recommendations are presented in four phases and are listed in perceived importance and dependence and many are inter-related and require simultaneous efforts to accomplish successfully. Some recommendations listed may require legislative action and/or state funding appropriations. In addition, there are recommendations that may also require establishing new regulations, modifying existing law, or enacting new law.

Milestones/Activities - can be parallel activities (Workgroup responsible in parentheses)

Phase 1:

- Develop budget for state HIE organization and required initial start-up funding (Financial).
- Establish a convening body to foster HIT/HIE coordination and collaboration (Governance).
- Provide official state representation within the Gulf Coast Task Force (Governance).
- Continue to work with the clinical/use case workgroup to identify feasibility of recommendations and interim exchange standards (Technology).
- Determine pilot criteria and select a pilot project(s) from the analysis of the use cases (Clinical).
- Develop business plans for selected pilot programs (Financial).
- Develop a prioritized inventory of possible regional candidates for HIE (Clinical).
- Leverage existing Texas HIT and HIE initiatives for potential pilots (Clinical).
- Ensure HIT and HIE initiatives are compliant with applicable privacy standards in state and federal law, common law, Constitutional law, the physician-patient privilege, and medical ethics (Privacy and Security).
- Further explore policy changes, which should occur to increase the adoption of EHRs (Privacy and Security).
- Seek legislation to increase EHR adoption within pay-for-performance activities being endorsed by physicians and payers (Privacy and Security).
- Require informed consent consistent with state, common, and Constitutional law grounded in medical ethics (Privacy and Security).
- Market to and educate different audiences about HIT and HIE:
 - Establish a clearinghouse to support information sharing and the formation of a learning community

- Establish a clearinghouse to support information sharing and the formation of a learning community
 - Foster awareness of medical privacy rights, HIPAA, and HIE through customized education geared towards state legislators
 - Provide an education plan using existing state resources (e.g., patient groups, medical ethicists, legal experts on health law, medical privacy groups, TMA, TMF, HIMSS, AHIMA, academia)
 - Support EHR education and training in clinical schools across the provider community using all forms of educational media
 - Create a training program for physicians on adoption, benefits, risks, implementation, and patient-physician EHR etiquette.
 - Receive and administer funds designated at a statewide level (Financial).
 - Monitor and communicate federal developments (Technology).
 - Develop statewide plan for public debate and discussion of HIE implications on medical ethics and laws (HIT Adoption and Implementation).
- Phase 2:**
- Establish baseline of health economics and quality and monitor critical measures and benefits of the effects of HIE (Clinical).
 - Assist agencies in developing and coordinating the sharing of healthcare information within applicable information –sharing constraints (Governance).
 - Identify initial funding sources for regional HIEs (Financial).
 - Incorporate incentives for HIT adoption or HIE participation:
 - Create state incentive programs and other pay-for-performance plans (Financial and EHR Adoption)
 - Create incentives to increase EHR adoption across Texas (Financial and EHR Adoption).
 - Ensure secure methods to uniquely identify an individual and provider (Technology).
 - Adopt a “hybrid” connectivity model for HIE (Technology).
 - Continue education and marketing efforts:
 - Develop and conduct a public relations media campaign
 - Appropriate state funds for formal education and training programs
 - Create and maintain open-source EHR courses and learning environments (seek continuing education units for physicians, nurses, and allied health personnel)
 - Create centers of excellence to facilitate information sharing among all stakeholders through list serves and other online forums (current efforts led by TMA and TMF – Health Quality Institute)

- Incorporate training programs into state health professional schools
- Create a list of provider certified EHR vendors that meet usability standards that minimize workflow disruption on physicians and staff and meet patient expectations such as for privacy, control of access, audit trails, and the right to segment sensitive records.
- Establish a state office for the protection of patient’s medical privacy and medical privacy rights (housed in Texas Attorney General’s office (Governance)).
- Interconnect with sources of health and healthcare data (Technology).

Phase 3:

- Research models to further explore hospital-physician IT collaboration (Clinical).
- Provide best practices, technical assistance, and a governance source for regional initiatives (Governance).
- Proactively promote the use of certified EHR vendor packages to reduce the cost for provider interfaces (HIT Adoption and Implementation).
- Collaborate with other states and Regional HIE entities to further identify more definitive costs and benefits of HIT and HIE (Financial).

