

Collaborative

A healthier Iowa through the use and exchange of electronic health information

Iowa e-Health Project



Iowa Health Information Technology Plan

July 2009

Improve patient centered health care and population health

Public-Private



Multi-stakeholder



Electronic Health Information Advisory Council and Executive Committee
Iowa Department of Public Health



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EXECUTIVE SUMMARY

We live in an era in which information technology has tremendous potential to transform the delivery of health and medical care. Technology used to support health-related functions is broadly known as health information technology (health IT). Electronic health records (EHR) are used to collect and store all relevant patient health information. Generally, EHRs go beyond simply providing a digitized record of the patient visit. EHRs serve as a mechanism to bring evidence-based knowledge resources and patient information to the point of care to support better decision-making and more effective care processes. Health information exchange (HIE) involves sharing health records across the boundaries of individual practice and institutional health care settings. The collaborative effort to plan and promote the adoption and use of EHRs in Iowa, and to share clinical data through an electronic HIE, has come to be known as the Iowa e-Health Project.

The planning that has taken place in Fiscal Year 2009 to develop the Iowa Health Information Technology Plan has resulted in a defined vision for the Iowa e-Health project with specific goals and objectives necessary to implement a secure statewide HIE.

In the coming year, Iowa Department of Public Health and the Electronic Health Information Executive Committee and Advisory Council plan to:

1. Facilitate and support workgroup meetings and convene regular Executive Committee and Advisory Council meetings to further define and execute project activities.
2. Determine cost requirements to develop the HIE infrastructure and support project activities.
3. Pursue federal and state grant programs (e.g., American Recovery and Reinvestment Act Health IT grants) and other potential funding streams to secure startup and ongoing funding for the statewide HIE.

HIEs have significant start up and ongoing funding needs. It will take many resources beyond the current volunteer workgroups to accomplish all the goals and objectives of the Iowa e-Health project. Critical activities, such as the HIE infrastructure, cannot move forward without funding and will delay progress in Iowa.

Stakeholders involved in developing the Iowa Health Information Technology Plan know it is time for the entire state to come together to make real changes to the health care system with electronic health records and health information exchange. These health IT tools are the focus of the Iowa e-Health project, a collaborative, multi-stakeholder initiative committed to advancing health reform in Iowa. Data-driven health care decision-making through health IT will elevate the quality, safety, and efficiency of health care available to current and future generations in Iowa.

BACKGROUND

Health IT has increasingly been recognized by public and private sector leaders as a key tool to support health reform across the nation. Systematic flaws of the health care system must be corrected to facilitate improvements in health care quality, safety, and efficiency. President George W. Bush's executive order in 2004 called for every American to have an electronic health record by 2014 was reaffirmed in the American Recovery and Reinvestment Act (ARRA) signed by President Barack Obama on February 17, 2009.

The ARRA will result in a \$19 billion investment in a health IT infrastructure for the United States. The funding opportunity is anticipated to provide planning and implementation grants needed to support the development of standard specifications and policies to facilitate interoperability, technical assistance for EHR and HIE adoption, expansion of education programs, and incentives to providers through Medicare and Medicaid.

Collecting health data in the right format and developing the infrastructure to exchange data among health care institutions allows access to real-time health information. This benefits practitioners, patients, and the population. Real-time health information helps *practitioners* make the best health care decisions, provides *patients* with continuity of care regardless of the provider the patient visits, and enhances *population* health through use and analysis of the data collected and maintained throughout the system.

Health Reform in Iowa

In 2007, Iowa's health reform effort began in earnest with the formation of the Commission on Affordable Health Care Plans for Small Businesses and Families (the Commission) by the Iowa Legislature. Membership consisted of 10 legislators, eight members of the public representing various health care and insurance interests appointed by the Legislative Council, five consumers appointed by the governor, and three state agency directors or their designees to serve as ex officio members.

The Commission was charged to review, analyze, and make recommendations on a broad spectrum of issues relating to the affordability of health care for Iowans, including health IT. The Commission's final report is available at www.legis.state.ia.us/lsadocs/IntReport/2008/IPPAF000.PDF.

Insurance Coverage in Iowa:¹

59% Employer-based
6% Individual
13% Medicare
13% Medicaid
10% Uninsured

The Iowa legislature enacted the Commission's recommendations with House File 2539, which established eleven advisory councils charged with making recommendations for health reform in Iowa. Each of the advisory councils is stakeholder-driven, statewide in focus and uses an open, deliberative planning process.

One of the eleven advisory councils is the Electronic Health Information Executive Committee administered by the Iowa Department of Public Health (IDPH). The Electronic Health

¹ Kaiser Family Foundation State Health Facts. www.statehealthfacts.org/profileind.jsp?ind=1&cat=1&rgn=17. Accessed May 2009.

Information Executive Committee with technical assistance from the Electronic Health Advisory Council and IDPH, is charged with the following:

- a) Developing a statewide health information technology (health IT) plan by July 1, 2009
- b) Identifying existing and potential health IT efforts, and integrating with state and national efforts to avoid incompatibility and duplication
- c) Coordinating public and private efforts to provide the network and communications backbone for health IT
- d) Promoting the use of telemedicine; the use of communications and information technology for the delivery of care, usually in ways not otherwise available in the patient's immediate environment.
- e) Addressing workforce needs generated by increased use of health IT
- f) Recommending rules to be adopted in accordance with chapter 17A to implement all aspects of the plan and the network
- g) Coordinating, monitoring and evaluating the adoption, use, interoperability, and efficiencies of health IT in the state
- h) Seeking and applying for any federal or private funding to assist in implementation and support of the health IT system
- i) Identifying state laws and rules that present barriers to development of the health IT system

Several of the other health reform advisory councils, such as Medical Home System Advisory Council and Prevention and Chronic Care Management Advisory Council, will be directly impacted by successful planning and implementation of electronic health records and a statewide health information exchange. In the Medical Home setting, for example, health IT enables providers from many disciplines to share information about a single patient. This helps break down silos and allows for more informed patient care. In the Prevention and Chronic Care setting, health IT creates capacity to provide advanced care processes using real-time information to monitor and treat chronic conditions. This helps improve patient outcomes, increase quality of care, and reduce the need for costly procedures or hospitalization.

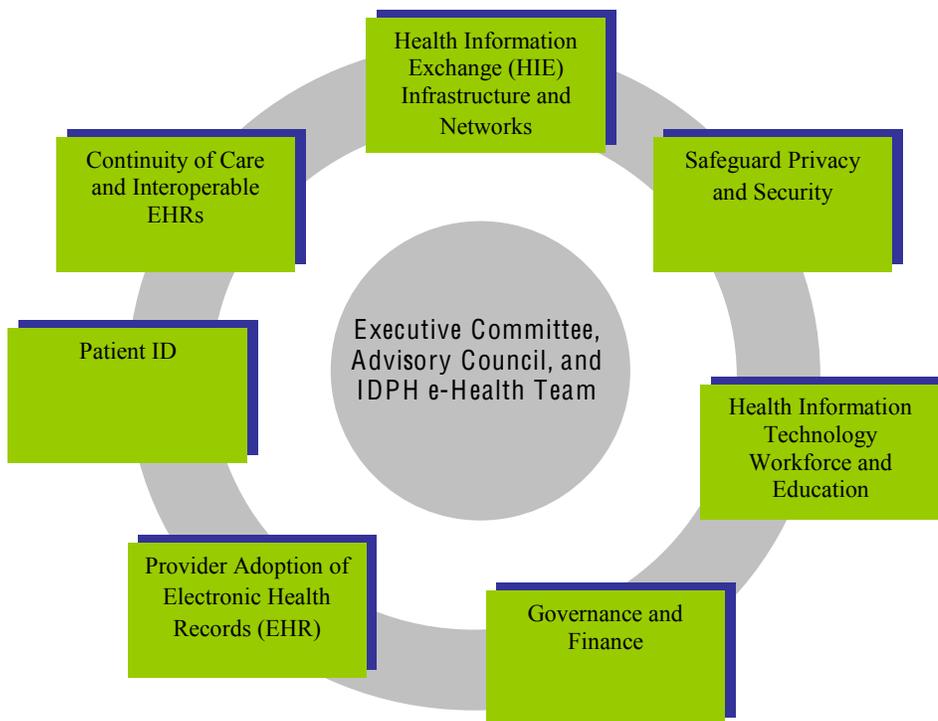
Members of IDPH have regularly attended the other health reform advisory councils and provided progress reports to the councils about the Iowa e-Health project planning efforts. Communication among the various councils has been helpful in gathering feedback about desired functionality of the HIE and identifying overlapping issues important to multiple councils.

PLANNING APPROACH

In January 2009, the first Electronic Health Information Executive Committee and Advisory Council convened. Under the direction of the Executive Committee, several volunteer workgroups were established to identify the objectives and action steps necessary to promote the adoption and use of health IT in Iowa. The Executive Committee, Advisory Council, and workgroups are comprised of diverse stakeholders from public and private entities including providers, professional associations, government, payers, educators, researchers, and consumers. (See Appendix B, C, D, and E for stakeholder involvement.)

