U.S. Department of Health and Human Services

Nationwide Health Information Network (NHIN)
Trial Implementation
West Virginia Health Information Network (WVHIN)

Deliverable #9 – Jurisdiction Specific Business Plan
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1. PURPOSE

As stated in the NHIN Trial Implementation contract, the scope of this deliverable (Deliverable 9) is to provide a jurisdiction-specific business plan outlining how its health information exchange will share data with other NHIN participants and be self-sustaining within five years. This document describes the West Virginia Health Information Network (WVHIN), West Virginia's information technology (IT) landscape and health information technology (HIT) initiatives, and the planning activities WVHIN is currently undertaking to ensure its success as a statewide health information network.

2. WVHIN BACKGROUND

In 2005, President Bush set a goal for widespread adoption of interoperable Electronic Health Records (EHR) within 10 years. Interoperable means, among other things, that the EHRs would be capable of communicating useful health data to other record systems. In late 2004, West Virginia Governor Joe Manchin III set a goal of widespread adoption of EHRs within five years, positioning the state to lead the nation in advanced EHR functions. Recognizing the importance of information exchange in making EHRs fully functional, he established the Governor's Task Force on Electronic Health Records in the spring of 2005. Dr. Julian Bailes, chairman of Neurosurgery at West Virginia University Health Sciences Center, was appointed to lead the Task Force, whose purpose was to advise the Governor on how to create a statewide electronic health information network.

The Task Force's recommendations included:

- An EHR network is **feasible** and **cost-effective**
- An EHR network is **necessary** to improve the quality of health care, and
- **An EHR network should** be developed

In March 2006, the West Virginia Legislature passed Senate Bill 170, creating Article 29G titled West Virginia Health Information Network. The WVHIN, under the oversight of the West Virginia Health Care Authority (HCA), is established to promote the design, implementation, operation, and maintenance of a fully interoperable statewide network to promote public and private use of health care information in the state. Under a 17-member public-private Board of Directors, the WVHIN will create, manage, and operate the statewide health information exchange.

WVHIN is envisioned to support and facilitate the following types of electronic transactions, activities, and systems:

- Secure electronic access to the results of laboratory, X-ray, or other diagnostic examinations and medical record information transfer to medical providers with the patient's consent;
- Disease management and disease surveillance and reporting;
- Health alert systems and other applications related to homeland security;
- Registries for vital statistics, cancer, case management, immunizations and other public health registries;
- Educational offerings for health care providers including links to evidence-based medical practice and patient educational materials;
- Physician order entry, prescription drug tracking, drug and allergy interaction alerts, and secure electronic consultations between providers and patients;

- Single-source insurance credentialing system for health care providers; electronic health care claims submission and processing; and any other electronic transactions or activities as determined by the legislature.

Business Need

While many physicians and providers use electronic tools, most health care information is still on paper. In addition, electronic information is often spread out in multiple facilities that do not communicate with each other electronically. This prevents physicians from seeing all relevant patient information when it is needed – at the point of care. The good news is that when a large number of providers in a region have electronic tools and the ability to exchange data electronically, they can dramatically improve coordination of care resulting in improved quality, safety, and effectiveness of care.

Current West Virginia Situation

To document the environment in which the WVHIN will be established, this section provides an overview of West Virginia's population, health status and expenditures, HIT initiatives, economic development, and other information that may impact the development of a health information network.

The following statistics are some of the major interim findings from the analysis of information collected from a 2008 survey of hospitals, clinics, and county health departments across the state of West Virginia by the West Virginia Department of Health & Human Resources (DHHR) in conjunction with Shepherd University. While these findings are still interim and being assessed by DHHR, WVHIN believes them to be credible. The surveys were used to help assess the HIT landscape across the state, and were designed to gather data from hospitals, major FQHC and rural health clinics, nursing homes, and individual physician practices. DHHR intends to utilize these survey results to better understand and make key decisions related to the further acquisition and deployment of electronic medical record (EMR) and other needed HIT systems within the state.

Population Distribution and Health Care Expenditures

West Virginia has a population of approximately 1.8 million. According to the Bureau of the Census, 53% of West Virginians lived in rural areas in 2004.

Based on an estimated percentage of gross state product and annual growth rate, health care spending in 2005 is estimated to be 19% of gross state product, or $9.5 billion dollars. West Virginia's Medicaid is a $2.2 billion a year program with an enrollment of approximately 360,000 people, or 20% of the state's population.

