

**CPE E-Health Stimulus
Sub-Committee
Concept Proposals Overview**

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The Goal

Our purpose is to position Kentucky for e-health funding opportunities provided under the American Recovery and Reinvestment Act through a coordinated statewide initiative with a focus on near-term results that stimulate the economy and create jobs. The goal is to respond to federal funding opportunities in a collaborative, coordinated and innovative manner. The key result will be the adoption, implementation and meaningful use of qualified electronic health records that promote interoperability and connectivity through a statewide health information exchange.

The Funding

ARRA provides two primary buckets of e-health funding

- \$14B in grants through traditional funding agencies (National Institutes of Health, National Science Foundation, National Institute of Standards and Technology, etc.), awarded through traditional review processes (RFA's, RFP's); and \$19.2B in direct funding specified in ARRA Title XIII (HITECH) and administered through the Office of the National Coordinator for Health Information Technology (ONC), part of the Dept. of Health and Human Services. Of these two sources, agency funding represents an extension of existing supported programs.
- The focus is on near term results: economic stimulus and job creation
- They will be pursued by researchers and institutions within the Commonwealth based upon existing or new. research agendas and programs
- The principal coordinating activities required are the updating and maintenance of web sites for information sharing, and distribution of new grant announcements through email lists established through this Sub-Committee.

The HITECH funding requires coordinated action by the state, institutions of higher education, the healthcare industry, and e-Health governing bodies:

- \$17.2B in incentive payments for the "meaningful use" of "qualified" EHR's
- \$2B in infrastructure investment, research & development, loan programs, and training grants to support e-Health
- Several of the HITECH grant opportunities require matched funding

Title XIII (HITECH): The Kentucky Response

Competition for HITECH funding is going to be keen, with many states and institutions far along in planning their responses. In order to be successful, coordinated and innovative responses by the Commonwealth are needed. The required components for success are present. Our response to the HITECH funding opportunities must build upon the existing strengths of e-Health in the Commonwealth: (see Figure):

- Why Kentucky? The Right Place to Prove that e-Health Works
- Near- term ready to be implemented projects with demonstrable scalable job creation
- Leadership, vision and visibility of Governor, Lt. Governor, & General Assembly

- Existence of governing bodies [Kentucky e-Health Board (KEHN), Kentucky Health Infrastructure Authority (KHIA)]
- “Kentucky e-Health Laboratory “ Initiative
- The Kentucky HIE Public Utility (Medicaid Transformation Grant RFP)
- University of Kentucky and University of Louisville Medical Centers
- Regional university reach and engagement
- KCTCS programs and outreach
- Independent Colleges and Universities’ programs and outreach
- Strength of existing HIE’s: HealthBridge, LouHIE, NeKY RHIO’s
- UK and HealthBridge participation in NHIN
- NKY, EKY, SE Indiana, SW Ohio, the first interoperable region in the nation
- Engaged public health leaders
- Alliances & strength through established institutional and business networks (e.g., NKU Health Informatics Advisory Board, LouHIE Advisory Board)
- Return on Investment Research, Applied Research, Medical Outcomes Research

By focusing on these assets, coordinated and integrative responses can be developed for the individual funding opportunities discussed below.

Health Care Enterprise Information Integration Research Centers
(part2: Subtitle B, Testing of HIT, Sec. 13202(a))

These Centers will promote multidisciplinary approaches to research and development through active collaboration across wide disciplines and industry partnerships. Funding will be through NIST/NSF. Grants will be awarded to institutions of higher education or consortia. Lead by University of Kentucky and University of Louisville

Immediate Funding for HIT
(part2: Subtitle (c), Grants, Loans, and Demonstration Funding, Sec. 3011)

This consists of \$300M in funding for a wide range of e-health initiatives, including the NHIN, data repositories, HIT in public health, etc. These fit under many of the existing and planned activities within the Commonwealth. Areas of potential focus:

- Statewide HIE public utility and RHIO interconnectivity (extension of Medicaid Transformation Grant)
- Economic development & job creation through leveraging existing HIT and IT capacities
- Federated database of statewide health records
- Deidentified database of laboratory samples
- Public health adoption of HIT
- Public health data mining projects
- HIPAA & Security
- Best practice /Barriers to adoption/Usability studies
- Telemedicine in underserved areas (home monitoring)
- Disaster recovery

Draft documents that can be folded into grants should be developed and coordinated between institutions.

HIT Technology Implementation Assistance (Extension Centers)
(Sec. 13301, Subtitle B, Incentives for the Use of HIT, Sec. 3001)

To be administered by ONC; the principal focus is the establishment of a statewide HIT extension program. Objectives are technical assistance/best practices dissemination, broad stakeholder participation, HIE participation, health professions training. Kentucky is well positioned to implement this program and bring improved and lower cost health care to its citizens:

- Manageable scope within the Commonwealth, existing buy-in
- Outreach solutions
 - KCTCS
 - Regional Universities
 - Ag Extension Centers (UK, KSU)
- Medical Centers
 - University of Kentucky
 - University of Louisville
- Expertise and depth with the regional universities
 - ECU—AHIMA leadership, program expansion
 - Morehead State—Health Systems Management & Technology, process engineering/work-flow expertise, RHIO engagement
 - Murray State-- Research and curriculum development interests
 - NKU—one of the largest health informatics graduate programs in the nation, existing engagements across the Commonwealth, implementation, process engineering/work-flow expertise, economic development
 - WKU—Center for e-Health Communication, Research and curriculum development interests
- KSU
 - Experience with partner hospital systems
 - Nursing informatics program development interests
 - Strong computer and technical programs
 - KSU is exploring the creation of an e-Health taskforce
- KCTCS
 - E-Health task force
 - Short term training
 - Potential to establish Medical Health Informatics at the associate level
- Types of Services
 - Education and training
 - Geek Squad for Docs (www.geeksquadfordocs.org)
 - Hosting Services
 - Disaster Recovery
 - Help Desk
 - Shovel Ready Projects
 - Statewide hub to coordinate activities and “train the trainers”
- The extension center should be linked to grants dealing with IT in Clinical Education and IT Professionals in Health Care

- Pooled services should provide affordable, vendor neutral solutions for all types of health care providers, allowing them to maintain their independence and either collaborate or compete more effectively

State Grants to Promote HIT

(Sec. 13301, Subtitle B, Incentives for Use of HIT, Sec. 3013)

State or state designated entities are eligible for grants administered by HHS/ONC. These are designated as planning or implementation grants and are matched initially at 10/1 (2011). Higher education institutions can coordinate and assist in applying for these opportunities as directed by the state. Starting points:

- The Kentucky E-Health Laboratory initiative
- Kentucky Public Utility HIE

Demonstration Programs to Integrate IT into Clinical Education

(Sec. 13301, Subtitle B, Incentives for Use of HIT, Sec. 3015)

Administered by ONC/HHS, this program is a 50% match and cannot be used to purchase equipment or software. All graduate health professions schools should be encouraged to pursue funding. Collaborative grants linked to the state plans should be considered

IT Professionals in Health Care

(Sec. 13301, Subtitle B, Incentives for the Use of HIT, Sec. 3016)

Administered by HHS/NSF, this program is designed to support curricula development, recruit students, buy equipment, and support bridge programs with community colleges. Priority is extended to existing programs and academic programs that a student can complete in 6 months.

- Linked grants back to the extension center program (e.g., ideally get dual use out of equipment, training both health care professionals and students)
- Link to the e-Health Laboratory initiative
- Possible collaboration between institutions

Build on existing strengths- Kentucky e-Health Action Plan, Medicaid Transformation Grant, HIT Adoption knowledge, Medical Trading Areas, HISPC review of state laws, Legislative mandate for e-health, KEHN, KHIA research capacity, broadband penetration, KHIA conference for statewide e-health research agenda, successful RHIOs

Goal – Healthier Kentuckians through coordinated statewide e-Health
Develop a framework to guide statewide health information technology implementation

Goal – Job creation
Develop statewide interoperable HIE – Kentucky Health Information Network-
Develop Kentucky e-Health Laboratory to improve population health

Workforce Development
Develop a coordinated system for HIT education from associate degrees through doctoral degrees to supply newly created jobs

Expand Research Capacity & Disseminate Best Practices
Develop a Health Care Information Enterprise Integration Research Center through a collaborative of the state universities

ARRA Concept Buckets

HIT High Level Goals

Adoption/Implementation/Utilization
 Security & Integrity
 Support HIPPA & Security Law
 HIE connectivity
 Generate innovative approaches
 Public Private Partnerships
 Cross-disciplinary
 Broad participation
 Education & training of medical pros
 Education & training of HIT pros
 Measurement of Impact

Medical Outcomes

Improve quality
 Reduce errors
 Measureable Outcomes
 Continuity & Coordination

Public Understanding

Minimize reluctance
 Secure PHR access

Support Public Health

Use & access
 Reduce disparities
 Special populations
 Chronic diseases
 Biosurveillance
 Public hospitals
 Rural hospitals

HIT Integration with Enterprises

Adoption/Implementation/Utilization
 HIE integration/engagement
 Best practice dissemination
 Forum for exchange of ideas
 Assemble data/analyze data
 Continuity of care
 Effective use
 Upgrade/Ongoing training
 Maintenance

Certification

Implementation specs
 Certification criteria
 Pilot tests
 Standards harmonization
 Process for certification

Technology

R&D
 Technology Transfer
 Voice Recognition
 Interoperability
 Enterprise Management
 Dependability
 Measurement
 Security integrity
 Reduce errors

Telemedicine

Home monitoring
 Home health care
 Reduce travel time

Request for Economic Stimulus Funds

Concept Proposal

Submitters:

E-Health Sub-Committee

Carol L. Ireson RN, PhD & Elizabeth Regan, PhD

Project Title:

HITECH-Title XIII- (Sec.13301, Subtitle B, Incentives for the Use of HIT, Sec. 3013)

Implementing Kentucky Health Information Exchange

Project Partners:

Consumers and state government.

KHIA representing research and comprehensive universities

Regional health information exchanges

Project Background & Purpose:

The purpose of this proposal is to build the infrastructure for a Kentucky e-Health Network.