Phase 4: (Privacy and Security)

- The Governor’s Office or State Legislature should adopt policies ensuring stakeholders, individuals, and organizations must adhere to HIPAA and are aware of HIPAA requirements and the requirements of other federal and state laws and regulations governing medical privacy
- Develop a set of practical guidelines, which may be implemented by stakeholders to meet the needs of compliance with HIPAA regulations
- Commission an independent research group to keep up with the changes in federal HIPAA regulations.





VIII. Summary of Recommendations

The Workgroups have drafted recommendations that effectively address their specific charges, facilitate the sharing of current established best practices, and represent common concerns expressed by patients and physicians. Relevant education across all levels of the healthcare industry is the best way to transmit applicable evidence of returns on investments and to familiarize practices with the various systems and processes to maintain a manageable learning curve and a minimal workflow decrease upon implementation.

The Texas Medical Association and the TMF Health Quality Institute are in the midst of extensive research and promotion in the area of EHR implementation. The statewide HIE coordinating body could engage these and other similar organizations to support these initiatives. Furthermore, alignment with these third parties helps to establish uniformity and subsequently credibility across statewide and regional initiatives. Also, the involvement of existing initiatives could bring in additional outside funding, thus somewhat alleviating the financial burden on the provider.

Overall the recommendations are not overly demanding on the state from a legislative standpoint or on the provider, financially speaking. However, they greatly

foster the communication and collaboration inherently necessary to allow grassroots regional development to flourish, which is critical for EHR implementation, as well as all other aspects of HIT and HIE.

A. State Level – Legislative

Recommendations which may require state funding appropriations include:

- Funding to establish a state-level, public/private governance organization for HIT/HIE promotion, coordination, and policy development;
- Funding further innovative development of operational regional HIEs in Texas, as well as the initial start-up of regional HIEs;
- Funding to support formal education and training programs and to create the Centers of Excellence;
- Funding to develop and conduct a public relations marketing campaign; and
- Funding to establish a baseline study of Texas health economics and quality and to monitor and measure the outcomes and benefits of specific HIE implementations.

Recommendations which may require establishing regulatory function, modifying existing law, or enacting new law include:

- Creation of an entity to monitor patient privacy complaints;
- Creation of an office to monitor privacy compliance;
- Creation of an independent state controlled group responsible for auditing HIPAA compliance;
- Creation of an independent oversight committee to ensure any future legislation regarding the uniform use of software, networking, and business practices takes HIPAA requirements into consideration;
- Provision of HIPAA and privacy requirements awareness and enforcement;
- Commission of an independent research group to remain abreast of changes in HIPAA regulations;
- Analysis of policy changes around peer review, safe harbor, malpractice laws, and other regulations;
- Development of possible legislation to implement financial incentives in state run programs and/or state tax or licensing laws;
- Development of a statewide plan for public debate and discussion of HIE implications on medical ethics and laws;
- Provision of an education plan using existing state resources (e.g., TMA, TMF, HIMSS); and
- Receipt and administration of funds for regional HIEs.

From a legislative standpoint, the easiest and most important next steps to take are tied to the various Workgroup’s education-related recommendations. For example, the Health Care Policy Council could support the process by promoting changes in the current curriculum of all clinical training institutions for the sake of future healthcare practitioners. Furthermore, the Health Care Policy Council could recommend the Texas Medical Board, specialty societies, and other certified organizations encourage training for current healthcare professionals.

The majority of the remaining state-level recommendations concern the establishment and functions of a public/private governance organization. Critical functions include providing guidance, support, and coordination to regional level HIE organizations, building a statewide health information infrastructure, establishing statewide standards for data interoperability, and coordinating the use of existing resources.

B. Regional Level

With the development of grassroots regional HIE initiatives, many of the recommendations surrounding the governance, funding, education, marketing, technical, and clinical functions are at this level. Key regional governance issues to be determined by individual HIE organizations include start-up activities such as establishing a board of directors, developing business plans, securing funding sources, determining membership requirements, and establishing the legal structure of the organization. It is critical for the various regional level HIEs to be a part of the larger statewide initiative as appropriate.