Public Health

In 2005, an America Health Rankings study conducted by United Healthcare ranked West Virginia 41 out of 50 states. West Virginia ranked second highest in the prevalence of persons reporting their general health as either "fair" or "poor" (25.3%). West Virginia ranked third highest in the prevalence of obesity (27.7%).

Health Care Coverage

In his January 2006 State of the State Address, West Virginia Governor Manchin said: "A majority of West Virginians who are uninsured work full time. They may work two or three part time jobs and are simply not eligible for these company's insurance plans." In 2003, nearly one-fourth (23.5%) of adults ages 18 to 64 had no health care coverage. A United States Census Bureau report "Income, Poverty,

and Health Insurance Coverage in the United States: 2007" issued in August 2008 reports that five states (Connecticut, Indiana, Massachusetts, West Virginia, and Wisconsin) and the District of Columbia had lower 2-year-average uninsured rates for 2006–2007 than their 2-year-average uninsured rates for 2004–2005.

The Medicaid spending rate is 16% compound annual growth rate (CAGR), increasing from $1.27 billion in 1998 to $3.04 billion in 2004.

Blue Cross Blue Shield is the largest single private insurer; others include CareLink, Health Plan of Upper Ohio Valley, Unicare, and MAMSI/UnitedHealthcare.

Figure 1 below shows the various health care plans represented in West Virginia and the approximate percentage of coverage.

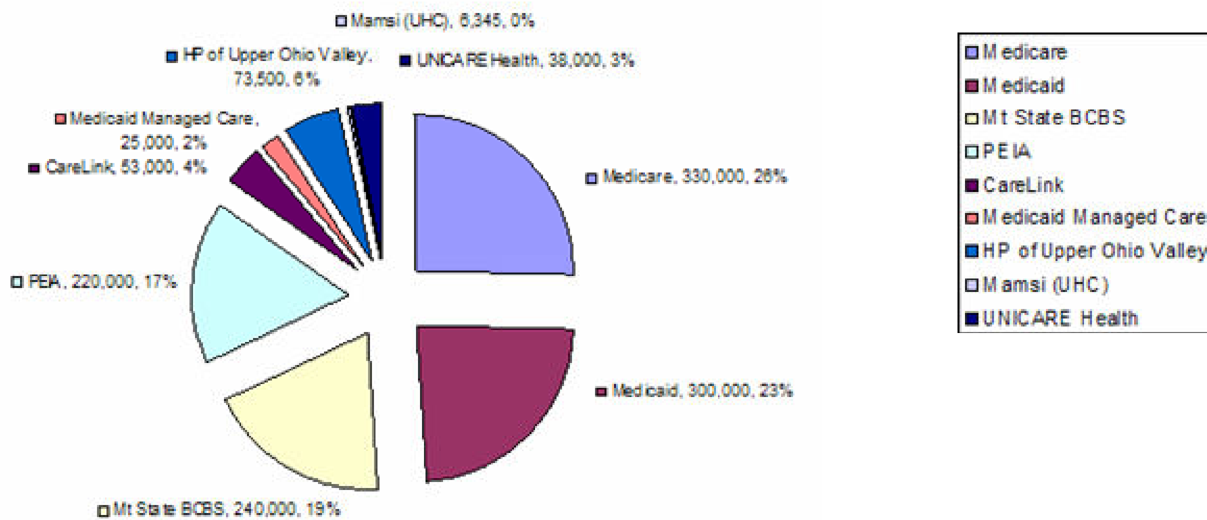

Figure 1. Approximate Healthcare Insurance Coverage
(Payer, Number of Members, Percent of WV with Coverage)

Health Care Entities

West Virginia has a number of health care entities including:

- Acute Care Prospective Payment System Hospitals
- Critical Access Hospitals
- Federally Qualified Health Centers (FQHC)
- FQHC Look-a-Likes
- Nursing Homes
- Physician Offices
- Specialty Hospitals (psychiatric, ENT, rehabilitation)

West Virginia has a total of 70 hospitals: 52 acute care community hospitals, 18 critical access hospitals, 6 rehabilitation, and 4 VA hospitals. There are 3,743 MDs active and practicing in West Virginia according to the respective licensing boards. Approximately one-third are self-employed in a solo practice.

Hospital Demographics

There is an almost even split between public and private sector (for profit and non profit) hospitals in West Virginia. With regards to Federal, state, and local government hospitals in particular, they constitute 24% of all the hospitals in the state. Approximately 38% of hospitals in the state may be classified as small hospitals with an annual operating cost of under $25 million. Only 22% of hospitals may be classified as large hospitals with an annual operating cost exceeding $100 million. The remaining 40% are mid-size hospitals with annual operating budgets in the range of $26-$100 million. With regards to total staffing, 33% of hospitals have a total staffing level of less than 250 FTEs. Only 15% of hospitals in the state have more than 1000 FTEs.

