HEALTH PASSPORT FEASIBILITY STUDY

Report to the Texas Legislature

As Required by S.B. 10, 80th Legislature, Regular Session, 2007

Health and Human Services Commission
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Executive Summary

Pursuant to S.B. 10, 80th Legislature, Regular Session, 2007, the Health and Human Services Commission (HHSC) is required to conduct a study on the feasibility of expanding a health passport to individuals under the age of 19 enrolled in Medicaid and the Children's Health Insurance Program (CHIP). As required by legislation, the study examines the cost-effectiveness of a health passport in conjunction with the coordination of health benefits. The study also identifies barriers to the implementation of a health passport and makes recommendation for removal of all barriers identified, in addition to examining the impact on quality a health passport may have on the Medicaid and CHIP population. Finally, the study shows the fiscal impact to the state for adding a health passport in Medicaid and CHIP.

In addition to the study requirements noted in rule, HHSC expanded the scope of the study to include providing a health passport to all Medicaid and CHIP recipients because of the potential benefits a health passport may have for adults with disabilities and to take advantage of the economies of scale. HHSC also studied the feasibility of adding electronic prescribing, also known as e-prescribing, in Medicaid and CHIP because of growing interest in this capability.

It is important to note a distinction regarding the Foster Care Health Passport (FCHP). The legislation referenced above specifically refers to the expansion of the health passport beyond the foster care population. The health passport is the name of the system used in Medicaid to provide a claim-based electronic health record to the foster care population. For consistency with national definitions and terminologies, the term "health passport" refers to the current foster care product in Texas Medicaid. The term "electronic health record" (EHR) is used generically to refer to a product similar to the health passport that may be developed for all Medicaid and CHIP recipients.

HHSC conducted an analysis of expanding the health passport to the Medicaid and CHIP population and determined that the existing health passport could not be expanded beyond the foster care population for which it was originally designed. The health passport was designed to support a closed managed care network that was set up exclusively for the foster care population and the network of providers that serve them. As such, the current roles-based access in the health passport is not set up to manage and control access to health information by providers outside the network. However, the experience achieved through the development of this model and other legislatively directed health information technologies may be leveraged for future projects.

While the existing health passport would not support program-wide expansion, the study concluded that the Medicaid Eligibility and Health Information Project (MEHIP) currently under development could serve as the foundation for implementing an EHR for individuals enrolled in Medicaid and CHIP in the near future. MEHIP will replace the existing paper-based Medicaid identification form with a Medicaid identification card and incorporate access to EHR information.

An analysis of e-prescribing concluded that Texas Medicaid and CHIP may enable e-prescribing by participating in electronic information exchange networks already established for e-prescribing. E-prescribing is more than sending a prescription electronically to the pharmacy; it provides important decision support information to the prescribers at the time of care. This capability helps prescribers make informed decisions when prescribing medications for patients. The system informs prescribers of member drug benefits and formulary information, including preferred drugs. Additionally, prescribers can use the system to access the patient's prescription history and potential drug-to-drug interactions, ensuring that prescriptions are safe for the patient given their medication history. As such, e-prescribing will complement the development of an EHR.

HHSC recommends that EHR and e-prescribing solutions be implemented in incremental steps with each increment adding new data and features that will result in a robust EHR and e-prescribing capabilities that would enable two-way information exchanges in the future. Further, HHSC recognizes that the success of these initiatives hinges on broad provider adoption and recommends that strategies and incentives be developed to promote the use of these solutions by Medicaid and CHIP providers.

Background and Overview

To meet the legislative directives and further analyze the feasibility of expanding an EHR and e-prescribing to individuals enrolled in Medicaid and CHIP, HHSC developed the following objectives:

(1) Define key terms and concepts applicable to health information technology (IT).
(2) Evaluate the benefits and barriers to implementing an EHR and e-prescribing in Texas Medicaid and CHIP and make recommendations, including strategies for the removal of barriers.
(3) Determine the status of applicable standards related to the EHR and e-prescribing.
(4) Review initiatives in Medicaid and CHIP and elsewhere in the state that may influence or impact the implementation of EHR or e-prescribing.
(5) Research EHR and e-prescribing initiatives in other states.
(6) Assess the system environment available today and areas where modifications may be needed to provide an EHR to Medicaid /CHIP recipients and enable e-prescribing.
(7) Determine viable options that can be adopted in Texas Medicaid and CHIP and assess cost.

Health Information Technology Terms and Concepts

The terminology used in the field of health technology can be difficult to understand and is sometimes confusing. Two commonly used terms in health information technology, electronic health record (EHR) and electronic medical record (EMR), are often used interchangeably. However, the meanings of these terms, while related, are different. Both EMR and EHR systems contain patient-specific health information. However, the breadth of the information included in these systems, the control of data and access to the systems, and the extent to which health information is exchanged distinguish an EMR from an EHR system.

Each provider organization is responsible for creating and maintaining either traditional paper-based records or electronic medical records on each individual they serve. In the case of electronic records, the provider organization is responsible for the EMR system and the information it contains on individuals. The provider organization may exchange medical records within its affiliated organization by using one common EMR system. Access and use of the EMR system is typically limited to the staff and providers within the organization.

EHR systems aggregate electronic health information from multiple provider organizations to form a more complete, longitudinal health history for individuals. To accomplish this, EHR systems rely on interoperability across multiple electronic systems to retrieve the data. Interoperability is a consistent, standardized method of exchanging electronic health information between systems. EHR systems typically manage and control access to health records by establishing rules that are defined by a governance body.

EMR systems do not include a complete, longitudinal health record for individuals across multiple organizational entities like an EHR. While EMR systems may have some

"intra"-operability for exchanging information within the provider organization, they are not necessarily interoperable across multiple provider organizations like EHR systems.

EMR systems maintain electronic records on patient encounters at one particular physician practice. As such, the EMR contains the provider's own records of the care delivered to his or her patients during visits or encounters. Patient information gathered during each encounter is recorded in the EMR including vital signs, medical problems, procedures performed or ordered, prescriptions written, etc. Except for information that the patient self-reports to the provider, EMR systems do not provide health information from encounters the patient had with other unaffiliated health care providers. Patient self-reported information may not be accurate or complete.

An EHR system is separate from an EMR system. An EHR system gathers electronic health information on individuals from multiple, disparate health care systems, sometimes including EMR systems, and makes it available to authorized providers. Health plans have been very active in developing EHR systems since they are a central to most providers delivering health care to insured members. Using electronic health information included in claims and other system interfaces, health plans are able to aggregate health history information on members across providers. Thus, an EHR helps providers understand the breadth of a patient's conditions and treatments over time and across multiple providers.

For additional definitions and discussion of commonly used health information technology terms and concepts, see Appendix A of this report.

Benefits of Health Information Technology (Health IT)

Health IT consists of a complex set of technologies, policies, and standards that promise to revolutionize the delivery of health care. Health care today is highly specialized. Several health care professionals are often involved in a single health event, or may be involved in caring for an individual over time. Few individuals receive health care exclusively from a single provider. This is especially true for individuals that have serious, multiple, or chronic health care needs. The ability to electronically share health information is the key component to effectively coordinating and providing comprehensive care to patients.

Studies show that the use of historical health information at the point of care may reduce opportunities for medical errors and avoid treatments that may be unnecessary or duplicative. The value of compiling health information electronically is expected to increase as more health care organizations implement systems that enable electronic health information exchange (HIE). As technology evolves, patients will have greater access to their health information electronically through personal health record (PHR) systems and may become more engaged in their own health care. At the core of health IT today is the ability to use technology to improve the quality and efficiency of the communication between health care organizations by exchanging health information electronically.

EHRs and HIEs have the potential for additional benefits, beyond increased provider communication, including:

- Reduction in health care costs due to greater ability to control costs by reducing fraud and improving coordination of benefits.
- Provider and patient convenience.
- Reductions in medical errors and adverse events.
- Increased efficiencies.
- Opportunities to improve public health networks that track and help prevent the spread of disease through biosurveillance.

It has been widely published that the broad adoption of EMR and EHR systems in the United States will result in cost savings in the health care system by improving efficiencies, reducing medical errors, and improving health outcomes. The savings that may be seen through adoption of this technology have not been quantified. The full promise of electronic health care systems will not be appreciated in the United States for many years because most medical records are still stored in inefficient paper-based systems and cannot be readily used to coordinate care, measure quality, or reduce medical errors.[1]

Reaching the full potential of EHRs not only requires widespread provider adoption of EMRs, it requires the effective and efficient exchange of electronic records across provider organizations. A long-term commitment for the advancement of health IT systems, where health care information is gathered electronically with systems that are fully interoperable and networked to exchange health information, is needed across the industry to fully realize the potential benefits. In addition to the time needed to fully incorporate technology in mainstream practice, adoption issues remain as seen with e-prescribing. Networks that support e-prescribing are available nationwide; however, adoption by prescribers remains very low. While e-prescribing initiatives across the country are increasing, at the end of 2007, only two percent of the eligible prescription transactions in the United States were e-prescribed.[2]

The many benefits of health IT can only be realized as these interoperable components are utilized by providers. Providers may begin to take incremental steps to adoption by implementing e-prescribing capabilities or EMR systems in their medical practices. Payors may further participate by offering access to claims-based EHR systems. Industry-based collaboratives and community-based provider cooperatives, such as health information organizations (HIOs), will broaden health information exchange as communication hubs and exchange networks are developed to support them. Eventually, these networks will be interconnected adding wider opportunities for providers to exchange health information.

1 Can Electronic Medical Record Systems Transform Health Care? Potential Health Benefits, Savings, And Costs, Richard Hillestad, James Bigelow, Anthony Bower, Federico Girosi, Robin Meili, Richard Scoville and Roger Taylor, Economics of Health Information TechnologyHealth Affairs, 24, No. 5 (2005): 1103-1117 http://content.healthaffairs.org/cgi/content/full/24/5/1103.

2 Electronic Prescribing: Becoming Mainstream Practice, A Collaborative Report from the eHealth Initiative and The Center for Improving Medication Management, June 2008.

The remainder of this section discusses the benefits of implementing an EHR using available claims data and other client health data available in state systems. It also discusses the benefits of making e-prescribing available to providers that prescribe medications to Medicaid and CHIP clients. Many of the benefits to e-prescribing are similar to those of EMR and EHR systems. However, since e-prescribing can be implemented independent of such systems, a summary of the e-prescribing benefits are outlined separately at end of this section.

Benefits of Claims-Based Electronic Health Records

An EHR system may help health care providers form a more comprehensive evaluation of patient health. Through an EHR, providers can obtain information on a patient's treatment history, including diagnoses, medications prescribed, and procedures or tests performed. These systems can be expanded to aggregate additional health information on clients from other sources in the state. The EHR system can also provide other useful tools to the provider including the ability to enter client specific health information such as vital signs and allergies, reminders and alerts, and specialty forms and templates that may be viewed by individuals with access to the system.

Using the EHR to enter or access basic patient information may increase the provider's ability to avoid medical errors or unintended consequences. Critical patient information, such as known allergies, adverse drug interactions, and complications, will be more readily available to other providers and will help prevent some medical errors and unintended consequences.