C. Provider-Centric

Specific recommendations directed to the provider community relate to education, finance, marketing, and clinical use cases. Finance-related recommendations include providing funds to establish regional HIEs, determining ways to incentivize physician adoption of HIT, and assisting in the development of business plans. Education related recommendations involve the support of EHR education and training programs across the provider community using all forms of educational media to inform physicians on adoption and implementation benefits. Other recommendations involve proactively promoting the use of proven EHR vendor packages to reduce the cost for provider interfaces, implementing standards for interoperability, and researching methods to facilitate hospital-physician IT collaboration.

D. Patient-Centric

The HITAC recommendations, first and foremost, are based on the premise that HIT and HIE efforts should lead to improving the quality, privacy, safety, and efficiency of patient healthcare delivery. Recommendations specific to patients include providing education and outreach programs so patients may understand the benefits and risks of HIT and HIE. Other key recommendations empower the patient by

establishing oversight bodies to protect and enforce their individual privacy rights under federal and state law. Outreach materials and patient tools should be developed with readability, language appropriateness, and general user friendliness as important factors to consider. Other key recommendations could empower the patient by establishing oversight bodies and protecting their individual privacy rights under federal and state law.

E. Conclusion

Advocates of EHRs say health records, which can be shared anywhere after patients give informed consent, are the foundation for widespread adoption of IT in the health care industry. The records are convenient for patients, can significantly reduce medical errors, can increase patient control of access to records and increase the privacy of records, and can help public health experts track health problems in populations. The health care industry needs to adopt technology to cut skyrocketing costs, improve efficiency, and improve privacy. Despite the current risks and concerns, EHRs and HIE with strong patient privacy and security protections are essential to the future of Texas' health care industry.





IX. Appendices

Appendix A: Participant List

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Appendix B: Use of Health Information Technology by State Agencies

The particular agencies/programs using EHR systems or collecting significant amounts of clinically relevant data are as follows:

- Texas Department of Criminal Justice:
 - EHR for all inmates
- Texas Youth Commission:
 - EHR for all inmates
- Texas Health and Human Services Commission:
 - Forthcoming “medical passport” for all kids in foster care
 - Medicaid and CHIP systems collect claims data including medication history
- Texas Department of State Health Services
 - Shared EHR for substance abuse providers
 - Shared EHR for state hospitals
 - Some form of EHR in many community MHMR centers
 - Personally identified data on birth, death, immunizations, cancer, infectious diseases (STDs, HIV, tuberculosis, etc.), birth defects, trauma, hospital discharge, and newborn screening results

Appendix C: Glossary

Agency for Healthcare Research and Quality (AHRQ)

A national entity whose goal is to support, conduct, and disseminate research that improves access to care and the outcomes, quality, cost, and utilization of healthcare services. This mission is fulfilled through establishing a broad base of scientific research and promoting improvements in clinical and health system practices, including the prevention of diseases and other health conditions.

American Health Information Community (AHIC)

Created by the Secretary of HHS to: 1) advise the Secretary and recommend specific actions to achieve a common interoperability framework for health IT; and 2) serve as a forum for participation from a broad range of stakeholders to provide input on achieving interoperability of health IT.

Anti-Trust Laws

These prohibit agreements in restraint of trade, monopolization and attempted monopolization, anticompetitive mergers and tie-in schemes, and, in some circumstances, price discrimination in the sale of commodities. Anti-Kickback Statute (71FR45140 and 71FR45110 respectively) – See STARK Laws.

Centers for Medicare and Medicaid Services (CMS)

The CMS, through the Health and Human Services Administration, seeks to protect and improve beneficiary health and satisfaction; foster appropriate and predictable payments and high quality care; promote understanding of CMS programs among beneficiaries, the healthcare community, and the public; promote the fiscal integrity of CMS programs and be an accountable steward of public funds; foster excellence in the design and administration of CMS programs and provide leadership in the broader healthcare marketplace to improve health.

Certification Commission for Healthcare Information Technology (CCHIT)

A group whose mission is to accelerate the adoption of robust interoperable HIT throughout the US healthcare system, by creating an efficient, credible, sustainable mechanism for the certification of HIT products.