To support the activities of the Executive Committee, Advisory Council, and the volunteer workgroups, IDPH assembled an internal *e*-Health team within the Office of the Director. An IDPH *e*-Health Coordinator provides leadership to harmonize all committee, council, and workgroup activities surrounding the planning initiative. Each workgroup is coordinated by an IDPH point of contact and supported by a group of IDPH planners that documented and organized all of the information and research from the workgroups into a statewide plan.

Figure 1: Current e-Health Workgroups and Advisory Bodies



Each workgroup was formed to provide subject matter expertise for components of the planning process. Each is led by an Executive Committee or Advisory Council volunteer with particular proficiency with the subject matter.

Workgroups include:

Continuity of Care Document and Interoperable Electronic Health Records (EHRs): To help specify the types of clinical data that will be exchanged using the HIE.
Facilitated by: *Kristy Walker*, University of Iowa Hospitals and Clinics

Health Information Exchange (HIE) Infrastructure and Networks: To assess the necessary infrastructure, including hardware, connectivity, and software, to support the HIE.
Facilitated by: *AJ Wineski*, Iowa Department of Public Health

Patient ID: To identify the best methodology to join patient data from disparate sources and ensure only authorized users have access to patient data.
Facilitated by: *Kim Norby*, Iowa Hospital Association / Burgess Health Center

Safeguard Privacy and Security: To make recommendations for policies and procedures that will provide protections to consumers and providers and secure trust and support for HIE.
Facilitated by: *Mike Speight*, Iowa Foundation for Medical Care

Provider Adoption of EHRs: To research and make recommendations on ways to achieve widespread adoption of certified EHRs and to promote participation in the HIE.
Facilitated by: *Don Nelson*, Iowa Medical Society / Physician

HIT Workforce and Education: To prepare the health IT workforce and educate consumers and providers on the value of EHRs and the HIE.
Facilitated by: *Jane Brokel*, Iowa Nurses Association / University of Iowa College of Nursing

Governance and Finance: To determine the type of business structure (including financing options) most suitable for supporting sustainable public-private, multi-stakeholder, collaborative governance of the HIE. The Governance workgroup includes a finance and sustainability subcommittee.
Facilitated by: *Lee Carmen*, University of Iowa Hospitals and Clinics

Even though Iowa is not currently engaged in a statewide HIE, our stakeholders have accomplished many health IT milestones that will facilitate planning and successful implementation throughout Iowa. Below is a description of a few of Iowa's achievements and current assets for HIE planning and implementation. (See Appendix F for additional achievements and assets.)

HealthNet connect: Rural Healthcare Pilot Program
Iowa Health System received \$7.8 million in ordered funds from the Federal Communications Commission from the Rural Health Care Pilot Program (RHCPP) for last-mile connections for nonprofit hospitals to link to the HealthNet connect (HNc) backbone, a 3,200-mile fiber optic network. The HNc backbone network runs throughout Iowa and spans four states, with direct fiber connections to major metropolitan cities

stretching from Denver to Chicago. Additionally, the HNC backbone connects to Internet2 and National Lambda Rail networks which will allow direct high speed access to organizations on Internet2 or National Lambda Rail from HNC. The first 28 nonprofit hospitals, including 13 critical access hospitals, will be connected to HNC this summer making HNC one of the first functional RHCPP networks in the nation. Additional entities will be added to the HNC network before the ordered funds from the Federal Communications Commission expire in June of 2010.

Iowa Rural Health Telecommunications Program

The Iowa Hospital Association also received three-year grant funding from the Federal Communications Commission in 2008 to link approximately 80 hospital facilities through the state-owned Iowa Communications Network (ICN). ICN has been providing inter-hospital broadband networking for 12 years and will provide the network capacity to extend important services to rural hospitals and the communities the hospitals serve.

North Iowa Hospitals - Rural Integrated Electronic Health Record System

In 2008, seven North Iowa hospitals, Kossuth Regional Health Center in Algona, Franklin General Hospital in Hampton, Mitchell County Regional Health Center in Osage, Ellsworth Municipal Hospital in Iowa Falls, Hancock County Hospital in Britt, Palo Alto County Hospital in Emmetsburg, and Mercy Medical Center in New Hampton integrated an electronic health record system, the first of its kind in a rural U.S. health care setting, with fewer than three percent of hospitals nationwide having such a system available. The initiative was supported by two grants from the Agency for Healthcare Research and Quality. Mercy Health Network-North Iowa, the seven rural facilities, local public health agencies, Trinity Health, and University of Iowa College of Public Health worked together to implement the EHR system, ensure compatibility, and generate lessons learned for future EHR implementations in rural settings.

Health Information Security and Privacy Collaboration (HISPC)

Since its inception in 2006, Iowa has participated in HISPC, a multi-state, collaborative project to address the privacy and security challenges presented by electronic health information exchange. Led by the Iowa Foundation for Medical Care and a multi-stakeholder steering committee, the project has resulted in multiple deliverables including: 1) assessment of privacy and security barriers; 2) urban and rural consumer focus groups; 3) proposed privacy and security solutions; 4) patient consent framework for treatment scenarios; 5) continuity of care document exchange pilot; 6) legal and legislative recommendations; and 7) model interorganizational data sharing agreements.

Other state-level and federal health IT initiatives (e.g., Healthcare Information Technology Standards Panel, National Health Information Network, Healthcare Information Management Systems Society, and American Health Information Management Association) also provide a solid foundation for planning and implementation of health IT in Iowa. Leveraging smart practices and lessons learned will undoubtedly help Iowa achieve success.

SCOPE OF PLANNING EFFORTS

Stakeholders involved in the workgroups, Advisory Council, and Executive Committee have been highly engaged in the collaborative planning process contributing significant amounts of time and intellectual resources. Together the group established the vision, guiding principles, goals, and objectives to define the scope of a comprehensive statewide health IT planning effort.

Vision

Our vision is for a healthier Iowa through the use and exchange of electronic health information to improve patient centered health care and population health. This initiative will produce a public good that will:

- Improve quality of health care
- Assure patient safety
- Increase efficiency in health care delivery
- Promote and protect the health of Iowans

Guiding Principles

- Engage in a collaborative, public-private, multi-stakeholder effort
- Create a sustainable health information exchange which makes information available when and where it is needed
- Ensure the system incorporates provider priorities and appropriate user education
- Instill confidence in consumers that their health care information is secure, private, and accessed appropriately
- Build on smart practices and align with federal standards to ensure interoperability within and beyond the state

Goal 1: Build awareness and trust of health information technology

Objective 1.1: Establish program branding and identity

To stimulate interest and awareness in the project, a “brand” must be selected, including both a name and logo. Ideally, the brand should reflect the overall goals of improving both individual patient health and population health. The brand should also be a name that the public can remember and understand. A program Web site will be developed based on the program name and logo selected.

Objective 1.2: Develop a communication plan for stakeholders

A communication plan will outline the key messages needed to help consumers and providers understand the meaningful uses and value of health information technology. Because people receive information from a variety of sources, the plan will address strategies to reach stakeholders in different ways (e.g., Internet, television, radio, print materials) in targeted locations (e.g., hospital/physician/clinic offices, schools, businesses, etc.), and at various stages during the planning and implementation phases.

Goal 2: Promote statewide deployment and use of electronic health records

Objective 2.1: Identify barriers and develop strategies to increase statewide EHR adoption
Common barriers to provider adoption are the cost burden of implementing and sustaining an EHR system, disruption in patient services when implementing an EHR system, and changes in provider processes and workflows. By identifying and understanding these barriers early in the planning process, strategies can be developed to help providers overcome the known barriers and achieve robust and “meaningful use” of EHRs and the HIE. An example of a strategy to overcome a cost barrier is through provider incentives.

Note: “Meaningful use” is a term used to describe the expected degree of implementation of EHR systems. The Department of Health and Human Services and Office of the National Coordinator have yet to define “meaningful use” as written in the American Recovery and Reinvestment Act.

Objective 2.2: Provide technical support to providers adopting EHRs and participating in HIE

As providers prepare to adopt an EHR system or connect to the HIE, they will need resources and support to help them make informed decisions about the options available, lessons learned from other providers, and statewide specification standards necessary for interoperability. To help providers successfully integrate into the statewide HIE, providers will need information regarding: statewide use and interoperability expectations; key features of EHRs which make them interoperable (e.g., *Certification Commission for Health Information Technology* certification; *Healthcare Information Technology Standards Panel* use cases); EHR system hosting options which may be available; and EHR and HIE implementation guides, training, and hands-on technical support.

Goal 3: Enable the electronic exchange of health information

Objective 3.1: Assess current provider capabilities and preferences

Assessment is a critical component and one of the first steps in planning the health information exchange. A series of surveys and focus groups can be conducted to gather information about current EHR use, past successes and challenges with EHR systems, and preferences for the statewide HIE. A major component of this assessment will be to determine provider preferences and priorities with regard to the types of clinical data exchange they would find most valuable (e.g., electronic prescribing, continuity of care documents, discharge summaries).

