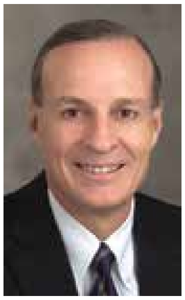
VITL

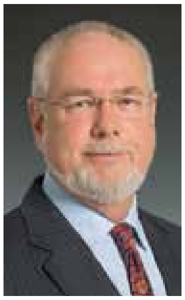
VERMONT INFORMATION TECHNOLOGY LEADERS

2012 Annual Report

As required by 18 V.S.A. § 9352 (e)

January 15, 2013


Don George


John K. Evans

Dear Legislators and Administration Officials:

We are pleased to submit to you the Vermont Information Technology Leaders, Inc. (VITL) Annual Progress Report describing our activities for calendar year 2012, as required under 18 V.S.A. § 9352(e).

As you will see in the report, in 2012 VITL made substantial progress in a number of areas. Yet there are challenges ahead for VITL to leverage its technology fully. We reached our goal for signing up Vermont primary care providers to participate in our regional extension center program, with 90 percent of the state's primary care providers working with us on implementing electronic health records systems (EHRs) and using them to improve patient care. Of the providers we are working with, 85 percent have gone live on an EHR.

The pace of interfacing EHRs to the health information network accelerated in 2012, as we continued to work closely with Medicity, our primary contractor, and other vendors to find ways to speed up development and deployment. Twelve of Vermont's 14 hospitals are connected to the network and work is underway to connect the remaining hospitals. There are now more than 60 clinic sites receiving data from the network, more than double the number at the end of 2011. In 2013, further acceleration will be VITL's top priority.

VITL continues to work with the Vermont Blueprint for Health to ensure that the infrastructure is in place to support the Blueprint's statewide rollout. Interfaces enable physician EHRs to send data to the Blueprint registry, which is used by community health teams to support patient care. At the end of 2012, 52 physician practices were sending data to the Blueprint registry via VITL, a third more than the year before. VITL is working with the Blueprint to accelerate interfacing work even more in 2013.

As we enter 2013, not only are we supporting current reform efforts in Vermont such as the Blueprint, we plan to leverage the health information network to support new health reform efforts, including accountable care organizations and government and payer driven initiatives. VITL is also using technology to improve coordination of care across communities. We are moving quickly to implement the state's new patient consent policy, which will enable practitioners to search statewide for data on a patient, after the individual gives permission. This new functionality is expected to increase patient safety and reduce the need for duplicate tests.

As we reflect on a successful 2012, we would like to thank the VITL board members for their support and willingness to share their time and expertise. VITL also thanks the General Assembly and the Administration for their ongoing support and we look forward to continued collaboration in 2013.

Respectfully submitted,

Don George
Don George
Chair, VITL Board

John K. Evans
VITL President and CEO

VITL
VERMONT INFORMATION TECHNOLOGY LEADERS

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Executive Summary

This report discusses VITL's progress in four major areas: helping health care providers adopt and implement electronic health records systems (EHRs); launching a Direct messaging product; building interfaces enabling independent information systems to send and receive data over the health information network; and deploying the network's core infrastructure, which stores data transmitted by interfaces and enables authorized users to search for and retrieve data. In Vermont, all four of these components are in place but not all are fully operational. More progress has been made on fully developing some components than others.

In 2012, VITL exceeded its goal by signing up 891 Vermont primary care providers to work on adopting and implementing EHRs. This represents 90 percent of all the primary care providers in the state. At the end of 2012, there were 770 primary care providers using EHRs in Vermont, up 35 percent from the year before. The number of primary care providers using an EHR represents 85 percent of the primary care providers VITL is working with.

VITL's grant from the federal Office of the National Coordinator to work with primary care providers on EHR adoption is expected to end in the fall of 2013. To keep working with primary care providers on achieving Stage 2 of the federal criteria for meaningful use of EHRs, VITL will either need additional state funding or need to consider charging primary care providers a fee, which will represent a significant barrier. VITL will also need additional state funding to be able to assist non-primary care practitioners in EHR adoption without having to charge a fee.

To help health care organizations begin communicating with each other electronically and securely, in 2012 VITL launched a secure messaging service called VITLdirect. It follows the standards of the federal Direct Project, which was created to specify a simple, secure way for health care providers to send authenticated, encrypted health information directly to known, trusted recipients over the Internet. At the end of 2012, there were 66 VITLdirect users. With state grant funds, VITL is offering VITLdirect for free until June 2013.

Building interfaces to VITL's core infrastructure is a critical part of establishing the health information network. Interfaces enable health care providers with EHRs to send and receive patient data generated by all providers involved in a patient's care. Building interfaces involves many parties, and because of the amount of work involved it typically takes at least three to four months to build an interface. VITL's task is to facilitate the interfacing effort and to provide resources. VITL's success is reliant on EHR vendors and the provider organizations, which VITL does not have control over.

At the end of 2012, there were 61 sites with interfaces receiving data from the network, compared to 26 at the end of 2011. Of the 61 sites, almost all were primary care practices. VITL is able to use state funding to reimburse primary care providers for their interfacing costs. The lack of funding to cover the cost of building interfaces for providers in other segments of the health care system, including long-term care and mental health, has been a barrier to connecting EHRs to the network. This has created a considerable disparity between primary care and other health care providers in network participation. To overcome this challenge, VITL recommends that state funding for interface development be expanded beyond primary care providers.

At the end of the year, 12 of Vermont's 14 hospitals were connected to the network. Of the 12 connected hospitals, eight were storing data in the core infrastructure. Work is underway to connect the remaining Vermont hospitals to the network. VITL has been in discussions with hospitals located in Vermont, and some hospitals in neighboring states providing care to Vermont residents, about increasing the pace of interface development. VITL has identified a minimum data set that it believes all Vermont hospitals should be providing to the network before July 2015. Additional legislative support and funding is needed to incentivize hospitals to build more interfaces and contribute more data to the core infrastructure.

At the end of 2012, there were 52 physician practices sending data to the Blueprint for Health registry via the network. This is a 33 percent increase from the end of 2011. In 2013, VITL and the Blueprint for Health will further collaborate to accelerate deployment of interfaces and improve data quality.