Of the 70 West Virginia hospitals identified and surveyed, 35 hospitals or 50% belong to an integrated hospital/health care delivery network.

Clinic & County Health Department Demographics

Most of the FQHC or rural health clinics have 25 or more staff. These facilities tend to treat more patients at more sites than the smaller county health departments or free clinics.

Health Care Information Technology in West Virginia

Tremendous progress has been made to date with more than 85% of the hospitals in West Virginia already having taken steps to acquire and implement electronic medical record (EMR) systems. While it is currently estimated that over 60% of clinics and physician offices have a computerized practice management system, EMR usage by large clinics and small practices has not progressed as far. It is estimated that between 10%-27% of physician offices in West Virginia have implemented an EMR system to date. EMR systems/programs in West Virginia include:

> ‘Open’ VistA Hospital EMR System: West Virginia recently implementing the MedSphere ‘Open’ VistA hospital information system in seven of its state hospitals. The system includes an EMR module.
>
> Commercial Off The Shelf (COTS) EMR Systems: Based on the most recent survey of HIT systems, the following are the top COTS hospital EMR systems being used in the state: Meditech, Epic, Siemens, McKesson, Cerner, and CPSI.
>
> MedLynks Clinic EMR System: The Community Health Network of West Virginia has implemented the MedLynks EMR system at over 30 of its clinics/sites. MedLynks is based on the ‘open source’ VistA/RPMS system developed by the federal government.
>
> HealtheWV: HealtheWV is an EHR-based disease management and health promotion program designed to improve health care quality, patient outcomes, and patient safety. HealtheWV is a congressionally sponsored program supported by the National Technology Transfer Center at Wheeling Jesuit University and a Virginia based company HEALTHeSTATE, LLC.

Hospital Information Systems

76% of hospitals surveyed in West Virginia reported implementation of an EMR system, but the number of hospitals fully utilizing an EMR system is less than 50%. 17% of West Virginia hospitals surveyed said they use a pure EMR, while 71% use a hybrid electronic/paper record, with 12% still relying solely on a paper record. The most widely deployed EMR is the ‘open source’ VistA system. It is used

primarily by federal and state government hospitals. Meditech is the next most widely used EMR system used primarily by private hospitals. 26% of the hospitals currently provide EMR technology to remote referring physician offices. This is expected to increase dramatically as a result of the Stark Amendment.

Clinic & County Department Health Information Systems
Given FQHC staffing levels and multiple sites where they provide care, FQHCs tend to have 25 or more PC workstations. County health departments and free clinics tend to have less than 25 PC workstations deployed.

Approximately 21% of clinics and county health departments have implemented, or begun implementation, of EMR systems.

Over 60% of clinics and county health departments have no EMR system. The two most widely deployed EMR systems in clinics across the state are HealtheWV and RPMS/MedLynks. HealtheWV is installed in 5 small free clinics. RPMS/Medlynks is installed in 5 large FQHC clinics that encompass over 30 healthcare facilities or sites where care is provided.

Public Health & Disease Surveillance Systems
West Virginia's public health and disease surveillance systems are briefly described below:

Vital Research Records Project: The West Virginia Vital Research Records Project is placing Birth, Death, and Marriage certificates on-line. Users can search the records and view scanned images of the original records.

WV Health Alert Network (HAN): The purpose of the HAN is to serve as a system for rapid and secure communications, when faced with detection of unusual outbreaks of illness that may be the result of terrorism involving biological or chemical agents.

West Virginia Health Status Atlas: This is a state DHHR web site with maps that provide an overview of the health status of West Virginians.

West Virginia Electronic Disease Surveillance System (WVEDSS): A Web-based electronic disease reporting system which will serve health care providers, hospital and national reference laboratories, and local and state public health departments. In the past, specific diseases mandated by law were reported by providers and laboratories to public health agencies on paper forms by fax or mail. WVEDSS will provide manual electronic disease reporting through key entry as well as direct electronic transfer of test results from laboratory information systems. Once fully implemented, this system will dramatically enhance disease surveillance, detection and response activities in West Virginia and minimize or eliminate the delays inherent in current paper-based systems.

West Virginia Statewide Immunization Information System (WVSIIS): The WVSIIS Web application allows enrolled users to conveniently search for patients in the WVSIIS central registry and to view the patients' vaccination records.