EHR systems may reduce duplicate treatments and associated health care costs. Duplication of costly and time-consuming tests and medications may be reduced because providers are made aware through recent claims history of recent tests performed and medications ordered by other providers. In addition, the EHR will help to identify the provider(s) that ordered the tests or medications. This information enables the treating provider to improve coordination efforts, which may include sharing test results rather than repeating costly treatments.

EHR systems may improve coordination of benefits and reduce costs. The ability to share demographic and insurance plan information between providers and health plans reduces the information that a patient needs to submit to multiple providers, ensures coordination of coverage across plans, and may decrease out-of-pocket expenses for plan members.

EHR systems provide for increased transparency of health information allowing specific health care issues to be addressed. Greater visibility of health care information promotes benchmarking of health care performance. A Medicaid and CHIP EHR system could be tailored to analyze and report on defined quality measures across providers. These systems could also be customized to assist with specific management strategies within the health plans and improve health care quality across providers.

EHR systems may be leveraged to provide health information to clients and encourage them to become more informed and engaged in their own health care. Through greater information sharing, providers and consumers can increase and improve communications. Providers can target education about healthy choices and disease prevention, follow-up with clients regarding

treatment compliance, and track intervention activities. Clients' access to their EHR information can be customized with client-specific health education and outreach programs.

Benefits will increase as the amount and quality of the information shared electronically increases. Information available through payor EHR systems will expand beyond claims as use of EMR systems in clinical settings increases and greater interoperability across EHR and EMR systems becomes possible. Interoperability between systems allows providers to access and share more comprehensive and increasingly complex clinical information across health information networks.

Health information, such as results from laboratory and diagnostic tests, patient allergies, and interactions and information on patient complications, will become available. Providers will realize improvements in coordination of care when electronic referrals include access to relevant data on patient condition, and disease management activities are better coordinated and more effective.

Electronic records offer administrative efficiencies for providers. In addition to clinical benefits, providers will begin to realize administrative efficiencies as reliance on labor-intensive and manual processes are further reduced. As providers focus more time on patient care and outcomes, patient involvement and compliance in their health care will improve. Providers, patients, and payors benefit when more comprehensive, timely, efficient, and effective provision of health care services are achieved.

Benefits of E-prescribing

The volume and complexity of prescription drugs has been rapidly increasing in the United States in recent years. According to information provided in a recent report issued by the eHealth Initiative and the Center for Improving Medication Management, there were 964 million visits to physicians' offices in the United States in 2005, and four out of five patients who visit a doctor leave with at least one prescription. Over 3.52 billion prescriptions are written annually, with 59 percent for the under-65 population and about 80 percent for the over-65 population. The volume is expected to grow to 4.1 billion in 2010. About half of the prescriptions can be addressed with electronic prescribing, including new prescriptions and renewals.[3]

E-prescribing reduces the potential for errors and increases safety. Handwritten prescriptions pose significant issues to the prescribing process. Illegible handwriting, mistakes in data entry at the pharmacy, and prescribers' reliance upon limited information about other medications the patient may already be taking all contribute to errors in prescribing. With the use of e-prescribing, these potential risks may be eliminated or reduced, since the prescriber can access and review the patient's medication history through the e-prescribing network and the prescription is computer generated and sent to the pharmacy electronically.

3 Electronic Prescribing: Becoming Mainstream Practice, A Collaborative Report from the eHealth Initiative and The Center for Improving Medication Management, June 2008, page 16.

E-prescribing is a more efficient process and may reduce time spent on physician-pharmacist communications. Several studies have shown that the volume of calls and faxes between pharmacies and prescribers is substantial. One study estimates that indecipherable or unclear prescriptions result in more than 150 million calls from pharmacists to physicians for clarification.[4] Others estimate the number of prescription-related telephone calls annually at 900 million.[5] Requesting and receiving approval for refills alone, estimated at nearly 500 million telephone calls and faxes per year, add to the communication burden between physicians and pharmacies.[6] Since e-prescribing greatly reduces the need for calls and faxes between prescribers and pharmacists, it saves them both time and money.

E-prescribing reduces costs for payors. E-prescribing gives prescribers enhanced access to formulary information, including preferred drugs, and generic and therapeutic alternatives covered by the patient's health plan. Prescribers who stay within formulary requirements and substitution guidelines save money for payors by prescribing lower-cost drugs.

E-prescribing enables providers to do more effective medication management. E- prescribing allows prescribers to obtain and review current or past medications prescribed for patients, including fill status. This information may support the prescriber in identifying possible drug-to-drug interactions, potential failed medication therapies, over prescribing patterns, and under-utilization. Prescription fill information may help prescribers identify the need to educate patients on the proper use of prescribed medication regimens being prescribed.

E-prescribing is quick and convenient for patients. Often the pharmacy receives the prescription and has it ready for pick-up when the patient arrives. Renewals can be requested electronically by the pharmacy and approved electronically by the prescriber. These conveniences may encourage patients to adhere to medication therapies more closely.

E-prescribing can improve the integrity of the prescribing process. E-prescribing may reduce the opportunity for patients to shop for prescriptions since providers will be able to identify drugs prescribed by other providers. Unlike paper prescriptions, e-prescriptions cannot be modified or copied fraudulently.

Barriers and Challenges

The low adoption rate for electronic systems, specifically EMR systems, among providers has significant impact on the ability to form comprehensive, longitudinal medical histories for health

4 Institute for Safe Medicine Practices, A Call to Action: Eliminate Handwritten Prescriptions Within Three Years, 2000.

5 Forrester Research, 2002.

6 NACDS Statement of Craig L. Fuller, President and Chief Executive Officer, National Association of Chain Drug Stores, Alexandria, Virginia, Testimony Before the Subcommittee on Health of the House Committee on Ways and Means, July 22, 2004, http://waysandmeans.house.gov/hearings.asp?formmode=view&id=1792.

care consumers. Even e-prescribing, which is often cited as a favorable entry point for physicians to begin with EMR, faces significant barriers to adoption.

Payors, both private and government-based, are looking for creative ways to address low adoption rates and provide useful alternatives for electronic medical records, e-prescribing, and health information exchange. Payors are utilizing information provided in claims to develop EHRs on recipients that span multiple health care service providers and offer this information to providers through a web-based system. Medicaid programs can also explore opportunities to include health information on recipients drawn from other state systems. However, some barriers and challenges to claims-based EHR systems and e-prescribing still exist.

The size and cost of implementing and maintaining a Medicaid and CHIP EHR for Texas would be substantial. In 2007, there were 4.1 million unduplicated individuals enrolled in the Medicaid program, over 14 million claims and encounters were processed by the state's Medicaid claims administrators, and over 28 million drug claims were processed in the outpatient pharmacy program. A claims-based EHR for Medicaid would be a very large and complex system based on these numbers alone. Adding more data exchanges to enhance the EHR would further increase the complexity of the system.

This section of the study identifies financial, legal, regulatory, technological, and cultural barriers and challenges related to successfully implementing a Medicaid and CHIP claims-based EHR system modeled after the Health Passport for Foster Care. Barriers and challenges related to the successful implementation of e-prescribing systems that can be utilized by Medicaid and CHIP prescribers are included below.

Comprehensive and Timely Managed Care Encounter Data – The EHR initiatives outlined in this document all rely heavily on timely and accurate data. In order to improve the timeliness and accuracy of the managed care organization (MCO) encounter data, HHSC may need to explore options and modify contracts with health plans to improve timeliness and completeness of managed care encounter data reporting (i.e., incentives, reimbursements, etc.).

Skills and Expertise – IT skills and expertise in new technologies and models are critical to success. HHSC and providers will need to invest time and money in developing these skill sets. Expertise in project management, health information technology, and facilitating collaborative projects are essential. HHSC should develop a training program for providers and staff.

Multi-Year Project Life Cycles – The EHR and e-prescribing projects, as well as other health IT projects, are likely to cross multiple legislative sessions and budgeting cycles. Sustained commitment to long-range strategies is required, as well as recognition that these strategies will likely change and evolve as technology changes and new opportunities emerge.

Project Interdependencies – A number of other IT projects are underway or anticipated at HHSC that may impact the EHR and e-prescribing projects described in this plan. These projects include: Foster Care Health Passport (FCHP) enhancements; Medicaid Information Technology Architecture (MITA); Enterprise Data Warehouse (EDW); Integrated Care Management (ICM); EMR Medical Home Model, Disease Management (DM); and re-procurements of Medicaid and Vendor Drug claims administrators. See Appendix B for a

summary of the EDW, ICM, and MITA projects. FCHP and Medicaid Eligibility and Health Information Project (MEHIP) are discussed in the next section, Assessment of Current Initiatives.

Size and Complexity – A claims-based EHR system for all Medicaid and CHIP clients will likely include records for over 4 million clients and will include millions of pharmacy and claims records each year. Adding additional records for lab test results, Texas Health Steps (THSteps) appointments, etc., to create longitudinal histories will greatly increase the complexity of the system. Over time, this system may rival and exceed the size of the current HHSC eligibility systems.

Provider Adoption – Incentives for providers to participate will be critical to their adoption. Incentives may include recognition, technical assistance and, possibly, financial assistance such as a discount or rebate incentives. Incentives should be aligned with national strategies and existing reporting systems, reducing multiple and possibly conflicting reporting requirements. A methodology for evaluating usability, usage, and effectiveness of the web-based tools should be developed.

Privacy and Security – The goal is to build a system that supports patient care and public health objectives, while ensuring patient privacy and provider access. The EHR design must comply with the Health Insurance Portability and Accountability Act (HIPAA) privacy and security regulations for protecting electronic health information. The program design should consider a policy where a health record is created for each eligible participant with a provision for participants to opt out. If EHR content expands to include more sensitive health information, such as HIV information, the development of a consent process will be required to address legal requirements and patient privacy concerns. The specifics of the consent management process will need to be determined. In addition, the EHR will need to assess requirements for provider authentication, authorization, access and audit processes, and compliance with federal and state laws and regulations.

Data Quality – Providers will rely on the data provided in the EHR and e-prescribing applications to make health care decisions, so the quality of the data is critical to patient safety. Quality is also important for adoption because providers who experience data quality issues are less likely to use the information provided. HHSC must take measures to evaluate data issues and provide accurate information.

Additionally, quality data are needed to provide the basis for outcome measurement and potential pay-for-performance initiatives. HHSC's EDW project will aid in developing a reliable source of data and information for all clients served by the HHS agencies. Additional information on EDW is included in Appendix B.

Compliance with Standards – Numerous industry standards for health IT are under development by multiple organizations. At this time, there is not one authoritative body for setting standards or a single set of standards. The Health Information Technology Standards Panel (HITSP) was established as a public/private standards body through a contract with the United States Health and Human Services Department. The panel was formed for the purpose of

harmonizing and integrating standards that will meet clinical and business needs for sharing information among organizations and systems. However, these standards are not complete and may be inconsistent with other standards in the industry, including those adopted by CMS for e-prescribing in Medicare. Standards will continue to evolve as standard-setting organizations work to harmonize them. HHSC will need to establish processes for monitoring and adopting standards. In addition, electronic health information systems will need to be designed with the flexibility to respond to changes in standards as they occur.