In 2005, the Kentucky legislature created the first statewide infrastructure to support the implementation of a statewide electronic health information system. This legislation created the Kentucky e-health Network (KeHN) Board and the Kentucky Healthcare Infrastructure Authority KHIA). The KeHN Board comprised of 22 public and private leaders representing universities, healthcare providers, public health, government, employers and consumers oversee e-Health efforts in the state. The Kentucky Healthcare Infrastructure Authority (KHIA)—a partnership of the two leading research universities in Kentucky, the University of Kentucky and the University of Louisville was charged to research HIT and translate the findings of that research to practice. In 2008, the authority expanded participation to include faculty from Eastern Kentucky University, Northern Kentucky University and Morehead State University.

Planning efforts for e-health began in 2006 with the appointment by the KeHN of the e-Health Advisory Group. The group developed an e-Health Action Plan that outlines the objectives and action items necessary for the Kentucky e-Health Network and how those align with regional and national e health efforts.

There has been extensive groundwork in Kentucky for moving to an e-health environment. The state received a federal contract to participate in the Health Information Security and Privacy Collaborative to assess how privacy and security practices and policies affect health information exchange. The KeHN and the CHFS sponsored the e-Prescribing Partnership in Kentucky Grant to implement e-prescribing

in diverse areas of the state. Kentucky also participated in multi-state provider education collaborative that resulted in a toolkit to increased provider understanding of HIT.

In 2007, Kentucky secured a \$4.9 million Medicaid Transformation Grant that will provide the seed funding for the implementation of the Kentucky Health Information Exchange. As part of the Medicaid Transformation grant, a statewide study of HIT adoption of all providers and a Medical Trading Analysis were conducted to provide guidance for initial HIT implementation. In December 2008, a Request for Proposal (RFP) was issued for the first phase of the Kentucky Health Information Exchange (KHIE). This initial phase focuses on implementing a health information exchange (HIE) for the Medicaid population. A number of regional HIE initiatives are also in various stages of development across the state and three regional health information exchanges (RHIOs), HealthBridge, LouHIE, and the Northeast RHIO in various stages of development that are poised to become part of the KHIE.

Project Description:

The objective of this project is to develop a secure, interoperable electronic health network in Kentucky with the **goal of improving the quality and cost-effectiveness of health care and providing access to useful, timely and accurate health information**. In the past four years, Kentucky has made significant progress toward that goal as outlined in the previous section. The State is now poised to move its e-Health efforts from planning to reality.

The Kentucky e-Health Network is envisioned as a robust public-private collaboration encompassing state, regional, and local components connected to the national health information exchange (NHIN). The state level efforts would provide a baseline set of functions available across the state, oversee a shared technology infrastructure, and ensure interoperability among local efforts. Regional and local efforts would focus on meeting unique needs of medical trading areas and achieving improved health outcomes. Figure 1 provides a model for how the Kentucky e-Health Network would operate and interface with local HIEs or RHIOs, as well as individual purchasers, payors, providers and practitioners in the state.

In the same way that our transportation system involves both the public and private sectors and local, state and national level efforts, so too e-Health is a multifaceted effort with roles and responsibilities for each sector and level of our society. This plan naturally focuses most directly on building the state infrastructure for HIE, but the goal of Kentucky's e-Health efforts is to engage every stakeholder group and every quadrant of the health sector in Kentucky to improve health outcomes. Thus the proposed project would also focus on providing technical assistance, reducing barriers to adoption, implementing strategies to encourage widespread use of HIT, and promoting the use of electronic records for quality improvement and supporting public health.

The plan is to develop a **robust statewide Next Generation Healthcare model**, providing a full array of applications including clinical and administrative applications and tools to

improve health and wellness to consumers and communities. The system would include a statewide network over which health care information can be shared in a secure manner with the consent of the patient. This system would be built to interface with existing software and hardware currently used by Kentucky providers. The network would be much like a major highway upon which all types of applications could be pushed to the health care provider. For example, a list of prescription medications and clinic research findings for the particular diagnosis of the patient could be pushed over the network. In addition, selected information can be pushed from the provider to a specialist upon referral. Providers could retrieve information on the lab results and diagnostic exams such as x-rays that their patient received in the emergency room or urgent treatment center, thus, preventing the repeat of these diagnostic tests and procedures.

The patient may also use “wired” or “wireless” devices at home to continue to monitor his or her disease state from home and transmit data to their medical provider’s office to prevent complications before they happen. For example, a wireless glucometer can be used to check a diabetic’s blood sugar levels at home. The glucometer would be connected to the patient’s provider and the home health agency, allowing both to monitor the blood sugar levels and alert them when results exceed acceptable levels, thus preventing expensive hospitalizations and emergency room visits.