EHR Use in Iowa

In a 2007 Physician Office Health IT Survey, 25% of Iowa physician offices use EHRs.²

In a 2009 Iowa Hospital Association survey, 87% of Iowa hospitals use EHRs.³

- 11% exclusively use EHRs
- 76% use both paper and EHRs
- 13% do not use EHRs

² Iowa Foundation for Medical Care, Physician Office Health IT Survey (August 2007). 296 physician offices responded.

³ Iowa Hospital Association, Hospital IT Environmental Assessment of Iowa Hospitals (May 2009). 91 hospitals responded.

Objective 3.2: Assess and expand network capacity and access

A technical assessment will be conducted that will provide an inventory of provider network capacity and access to broadband services (as part of the assessment described in Objective 3.1). This assessment will provide a gap analysis identifying geographic areas or provider types with insufficient network capacity or limited access to networks. In addition, collaboration will occur in order to connect current and planned future network projects to make full use of Iowa network resources.

Objective 3.3: Research smart practices and lessons learned from other HIE implementations

An essential aspect of developing the statewide HIE is to build on smart practices and align with federal standards to ensure interoperability within and beyond the state. Several states have successfully implemented HIE networks, and other states are in various planning stages with successes and challenges to share. Learning from their experiences will facilitate the development of a successful, sustainable HIE in Iowa.

Objective 3.4: Build a hybrid infrastructure model

The selection of the infrastructure model provides the technological framework of the HIE for planning purposes, which include key decisions that affect the approach to system interoperability, estimates for network capacity and bandwidth needs, privacy and security of the clinical data, and the amount of funding needed to launch and maintain the HIE. A hybrid infrastructure model provides independence for providers who maintain and support their own infrastructure, yet provides needed technical support to smaller practitioners. Providers maintain ownership and control over the clinical data they generate, produce, and contribute.

Objective 3.5: Establish processes and technology to locate and match patient information

A core element of health information exchange is the ability to correctly match patients with their clinical data. In the absence of a single, standardized patient identifier (e.g., social security number or national patient identifier), technology and algorithms used with a master patient index (MPI) can link patient data from disparate provider networks and create data exchange opportunities.

The approach for matching patient data will be to link information using a record locator service rather than a single patient identifier. While the single patient identifier could simplify the record matching process, there are privacy and security implications to be studied. If a decision was made to issue a single patient identifier, this decision would likely come from the federal government in the form of a national patient identifier, rather than a number uniquely issued by each state. To prepare for the possibility of a national patient identifier, Iowa should create a placeholder within the MPI database to support the single patient identifier if one is assigned.

Objective 3.6: Establish security controls to authenticate users and monitor system activity

The HIE will employ a robust privacy and security framework (see Goal 4). A key component of the framework will be infrastructure security controls, such as role-based security and audit trails. Role-based security provides identification, authentication, and access controls to ensure patient records are only viewed or modified by authorized provider sites and registered users. Security audit trails can be used as accountability and data integrity controls to monitor all requests and changes to a patient record. Reports or alerts generated from audit records can also

provide transparency in how records have been used or modified and monitor the appropriateness of activities. These infrastructure security controls are essential to building trust and ensuring long-term success and sustainability of the HIE.

Objective 3.7: Develop technical standards for interoperability, privacy, security and disaster recovery

While some EHR and HIE technical and interoperability standards already exist through efforts such as the Healthcare Information Technology Standards Panel, Iowa needs to develop, examine, and synchronize standards for the HIE infrastructure. The standards will help ensure interoperability within Iowa and facilitate data exchange with other states and the Nationwide Health Information Network. The standards will also support privacy and security efforts and outline disaster recovery procedures, which are also core components of the HIE infrastructure.

Objective 3.8: Engage in proof of concept projects to prepare for pilot implementations

Proof of concept trials can be planned and executed between a small number of health care providers to test specific components of the HIE. The proof of concept exchanges can help identify potential roadblocks in interconnectivity with the multiplicity of EHR systems implemented and allow for data exchange requirements and data specifications to be more fully understood before the HIE infrastructure is launched during pilot implementations.

Objective 3.9: Assess barriers for connecting clinic and population health systems

Connecting clinical systems and population health systems through the HIE will be important for provider adoption, long-term sustainability, and support of population health goals in clinical research, quality improvement, and safety. Assessment of current population health data systems, such as the Immunization Registry and the Iowa Disease Surveillance System, will help assess the feasibility and work required to connect the different systems.

Goal 4: Safeguard privacy and security of electronic health information

Objective 4.1: Develop a privacy and security framework

The Iowa HIE will need a framework of privacy and security operating assumptions, practices, and documents. A robust framework will be based on nationally recognized privacy and security standards and previous work in Iowa [e.g., Health Information Security and Privacy Collaboration (HISPC)]. The framework will support important policy decisions, such as the ability of a consumer to “opt-in” or “opt-out” of the HIE.

Privacy and Security

In a 2006 HISPC focus group³, more than 50% of participants believed an HIE can be made secure and private.

⁴ Health Information Security and Privacy Collaboration (HISPC). “Resource Guide for the State of Iowa” (December 2007). p. 20.

Objective 4.2: Determine privacy and security policies and procedures for pilot HIE implementations

Before any pilot implementation of HIE may occur, policies and procedures must be established to protect the information exchanged. The policies and procedures to be adopted by the HIE will address privacy and security implications of existing laws, regulations, the clinical data involved in the exchange, and the infrastructure model. Information related to patients treated for HIV, mental health, substance abuse, and genetic testing will require heightened security controls.

Objective 4.3: Assess potential risks and liabilities to providers and consumers

An assessment of potential risks and liabilities inherent with exchange of health information will facilitate development of strategies and assurances to protect both consumers and providers in the event of an information breach. Strategies may include development of “safe harbor” provisions, a universal patient consent form, and interorganizational data sharing agreements. Failure to address concerns, such as provider legal liability or consumer identity theft, would likely contribute to resistance and a lack of trust in the HIE.

Objective 4.4: Formulate data sharing strategies and data use agreements

An important function of the HIE will be the ability to provide aggregated data for population health monitoring and planning. Population health data provides crucial information for both public and private organizations in the prevention, intervention and monitoring of disease and health trends. Data sharing agreements will need to be developed to facilitate comprehensive use of health information collected in EHRs and made available through the HIE.

Goal 5: Build an appropriately-trained, skilled health information technology workforce

Objective 5.1: Define the HIT workforce and identify core competencies

There are three primary groups that are considered to comprise the health IT workforce: 1) information technology professionals who maintain, build, and support EHRs and the HIE; 2) health care professionals who will implement, adopt, and use EHRs and the HIE in practice; and 3) health informatics professionals who will design and update evidence-based practices and study the efficiencies and outcomes to benefit population health. Through a workforce competency study, Iowa will be able to define the skills and knowledge required to educate the health IT workforce, identify gaps in competencies needed to implement and maintain the continuous lifecycle of health IT, and prepare an appropriate curriculum for workplace training and formal education at colleges or universities.

Objective 5.2: Create or enhance training and education programs

An assessment should be conducted to identify all existing health IT training and education programs available throughout the state. This assessment will help determine educational gaps and identify the need for health IT academic program expansion and development.

Objective 5.3: Develop a workforce plan for HIT growth and recruitment

Workforce plans are commonly used to ensure organizations have the right staff with the right skills in the right jobs. The workforce plan will help: 1) describe the new positions that need to be created to support, maintain, and upgrade health IT systems; 2) prepare to transition staff to health IT positions with new responsibilities;; 3) identify health IT positions or job classifications that organizations may have difficulty filling and provide strategies for recruitment and training; and 4) monitor growth and demand for the health IT workforce.

Goal 6: Develop a framework for implementation and sustainability of health IT

Objective 6.1: Research business models and develop a business plan.

A legal business structure [(e.g., formation of public utility or 501(c)3)] for the Iowa e-Health Project will provide the backbone for a successful and sustainable HIE. The structure should encompass the needs and preferences of the many stakeholders who will be impacted by the HIE.

Objective 6.2: Research financial models and develop a financial plan

A financial model and plan will describe the funding needed to launch and support ongoing costs, functionality enhancements, and technology upgrades for the HIE.

Objective 6.3: Explore governance options and establish a governance entity

A governance entity (e.g., a board of directors and management structure) will oversee the long-term activities, policies, and procedures related to the HIE. This oversight body for the HIE will be composed in a manner that is collaborative, coordinated, inclusive of public and private entities, inspires trust, and multi-stakeholder focused.