Maturity and Use of Electronic Systems in the Industry – A major determinant factor for growth and expansion would be the level of electronic data available and the extent of interoperability. Over time, health information exchanges are likely to mature and expand in the industry, but current adoption rates are low.

HHSC plans to implement an interoperability component to the FCHP that will develop and test data exchanges with clinical EMR systems. Currently, HHSC is conducting a survey to determine the level of maturity and providers, interest in exchanging health data in the foster care network. HHSC will develop this capability using an open architecture that will optimize reusability opportunities for future projects. However, successful exchanges with provider EMRs are largely dependent upon the adoption and maturity of EMR systems that providers have implemented and the level of technical support available to providers for implementing such exchanges.

Current Laws Prohibit Electronic Prescribing of Some Drugs – Currently, the Drug Enforcement Administration (DEA) prohibits the electronic transmission of prescriptions for controlled substances, which represent about 20 percent of all prescriptions in the United States.[7] Therefore, prescribers are required to use hand-written prescriptions for these drugs. The DEA has indicated a willingness to remove this barrier with proposed rule changes recently issued.[8] However, these rules impose new regulations on e-prescribing stakeholders, including prescribers, pharmacists, software vendors, and regulators. Proponents of e-prescribing widely believe the proposed rules are overly restrictive, which imposes costly and cumbersome requirements.

In addition, CMS rules require a hand-written message to appear on the prescriptions when a brand-name drug must be dispensed.[9] While the CMS rule has been modified to allow for exceptions to brand-name prescribing rules at the discretion of the HHS Secretary, thus far, no exceptions have been granted for e-prescribing.

Additional details on the DEA proposed rules for e-prescribing controlled substances and CMS' rules on prescribing brand-name drugs can be found in Appendix C of this document.

7 Davis, Ronald. E-Prescribing and Health Information Technology. 2008. American Medical Association. http://www.ama-assn.org/ama/pub/category/18579.html.

8 http://edocket.access.gpo.gov/2008/pdf/E8-14405.pdf Electronic Prescriptions for Controlled Substances; Proposed Rule (DEA-218P). Published in the June 27, 2008, *Federal Register* (Volume 73, Number 125).

9 42 CFR Section 447.512.

Assessment of Current Initiatives

Texas Medicaid's current EHR initiatives include:

- Foster Care Health Passport (FCHP)
- Medicaid Eligibility and Health Information Project (MEHIP)

The FCHP and the MEHIP are directly relevant to the feasibility of an EHR for all Medicaid and CHIP recipients. An assessment of these two projects is included in this section of the report.

Other related projects include: ICM Electronic Medical Record Pilot; EDW; and MITA. These projects were also reviewed and may provide benefits for future health IT projects in Medicaid, which may indirectly impact the feasibility of expanding the health passport or creating an EHR in Medicaid and CHIP programs. A summary of these three projects can be found in Appendix B.

Foster Care Health Passport

S.B. 6, 79th Legislature, Regular Session, 2005, called for the development of a new statewide medical services delivery model for children in foster care. HHSC contracted with Superior HealthPlan Network (Superior) as the managed care organization (MCO) to provide services to the nearly 30,000 children in foster care to ensure that these children receive the medical services they need. The Legislature also directed the development of an EHR system – the FCHP (health passport). The health passport is a summary of health and administrative information on children in the care of the Department of Family and Protective Services (DFPS).

In 2005, the Legislature appropriated an initial $500,000 in general revenue funds to start the health passport. In addition, CMS awarded a $4 million transformation grant to HHSC in 2006 as part of the provisions under the Federal Deficit Reduction Act (FDRA) of 2005. In April 2008, HHSC implemented the health passport. It is the first of its kind in Texas and in the nation for foster care children. The health passport functions as a secure, web-based electronic health record of high-level medical and administrative information related to each foster child. The health passport provides sharing of health care data, improves continuity of care, and enhances service coordination. The grant funds were used to assist the state with initial development and ongoing enhancements. The health passport integrates historical claims-based data with ongoing claims data and other medical information generated by direct care providers. Features of the health passport include:

- The name and address of each of the client's physicians and health care providers.
- Demographic/contact information for the child's medical consenter and the DFPS caseworker.
- A claims-based record of each visit to a physician or other health care provider, including routine check-ups conducted in accordance with the Texas Health Steps (THSteps) program.
- Up to two years of medical and pharmacy history from a child's previous Medicaid and CHIP claims record, if available.
- A record of immunizations from the ImmTrac (Texas Immunization Registry).

- Identification of the client's known health problems.
- A claims-based record of all filled prescriptions.
- Lab results from selected laboratories.
- Data input for allergies and vital signs at the point of care (optional).
- A document repository of on-line and scanned medical information, reports, and assessment forms for viewing by all providers, including:
  - on-line THSteps forms for documenting results of THSteps exams;
  - on-line initial and monthly behavioral health progress reports for documenting critical behavioral and mental health data; and
  - on-line dental form for documenting dental exam results.

The health passport contains readily available health information from multiple sources on children in foster care, which is available to certain individuals who are involved in the care of the children, including case workers, foster parents, and health care providers. While the health passport is not a complete clinical record of a child's previous and current health care services, it is a useful tool for providing the medical information of a vulnerable population that moves around due to multiple placement changes, frequently without any health history information. It is an important incremental step to developing a more comprehensive EHR system as we move towards a complete longitudinal health record.

Using transformation grant funds, HHSC plans two post-implementation enhancements to the health passport. These enhancements include: (1) developing the capability to import clinical records from doctors' and hospitals' EMR systems; and (2) developing a data interface to send lab results associated with THStep exams from the state laboratory to the health passport to make the system more comprehensive.

While the STAR Health program, the Medicaid program for children in foster care, is benefiting from the use of the health passport, the opportunity to expand the health passport to other populations in Medicaid is prohibitive for one main reason: HHSC does not own the system. Contractually, the health passport was designed and implemented by a subcontractor specifically for the STAR Health program. Although the health passport cannot be expanded beyond the foster care population, the experience achieved through its development will be leveraged for future projects.

Lessons learned from the health passport, specific to the future expansion of an EHR system to other Medicaid and CHIP populations, are outlined below:

(1) Data quality issues of the legacy systems (aging systems using outdated technology and/or software) need to be addressed early in the process in order to avoid propagating the problem into another system.
(2) External stakeholders need to be involved early in the process to obtain valuable and timely input that can be incorporated in the design stage.
(3) An assessment of providers in the Medicaid program should be conducted to determine which ones already have the technical capability to participate in electronic health information exchange, thus maximizing the information that can be gathered easily from other sources.

(4) Future expansion efforts should reassess system requirements to incorporate functionality not included in the initial system design (e.g., interoperability and scalability) and to enhance existing functions that could be improved (e.g., system access to sensitive information).
(5) System testing should be more rigorous in identifying potential problems include user testing, which is an accepted system development practice.
(6) Dedicate time in the early stages of project development for determining management reporting requirements needed to effectively oversee and manage the program after implementation.

Medicaid Eligibility and Health Information Project [Previously Known as Medicaid Access Card (MAC)]

The MAC project originated with H.B. 2292, 78th Legislature, Regular Session, 2003, which authorized a Medicaid front-end authentication pilot called the Medicaid Integrity Pilot (MIP). The pilot was initially deployed and operated with four separate vendor solutions in six Texas counties. Pilot operations began in March of 2004 and ended in August 2005. Client and provider participation was voluntary during this phase. This initial pilot allowed HHSC to evaluate each of four separate vendor solutions for best practices and technologies in order to develop a single solution to meet program objectives.

Participation in MIP was voluntary for Medicaid clients and health care providers. S.B. 563, 79th Legislature, Regular Session, 2005, amended Section 531.1063 of the Government Code and required mandatory participation in the program. The second project phase, with mandatory participation, is known as the MAC project.

The MAC pilot employed the use of smart cards and biometrics, rather than a paper Medicaid identification form, for client authentication and automated eligibility verification. During this mandatory participation phase, HHSC enlisted an independent evaluator to determine if the MAC would deter client and provider participation in Medicaid.

Implementation of the mandatory MAC project began in December 2005. The project was fully operational on April 1, 2006, and has since been operating successfully in Hidalgo, Cameron, and Travis counties. The standard processes and best practices implemented by the selected vendor are widely accepted by Medicaid providers and clients. Since the inception of the vendor's solution in 2005 through current operations, over 1,500 MAC terminals have been deployed to providers, over 190,000 clients have been issued MAC cards, and over two million transactions have been performed on the system.

The MAC pilot successfully demonstrated the use of smart cards and biometrics for client authentication and automated eligibility verification. An independent evaluation found that the use of the MAC pilot system did not deter client and provider participation in the Medicaid program.

HHSC is now working on statewide expansion of the Medicaid identification card. The statewide implementation of the Medicaid ID card incorporates changes based on the results of

the pilot and feedback from CMS. The project also includes a key enhancement – access to electronic health information. The new project, known as MEHIP, does not include finger imaging and smart cards for client authentication but, instead, will implement a magnetic stripe card that initiates the eligibility verification request and receives a response using a card reader. This change provides a more cost-effective means for modernizing client identification and automating the eligibility verification process. In addition, HHSC plans to offer providers an option to access additional information, including program benefits information and limited client health information. When providers choose to attach the card reader to a PC, a swipe of the card provides secure access to a web-based portal. Through the portal, a provider can review program information and a recent history of the client's medical and pharmacy claims. The project also plans to expand the information that can be accessed through the portal to include information such as immunization data and alerts for periodic services such as THSteps appointments.

Recommendations

(1) Build on the success of the EHR concepts in the FCHP and focus on taking an incremental approach to implementing a robust EHR for Medicaid and CHIP clients.

HHSC recommends that the agency begin with a phased approached to implement a claims-based EHR similar to that of the health passport for all Medicaid and CHIP clients and expand the EHR to include the health information available from other HHS systems. Over time, a process to exchange the health information of Medicaid/CHIP clients with external health systems, including laboratories, hospitals, and private practices, could be developed. Eventually, wider, two-way health information exchanges may be explored. Additional functionality may be added to the EHR that will allow referrals to be exchanged and tracked between health providers, increase disease management capabilities with predictive modeling, and enable performance monitoring and benchmarking activity across providers.

The new MEHIP project is viewed as an important step in implementing an information-rich EHR. The project builds on the success of the MAC and the FCHP projects. MEHIP replaces the paper-based Medicaid ID cards and develops an EHR for all clients in Medicaid initially. CHIP should be added at a later phase of the project because of the size of the records that will be generated and stored and changes to the current CHIP ID cards that are currently issued by the CHIP health plans. The MEHIP EHR will mirror much of the functionality in the FCHP model. It will provide Medicaid providers with the ability to verify the client's Medicaid eligibility on demand and access client health information through a web portal. Initially, the EHR will contain limited health information based on claims, encounters, and some health information pulled from readily available state sources, such as immunizations. Additional client-specific information from other state health programs will be identified and added incrementally.