The network would be used to share data for biosurveillance. Intelligent software currently exists and could be used over the network for mining of data to identify an array of symptoms that would indicate the potential exposure to a biological agent typically used in terrorism. Also, data required for public health surveillance of disease could be pushed by the provider to public health departments. This would cut down on costly faxes and paper systems and vastly improve the sensitivity and speed detection of disease. Public health situational awareness could be real time. **The real value to the health care provider is that a well designed connected network will improve the quality of patient care and speed the workflow of the provider’s practice.**

The long-term vision for Kentucky’s Next Generation Healthcare model would be to provide the latest treatment recommendations to assist providers in making clinical decisions for their patients that are based on current research. Providers will be made aware of potential drug-drug interactions thereby preventing adverse reactions to treatment. This would enable care provided in the most remote part of Kentucky to be equivalent or better than the care provided by world renowned clinics. The amount of research published each year is so vast that it is estimated that a physician would have to read over 20 articles a day everyday in order to keep abreast of the latest clinical research. This provides insight into why it takes approximately 17 years for research to be translated in every day clinical practice. Imagine being able to obtain a predictive health care profile from which to design a customized healthcare and wellness plan designed specifically for the individual based on his or her genetic code rather than the getting health screenings based on one’s age (Weston & Hood, 2004). This **Next Generation Healthcare** is possible in the near future with the support of e-health information tools. This approach would improve longevity and quality of life, while

decreasing the costs of unnecessary tests and preventing chronic disease. Information technology will serve as the foundation upon which all facets of the health care system can be improved.

The first phase of the state health information exchange is currently in the bidding process to be built with the aid of a \$5 million CMS Transformation grant. The plan calls for expanding the network from the initial stage as monies become available. Through stimulus money, it will be possible to accelerate development of the network in collaboration with the regional health information exchanges, universities, and other stakeholders to advance progress at a much more rapid pace.

Project Team (Project Manager(s), Content Experts, Instructional Designers, etc.):

KHIA, State Universities

Project Budget & Amount of Economic Stimulus Funds Requested:

Funding is requested to support both state and regional initiatives. It is based on the belief that the **ultimate goal of using information technology to improve health care quality and efficiency through the authorized and secure electronic exchange and use of health information** can best be achieved through a coordinated, collaborative state-wide effort.

Funding request: \$100,000,000

Vision

Healthier Kentuckians through Information Exchange

Mission

The Kentucky e-Health Network*
will support statewide adoption of health information technology
and interoperable health information exchange to enhance the
health of all citizens.

Request for Economic Stimulus Funds

Concept Proposal

Submitters:

e-Health Sub-Committee (Votruba/Martinez/Ozanich)

Project Title:

HITECH--*Title XIII--(Sec. 13301, Subtitle B, Incentives for the Use of HIT, Sec. 3001)*

Establishment of HIT Technology Implementation Centers

Project Partners:

State Universities, Regional Universities, KCTCS, Independent Colleges and Universities, State e-Health Professionals, Kentucky Medical Association, Kentucky Hospital Association, RHIO's, HIT Vendors

Project Background & Purpose:

To assist health care providers to adopt, implement, and effectively use certified © technology that allows for the electronic exchange and use of health information, the Secretary, acting through the Office of the National Coordinator, shall establish a health information technology extension program to provide health information technology assistance services to be carried out through the Department of Health and Human Services.

- Currently only 1.3% of Hospital have fully functional clinical information systems
- An estimated 17% of physicians use some type of electronic health record
- This Extension Center Program will provide outreach and technical support to the healthcare industry as it implements “meaningful use” of “qualified EHR’s” as mandated by ARRA
- \$17.2B will be available to hospitals and physicians in incentive programs
- The program goal is that all Americans have access to an EHR by 2014

As a predominantly rural state with a high rate of poverty, Kentucky has an especially strong need for regional HIT extension centers to support the implementation and effective use of electronic medical records and information exchange. Kentucky has a disproportionately high level of Medicare and Medicaid patients. Rural clinics, small medical practices, and regional medical centers will need technical assistance to support the implementation and maintenance of electronic medical systems. There is a strong need for analysis, planning, technical consulting, system selection and configuration, system operation and maintenance, training, change management, and dissemination of best practices. These needs are identified in the State Action Plan and other documents. In laying the foundation for its state health information exchange network, Kentucky has already worked in collaboration with the Kentucky Medical Association

to establish an HIT Tool Kit, which will be a valuable tool in establishing the HIT regional extension centers.

Project Description:

To be administered by Office of National Coordinator/HHS; the principal focus is the establishment of a statewide HIT extension program. Objectives are technical assistance/best practices dissemination, broad stakeholder participation, HIE participation, health professions training. Kentucky is well positioned to implement this program and bring improved and lower cost health care through existing higher education assets.

Project Team Leaders:

Northern Kentucky University, University of Kentucky, University of Louisville, KCTCS, other regional universities as appropriate

Project Budget & Amount of Economic Stimulus Funds Requested:

50% Federal Match, in-kind permissible.

Capital required to launch and Year 1 operations: \$4M to \$5M; \$3M/yr for years 2-4

Match capital \$2M to \$2.5M for Year 1; \$1.5M years 2-4

Request for Economic Stimulus Funds

Concept Proposal

Submitters:

e-Health Sub-Committee (Votruba/Martinez/Ozanich)

Project Title:

HITECH--*Title XIII--(part2: Subtitle B, Testing of HIT, Sec. 13202(a))*

Health Care Enterprise Information Integration Research Centers

Project Partners:

University of Kentucky, University of Louisville, regional universities as appropriate, Cabinet for Economic Development, Industry Partners

Project Background & Purpose:

This program provides funding to institutions of higher education (or consortia thereof which may include nonprofit entities and Federal Government laboratories) to establish multidisciplinary Centers for Health Care Information Enterprise Integration. These are high profile research & development centers.

