

**ARKANSAS OFFICE OF HEALTH INFORMATION
TECHNOLOGY**

Health Information Exchange

Summary of Strategic and Operational Plans

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ENVIRONMENTAL SCAN AND GAP ANALYSIS

In 2009, Arkansas's Governor charged Arkansas's Surgeon General with convening a Governor's Health Information Technology (HIT) Executive Committee and a Health Information Technology Task Force. Comprised of public and private sector stakeholders, the Executive Committee and Task Force began meeting regularly to develop an overall vision for health information exchange (HIE) in the state and, ultimately, to develop Arkansas's Strategic and Operational Plans. The Governor has since appointed an HIT Coordinator and established an Office of Health Information Technology (Office of HIT) to coordinate HIT activities and develop and expand HIE capacity among Arkansas providers. Arkansas gathered providers, consumers, payers, state agencies, employers, and other stakeholders to collaborate in developing, implementing, and supporting goals of the Arkansas statewide HIE system, which is known as the State Health Alliance for Records Exchange (SHARE), and will continue to solicit collaboration.

Table 1 reflects all data that has been collected as part of Arkansas's environmental scan.

Table 1. HIT Capabilities in Arkansas			
Provider Readiness-Physicians			
Medicaid Survey (187 providers)		AFMC Survey (1400 providers)	
Capability	Percent	Capability	Percent
Electronic Claim Filing	96.7	EHR Use	64
E-Prescribing	65.9	E-Prescribing	45
Submit/receive Clinical Lab Orders	77.8	E-lab Capability	65
Drug interaction warning system	78.9	Electronic Claims Submission	73
Sharing clinical data with other health care organizations electronically	27.8		
Provider Readiness-All Hospitals			
Capability		Percent/Number	
EMR/EHR use		Pending survey completion	
E-prescribing		Pending survey completion	
Electronic lab results delivery		Pending survey completion	
CPOE		Pending survey completion	
Electronic health insurance eligibility verification		Pending survey completion	
Electronic health insurance claims processing		Pending survey completion	
Electronically transmit required public health reporting		Pending survey completion	
Provider Readiness-Critical Access Hospitals (19)			
Capability		Percent	
EMR/EHR use		Pending survey completion	
E-prescribing		Pending survey completion	
CPOE		Pending survey completion	
Electronic health insurance eligibility		Pending survey completion	
Electronic health insurance claims processing		Pending survey completion	
Automatic medication-dispensing machines		16	
Telepharmacies		11	
Electronically review lab results		21	
Electronically transmit images		58	
Provider Readiness-Critical Access Hospitals (19)			

Capability		Percent		
Physician offices or clinics connected electronically to their IT systems		16		
Connected to long-term care facilities		16		
Shared clinical data electronically with other hospitals		16		
Source: The Technical Assistance and Services Center, National Rural Health Resources Center				
Provider Readiness-Community Health Centers (12 centers with 60 sites)				
Capability		Percent		
Electronic lab ordering		41.7		
E-prescribing		33.3		
Script status		50.0		
Clinical summary		36.4		
Public health immunization reporting		91.7		
Public Health lab results reporting		91.7		
Electronic insurance eligibility verification		24.0		
Digital imaging systems		58.3		
Source: Community Health Centers of Arkansas, Inc. November 2009				
E-prescribing Utilization and Adoption				
Capability		Number	Percent	
Prescription Benefit Requests		1,295,993		
Rate of response to benefit request at year –end			59.78	
Total Prescriptions routed electronically		1,374,483	8.00	
Physicians Routing prescriptions electronically		860	18.00	
Community pharmacies activated for e-prescribing		604	88.00	
Population participating in e-prescribing for whom there is medication history, formulary info, etc.			66.00	
Source: SureScripts Data, 2009				
SureScript Prescribers by Metropolitan Statistical Area (as of April 2010)				
Area	# Activated Providers	# Active Providers	%Providers Active	
Fayetteville-Springdale-Rogers (AR) MSA	369	326	88.35	
Fort Smith (AR-OK) MSA	81	70	86.42	
Jonesboro (AR) MSA	117	105	89.74	
Little Rock-North Little Rock (AR) MSA	469	408	86.99	
Memphis (TN-AR-MS) MSA	22	8	36.36	
Non-MSA	430	314	73.02	
Pine Bluff (AR) MSA	30	18	60.00	
Texarkana (TX-AR) MSA	1	1	100.00	
Total	1519	1250	82.29	
Source: Hewlett-Packard and SureScripts Data, April 2010				
Pharmacies with E-Prescribing Software				
	2009		2010	
	Number	Percent	Number	Percent
Yes	97	58.08	157	83.96
No	70	41.92	30	16.04
Total	167	100	187	100
Source: Arkansas Medicaid e-Prescribing Project 2009-2010				
Labs-Those using LabCorps for Electronic Transactions				

	Number	Percentage
None	39	28.1
Orders and Results (Structured Results)	49	35.3
Results Only (Structured Results)	51	36.7
Total	139	100
Source: LabCorps		

Table 1 also illustrates the gaps in information, particularly with hospitals, pharmacies, and laboratories. Specific gaps include:

- Hospital EHR adoption and utilization rates
- Hospital e-prescribing utilization
- Hospital, lab, and pharmacy HIT use and functionality

To address these gaps, the Arkansas Office of HIT has collaborated with the Institute for Economic Advancement at the University of Arkansas at Little Rock to develop a series of surveys to collect the above information and information related to office workflow processes and current methods of health information exchange with other providers. The four surveys will target providers, hospitals, laboratories, and pharmacies. Surveys for labs, hospitals and pharmacies have been deployed. Surveys for providers will be deployed in February 2011. In order to perform preliminary analysis and identify information gaps, maps were developed overlaying providers on broadband/wireless/wireline availability by each Arkansas county. See attachment for samples of the county maps.

Gap Analysis Update

Currently underway are a series of surveys to assess HIE readiness of providers, hospitals, pharmacies and laboratories in the state. This information will assist in the statewide deployment implementation planning, which will provide information regarding where the greatest and least capacity is available across the state. Through collaboration with the Arkansas Regional Extension Center (REC), the Office of HIT has developed strategies for assisting those to reach stage 1 meaningful use (MU) as well as developing infrastructure needed by labs and pharmacies in the state to facilitate electronic exchange of information to include e-prescribing, e-lab orders and structured lab results.

Preliminary survey results for the laboratory, hospital and pharmacy surveys have been obtained with final analytic dataset available in March, 2011. The final data will be available to all collaborative partners, including the Arkansas REC in order to effectively refine strategies for building upon existing resources available in the state. Tables 2, 3 and 4 listed below detail the preliminary survey results.

Table 2. Lab Survey Data				
Lab Type	Facility Based	Independent	Public Health	Other
	74%	19%	0	7%
CLIA Cert. Type	Waived	Moderate	Complex	
	33%	26%	41%	
Have LIS/LIMS	Yes	No	Don't Know	
	66%	33%	0%	
Order Type	Paper	Electronic	Other	
	33%	59%	7%	

Table 2. Lab Survey Data					
Type of Code System	ICD-P	LOINC	CPT	SNOMED-CT	None
	41%	0%	56%	0%	4%
Send e-Results to:			Receive e-Results From:		
Other Labs	33%		Other Labs	N/A	
Hospitals	33%		Hospitals	4%	
Physician	41%		Physician	4%	
Blood Bank	7%		Blood Bank	0%	
Pharmacy	7%		Pharmacy	0%	
Radiology	15%		Radiology	0%	
LTC/Nursing Home	22%		LTC/Nursing Home	0%	
Rehab	15%		Rehab	0%	
Billing	7%		Billing	N/A	
Payers	11%		Payers	N/A	
Other	11%		Other	7%	
None	27%		None	78%	
Receive Test Results	Onsite	Mail	Electronic	Other	
	22%	0%	59%	19%	
Code System Receives Results	ICD-9	SNOMED-CT	LOINC	CPT	None
	22%	0%	0%	52%	11%
Computerized Systems Features	EHR	Patient Problem	Clinical Lab Notes	H7 Interface	
	56%	37%	48%	15%	
Type of Internet Access	Dial-up	Satellite	DSL	Cable	None
	0%	63%	26%	0%	7%

Table 3. Hospital Survey Data					
Dedicated EMR Staff	Yes	No			
	56%	44%			
HIT Projects in Progress	Yes	No			
	38%	62%			
Type of Internet Access	DSL	Cable	T-1	Fiber Optic	Other
	8%	19%	15%	19%	27%
Pursuing Incentives	Medicaid	Medicare	None	Don't Know	
	31%	59%	3%	31%	
Type of MIS	None	Stand Alone	Integrated EMR	Don't Know	
	11%	27%	58%	8%	

Table 3. Hospital Survey Data						
Degree of EMR Implementation						
Not Considering	0%	Considering	15%	Making Plans		33%
Purchased	33%	Implemented with Problems	5%	Implemented and works well		28%
Implementation of certain capabilities						
CPOE	55%	40%	5%	0%	0%	
Drug List	89%	11%	0%	0%	0%	
Active Med. List	95%	5%	0%	0%	0%	
ADT System	100%	0%	0%	0%	0%	
ICD-9 to ICD-10	5%	55%	20%	0%	20%	
Health Insurance Eligibility Ver.	95%	5%	0%	0%	0%	
Health Insurance Claims Processing	100%	0%	0%	0%	0%	
Public Health Reporting	60%	30%	0%	0%	10%	
Participates in HIE	Yes	No				
	30%	70%				

Table 4. Pharmacy Survey Data						
Pharmacy Type	Health System	Independent	Local/Reg. Chain	National Chain	Other	
	2%	94%	4%	0%	2%	
Computer- based Services	Receive eRx	Transfer eRx	eRefill	Clinical Info	None	
	86%	20%	69%	14%	16%	
Internet Access Type	Dial-up	DSL	Cable	None		
	2%	67%	31%	0%		
IT Support	In-House	Outsourced	Both			
	19%	62%	19%			
ePrescribing Capability	Yes	No	Unsure			
	86%	14%	0%			
Utilize ePrescribing	Yes	No	Unsure			
	91%	7%	2%			
HIE Benefits						
Patient Data	58%					
Staff Time	17%					
Disease Mgmt.	23%					
Quality of Pat. Care	33%					
Imp. Work Flow	35%					

Table 4. Pharmacy Survey Data	
Patient Follow-Up	21%
Drug List	42%
Provider Comm.	27%
Patient Comm.	19%
Other	2%

HIE MEANINGFUL USE CRITERIA

The Arkansas HIE, SHARE will focus on the MU criteria set forth in the Program Information Notice (PIN) document by the Office of the National Coordinator (ONC) which includes electronic prescribing, receipt of structured lab results and sharing patient care summaries across unaffiliated organizations. Utilizing a phased approach, SHARE will develop the essential core services to provide an option to providers for meeting MU requirements. To ensure this functionality and services needed by eligible professionals (EPs) and hospitals, the additional core and expanded value-added utilities of SHARE will be developed and deployed incrementally taking into consideration the additional stages of MU and the maximized benefits of all stakeholders.

E-Prescribing

Meaningful use Requirements: Electronic prescribing (e-prescribing) is the use of healthcare technology to improve prescription accuracy, increase patient safety and reduce costs, as well as enable secure, bi-directional, electronic connectivity between physician practices and pharmacies. MU of certified Electronic Health Record (EHR) technology includes a required or “core” measure for e-prescribing. A certified EHR (or e-prescribing module) must be able, at a minimum, to generate and transmit permissible prescriptions electronically. In order for an EP to meet the e-prescribing objective for MU, more than 40% of all permissible prescriptions written by the EP must be transmitted electronically using certified EHR technology.