HHSC recommends focusing on establishing interoperable data exchanges across state HHS agencies and identifying strategies to avoid duplicating data whenever possible. To the extent possible, an interoperable health information exchange should be developed to

improve scalability, portability, and ease of data exchange with data providers. In later phases, strategies to expand the data available through the EHR by establishing broader health information exchanges with health care providers, eventually participating in two-way data exchanges, may be developed.

Expanding the data available in the EHR should be done with careful consideration of the costs and benefits of each additional data exchange. The MEHIP project was approved for federal funding within the Medicaid Management Information Systems (MMIS) umbrella and MITA. To continue to maximize federal funds and leverage MITA strategies, enhancements to the MEHIP EHR should be reviewed and approved by CMS on a periodic basis.

An incremental timeline for the MEHIP project that includes the expansions of the data exchanges and enhancing the EHR functionality is included in Appendix D.

(2) E-prescribing capabilities should be introduced using a phased approach.

It is widely believed that e-prescribing can improve health care quality to clients and offers other benefits to providers, pharmacies, and payors. Currently the adoption of e-prescribing is slow, but the trend is expected to increase with the incentive program being offered by Medicare. The Pharmacy Claims and Rebate Administrator (PCRA) for Medicaid's Vendor Drug Program, is already a certified vendor by the e-prescribing network and is actively implementing e-prescribing capabilities for Medicaid programs in other states. An initial assessment shows that more than 200 Texas Medicaid prescribers have started using e-prescribing. An additional 400 prescribers have been activated for e-prescribing, indicating that they intend to begin e-prescribing. These prescribers could begin receiving decision support information on Medicaid clients through the e-prescribing network if the PCRA established the connection with the e-prescribing network.

HHSC recommends directing the PCRA for the Medicaid/CHIP Vendor Drug Program to establish a link to the e-prescribing network provider (RxHub-SureScripts) to enable the immediate exchange of client and program information to providers who are already using e-prescribing for non-Medicaid patients. The connection to the e-prescribing network also enables Texas Medicaid to participate in ICE Rx which is a program that provides prescribers with the ability to access prescription information on displaced individuals during a disaster. E-prescribing tools used by Medicaid providers should comply with CMS e-prescribing standards, which are certified by RxHUB-SureScripts networks.

HHSC also recommends developing a long-term strategy and approach for e-prescribing. A recommended e-prescribing strategy is outlined below in three phases:

(1) Establish a connection with and provide Medicaid and CHIP data to the e-prescribing network and implement a web-based e-prescribing tool accessible to all providers through the MEHIP web-portal.
(2) Deploy an e-prescribing pilot to further evaluation and examine the usefulness and value of e-prescribing in Texas Medicaid/CHIP.

(3) Investigate and implement programs that focus on increasing e-prescribing adoption especially among high-volume prescribers.

A recommended timeline for e-prescribing is included in Appendix D.

Within the context of MEHIP and e-prescribing initiatives, it is important for HHSC to do the following:

Establish foundational components of health IT that enable efficient and effective HIE.
Several functions will be critical for long-term evolution of health IT including mechanisms that allow for matching of client health records and processes for the authentication and login of health information users. Since client records will be pulled from disparate sources, the client matching process must be highly accurate and avoid associating health records with the wrong person. It is also important to manage access to health records and maintain an audit trail on access. Some providers may have multiple roles and access to the EHR may need to be limited depending upon the provider's role when treating clients (i.e. hospital attending, clinic physician, private practice, etc.).

Develop strategies that address client access, security, and privacy concerns.
HHSC recommends considering client access to EHR information and whether clients will have the capability to opt in or opt out of data sharing. HHSC recommends ensuring that data sharing and access to health information complies with current state and federal laws and regulations, including HIPAA and requirements for signatures. Access to some types of client records may need to be controlled based on the type of information in the record and the provider accessing the record. For example, sharing behavioral health records is restricted by law.

Coordinate and leverage existing projects/initiatives.
HHSC recommends evaluating the results of related projects or pilots closely for learning opportunities that can be carried forward. These projects include FCHP, MEHIP, MITA, EDW, Integrated Care Management (ICM) EMR Pilot, and re-procurement of Disease Management (DM), MMIS, and Pharmacy Claims and Rebate Administrator (PCRA) vendors. A description of the MITA, EDW and ICM EMR Pilot can be found in Appendix B. Upcoming reprocurements with vendors that utilize health IT should be taken into consideration as HHSC moves to transform systems to be more interoperable and flexible.

Establish open and interoperable system that allows EHR and e-prescribing solutions to evolve.
HHSC recommends an open and portable architecture to enable systems to effectively exchange data across a number of platforms and software applications that providers may be using. Commercial EHR software products should be reviewed for interoperability and compliance with standards. All products developed or purchased by the state should be reviewed for opportunities to replicate and reuse components as well as portability to new platforms.

Enhance communication and feedback mechanisms with the provider community.
Providers are the primary users of e-prescribing and the EHR. HHSC recommends developing an open working relationship with the users in order to understand their needs and to serve them better. An assessment of the usefulness and value of data to the providers should be considered. Providers should be made aware of the types of information available and provide input on what information is most beneficial. Information on EHR and e-prescribing usability in clinical settings should be gathered. Providers will experience impacts on existing workflows which vary substantially across provider settings. Solutions should be flexible to accommodate a broad range of uses.

Assure data quality.
Providers will use state-owned data as a tool for evaluating health status and making treatment decisions. Prioritize improving and assuring data quality. HHSC recommends evaluating the full life cycle of the data and the complete data exchange process to identify the potential for data quality issues. Data quality begins with an evaluation of the source; quality issues identified in the source system may need to be remediated before moving forward with information exchanges. The data exchange process is another area where data quality should be considered. Requirements for initial data loads, data updates, and data adjustments must be uncovered and analyzed. The EDW project intends to inventory, assess, and govern data across the HHS agencies. Coordinating with the EDW project on data quality efforts will allow Medicaid and CHIP to improve data quality for the EHR and e-prescribing initiatives. Quality requirements are the foundation for ensuring data accuracy, completeness, and integrity of the information. To promote thorough testing and accountability from source to application, careful documentation and management of the EHR and e-prescribing requirements is needed.

Establish incentive programs for adoption of EHR and e-prescribing.
The benefits of health IT tools that facilitate health information exchange across the provider community will be limited by the adoption rate of these tools. Strategies and incentives to encourage doctors to use the EHR and e-prescribing tools may need to be considered. Options may include pay for participation or pay for performance incentives. For example, Medicare has introduced an incentive program for e-prescribing. Other federal incentive programs, such as the Physician Quality Reporting Initiative (PQRI) have additional measures that encourage providers to use EHRs.[10] Similar strategies could be considered in Texas Medicaid to encourage participation in the Medicaid and CHIP EHR.

Strategy (Road Map Timelines)

Establish a clear strategy for health IT in Medicaid and CHIP using MITA.
The implications of health IT in Medicaid are far reaching. These technologies are generating much excitement and interest, but they are relatively new and still evolving. In some cases, the full impact of these technologies will not be known for many years. The state should exercise caution and be aware that health IT, as with most technologies, is not a "silver bullet" that will solve problems by itself. While the potential to improve health and patient outcomes using health IT are widely touted, the merits have yet to be fully tested and proven. Organizations that

10 For more information on CMS incentive programs visit http://www.cms.hhs.gov/PQRI/.

are moving forward with health IT projects are choosing to develop long-range strategies and incremental steps, hoping to demonstrate value before investing.

At the heart of the Medicaid health IT strategy is the MMIS. Originally, Texas MMIS, like those in other states, was designed to administer and pay claims. Central to the Texas MMIS are two large subsystems that process medical claims and pharmacy claims for all of CHIP/Medicaid. Adding to the complexity of the current MMIS, a large number of ancillary systems have been developed and added to support other program management functions. Maintaining and integrating these disparate subsystems is increasingly difficult and expensive. The story is similar in other states. In response to this issue, CMS developed the MITA initiative, which is a long-range strategy and framework for transforming state MMIS' into ones that can effectively support new and emerging information technologies.

The development of an enterprise-wide strategic plan for transforming MMIS may span five to ten years into the future. The long-term strategic vision for MMIS provides the roadmap and the focus needed to ensure that health IT projects are undertaken in concert across all Medicaid programs and provides clear benefits to the agencies, as the providers and the clients.

CMS developed MITA to help states assess and document current technologies and develop a roadmap to transition from current MMIS, that is largely focused on managing and paying for services provided under Medicaid, to the MMIS of the future that is focused on improving health outcomes. MITA is CMS' framework for transformation. As a framework, it provides a common structure for defining and developing Medicaid systems. It is not prescriptive and allows states to develop their own strategy for change. The MITA framework is not only a tool for planning and developing the next generation of MMIS, but is also a mechanism to obtain enhanced federal financial participation (FFP) for MMIS systems using health IT.

To ensure continued success, Texas Medicaid should:

- Complete the MITA assessment of the current MMIS to set the technology baseline.
- Establish a clear vision for the future MMIS including time-based, achievable goals and objectives for fulfilling the vision.
- Leverage MITA to maximize the use of federal matching funds for EHR and e-prescribing initiatives.
- Develop a governance structure for the MITA portfolio of projects and establish standards-based health information exchanges in MMIS.
- Monitor all health IT initiatives undertaken within the HHS enterprise and statewide for opportunities to integrate systems, maximize resources, and expand opportunities.

In addition to MEHIP, Health Passport, and MITA, HHSC has several other promising health IT-related projects, including a pilot EMR project for the ICM Waiver. In addition, the claims administrator is currently planning to develop an interoperable exchange for Department of State Health Services (DSHS) lab data, making state lab results available to the FCHP and later to the EHR within MEHIP. With careful evaluation and planning, these projects may set the foundational pieces for HHSC to expand its capabilities and improve health service delivery for Medicaid and CHIP. The timelines for these key projects, as well as a proposed timeline for e-

prescribing, is included in Appendix D as a consolidated overview of HHSC strategy for health IT.

Fiscal Impact

Cost Benefit Analysis

Cost estimates described in this section are largely based upon known costs from other related Texas HHSC projects including the FCHP, the MAC pilot, and the Texas Electronic Benefits Transfer (EBT) system. Based on these relevant projects, HHSC believes these cost estimates provide a reasonable representation of anticipated costs for this project.

While the Health Passport provided similar EHR functionality, the scope was limited to the Foster Care program, which represents a very small percentage of the total Medicaid population. The MEHIP will expand the availability of health information to the Texas Medicaid and CHIP populations.

HHSC has identified both tangible and intangible benefits related to the EHR and eprescribing tools. One tangible benefit for MEHIP EHR relates to replacement of the monthly mailing of the paper MedID with the permanent plastic card. This tangible benefit alone contributes to a potential positive return on investment (ROI) in the first few years of the project. Additional financial benefit comes from avoiding medication errors when prescribers utilize a medication list provided in the EHR or available within e-prescribing. Prescriber adoption of e-prescribing may generate additional savings through higher Preferred Drug List (PDL) compliance, reduction in prescriptions written, and increased generic utilization. The other benefits identified have been assumed to be intangible even though they will add significant future value to the Medicaid Program.