Telecommunications and Telehealth Systems

The state has a number of existing and telecommunications networks and new initiatives that are described below. The state still has a way to go before a robust state-wide broadband network

infrastructure is in place that will interconnect every corner of the state. The widespread use by citizens of PHR systems that are interconnected to provider EMR systems also depends on further build out of the state's telecommunications infrastructure and the WVHIN.

West Virginia's Web of fiber optic networks and 100 percent digital switching offices allow for state-of-the-art voice, video and data transmission services. Advances have been made in point-to-point wireless, satellite services, broadband deployment and peer-to-peer technologies. Broadband is available in 75% of the state. Many rural areas are covered, but about one-fourth are not. The major local telephone provider, Verizon, has plans to dramatically expand its broadband network. After expansion Verizon will not have every area covered, but the company foresees that only sparsely populated areas will lack broadband service.

Other telecommunications and telehealth initiatives include the following:

> DHHR Wide Area Network: Over 98% of the local health departments in the state of West Virginia are now connected to the DHHR Wide-Area Network.
>
> West Virginia Telehealth & Education Network: Includes the Mountaineer Doctor Television (MDTV) system that connects with other locations by using digital ISDN lines. Currently MDTV has 22 member sites located throughout the states of West Virginia, Ohio and Maryland.
>
> WV Community Mental Telehealth Project: This project provides telemedicine services to the rural community mental healthcare centers. West Virginia has 14 major community mental health care centers. A secondary purpose is to allow for health care workers in these communities to utilize these telemedicine units for continuing professional education and to take advantage of the health education programs provided through MDTV.

Hospital Telecommunications

95% of hospitals reported Internet connectivity with 84% of them having either T-1 or T-3 connections, with 5% indicating they did not know what type of connectivity they had. 95% of the hospitals surveyed have a corporate web site on the Internet. 30% of the hospitals surveyed indicated they are participating in a regional health information organization or health information network. The Veterans Hospitals are using the Federal Health Information Exchange to exchange data with Department of Defense hospitals.

With regards to Telehealth applications, 63% of hospitals surveyed said they are already using Teleradiology, 16% were interested in implementing this capability, and 18% said they had no interest in this capability. A smaller number are utilizing telecardiology and telepathology solutions.

Clinic & County Department Telecommunications

Almost all of the community clinics and county health departments have some form of high speed telecommunications connection to the Internet, i.e. T-1, DSL, or cable modem. The survey shows that 60% of community clinics or county health departments have web sites and 40% do not, leaving significant room for improvement.

Economic Development Supported by the State of West Virginia

Potential sources of state funding include the General Revenue Fund and Excess Lottery Fund.

The State Legislature appropriated $3.5M as its share of start-up last legislative session to support the development of the WVHIN. West Virginia advertises that it is looking to attract business and job opportunities within the state; containing the growth of health care costs will appeal to any employer. Building the WVHIN, although it will require financial commitment, will create jobs in the information technology sector, both short- and long-term. Such jobs would help diversify the state's economy. West Virginia has a history of assisting new businesses through the West Virginia Development Office.

3. WVHIN PLANNING APPROACH

Operating Plan

Stakeholders, Governance and Leadership

WVHIN serves to support and promote health information exchange (HIE) both formally and informally. WVHIN has established relationships with many stakeholders in West Virginia's health care community.

WVHIN is the vision that grew out of the Governor's Task Force on Electronic Health Records (an expert group of public and private leaders across the state), created by law proposed and introduced by Governor Joe Manchin, III. West Virginia's leadership from both the public and private sectors firmly supports the governance structure of the WVHIN.

The WVHIN Board of Directors brings together 17 leaders with great experience and ability to influence HIT adoption in West Virginia through their legal authority, their respective public and private organizations, and their personal dedication and interest in health care and the use of HIT. As a public-private statewide Board, with the support of the Governor and the Legislature, WVHIN is organized to represent key constituents in West Virginia and to deliver a successful health information exchange that will be a model for the nation. WVHIN has the ability to shape public opinion and gain consensus and trust through a transparent and public process. The Board of Directors is an independent Board with representation from a broad range of stakeholders and health care organizations.

WVHIN has access to financial backing from the state and federal government, private businesses, and health care provider and payer organizations. The staff of WVHIN is experienced in health care, information technologies, communications and marketing, privacy and security law, and project planning and implementations.

Over the past year, WVHIN developed its governance structure through the Governor's appointment of the entire Board of Directors, including Dr. Julian Bailes, MD as the Chairman. The Senate approved the appointments. WVHIN has built out its committee structure, adopted bylaws, and secured its Executive Director. Since the Board's inception, three committees have been formally appointed: the Executive, Technology, and Consumer/Employer/Privacy committees.