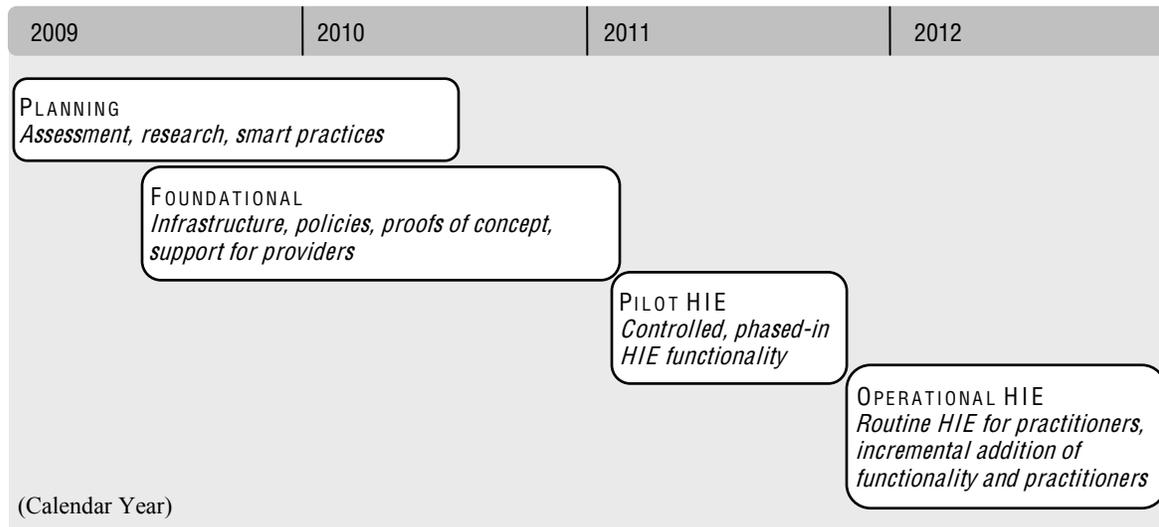
Objective 6.4: Develop a plan for implementation of the HIE infrastructure

The goals and objectives stated in this plan were drafted to ensure a comprehensive, coordinated, and multi-stakeholder planning effort. Completion of these activities will help guide the development of the foundational architecture of the Iowa HIE. Long-term, sustainable electronic health information exchange will require an implementation plan that will guide the activities beyond the planning and foundational stages of HIE development.

MOVING FORWARD

To plan and manage the tasks necessary to implement the Iowa HIE, components or activities of each objective are organized into four phases: planning, foundational, pilot HIE, and operational HIE. The planning phase, which includes the development of this plan, describes the initial efforts to gather background information and formulate the concepts and scope of the project. The foundational phase describes the deliverables or requirements to be developed before HIE implementation can occur. This includes development of the HIE infrastructure, decisions and guidelines regarding the types of clinical data to be exchanged, the testing of technical and non-technical implementation concepts, as well as provider adoption of EHRs. The pilot HIE phase is a controlled implementation and refining of concepts and tasks initiated in the foundational phase. Upon a successful pilot of HIE, the operational HIE phase can begin, which will include incremental expansion of HIE functionality and further reach of the HIE to different provider types statewide.

Figure 2: High Level Project Timeline



The diagram above illustrates the phases and projected time required for completion. However, Iowa will not be able to demonstrate significant progress on the timeline without funding. The Iowa Legislature set forth the expectation for health care professionals to use a patient identifier mechanism and continuity of care record by July 1, 2010 (See Appendix A Iowa Legislation.), however, technical and nontechnical (e.g., privacy and security) infrastructure must be in place to allow for information exchange to occur.

HIEs have significant start up and ongoing funding needs. It will take many resources beyond what existing volunteer workgroups are able to provide to accomplish all the goals and objectives of this initiative. In particular, substantial financial investment will be required to develop and maintain the hardware and software infrastructure.

Some of the largest expenses will include:

- Hardware and software
- Communications
- Technical support for providers
- Legal expertise to safeguard privacy and security
- Technical and project management support for pilot projects
- Resources for overall management and coordination of activities

Estimating Costs

Nebraska estimates \$3.5 million in startup costs and \$3 million in annual operating costs to support an HIE with basic functionality.⁴

According to the eHealth Initiative's 2008 *Annual Survey of Health Information Exchange at the State and Local Levels*, 79 percent of respondents cited securing upfront funding as a significant challenge for HIE initiatives. Of the survey respondents, 33 percent received financial support from state government for startup costs and 26 percent received financial support from state government for ongoing operations.⁶ The American Recovery and Reinvestment Act is anticipated to provide federal financial support for startup costs. However, states will be required to match \$1 for each \$10 of federal funds in 2011, \$1 for each \$7 in 2012, and \$1 of state match for each \$3 of federal funds in 2013 and beyond.⁷

The momentum of the workgroups and willingness of stakeholder organizations to come together over the last six months, providing in-kind contributions of staff time, has been exceptional. Hopefully, stakeholder organizations can continue to provide this level of effort, assuming progress can continue within the funding constraints. In the absence of significant federal or state funding, workgroups can explore governance options, research business and financial models, study lessons learned, and prepare for activities that can be fully initiated once funding is available. However, critical foundational phase activities, such as the HIE infrastructure, can not move forward without funding and will delay progress in Iowa.

In the coming year, IDPH and the Electronic Health Information Executive Committee and Advisory Council plan to:

1. Facilitate and support workgroup meetings and convene regular Executive Committee and Advisory Council meetings to further define and execute project activities.
2. Determine cost requirements to develop the HIE infrastructure and support project activities.
3. Pursue federal and state grant programs (e.g., American Recovery and Reinvestment Act Health IT grants) and other potential funding streams to secure startup and ongoing funding for the Iowa e-Health Project.

While there are many challenges ahead, the progressive planning to outline the vision, guiding principles, goals, and objectives of the Iowa e-Health project has resulted in the Iowa Health Information Technology Plan. With this statewide plan, stakeholders and leaders have a resource and foundation to continue pursuing comprehensive implementation of health IT in Iowa.

⁵ Nebraska Health Information Initiative (NeHII) Business Plan. Version 2.9. (May 27, 2008).

⁶ eHealth Initiative, "Fifth Annual Survey of Health Information Exchange At the State and Local Levels, Overview of 2008 Findings" (September 2008). www.ehealthinitiative.org/

⁷ American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, (February 17, 2009). Division A Title XIII: Health Information Technology for Economic and Clinical Health Act (HITECH), Subtitle C: Grants and Loan Funding, Section 3013: State Grants to Promote Health Information Technology. p. 138.

APPENDIX A
Iowa Legislation

17 9 DIVISION V
17 10 IOWA HEALTH INFORMATION TECHNOLOGY SYSTEM
17 11 DIVISION XXI
17 12 IOWA HEALTH INFORMATION TECHNOLOGY SYSTEM
17 13 Sec. 23. NEW SECTION. 135.154 DEFINITIONS.
17 14 As used in this division, unless the context otherwise
17 15 requires:
17 16 1. "Board" means the state board of health created
17 17 pursuant to section 136.1.
17 18 2. "Department" means the department of public health.
17 19 3. "Health care professional" means a person who is
17 20 licensed, certified, or otherwise authorized or permitted by
17 21 the law of this state to administer health care in the
17 22 ordinary course of business or in the practice of a
17 23 profession.
17 24 4. "Health information technology" means the application
17 25 of information processing, involving both computer hardware
17 26 and software, that deals with the storage, retrieval, sharing,
17 27 and use of health care information, data, and knowledge for
17 28 communication, decision making, quality, safety, and
17 29 efficiency of clinical practice, and may include but is not
17 30 limited to:
17 31 a. An electronic health record that electronically
17 32 compiles and maintains health information that may be derived
17 33 from multiple sources about the health status of an individual
17 34 and may include a core subset of each care delivery
17 35 organization's electronic medical record such as a continuity
18 1 of care record or a continuity of care document, computerized
18 2 physician order entry, electronic prescribing, or clinical
18 3 decision support.
18 4 b. A personal health record through which an individual
18 5 and any other person authorized by the individual can maintain
18 6 and manage the individual's health information.
18 7 c. An electronic medical record that is used by health
18 8 care professionals to electronically document, monitor, and
18 9 manage health care delivery within a care delivery
18 10 organization, is the legal record of the patient's encounter
18 11 with the care delivery organization, and is owned by the care
18 12 delivery organization.
18 13 d. A computerized provider order entry function that
18 14 permits the electronic ordering of diagnostic and treatment
18 15 services, including prescription drugs.
18 16 e. A decision support function to assist physicians and
18 17 other health care providers in making clinical decisions by

18 18 providing electronic alerts and reminders to improve
18 19 compliance with best practices, promote regular screenings and
18 20 other preventive practices, and facilitate diagnoses and
18 21 treatments.

18 22 f. Tools to allow for the collection, analysis, and
18 23 reporting of information or data on adverse events, the
18 24 quality and efficiency of care, patient satisfaction, and
18 25 other health care-related performance measures.

18 26 5. "Interoperability" means the ability of two or more
18 27 systems or components to exchange information or data in an
18 28 accurate, effective, secure, and consistent manner and to use
18 29 the information or data that has been exchanged and includes
18 30 but is not limited to:

18 31 a. The capacity to connect to a network for the purpose of
18 32 exchanging information or data with other users.