The first major activity involved in the incorporation of e-prescribing into the workflow is the prescribing of the medication; the clinician can use one of several different types of software to create and transmit the prescription. This can be accomplished via a Computerized Provider Order Entry (CPOE) system built around an EHR. A fully integrated EHR allows the prescriber to locate the patient being seen and to retrieve the patient’s medication history, review past medical history including labs and other relevant clinical data, compare insurance coverage and formulary compliance, and check for potential drug interactions and patient intolerances for any new prescriptions written. The prescriber can then print the prescriptions and give them to the patient or fax them directly to the patient’s pharmacy.

The second activity in the workflow is transmission of the completed prescription. If the prescriber chooses not to print or fax new prescriptions in favor of electronic submission to the patient’s pharmacy, the e-prescribing system will transmit the prescription via one or more network intermediaries. Intermediaries serve several purposes: facilitate the secure transmittal of prescriptions to the appropriate pharmacy, store and exchange prescription history with both prescribers and pharmacies to facilitate decision support, and provide connectivity among prescribers, pharmacies, and payers.

The third workflow activity of e-prescribing is dispensing at the pharmacy. Most Arkansas pharmacies have systems or the necessary technical infrastructure that support electronic transmission, which allows their systems to automatically receive prescription data from any participating physician. Depending upon the system utilized, a series of processes occur in order based upon individual pharmacy systems’ data entry requirements. Once the received

information has been entered as a complete prescription, the pharmacy's software typically performs an independent series of decision support activities (checks for allergies, drug-drug or drug-disease state interactions, formulary compliance, etc). If the patient has third party insurance coverage, the prescription data is then submitted to the third party through a network intermediary, where many of the same checks are repeated by the third party vendor's software.

Current State and Gap Analysis: Approximately 84% of the pharmacies in the state are equipped with the necessary hardware and software to facilitate e-prescribing. However, less than 25% of all prescriptions are processed electronically (see **Tables 5 and 6**). In order to assess provider utilization of e-prescribing technology, the Office of HIT will conduct a provider survey that will include questions regarding use and patterns of e-prescribing and error correction procedures.

Table 5. Pharmacies that have implemented software allowing electronic prescribing				
	2009 Baseline		2010 Remeasurement	
	Number	Percent	Number	Percent
Yes	97	58.08	157	83.96
No	70	41.92	30	16.04
Total	167	100	187	100

Table 6. Percentage of prescriptions that are filled electronically				
	2009 Baseline		2010 Remeasurement	
	Number	Percent	Number	Percent
0%	6	6.25	0	0.00
1-25%	81	84.38	141	89.91
26-50%	6	6.25	15	9.55
51-75%	3	3.13	1	0.64
76% or more	0	0.00	0	0.00
Total	96	100	157	100

While the infrastructure is uniformly available in Arkansas pharmacies, utilization is driven by provider participation. Based upon surveys conducted in Arkansas around provider HIT readiness and included in the Strategic and Operational Plan submitted August 31, the survey of Medicaid providers reflected that only 69.5% of providers surveyed were currently performing e-prescribing, while 45% of providers surveyed by the Arkansas Foundation for Medical Care (AFMC) were utilizing e-prescribing. This indicates the need for provider outreach and education on the utilization and the provider and patient benefits of e-prescribing. In coordination with the Arkansas REC, the Office of HIT will develop appropriate educational material and training resources to increase provider participation.

There are gaps in the information available in the provider utilization rates for e-prescribing and pharmacy-centric information regarding e-prescribing trends.

Gap Filling Strategies

1. *Data Collection:* The Office of HIT is addressing these gaps by conducting both a provider and pharmacy survey to gather this information. The Office of HIT has worked with the Arkansas Pharmacy Association and the Arkansas Medical Society to obtain any available data held by their organization as well as in the development of an appropriate survey instrument, which has been deployed. This data will help provide more accurate baseline data of e-prescribing status from which 3 year goals can be established.

Activity	Current State	Goal	Goal	Goal
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	(March 2011)	(Dec. 2011)	(Dec. 2012)	(Dec. 2013)
Eligible Professionals use of e-Prescribing	Pending survey completion	TBD	TBD	TBD
Routing of Prescriptions	Pending survey completion	TBD	TBD	TBD
Pharmacy Access	Pending survey completion	TBD	TBD	TBD

2. **Technical and Collaborative Options:** In order to facilitate e-prescribing technical and operational functionality to SHARE, the Office of HIT will continue to build upon existing state resources and contractual relationships in place. Potential avenues being explored are developing a direct contractual relationship with the most utilized e-prescribing vendor in the state, SureScripts or AllScripts. Discussions with the Arkansas representative have taken place on how to build a connection between SHARE and SureScripts in order to provide this as an option to providers utilizing SHARE. This will serve to include e-prescribing to the workflow changes required for use of an EHR in provider offices and hospitals.

Another mechanism for facilitating e-prescribing via SHARE, is partnering with the Arkansas Employee Benefits Division (EBD). EBD currently has a contract with SureScripts by way of their prescription benefits manager (PBM). Exploration of extending this relationship to include SHARE is underway to provide alternative options for achieving this connectivity. Building on existing contracts will reduce the time frame required to negotiate contracts with the e-prescribing service provider.

Structured Lab Results

Meaningful Use Requirements: MU criteria include a measure for incorporation of structured lab results into EHR: For an EP, eligible hospital, or for critical access hospitals to meet Stage 1 requirements, more than 40% of all clinical lab test results ordered for patients admitted to its inpatient or emergency department during their EHR reporting period whose results are either in a positive/negative or numerical format are incorporated in certified EHR technology as structured data.

The certification criteria for EHRs in incorporating clinical lab results are as follows:

1. **Receive results-** Electronically receive clinical laboratory test results in a structured format and display such results in a human readable format.
2. **Display test report information-** Electronically display all the information for a test report as specified by 42 CFR 493.129 (c)(1) through (7) by CMS.
3. **Incorporate results-** Electronically attribute, associate, or link a laboratory test result to a laboratory order or patient record.

Current State: There are 2114 CLIA labs in Arkansas as shown in **Table 7**.

Table 7. Total Labs in Arkansas by Type		
CLIA Lab Type	Number in Arkansas	Percent of Total Labs
Ambulance	27	1.3
Ambulatory Surgery Center	53	2.5
Ancillary Test Site	25	1.2
Assisted Living Facility	4	0.2
Blood Banks	6	0.3
Community Clinic	77	3.6

Table 7. Total Labs in Arkansas by Type		
End Stage Renal Disease Dialysis	62	2.9
FQHC	19	0.9
Health Fair	9	0.4
HMO	1	0.1
Home Health Agency	67	3.2
Hospice	28	1.3
Hospital	120	5.7
Independent	46	2.2
Industrial	23	1.1
Intermediate Care Facility	23	1.1
Mobile Lab	22	1.1
Pharmacy	59	2.8
Physician Office	999	47.3
Other Practitioner	32	1.5
Public Health Lab	3	0.2
Rural Health Care Clinic	43	2.0
School/Student Health Service	19	0.9
Skilled Nursing/Nursing Facility	223	10.5
Other	124	5.9
Total	2114	100

Gap Analysis: In order for Arkansas to develop appropriate strategies for lab interoperability and delivery of structured lab results, more information must be gathered to determine:

- Percent of labs able to produce and deliver structured labs
- Percent of labs able to receive orders electronically
- Percent of lab results currently being delivered electronically
- Percent of providers receiving structured lab results

The Office of HIT has developed and deployed a survey specifically for laboratories to collect this information and to help determine laboratories' modality of electronic transmission and their ability to transmit results in accordance with ONC standards. This information will also provide Arkansas with baseline information which can be used to determine the current percentage of lab results being delivered electronically.

Gap Filling Strategies

Increasing the electronic delivery and exchange of structured lab results in the state will involve policy, procurement, technical, and collaborative strategies. These specific options and strategies will be more concretely defined based on the survey results of laboratory capabilities in Arkansas.

1. *Data Collection:* Office of HIT has deployed surveys to labs across the state in January. Upon collection, baseline data will determine the current percentage of lab results being delivered electronically. Goals can then be established for increasing electronic lab results delivery over the next 3 years.

Activity	Current State (March 2011)	Goal (Dec. 2011)	Goal (Dec. 2012)	Goal (Dec. 2013)
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Labs electronic delivery of structured results	Pending survey completion	TBD	TBD	TBD
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2. *Regulations and Policy:* Options will be evaluated related to structured lab results which include:
- Include standards-based interface language requirements in Lab Services contracts with the state Medicaid Agency
 - Review State Request For Proposals (RFP) and contract renewals to ensure they include requirements to comply with national standards
 - Assess Arkansas's laws and regulations to ensure alignment with current CLIA regulatory guidance

3. *Procurement and Technical Options:* As part of the RFP, Arkansas plans to include a set of statewide core services to facilitate the exchange of structured lab results. Included in the core services will be a master provider index. The HIE can use this index to route lab results to the appropriate destination. This centralized service will allow for clinical care summaries, lab results delivery, and reportable lab data to be routed for all point-to-point delivery.

Because Arkansas is proposing a phased approach for HIE implementation, using the core services to route information will also need to be phased in as more providers adopt and upgrade their EHR systems.

4. *Collaboration:*
- REC: Nearly half of labs in Arkansas are affiliated with a physician office (47.3%). Because of this, the Office of HIT and REC will work together to ensure that vendors the REC is supporting will include lab interoperability and structured lab results delivery and capabilities as part of their certified solutions. This will greatly increase electronic lab capabilities across the state.
 - The Office of HIT is a participant in the Lab Interoperability HIE Community of Practice and information on MU strategies and best-practices can help provide guidance for the state.

5. *Implementation:* Currently, the Arkansas Department of Health, Public Health Laboratories are unable to transmit or receive laboratory requests or results electronically but are working with the Office of HIT to develop the policies, procedures and protocols to facilitate electronic exchange using push and pull methodologies. In order to leverage current activities and resources, the Office of HIT will work with the Public Health Laboratories to utilize secure messaging to facilitate the share of structure lab results and ordering.

Using the laboratory survey data, currently being fielded by the Office of HIT, an assessment of laboratories in the three CLIA certification categories (waived, moderate, complex) will be completed, identifying laboratories most ready for HIE as well as those least ready for HIE. Those most ready to participate in HIE will be incorporated into the planned phase I demonstration period. By leveraging community hospital resources, those laboratories least ready will be incorporated into the demonstrations. Additionally, the Office of HIT will work with the Arkansas REC to develop training protocols to include the three HIE MU requirements. Through stated collaborative efforts all laboratories, large and small, will have a viable option for both receiving laboratory orders and transmitting structured laboratory results to providers throughout the state.

Clinical Summary Exchange

Meaningful Use Requirements: The ability to create, transmit, receive and interpret patient care summaries can enhance a wide range of health services, including continuity of care, accurate diagnosis and treatment, and patient and care giver engagement. MU of certified EHR includes core and menu measures for patient care summaries:

- As part of the core measure set for Stage 1 MU requirements, EPs, eligible hospitals and Critical Access Hospitals (CAHs) must perform at least one test of certified EHR technology's capability to electronically exchange key clinical information (for example, problem list, medication list, medication allergies, diagnostic test results), among providers of care and patient authorized entities.
- As part of the Menu Set measures for Stage 1 of MU requirements, the EP, eligible hospital or CAHs that transition their patients to another setting of care or provider of care must provide a summary of care record for more than 50% of transitions of care and referrals.

Current State and Gap Analysis: The lack of information regarding the provider and hospital readiness is the existing gap for incorporating patient summary records. The surveys developed and in process will serve as the mechanism to fill this gap. An additional missing component is the contractual and collaborative agreements. The development of data use, consent and business associate agreements are underway and will facilitate the production and sharing of the necessary information.

Gap Filling Strategies:

1. *Data collection:* The Office of HIT is conducting surveys of hospitals and providers to obtain baseline data regarding EHR adoption, utilization and information exchanged. This baseline information will help set progress goals over the next 3 years.