Project Description:

To be administered by NIST and NSF, The purposes of the Centers shall be—

(A) to generate innovative approaches to health care information enterprise integration by conducting cutting-edge, multidisciplinary research on the systems challenges to health care delivery;

(B) the development and use of health information technologies and other complementary fields.

Research areas.--Research areas may include:

- (A) interfaces between human information and communications technology systems;
- (B) voice-recognition systems;
- (C) software that improves interoperability and connectivity among health information systems;
- (D) software dependability in systems critical to health care delivery;
- (E) measurement of the impact of information technologies on the quality and productivity;
- (F) health information enterprise management;
- (G) health information technology security and integrity; and
- (H) relevant health information technology to reduce medical errors.

Project Team Leaders:

Carol Steltenkamp, Manny Martinez

Project Budget & Amount of Economic Stimulus Funds Requested:

\$6M-\$8M Start-Up Funds

Request for Economic Stimulus Funds

Concept Proposal

Submitters:

E-Health Sub-Committee

Remote Hosting Services Workgroup (Ted Kalbfleisch)

Project Title:

Creation of data centers to provide administrative and disaster and recovery support for rural/remote physician EHR systems. To develop broadband capability for transmission of high information content data between medical centers, data centers and rural health clinics.

Project Partners:

All Kentucky Colleges and Universities with data centers are capable of creating virtual servers, and providing systems administration/database administration support. They have associations with local health clinics. The Kentucky Biomedical Research Infrastructure Network supported by the state's IDeA-INBRE program has well-established connections to the academic centers and through them some rural health clinics.

Project Background & Purpose:

The foundation of the electronic health record (EHR) is the electronic medical record (EMR), and e-prescribing systems implemented within an individual medical practice. These are very complex systems that require significant information technology domain expertise for support, maintenance, and growth. This expertise is often either cost prohibitive, or otherwise unavailable to physicians either with small practices, or in rural/remote areas. Inability to access this expertise creates a formidable barrier to the adoption of the EMR by many physicians in the state. By providing centralized data centers that are staffed by systems administrators and database administrators, it will be possible for these practices to realize the economic benefit of scale by implementing their electronic medical records on virtual servers within centralized, regionally located data centers. This centralized deployment creates a much more robust environment for the EMR that will include the implementation of disaster and recovery plans, system maintenance (both servers and software systems) that will allow each system to be a robust component of more comprehensive health information network providing both better health services to the patient as well a system from which data and samples may be collected to support cutting edge medical research within the state. To provide two-way communication of information, data with utility for physicians in rural communities would be transmitted from metropolitan health centers and hospitals. Increased bandwidth for such information transmission would be required.

Expected Benefits:

1. Enhanced recruitment and retention of physicians in rural and underserved areas. The positive impact is likely to be the greatest for primary care physicians since they are less likely to be able to employ the technical specialists needed and absorb additional costs.

2. Enhanced disaster recovery capabilities because highly qualified technical specialists are more likely to perform well in this area.
3. Better integration with other EHR systems and improved data sharing capabilities, again, due to the presence of more highly qualified technical specialists.
4. Regional centralization (as opposed to statewide centralization) would lead to closer collaboration between the data centers, the physicians, and the hospitals; thereby, resulting in higher quality

EHR-related outcomes (both technical and medical)

Project Description:

Goal: The goal of this project is to develop the infrastructure, and service support network to support centralized installations of EMRs and e-prescribing systems. These systems will all be implemented and maintained as independent, autonomous units under the direction and control of the practices that own them. These systems, although autonomous are each capable of interoperation such that they may be utilized for the construction of patient centric EHRs, or otherwise utilized in medical surveillance programs conducted by authorized entities. These IT support services will provide a necessary complement the extension agent program. The extension agents will be able to work with the physicians directly to provide health information technology support for the selection, and use of EMRs and e-prescribing systems. The service support provided by these centers would be of a more basic IT nature with respect to account management, systems administration, database administration and disaster and recovery services.

Implementation Strategy:

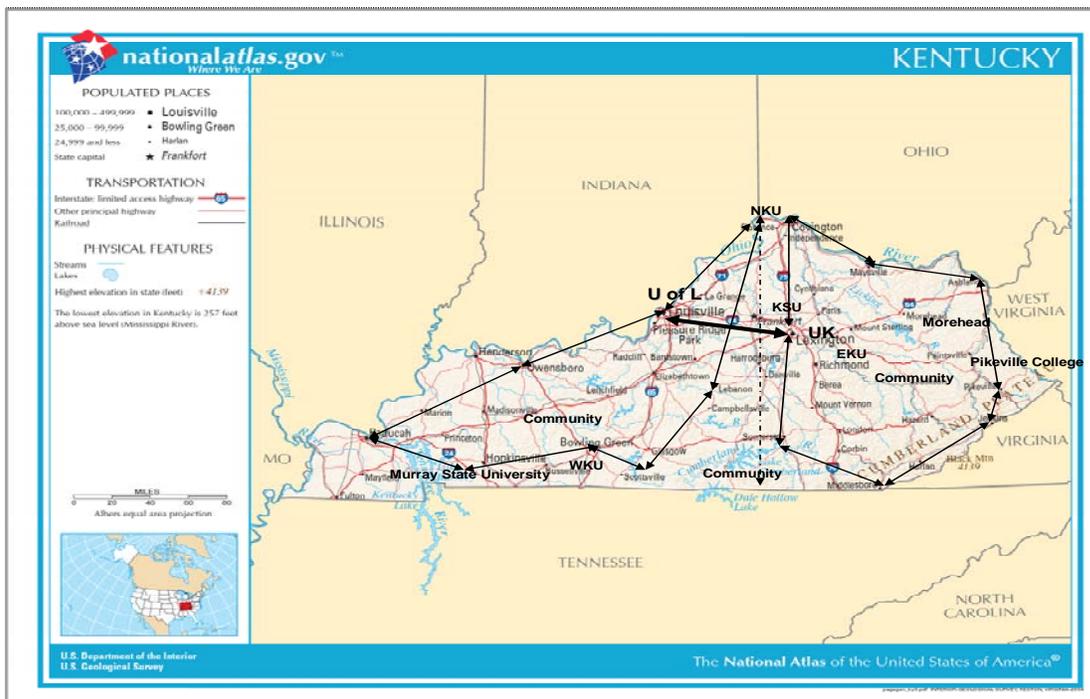
In order for remote data centers to support independent medical practices, several critical pieces of infrastructure must be in place.

- 1) **The data centers themselves:** We must identify data centers throughout the state that are capable of hosting the servers (or virtual servers) on which the independent EMRs and e-prescribing systems will be deployed. These data centers can, in many cases be found at the many colleges and universities throughout the state as they are already maintaining the large, enterprise class data and process management systems which support the financial and academic operations within the schools. Funds may be necessary to expand these centers, or otherwise augment them to provide the both basic, and disaster and recovery support in accordance with health information technology best practices
- 2) **Broadband access for physician's offices:** In order for a remote implementation to be effective, each physician office must have access to sufficient internet band width such that data exchanges between client and server applications are rapid enough to respond to the health care workers in a timely fashion. The service must be sufficiently reliable and robust that the physician will have the confidence necessary to use the EMR as their primary mechanism for recording patient data. Moreover, if physicians can receive data with high information content from metropolitan hospitals and related to their patients, such as x-rays and MRIs, they would more likely find the utility of the system. By virtue

of the systems supporting the metropolitan centers, and remote physicians being interoperable and able to easily exchange large volumes of patient data, we are facilitating the collaboration and interaction of remote primary care physicians with the metropolitan medical centers. This will make it possible for physicians to provide easier access to cutting edge specialists and treatments, and will ultimately provide the patient with higher quality of medical care.

- 3) **Health information technology extension services:** The principal aim of these centralized data centers is to provide reliable, cost effective information technology (IT) support to the remote medical practices that otherwise would not have access to these services (see figure below). They are not, however, domain experts in health or medical informatics. The health information extension agents would provide this expertise, and as such would work with the remote data centers as a team to provide the comprehensive support services necessary for these systems to serve as the informational nerve centers of these medical practices. By virtue of these data centers being remote to the physician, direct, face-to-face access would be logistically difficult. This face-to-face contact will be occasionally necessary in order to bolster the confidence of physician and their staff in these systems and the support services. The extension agents would be the ideal emissaries for the one on one interactions necessary to develop both confidence and comfort with these systems.

Figure: Three levels of communication presently exist. The academic centers have T2 capability but would need to purchase additional bandwidth for transmission of data with high information content. The rural health communities have less accessibility to some level of broadband but again may need to purchase a higher level of capability in order to receive data from the regional academic centers and more directly from the metropolitan health centers.



Project Team (Project Manager(s), Content Experts, Instructional Designers, etc.):

To be named

Project Budget & Amount of Economic Stimulus Funds Requested:

The budget in this project will be developed to support both construction and IT admin personnel to maintain the services.

I am going to be speaking with our IT department at UofL, but costs for augmenting existing data centers to support these activities may be in the range of 1M per center with up to 10 centers.

Admin personnel would probably require salaries on the order of \$100k per individual. It is not clear to what degree these individuals can be shared within the datacenter

The development of the internet infrastructure to allow for the exchange of high content data.. Glynn Mangold has provided some preliminary numbers with respect to the number of practices that have broadband access or greater (91% have it). We need to do more research to get better numbers with respect to how many connections need to be made, and how much each would cost.

~\$10 M in construction and hardware costs to improve max 300k/data center for the personnel to manage these remote servers. Internet connectivity may be needed, but could be on the order of millions to establish.

Request for Economic Stimulus Funds

Concept Proposal

Submitters:

e-Health Work Group

(Betty Regan)

Project Title:

Establishment of Health Information Technology (HIT) Regional Data/Extension Centers (Alternative Approach)

Project Partners:

State Universities, Regional Universities, KCTCS, Independent Colleges and Universities, State e-Health Professionals, Kentucky Medical Association, Kentucky Hospital Association, RHIO's, HIT vendors.