18 33 b. The ability of a connected, authenticated user to
18 34 demonstrate appropriate permissions to participate in the
18 35 instant transaction over the network.

19 1 c. The capacity of a connected, authenticated user to
19 2 access, transmit, receive, and exchange usable information
19 3 with other users.

19 4 6. "Recognized interoperability standard" means
19 5 interoperability standards recognized by the office of the
19 6 national coordinator for health information technology of the
19 7 United States department of health and human services.

19 8 Sec. 24. NEW SECTION. 135.155 IOWA ELECTRONIC HEALTH ==
19 9 PRINCIPLES == GOALS.

19 10 1. Health information technology is rapidly evolving so
19 11 that it can contribute to the goals of improving access to and
19 12 quality of health care, enhancing efficiency, and reducing
19 13 costs.

19 14 2. To be effective, the health information technology
19 15 system shall comply with all of the following principles:

19 16 a. Be patient-centered and market-driven.

19 17 b. Be based on approved standards developed with input
19 18 from all stakeholders.

19 19 c. Protect the privacy of consumers and the security and
19 20 confidentiality of all health information.

19 21 d. Promote interoperability.

19 22 e. Ensure the accuracy, completeness, and uniformity of
19 23 data.

19 24 3. Widespread adoption of health information technology is
19 25 critical to a successful health information technology system
19 26 and is best achieved when all of the following occur:

19 27 a. The market provides a variety of certified products
19 28 from which to choose in order to best fit the needs of the
19 29 user.

19 30 b. The system provides incentives for health care
19 31 professionals to utilize the health information technology and
19 32 provides rewards for any improvement in quality and efficiency
19 33 resulting from such utilization.

19 34 c. The system provides protocols to address critical
19 35 problems.

20 1 d. The system is financed by all who benefit from the
20 2 improved quality, efficiency, savings, and other benefits that
20 3 result from use of health information technology.

20 4 Sec. 25. NEW SECTION. 135.156 ELECTRONIC HEALTH
20 5 INFORMATION == DEPARTMENT DUTIES == ADVISORY COUNCIL ==
20 6 EXECUTIVE COMMITTEE.

20 7 1. a. The department shall direct a public and private
20 8 collaborative effort to promote the adoption and use of health
20 9 information technology in this state in order to improve
20 10 health care quality, increase patient safety, reduce health
20 11 care costs, enhance public health, and empower individuals and
20 12 health care professionals with comprehensive, real-time
20 13 medical information to provide continuity of care and make the
20 14 best health care decisions. The department shall provide
20 15 coordination for the development and implementation of an
20 16 interoperable electronic health records system, telehealth
20 17 expansion efforts, the health information technology
20 18 infrastructure, and other health information technology
20 19 initiatives in this state. The department shall be guided by
20 20 the principles and goals specified in section 135.155.

20 21 b. All health information technology efforts shall
20 22 endeavor to represent the interests and meet the needs of
20 23 consumers and the health care sector, protect the privacy of
20 24 individuals and the confidentiality of individuals'
20 25 information, promote physician best practices, and make
20 26 information easily accessible to the appropriate parties. The
20 27 system developed shall be consumer-driven, flexible, and
20 28 expandable.

20 29 2. a. An electronic health information advisory council
20 30 is established which shall consist of the representatives of
20 31 entities involved in the electronic health records system task
20 32 force established pursuant to section 217.41A, Code 2007, a
20 33 pharmacist, a licensed practicing physician, a consumer who is
20 34 a member of the state board of health, a representative of the
20 35 state's Medicare quality improvement organization, the
21 1 executive director of the Iowa communications network, a
21 2 representative of the private telecommunications industry, a
21 3 representative of the Iowa collaborative safety net provider
21 4 network created in section 135.153, a nurse informaticist from
21 5 the university of Iowa, and any other members the department
21 6 or executive committee of the advisory council determines

21 7 necessary and appoints to assist the department or executive
21 8 committee at various stages of development of the electronic
21 9 health information system. Executive branch agencies shall
21 10 also be included as necessary to assist in the duties of the
21 11 department and the executive committee. Public members of the
21 12 advisory council shall receive reimbursement for actual
21 13 expenses incurred while serving in their official capacity
21 14 only if they are not eligible for reimbursement by the
21 15 organization that they represent. Any legislative members
21 16 shall be paid the per diem and expenses specified in section
21 17 2.10.

21 18 b. An executive committee of the electronic health
21 19 information advisory council is established. Members of the
21 20 executive committee of the advisory council shall receive
21 21 reimbursement for actual expenses incurred while serving in
21 22 their official capacity only if they are not eligible for
21 23 reimbursement by the organization that they represent. The
21 24 executive committee shall consist of the following members:

21 25 (1) Three members, each of whom is the chief information
21 26 officer of one of the three largest private health care
21 27 systems in the state.

21 28 (2) One member who is the chief information officer of the
21 29 university of Iowa hospitals and clinics, or the chief
21 30 information officer's designee, selected by the director of
21 31 the university of Iowa hospitals and clinics.

21 32 (3) One member who is a representative of a rural hospital
21 33 who is a member of the Iowa hospital association, selected by
21 34 the Iowa hospital association.

21 35 (4) One member who is a consumer member of the state board
22 1 of health, selected by the state board of health.

22 2 (5) One member who is a licensed practicing physician,
22 3 selected by the Iowa medical society.

22 4 (6) One member who is licensed to practice nursing,
22 5 selected by the Iowa nurses association.

22 6 (7) One representative of an insurance carrier selected by
22 7 the federation of Iowa insurers.

22 8 3. The executive committee, with the technical assistance
22 9 of the advisory council and the support of the department
22 10 shall do all of the following:

22 11 a. Develop a statewide health information technology plan
22 12 by July 1, 2009. In developing the plan, the executive
22 13 committee shall seek the input of providers, payers, and
22 14 consumers. Standards and policies developed for the plan
22 15 shall promote and be consistent with national standards
22 16 developed by the office of the national coordinator for health
22 17 information technology of the United States department of
22 18 health and human services and shall address or provide for all

22 19 of the following:

22 20 (1) The effective, efficient, statewide use of electronic
22 21 health information in patient care, health care policymaking,
22 22 clinical research, health care financing, and continuous
22 23 quality improvement. The executive committee shall recommend
22 24 requirements for interoperable electronic health records in
22 25 this state including a recognized interoperability standard.

22 26 (2) Education of the public and health care sector about
22 27 the value of health information technology in improving
22 28 patient care, and methods to promote increased support and
22 29 collaboration of state and local public health agencies,
22 30 health care professionals, and consumers in health information
22 31 technology initiatives.

22 32 (3) Standards for the exchange of health care information.

22 33 (4) Policies relating to the protection of privacy of
22 34 patients and the security and confidentiality of patient
22 35 information.

23 1 (5) Policies relating to information ownership.

23 2 (6) Policies relating to governance of the various facets
23 3 of the health information technology system.

23 4 (7) A single patient identifier or alternative mechanism
23 5 to share secure patient information. If no alternative
23 6 mechanism is acceptable to the executive committee, all health
23 7 care professionals shall utilize the mechanism selected by the
23 8 executive committee by July 1, 2010.

23 9 (8) A standard continuity of care record and other issues
23 10 related to the content of electronic transmissions. All
23 11 health care professionals shall utilize the standard
23 12 continuity of care record by July 1, 2010.

23 13 (9) Requirements for electronic prescribing.

23 14 (10) Economic incentives and support to facilitate
23 15 participation in an interoperable system by health care
23 16 professionals.

23 17 b. Identify existing and potential health information
23 18 technology efforts in this state, regionally, and nationally,
23 19 and integrate existing efforts to avoid incompatibility
23 20 between efforts and avoid duplication.

23 21 c. Coordinate public and private efforts to provide the
23 22 network backbone infrastructure for the health information
23 23 technology system. In coordinating these efforts, the
23 24 executive committee shall do all of the following:

23 25 (1) Develop policies to effectuate the logical
23 26 cost-effective usage of and access to the state-owned network,
23 27 and support of telecommunication carrier products, where
23 28 applicable.