Draft Vision for Health Care

High quality patient centered health care services facilitated by health information exchange.

Draft WVHIN Mission

The WVHIN provides the health care community a trusted, integrated and seamless electronic structure enabling medical data exchange necessary for high quality patient centered care.

Guiding Principles

To achieve its mission, the WVHIN abides by the following guiding principles:

- *Collaboration* -- The WVHIN works in collaboration with private/public partners, providers, other health care stakeholders, and consumers.
- *Patient-centric care* – Clinicians have access to available information at the point of care regardless of where the patient has been seen or where the physician is located.
- *Participation by all providers – A*ll providers have access to affordable solutions regardless of location.
- *Quality improvement* – The provider community has access to tools to improve the quality and efficiency of care through greater access to data over time and improved data analysis tools (e.g. ePrescribing, chronic disease management).
- *Patient participation* – The patients, over time, have access to information and electronic tools enabling them to take responsibility for their own care and wellness along with their physician.
- *Privacy and security* – Patients are assured that their personal data is held private, confidential and secure in accordance with HIPAA and other state and national requirements.
- *Sustainability* – The WVHIN achieves financial viability through fair and reasonable support from stakeholders.

Draft WVHIN Strategy to Achieve Its Mission

Key healthcare stakeholders in West Virginia look to WVHIN as a primary resource to achieve coordinated care by enabling users to exchange health information to significantly improve the quality and value of care for citizens living in West Virginia and by serving as a state-level convener and coordinator for other HIT/HIE initiatives.

HIE Pathway

The WVHIN is following a three-phase pathway (Figure 2) over the next 3-5 years to achieve the WVHIN mission. The intent in Phase 1 is to build the HIE infrastructure, achieve critical mass among physicians, reduce inefficiencies from paper transactions, and improve coordination of care. Building on this infrastructure, later phases will focus on expanding data exchange capabilities that significantly improve quality and value of care.

1. *Phase 1 – Clinical Messaging* – Use clinical messaging as a tool to transition the provider community from paper to electronic transactions and establish data exchange between separate health systems. Provision must be made for providers and facilities at all levels of EMR (and no EMR) capabilities along with consideration of the ability to financially support the WVHIN. Data exchange includes transferring lab, radiology and hospital reports from providers to physicians; cross-referrals between physicians. It also includes and data feeds to and alerts from public health.

2. *Phase 2 – Coordinated Care* – Improve coordinated care by enabling authorized physicians and other clinicians to look up key clinical information from multiple providers regardless of where the patient has been seen or where the clinician is located. Key information includes: lab, radiology and hospital reports; diagnoses, problem lists, medications, allergies, and immunizations. This is done using a federated data base model ensuring that data is made available at the point of care only.

Figure 2. WVHIN HIE Pathway

	Phase 1 Messaging	Phase 2 Coordinated Care	Phases 3 Quality and Value
Task	Get everyone connected; results delivery; achieve critical mass; Pilot phases 2 & 3; eRX	Federated repository enables inquiry of data from multiple sources	Centralized repository (s) enables longitudinal analysis of data from multiple sources; patient engagement; quality performance
Big Win	Efficiency; reduce costs by replacing paper	Reduce duplicate tests; improve coordination; can save lives	Huge for all – right info at the right place at the right time
Major Winners	Providers Public health	Health Plans, Providers; ED; Public Health	Health Plans, Providers, Public Health/Population Health, Researchers, Patients

3. *Phase 3 – Quality and Value* – Significantly improve quality and value of care by establishing data feeds that allow data to be accessed for additional uses under the strict guidance of board policy for data access. Possible uses:

    - *Physician Analysis* – ability of physicians to do longitudinal analysis of patient clinical data
    - *Public health* – ability of public health to do syndromic surveillance and population health
    - *Personal health record* – data feeds from the HIE into the personal health record
    - *Research* – within the guidelines of the board, make data available for other research

To enable users to exchange health information, WVHIN will ensure that:

- All providers have access to low cost, base level electronic tools irrespective of income.
- The HIE supports patient centric care and ongoing quality improvement for base level and advanced EMR users.
- There is sufficient mass of data users and data senders who participate in the HIE.
- A viable region-wide technology solution is in place that meets state and federal standards for interoperability and privacy and security.

To serve as a state-level convener and coordinator, WVHIN will address the following:

- Establishing an overall HIE direction for the state.
- Setting state-wide standards for interoperable data exchange and privacy and security.
- Facilitating the dialog about the use and access to patient data.