Once patient data has been stored in the core infrastructure, it can be used in a number of ways. For example, searches can be done by health care practitioners, with search results providing details of a patient's previous medical problems and test results. At the end of 2012, there were 543,500 persons in the core infrastructure's master patient index, up from 300,000 at the end of 2011. The core infrastructure was processing 1.2 million pieces of clinical and administrative data per month, double the amount of data being processed per month at the end of 2011.

With the core infrastructure's ability to store data, VITL has been accumulating patient information that will be very helpful to providers as they see patients. A state policy governing the process for accessing the stored patient data was finalized in October 2012. VITL will be implementing the state policy in 2013 with the launch of a provider portal, which will enable authorized providers to search the core infrastructure for data on a patient, if the patient consents.

Supporting the work of accountable care organizations is a major way that the investment in the core infrastructure can be leveraged to help bring about health care reform in Vermont. As VITL continues to develop its capabilities, VITL will be able to assist ACOs in a number of ways, such as collecting clinical information specific to the CMS measurements that ACOs must report and perform against. In 2013, VITL will explore other ways to leverage the investment in the core infrastructure, including supporting the State Innovation Model.

During the last several years, VITL has made considerable progress in three important areas: assisting primary care providers in implementing EHRs; developing interfaces for the Vermont Blueprint for Health initiative and acute care hospitals; and delivering clinical data generated by hospitals and independent labs to health care provider EHRs. However, there is substantial work ahead. The three major challenges that face VITL in 2013 and beyond are: accelerating development of the health information network; implementing the state's patient consent policy; and developing approaches to long-term financial sustainability. The report discusses how these challenges can be overcome.

Network Acceleration: The complexity and timelines associated with building interfaces is compounded by the multiple EHR solutions in the Vermont market. To make interfacing various EHRs less of a challenge, VITL strongly recommends that providers who have yet to choose an EHR be given incentives to agree on a limited number of vendors. By focusing new interfacing work on fewer vendors, VITL will be able to take advantage of economies of scale and connect more EHRs to the network faster. VITL will need help from providers and their EHR vendors in speeding up the EHR side of interface development. Options could include providing EHR vendors with financial incentives to prioritize interfacing work in Vermont, and providing health care organizations with additional resources so that they can perform the necessary work to build and test new interfaces. VITL is also evaluating new technologies that could expedite this work.

Patient Consent: To meet the challenge of implementing the state patient consent policy, VITL has developed an approach that relieves health care providers from much of the administrative burden, which will help make participating in the patient consent program more attractive. But this approach comes at a cost, both in personnel and material expenditures. VITL is quantifying the additional resources that will be needed and will be presenting a budget request to the state for approval.

Financial Sustainability: The availability of state funding for building the health information network has been beneficial in that it has enabled VITL to proceed without asking health care organizations to pay a subscription or transaction fee, eliminating a financial barrier to providers participating in the network. VITL does recognize the need to transition from state funding to a self-sustaining model. VITL will need to accelerate development of the network to demonstrate increasing value to users. Once accomplished, VITL can then quantify the value being delivered and begin the transition to self-sustainability. In the meantime, VITL is exploring its ability to offer new services.

Over the next two years, VITL will be working diligently to deliver a health information network to Vermont that is highly valued, can be leveraged to improve care delivery by providers and increase patient engagement, while at the same time seeking to offer new services designed to improve efficiencies and reduce the cost of care.

SECTION 1:

Introduction

Patients typically receive care in different settings, from different health care providers, at different times and often in different locations. The information generated during the patient's travels through the health care system should 'follow them' and be available to ensure safe, high quality, cost effective decisions by the health care providers caring for them. For example, data gathered by the patient's primary care physician can be used by doctors and nurses in a hospital when the patient is admitted. Clinical information generated at the hospital may be needed by staff at a rehabilitation facility the patient is sent to following discharge from the hospital.

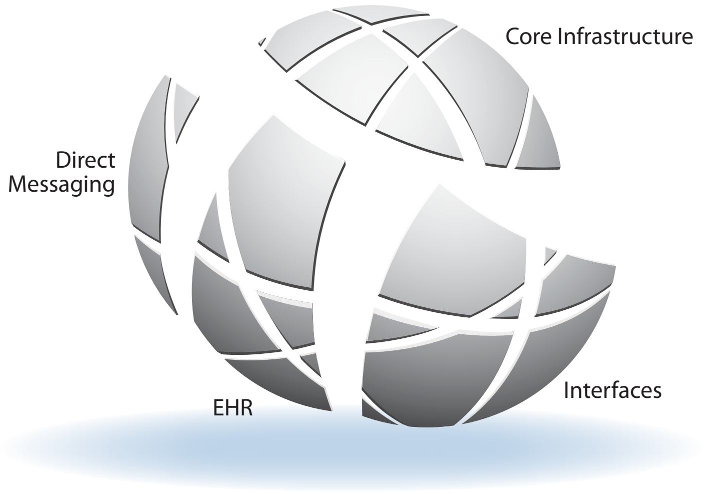
Access to information increases patient safety as medical practitioners know which drugs the patient is allergic to. Seeing the results of tests ordered by a different provider can avert the need for duplicative procedures, thereby reducing costs and often eliminating the need for the patient to undergo additional tests. Trending a patient's echocardiograms can help providers see improvements over time. Applying analytic tools to medications ordered by different providers can identify drug-to-drug interactions that could be harmful to the patient. The ability to identify patients who may be at higher risk during a disease outbreak can assist public health efforts.

Practitioners in different health care organizations are willing to share information on patients they have in common. They realize that access to additional patient data helps them make more informed decisions and provide better care.

Sharing patient data among health care providers is nothing new. Paper patient records have been shared for decades. When patient data is kept on paper, the primary methods of moving information from one location to another are mail, courier, and fax. But these are labor-intensive, costly, and slow -- often resulting in incomplete, illegible information that is not available at the time care is being delivered.

A new method of sharing patient data has been developed – a health information network (also known as a health information exchange). This electronic network connects disparate information technology systems in different health care organizations, so that providers can access data from other locations where the patient has received care.