23 29 (2) Consult with the Iowa communications network, private
23 30 fiberoptic networks, and any other communications entity to

23 31 seek collaboration, avoid duplication, and leverage
23 32 opportunities in developing a network backbone.
23 33 (3) Establish protocols to ensure compliance with any
23 34 applicable federal standards.
23 35 (4) Determine costs for accessing the network at a level
24 1 that provides sufficient funding for the network.
24 2 d. Promote the use of telemedicine.
24 3 (1) Examine existing barriers to the use of telemedicine
24 4 and make recommendations for eliminating these barriers.
24 5 (2) Examine the most efficient and effective systems of
24 6 technology for use and make recommendations based on the
24 7 findings.
24 8 e. Address the workforce needs generated by increased use
24 9 of health information technology.
24 10 f. Recommend rules to be adopted in accordance with
24 11 chapter 17A to implement all aspects of the statewide health
24 12 information technology plan and the network.
24 13 g. Coordinate, monitor, and evaluate the adoption, use,
24 14 interoperability, and efficiencies of the various facets of
24 15 health information technology in this state.
24 16 h. Seek and apply for any federal or private funding to
24 17 assist in the implementation and support of the health
24 18 information technology system and make recommendations for
24 19 funding mechanisms for the ongoing development and maintenance
24 20 costs of the health information technology system.
24 21 i. Identify state laws and rules that present barriers to
24 22 the development of the health information technology system
24 23 and recommend any changes to the governor and the general
24 24 assembly.
24 25 4. Recommendations and other activities resulting from the
24 26 work of the department or the executive committee shall be
24 27 presented to the board for action or implementation.
24 28 Sec. 26. Section 8D.13, Code 2007, is amended by adding
24 29 the following new subsection:
24 30 NEW SUBSECTION. 20. Access shall be offered to the Iowa
24 31 hospital association only for the purposes of collection,
24 32 maintenance, and dissemination of health and financial data
24 33 for hospitals and for hospital education services. The Iowa
24 34 hospital association shall be responsible for all costs
24 35 associated with becoming part of the network, as determined by
25 1 the commission.
25 2 Sec. 27. Section 136.3, Code 2007, is amended by adding
25 3 the following new subsection:
25 4 NEW SUBSECTION. 11. Perform those duties authorized
25 5 pursuant to section 135.156.
25 6 Sec. 28. Section 217.41A, Code 2007, is repealed.
25 7 Sec. 29. IOWA HEALTH INFORMATION TECHNOLOGY SYSTEM ==

25 8 APPROPRIATION. There is appropriated from the general fund of
25 9 the state to the department of public health for the fiscal
25 10 year beginning July 1, 2008, and ending June 30, 2009, the
25 11 following amount, or so much thereof as is necessary, for the
25 12 purpose designated:
25 13 For administration of the Iowa health information
25 14 technology system, and for not more than the following
25 15 full-time equivalent positions:
25 16 \$ 190,600
25 17 FTEs 2.00

APPENDIX B
Executive Committee and Advisory Council Members

Electronic Health Information Executive Committee

Name	City	Organization
Louise Billmeyer	Des Moines	Federation of Iowa Insurers / Principal Financial
Jane Brokel, PhD, RN	Riverside	Iowa Nurses Association / University of Iowa College of Nursing
Lee Carmen	Iowa City	University of Iowa Hospitals and Clinics
Rob Frieden	Davenport	Genesis Health System
Cheryll Jones, ARNP, CPNP	Bloomfield	Consumer / State Board of Health
Robert Lee, MD	Johnston	Iowa Medical Society / Physician
Joseph S. Smith	Boone	Iowa Hospital Association Rural Hospital Representative / Boone County Hospital
Cristina Thomas	Des Moines	Mercy Medical Center-Des Moines / Catholic Health Initiatives
Bill Wilson	Des Moines	Iowa Health System

Electronic Health Information Advisory Council

Name	City	Organization
Fred Bahls, MD	Des Moines	Veterans Affairs Medical Center
Ted Boesen	Des Moines	Iowa/Nebraska Primary Care Association
Michelle Bottenberg	Waukee	Iowa Pharmacy Association / Drake University
Jane Brokel, PhD, RN	Riverside	Iowa Nurses Association / University of Iowa College of Nursing
Cheryl Dahms, RN, BSN	Des Moines	Des Moines University Clinic
Tom Evans, MD	Des Moines	Iowa Healthcare Collaborative
John Gillispie	Des Moines	Iowa Communications Network
Phil Graff	Moline	Federation of Iowa Insurers / United Healthcare
Randall Hanson, MD	Waukee	Polk County Medical Society / Physician
Leon Hofer	West Des Moines	Rural Iowa Independent Telephone Association & Iowa Telephone Association
Cheryll Jones, ARNP, CPNP	Bloomfield	Consumer / State Board of Health
George Morgan	Des Moines	Iowa Health System
Steve Mosena	Des Moines	Department of Human Services
Don Nelson, MD	Cedar Rapids	Iowa Medical Society / Physician
Kim Norby	Onawa	Iowa Hospital Association / Burgess Health Center
Dana Shaffer, DO	Exira	Iowa Osteopathic Medical Association / Des Moines University
Mike Speight	West Des Moines	Iowa Foundation for Medical Care
Kristy Walker	Iowa City	University of Iowa Hospitals and Clinics

Meeting materials and minutes from past meetings are available at http://www.idph.state.ia.us/hcr_committees/electronic_health_info.asp

APPENDIX C
Executive Committee and Advisory Council
Membership Prescribed by Legislation

Electronic Health Information Executive Committee

- 1) Three chief information officers of the three largest private health care systems (Cristina Thomas, Bill Wilson, Rob Frieden)
- 2) Chief information officer or designee of the University of Iowa Hospitals and Clinics (Lee Carmen)
- 3) Representative of a rural hospital selected by Iowa Hospital Association (Joe S. Smith)
- 4) Consumer member of the State Board of Health (Cheryll Jones)
- 5) Licensed practicing physician selected by the Iowa Medical Society (Robert Lee)
- 6) Licensed and practicing nurse selected by the Iowa Nurses Association (Jane Brokel)
- 7) Representative of an insurance carrier selected by the Federation of Iowa Insurers (Louise Billmeyer)

Electronic Health Information Advisory Council

- 1) Pharmacist (Michelle Bottenberg)
- 2) Licensed practicing physician (Randall Hanson, Don Nelson)
- 3) Consumer member of the State Board of Health (Cheryll Jones)
- 4) Iowa Medicare Quality Improvement Organization (Mike Speight)
- 5) Executive Director of the Iowa Communications Network (John Gillispie)
- 6) Representative of the private telecommunications industry (Leon Hofer)
- 7) Representative of the Iowa collaborative safety net provider network (Ted Boesen)
- 8) Nurse informaticist from University of Iowa (Jane Brokel)
- 9) Other members selected:
 - a. Consumer (Roy Park)
 - b. Department of Human Services (Steve Mosen)
 - c. Des Moines University Clinic (Cheryl Dahms)
 - d. Iowa Healthcare Collaborative (Tom Evans)
 - e. Iowa Health System (George Morgan)
 - f. Iowa Hospital Association (Kim Norby)
 - g. Iowa Medical Society (Don Nelson)
 - h. Iowa Osteopathic Medical Association (Dana Shaffer)
 - i. United Healthcare (Phil Graff)
 - j. University of Iowa Hospital and Clinics (Kristy Walker)
 - k. Veterans Affairs (Fred Bahls)

APPENDIX D Stakeholder Organizations

Individuals from the following organizations have been involved in the Iowa e-Health project by serving as an Executive Committee, Advisory Council, or workgroup member.

Provider Organizations

- Boone County Hospital
- Burgess Health Center
- Des Moines University Clinic
- Genesis Health System
- Great River Medical Center
- Iowa Health Des Moines (Methodist, Lutheran, Blank)
- Iowa Health System
- Mercy Medical Center - Cedar Rapids
- Mercy Medical Center - Des Moines
- Mercy Medical Center - Iowa City
- Mercy Medical Center - North Iowa
- Mercy Medical Center, Catholic Health Initiatives
- University of Iowa Hospitals and Clinics
- VA Hospital

Professional Associations

- Iowa Collaborative Safety Net
- Iowa/Nebraska Primary Care Association
- Iowa Health Care Association
- Iowa Hospital Association
- Iowa Medical Society
- Iowa Nurses Association
- Iowa Osteopathic Medical Association
- Iowa Pharmacy Association
- Polk County Medical Society

Payers

- Iowa Department of Human Services (Medicare/Medicaid)
- Federation of Iowa Insurers
- Principal Financial Group
- United Healthcare
- Wellmark Blue Cross and Blue Shield

Government

- Iowa Attorney General's Office
- Iowa Communications Network
- Iowa Department of Human Services
- Iowa Department of Public Health
- Legislators

Educational Institutions

- Des Moines University (Osteopathic Medicine)
- Dordt College
- Drake University (Pharmacy)
- Eastern Iowa Community College/Scott Community College
- Northeast Iowa Community College
- Northwest Iowa Community College
- University of Iowa (Nursing)
- University of Iowa (Engineering)

Other

- American Health Information Management Association
- Consumers
- Davis, Brown Law Firm
- Iowa Foundation for Medical Care
- Iowa Healthcare Collaborative
- Iowa Network Services

APPENDIX E Workgroup Members

- ✧ Indicates member is part of Executive Committee
- Indicates member is part of Advisory Council