Activity	Current State (March 2011)	Goal (Dec. 2011)	Goal (Dec. 2012)	Goal (Dec. 2013)
Number of hospitals currently using EHR technology that is EXCHANGING information	Pending Survey Completion	TBD	TBD	TBD
Number of EPs using EHR technology that is EXCHANGING information	Pending Survey Completion	TBD	TBD	TBD
Number of Hospitals using certified technology	Pending Survey Completion	TBD	TBD	TBD
Number of EPs using certified technology	Pending Survey Completion	TBD	TBD	TBD

2. *Technical Options:* In order to facilitate the exchange of patient summary records, the Office of HIT has developed a phased process for incorporating initially, via secure messaging, then adding expanded services to both the core services and the SHARE functional services. To assess the readiness of providers and hospitals to engage in this activity, surveys to providers and hospitals have been developed and are currently in the field. This is the initial step in identifying participants for the phase I deployment of SHARE and

provides information from the provider and hospital community to determine the scope and breadth of the infrastructure in place and required to achieve this function.

The operational plan identified in the technical section will ensure that a comprehensive planning process is completed along with the appropriate technical and operational approach to Phase I.

COLLABORATION

Medicare and Federally Funded, State-based Programs

It is the intent that SHARE support health information exchange among all entities that participate in healthcare delivery in Arkansas. Federally funded programs have an essential role in that delivery. This section describes how SHARE will integrate these essential components of healthcare delivery into SHARE. The Arkansas Department of Health (ADH) is the state agency responsible for administering many federally funded public health programs. ADH is a key, committed stakeholder in SHARE and is represented in workgroups to ensure that exchange of information for public health purposes is a priority for SHARE. For some programs, particularly behavioral health, the Arkansas Department of Human Services (DHS) is the state agency responsible for administering federal programs, and the DHS personnel are involved in SHARE's development. The following programs will be enhanced through SHARE.

- Epidemiology and Laboratory Capacity Cooperative Agreement (CDC)
- Long-term Care and Grants to Promote HIT Implementation (CMS)
- HIV Care Grant /AIDS Drug Assistance Program (HRSA)
- Maternal and Child Health SSDI Programs (HRSA)
- State Offices of Rural Health Policy (HRSA)
- Mental Health Data Infrastructure Grants for Quality Improvement (SAMHSA)
- State Medicaid/CHIP Programs (CMS)
- Emergency Medical Services for Children Program (HRSA)

Federally Qualified Health Centers

Nine of the 12 federally funded community health centers (CHCs) in Arkansas have implemented EMR systems and the remaining three will implement EMR systems by the end of the year. State funding was recently authorized through the ADH and awarded to all community health centers to help with development and maintenance fees associated with EMR systems. CHCs have agreed to assist underserved Arkansans by improving health outcomes and reducing disparities. Reporting outcomes, which is an essential component of funding, will be eased if EMR information exchange capabilities are available. The CHCs of Arkansas has been closely involved in the HIE strategic planning process and will be an integral part of SHARE.

Department of Veterans Affairs

Arkansas has one of the largest veteran's medical centers in the US. The Central Arkansas Veterans Healthcare System (CAVHS) includes two hospitals and a robust network of inpatient and outpatient services throughout Arkansas that provides primary care, disease prevention, surgical, and rehabilitative services. The Department of Veterans Affairs (VA) has implemented an EMR system, and Arkansas will work closely with the VA to connect SHARE to the system.

Coordination with ARRA and other funded entities

With the proliferation of federal funding for health IT initiatives, efforts at the state level must be coordinated to maximize these resources in Arkansas. A primary responsibility of the Arkansas HIT Coordinator and the Arkansas Office of HIT as outlined by the Governor's Executive Order is to identify and pursue opportunities for collaboration around HIT solutions in Arkansas. The

Office of HIT is vested with the authority and responsibility to 1) assure effective coordination and collaboration of HIT planning, development, implementation, and financing; 2) plan the establishment and operation of SHARE; and 3) develop, maintain, and direct implementation of a strategic plan for statewide utilization of HIT. While the ARRA and HITECH Act funding has stimulated an enormous amount of positive HIT activity, it has also created major challenges and opportunities for a more collaborative approach to finding common HIT solutions in a state of 2.8 million people. A major result of this collaboration is that SHARE is now being viewed by a number of our ARRA strategic partners as at least a partial solution to their HIT needs which is outlined in detail in our Operational Plan.

In addition to these strategic partners, this collaborative strategy has resulted in the identification of three critical components where a more integrated planning, development and implementation process is required. In Arkansas, we believe there are compelling operational and programmatic reasons why the statewide health information exchange (SHARE), the state Medicaid Management Information System (MMIS), and the Health Benefits Exchange (HBX) can and must interface around core functions that will benefit all of these systems.

As detailed in the Arkansas Strategic and Operational Plans, SHARE is developed around a set of core functions of a Master Provider Index, a Master Person/Patient Index, and a Record Locator Service. Through our collaborative process, which involved a variety of stakeholders, it has become apparent that these core functions could and should serve to meet more than just the needs of SHARE. Rather than waste the time, effort and expense of needlessly duplicating these and potentially other basic service functions, it was determined that SHARE must be developed and implemented in a manner that will provide access to these core functions for other HIT related initiatives and purposes in our state.

The DHS, Division of Medical Services (Medicaid) and the Arkansas Insurance Department (Health Benefits Exchange) have identified the above functions and the related connectivity required to access them as essential elements in their respective plans for a new MMIS architecture and for the effective operation of a state Health Benefits Exchange. Therefore, we are working closely together in a synchronized planning and development process to assure we fully address the interrelated technical requirements necessary for SHARE to be utilized as the primary HIT “utility” for these and potentially other connection and interface opportunities in Arkansas. Additionally, discussions are also underway regarding the feasibility of a common governance structure and/or process for SHARE and for the Benefits Exchange since many of the same state agency, provider, payer, and consumer representatives will be needed for both entities. **A master timeline of all collaborative activities, including HIE, Health Benefits Exchange, and Medicaid is included as an attachment.**

In order to detail how the components of the “shared” infrastructure and services can be utilized by the multiple stakeholders, a preliminary operational draft has been developed as depicted in **Figure 1**.

Figure 1: Daft Operational Design of Shared Arkansas HIT Infrastructure

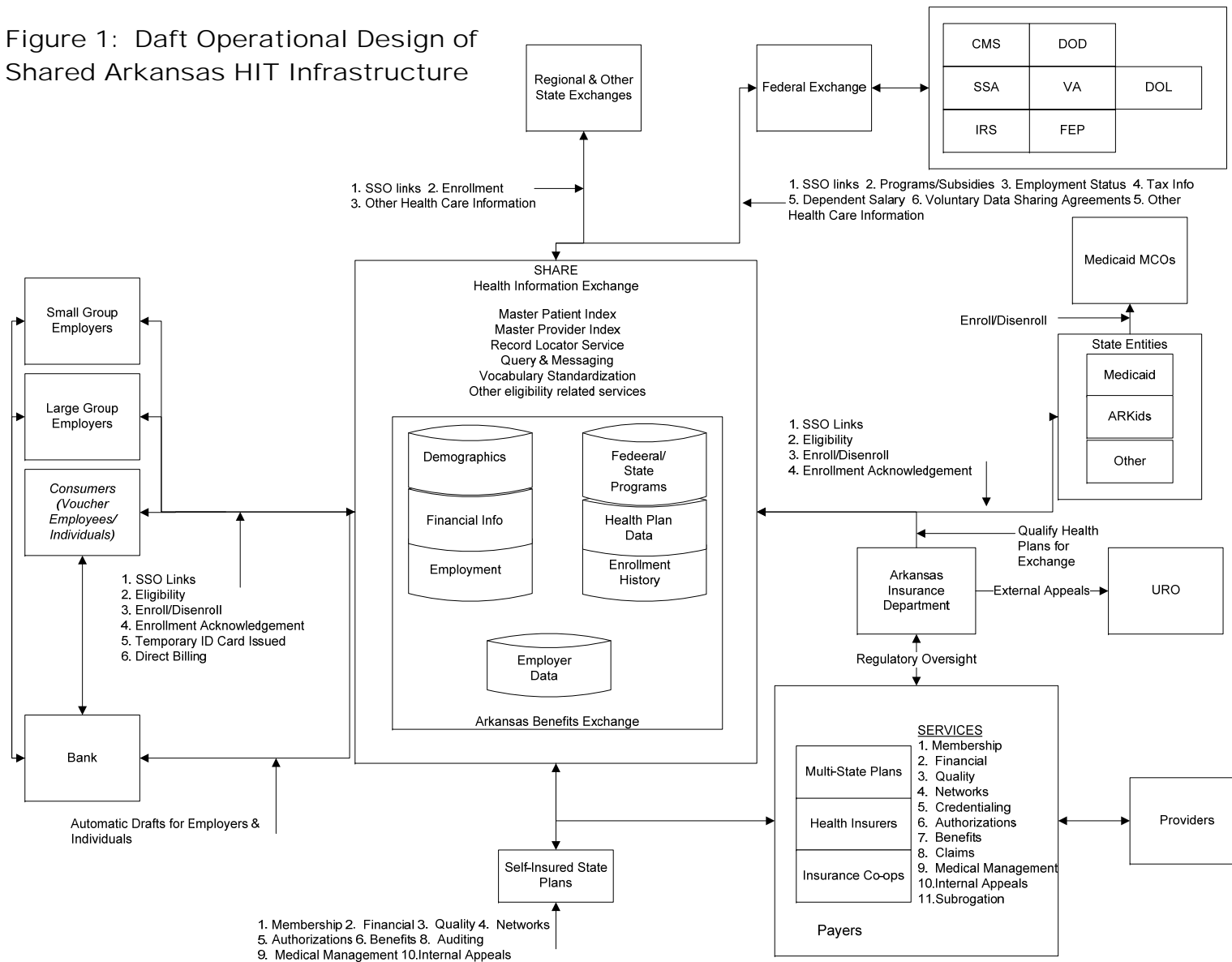


Table 8 outlines ARRA-funded HIT programs in Arkansas, which are described in more detail following the table.

Table 8. Status of HIT-related Programs in Arkansas			
ARRA-Funded HIT Program	Arkansas Applicant	Status as of 12/1/2010	Estimated State Match
HIT Extension Program: Regional Extension Centers —REC offers training, TA, guidance, information on best practices to providers seeking to adopt EHRs.	AFMC and UAMS partnership	\$7.4 million awarded Y1—\$3.8 million Y2—\$3.6 million Y3—\$0.5 million Y4—\$0.5 million	Requires plan to sustain ongoing program
CMS Incentives for HIT Adoption —Medicaid EHR incentive program provides payments to eligible professionals, hospitals, CAHs that are meaningful users of certified EHRs.	AR DHS, Medicaid administers incentives	Incentives start 10/2010 for Medicaid; 1/2011 for Medicare; Medicare payments could be ~\$455 million.	Specific amount unknown
HIT Implementation for Health Center Controlled Networks —One-time funds to help CHCs with costs of securing and implementing EMRs and HIT.	Community Health Centers of Arkansas, Inc.	Funding received \$458,003	Not applicable
Federal Communication Commission Rural Healthcare Pilot Program —creates a statewide broadband network dedicated to healthcare connecting public & private non-profit providers in rural/urban areas.	ATOM and UAMS	\$4.2 million awarded	15% from UAMS (~\$630,000); requires plan to sustain ongoing program
Broadband Technology Opportunity Program —support deployment of infrastructure in unserved & underserved areas; enhance capacity at public computer centers; encourage sustainable adoption of services.	Connect AR	<ul style="list-style-type: none"> • \$8 million pending for sustainable adoption • \$2.1 million awarded for broadband mapping 	Requires plan to sustain ongoing program
Broadband Technology Opportunity Program —affords all Arkansans improved access to community anchor institution bandwidth, enhanced quality of broadband-delivered health services, & enhanced capacity to communicate & learn; expands ATOM network via clinical and educational interactive video.	UAMS	US Department of Commerce awarded \$102 million on 8/17/2010;	~\$47 million in matching funds (various sources); requires plan to sustain ongoing program
Community College Consortia to Educate HIT Professionals in Healthcare Program —rapidly creates HIT workforce programs at community	National Park Comm. College, Hot Springs; AR	\$7,531,403 awarded to Region C, with \$986,298 for AR from multi-state	Specific amount unknown

Table 8. Status of HIT-related Programs in Arkansas

ARRA-Funded HIT Program	Arkansas Applicant	Status as of 12/1/2010	Estimated State Match
colleges or expands existing ones.	Assn of 2-Yr Colleges partner with multi-state consortia	consortia	
Enhancing Interoperability of EHR & Immunization Information —support electronic exchange of vaccination records; reduce duplicate entry burden on providers.	AR Dept. of Health	AR applied for \$1.3 million; not funded in Round 1	Specific amount unknown

Regional Extension Center

In Arkansas, the REC grant was awarded to the Arkansas Foundation for Medical Care which is also the Quality Improvement Organization (QIO). The Office of HIT has been working closely with the REC throughout the Strategic and Operational planning processes and REC staff participated in several domain workgroups.