Project Background & Purpose:

The purpose of proposed projects would be to establish health information technology regional extension centers to accelerate the adoption, implementation, and effective use of certified electronic medical records and health information exchange by providers throughout rural Kentucky. These centers would provide health information technology services and disseminate best practices and other services to be carried out through the Office of the National Coordinator, U.S. Department of Health and Human Services.

The foundation for health information exchange is the electronic medical record (EMR) and e-prescribing systems implemented within individual medical practices. These complex systems require significant information technology domain expertise for support, maintenance, and growth. This expertise is often cost prohibitive or otherwise unavailable to physicians with small practices or in rural/remote areas. Limited access to this expertise creates a formidable barrier to the adoption of EMRs by many physicians in Kentucky.

- Currently only 1.3% of Hospital have fully functional clinical information systems
- An estimated 17% of physicians use some type of electronic health record
- A recent Kentucky HIT Adoption study indicated that among the 50 percent of state physicians planning to adopt EMRs within the next two years, the #1 issue was lack of availability of IT support.
- Many physician practices that have purchased EMR's fail to fully implement them, continue to maintain paper records, lack adequate training, and don't make the necessary practice management changes essential to effective utilization.

As a predominantly rural state with a high rate of poverty, Kentucky has an especially strong need for regional HIT extension centers to support the implementation and effective use of electronic medical records and information exchange. Kentucky has a disproportionately high level of Medicare and Medicaid patients. Rural clinics, small medical practices, and regional medical centers will need technical assistance to support the implementation and maintenance

of electronic medical systems. There is a strong need for analysis, planning, technical consulting, system selection and configuration, system operation and maintenance, training, change management, and dissemination of best practices. These needs are identified in the State Action Plan and other documents. In laying the foundation for its state health information exchange network, Kentucky has already worked in collaboration with the Kentucky Medical Association to establish an HIT Tool Kit, which will be a valuable tool in establishing the HIT regional extension centers.

Project Description:

The goal of this project is to develop the infrastructure and services to support adoption, implementation, and effective use of EMRs and e-prescribing systems by providers throughout Kentucky.

To adequately meet the needs, this infrastructure would consist of regional data centers staffed by systems administrators, database administrators, and informatics consultants and trainers at strategic locations to be determined. The network of regional centers would be coordinated at the state level for efficiency, assessment, sharing of experience, and development and dissemination of best practices. In addition to technical assistance, these centers could provide hosting services. This approach would make it possible for small practices and other healthcare agencies to realize the economic benefit of scale by implementing their electronic medical records on virtual servers within these regionally located data centers. This deployment creates a much more robust environment for the EMR that will include the implementation of business continuance and disaster recovery plans, system maintenance (both servers and software systems) that will allow each system to be a robust component of more comprehensive health information network providing both better health services to the patient as well a system from which data and samples may be collected to support cutting edge medical research within the state. Hosted systems will all be implemented and maintained as independent, autonomous units under the direction and control of the practices that own them. The IT services will provide health information technology support for the selection, and effective use of EMRs and e-prescribing systems and electronic health information exchange.

In order for regional data centers to support independent medical practices, several critical pieces of infrastructure must be in place.

- 1) **The data centers themselves:** We must identify or develop data centers throughout the state that are capable of hosting the servers (or virtual servers) on which the independent EMRs and e-prescribing systems will be deployed. Stimulus funds may be necessary for initial start-up and maintenance, but a viable business model must be developed based on cost sharing and fees for service to provide long-term sustainability.
- 2) **Broadband access for physician's offices:** In order for a remote implementation to be effective, each physician office must have access to sufficient internet band width such that data exchanges between client and server applications are rapid enough to respond to the health care workers in a timely fashion. The service must be sufficiently reliable and robust that the physician will have the confidence necessary to use the EMR as their primary mechanism for recording patient data.
- 3) **Health information technology extension services:** The health information technology extension agents would provide the comprehensive support services necessary for these

systems to serve as the informational nerve centers of these medical practices. By virtue of these data centers being remote to the physician, direct, face-to-face access would be logistically difficult. This face-to-face contact will be occasionally necessary in order to bolster the confidence of physician and their staff in these systems and the support services. The extension agents would be the ideal emissaries for the one-on-one interactions necessary to develop both confidence and comfort with these systems. It should be made clear that, although analogous, these HIT extension services are a completely separate and distinct entity from the agricultural extension service. The HIT extension agents require a vastly different domain knowledge and skill sets.

The proposed project would carry out the following actions toward implementing the statewide health information technology regional extension network:

- Investigate alternative models and make recommendations to the KeHN Board for statewide adoption.
- Establish responsibility and accountability for statewide coordination, including infrastructure for ongoing assessment and continuous improvement.
- Develop and pilot a state prototype / model. The model would establish a framework for hosting services, business continuity/disaster recovery, technical assistance, implementation and change management consulting, training, and other needed services.
- Assess state pilot results and study initiatives in other states to develop best practices and guidelines for state-wide rollout. This would include recommendations for number and location of additional centers along with a plan and timeline for implementation.
- Assess the availability and work with the State of Kentucky to ensure sufficient network bandwidth and reliable access for all rural physicians and healthcare facilities.
- Develop a business model for long-term sustainability of the HIT regional extension centers.
- Implement additional centers based on recommendations and availability of funds.
- Investigate the potential for creating a state-wide HIT training database for use by all HIT regional extension centers and the state universities and colleges.