Continuity of Care & Interoperable EHRs

Marvin Firch, Iowa Department of Public Health - *Workgroup Point of Contact*
Angela Leek, Iowa Department of Public Health - *Workgroup Grant Writer*
Kristy Walker, University of Iowa Hospitals and Clinics - *Workgroup Facilitator* ✧
Ted Boesen, Iowa/Nebraska Primary Care Association •
Michelle Bottenberg, Iowa Pharmacy Association / Drake University •
Jane Brokel, Iowa Nurses Association / University of Iowa College of Nursing ✧ •
Diane Capaldo, Iowa Health System
Lee Carmen, University of Iowa Hospitals and Clinics ✧
Tom Evans, Iowa Healthcare Collaborative •
Paul Foelsch, Mercy Medical Center-Iowa City
Crystal Kallem, Mercy Medical Center-Des Moines / Catholic Health Initiatives
Tony Langenstein, Iowa Health System
Robert Lee, Iowa Medical Society / Physician ✧
Melessia McGinnis, Carroll Health Center
George Morgan, Iowa Health System •
Steve Mosen, Department of Human Services •
Don Nelson, Iowa Medical Society / Physician •
Sandy Schuck, Mercy Medical Center-Des Moines / Catholic Health Initiatives
Dana Shaffer, Iowa Osteopathic Medical Association / Des Moines University •
Joseph Smith, Iowa Hospital Association Rural Hospital Representative / Boone County Hospital ✧
Mike Speight, Iowa Foundation for Medical Care •
Cristina Thomas, Mercy Medical Center-Des Moines / Catholic Health Initiatives ✧
Kathy Trytten, Iowa Hospital Association
Vickie Wickham, Mercy Medical Center-Des Moines

HIE Infrastructure and Networks

AJ Wineski, Iowa Department of Public Health - *Workgroup Point of Contact and Facilitator*
Kory Schnoor, Iowa Department of Public Health - *Workgroup Grant Writer*
Leon Hofer, Rural Iowa Independent Telephone Association & Iowa Telephone Association •
Chad Bennett, Iowa Foundation for Medical Care
Bill Doucette, University of Iowa / Iowa Pharmacy Association
John Gillispie, Iowa Communications Network •
Crystal Kallem, Mercy Medical Center-Des Moines / Catholic Health Initiatives
Doris Kelley, Iowa Representative
Tony Langenstein, Iowa Health System
Kim Norby, Iowa Hospital Association / Burgess Health Center •

Patient ID

Dale Anthony, Iowa Department of Public Health - *Workgroup Point of Contact*
Leslie Grefe, Iowa Department of Public Health - *Workgroup Grant Writer*
Kim Norby, Iowa Hospital Association / Burgess Health Center - *Workgroup Facilitator*
Lee Carmen, University of Iowa Hospitals and Clinics ✧
Jeff Cash, Mercy Medical Center-Cedar Rapids
Gary Davis, Great River Medical Center
Paul Foelsch, Mercy Medical Center-Iowa City
Rob Frieden, Genesis Health System ✧
Randy Haskins, Mercy Medical Center-North Iowa
Randy Higgs, Iowa Hospital Association
Robert Kellogg, Iowa Health System
George Morgan, Iowa Health System •
Amanda Ragan, Iowa Senator
Betsey Tibbitts, Genesis Health System
Kathy Trytten, Iowa Hospital Association

Provider Adoption of EHRs

Marvin Firch, Iowa Department of Public Health - *Workgroup Point of Contact*
Angela Leek, Iowa Department of Public Health - *Workgroup Grant Writer*
Don Nelson, Iowa Medical Society / Physician - *Workgroup Facilitator* •
Cristina Thomas, Mercy Medical Center-Des Moines / Catholic Health Initiatives ✧
Michelle Bottenberg, Iowa Pharmacy Association / Drake University •
Ignatius Brady, Iowa Health System
Diane Capaldo, Iowa Health System
Cheryl Dahms, Des Moines University •
Tom Evans, Iowa Healthcare Collaborative •
Randall Hanson, Polk County Medical Society / Physician •
Mike Hayden, Care Initiatives
Cheryll Jones, Consumer / State Board of Health ✧ •
Tony Langenstein, Iowa Health System
Erika Linden, Iowa Health Physicians
Sandy Schuck, Mercy Medical Center-Des Moines / Catholic Health Initiatives
Mike Speight, Iowa Foundation for Medical Care •
Kristy Walker, University of Iowa Hospitals and Clinics •
Vickie Wickham, Mercy Medical Center-Des Moines

Safeguard Privacy and Security

John Hedgecoth, Iowa Department of Public Health - *Workgroup Point of Contact*

Aaron Swanson, Iowa Department of Public Health - *Workgroup Grant Writer*

Mike Speight, Iowa Foundation for Medical Care - *Workgroup Facilitator* •

Jason Alexander, University of Iowa Hospitals and Clinics

Keith Butters, Iowa Home Care

Susan Brown, Iowa Foundation for Medical Care

Diane Capaldo, Iowa Health System

Dana Holland, Good Samaritan Society

Tony Langenstein, Iowa Health System

Kevin Mohnssen, Mercy Medical Center-Des Moines / Catholic Health Initiatives

George Morgan, Iowa Health System •

Steve Mosen, Department of Human Services •

Don Nelson, Iowa Medical Society / Physician •

Roy Park, Consumer •

Brandon Patterson, University of Iowa / Iowa Pharmacy Association

Debbie Thoman, University of Iowa Hospitals and Clinics

Jo Ellen Whitney, Davis Brown Law Firm

HIT Workforce and Education

Leslie Grefe, Iowa Department of Public Health - *Workgroup Point of Contact*

Aaron Swanson, Iowa Department of Public Health - *Workgroup Grant Writer*

Jane Brokel, Iowa Nurses Association / University of Iowa College of Nursing - *Workgroup Facilitator* ✧ •

Cindy Baddeloo, Iowa Health Care Association

Fred Bahls, Veterans Affairs Medical Center •

Keith Butters, Iowa Home Care

Barbara Foster, Eastern Iowa Community College / Scott Community College

Andrew Kusiak, University of Iowa Engineering

MariBeth Lane, Northwest Iowa Community College

Rhonda Pennings, Northwest Iowa Community College

Stuart Pitman, University of Iowa / Iowa Pharmacy Association

Sally Schroeder, Des Moines Area Community College

Rita Scichilone, American Health Information Management Association

Rhonda Seibert, Northeast Iowa Community College

Kate Vander Veen, Dordt College

Vickie Wickham, Mercy Medical Center-Des Moines

Governance and Finance

Kathy Schneider, Iowa Department of Public Health - *Workgroup Point of Contact*

John Hedgecoth, Iowa Department of Public Health – *Finance Subcommittee Point of Contact*

Kory Schnoor, Iowa Department of Public Health - *Workgroup Grant Writer*

Louise Billmeyer, Federation of Iowa Insurers / Principal Financial Group ✧

Lee Carmen, University of Iowa Hospitals and Clinics - *Workgroup Facilitator* ✧

Ted Boesen, Iowa/Nebraska Primary Care Association •

Michelle Bottenberg, Iowa Pharmacy Association / Drake University •

Jane Brokel, Iowa Nurses Association / University of Iowa College of Nursing ✧

Diane Capaldo, Iowa Health System

Tom Evans, Iowa Healthcare Collaborative •

John Gillispie, Iowa Communications Network •

Leon Hofer, Rural Iowa Independent Telephone Association & Iowa Telephone Association •