The primary areas of collaboration have been:

- Assisting with a process of EMR product reviews to develop a list of “preferred products” for providers to consider in their EMR selection process
- Discussion of targeted strategies for messaging and marketing of EMR technology to the provider community
- Coordinating use of broadband mapping data for identification of target areas in Arkansas where lack of access to broadband connections may impact EMR adoption decisions and options
- Facilitating discussions and negotiations between the REC and Medicaid regarding the Provider Incentive Program and options for attestation and audit processes
- Frequent meetings and communications to keep each other informed of resources and information valuable to the respective responsibilities and efforts of each organization
- Joint participation in ONC and CMS sponsored national and regional meetings.

Coordination

Based upon the plans and assumptions made by Arkansas regarding the national Direct capability (see details on pages 37, 38 and 39) close coordination with the REC will be essential to assure that vendors and health care providers understand the opportunities and limitations inherent in the current Direct standards. Specifically, OHIT and the REC will work to:

- Determine and document that the EHR products selected by the REC for their “preferred product” list are Direct compliant. Those systems currently noncompliant will be informed and a set of specifications and requirements will be provided and a reasonable timeframe for compliance will be established. Failure to meet these specifications and requirements will result in those EHR products being removed from the list.
- Establish a training program and process for the health care provider community that will inform and educate them regarding the Direct standards and demonstrate how SHARE will facilitate the connectivity to utilize Direct for the exchange requirements related to clinical summaries, structured lab reports, and ePrescribing activities.

- Demonstrate to the health care provider community how SHARE will provide access to an open master provider directory, the HISP functions, and the authentication process using certificate management to assure the proper level of privacy and security.
- Develop a plan for providing on-site technical assistance and support to those health care providers who require this level of support in order to assure successful implementation.

Workforce

As more healthcare providers utilize health information technology, there will be a growing demand in several types of health information technology (IT) professions. National Park Community College (NPCC) is a participant in a regional consortium of 20 community colleges that will be training new health IT professionals. This Pitt Community College led consortium, one of five such consortiums across the country, received a \$10.9 million grant from the U.S. Department of Health and Human Services (HHS) for the first year, to establish or expand medical health informatics education programs to ensure the rapid and effective utilization and development of health information technologies infrastructure and widespread and meaningful use of electronic health records.

NPCC received approximately \$1 million for the development of an online, 6 month certificate program where prospective students with a healthcare or IT background can select from the following roles:

- Clinician/practitioner consultants
- Practice Workflow and information management redesign specialists
- Trainer

The professionals trained by this workforce program will provide key support to the other HITECH Act initiatives such as the REC program and SHARE.

Broadband

In a recent national report from the U.S. Department of Commerce, *Exploring the Digital Nation: Home Broadband Internet Adoption in the U.S.* (November, 2010), an average broadband internet adoption rate of 51% of all households ranks Arkansas 48th in the nation, a significant improvement from 4% in 2001. Even though this is a survey of households and not medical facilities or providers, it is representative of the challenges of broadband access and use in Arkansas.

In Arkansas, there are two primary recipients of recent federal grants for broadband related initiatives. *Connect Arkansas*, a private, non-profit technology center has received over \$2.6 million to conduct surveys and data collection to develop a map of broadband coverage in Arkansas. The Office of HIT staff has worked closely with *Connect Arkansas* staff to overlay health care provider location information with broadband mapping information to provide a more accurate assessment of broadband access issues (these Maps were included in the original submission of AR Strategic and Operational Plans, August, 2010).

The other recipient of major funding for broadband activity is the *University of Arkansas for Medical Sciences (UAMS)* which is the state's only academic health center. As is referenced in the Strategic and Operational Plans, UAMS has an extensive network of community clinics and hospitals connected primarily for the delivery of telemedicine services and procedures. UAMS recently received a U.S. Dept. of Commerce, Broadband Technology Opportunity Program (BTOP) grant of \$102 million to expand and improve telemedicine services to other areas of the state. As represented on the map in **Figure 2**, \$47 million of the UAMS grant funding is

allocated for leased circuit lines and additional broadband infrastructure throughout the state in the following layered configuration:

- **Primary Hubs** represent 48 sites serving large numbers of end-users that will connect to a statewide fiber network for upgrades of 100 Mbps
- **Secondary Spokes** represent 74 regional sites upgraded to 10 Mbps at 59 sites and 20 Mbps at 15 sites via dedicated point-to-point connections
- **Tertiary Spokes** represent 352 sites serving primarily rural areas that will receive upgrades or new lines of 1.5 Mbps at 154 locations

The Office of HIT is working with UAMS and the REC to assess the relationship between these broadband expansion targets, the recruitment of EPs by the REC and SHARE development plans.

Figure 2. BTOP Funded Sites



Gap Filling Strategies and Collaborative Partners

The challenge of strategic broadband deployment involves an array of collaborative partners well beyond the two grant recipient organizations referenced previously. The Office of HIT is working diligently to bring multiple broadband related organizations together in an effort to create synergy for the most effective process for broadband deployment. While expanding broadband access and use is the common denominator for these groups they each have different missions, funding sources, and priorities. Therefore, the challenge is to identify ways that, through collaboration, each can strategically use their respective resources and capacities to align broadband deployment objectives with SHARE (HIE) development and EHR adoption objectives.

Key Partners, Roles, and Responsibilities

The following matrix depicts the key partners in this collaborative strategy and their respective roles and responsibilities in this effort:

Key Partner	Role/Responsibility	Main POC
AR Broadband Council	A state advisory body, composed of state agency and telecomm industry reps, created by the legislature to identify major broadband issues in AR and develop recommendations and plans for state broadband policy.	Katie Burns, Chair
Connect AR	A non-profit created by the legislature to ensure the creation of a competitive broadband, or high speed internet, infrastructure that will not only improve personal lives, but also the economic prospects of all Arkansans and has worked to promote and foster broadband education, use, and access throughout the State.	Sam Walls, CEO
AR Dept. of Information Systems	The state department responsible for developing and maintaining IT and telecommunications services and support for all public agencies and operates the largest public network with resources and connectivity in all 75 counties in AR.	Claire Bailey, Director and State CIO
UAMS	The University of AR for Medical Sciences (UAMS) is the only academic health center in AR and is the recipient of a several grants that have led to the creation of a state network of telemedicine connections with community hospitals. A recent BTOP grant from US Dept of Commerce is to expand broadband connections in AR to additional community based health facilities and providers.	Dr. Curtis Lowery, MD
Regional Extension Center	The HITECH grant recipient in AR with the responsibility of promoting and assisting eligible providers with the adoption and use of EHR technology.	Jonathan Fuchs, COO
Office of Health Information Technology	The HITECH grant recipient for the planning, development and implementation of the state HIE, called SHARE (State Health Alliance for Records Exchange). Office of HIT, created by Executive Order of the Governor also has responsibility for coordinating all activities in the state that have funding for or are engaged in activities that have the potential to impact the use and/or	Ray Scott, State Coordinator for HIT

Key Partner	Role/Responsibility	Main POC
	deployment of health information technology.	
Arkansas Insurance Department	The US Department of Health and Human Services (HHS) awarded grants to help 48 States and the District of Columbia plan for the establishment of these health insurance Exchanges. Grant funds provide resources to conduct the research and planning needed to build a better health insurance marketplace and determine how their Exchanges will be operated and governed.	Jay Bradford, Insurance Commissioner

Key Collaborative Gap Filling Strategies

Increasing the availability and utilization of broadband connections for the health care community in Arkansas will only be successful if a focused and concerted effort is made to strategically deploy broadband resources. Recognizing that broadband resources are not available only to the health care community, other “communities of interest” like economic development, cyber/fiber park projects, educational networks, etc., must be viewed as allies in deployment strategy development.

The following are specific “next steps” that are either underway or in development in Arkansas:

- Convene Key Partners in a collaborative process that will serve as a forum to explore and analyze opportunities for closer and more targeted planning and development of broadband deployment
- Perform an in-depth analysis of the reports and recommendations developed by Key Partners to determine how the plans being developed and grant funds being expended by other Key Partners align or conflict with those policy and/or program recommendations
- Launch an assessment of current broadband resources by geographical area to determine what assets are being underutilized (dark fiber) and to assess options or opportunities for more effective use
- Overlay specific implementation and/or roll-out plans of the REC , UAMS, and SHARE with the information developed from the process outlined above to determine if there is alignment or need for realignment
- Develop a Memorandum of Agreement among the Key Partners that outlines principles and guidelines for a collaborative process that discourages the “silo” approach to the deployment of broadband assets and encourages an approach that will compliment state HIT activities and efforts and will serve the maximum “public good”.

Patient Protection and Affordable Care Act (PPACA)

The Arkansas Insurance Department (AID) has the lead responsibility for the planning and development of the Benefits Exchange for Arkansas. The state Insurance Commissioner has requested the assistance of the Office of HIT in analyzing the potential role that SHARE could play in facilitating or enabling many of the IT requirements needed to make the Benefits Exchange work effectively. In addition, this collaboration process could eliminate the potential for duplicative development activities of Medicaid, the AID Benefits Exchange and SHARE. Other collaborative activities regarding SHARE and the AID are:

- Assisting the AID in the development of the Planning Grant application for PPACA funding for the Benefits Exchange
- Facilitating discussions and planning meetings with Medicaid and AID regarding the coordination of systems and processes to make the Benefits Exchange work
- On-going analysis of mutual IT and infrastructure needs and requirements of SHARE and the Benefits Exchange.

Medicaid

The Arkansas Medicaid program, in the Division of Medical Services, in the Department of Human Services is a major health care payer and force in Arkansas. Medicaid is a primary strategic partner in the development of SHARE and one of the most frequent collaborators with the Office of HIT. Medicaid is a key stakeholder and participant in the planning process workgroups and continues to be involved in ongoing development processes. The following specific items are a summary of major collaborative activities to-date:

- Joint development and review of SHARE Strategic and Operational Plans and of the SMHP document
- Identification of specific tasks and allocation of CMS funding for SHARE related P-APD activity which was approved by CMS
- Participation in the RFP development process for new architecture for the MMIS in the Arkansas Medicaid Enterprise (AME) model which will rely on SHARE for core functions of Master Provider Index, Master Person/Patient Index, Record Locator Services and potentially other data exchange and collection activities
- Analysis of potential for SHARE to facilitate and/or enable a new eligibility and enrollment portal in support of the Medicaid role and responsibility pursuant to the provisions in the PPACA
- Assisting and facilitating negotiations between the REC and Medicaid regarding roles and responsibilities related to the implementation of the Provider Incentive Program.