Tangible Benefits

Paper MedID Savings

This includes printing cards, postage, and staff time reduction. The use of plastic cards would allow one-time cost for issuing the card. Tangible benefits have been estimated to be approximately $11 million per year (all funds) once the system is fully implemented. These savings do not take into consideration the ongoing costs of mailing other communications to clients that are sometimes mailed along with the paper MedID.

Reduced Medication Errors

The reduction of medication errors and associated cost savings are highly dependent upon prescribers utilizing the medication lists in the EHR or adoption of e-prescribing. If prescribers do not routinely access and review the medication histories for clients prior to prescribing additional medications, errors may not be reduced as estimated. This tangible benefit includes reduced costs associated with medication errors. Prescribers can access claims-based medication lists through the MEHIP EHR or through the e-prescribing network prior to writing new prescriptions for patients. This allows the prescriber to assess the need and compatibility of new prescriptions with medications the client may already be taking. If all Medicaid prescribers access a medication list prior to prescribing, HHSC estimates this may result in savings of over

$2 million annually (all funds) from avoided medication errors. However, actual savings from reduced medication errors is expected to be substantially less because it is unlikely that all prescribers will access and utilize the medication list.

Drug Cost Savings

The savings to Medicaid for prescription drug program is based on the following key assumptions:

(1) E-prescribing rates will begin at 1 percent in the first year and increase to 30 percent within 5 years.
(2) Compliance with the PDL will increase by 10 percent and will result in increased drug rebates and reduced prior authorization costs.
(3) Generic utilization will increase slightly, which may reduce some drug costs since generics are usually less expensive than brand drugs.
(4) A slight reduction in the prescriptions written may occur since prescribers can review recently prescribed medications and avoid duplicate or unnecessary drug therapies. These savings may result in $150,000 per year at a 1 percent e-prescribing rate, but may increase to over $7 million annually as the e-prescribing rate reaches 30 percent.

The cost-benefit analysis (CBA) assumes that most prescribing providers will utilize the electronic medication lists available through MEHIP in a clinical setting as an aid to providing quality care. If most prescribers adopt the new technology, HHSC expects to begin realizing a return on investment for MEHIP within three years of operation. Lower than expected adoption rates among providers will lengthen the expected return on investment. For e-prescribing, HHSC anticipates a return on investment within five years. The return on investment for e-prescribing is directly related to the rate of e-prescribing adoption. If HHSC can accelerate the rate of e-prescribing adoption the return on investment may be realized earlier in the project. Because of upcoming procurements for MEHIP and the potential for procurements for e-prescribing, HHSC cannot release further details of the CBA .

Intangible Benefits

To realize the full impact of the benefits provided by the project, the intangible benefits must also be examined.

Currently, for the general Medicaid client population, the provider has limited access to client medical history including medication lists. In some cases, providers only have what is self-reported by the client. With the MEHIP implementation, providers with automated equipment can swipe the Medicaid card or enter the client number on their PC and be able to access claims-based EHR drawn from medical claims and encounters as, well as pharmacy claims for Medicaid services. With an expanded EHR and/or e-prescribing, providers can access additional client and programmatic data. The intangible benefits for access to client information include:

Service Improvements

(1) Improvements in the quality, availability, and timeliness of care received by Medicaid and CHIP recipients.

(2) Reduction in the duplication of services and treatments.
(3) Enhanced record keeping and data sharing among a client's health care providers.
(4) Increased physician office efficiency and accuracy in prescribing drugs.
(5) Ability to participate in ICE Rx, an online service developed for healthcare professionals assisting disaster-affected individuals. During a disaster, ICE Rx provides prescription information on displaced individuals electronically to physicians and patients.

Improved Healthcare Outcomes

(1) Enhanced preventive care through improved notifications and documentation of THSteps
(2) Improved management of client prescription drug needs with targeting of under or over-utilization of drugs.
(3) Reduction in medical errors.
(4) Improvements in the overall physical and emotional well-being of Medicaid recipients.

Cost Efficiency

(1) Cost efficiency through improved coordination of healthcare services and reduction in duplicative services and drug prescriptions.
(2) Reduction in abuse and fraud because providers can see questionable activity in client records and e-prescriptions cannot be copied or forged.

Conclusion

In conclusion, HHSC determined that the existing Health Passport could not be expanded beyond the foster care population because of contractual and program limitations. However, the experience achieved through the development of the Health Passport may be leveraged for future projects.

The study concludes that the MEHIP currently under development would serve as the foundation for an EHR system that would make Medicaid and CHIP clients health information available to Medicaid and CHIP providers. HHSC recommends that an electronic health record be implemented in incremental steps.

Each increment will expand the data available to providers and enhance the functionality and usability of health information in clinical settings. Eventually, the robust EHR system would be capable of two-way information exchanges with provider EMR systems.

The study also concludes that Medicaid and CHIP should adopt a long-range strategy for e-prescribing. HHSC may initiate e-prescribing quickly by establishing the health information exchanges that allows Medicaid and CHIP prescription drug program information to be accessed through the e-prescribing networks. HHSC also recommends establishing initiatives that promote e-prescribing among top prescribers.

HHSC recognizes the importance of provider participation in these initiatives. Studies across the nation have shown that provider adoption of electronic information exchange tools such

as an EHR and e-prescribing is currently very low and growing slowly. HHSC recommends that health IT initiatives solicit input from providers and focus on addressing provider information needs. In addition, HHSC recommends development of incentive programs and strategies that encourage providers to adopt health IT tools that will improve quality of care and ultimately client health outcomes.

Appendix A
Terms and Concepts and Applicable Standards

Definition of Terms and Concepts

The health information technology terms and concepts referenced in this study are important to understand and have specific meaning and context. This appendix provides the foundation for the terminology and concepts are used throughout the study. Because many of the terms used in the field of health IT are ambiguous and confusing, the Department of Health and Human Services Office of the National Coordinator (ONC) for Health Information Technology was charged with the task of developing definitions for common health IT terms. To that end, ONC recently initiated a project to perform research, convene workgroups, and conduct forums to reach consensus on the meaning to the following terms:

- Health Information Exchange (HIE) and HIE Models
- Electronic Health Record (EHR)
- Electronic Medical Record (EMR)
- Health Information Organization (HIO)
- Regional Health Information Organization (RHIO)

The ONC project published definitions for these terms in a final report released in May 2008. In the report, the six terms above have been defined and clearly differentiated. Additional concepts defined and discussed here include:

- *Interoperability* - the exchange of health data using standardized methods.
- *Communication Hub* - a model for developing an exchange network.
- *Medicaid Information Technology Architecture* (*MITA)* - a compendium from the Center of Medicare and Medicaid Services (CMS) that provides direction to states on the future development of Medicaid Management Information Systems (MMIS).
- *e-prescribing* - an emerging technology in the health industry for managing prescribing practices and transmitting medication orders electronically.

Health Information Exchange (HIE)

"The electronic movement of health-related information among organizations according to nationally recognized standards."[11]

A health information exchange (HIE) is a secure, standards-driven exchange that ties disparate health systems together and supports the exchange records on individuals between providers, payers, individuals, and other stakeholders.

11 Defining Key Health Information Technology Terms, May 20, 2008, The National Alliance for Health Information Technology, funded by Office of the National Coordinator for Health Information Technology.

Health Information Exchange Models – Of the three types of health information exchange, two have been implemented in various forms around the country:

(1) The distributed model (sometimes referred to as the federated model).
(2) The centralized model.

A third type, the health data bank model, is under development and may be implemented soon.

The Distributed Model
In this collaborative model, each patient record resides at and is controlled by the provider organization where it was created – such as a physician's office, a hospital, or a lab. The electronic data systems at the different organizations are networked together for the purpose of exchanging health information. This model uses a MPI to keep track of patient records. One of the major benefits of MPI is the power to locate and expose health records from a multitude of sources through indexing. This reduces the cost of replicating and storing large amounts of data and the burden of maintaining and updating the data. Because of the central purpose of the MPI, these indexes must be highly protected from contamination or corruption. In the distributed model, the provider obtains patient consent to access health information from another organization. The provider then initiates electronic access to the patient's records through the network to the other organization. Several RHIOs have adopted this model.

The Centralized Model
In this form of health information exchange, provider organizations form a collaborative to operate and exchange health information. Participants establish links to a centralized database for health information exchange that allows them to submit and withdraw records from the central repository. This model requires an oversight and management entity to control and administer the central repository of data and ensure the integrity of the system and the data it contains. The costs associated with this model may be higher since the data is replicated and extra steps must be taken to populate the repository and keep it in sync with the data sources. As with the distributed model, the requesting organization must first obtain consent from the patient before sharing information through the network.

The Health Data Bank
This model has not yet been implemented but is under development in the state of Washington. A Health Data Bank uses a centralized repository to store or "deposit" patient health information into a patient account. Patients own and control the data in the account. The distributed and centralized models that have been implemented give much of the control over access and use of data to the providers. Patient-centered control is a central feature of the health record bank model. Patients decide which health care organizations can access their records, and they can limit access to specific records.[12]

12 Dimick, Chris. "Taking Medical Records to the Bank." Journal of AHIMA 79, no.5 (May 2008): 24-29.

Interoperability – A Key Concept for Health Information Exchange

"*Interoperability is the ability of different information technology systems and software applications to communicate, to exchange data accurately, effectively, and consistently, and to use the information that has been exchanged.*"[13]

Important distinctions regarding the scope and control of automated electronic data and the standards being employed during data transfers determine whether such transfers constitute interoperability. The success of HIE networks are dependent upon the information systems and software applications using common industry standards and technology protocols to share health information seamlessly, thereby achieving interoperability. Interoperability refers to the ability to share information across multiple organizations rather than a limited ability to share information within a single organizational structure. Three types of information exchanges models exist. Of the three types of health information exchange, two have been implemented – the distributed model (sometimes referred to as the federated model) and the centralized model. A third type, the health data bank model, is under development and may be implemented soon. Note: Additional information on these models can be found in the supplemental information provided in Appendix A.

Electronic Health Records (EHR)

"An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization."[14]

An EHR collects, stores, and allows appropriate controlled access and use of digital, electronic health information by health care providers and their organizations, payer organizations, and researchers. EHR systems aggregate individual patient-specific health information from a variety of sources in the medical and health care community. The goal of an EHR is to gather together a longitudinal history on the individual's previous and current health care activity for use by health care professionals and administrators in coordinating health care. EHRs make data available in real-time by accessing and retrieving data from multiple interoperable systems.

One type of EHR is a claims-based EHR. It gathers client-specific health information primarily from claims and encounters data submitted by multiple health care providers involved in providing services to clients. Often, these systems can be augmented by

13 The National Alliance for Health Information Technology, July 2005, What is Interoperability?

14 Defining Key Health Information Technology Terms, May 20, 2008, The National Alliance for Health Information Technology, funded by Office of the National Coordinator for Health Information Technology.

additional data exchanges with other electronic systems to extend the health information available for an individual. The Health Passport for Foster Care is a claims-based EHR.