Storing data in digital form within an electronic health records system (EHR) is beneficial because it enables clinicians in a health care organization to rapidly retrieve that data. But because the data resides with that organization's EHR, it functions like a silo, keeping data segmented from other providers involved in the care of that patient. What is needed is a connection to a health information network to break down the silo, so that as the patient travels across the health care continuum, information from previous encounters can be accessed regardless of where it was generated. Having greater access can also improve communication and coordination of care between providers in a community. The network unleashes the power of all the data stored in separate EHRs and allows access for clinical decision making, analysis, and population health management.



A health information network has several components. Some components are required for any information to flow while others can be implemented incrementally. Almost all health information networks implement two basic services; health care *transactions* which "push" information from one organization to another and a *query-response* service which allows providers to "pull" information from the network's secure repository. Four major components are:

- **Electronic health records systems (EHRs)** – While this component is not strictly a part of the health information network it is a precursor to many of the other services. Implementing EHRs is what converts data from paper to electronic form within a health care organization. Once the EHR is in place it can act as a source or destination for health information. Health care organizations are purchasing their own EHRs and implementing them with VITL's assistance.
- **Direct Messaging** – This gives practitioners the ability to securely push data from a sender to a receiver. The content being pushed is most often an unstructured document like an email. Attachments can be added to the email which can be structured or unstructured documents. The creation of the attachments is often a manual process. Some EHR systems are capable of importing structured documents but it depends on the type of document. Direct messaging is a stand-alone product that is not connected to the health information network and therefore not a substitute for interfaces, which enable a high volume of discrete data to be transmitted and stored on the network.
- **Interfaces** – This component creates bi-directional communication links, enabling independent information technology systems to send and receive data. The data is in a form that can be integrated into other systems.
- **Core infrastructure** – This component stores data transmitted via interfaces from many different health care organizations and enables authorized users to search for and retrieve data. Other tools within the core infrastructure are used for patient identification, data management, and analysis.

In Vermont, all four of these components are in place but not all are fully operational. More progress has been made on fully developing some components than others. This incremental approach to developing components is the normal process in health information networks across the country. This report will examine more closely the progress that has been made on developing each component and the work that lies ahead.

With all four components in place, the network unleashes the power of data stored in separate EHRs and allows access for clinical decision making, analysis, and population health management.

The Power of a Health Information Network

Each of the four components is useful on its own and produces tangible benefits, as each helps health care practitioners do their jobs better. But as the components are developed and linked together, the health information network takes shape and its power to improve health care grows considerably. The following hypothetical example illustrates how that is done, but it is not representative of any actual care. Let's start with how things might occur using paper records.

Without a health information network:

- During an office visit, a physician can't see the patient's medical history because the paper record couldn't be located in time (it is sitting in a stack of folders on a desk in the office). Much of the brief visit is consumed with the patient refreshing the physician's memory about her medical conditions.
- The patient is referred to a specialist physician for further treatment, but when the patient arrives for the appointment the specialist has only received a brief referral note from the primary care physician. The specialist has to compile a new medical history to include allergies, medications, prior x-rays, and other critical information.
- When being asked which drugs she is taking, the patient forgets to tell the specialist about one drug. When she later takes a new drug prescribed by the specialist, it interacts badly with the drug she forgot to mention and she becomes sick enough to need a trip to the emergency department.
- The specialist physician wants to send the patient to the hospital for an expensive test. It is the same test that was ordered by another doctor at a different hospital less than a year ago, but because the new doctor doesn't have access to the results of the previous test, it has to be repeated.

- The patient is dissatisfied with the care she has received and wonders why the health care system is so disjointed.

Now let's take a look at how the situation is improved when the power of health data is unleashed by connecting systems to a health information network.

With a health information network:

- During an office visit, the physician uses the EHR to access the patient's medical history within seconds. The EHR organizes the patient data in such a way that the physician can quickly view the medical problem list, allergies, and an up-to-date medication list, making the office visit more productive. The physician's office manager, running a quality report in the EHR, notices that the patient is overdue for a recommended preventive screening and asks staff at the checkout desk to schedule it with the patient.
- Clinical data from the primary care provider's EHR is transmitted over interfaces to the core infrastructure. The specialist physician searches the core infrastructure for data on the patient (after receiving the patient's consent to view the data) and uses that data to determine the drug he was considering prescribing would probably interact badly with one the patient is already taking. The specialist prescribes a different medication that would be safer, thus preventing a trip to the emergency department.

- The specialist wants to order a test, but after again searching the patient's data in the core infrastructure, he sees that another doctor had previously done the same test at a different hospital. He is able to view the results of the test, and decides to use that information in his diagnosis and treatment plan rather than duplicate the test at an added cost.

- Meanwhile, the primary care provider uses the EHR to determine that the patient is among a group at risk because a drug she is taking has just been recalled. The patient receives an immediate notification to discontinue taking the drug.

- The patient is very satisfied with the care that she has received, and perceives the health care system to be coordinated and functioning smoothly.

With a health information network in place, the quality of care is improved, patient safety is enhanced, and costs are reduced. However, development of a health information network doesn't happen with the flip of a switch. It is a multi-step journey that takes time, patience, and a lot of work by many people to accomplish.

State Statutes Relating to VITL

- 18 V.S.A. § 9351 and § 9352 (Health Information Technology Plan)
- 18 V.S.A § 9440b (Information technology; review procedures)
- 32 V.S.A. § 10301 (Health IT-fund)

VITL's Role

Vermont Information Technology Leaders, Inc. (VITL), is fulfilling the role of being a change agent for health information technology in Vermont. VITL promotes the use of health IT, coordinates work to develop the various health information network components, and leverages the use of technology to improve care. By helping practitioners capitalize on the power of health data, VITL is opening the door to broader health care reform efforts in the state, which all depend on having a health information network in place.

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VITL is an independent, non-profit organization established in 2005. From its beginning, VITL has functioned as a neutral entity. VITL has brought a wide array of stakeholders to the table, engaged them in dialogue, and built consensus for change. VITL has been successful in convincing a large number of providers that change will benefit both them and their patients.