Public Health

The Arkansas Department of Health (ADH) is the public health authority and the primary recipient of all CDC funded public health program funding in Arkansas. However, the public health IT infrastructure in Arkansas is in critical need of updating and restructuring. The Office of HIT has been asked by the Chief State Health Officer to explore ways in which SHARE may facilitate and/or enable improvements in the systems and processes for exchanging public health information among and between health care providers. This could include improving the way information is submitted to and/or retrieved from Public Health Registries, creating portals for authorized accessing of appropriate information, complying with mandatory reporting of public health information, or improving processes for syndromic surveillance of reported clinical data. Another area of focus is to assess the current degree of IT connectivity and activity that exists between the ADH and Arkansas hospitals that are connected via the Bioterrorism Network for which ADH receives annual funding for maintenance and support from the CDC. The objective here is to determine if this “network” represents existing IT capacity that could further enable connections between SHARE, the ADH, and community hospitals.

As a collaborative partner and user of SHARE, the Arkansas Department of Health (ADH) will utilize the provider directory. Currently, ADH does not conduct any electronic laboratory ordering or results and has limited infrastructure to support electronic transactions. The Arkansas Office of HIT has been working with ADH to identify the areas where SHARE can support ADH's efforts in expanding their HIE infrastructure including submission of reportable lab results as well as immunization and disease registry expansion. There is a pilot project

underway at ADH, testing disease reporting with hospitals across the state of Arkansas. This pilot will assist in identifying the capacity and deficiencies in ADH and the hospitals' ability to electronically transmit information. One component of the discussions with ADH and the Office of HIT is how secure messaging and a provider index/database/directory can assist in the efforts currently underway and how ADH can implement changes that will support the electronic exchange of information including reportable lab results.

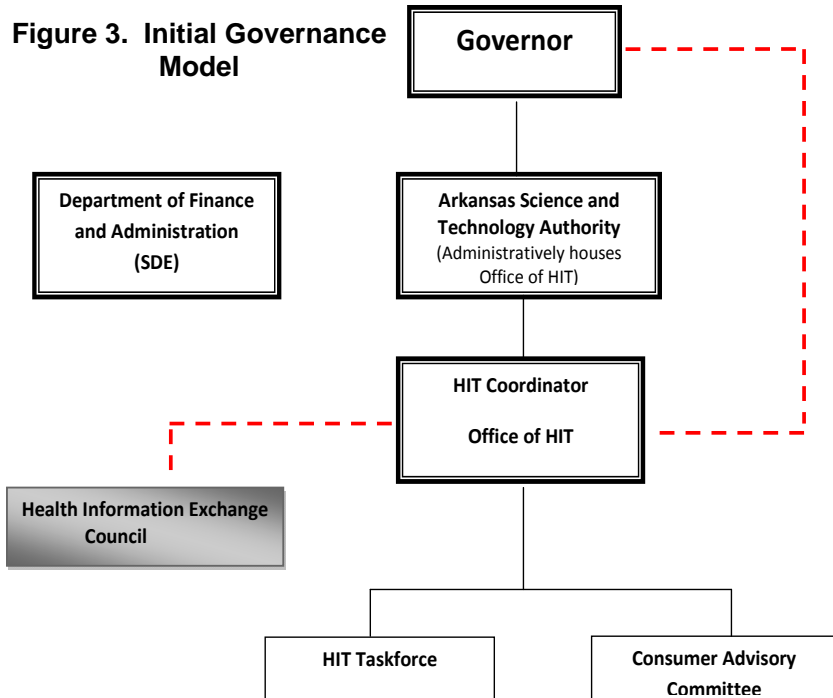
DOMAIN-SPECIFIC COMPONENTS

Governance Process to Date

Although Arkansas is in the process of formalizing its governance structure, much has been done in the past 12 months to develop a vision for SHARE and develop Strategic and Operational Plans. In the summer of 2009, at the Governor's request, Arkansas's Surgeon General convened the HIT Task Force and HIT Executive Committee, which were charged with helping develop Arkansas SHARE's vision, mission, and Strategic and Operational Plans. The Executive Committee, comprising public and private sector stakeholders, met weekly, and the Task Force met monthly. Workgroups made up of members of the Task Force and Executive Committee were formed to develop the Strategic and Operational Plans. The Arkansas Department of Finance and Administration was selected as the state-designated entity for the State Health Information Exchange Cooperative Agreement Program.

Establishing the HIT Coordinator and Office of HIT. The position of HIT Coordinator and the Office of HIT were officially established through an Executive Order issued May 11, 2010. The Governor appointed Ray Scott as Arkansas's HIT Coordinator. Mr. Scott: 1) organizes and operates the Office of HIT; 2) coordinates state HIT policies and programs with relevant executive branch agencies, including state boards, commissions, and institutions of higher education; and 3) will implement the Strategic and Operation Plans to guide the most effective use of HIT in public and private healthcare sectors.

The Office of HIT 1) carries out day-to-day activities related to SHARE; 2) ensures effective coordination and collaboration of HIT planning, development, implementation, and financing; 3) plans SHARE's establishment and operation; and 4) engages the general public in efforts related to SHARE. The Executive Order administratively houses the Office of HIT in the Arkansas Science and Technology Authority, and ASTA will help the office implement SHARE. The initial governance model is shown in **Figure 3**.



Establishing the HIE Council. The HIT Executive Committee has transitioned to the Health Information Exchange Council, which includes public and private sector stakeholders representing the Arkansas healthcare community (see **Table 9**). The council is an advisory body that monitors Office of HIT activities and the operation and performance of SHARE.

Governance Transition Process

The current planning and development activities of the Office of HIT are focused on the creation of SHARE and on the development of effective collaborative relationships with strategic partners and are occurring under the auspices of the Governors' Executive Order EO 10-10, executed May 11, 2010. The current oversight authority for these activities is vested in the Executive Committee of the Governor's Task Force on Health Information Technology as detailed in the original plans submitted to ONC August 31, 2010.

When the Arkansas Legislature convenes in January, 2011, it will be the first opportunity to formally create the Office of Health Information Technology and to establish the formal governance structure for SHARE through enabling legislation. Until the Legislature enacts such legislation, the critical work of the Office of HIT and the Executive Committee will continue pursuant to the Strategic and Operational plans as submitted, including any supplemental information as included in this Addendum. When the Legislature acts, all of the activities, contracts, plans, and responsibilities will transition to the successor entities as specified in the enabling legislation. Therefore, it is not anticipated that any of the current or planned work of the Office of HIT, the Executive Committee or SHARE will be delayed or postponed pending the end of the Legislative Session.

Working through the Governor's Legislative and Budget Process, the current plan is to recommend to the Governor the pursuit of enabling legislation that will:

- Create the Office of HIT as either a stand-alone Office reporting to the Governor or as an Office within an existing state department, with the authority for coordination and oversight of HIT planning and development activities in Arkansas
- Authorize the Office of HIT to create a public-private partnership by establishing a private, non-profit corporation or authorizing an existing 501 (c) (3), working with the Office of HIT, to establish the State Health Alliance for Records Exchange (SHARE) to serve as the official HIE for Arkansas
- Set forth the requirements for the membership of the Board of Directors of SHARE to assure appropriate public and private sector representation
- Authorize the SHARE Board of Directors to establish reasonable and appropriate fees or charges for the operational costs of the Office of HIT and SHARE

Governance Update

The 88th Regular Session of the Arkansas General Assembly is currently meeting and will continue for at least another sixty days. The Office of HIT is working closely with the Governor's Office to finalize enabling legislation to introduce to the legislature as soon as possible. As currently drafted, this legislation would propose the following:

- Transition the Office of HIT and the state HIE, SHARE from operating under the auspices of the Governor's Executive Order of 2010 to being codified in the Arkansas statutes
- Clearly state the intent to launch SHARE under the direction and management of the State for the next two years and transition the operation of SHARE to a public/private partnership no later than July 1, 2013

- The Office of HIT would remain a state entity with the on-going responsibility and authority for coordinating HIT activities within the state
- In Arkansas statutes, create the recently formed HIE Council, composed of public and private sector members, to serve as the governance and oversight body for SHARE and to require continuity of leadership from the HIE Council when the new public/private partnership is formed in 2013.

This approach is believed to be the most feasible and productive for Arkansas in order to effectively manage the extensive collaborative strategies with Medicaid, the Health Benefits Exchange, public health, and SHARE which have been outlined in detail in the Strategic and Operational Plans. In addition, the State of Arkansas will be better able to maximize the separate but related sources of federal funding coming to the state and to leverage the opportunities and developments occurring in the IT and telecom marketplace using the states buying power across HIT related agencies and programs.

One additional consideration for the state to manage the initial launch of SHARE is the current discussions regarding the option of a governance body that could oversee both SHARE and the Health Benefits Exchange currently being planned. No final decision has been made at this point but productive discussions continue.

New HIT Related Development

Building upon the collaborative strategy discussed previously, there is a recent development that potentially has major ramifications for EHR adoption and HIE utilization in Arkansas. Attached to this document (see Attachment), is a letter and proposal from Governor Mike Beebe to Secretary Sebelius briefly outlining a plan to transform the healthcare payment system in the State of Arkansas for both public and private payers.

While this plan is in the formative stages, what is clear in the Governor's letter is his commitment to have the state Medicaid program leading the effort to build a strong public/private partnership to achieve payment reform. Equally clear is the Governor's understanding of the critical role that the exchange of electronic health information and the more effective use of health information technology must play in this transformation effort.

Finance

Cost Estimates and Staffing Plan

Staff members, listed below with their responsibilities, will help set up and operate the Office of HIT and support SHARE's development and implementation. Positions, which begin in Year 1 and the first part of Year 2, will be filled through a combination of state employee positions, interagency agreements, and contract positions. All staff will work together to ensure that Office of HIT needs are filled and the initial SHARE implementation is completed through their various skills and capacities, as indicated below. See **Tables 10 and 11** for budget detail.

Budget and Justification

The Office of HIT will be participating in the Governor's Legislative and Budget Process and will be submitting an official budget request for the Governor's and Legislature's review and approval. The Cooperative Agreement Award was received at a time when the creation of a state authorized and funded budget was not possible because the Arkansas General Assembly was not in session. Therefore, an accounting method known as a Miscellaneous Federal Grant (MFG) was used to create the necessary spending authority to allow the Office of HIT to begin the activities required of the state in the Cooperative Agreement. An official state budget request that will be considered in the January, 2011 legislative sessions will specifically include:

- A request for authorized state positions, consistent with those position titles, job descriptions, and salaries, where possible within Arkansas State Personnel Policies and Procedures, to staff the Office of HIT and SHARE (until such time as the non-profit organization for SHARE is established)
- A request for federal and state fund appropriations for amounts consistent with those included in the budget for the Cooperative Agreement Award for the Health Information Exchange, and for additional appropriation amounts in anticipation of additional federal and/or state funding that may become available.

Budget Justification. The overall SHARE budget was developed to support initial staffing of the Office of HIT and three distinct phases for creating and operating SHARE: Phase 1—facilitating secure messaging and enabling the stage 1 MU HIE requirements, Phase 2—expanded HIE services with a focus on stage 2 MU requirements as requirement details are available, and Phase 3—Sustainability. Phase 1 includes Year 1 and Year 2 budget items and focuses on continued planning of SHARE, establishing the Office of HIT, and creating and testing phase I of SHARE. The Phase 1 budget is based on actual funds expended as part of allocated planning funds and estimates for the remainder of Years 1 and 2. Primary expenditures during Year 1 are establishing the Office of HIT and continued planning for SHARE. Expenses for deploying the proof-of-concept model are in the beginning of Year 2. Phase 2, which will immediately follow successful completion of phase I, will include full implementation and operation of SHARE that supports Stage 1 MU criteria (based on CMS requirements). The budget in the latter part of Year 2 and in Year 3 reflects expenses required for Phase 2—expanded service implementation and operation of SHARE, including staffing for operations and oversight, and significant contract services for SHARE system implementation, hardware, software, and operations. Phase 3 funding for sustainability will begin in Year 4 and continue in future years that are not covered by the Cooperative Agreement.