Chronic Care Management

A process used to administer care for high-cost beneficiaries in order to control costs.

Clinical Messaging

Secure electronic transmission of structured data that contains patient information that is exchanged between healthcare parties.

Computerized Clinical Support Systems (or Clinical Decision Support System)

Any system designed to improve clinical decision making related to diagnostic or therapeutic processes of care. CDS systems thus address activities ranging from the selection of drugs (i.e., the optimal antibiotic choice given specific microbiologic data or diagnostic tests) to detailed support for optimal drug dosing and support for resolving diagnostic dilemmas.

Computerized Physician Order Entry (CPOE)

A computer application that allows a physician's orders for diagnostic and treatment services (such as medications, laboratory, and other tests) to be entered electronically instead of being recorded on order sheets or prescription pads. The computer compares the order against standards for dosing, checks for allergies or interactions with other medications, and warns the physician about potential problems.

Confidentiality

Data Confidentiality is whether the information stored on a system is protected against unintended or unauthorized access. A measure of the ability of the system to protect its data.

Continuity of Care

The process by which the patient and the physician are cooperatively involved in ongoing healthcare management toward the goal of high-quality, cost-effective medical care.

Disease Management

A system of coordinated healthcare interventions and communications for populations with conditions in which patient self-care efforts are significant. Disease management supports the physician or practitioner/patient relationship and plan of care, emphasizes prevention of exacerbations and complications utilizing evidence-based practice guidelines and patient empowerment strategies and evaluates clinical, humanistic, and economic outcomes on an on-going basis with the goal of improving overall health.

Doctor's Office Quality Information Technology (DOQ-IT)

Promotes the adoption of electronic health record (EHR) systems and information technology (IT) in small-to-medium sized physician offices with a vision of enhancing access to patient information, decision support, and reference data, as well as improving patient-clinician communications.

Document Management System

Document management systems are made up of software designed to manage all types of documents, including scanned, electronic and paper. All documents are stored in a single repository that facilitates all actions that need to take place from search and retrieval to email and printing. A document management system implies the ability to manage the individual documents within an individual physician's office.

Electronic Health Record (EHR)

An electronic health record is an electronic patient record that resides in a system specifically designed to support users by providing accessibility to complete and accurate data, alerts, reminders, clinical decision support systems, links to medical knowledge, and other aids. The eight core functions are health information and data, result management, order management, decision support, electronic communication and connectivity, patient support, administrative processes and reporting, and reporting and population health (Institute of Medicine).

Electronic Health Record-Lab Interoperability and Connectivity Standards (ELINCS)

A project for developing a national standard for the delivery of real-time laboratory results from a lab's information system to an electronic health record.

Electronic Medical Record (EMR)

A computerized practice management system providing real-time data access and evaluation in medical care. Together with clinical workstations and clinical data repository technologies, the EMR provides the mechanism for longitudinal data storage and access. A motivation for healthcare providers to implement this technology derives from the need for medical outcome studies, more efficient care, speedier communication among providers, and easier management of health plans.

Electronic Prescribing

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.

Health Information Exchange (HIE)

The mobilization of healthcare information electronically across organizations within a region or community. HIE provides the capability to electronically move clinical information between disparate healthcare information systems while maintaining the meaning of the information being exchanged. The goal of HIE is to facilitate access to and retrieval of clinical data to provide safer, more timely, efficient, effective, equitable, patient-centered care.

Health Information Technology (HIT)

The application of information processing involving both computer hardware and software that deals with the storage, retrieval, sharing, and use of healthcare information, data, and knowledge for communication and decision making.

Health Information Technology Advisory Committee (HITAC)

An assembly of healthcare stakeholders within Texas that reports to the SHCC. The group, represented by patients, payors, purchasers, and providers, assesses potential strategies and barriers to the advancement of health information technology within the state from technological, procedural, and interpersonal standpoints.

Healthcare Information and Management Systems Society (HIMSS)

The healthcare industry’s membership organization exclusively focused on providing leadership for the optimal use of HIT and management systems for the betterment of human health.