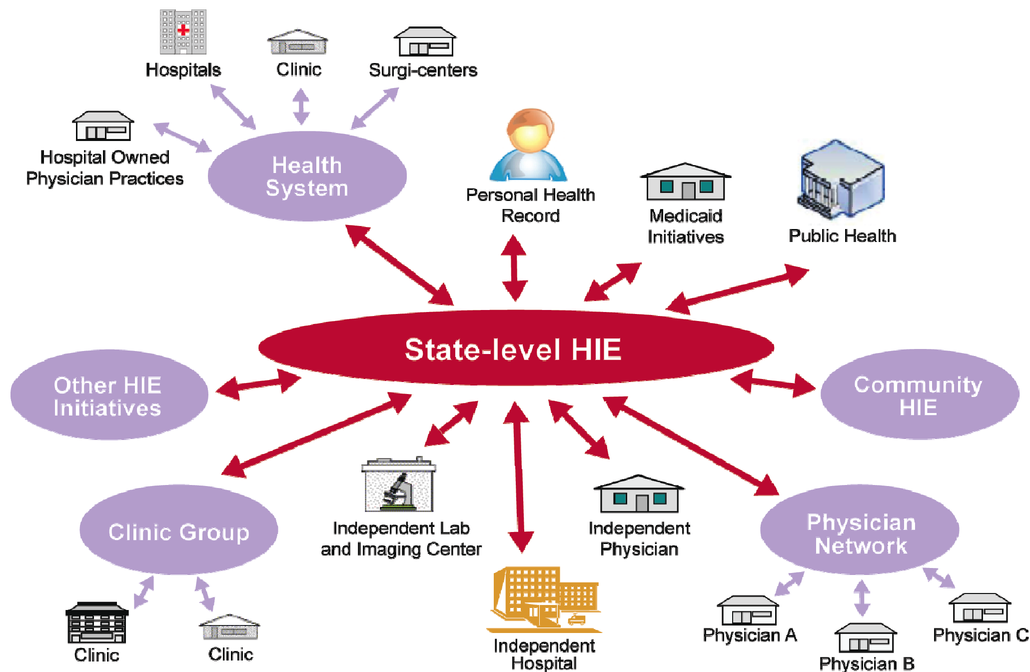

Figure 3. Sample Community – Wide HIE

- Aligning, not competing, with other HIT/HIE initiatives, both public and private.
- Encouraging physician adoption of electronic tools and helping physicians move beyond base level tools.
- Identifying and finding ways to address potential gaps in services.
- Mobilizing the public and private sectors to provide services consistent with the overall strategy or to address gaps in services.

HIE Physician Adoption Plan

Adoption of electronic tools by physicians is essential to the success of data exchange and to bring the right electronic data to the physician at the point of care. The rule of thumb is that 60% of the physician community must be using electronic tools and exchanging electronic data to achieve the critical mass needed to bring the entire physician community on board to participate. WVHIN is doing this in several ways:

- Base level e-Inbox – providing all physicians at no or low cost with base level e-inboxes (with work flow tools) to connect to the HIE. If practices already have EMRs, WVHIN will provide direct data feeds from the HIE. WVHIN will develop strategies to help migrate physicians from base level e-inboxes to advanced EMRs with quality tools.
- Physician Leadership – The WVHIN will help establish a Physician Advisory group to build momentum around the state. Key roles include determining HIE functionality and services, participating in community pilots, and providing input on physician fees for services.

Plan to Role Out the WVHIN

The WVHIN will roll out state-wide over a 3-year period with a goal of achieving financial sustainability after 3-5 years through ongoing fees paid by the beneficiaries of the HIE.

The first step in the roll out is the identification and implementation of pilot communities that can demonstrate the viability of the proposed model. Criteria for selecting pilot communities include: physician leadership and use of e-tools; health system collaboration and use of e-tools; history of actively engaging clinics, clinic networks and rural areas; demonstrated ability to collaborate; and favorable political environment.

Technology Plan and Selection of Vendor

WVHIN completed the Request for Information (RFI) process in September. The purpose of the RFI was to explore the functionality and technology required to implement Phase 1 and Phase 2 of the WVHIN and consider the various approaches that may be offered by the vendors. The immediate next steps are to go through a Request for Proposal (RFP) process, by which multiple vendors will bid on the WVHIN infrastructure and support services. During this period, the WVHIN will narrow down the vendors to the vendor of choice and a second vendor for final negotiations.