Providers that utilize an EHR system are able to view an individual's health history at the time of care. This information supplements the information the provider has on a patient. It can assist providers in identifying care provided by other health care professionals, improve coordination of care, and possibly identify and reduce duplicative care.

Electronic Medical Records (EMR)
"An electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health-care organization."[15]

EMR systems are an electronic means of automating medical records within a single health care practice using a computerized system. These are stand-alone systems that contain single, discreet computer-based medical records on individuals. The medical records are generated and maintained in a clinical setting such as public or private health care practice, hospital, laboratory, clinic, nursing home, or similar health care delivery entity. EMR systems maintain the medical and clinical information necessary to administer and support the provision of health care services to individuals that are tailored to the provider's medical specialty and/or organization. EMR systems, like their paper-based predecessors, include codified health information (diagnosis codes, procedures codes, medications, etc.), notes, and images (x-rays, correspondence, etc.) necessary to support the delivery of health care to individuals by the provider organization.

Health Information Organization (HIO)
"An organization that oversees and governs the exchange of health-related information among organizations according to nationally recognized standards."[16]

An HIO is a formal body that oversees an HIE - the electronic exchange of health information between different health care entities. The HIO can be specific or general, as needed. Generally, an HIO may be organized around a common interest in sharing data between the HIE participants. The HIO need not be confined to a geographic region or community; however, early HIEs were focused on exchanges within a specific region or community and were governed by an HIO.

An HIO may:

15 Defining Key Health Information Technology Terms, May 20, 2008, The National Alliance for Health Information Technology, funded by Office of the National Coordinator for Health Information Technology.

16 Defining Key Health Information Technology Terms, May 20, 2008, The National Alliance for Health Information Technology, funded by Office of the National Coordinator for Health Information Technology.

- Provide assistance to entities in establishing interoperable systems and infrastructures for HIE including the use of industry standards, coordination of stakeholders, and other related services.
- Provide oversight and accountability of HIE assets, compliance with interoperability standards, and regulatory requirements for managing the exchange of personal health information.
- Provide support for maintaining agreements or contracts for sharing health information between entities.
- Adopt and set HIE standards that ensure privacy, confidentiality, and security.
- Resolve interoperability issues that arise from types of information not supported by current standards.
- Share lessons learned and best practice information.

Regional Health Information Organization (RHIO)
"A health information organization that brings together health care stakeholders within a defined geographic area and governs health information exchange for the purpose of improving health and care in that community."[17]

A RHIO develops and facilitates accessibility to and the exchange of health data within a specified geographic area. A RHIO promotes the exchange of health-related information to their respective communities in a way that improves health care quality and safety. Health care stakeholders within the region such as providers, payers, government agencies, researchers, and consumers, collaborate and form RHIOs to provide governance over HIEs in the region. The primary focus of the RHIO is to ensure that HIEs within their region work effectively and efficiently to serve the health information needs of the community.

A RHIO takes the vision of sharing health information across disparate health organizations and makes it a reality. A RHIO must strive to be inclusive, soliciting and including participation from all stakeholders that have responsibility for health information within the community they represent. Health care stakeholders in the region that are separate and distinct legal entities work through the RHIO to collaborate and cooperate to make health information available electronically to those who need it. The RHIO ensures that data transfers between entities are secure and protect the privacy and confidentiality of the information by establishing policies, process and procedures that guide all stakeholders in the region who participate in the interoperable exchange of health information.

A RHIO assists and supports stakeholders in developing secure data sharing networks and infrastructure in the region. The RHIO may provide educational, technical, and/or operational resources and services to stakeholders directly and/or arrange for resources

17 Defining Key Health Information Technology Terms, May 20, 2008, The National Alliance for Health Information Technology, funded by Office of the National Coordinator for Health Information Technology.

and services through contractual agreements depending upon the characteristics and needs within the region. Services may include:

- Assisting individual providers in establishing electronic records through application service providers.
- Transmitting medical reports and tests using secure electronic messaging.
- Coordinating or establishing EHR and Personal Health Record (PHR) platforms.
- Providing necessary data to first responders in the community

Communication Hub – A Health Information Exchange Infrastructure Using Hub Architecture

"A hub architecture facilitates data exchange and sharing, while ensuring security and privacy. Through a set of access services and protocols, data can be exposed to authorized users. A hub provides common services needed by all subscribers by sending and receiving messages and data. Hubs use centralized capabilities that allow multiple systems to communicate with one another using automated coordination. A communication hub interacts with multiple RHIOs and other hubs."[18]

These hubs may someday become part of the national health information network (NHIN). Hubs may be developed and utilized by large affiliated organizations, including RHIOs, for the secure exchange of health information. A communication hub controls and enables secure electronic exchange of patient-specific health information within the network without replicating and storing all of the records. Instead, the hub stores record location information and exposes data to requesters using standard messaging transactions. In some cases, a hub may operate a hybrid solution where some health records are stored in a central repository and other records are stored in EMR or EHR systems of its affiliates. The hub may manage participant authentication and access controls. Health care providers that participate in the network can use the communication hub to request patient information from the EMR/EHR systems of other network participants such as hospitals, pharmacies, labs, and physicians. Eventually, regional hub networks will be linked together to form statewide networks which can be linked together to form a national network.

Medicaid Information Technology Architecture (MITA) – From Medicaid Management Information Systems (MMIS) to Communication Hub

MITA is a framework developed by the Centers for Medicare and Medicaid Services (CMS) to help modernize the MMIS in each of the states.

18 MITA to RHIO: Medicaid Enterprise as a Communication Hub – A CNSI WHealth ITe Paper, presented at the 2006 MMIS Conference, Providence, RI, 2006

MITA is a key driver for transforming the current MMIS systems that are focused mostly on administrative processes such as claims. Under MITA, states will begin developing and implementing strategies that will enable health information systems that go beyond administrative processes and include a focus on improving health outcomes. MITA is further discussed in later sections of this report and additional information can be found in the supplemental information provided in Appendix B.

E-prescribing – An HIE and a Hub

"E-prescribing is the computer-to-computer transfer of prescription data between pharmacies, prescribers, and payers. It does not include the use of a facsimile or fax transaction. It supports messages regarding new prescriptions, prescription changes, refill requests, prescription fill status notification, prescription cancellation, and medication history."[19]

Generally, e-prescribing systems are a type of health information exchange using hub architecture. Many e-prescribing software products utilize two national communication hubs developed by RxHUB-SureScripts to facilitate communications between prescription drug stakeholders. These networks manage the exchange of prescription data between prescribers, benefit managers, payers, and pharmacies in order to support and improve the coordination and management of prescribed medications.

E-prescribing systems provide important decision support information to the prescribers at the time of care. This capability helps prescribers make informed decisions when prescribing medications for patients. The system informs prescribers of benefit limitations, drug costs/co-pays, and preferred drug information. Additionally, prescribers can use the systems to access the patient's prescription history ensuring that new prescriptions are safe for the patient given their medication history.

E- prescribing can be included as a component of an EMR system or it can be implemented as a stand-alone tool. When e-prescribing is integrated with an EMR system, the prescriber realizes increased efficiencies and effectiveness of electronic records. Through integration, the prescriber is automatically alerted to relevant patient history such as drug allergies or history of adverse drug events. In addition, prescription drug documentation is automatically included in the patients' electronic medical records including information on prescription fill status that is returned electronically from the pharmacy. Stand-alone tools are more affordable and offer significant benefits over written prescriptions such as decision-support information, convenience, and increased quality and safety.

19 http://www.ncpdp.org/pdf/Eprescribing_fact_sheet.pdf

Summary of Health IT Definitions

Definitions	Characteristics	Information and Functionality	Examples in Texas
Electronic Health Record: An aggregate electronic record of health-related information on an individual that is created and gathered cumulatively across more than one health care organization and is managed and consulted by licensed clinicians and staff involved in the individual's health and care.	Patient-centric Longitudinal Spans provider-specific or organization-specific information systems Interoperability using industry standards	Past and present clinical data Administrative information Lab/Test results Claims data Formulary and drug information Demographic data Disease and immunization registry data Provider contact information Data from remote monitoring devices Health benefit information	FCHP Medicaid Eligibility and Health Information Portal (future)
Electronic Medical Record: An electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health care organization.	Patient-centric Longitudinal Provider specific – data is owned and maintained by the clinical practice where the data is generated. May be interoperable May support electronic orders for lab and radiology tests and prescriptions.	Patient medical history Family history Allergies and adverse events Patient chart including office visits, symptoms notes, etc. Administrative information including health plan coverage and limitations Contact information Lab and tests ordered with results Referral information Diagnosis/procedures Problem specific templates that guide best practices	eMedicalFiles / ICM Pilot DSHS Behavioral Health System BEHIPS Criminal Justice Electronic Medical Records for Offenders

Definitions	Characteristics	Information and Functionality	Examples in Texas
Health Information Exchange: The electronic movement of health-related information among organizations according to nationally recognized standards.	Technology that supports the secure, transfer of standardized health records across disparate systems. Agreed upon business relationships	Electronic systems locate and expose client information using standard electronic transactions and messages.	e-Prescribing DSHS Lab Data and Immunization Data to the FCHP
Health Information Organization: An organization that oversees and governs the exchange of health-related information among organizations according to nationally recognized standards	A group of representatives of health care stakeholder organizations. Standardizes and coordinates health information exchange among stakeholders	Share common vision, goals and strategies for sharing health information. Cooperate and facilitate the exchange of health information using standards and infrastructure.	Texas Health Service Authority (THSA) EDW data governance board

Definitions	Characteristics	Information and Functionality	Examples in Texas
Regional Health Information Organization: A health information organization that brings together health care stakeholders within a defined geographic area and governs health information exchange among them for the purpose of improving health and care in that community.	Data sharing agreements Shared infrastructure for sharing health information exchange.	Stakeholders participate in two way health exchanges May include the exchange of a broad array of clinical data such as lab results, radiology and diagnostic procedures, hospital discharge summaries, etc.	ICC HHSC EDW (to the extent that a data governance function is established within HHSC)
e-Prescribing: The electronic exchange of a prescription or prescription related information between a prescriber and a dispenser, a pharmacy benefit manager, or health plan using standardized messages or transactions.	Connected through established e-prescribing network Standardized transactions Client specific Health plan coverage Decision support at the point of care including quality alerts, drug selection assistance	Medication history Plan information including eligibility and benefits Formulary information Drug to drug interactions and drug allergy information Generic substitution, therapeutic substitution and preferred drug information	e-prescribing can be provided through an EMR or stand-alone product. Some payors and health plans are offering web-based solution.

Standards

Standards for electronic exchange of information include a body of work that has been developed by a number of standards organizations. For a number of years these standards were proliferating in different directions. However, the organizations have been working collaboratively to come to consensus.

The following standards are being examined and adopted by government and industry bodies.