Health Insurance Portability and Accountability Act (HIPAA)

Enacted by the U.S. Congress in 1996. According to CMS, Title I of HIPAA protects health insurance coverage for workers and their families when they change or lose their jobs. Title II of HIPAA, the Administrative Simplification provisions, requires the establishment of national standards for electronic healthcare transactions and national identifiers for providers, health insurance plans, and employers.

Informed Consent

Informed consent is a process of information exchange that may include, in addition to reading and signing the informed consent documents, subject recruitment materials, verbal instructions, question/answer sessions and measures of subject understanding. The clinical investigator is responsible for ensuring that informed consent is obtained from each research subject before that subject participates in the research study.

Institute of Medicine (IOM)

A nonprofit organization specifically created for this purpose as well as an honorific membership organization, the IOM was chartered in 1970 as a component of the National Academy of Sciences. The IOM’s mission is to serve as an advisor to the nation to improve health. The Institute provides unbiased, evidence-based, and authoritative information and advice concerning health and science policy to policy-makers, professionals, leaders in every sector of society, and the public at large.

International Classification of Disease, 9th Revision (ICD-9)

The 1972 revision of the international disease classification system developed by the World Health Organization. The International Statistical Classification of Diseases and Related Health Problems (commonly known as ICD) is a detailed description of known diseases and injuries. It is published by the World Health Organization and is used world-wide for morbidity and mortality statistics, reimbursement systems and automated decision support in medicine. The ICD is a core classification of the WHO Family of International Classifications.

Interoperability

The ability to exchange and use information (usually in a large heterogeneous network made up of several local area networks). Interoperable systems reflect the ability of software and hardware on multiple machines from multiple vendors to communicate.

Master Patient Index (MPI)

A software database program that collects a patient's various hospital identification numbers, perhaps from the blood lab, radiology, admission, and so on, and keeps them under a single, enterprise-wide identification number.

Medical Trading Area (MTA)

MTAs are usually a geographic area defined by where a population cluster receives their medical services. It is an area in which groups of physicians, hospitals, labs and other providers work together to serve a population of patients.

Office of the National Coordinator for Health Information Technology (ONC)

Under the Department of Health and Human Services, the ONC provides leadership for the development and

nationwide implementation of an interoperable health information technology infrastructure to improve the quality and efficiency of healthcare and the ability of patients to manage their care and safety.

Opt-in and Opt-out

Opt-in. Each individual must consent to inclusion of their records before any information is exchanged.

Opt-out at the institutional level. Each practice or institution will make information available but at each visit the patient will be allowed to state that they do not want any record of their visits to the practice or institution included in the record locator service (and hence their medical information from that practice or institution will not be made available through the health information exchange).

Opt-out at the exchange level. If an individual wants their information to be excluded, they must inform any institution of this choice and their choice will be propagated among all institutions so that no information is made available in the record locator service (and the health information exchange).

Opt-out at the record/encounter level. Individuals should be able to exclude specific visits, diagnoses, or medications on a case-by-case basis

No Opt. Individuals have no choice in the matter. Any measures to allow individual control are not practical and instead technical and policy energies should be focused on ensuring all access is authorized and consistent with use limitation and generally accepted medical practices.

Case-by-Case. Individuals have direct control over every request for information outside of reporting requirements and practices required by law.

Pandemic

An epidemic (an outbreak of an infectious disease) that spreads worldwide or at least across a large region.

Patient Record Locator

An electronic health record locator that would help patients and clinicians locate test results, medical history, and prescription data from a variety of sources. For example, a physician could use the locator to find out which other physicians have information on a patient that he is seeing. A record locator would act as a secure health information search tool.

Personal Health Record (PHR)

An electronic application through which individuals can maintain and manage their health information (and that of others for whom they are authorized) in a private, secure, and confidential environment.

Practice Management System (PMS)

Part of the medical office record. It carries the financial, demographic and non-medical information about patients. This information frequently includes: patient's name, patient's federal identification number, date of birth, telephone numbers, emergency contact person, alternate names for the patient, insurance company, subscriber information for an insurance company, employer information, information to verify insurance eligibility, information to qualify for lower fees, and provider numbers to process medical claims.