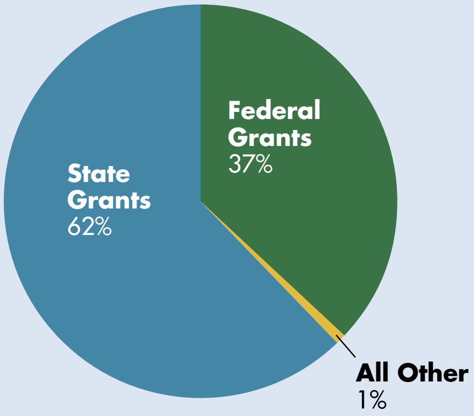
VITL's operations are overseen by a board of 12 directors, with representation from health care providers, health insurers, employers, consumers, and state government (see page 2 for the board listing).

In 2012, VITL had 23 full-time employees working out of offices in Montpelier and Burlington. VITL's budget for calendar 2012 was $5.3 million, funded 62 percent from state grants and 37 percent from federal grants. In calendar 2012, VITL spent $3.3 million on building and operating the health information network, and $1.8 million on the regional exension center program, which assists providers with EHR adoption and implementation.

This annual report will provide more details about what VITL has accomplished to date, and what is planned for 2013 and beyond. The report will also discuss the challenges that VITL faces and the need for additional resources to quicken the pace toward fully developing a health information network.

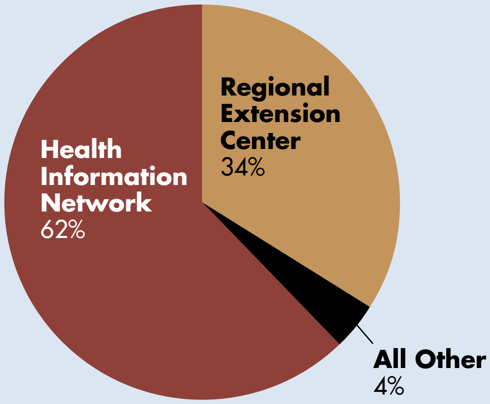
Revenues CY 2012

$5.310 million



Expenses CY 2012

$5.316 million



Summary Revenue and Expenses

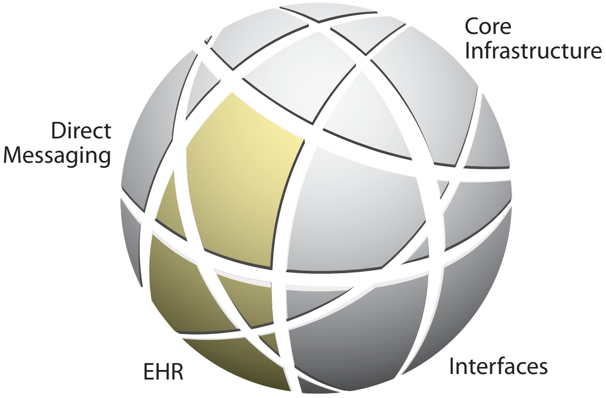
Calendar Year 2012

	State of Vermont	REC	Other	Total
State Grants	$3,274,511			
Federal Grants		$1,813,919	$156,794	$1,970,713
All Other			$63,919	$63,919
Total Revenue	$3,274,511	$1,813,919	$220,713	$5,309,143
Implementation Expenses	$1,997,447	$998,989	$49,835	$3,046,270
Administrative Expenses	$1,277,063	$814,931	$178,127	$2,270,121
Total Expenses	$3,274,510	$1,813,919	$227,962	$5,316,391

SECTION 2:

Electronic Health Records

A critical component of the effort to build a health information network is the adoption and implementation of electronic health records systems. These EHRs enable patient information to be stored digitally by a health care organization and retrieved quickly by providers working in that health care organization.



A strong EHR adoption program is a necessary precursor to putting the remaining components in place. Without a critical mass of EHRs in use, there would be very little electronic data to share with providers in other organizations or to transmit via interfaces to be stored in the core infrastructure.

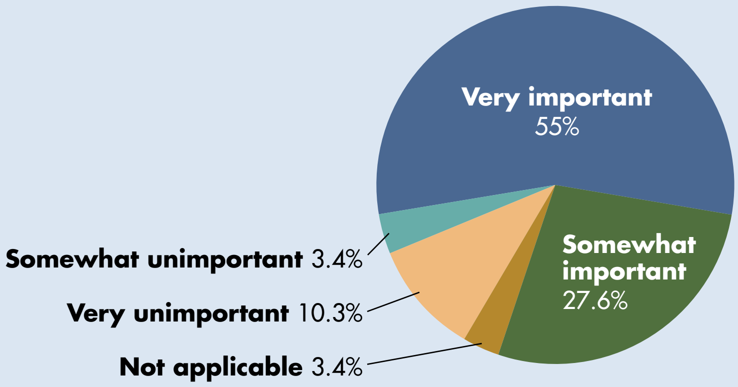
The task of transitioning from paper medical records to an EHR can be difficult for many health care providers. They are often overwhelmed and need help with many aspects of the process. As one of the nation's 60 regional extension centers for health information technology, VITL has been providing assistance in EHR selection, adoption, and implementation to Vermont primary care providers. This work is funded by a grant from the federal Office of the National Coordinator for Health IT.

Because the federal grant is restricted to working with primary care providers, VITL charges an hourly fee for assisting other types of providers, such as specialist physicians, nursing homes, and mental health agencies with EHR adoption and implementation.

Four VITL staff members who are EHR implementation specialists, and a director of program implementation, work directly with health care providers on the transition to an EHR. Among the services they provide are: helping physician practices select an EHR system; providing guidance on how to negotiate a contract with the EHR vendor; planning for the transition; project management; workflow analysis; and helping with the process of going live with the new system.

This kind of assistance has played a critical role in accelerating the adoption of EHRs in Vermont, according to the results of a 2012 survey. Eighty-two percent of survey respondents said VITL's assistance has been important in implementing an EHR system. Of those, 55 percent characterized VITL's help as "very important."

How important have VITL's services been in implementing your EHR?



VITL Helps Plainfield Health Center Transition to EHR

One Vermont health care provider which completed the transition to an EHR in 2012 was The Health Center in Plainfield, a federally qualified health center that provides primary care for 13,500 patients. VITL's assistance in the project was "invaluable," said Dr. John Matthew, the center's medical director.