Planning Timeline

The target date to go live with the first pilot is the second or third quarter of 2009. Below are all of the key areas that must come together simultaneously to achieve this goal.

	2008	2009
Technology Plan & Vendor Selection		
Evaluate RFI	Aug – Sept	
Develop RFP	Oct – Dec	
Issue RFP		January
Evaluate RFP		March
Issue RFP/select vendor		May
Physician Adoption Plan		
Launch Physician Advisory Group	Nov-Dec	
Work on functionality of HIE	Aug - Dec	
Assist in pilot community selection	Nov	Jan-March
Participate in RFP demos/selection		March - April
Role Out HIE and Community Pilot		
Agree to selection criteria and approach	Nov - Dec	
Outreach to/negotiate with pilots		Jan - March
Negotiate/sign pilot agreements		May - June
Begin implementation		July
Go live with first pilot		Sept
State-wide Outreach and Marketing		
Identify key leaders and stakeholder groups	Aug - Dec	
Test ideas/open doors with “friendly” leaders	Aug - Dec	
Educate key leaders across state/communities	Oct – Dec	
Focus on key leaders essential to pilots	Oct - Dec	Jan - Sept
Business and Financial Plan		
Develop draft business plan	Aug – Dec	
Board retreat and review of draft plan	Oct - Dec	
Revise draft plan		Jan - Feb
Ongoing plan revisions (negotiations)		March - Jun

Table 1. WVHIN Planning Timeline

Marketing Plan

The WVHIN marketing and communications plan is designed to be operational on multiple levels, with heavier emphasis placed on key target groups which are ordered according to importance in quickly reaching sustainability. The first target audience is the physician community, incorporating subgroups such as medical office managers, mid-level providers, etc, in the message reach. WVHIN staff is meeting with physicians in group settings as well as one-on-one conversations with the intent to educate and to establish receptiveness to HIE. To date, the response has been very positive and this outreach will continue and escalate in relation to the community roll-out schedule and in keeping the entire WV physician community informed. Outreach also includes attendance at professional conferences and messaging in medical journals. The WVHIN is informing hospital and clinic administration and staff across the state via in-person meetings, attendance at professional conferences and personal communications activities by WVHIN Board members.

All marketing activity is currently driving toward obtaining formal commitments of interest from physicians, hospitals and clinics to participate in the WVHIN and to support its financial needs.

Financial Plan

The financial plan is based on the concepts articulated in the eHealth Initiative Toolkit at www.ehealthinitiative.org as well as the successes and failures of other HIEs. The overarching goal is to establish a financially sustainable business model within 3 years based on the following financial principles:

- Focus on low cost solutions that do not compete with, but rather enhance, existing HIT and HIE initiatives.
- Place a priority on obtaining a critical mass of users through physician adoption through a combination of EMRs and “electronic in-boxes with work flow tools.”
- Work directly with the physician leadership to develop an adoption plan that results in rolling out 60% of the physicians within 3 years.
- Establish a three stage pathway driven by stakeholder value propositions as follows:

  - Stage 1 Clinical Messaging – provide low cost entry point for physicians and a value proposition for providers and physician practices based on improved efficiencies in workflow along with enhancements in care coordination.

  - Stage 2 Coordinated Care – expand functionality to coordinated care extending value proposition to payers including Medicaid, health plans, self-insured employers, and health systems serving the uninsured.

  - Stage 3 Quality and Value – significantly expand value proposition for coordinated care by expanding access to data for longitudinal analysis for physicians, public health, and research and by engaging the patient in coordinated care through the personal health record.

- Engage multiple stakeholder groups in financial participation based on the value propositions.
- Use grant funding for start-up and sustainable funding for ongoing services.

Operational Budget

The operating budget when completed will include the following:

- **Operations Budget** – Overall costs by category of the HIE by month in the first year and quarterly in Years 2 through 5.

- **Physicians Sizing Schedule** – A schedule to estimate the number of potential physicians and practices that may participate by year by geographic region and in total. The goal of critical mass participation by the third year will be assumed to be 60% of this total.

- **Health System Sizing Schedule** – a schedule to estimate the number of potential health systems that may participate by year by geographic region and in total by bed size.

- **Roll-Out Schedule** – The aggregate number of physicians from the Physicians Sizing Schedule is further detailed in the Roll-Out Schedule to forecast implementations by year and by quarter. Hospital implementations are also detailed in this schedule.

- **Staffing Schedule** – The detailed staffing budget for interim and permanent staff in Phases 1 through 3.