Expected Benefits:

1. Enhanced recruitment and retention of physicians in rural and underserved areas. The positive impact is likely to be the greatest for primary care physicians since they are less likely to be able to employ the technical specialists needed and absorb additional costs.
2. Enhanced disaster recovery capabilities because highly qualified technical specialists are more likely to perform well in this area.
3. Better integration with other EHR systems and improved data sharing capabilities, again, due to the presence of more highly qualified technical specialists.
4. Regional centralization (as opposed to statewide centralization) would lead to closer collaboration between the data centers, the physicians, and the hospitals; thereby, resulting in higher quality

Project Team:

To be named

Project Budget & Amount of Economic Stimulus Funds Requested:

Would be funded under either “State Grants”, or “Immediate Funding of HIT” provisions in ARRA.

Aggregate budget \$25M

The budget in this project will be developed to support both construction and IT admin personnel to maintain the services. Admin personnel would probably require salaries on the order of \$100k per individual. It is not clear to what degree these individuals can be shared within the datacenter

Request for Economic Stimulus Funds

Concept Proposal

Submitters:

e-Health Sub-Committee (Votruba/Martinez/Ozanich)

Project Title:

HITECH--*Title XIII--(Sec. 13301, Subtitle B, Incentives for the Use of HIT, Sec. 3016)*

IT Professionals in Health Care

Project Partners:

State Universities, Regional Universities, KCTCS, Independent Colleges and Universities

Project Background & Purpose:

To provide assistance to institutions of higher education (or consortia thereof) to establish or expand medical health informatics education programs, including certification, undergraduate, and masters degree programs, for both health care and information technology students to ensure the rapid and effective utilization and development of health information technologies (in the United States health care infrastructure). In providing assistance under subsection (a), the Secretary (HHS) shall give preference to the following: (1) Existing education and training programs. (2) Programs designed to be completed in less than six months.

Project Description:

To coordinate activities between higher education institutions to maximize grant support and develop curricula for the training of health and medical informatics professionals. Provided assistance may include the following:

- (1) Developing and revising curricula in medical health informatics and related disciplines.
- (2) Recruiting and retaining students to the program involved.
- (3) Acquiring equipment necessary for student instruction in these programs, including the installation of testbed networks for student use.
- (4) Establishing or enhancing bridge programs in the in the health informatics fields between community colleges and universities.

Project Team Leaders:

Sub-Committee Members representing their respective university

Project Budget & Amount of Economic Stimulus Funds Requested:

Varies by institution and program, possible aggregate range \$6M-8M

Request for Economic Stimulus Funds

Concept Proposal

Submitters:

e-Health Sub-Committee (Votruba/Martinez/Ozanich)

Project Title:

HITECH--*Title XIII--(Sec. 13301, Subtitle B, Incentives for Use of HIT, Sec. 3015)*

Demonstration Programs to Integrate IT into Clinical Education

Project Partners:

State Universities, Regional Universities, KCTCS, Independent Colleges and Universities

Project Background & Purpose:

The future of clinical medicine will include many new changes and a need for knowledge in many information technology related areas. The necessity of taxonomies and nomenclature will be required to document accurately. The trends associated with the use of electronic documentation, and the use of handheld information devices will be a large part of daily life for most healthcare workers. In addition, evidence-based medicine, and informatics-based treatments, such as translational genomics will be the norm. Knowledge of health information technologies will be an essential part of the present and future practice of medicine.

Award grants under this section to carry out demonstration projects to develop academic curricula integrating certified EHR technology in the clinical education of health professionals. Such awards shall be made on a competitive basis and pursuant to peer review. Eligibility.—

- (A) a school of medicine, osteopathic medicine, dentistry, or pharmacy, a graduate program in behavioral or mental health, or any other graduate health professions school;
- (B) a graduate school of nursing or physician assistant studies;
- (C) a consortium of two or more schools described in subparagraph (A) or (B); or
- (D) an institution with a graduate medical education program in medicine, osteopathic medicine, dentistry, pharmacy, nursing, or physician assistance studies;

Project Description:

To coordinate activities between higher education institutions to maximize the implementation of technology into clinical training and assist in the development of demonstration projects supporting strategic plans for integrating certified EHR technology in the clinical education of health professionals to reduce medical errors, increase access to prevention, reduce chronic diseases, and enhance health care quality. Also to provide for the collection of data regarding the effectiveness of the demonstration project to be funded under the grant in improving the safety of patients, the efficiency of health care delivery, and in increasing the likelihood that graduates of the grantee will adopt and incorporate certified EHR technology, in the delivery of health care services. These grants require collaboration with 2 or more disciplines and the use of grant funds to integrate certified EHR technology into community-based clinical education.

Project Team Leaders:

Health Care Graduate Programs

Project Budget & Amount of Economic Stimulus Funds Requested:

Grant funds shall not be used to purchase hardware, software, or services

50% funding match including in-kind

Funds requested \$8M