During the transition process, VITL Implementation Specialist Donna Ransmeier visited the center weekly and provided the physician practice with "the expertise necessary to do this right the first time," Matthew said. In particular, he said VITL helped establish a culture of buy-in from the center's staff, making the transition smoother.

Data generated by the EHR is being used to provide better patient care. "We are confident that our building this system thoughtfully and collaboratively is ensuring that the care our patients receive will vastly improve over time," he said.

For example, patient information is now better organized and easier for health care providers to access, said Don Grabowski, outreach coordinator. "It is much easier and faster to run reports that give clinicians feedback on the history of care provided to their patients," he explained. The electronic reports can let a provider know if the national guidelines for treating diabetes, for instance, have been followed, including all the recommended tests.

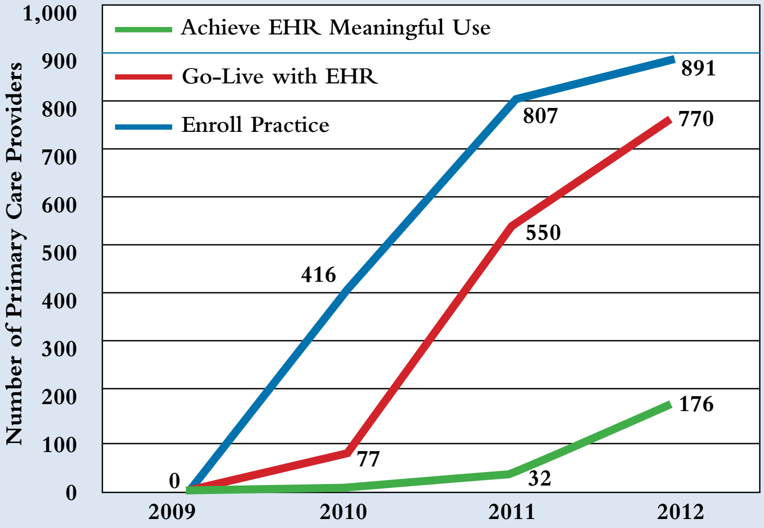
In the past, it was a laborious manual process to go through paper charts to review the care patients had received, Grabowski said. "Now I can produce a report in minutes from my computer desktop. It's practical information that we will use to make sure our patients are getting the best possible care."

(L-R): Donna Ransmeier, an implementation specialist with Vermont Information Technology Leaders, Inc., congratulates Don Grabowski, Dr. John Matthew, and Lauri Snetsinger, RN, of The Health Center in Plainfield, Vt., on their successful transition to an electronic health record system.

Patients will also benefit by receiving easy-to-understand information about their health, generated by the electronic system, Grabowski said. "This will include a summary of each office visit that the patient can take home to look at later."

At The Health Center, and other Vermont health care organizations, EHRs are producing tangible benefits. By providing physicians and practice managers with more data that they can take action on, EHRs are improving health care quality. That in turn improves patient safety and eventually controls costs as healthier patients need less health care services.

VITL's Regional Extension Center Achievements with Primary Care Providers



EHR Results in Better Patient Education

As a busy surgeon, having an EHR connected to the health information network has been a major improvement in efficiency for Dr. Thomas H. Lewis, one of three physicians practicing at Brattleboro General Surgery in Brattleboro. The physician practice worked with VITL Project Manager and Senior Consultant Regi Wahl to implement a set of interfaces. The surgeons now have immediate access to referring physicians' records, as well as hospital emergency department reports.

But the biggest benefit has been for his patients, he said. That's because during an office visit, the patient and the doctor can look at the EHR together and have a more informed conversation about surgical procedures. For example, Lewis can bring up a patient's x-ray on the computer monitor in the exam room and discuss the radiologist's report on the spot. Likewise, he can check lab test values and go over any problems with the patient.

Dr. Thomas H. Lewis, a Brattleboro surgeon, uses his electronic health records system as an educational tool. He can look at the EHR with the patient and have a more informed conversation about surgical procedures.

Lewis often prints out information from the EHR so that a patient can leave with copies of his or her lab and x-ray reports in hand. "That's a pretty powerful educational tool," Lewis said. With tangible information from the EHR to share with them, "the patient is leaving with a more global grasp of what I have said."

Progress Made in 2012

In 2012, VITL exceeded its goal by signing up 891 Vermont primary care providers to work on adopting and implementing EHRs. That represents 90 percent of all the primary care providers in the state.

At the end of 2012, there were 770 primary care providers using EHRs in Vermont, up 35 percent from the year before. The number of primary care providers using an EHR in 2012 represents 85 percent of the primary care providers VITL is working with.

Another service that VITL provides under its regional extension center grant is helping practitioners eligible for the federal EHR Incentive Program under either Medicare or Medicaid achieve what is known as "meaningful use." When Congress passed the EHR Incentive Program in 2009, it established a set of criteria that practitioners must meet to become "meaningful users" of EHRs and thus qualify for incentive payments. The criteria include a number of patient safety and quality improvement measures.