Revenue Allocation Model and Fees

Grant income will only be used for start-up activities, not sustainability. Ongoing services will be funded through fees to stakeholders based on benefit received. An important task will be determining the revenue mix and the proposed fee structure.

Fee structures need to be perceived by stakeholders as fair and reasonable and based on objective criteria. The WVHIN will operate under the assumption that those who benefit should pay for the HIE and that the greater the stakeholder participation, the lower the risk for each participant. Fees should be perceived as fair and reasonable within stakeholder groups (e.g. health systems) and across stakeholder groups (e.g. health systems and health plans). It is very important that each organization understand its own value proposition (or benefit) for participation in the HIE and its own return on investment.

WVHIN will present to the stakeholders three scenarios that demonstrate the wide spectrum of revenue allocation mechanisms and their impact to support an operating budget per year.

Potential scenarios may include, for example:

- Scenario 1 – Revenue allocation among data senders (health systems, labs, radiology, etc.)
- Scenario 2 – Revenue allocation with multiple stakeholder groups – providers, health plans, employers
- Scenario 3 – Revenue allocation the same as Scenario 2 plus physician contribution

By laying out the scenarios, stakeholders will be able to discuss which scenario or hybrid most closely represents their situation and to determine whether they have an appropriate cost structure and the right participants in the HIE to achieve sustainability.

Governance Model

The governance model will be a multi-stakeholder public-private partnership. The sustainability model and governance models will be developed side-by-side based on the assumption that all stakeholder groups need to be represented. The revenue allocation model selected will have some influence over

the governance model, which will be modified as needed over the five year period as the organization moves from phases 1 through 3.

Market Assessment

Representative market data being collected to build the financial sustainability model includes the following:

1. Medical referral regions
    - Who is sharing data with whom
    - Cross-community data exchange
2. Health systems and other providers by region and in total
    - Number systems
    - Number of beds in each system
3. Physicians by region and in total
    - Number of physicians
    - Number of practices by size
    - Adoption readiness by practice
4. Health plans by region and in total
    - Largest health plans and covered lives
5. Employers by region and in total
    - Largest employers and number of employees
6. State-level payer mix
    - Private pay
    - Medicare
    - Medicaid
    - Self-insured
    - Uninsured
7. Current HIEs in the state
8. Current HIT/HIE initiatives in the state

4. LINK TO NATIONAL HEALTH IT INITIATIVES

WVHIN remains connected to health initiatives at the national level through its own involvement in the Nationwide Health Information Network (NHIN) Trial Implementation contract and other national HIT initiatives. WVHIN supports the following efforts sponsored by the US Department of Health and Human Services Office of the National Coordinator for Health IT (ONC):

- NHIN – As a contractor in the NHIN Trial Implementation, WVHIN has developed a trial HIE solution that uses the interoperability standards and specifications outlined by ONC. The following West Virginia provider organizations participated in the NHIN Trial Implementation:
    - Cabin Creek Health Systems
    - Charleston Area Medical Center
    - Appalachian Regional Healthcare Hospital Beckley
    - Appalachian Regional Healthcare Hospital Summers County
    - American Medical Facilities Management
    - West Virginia University Physicians of Charleston

WVHIN worked with these organizations to think through real life technology and business requirements for a statewide HIE implementation, including architecture options, governance models such as data sharing agreements and patient consent models, security and privacy requirements, issue escalation procedures, etc. Through public demonstrations of the WVHIN trial solution and those solutions developed by the other contract awardees, this contract enables WVHIN to show the possibilities of health information exchange to provider organizations in its state. The technical, business, and governance outputs of this contract will inform WVHIN's approach as it moves forward.

As WVHIN plans for the development of its statewide health information network, it will ensure any solution has the capability to integrate with other HIEs that also comply with the NHIN cross-community data sharing standards. WVHIN will also ensure that any solution uses certified health IT products (as designated by CCHIT) where applicable.

- HISPC – WVHIN focuses on privacy and security issues by serving as the steering committee for the West Virginia Health Information Security and Privacy Collaborative. The state uses input from state leadership and a broad range of stakeholders involved in HIE to assess the variations that exist at the organization level with respect to privacy and security practices and policies, as well as assess the legal bases for such practices and policies where applicable.

- State Alliance for e-Health - WVHIN participated in the eHealth Alliance and is finding their reports to be instructive.

WVHIN collaborates with a number of health care and government stakeholders and organizations within West Virginia and other states to support and promote the exchange of electronic health care data. West Virginia plans to follow the lead of the federal government, including the adoption of the interoperability standards and specifications developed by ONC, and ensure that health IT systems implemented in the state comply with the standards adopted at the national level.