Revenue for Years 1 through 3 primarily consists of cooperative agreement funding, state cash, and in-kind matching funds. Although some revenue from SHARE services may begin in Years 2 or 3, the budget is conservative and does not account for additional revenue until Year 4. If SHARE revenue begins earlier than anticipated, service expansions may be implemented sooner than planned. The SHARE budget has been and will continue to be coordinated with other state agencies and entities, many having current HIE- or HIT-related activities or planned activities or functions that complement those of SHARE and its technologies. Regular budget updating will include these changes and tracking and adjustment of revenue and expenses.

SHARE Sustainability

Perhaps the most important aspect of planning for SHARE is creating long-term financial stability and sustainability. In spite of careful research and preparation, requirements for sustainability are not guaranteed and carry several risks, including stale financing strategies, inflexibility, and instability of revenue streams. Exact strategies to make SHARE financially self-sustainable are dependent on these risks and numerous other variables. However, with ongoing consideration given to identified risks, a sustainability plan will be clarified with specific revenue sources. Possible financing mechanisms discussed below will continue to be investigated and researched to create the most realistic sustainability plan. Specific revenue estimates for potential financing mechanisms will be forecasted and prepared by the Office of HIT to provide the state legislature with accurate information about SHARE's long-term financing options. A concrete sustainability plan will be included as part of SHARE's business plan, which will be fully developed in early 2011 after legislation for financing mechanisms is approved.

Funding Shared Infrastructure

In an effort to maximize the HITECH and other federal funding available to Arkansas, the Governor directed and the Office of HIT has pursued a highly collaborative approach to launching SHARE in our state. As our planning process has progressed and as more entities have come to understand the role of SHARE, the value propositions for how SHARE can serve as a HIT utility for them has become clearer.

Many of the activities and services identified by and with our collaborators are in addition to and beyond the first priority of SHARE, which is helping providers meet MU.

As articulated in some detail in our Plans, it is also clear that the basic functions of SHARE—specifically the Master Provider Index during Phase I of SHARE’s development and implementation and during Phase II, the Master Person Index, and Record Locator Service are critical to the missions of the state Medicaid program’s MMIS, to the planned state’s Health Benefits Exchange, and to improving the effectiveness of the public health registries and reporting systems. Therefore, each of these agencies and programs will be expected to contribute to a cost allocated method of funding the initial development of the core functions of SHARE. In addition, Arkansas recognizes that CAP funding must be committed to developing and implementing the core functions and requirements for SHARE and that other additive and ancillary functions and services provided or enabled through SHARE will be dependent upon other longer-term and sustainable funding sources.

Based on all of the assumptions presented above, a collaborative funding strategy logically follows as the most feasible approach for initial and sustained revenues to finance the SHARE infrastructure. The following process is planned for the initial development and implementation period:

- All potential sources of federal grant, program support, and/or cooperative agreement funding that have been identified by the Office of HIT will be evaluated as to their feasibility for participating in a cost allocated method of funding;
- Identification of federal and state funds currently being expended in support of services and activities which SHARE will replace, improve and/or supplement;
- Alignment of various enhanced federal matching rates and funding timeframes will be analyzed to develop the optimum opportunities for leveraging these resources;
- Analysis of the differential matching rates for planning, development, and operations will also be a part of this process.

For the longer term need for a sustainable funding process, the enabling legislation described previously will also include proposed language that will:

- Create a HIT Fund from a source(s) to be identified from our current discussions with the Governor’s Office;
- Grant the Office of HIT authority and responsibility to allocate revenues from the newly established HIT Fund to programs and entities that can demonstrate a specific role and/or responsibility to meet the HIT needs and requirements of the state.

Technical Infrastructure

SHARE will be designed and developed utilizing proven vendor solutions that will permit it to capitalize on existing public and private exchanges in Arkansas. SHARE will be implemented using guidelines in the following section.

Technical Architecture/Approach

SHARE has seven key overall principles relating to the technical architecture and approach.

1. Provide an infrastructure that is secure and protects the privacy of consumers, providers, and other constituents. Participants must be confident that their healthcare data is secure, private, and appropriately accessed.
2. Improve the healthcare delivery process in Arkansas by providing information available when and where it is needed.
3. Utilize best practices and standards for IT infrastructure as much as possible and practical in creating the HIE.
4. Implement Direct standards specifications in establishing the gateway functionality.
5. Leverage existing sources of health information as much as possible and capitalize on current health exchanges in Arkansas.
6. Support an incremental deployment of a statewide exchange capability in the architecture.
7. Start with proof of concept and expand as rapidly as technologically and operationally feasible within financial constraints.

Design Principles and Requirements

The following design principles and requirements are proposed for SHARE, which will:

1. Be “vendor neutral” (i.e., vendor products must be non-proprietary and interoperable with others);
2. Rely on a network, or infrastructure, to provide backbone service functionality;
3. Focus on facilitating exchange of information rather than end-user application functionality;
4. Support construction and aggregation of the longitudinal patient record for secure sharing to and among authorized users across the network;
5. Have scalable and expandable technical architecture;
6. Utilize standard security protocols supporting user authorization, authentication, non-repudiation, encryption, and administration as well as security auditing functions.
7. Utilize standard data storage and management protocols normally associated with large IT solutions and available in the market today.
8. Be supported by an industry standard business continuity and disaster recovery infrastructure and processes.

Development and deployment of SHARE’s HIE capability will follow the general sequence of 1) release a Request For Information (RFI) for the vendor marketplace; 2) develop and issue a Request For Proposal for SHARE administered by the Office of State Procurement; 3) select a vendor and negotiate and approve the contract; 4) deploy a proof-of-concept HIE to demonstrate standards-based exchange of information; and 5) stage deployment of all functions based on prioritized functionality and the provider base.

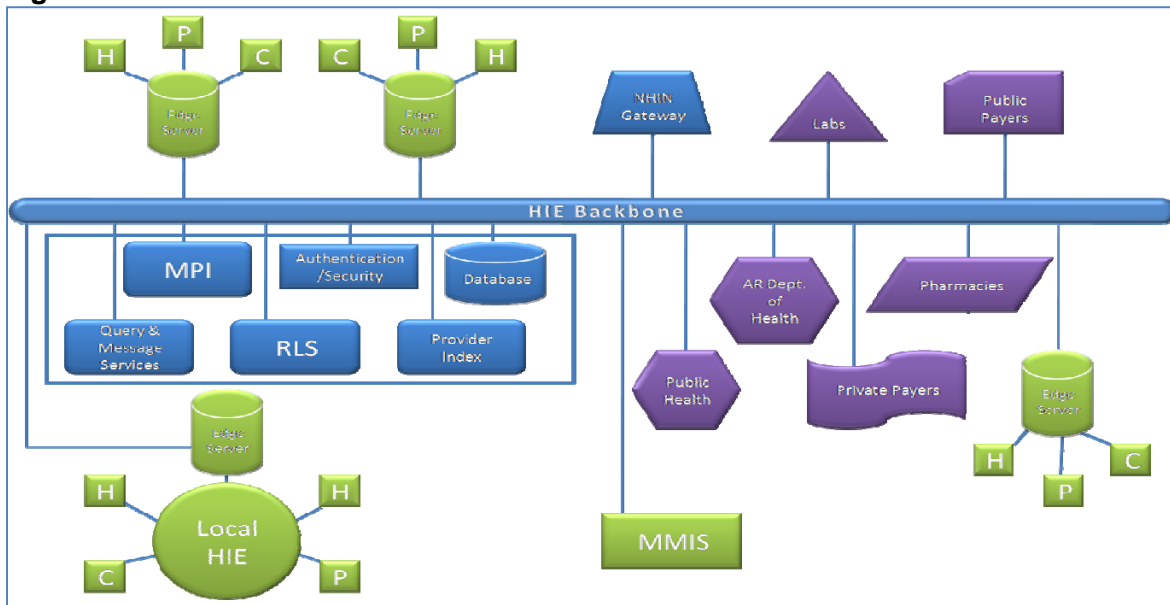
Technical Architecture

SHARE will have a hybrid, federated architecture of decentralized databases connected across the exchange to share and exchange information. A MPI and record locator service will provide patient/record matching services. A central service “hub” will provide patient index, provider index, and record locator services (see Services Architecture, **Figure 4**). Data will be stored at decentralized edge server “vaults” (either physical or virtual) sponsored by the SHARE network. A high-level architectural schematic (**Figure 4**) incorporates these infrastructure features and others, as listed below. The technical hardware and software for the planned technical architecture, including but not limited to the edge servers will be provided by SHARE.

- A central services hub (see HIE services architecture, **Figure 4**) will contain a master index of patients, providers, and locations of participating systems
- Queries will be made to replicated vaults (multiple edge servers, **Figure 4**) from participating systems directly or through a central hub application (HIE service backbone, **Figure 4**)

- Capability for “push” messaging between known entities (provider-to-provider) will be possible for all transactions allowed under HIPAA and state laws and will be incorporated in phase 1 deployment of SHARE.
- Data will remain close to the source for security and performance
- The system will be able to discover the location of relevant records housed community-wide
- The system will make it relatively easy to incrementally add end-user participant systems.
- The system will decrease real-time dependence on end-user participant systems.

Figure 4. HIE Technical Architecture Schematic



Core Requirements

The core requirements of SHARE include both a master provider and master patient index, including a record locator service. In Phase I of the development of SHARE, the master provider index will be developed and deployed, which will facilitate the HIE MU requirements. As a component of Phase II in SHARE’s development, the master patient index (MPI) will be developed and deployed due to the complicated nature of this functionality. In the *Strategic and Operational Plan Summary Document* submitted December 30, 2010, to Melissa Hargiss on behalf of the State of Arkansas, this deployment schedule was misstated. On page 24 (see below) under Core Requirements item number 2, the MPI is described as a core requirement but not noted as a Phase II implementation element. Additionally, on page 25 under Phase I Deployment (see below), it states that the core HIE services must be available during Phase I. These statements refer to the Phase I core requirements, of which the MPI was included as a Phase I component. The MPI will be an element developed during Phase II of SHARE. A Phase II implementation timeline will be developed and submitted as the scale and scope of SHARE develops.

SHARE has five core components, as described below

1. A provider index and directory will identify and locate providers (doctors and other providers) based on national provider identifier validation. Incorporation of this component will take place during phase I deployment. Preliminary activities and data sharing agreements are

underway with the Arkansas BlueCross and BlueShield and the Arkansas Division of Medical Services (Medicaid) to provide data required to development.

2. A MPI will link specific patients to specific data. The index will have a “record locator service” and “mismatch” reconciliation processes. The index will require human intervention to manage any duplication and may create a system-assigned Universal Patient Identifier for internal use. This element is scheduled as a component to be developed in Phase II of SHARE’s development
3. A data dictionary and vocabulary standardization will create a standards-based “data normalization” process for diseases, lab results, diagnoses, and decision support.
4. A standards-based component will utilize standard communication protocols, nomenclature, and clinical terminology including, but not limited to, any defined by Direct, HL/7 Clinical Document Architecture, SNOMED CT, and ICD-10. Other standards, or evolving standards, include SOAP; CCD (continuity-of-care document); XML, JSON, and BSON; DICOM; and LOINC. Initially, HL/7 standards will be utilized to facilitate secure messaging and expanded as the scope of SHARE expands.
5. An authentication/security component will include user authentication; authorization; non-repudiation; encryption; and access control functionality, including audit logging.