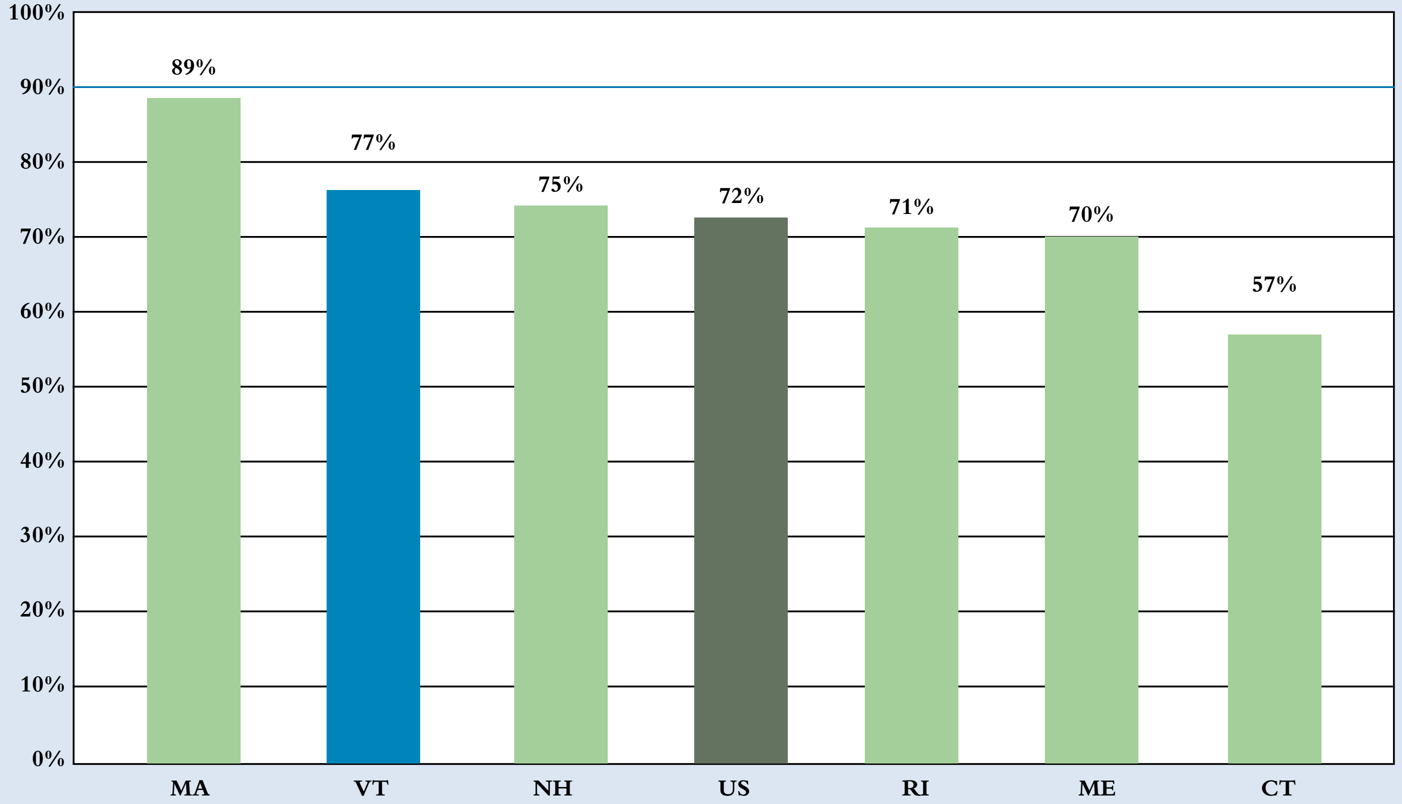
There were 176 Vermont primary care providers who achieved meaningful use by the end of 2012, compared to only 32 who had done so by the end of 2011.

What's Ahead for 2013

The relatively high EHR adoption rate among primary care providers in Vermont represents a solid foundation for VITL to build on, as the large amount of data generated by primary care visits is now in digital form. However, EHR adoption in Vermont is not as high in other segments of the health care system, to include independent specialist physicians, mental health providers, long-term care facilities, hospice programs, home health agencies, and other independent practitioners.

VITL's grant from the Office of the National Coordinator to work with primary care providers on EHR adoption and achieving meaningful use is expected to end in the

Office-based Physicians Using EHRs in New England, December 2012



Source: CDC/NCHS, National Ambulatory Medical Care Survey, December 2012 fall of 2013. To keep working with these practitioners on Stage 2 of meaningful use (which is largely centered around sharing data), and to assist other types of providers in EHR adoption, additional resources will be needed.

For a robust health information network to exist in Vermont, it is important to achieve a critical mass of EHRs across the entire health care continuum, not just in one segment like primary care. Extending the type of assistance VITL provided to primary care providers through its regional extension center program to other specialties is the best way to fully develop the critical EHR component.

Due to the high cost of building interfaces and the length of time needed to develop individual interfaces, VITL's work will be more efficient and it will be easier to connect a larger number of EHRs to the network if providers in one health care segment have incentives to all choose the same brand EHR. One way of doing that is to condition VITL's assistance for EHR adoption and implementation on selecting from a limited number of EHRs. The greatest opportunity exists in the long-term care segment, where many facilities have yet to select an EHR.

Middlebury Specialist Gets Fast Start on EHR With VITL's Help

When Middlebury physician Todd Lefkoe decided to open his own practice, one of the first calls he made was to VITL for help with installing an EHR. Not only did VITL Implementation Specialist Priscilla Phelps get Lefkoe up and running on an EHR quickly, she continued to work with him on meeting all the federal requirements for being a "meaningful user" of the technology.

Just nine months after going live with his EHR, the owner of Vermont Spineworks and Rehabilitation had achieved meaningful use status and filed for his first Medicare EHR incentive payment.

Working with Phelps "helped me to think about practicing in a new and different way by emphasizing the importance of accurate data collection and making sure that whatever system that I was going to go with would be able to provide me with meaningful information — meaningful statistics about my practice, about my practice patterns, about the patients that I see," said Lefkoe.

Phelps assisted with setting up the EHR's meaningful use dashboard, so that Lefkoe could monitor his progress. "With the good support and education provided by VITL, and a willingness to remain flexible in my day-to-day practice patterns, I think I was able to adapt fairly quickly to track the data and to practice in a way that fulfills the requirements," he said.

Now that he's achieved Stage 1 of meaningful use, Lefkoe said he'll continue relying on Phelps and VITL for help as questions arise. "I remain very optimistic about medical practice in the future and the ways that electronic health records systems can aid that practice," he said. "I can certainly count on many things changing over that time, and it is good to know that VITL will continue to be here as a resource to help me negotiate those changes."

EHR Saves Time, Enables Weathersfield Physician to Focus on Patients

Dr. Richard Clattenburg of Weathersfield doesn't have a typical medical practice. There are no assistants to answer calls and deal with insurance paperwork. The solo practitioner's office is one room off the sun porch in his farmhouse, located on a dirt road. But his practice is on the cutting edge when it comes to technology.

The pediatrician deliberately set up his practice with as little overhead as possible because he wanted to focus on his patients -- children with disabilities. "I went into it with strength and experience at helping patients. But what I didn't come into it with was a good sense of how to run a secure, efficient office practice that was going to make sure that patient information was kept in a confidential way that other people couldn't get at."