Privacy

Right of an individual to control the circulation of information about him-/herself within social relationships; freedom from unreasonable interference in an individual's private life; an individual's right to protection of data regarding him/her against misuse or unjustified publication

Protected Health Information (PHI)

Under HIPAA, protected health information includes any individually identifiable health information. Identifiable refers not only to data that is explicitly linked to a particular individual but it also includes health information with data items which reasonably could be expected to allow individual identification.

Quality Improvement Organization (QIO)

Medicare QIOs work with patients, physicians, hospitals, and other caregivers to refine care delivery systems to make sure that patients get the right care at the right time, particularly among underserved populations. The program also safeguards the integrity of the Medicare trust fund by ensuring payment is made only for medically necessary services, and investigates beneficiary complaints about the quality of care. Under the direction of CMS, the program consists of a national network of fifty-three QIOs responsible for each U.S. state, territory, and the District of Columbia.

Record Locator Service (RLS)

A Record Locator Service (RLS) usually consists of a database which functions to identify all of the enterprises or places where healthcare information may exist for a given patient, but it does not maintain actual healthcare information on any patient. The RLS is subject to privacy and security requirements, and is based on open standards set by the Standards and Policy Entity. There are different technologies available to perform this function including algorithmic processes which match the demographic information contained in new patient records with existing records.

The RLS holds information authorized by the patient about where authorized information can be found, but not the actual information the records may contain. It thus enables a separation, for reasons of security, privacy, and the preservation of the autonomy of the participating entities, of the function of locating authorized records from the function of transferring them to authorized users. RLSs are operated by multi-stakeholder collaboratives at each sub-network and are built on the current use of Master Patient Indices.

Results Delivery Service

A service that delivers clinical results from labs to the ordering clinician in the formats that they require. Examples of results could include blood tests, immunology, pathology reports, X-ray, CAT scan, mammography, transcribed reports, etc. The service will deliver those results to the ordering physicians and to anyone else requiring a copy of those results.

Request for Proposal (RFP)

An invitation to suppliers, through a tender process, to bid on a specific product or service. An RFP typically involves more than the price. Other requested information may include basic corporate information and history, financial information, technical capability, product information such as stock availability and estimated completion period, and customer references that can be checked to determine a company's suitability.

Regional Health Information Organization (RHIO)

Multi-stakeholder organizations expected to be responsible for motivating and causing integration and information exchange in the nation's revamped healthcare system. Generally these stakeholders are developing a RHIO to affect the safety, quality, and efficiency of healthcare as well as access to healthcare as the result of health information technology.

Safe Harbors/Self Referral Regulations

See STARK Laws

Southern Governors' Association (SGA)

A group that supports the work of Southern governors by providing bipartisan, regional forums to help shape and implement national policy and to solve state and regional problems.

STARK Laws

These laws govern against physician self-referrals due to the inherent conflict of interest given the physician's position to benefit from the referral. This conflict of interest can result in the over-utilization of services which, in turn, drives up healthcare costs.

Statewide Health Coordinating Council (SHCC)

A 17-member, primarily governor-appointed council ensuring that healthcare services and facilities are available to all Texans through health planning activities. The council then makes recommendations to the governor and the legislature through the Texas State Health Plan.

SureScripts

Founded in 2001 by the National Association of Chain Drug Stores (NACDS) and the National Community Pharmacists Association (NCPA) to improve the quality, safety, and efficiency of the overall prescribing process. The SureScripts Electronic Prescribing Network is the largest network to link electronic communications between physicians and pharmacies, allowing the electronic exchange of prescription information.

Texas Department of State Health Services (DSHS)

The DSHS promotes optimal health for individuals and communities while providing effective health, mental health and substance abuse services to Texans.

Texas Health Care Policy Council

A new entity within the Office of the Governor. The council's responsibilities include: ensuring effective collaboration among state agencies, promoting and facilitating the use of technology in healthcare, and maintaining a clearinghouse of information on the needs of local healthcare systems.

Texas Health Institute

A nonpartisan, nonprofit organization providing leadership in the development of healthcare solutions. The Institute is a think tank – providing innovative, collaboratively developed options to improve the health of Texans.

Texas Medical Association (TMA)

A group of more than 40,000 physician and medical student members providing Texas physicians with distinctive solutions to the challenges they encounter in patient care. TMA priorities include making healthcare affordable and accessible to all Texans, protecting patient safety, and promoting the wise and effective use of health information technology.