Phase I

In order to facilitate Stage 1 HIE MU requirements, the Arkansas Office of Health Information Technology has proposed a phased process in the development and deployment of services for the planned Health Information Exchange, SHARE. During phase I SHARE will utilize secure messaging facilitated by Direct standards and process protocols to meet HIE stage 1 MU and to facilitate stage 1 MU for Arkansas providers. In order to achieve secure messaging, the HIE must have core components and functionality which include an HISP and a provider index.

SHARE stakeholders and collaborative partners who will provide the provider databases, which currently contain approximately 90% of the providers in the state of Arkansas.

- The Arkansas BlueCross and Blue Shield
- The Division of Medical Services at the Arkansas Department of Human Services
- The Arkansas Department of Health
- The Arkansas State Employees Benefits Division

Additionally, the Office of HIT will work with the state licensing boards, such as the Arkansas Medical Board, in order to obtain currently licensed healthcare professionals and utilize in the provider database development and maintenance.

Utilizing these databases as fodder for the master provider database and filling the gap with data from the Arkansas State Medical Board, the development of the master provider index will be greatly abbreviated and is currently underway. During testing phase of phase I the provider database will be shared initially with the collaborative entities in order to identify appropriate security protocols and test the integrity of the data provided. During the deployment phase of phase I the provider database will be available for use by all entities participating in SHARE. An implementation plan for enrollment of participants will be included in the full deployment plan of SHARE’s services.

The provider index/database will be open to all participants of SHARE. This database will be developed utilizing resources currently available by way of collaborative partners with an agreement that SHARE users will be able to access the provider database regardless of affiliation. Any entity within the state including regional HIEs and HISPs will have access to the provider directory and is considered a state asset in the State’s efforts in improving the healthcare and health delivery systems.

SHARE has been planned to serve as the mechanism to facilitate the statewide exchange of health information and serve as the Health Information Service Provider (HISP). In this capacity, SHARE will be developed as a vendor resourced entity which will provide the privacy, security, authentication and access controls necessary and specific to the entities connecting and exchanging information through SHARE. SHARE will fully execute the HISP services including maintain the trust certificates and transport security processes and protocols.

The Arkansas Office of Health Information Technology will develop a Request for Proposal (RFP) for the development of the proposed master provider index, web portal development and Health Information Service Provider (HISP) services. The RFP will include, but not limited to, addressing the phased approach to the development and deployment of the Arkansas HIE, SHARE. The planned vendor solution will incorporate both phases I, which will entail utilizing secure messaging to meet stage 1 MU requirements as well as phase II. As planned, phase II of SHARE will expand core functions and services to include, but not limited to, the development of a master patient/person index. Development of phase II will not begin until the successful deployment and sustained performance of phase I functionality and services.

Phase I Infrastructure Components:

- Master Provider Index
- Health Information Service Provider (HISP)
 - Security Protocol/Processes
 - Security Trust Agent
 - Domain Names, Addresses, and Associated Certificates
 - Signed and encrypted Internet Message Format documents
 - Message Disposition Notification
 - Trust Verification
 - Certificate Discovery Through the DNS
- Web Portal – (In order to ensure that all providers have a mechanism for meeting MU requirements, a web portal will be developed for those providers without EHR/EMR systems capable of facilitating secure messaging.)

Phase I Objectives

- Develop a web portal for connection to SHARE
- Develop a master provider index/database
- Provide secure messaging utilizing Direct standards to facilitate stage 1 MU for eligible professionals (providers, hospitals, etc...) and public health
- Meet HIE stage 1 MU requirements (structured lab results, clinical summaries and e-prescribing)
- Achieve statewide deployment of services provided in phase I

Gap Filling Strategies

Currently underway are a series of surveys to assess HIE readiness of providers, hospitals, pharmacies and laboratories in the state. This information will assist in the statewide deployment implementation planning, which will provide information regarding where the greatest and least capacity is available across the state. By collaborating with the Arkansas REC, the Office of HIT will develop strategies for assisting eligible professionals to reach stage 1 MU as well as developing infrastructure needed by labs and pharmacies in the state to facilitate electronic exchange of information to include e-prescribing, e-lab orders and structured lab results.

In order to meet the objectives outlined for phase I, the Arkansas Office of HIT will contract with the awarded vendor, through an RFP process. The RFP specifications will include the requirement for the facilitation of secure messaging utilizing Direct standards as well as more

long term HIE functionality to be implemented in a phased process. Utilizing this methodology will ensure that stage 1 HIE MU priorities will be met and the laying of the ground work for the expansion to SHARE's phase II functionality.

Phase I Deployment

Deployment of a new, complex IT platform demands that a system be carefully planned and managed to avoid costly delays and errors. Even commercial software purchased from established vendors needs to be installed and configured correctly for the intended use. This project requires a method whereby the technology platform and its performance can be demonstrated and corrections made as needed. A pilot environment is ideal. This is especially desirable when the technology infrastructure and application software functionality are new. In order to facilitate a pilot and full implementation, a phased process has been developed for SHARE, working within planning and project funding under the Cooperative Agreement. During the pilot of Phase I, a complete implementation of some components (i.e., security and authentication, provider index) will be required. Core Phase I HIE services must be available during this process, although at a reduced processing volume and throughput level. Phase I implementation will encompass the functionality required under MU requirements for HIE.

Purpose. Phase I is intended to provide a platform for deployment of HIE capabilities in Arkansas. This phase will help with the following:

- Provide an option for providers to meet Stage 1 MU requirements
- Facilitate **e-prescribing** and **secure messaging**, which will be utilized in the exchange of **clinical summaries** and **structure lab results**
- Confirm the functionality of technical infrastructure and network design and software
- Confirm the efficacy of the security and privacy structure and protocols
- Demonstrate capabilities for HIE from technical, clinical, and business perspectives
- Confirm the validity of master provider index
- Highlight technical problems and those that might be encountered in a full deployment
- Reveal any connectivity and interoperability issues to be resolved
- Demonstrate standards-based connectivity via the Direct standards
- Provide a basis for evaluating clinical, business, and other benefits for stakeholders
- Demonstrate the validity of a sustainable financing model.

Approach. To advance widespread adoption of HIE in Arkansas SHARE must transition quickly from planning to tactical execution. The approach leading to full execution involves a pilot that can demonstrate successful exchange and identify problems, which will take place during Phase I. This concept is designed to be completely transferable to the final infrastructure deployment and expandable to a full HIE technical infrastructure and services complement. Standards-based messaging, security and authentication, functionality of master patient and provider indices, and Direct connectivity will be required in the pilot of HIE functionality.

During the pilot of Phase I, a complete implementation of some components (i.e., security and authentication, provider index) will be required. These initial Core HIE services must be available during this process of Phase I. An evaluation process will be utilized in order to assess the success of Phase I during various intervals during the implementation, which will determine movement to the next phase of implementation. During this time process, evaluation and assessment of all functionality will be conducted with continued monitoring as Phase I is fully deployed.

Steps for Phase I Technical Deployment. In general, the entirety of Phase I will follow the fundamental steps indicated below.

1. Adopt final technical infrastructure design and confirm technical configuration for computer equipment, network, and software components for implementation both for the testing and full implementation of state deployment
 - a. Prepare RFP specifications
 - b. Document technical configuration
2. Release RFP to vendor marketplace and select vendor for HIE components by participating jointly with the Arkansas Office of State Procurement and releasing to the broad marketplace
3. Select vendor and begin purchasing components for technical infrastructure
4. Implement core HIE services platform, including master provider indices, security and authentication, messaging services, database functionality, and Direct standards.
5. Select/solicit HIE participants for testing of phase I functionality from physician offices and clinics, acute care hospitals, laboratory providers, payers (government and private), public health entities (i.e., ADH), citizen population, or others
6. Confirm connectivity and messaging operations within the network and HIE participants by confirming prior to full activation and confirming that the system will communicate in unit tests
7. Activate the testing evaluation period by deploying to individual participants
8. Review evaluation results and recommendations determined during the evaluation period and reviewing core services performance; end-user utility and performance; and privacy, security, authentication, and related policies
9. Make the Go–No Go decision for expanding system in an orderly way based upon final analysis of evaluation results
10. Develop and publish protocol for connecting other entities to SHARE, including standards based technical requirements
11. Develop and finalize full deployment schedule.

General Deployment. Upon satisfactory completion of the pilot, a full implementation plan will be executed. The sustainable financial model and governance structure will be integral to full deployment. General deployment will occur as rapidly as funding is available and as aggressively as the governance structures can support it. The objective will be an orderly expansion of participants and functionality with a focus on MU requirements of both providers and HIEs as the value of SHARE grows.

An evaluation team will be developed to assess the progress of SHARE during both development and deployment stages of all phases. During phase I there will be two different evaluation stages during deployment, testing and statewide deployment. During the testing phase, the evaluation team will develop a series of success and failure criteria which will ensure that appropriate adjustments can be made before the full deployment stage is reached. Continued evaluation will be built into the operations of SHARE to analyze efficiency, data quality and expanded service needs of those SHARE services. The evaluation teams will be compiled from the HIT stakeholders, HIE consumer group and collaborative partners.

Proposed Pilot Participants. In selecting the participants for the pilot of SHARE organizations and agencies were selected based on the diverse representation identified in the medical and health community in Arkansas as well as those with the greatest capacity on which SHARE can build. Additionally, providers and hospitals with the least capacity were identified in order to assess and address the challenges represented by this group. The rationale for selected entities is to provide the varied perspectives and requirements represented, which will promote the most onerous testing of SHARE’s capabilities. The following entities are proposed as participates in the pilot of Phase I.

Table 12. Proposed Connected Entity Proliferation

Table 12. Proposed Connected Entity Proliferation

Entity	Projected Targets
Arkansas Department of Health	<ul style="list-style-type: none"> • 2,754,690 client records • 24,510,208 immunizations recorded • 587 health care facilities with access (92 local health departments and 495 non-health department sites) • 1,358 schools with read-only access (now 1,393 schools) • 298 daycare facilities with read-only access • 9,679 users with varying levels of role based access
Arkansas Division of Medical Services (Medicaid)	~2530 Medicaid providers
ARCares	TBD, pending based upon environmental survey results
Community Health Centers of Arkansas - TBD	TBD, pending based upon environmental survey results
Physician Clinic – NE Arkansas – TBD	TBD, pending based upon environmental survey results
Physician Clinic – SE Arkansas – TBD	TBD, pending based upon environmental survey results
Physician Clinic – NW Arkansas – TBD	TBD, pending based upon environmental survey results
Physician Clinic – Central Arkansas – TBD	TBD, pending based upon environmental survey results
Jefferson Regional Medical Center – SE Arkansas	Providers: 25 full HIE, 75 viewer access
Hospital – NE Arkansas – TBD	TBD, pending based upon environmental survey results
Hospital – NW Arkansas – TBD	TBD, pending based upon environmental survey results
Hospital – Central Arkansas – TBD	TBD, pending based upon environmental survey results
Hospital – SW Arkansas – TBD	TBD, pending based upon environmental survey results

Note: Entities with TBD entries will be determined after the completion of the hospital and provider surveys planned during December 2010 and January 2011.

Technical Requirements.

In order to support the technical steps for Phase I deployment the following steps will need to occur.