VITL Implementation Specialist Betsey Walton conducted a security risk analysis for Clattenburg to show him where improvements could be made. With Walton's help, the physician began using a secure messaging service to correspond with other physicians and his patients' families. He improved the security of his passwords and also began encrypting any patient files stored on his laptop computer.

Clattenburg says the online electronic health records system that he uses has helped him be more efficient, by eliminating time spent searching for patient information. "Everything is filed away in a secure place, easy to find in a secure place," he said. "All the time it saves me, and the energy that it saves me, all the heat that I would generate trying to find that missing whatever, translates into more availability I have to focus on patients."

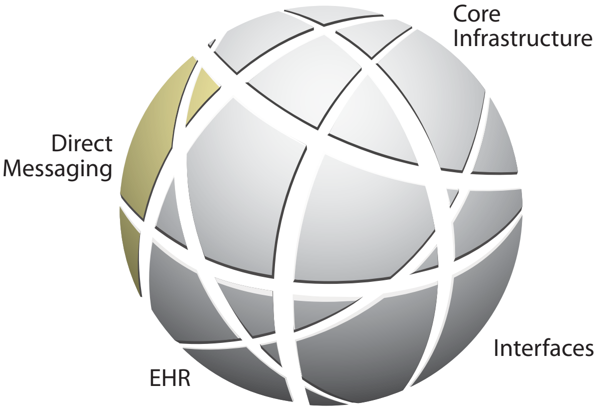
Like many doctors, Clattenburg previously dictated his patient notes and later faxed or mailed the transcribed report to the referring physician. He now takes a few minutes near the end of each patient visit to summarize his findings in the EHR and makes a print out for the child's family members, before they leave the office. Being able to provide a written visit note and treatment plan to the family has improved care because there are fewer misunderstandings, he said.

Dr. Richard Clattenburg of Weathersfield improved his practice's online security after VITL conducted a security risk analysis.

SECTION 3:

Direct Messaging

Once a health care organization has transitioned from paper records to an electronic system, the organization is ready to begin communicating with other providers electronically. To meet this basic need, in 2012 VITL launched a secure messaging service called VITLdirect.



VITLdirect follows the standards of the Direct Project, which was launched by the Office of the National Coordinator in March 2010 as part of the National Health Information Network. The Direct Project was created to specify a simple, secure way for health care providers to send authenticated, encrypted health information directly to known, trusted recipients over the Internet.

VITLdirect is an easy-to-use program that works much like email, except it is highly secure. The user creates a new message and picks a health care provider from the built-in address book to send a message to directly. Text can be typed into the message body or inserted from a template. The user can attach a file, such as a clinical summary, to the message and then send it to another VITLdirect user account.

A secure messaging system like VITLdirect can improve the coordination of health care services, as both EHR users and non-EHR providers have a means to share electronic clinical documents, such as referral forms and reports of test results. Rather than having to scan paper documents into the EHR, the recipient of a secure message can simply attach the file to the patient's electronic record.

A secure messaging system like VITLdirect can improve the coordination of health care services

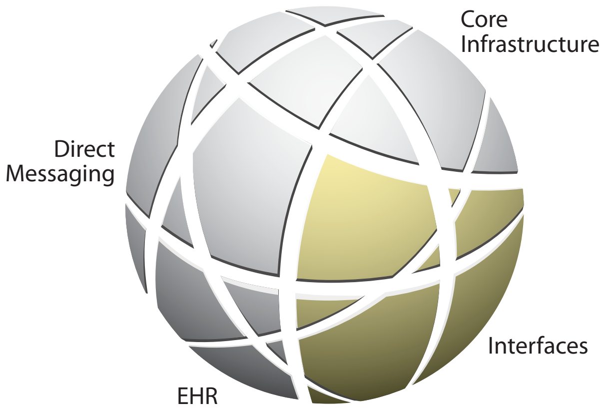
VITLdirect is effectively a form of secure email. Like all email systems the message is sent from one user to another and requires that the user to go through a manual process for creating messages and attaching documents. The attached documents can be either structured or unstructured data. It is a stand-alone product that is not connected to the health information network. Direct messages are encrypted at the source and can only be decrypted at the destination. While this makes the transmission secure, it does not allow the data to be stored for later use in the health information network.

Thus VITLdirect messages are not a substitute for interfaces, which enable a high volume of discrete data to be transmitted and stored on the network. Some EHR systems are capable of importing structured attachments, such as care summaries, but in most cases the documents must be manually linked to a patient record within the EHR as an attachment. These attachments do not contain discrete data, such as lab test results, which can flow into the correct fields in the EHR and then be used in tracking trends in the patient's health.

VITL's marketing of VITLdirect has included a webinar, a demonstration at the VITL Summit conference, and an online video. At the end of 2012, there were 66 VITLdirect users on the system. With state grant funds, VITL is offering VITLdirect for free until the end of June 2013.

SECTION 4:

Interfaces



While EHRs are powerful tools for improving patient care within a single organization, they become even more beneficial when connected, or interfaced, to the network.

An interface is a complex computer program that extracts data from an EHR, or provides data to an EHR, using national standards. Building interfaces enables health care providers with EHRs to send and receive patient data across different health care organizations and to contribute data to the core infrastructure.

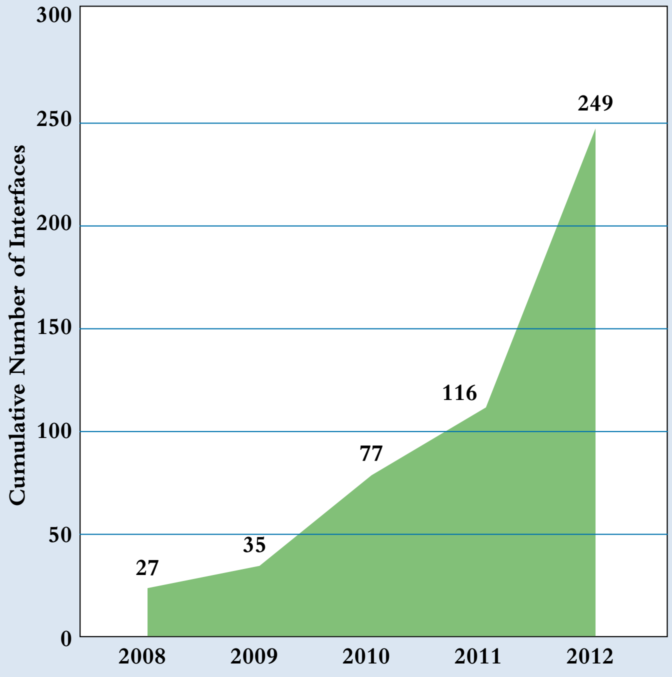
Building interfaces involves many different parties. Representatives of the health care organization that owns the EHR must be involved, as well as technicians from the EHR vendor. Technicians from Medicity, the core infrastructure vendor that VITL contracts with, are also involved. VITL's project managers coordinate the work among the various parties, as well as oversee the testing that needs to be done before an interface can "go live." Because of the amount of work involved, it typically takes at least three to four months to build an interface.