Don Nelson, Iowa Medical Society / Physician •

Kim Norby, Iowa Hospital Association / Burgess Health Center •

Dana Shaffer, Iowa Osteopathic Medical Association / Des Moines University •

Mike Speight, Iowa Foundation for Medical Care •

Judith Teachout, Wellmark Blue Cross Blue Shield

Cristina Thomas, Mercy Medical Center-Des Moines / Catholic Health Initiatives ✧

Jennifer Vermeer, Iowa Department of Human Services

APPENDIX F
Assets and Achievements

Adoption of Electronic Health Records

<p>University of Iowa Hospital and Clinics (UIHC)</p>	<p>UIHC uses a CCHIT certified EMR with full computerized physician order entry in place across the inpatient and outpatient environments. The EMR is used by more than 760 staff physicians, 720 physicians in training, 1850 nurses and 4600 other professional and support staff. UIHC deployed the system to support extensive device integration between bed-side physiologic monitoring devices and the EMR, as well as bar-code scanning of inpatient and outpatient medication administrations.</p>
<p>Mercy Health Network (MHN)</p>	<p>MHN a joint venture between Catholic Health Initiatives and Trinity Health – Novi whose Iowa operations work together as one network with 40 hospitals and 118 clinics across Iowa using common clinical EMRs which include Physician Mobile Computing, Patient Imaging PACS, Lab Management, Pharmacy Management, Clinical Data Repository, ER Documentation, EMPI, Surgery Scheduling, Enterprise Master Patient Index, Adverse Drug Event Alerts, Clinical Decision Support, Care Coordination, and Patient Demographic. Some sites also have Computerized Physician Order Entry (CPOE), Electronic Nursing Documentation, Physician Office EMR, and Physician Portals. Those without are working to implement. Additional technologies include Telemedicine, Tele-Radiology, Critical Care Monitoring- eICU, Distance Learning Programs-Grand Rounds, and Tele-Dialysis.</p>
<p>Mercy Health Network – North Iowa</p>	<p>Seven North Iowa hospitals have an integrated electronic health record system, the first of its kind in a U.S. rural health care setting.</p>
<p>Genesis Health System</p>	<p>Genesis utilizes a completely paperless EMR. A majority of clinical information is captured electronically at the bedside. Automation has occurred in the following care areas: Emergency Department, Laboratory, Pharmacy, Radiology, Order Management, Surgery, Intensive Care, OB/Nursery, Nursing, and Home Health. Genesis is currently implementing a physician office EMR.</p>
<p>Iowa Health System</p>	<p>Electronic medical records are in use across the IHS inpatient and outpatient environment including homecare. All eleven IHS hospital affiliates, including two facilities in Illinois, utilize an EMR. IHS supports 134 diverse clinics with over 450 providing physicians representing rural and urban settings; 107 of 134 ambulatory clinics are utilizing a CCHIT certified EMR with a roll-out plan for 16 additional clinics during 2009.</p>
<p>Iowa Health System (IHS) Electronic Legal Medical Record</p>	<p>IHS led business implementation of an electronic legal medical record at Iowa Health-Des Moines in April 2005. This allowed approximately 800 physicians to access medical records remotely via electronic workflow for completion and continuing care.</p>
<p>Iowa Medicaid: Electronic Records System (IMERS)</p>	<p>IMERS is a web-based EHR system for the Iowa Medicaid population based on patient-level claims data.</p>

Doctors Office Quality IT (DOQ-IT) Project	Coordinated by Iowa Foundation for Medical Care, this project is intended to promote adoption of EHR systems at physician offices.
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Infrastructure and Networks

<i>HealthNet connect</i> : Rural Healthcare Pilot Program	\$7.8M FCC Grant for the Rural Healthcare Pilot Program, <i>HealthNet connect</i> is a 3,600-mile fiber optic network already in place to provide services to Iowa Health System's 11 largest hospitals and some network rural hospitals.
Iowa Rural Health Telecommunications Program (IRHTP)	Organized by the Iowa Hospital Association, the IRHTP will link approximately 80 hospital facilities through the state-owned ICN.
Iowa Communications Network (ICN)	ICN has been providing inter-hospital broadband networking for 12 years and will provide the network capacity to extend important services to rural hospitals and the communities they serve.
Iowa Nebraska Primary Care Association (IANEPCA)	IANEPCA through a sister company, INConcert Care, Inc, maintains a network operations center in Davenport and supports a Statewide wide area network which supports data communications for nineteen health centers (13 in Iowa and 6 in Nebraska) using practice management software, patient registry, and dental practice management software applications.
University of Iowa Health and Clinics (UIHC) Master Patient Index	UIHC currently manages an enterprise patient index system with over 20 million records. The patient index system has been shown through an external audit to be a very clean system. UIHC has had and continues technical discussions with critical access hospitals about how UIHC can scale its expertise to support patient populations in critical access hospitals.
Iowa Health System (IHS) Master Patient Index	IHS has leveraged an enterprise master patient index solution to create the “link” between its various systems and various unique patient identifiers. The EMPI solution has provided a “single patient identifier” to link patient data.

Data Exchange

Continuity of Care Document Pilot	The University of Iowa Hospitals and Clinics (UIHC), Iowa Health System (IHS) and Iowa Foundation for Medical Care initiated a pilot as part of Iowa’s Health Information Security and Privacy Collaboration (HISPC) project in 2008 to support continuity of health care among practitioners, systems, and settings via the production and exchange of the Continuity of Care Document.
Electronic Verification of Vital Events (EVVE)	A pilot project between Iowa Department of Public Health Vital Records Office and Iowa Department of Transportation Motor Vehicle Office, this system allows Iowa motor vehicle offices to query the vital records office to verify the birth certificate presented by the applicant applying for their driver’s license. This data exchange is representative of a matching algorithm needed to match individual data across disparate systems.

Iowa Department of Public Health (IDPH) and Centers for Disease Control and Prevention (CDC)	IDPH administers CDC programs for disease surveillance, emergency preparedness, and response to natural or bioterrorism events, flu pandemic planning, and the development of a health alert network. These systems rely on information from laboratories, hospitals, and private providers and need to support bi-directional data exchange.
Health Alert Network (HAN)	The HAN provides Iowa's hospitals and county public health offices a statewide trunked radio system that is fully integrated into the State Emergency Operations Center and interoperable with eight other state agencies on a selective basis. HAN also provides an automated notification system and collaborative tools for use during emergency events. The ICN provides services to support the HAN.

Planning and Education Forums

Iowa Healthcare Information Management Systems Society (HIMSS) Chapter	The Iowa HIMSS Chapter is one of 47 regional chapters affiliated with national HIMSS society. The chapter is in its fifth year of continuing education and information sharing to lead to advancements in health information technology.
Iowa Health Information Management Association (IaHIMA)	IaHIMA, the Iowa Health Information Management Association, is a state organization affiliated with the national organization American Health Information Management Association (AHIMA). Founded in 1928 to improve the quality of medical records, AHIMA is dedicated to the effective management of personal health information required to deliver quality healthcare to all in an increasingly electronic and global environment through leadership in advocacy, education, certification, and lifelong learning.
Health Information Security and Privacy Collaboration (HISPC)	HISPC is a multi-state, collaborative project funded by the Agency for Healthcare Research and Quality to address the privacy and security challenges presented by electronic health information exchange across the country. Iowa has participated in HISPC since its inception in 2006.
Iowa Health Information Technology Initiative	The Health Information Technology Initiative, established in 2004, was one of the initial efforts to advance the use of health IT. Led by the Iowa Foundation for Medical Care and the Iowa Medical Society, the Iowa HIT Initiative met regularly in 2005 and 2006 and distributed a <i>Physician Office Health Information Technology Survey</i> in 2005 and 2007.
Iowa Health Information Technology Summit	Coordinated by Iowa Foundation for Medical Care and the Iowa Medical Society, the summits have been held annually since 2005. This annual statewide conference promotes the value of using HIT solutions to improve health care and has drawn leaders throughout the state and the country as participants and speakers.
Iowa Department of Public Health (IDPH)	With regular conferences, newsletters, and press releases, IDPH is a recognized source of health information throughout Iowa. IDPH has established communication lines that can be leveraged for consumer education about e-Health in Iowa.

APPENDIX G
Frequently Used Terms and Abbreviations

ARRA	<i>American Recovery and Reinvestment Act:</i> Also commonly referred to as the “stimulus bill” or “stimulus package”, the ARRA was signed into law February 17, 2009 and provides \$787 billion to promote economic recovery.
CCD or CCR	<i>Continuity of care document or continuity of care record:</i> CCDs and CCRs contain the core data elements of a patient record. This "slim" version of a patient record is designed for ease of exchange.
CCHIT	<i>Certification Commission for Health Information Technology:</i> CCHIT established criteria for functionality, security, and interoperability of health IT systems. CCHIT certifies EHRs and through a public-private process.
EHR or EMR	<i>Electronic health record or electronic medical record:</i> EHRs and EMRs are used to collect and store relevant patient health information electronically. EHRs may include computerized physician order entry, electronic prescribing, and decision-support functionality to improve patient safety and quality of care.
HIT or Health IT	<i>Health information technology:</i> Health IT, also shortened to “HIT”, refers to a range of electronic or computerized tools, such as EHRs and the HIE that enable providers to access and share electronic health information.
HIE	<i>Health information exchange:</i> The HIE is the infrastructure that facilitates and supports the exchange of electronic health information among clinical and population health settings.
HISPC	<i>Health Information Security and Privacy Collaboration:</i> HISPC is a multi-state, collaborative project funded by the Agency for Healthcare Research and Quality. HISPC has worked to address the privacy and security challenges presented by electronic health information exchange across the country.
HITECH	<i>Health Information Technology for Economic and Clinical Health Act:</i> A division within ARRA stimulus bill, the HITECH Act includes \$19.2 billion in funding provisions for health IT.
HITSP	<i>Healthcare Information Technology Standards Panel:</i> HITSP produces reports and recommendations based on use cases that identify the standards needed to enable and support widespread interoperability and exchange of health information nationwide.
HL-7	<i>Health Level 7:</i> HL-7 is a technology standard that defines the format and content of messages health application systems must use to share information between disparate systems.
NHIN	<i>National Health Information Network:</i> The NHIN is being developed to provide an infrastructure for secure, interoperable, nationwide health information exchange.
ONC or ONC-HIT	<i>Office of the National Coordinator Health Information Technology:</i> ONC-HIT, also shortened to ONC, is a program within the Office of the Secretary for the U.S. Department of Health and Human Services. ONC-HIT is the Federal entity responsible for coordination of nationwide efforts for implementation and use of electronic health information exchange.