1. Procurement of the hardware and software needed to support the core HIE service layer
2. Procurement of the edge servers and establishment of the communication protocol between the edge servers and main backbone
3. Physical hosting agreements signed for server hardware at multiple locations.
4. Installation of hardware and software in data centers
5. Definition and documentation of HL7 message formats and communication protocol to support CCDs, structured lab results and secure messaging to be exchanged between the providers and SHARE

6. Installation and configuration of the secure file transfer software for data exchange
7. Validation that pilot sites can produce and maintain a valid, reliable and accurate HL7 message feed
8. Establishment of a provider database, and a methodology of matching provider credentials provided by the pilot sites HL7 message to the master dictionary, and a protocol to ensure additions, deletions and edits are visible to both the pilot sites sending the data and the edge servers receiving it before the message is generated
9. Identification of tools that will be used to edit the provider dictionary and mechanism for populating initial database and source of information for updates.
10. Establishment of a distributed core database that will parse and store the data elements of the Phase I datasets and provide the flexibility to adapt to as yet unknown future data.
11. Definition of a replication and load balancing technology to facilitate the necessary movement of data to provide the query speed necessary for SHARE to be of practical use to providers
12. Establishment of the recording of metadata in conjunction with the patient data received in order to track the origin and consent information.
13. Development and population of a user demographic and authentication process used to collect, verify, maintain and add appropriately credentialed users to the system
14. Development and deployment of a secure messaging system that will allow the user to receive, review and forward message to and from the HIE
15. Development of a universal CCD viewing module that will allow providers to receive CCD documents from multiple HIEs, combine CCDs for the same patient, and view longitudinal data for patients from their CCD
16. Integration of a prescribing interface to SureScripts within the secure messaging/SHARE end user system to allow providers to fill an electronic prescription

Additional core services such as the master patient index (MPI) and the record locator system will be developed during Phase II. The development of a Master Patient Index will allow association of secure messaging documents with existing messages. The development of a record locator system will facilitate a state-wide rollout that will allow for a load balanced, multi-node, fault tolerant system capable of operating with server or data center outage, and with reliable patient query times. These and other vital components of the HIE will be planned, developed and deployed as SHARE evolves.

Phase II

Phase II will begin development after the successful deployment of phase I. The ground work for some of the phase II services, such as the MPI may overlap with phase I due to the complicated nature of some of the planned objectives. This ground work will include collaborative efforts with other state entities therefore data use agreements and contracts will be developed to move forward to phase II in order to develop a comprehensive MPI.

Phase II components include, but are not limited to:

1. A MPI to link specific patients to specific data. The index will have a “record locator service” and “mismatch” reconciliation processes. The index will require human intervention to manage any duplication and may create a system-assigned Universal Patient Identifier for internal use.
2. A data dictionary and vocabulary standardization will create a standards-based “data normalization” process for diseases, lab results, diagnoses, and decision support.
3. A standards-based component will utilize standard communication protocols, nomenclature, and clinical terminology including, but not limited to, any defined by Direct, NHIN, HL/7 Clinical Document Architecture, SNOMED CT, and ICD-10. Other standards, or evolving standards, include SOAP; CCD (continuity-of-care document);

XML, JSON, and BSON; DICOM; and LOINC. Initially, HL7 standards will be utilized to facilitate secure messaging and expanded as the scope of SHARE expands.

4. Data querying across the enterprise
5. Business intelligence and reporting across the enterprise

Phase II Infrastructure Components:

- Master Person Index
- Record Locator Service
- Data management/warehousing infrastructure
- Develop single sign on methodology

Phase II Objectives

- Develop strategies interoperable HIE between EHR/EMR systems
- Develop a master person index/database and record locator service
- Defined strategies for data integration and normalization
- Explore options for single sign-on strategies for statewide services Arkansas based services to include but not limited to HIE, MMIS, Health Benefits Exchange and Eligibility
- Address stage 2 MU requirements

IMPLEMENTING DIRECT IN SHARE

The National Health Information Network Direct is a set of standards, services and policies to enable secure health data transmission over the Internet. Direct focuses on the HIE MU goals of provider-to-provider connectivity. It was developed to set the groundwork for development of a less complex version of CONNECT that is suitable to the data exchange needs of smaller organizations. The planned specifications include a secure, scalable, standards-based way to establish universal health addressing and transport for participants (including providers, laboratories, hospitals, pharmacies and patients) to send encrypted health information directly to known, trusted recipients over the Internet.¹

Currently, a Direct Project is underway which will expand the standards and service descriptions available to address the key Stage 1 requirements for MU, and provide an easy "on-ramp" for a wide set of providers and organizations looking to adopt. At the conclusion of the project, there will be one nationwide exchange, consisting of the organizations that have come together in a common policy framework to implement the standards and services. This project is open government, and as such, contains avenues for a broad range of public participation. See below for more information on participation.²

With the resources available through Direct, the Arkansas health information exchange, SHARE, will incorporate the Direct standards as an option to facilitate HIE. This will ensure providers have a secure mechanism to enable the "push" of health information to other providers and afford SHARE a mechanism to meet the HIE MU requirements as defined in the Program Information Notice (PIN) document released in July 2010.

Health Information Service Provider (HISP) and SHARE

SHARE has been planned to serve as the mechanism to facilitate the statewide exchange of health information and serve as the Health Information Service Provider (HISP). **In this**

¹ The Direct Project. <http://wiki.directproject.org>. Accessed December 8, 2010.

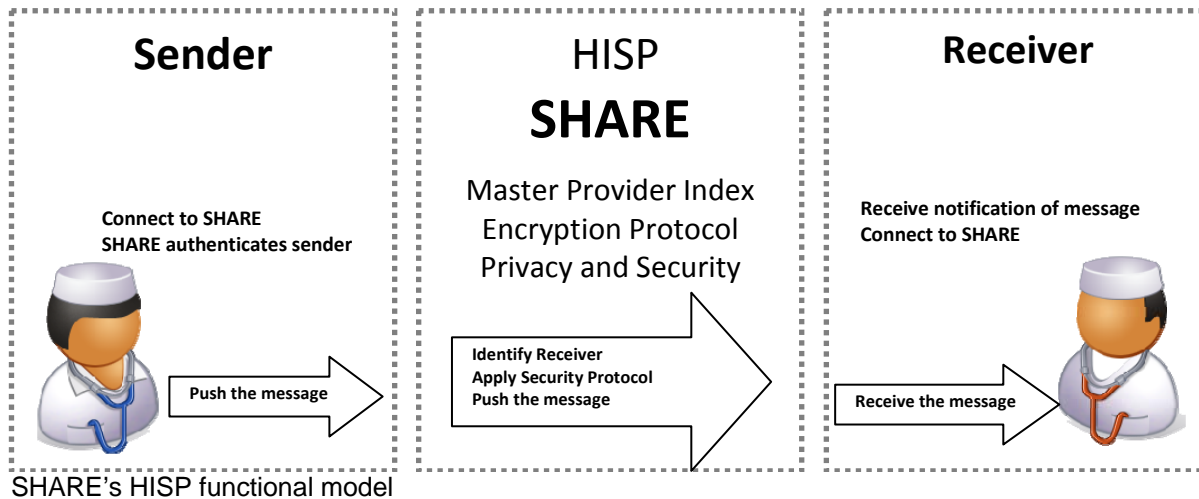
² The Direct Project Overview, October 11, 2010. <http://wiki.directproject.org/file/view/DirectProjectOverview.pdf>. Accessed December 8, 2010

capacity, SHARE will be developed as a vendor resourced entity which will provide the privacy, security, authentication and access controls necessary and specific to the entities connecting and exchanging information through SHARE, including private and commercial HISPs. Using the privacy and security policies currently enacted within the participating stakeholders and incorporating legal and regulatory requirements unique to HIE, SHARE will develop the appropriate protocols with the selected vendor(s) to ensure the secure exchange of information. Due to the wide range of stakeholders and planned SHARE participants and the long term goals in the evolution of SHARE, the policies and procedures development will be an evolving process.

In order to ensure the comprehensive development of the security and privacy protocols, SHARE through the Arkansas Office of HIT, has enlisted assistance from various stakeholder organizations. The Arkansas Department of Human Services, State Compliance Officer, the State of Arkansas Chief Security Officer and the Office of HIT Chief Security Officer, are working in concert and will continue to develop preliminary rules of engagement for participating in SHARE and synthesizing current state and federal rules and regulations which govern the exchange of health information. These policies will be adjusted to facilitate the electronic transmission of health information and further vetted in the context of issues related to the technical solutions implemented and planned for implementation in SHARE. The standards provided by Direct will be incorporated as the security foundation of SHARE is developed.

To facilitate the secure “push” or transmission of health information in the role of HISP, SHARE will engage appropriate security protocols to ensure privacy and security. One of the core components of the SHARE infrastructure is the development of a master provider index. Arkansas BlueCross and Blue Shield, the Division of Medical Services at the Arkansas Department of Human Services and the Arkansas State Employees Benefits Division, are SHARE stakeholders and collaborative partners who will provide the provider databases, which currently contain approximately 90% of the providers in the state of Arkansas. Utilizing these databases as fodder for the master provider database and filling the gap with data from the Arkansas State Medical Board, the development of the master provider index will be greatly abbreviated and is currently underway.

The development of the master provider index is crucial to the authentication of providers who are senders and recipients of information through SHARE. Based upon a set of principles such as the sender has the appropriate authorization to send information to the receiving provider, that the recipient provider and their information has been verified by the sender to ensure accurate identification and that the patients’ consent has been procured; SHARE can provide secure messaging that contains health information. Utilizing technical solutions to provide message encryption, integrity and secure transmission. By utilizing Direct standards and security protocols being developed by the Direct Project Security and Trust workgroup, SHARE’s timeline can be advanced during the initial phases of implementation.



Direct Deployment

The deployment of SHARE has been planned as a phased process and incorporation of Direct standards will be added to this process as well as the technical and operational requirements included in the Arkansas RFP. During Phase I of the planned SHARE implementation, the Direct standards will be utilized to assist in the facilitation of secure messaging. Deployment of Direct will be achieved using a mixed model approach, web portal and EHR/PHR integration. These approaches are in line with the methodology planned for the overall deployment of SHARE.

The deployment models referenced above will be promoted through the development of a web-based approach executed by the selected vendor and through the collaborative relationship with the REC. The REC is in the process of finalizing their preferred vendors list with the identified EHR/PHR products. Throughout the REC's and SHARE's planning processes, there has been a concerted effort for synergistic planning and development in order to maximize resources. The REC will incorporate in the technical assistance to their contracted providers appropriate training in how to utilize their EHR systems in the delivery of secured messaging. Further collaborative efforts are underway to incorporate non-EHR based training with stakeholders including the REC, in order to promote the use of electronic HIE regardless of the utilization of specific EHR programs.

In order to utilize Direct, SHARE will incorporate into the technical infrastructure design Direct standards during Phase I of implementation plan. The design will include the two identified deployment approaches but may include the addition of other methods of deployment based upon the planned long-term scope and breadth of SHARE. The operational considerations for the inclusion of Direct standards and function will be reviewed making any necessary revisions and adjustments to the operational deployment plan and/or approach.

In February 2011, several vendors, including but not limited to Verizon, ATT&T and Microsoft, have expressed their plans to utilize and expand Direct's standards to facilitate services which will expand HIE services beyond secure messaging. Based upon an informational session with Verizon's business service development group and the Arkansas Office of HIT, their plans include the expansion of Direct's standards and application to their Lifescape Portal which will allow the integration of data elements. Additionally, Verizon plans to provide a Universal Identity Service with digital certificate to any health care provider interested, which will include access to a provider database. These vendor strategies will assist in facilitating secure

messaging although there are challenges around data storage which must be addressed. Further conversations are planned with AT&T and Microsoft as Arkansas explores options to expedite secure messaging with an awareness of the expansion to an interoperable solution for phase II of SHARE's development and finalization of stage 2 MU criteria.

ATTACHMENTS

Maps: Broadband and Wireline Access by Arkansas Counties

Table 9: SHARE HIE Executive Committee and Council Membership

Table 10: Revenue: Years 1-4

Table 11: Expenses: Years 1-4

Arkansas Governor's Letter to Secretary Sebelius

Arkansas Project Timeline for SHARE Phase I

Arkansas HIT Collaborative Timeline