Standard Name	Standard Description
HL7	HL7 standards are a collection of standards that are used to transfer clinical data. The standards include: • Clinical Document Architecture (CDA) and Continuity of Care Document (CCD) are standards for how summary clinical health information should be packaged in order to be compatible with EHR systems that are standards based. The CDA and the CCD enable transfer of information between clinical providers using the common framework established and maintained by the HL7 standards body. The referral process is streamlined when physician referrals that are accompanied by a CCD (either electronic or paper). The machine readable clinical data that is contained in the CCD and the CDA provide the basis for longitudinal storage of clinical data and, some day, will enable vastly improved clinical medical research. • HL7 Messaging standards version 2.0 and 3.0 provide a message wrapping layer that facilitates the exchange of clinical data. The messaging standards allow both the sender and the receiver to read, process, and store data allowing the underlying databases that process and store the data to be vastly different. These messaging standards facilitate the "federated" data model where one huge data base does not need to be developed and maintained, but rather disparate data bases can process information because it is exchanged in a standard format. • EHR Functional Specifications publish standards that all EHRs should adopt and maintain.
LOINC	Logical Observation Identifiers Names and Codes terminology (LOINC) is the nomenclature for clinical laboratory tests. Each LOINC code corresponds to a single test or panel result and is uniquely identifiable by combining the following axes: (1) component of analyte; (2) property measured; (3) timing; (4)-type of sample; (5) type scale; and (6) method used to product the results.

Standard Name	Standard Description
Electronic Data Exchange (EDE) Standards	While fee-for-service, encounter and pharmacy claims carry some health care information that is useful in populating health records such as diagnosis codes, procedure codes, medication and physician visit information they are not detailed enough to provide rich clinical information. Using the EDI claims attachments standard can provide additional clinical information. The claims attachment standard has been developed and is still waiting for federal adoption.
International Classification of Disease (ICD) Coding Standards	Are primarily used for EDI claims transactions. Currently, the U.S. uses ICD-9 codes that are not very interoperable since they are very specific to program interpretation. ICD-10 codes are international codes that are more specific – however they have not been adopted in the U.S.
National Councils for Prescription Drug Programs (NCPDP)	NCPDP is a not-for- profit ANSI-Accredited Standards Development Organization that promotes the transfer of data related to medications, supplies, and services within the health care system through the development of standards and industry guidance.
Systemized Nomenclature of Medicine (SNOMED)	Systematized Nomenclature of Medicine - Clinical Terms, is a systematically organized, computer processable collection of medical terminology covering most areas of clinical information such as disease, findings, procedures, microorganisms, pharmaceuticals, etc.

Appendix B
Assessment of Health IT-Related Initiatives in HHSC and Other States

Assessment of Health IT-related initiatives in HHSC

ICM

The ICM program has an EHI system as part of its contract with the ICM network provider. The ICM Request for Proposal (RFP) required that vendors "develop and propose an EHI [electronic health information] approach to share Member-specific data relating to medical records in a HIPAA-compliant format with ICM Providers."[20] Evercare of Texas, L.L.C., the contract awardee, committed to implement an EHI system in three phases. The first phase integrates provider office clinical information with a web-based prior authorization system. The second phase links provider office information with Evercare's web-based CareOne application, which combines patient-specific medical, pharmacy and long term services and supports data. Under phase three, Evercare will contract with eMedicalFiles, Inc. to pilot an EMR. The first two phases of the project have been implemented.

In phase three, eMedicalFiles proposes a six month pilot using three software components to improve information exchange for the case management of ICM clients. These components use customizable tools that can be modified to meet the specific needs of the ICM program. They will provide access to data sources and tools via the eMedicalFiles Clinical Portal to send preauthorization requests, as well as to send and receive updates, alerts, and reminders. These components include: (1) an interactive dialog management tool; (2) a clinical portal that includes an email alert system; and (3) an appointment scheduler. The interactive dialog manager allows patient information to be gathered and documented using structured, survey style templates. The email alert system sends updates and status information on patients (for example, a hospital admission) between clinical providers and case managers. The appointment scheduler supports automated requests, confirmations, and reminders for appointments. eMedicalFiles is also offering other optional software components and services, including an electronic medical record with e-prescribing and formulary management, practice management software, biometric authentication, and specialty templates. The third phase is proposed to involve about 150 providers at two locations.

HHSC should evaluate the results of the ICM-EMR model closely for lessons-learned that can be carried forward as similar initiatives are considered for additional Medicaid and CHIP programs and the wider provider participation in EMR initiatives.

20 Integrated Care Management Request for Proposal, Section 5.2.1.2, Texas Health and Human Services Commission.

Enterprise Date Warehouse

The EDW is a multi-year initiative for the development of a data warehouse that will span systems across all HHS agencies and programs including Medicaid. The ability to consolidate client data and provide source-independent information across HHS programs and agencies will enable HHS agencies to:

- Perform trend analysis for results-oriented strategic planning.
- Evaluate outcomes and identify strategies for improvements.
- Provide accurate information that spans HHSC programs and agencies.
- Empower providers, when appropriate, with more comprehensive client historical health information towards improving outcomes.
- In the long term, potentially serve as the single repository for various HHSC strategic initiatives that could benefit from consolidated client data as well as reduced infrastructure costs.

This initiative, while very promising for the long-term, is currently in the conceptual planning phase. On May 21, 2008, HHSC leadership approved agency participation in a study to assess the cost/benefits and ROI of an EDW. The services of Gartner Consulting have been secured to perform an assessment of strategic priorities across HHS agencies and establish a set of business drivers that justify the creation of an EDW. The results of the assessment are expected in late 2008.

The EDW project has the potential to provide a client-specific repository across all of HHS agencies and programs including Medicaid. It is essential that the EDW project team work very closely with HHSC Medicaid program and HHSC IT to fully examine the functionality needed for an expansion of the Medicaid and CHIP EHR beyond claims in order to determine whether the EDW project supports or benefits such an initiative.

Additionally, the EDW project does present an opportunity to set some foundation pieces for the future of health IT projects at HHSC including:

- The identification of rich sources of health information across the agency.
- An initial place for assessing the quality of health data.
- The establishment of a HHS data governance infrastructure that sets up processes and develops standards for managing data across the enterprise.

Medicaid Information Architecture (MITA) Project

MITA is CMS' framework for transformation that includes an architecture framework, processes, and planning guidelines for state Medicaid programs to achieve national objectives for exchanging health information electronically. As a framework it provides a common structure for defining and developing Medicaid systems. It is not a prescriptive solution; it allows states to develop their own strategy for change using a common structure. This common structure, combined with industry standards, enables interoperability and integration in MMIS systems.

A State Self-Assessment is a state's review of its own strategic goals, objectives, and current business capabilities.[21] After a self-assessment, the state can develop a list of target capabilities that allow it to meet its strategic goals and objectives. Target capabilities are those capabilities that the state plans to implement to transform its Medicaid enterprise in accordance with MITA principles. Higher maturity levels correspond to greater levels of operational effectiveness of the Medicaid program.

HHSC is actively working to complete the MITA State Self-Assessment (SS-A), the "to-be" road map, and the gap assessment as required by CMS. Thus far, HHSC has worked with the claim's administrator Texas Medicaid Healthcare Partnership (TMHP) to complete the portion of the SS-A related to the systems operated by the Claim's Administrator. HHSC will be working to complete the remainder of the SS-A and the other required documents and expects to have the project completed by the spring of 2009.

The MITA framework is not only a tool for planning and developing the next generation of MMIS, but also a mechanism to obtain enhanced federal funding for MMIS systems using health IT. Currently, states can obtain FFP for Medicaid administrative activities, including MMIS investments. State Medicaid agencies receive a 90 percent match for MMIS design, development, and installation and a 75 percent match for ongoing maintenance. In the future, state MMIS funding will be based on how they meet the MITA objectives.

To ensure continued success with MMIS, Medicaid should:

- Complete the MITA State Self-Assessment of the current MMIS to set the technology baseline.
- Establish a clear vision for the future MMIS including time-based, achievable goals and objectives that are aligned with state program goals that will establish the "to-be" model for the future MMIS using the MITA framework.
- Leverage MITA planning processes to maximize the use of state and federal funds.
- Develop a governance structure that oversees and coordinates the MMIS portfolio of projects ensuring that the right projects are undertaken and managed to achieve long- and short-term objectives.

One of the most significant changes proposed in MITA is the need for states to expand automated system integration capabilities beyond existing state systems. This may result in the MMIS of the future becoming a communication hub for the Medicaid program. A MMIS as a communication hub would enable the sharing of data with the entire spectrum of health information systems in the state. MITA encourages states to adopt common

21 Introduction to the MITA Framework 2.0, March 2006, Centers for Medicare & Medicaid Services

health industry standards for MMIS that will allow for greater data sharing and interoperability between state and federal health care agencies, HIOs and their participants, and eventually, participation in the Nationwide Health Information Network.

The MITA framework encourages states to set up network infrastructures that are open and support the electronic transmission of data between different technologies and systems. These open systems include the use of software design strategies known as Service-Oriented Architectures (SOAs), which bundle common capabilities and features with standard interfaces. The bundling of these "services" allows the cross functionality, or interoperability, that is independent of the technology platform. SOA can be implemented using legacy systems, commercially sold software packages, and/or newer software platforms.

CMS is encouraging states to begin developing strategies to implement the MITA framework. Initially, states engage in a structured MITA self-assessment to determine gaps. They can establish MITA-driven strategies and prepare for the integration of clinical and administrative health information. The MITA framework provides a robust, yet flexible set of processes that states can use to jumpstart their transformation towards open architectures and begin establishing SOAs. States that plan MMIS enhancements and/or replacements, including e-prescribing, EHR and HIE initiatives, must comply with MITA as a precondition to federal funding.

Assessment of Electronic Prescribing and EHR Initiatives in Other States

Arkansas – Arkansas Medicaid obtained federal matching funds for their e-prescribing solution. Several vendors are involved in supporting the e-prescribing program. There is a vendor that will provide program management and oversight for the e-prescribing implementation and provide Medicaid program data to SureScripts-RxHub that provides patient identification and information routing. E-prescribing consultants will handle provider support including outreach and program evaluation.

California – The Governor released a plan in January 2007 to improve health care throughout the state. California previously established a goal of statewide EHR implementation within the next ten years; including health care providers, insurance payers, patients, and the government. E-prescribing capabilities are required

Florida – Florida's Agency for Health Care Administration has an e-prescribing program that provides the Florida Electronic Prescribing Clearinghouse as a single point of access for e-prescribing activities in Florida. [22] The program also offers wireless PDA devices to prescribers in addition to the e-prescribing web-portal.

Indiana – Indianapolis has a RHIO that is working on end-to-end integration. The goal is to have clinical data flow seamlessly between all providers in the city. Participants are sending and receiving data and the program is very effective.

22 See: http:\\www.fhin.net\eprescribe.

New Hampshire – Legislation directs the state's Department of Health and Human Services to apply for federal funding to develop an electronic health information infrastructure that allows for performance measurement, care coordination, and case management in the delivery of state-funded health insurance services.

New York – The state established the Health Care Efficiency and Affordability Law for New Yorkers Capital Grant Program (HEAL-NY). Grants will support the development of clinical information exchange projects, the creation of e-prescribing capabilities, and the use of EHRs.