Use Case

A use case is a technique for capturing the potential requirements of a new system or software change. Each use case provides one or more scenarios that convey how the system should interact with the end user or another system to achieve a specific business goal. The use case should contain all system activities that have significance to the users. A use case can be thought of as a collection of possible scenarios related to a particular goal, and sometimes the use case and goal are considered to be synonymous.

Appendix D: References

1. Senate Bill 45: Advisory Committee on Health Care Information Technology. Effective Date: September 1, 2005. SB45 adds Section 104.0156 to the Texas Health and Safety Code.
2. Health Information Technology (HIT) is the local deployment of technology to support specific organizational business and clinical requirements. HIT is the technology employed within a provider organization (physician or hospital) or other service provider and includes such items as Electronic Health Records (EHR) systems, Practice Management Systems, and other administrative and workflow systems.

Health Information Exchange (HIE) is the sharing of data electronically across (between) organizations within a community, region, state, or across state borders. Examples include Patient Health Summary, Web Portal, Master Patient Index, Provider Index, and Longitudinal Medication Reconciliation).
3. Foundation for eHealth Initiative arranged for the following subject matter experts to share their insights and experiences: Dr. Marc Overhage (Regenstrief Institute); Shaun Grannis (Regenstrief Institute); Michael Heekin (Chair, Florida Health Infrastructure Advisory Board); Gerry Hinkley, Esq. (Davis, Wright & Tremaine, LLP); Jay McCutcheon (Director, Michiana Health Information Network); Chris Muir (Strategic Projects Manager, State of Arizona); Dr. Bill Braithwaite (eHealth Initiative); and Dr. Deborah C. Peel (Patient Privacy Rights Foundation).
4. *Health Information Exchange in Texas: Current Status and Future Potential*, prepared by the Foundation for eHealth Initiative and Partners, June 2006.
5. *The Value of Computerized Order Entry in Ambulatory Settings*, Center for Information Technology Leadership, December 2004.
6. Ibid.
7. *The Value of Healthcare Information Exchange and Interoperability*, Center for Information Technology Leadership, 2004.
8. Leape LL, Bates DW, Cullen DJ, Cooper J, Demonaco HJ, Gallivan T, et al. Systems analysis of adverse drug events. ADE Prevention Study Group. *JAMA*. 1995;274: 35-43.
9. A Medical Trading Area (MTA) is defined as a geographic location where patients receive medical services by doctors, hospitals, laboratories, pharmacies and others that are working together (formally or informally). Source: Arizona Health-e Connection Roadmap, Chris Muir, Strategic Projects Manager, presented to the HITAC, April 28, 2006.

10. FeHI arranged for the following subject matter experts to share their insights and experiences: Dr. Marc Overhage (Regenstrief Institute); Shaun Grannis (Regenstrief Institute); Michael Heekin (Chair, Florida Health Infrastructure Advisory Board); Gerry Hinkley, Esq. (Davis, Wright & Tremaine, LLP); Jay McCutcheon (Director, Michiana Health Information Network), Chris Muir (Strategic Projects Manager, State of Arizona), and Dr. Bill Braithwaite (eHealth Initiative).
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12. M. Allen, "Bush Touts Plan for Electronic Medicine," Washington Post, May 28, 2004
13. <http://www.hhs.gov/healthit/proposals.html>
14. <http://www.os.dhhs.gov/news/press/2005pres/20051110.html>
15. <http://www.hhs.gov/500DayPlan/500dayplan.html>
16. <http://www.hhs.gov/healthit/ahic.html>
17. <http://www.hhs.gov/healthit/ahic.html>
18. *The Value of Computerized Order Entry in Ambulatory Setting*, Center for Information Technology Leadership, December 2004.
19. *The Value of Healthcare Information Exchange and Interoperability*, Center for Information Technology Leadership, 2004.
20. J.D. Kleinke, "Dot-Gov: Market Failure And the Creation of a National Health Information Technology System," Health Affairs, September 2005, <http://content.healthaffairs.org/cgi/content/abstract/24/5/1246>.
21. See the Leapfrog Group Hospital Survey (2005) - <http://www.leapfroggroup.org>.

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