Oklahoma – In 2008, Oklahoma Medicaid introduced an e-prescribing program in the southeast counties of the state. In this program, the Oklahoma Health Care Authority contracted with a technology vendor to enroll prescribers in the system. The technology vendor provides assistance with setting up the technology, changing workflows and educating staff on e-prescribing. The contract provides for incentives to the technology vendor for successfully enrolling prescribers and for keeping prescribers active in e-prescribing.

South Carolina – In July 2008, the South Carolina Health Information Exchange, or SCHIEx, made 800,000 medical histories of disabled and poor residents available to physicians, clinics and hospitals. SCHIEx gives providers the ability to view clinical data to include medications, diagnoses, procedures, and common problems, thereby positively impacting continuity and quality of care provided, as well as assisting with controlling cost. This clinical data is driven from ten years of paid SC Medicaid claims, as well as information shared from participating providers' electronic medical record (EMR) systems. Providers gain insight into the care their patients have received at other locations. Access to SCHIEx is free of charge. It simply requires a unique user ID and password. Health records on clients are automatically included in the system. However, clients can opt-out if they decide that they do not want health care providers to access their health records.

Virginia – The state is sponsoring an eighteen month Pilot Project to increase the adoption of Electronic Health Records (EHRs) and Patient Health Records (PHRs) among small physician practices, by providing them a comprehensive, robust technology solution. Approximately 25 percent of the patients in the urgent care clinics sponsoring this grant request are uninsured; almost double the average number in Virginia. These clinics will serve as the primary model for this project. Physicians targeted to participate will be those who treat more than 20 percent of Virginia's uninsured population and those treating significant numbers of Medicaid and Medicare patients.

Washington – In 2005, the state of Washington passed legislation that created the Health Information Infrastructure Advisory Board (HIIAB) that would develop strategies for implementing EMRs and health information exchange within the state. The board recommended the development of a health record bank that would give consumer control of their records. The first pilot is under development and is scheduled to become operational in January 2009. Eventually, Washington plans to implement a series of banks across the state and hopes to provide every resident with access to a bank.

Wisconsin – The state's eHealth Care Quality and Patient Safety Board was created by executive order to review and make recommendations on issues concerning the creation of an eHealth

information infrastructure in the state. This includes recommendations identifying funding resources and technology options, ensuring privacy and security, and encouraging the adoption of EHRs. A statewide survey of EMR, EHR and other health IT solutions was completed in 2007. Wisconsin Department of Health and Family Services are currently requesting assistance in developing a statewide HIE Business Architecture, Technical Architecture and strategic plan which includes identifying the capability to leverage the state Medicaid Management Information System (MMIS) as one of the building blocks for the state-level HIE services and infrastructure.

WEDI – Hospital EMR systems that were piloted at Mayo and Mount Sinai NY produced qualitative results. The implementation was useful and productive. When the pilot had reached its conclusion, the facilities continued to use it.

Appendix C
Summary of Texas and Federal Laws on Prescribing Brand-Name Drugs and E-prescribing Controlled Substances

The below section provides a list of applicable pharmacy laws related to prescribing brand-name drugs as well as a summary of proposed changes to the laws related to the controlled substances.

Occupations Code: Chapter 562, Subchapter A: Prescription and Substitution Requirements sections 562.008 - 562.015.
http://tlo2.tlc.state.tx.us/statutes/oc.toc.htm

The law in the Occupations Code is codified in the Texas Administrative Code (TAC), 33TAC, Part 15.

Texas Pharmacy Rules (TAC)
See Chapter 309: Substitution of Generic Products
Note: The reference below to 42 C.F.R. Section 447.331(c) has been changed in the federal statute. Section 447.512 is the "new" rule which allows the Secretary to permit an electronic alternative.

§ 62.015. DISPENSING DIRECTIVE; COMPLIANCE WITH FEDERAL LAW. (a) The board shall adopt rules to provide a dispensing directive to instruct pharmacists on the manner in which to dispense a drug according to the contents of a prescription. The rules adopted under this section must:

(1) Require the use of the phrase "brand necessary" or "brand medically necessary" on a prescription form to prohibit the substitution of a generic equivalent of drug for a brand name drug.
(2) Be in a format that protects confidentiality as required by the HIPAA of 1996 (29 U.S.C. Section 1181 et seq.) and its subsequent amendments.
(3) Comply with federal and state law, including rules, with regard to formatting and security requirements.
(4) Be developed to coordinate with 42 C.F.R. Section 447.331(c).
(5) Include an exemption for electronic prescriptions as provided by Subsection (b).

(b) The board shall provide an exemption from the directive adopted under this section for prescriptions transmitted electronically. The board may regulate the use of electronic prescriptions in the manner provided by federal law, including rules.

Summary of Drug Enforcement Agency (DEA) Proposed Rules for E-prescribing Controlled Substances

System Requirements

(1) The prescription cannot be altered without detection.
(2) Electronic prescriptions must include the same information required for any controlled substance prescription.
(3) The prescription records must be reliable for use in legal actions without independent verification.
(4) The system security must prevent the possibility of service providers or other non-registered prescribers from creating or altering controlled substance prescriptions within the system.
(5) The system must automatically log-off users whenever it is idle for more than two minutes.
(6) An electronic prescription must remain in its electronic form throughout the prescribing process. It may not be converted to other transmission methods at any time during transmission. The system cannot transmit the electronic prescription by fax and must also prevent printing of prescriptions.

Prescriber Requirements

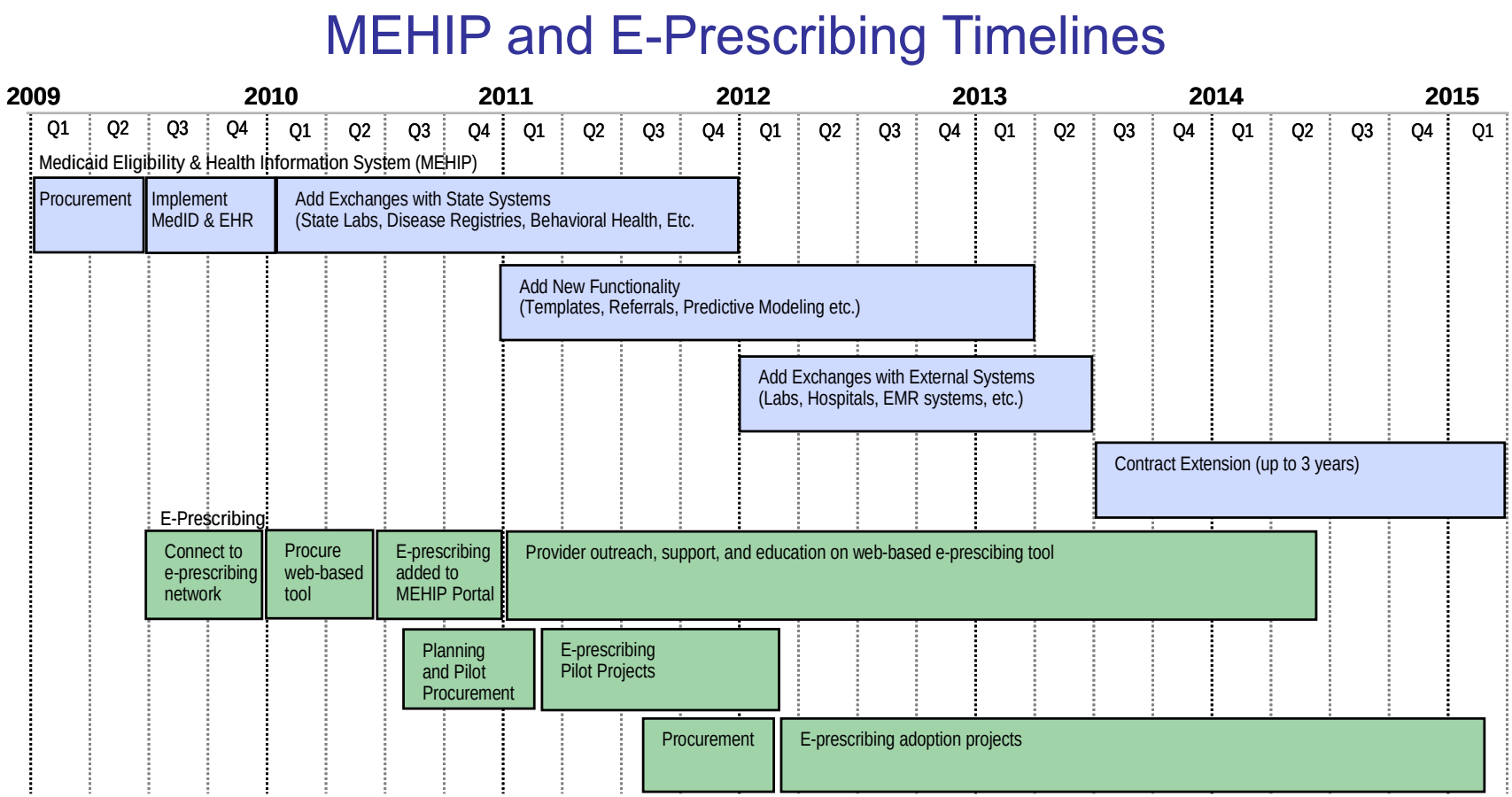
(1) Only prescribers registered with DEA can prescribe controlled substances electronically. The system must limit signing authority to those DEA registrants that have the legal right to sign prescriptions for controlled substances.
(2) Prescribers must be authenticated and verified. Access to the system must meet Level 4 authentication in NIST SP 800-63, including two-factor authentication to access the system; one must be a cryptographic key stored on a hard token, and the hard token must meet other criteria as well. Authentication to the system must occur immediately before signing a prescription. When multiple prescriptions are being prepared, the prescriber must indicate which prescriptions are to be signed prior to authenticating into the system. Between the steps of authenticating and transmitting the prescription, the prescriber must be presented with a statement that s/he is signing a prescription that is being transmitted.
(3) The electronic prescription must be sent immediately upon signature and the electronic files must indicate that the prescription was signed.
(4) Monthly logs of controlled substance prescriptions must be generated by the system and presented to the prescriber for review.

Pharmacy Requirements

(1) Only a registered pharmacist may fill the prescriptions for controlled substances.
(2) The pharmacy system must keep electronic prescription records as required for paper prescriptions and must maintain an audit trail of all entries related to the prescription. The audit trail must identify each person who makes any entries to the prescription record and must conduct daily internal audits to identify any auditable events.
(3) The system must have data storage backup, including a backup at a separate location along with other security controls and reporting capabilities.

(4) The first pharmacy system to receive a prescription must digitally sign and archive a copy of the prescription as received. In addition, the first recipient (pharmacist) of the prescription must digitally sign and archive the original signed version of the prescription.
(5) The pharmacy system must validate whether the DEA registrant of the prescriber is valid and be able to store the complete DEA number including extensions.
(6) The pharmacy system must comply with requirements for a third-party audit.

Appendix D
Recommended Project Timelines



Medicaid/CHIP Health IT Project Timelines