Building interfaces enables health care providers with EHRs to send and receive patient data across different health care organizations and to contribute data to the core infrastructure.

Developing a large number of interfaces is challenging for several reasons. There are multiple vendors involved and the expertise of those vendors in building interfaces varies considerably. The standards used for interface development are still emerging. Hospitals and physician practices have competing priorities and can't always commit the resources needed for interfacing projects to proceed quickly.

VITL's task is to facilitate the interfacing effort and to provide resources. VITL's success is reliant on the EHR vendors and the provider organizations, which VITL does not have control over.

Interfaces Implemented Through 2012



Note: Sites may have multiple interfaces.

Krystina Laychack, RN, director of nursing at The Manor in Morrisville, receives lab test results in the EHR within seconds of being completed at the hospital. The faster turnaround time means problems can be addressed at the nursing home rather than sending patients to a costly emergency department visit.

Interface Data Prevents Unnecessary Hospitalizations

When an interface to the health information network goes into service, an immediate benefit is often a faster flow of information into the EHR. That has been the case at The Manor, Inc., a nursing home in Morrisville. The facility became the first nursing home in the state to join the network, going live in October 2012 after working with VITL Project Manager Whye Yap to set up interfaces for lab test results, radiology exam reports, and other clinical documents.

When lab test results were previously faxed from the hospital, they were often not sent until a day after the test was completed, said Krystina Laychack, RN, director of nursing. Now with an interface, the results are available in the nursing home's EHR within seconds of the test being completed at the hospital. "That whole process is sped up," she said.

The faster turnaround means that The Manor's staff can begin addressing issues more quickly if a lab test is out of normal range. The patient's physician can be called while the doctor's office is still open, and the doctor can issue orders that the nursing staff can implement immediately, before the situation gets out of control and requires a trip to the hospital emergency department.

For example, Laychack said many of her patients are on blood thinning medication, which needs to be monitored frequently and may need to be adjusted. By knowing lab test results right away, if corrective action is needed it can be taken at the nursing home rather than sending patients to the hospital.

Because nursing home residents are quite fragile medically, "having the information to help manage their medical conditions should reduce hospitalizations for them," she said.

Patient data from the network flows into the correct places in the EHR automatically, she said, which makes tracking illnesses such as urinary tract infections much easier. Previously, nursing home staff had to enter data manually into spreadsheets, a cumbersome and time-consuming process. Data from the network "will allow us to act on a systematic level (to control infections), which will lower costs."

The potential savings from preventing hospital readmissions is enormous. According to a study published in the journal *Health Affairs* (Jan.-Feb. 2010), nationally on average 23.5 percent of Medicare beneficiaries discharged from a hospital to a skilled nursing facility are readmitted within 30 days, at a cost to Medicare of $4.3 billion in 2006. Vermont has one of the lowest readmission rates in the country, with 15.7 percent of patients being readmitted to the hospital within 30 days. The cost of readmissions from nursing homes in Vermont, however, was still more than $5 million in 2006. If more nursing homes can be equipped with EHRs and interfaces to the network, faster and better access to data should be able to lower the readmission rate and cost even further.

Progress Made in 2012

In 2012, VITL continued to make progress in interfacing EHRs to the network. At year's end, there were a total of 61 sites receiving data from the network, compared to 26 at the end of 2011. Of the 61 sites with interfaces, more than 90 percent are owned by primary care practices.

Hospitals are especially important to interface to the network, as they generate large amounts of data that physician practices and other providers can use in their EHRs when delivering patient care. The data from hospitals includes demographic information, lab test results, radiology exam results, patient discharge summaries, and other clinical information. At year's end, 12 of Vermont's 14 hospitals were connected to the network. Of the 12 connected hospitals, eight were storing data in the core infrastructure.

As more EHRs are connected, the amount of data routed over the network has increased greatly. By the end of 2012, the core infrastructure was processing 1.2 million pieces of clinical and administrative data per month. That's double the 619,000 pieces of data a month at the end of 2011.

VITL is building the network as a critical asset designed to be leveraged to achieve multiple goals. One of those goals is to enable primary care providers participating in the Vermont Blueprint for Health program to send a comprehensive set of patient data from their EHRs via the network to a state-run registry. The registry is used to analyze the data from EHRs to identify opportunities to improve patient care.

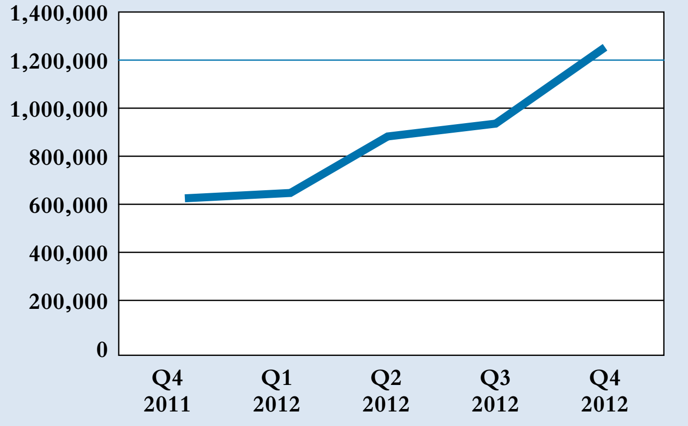
At the end of 2012, there were 52 physician practices sending data to the Blueprint registry via the network. This is a 33 percent increase from the end of 2011, when 39 practices were sending data.

What's Ahead for 2013

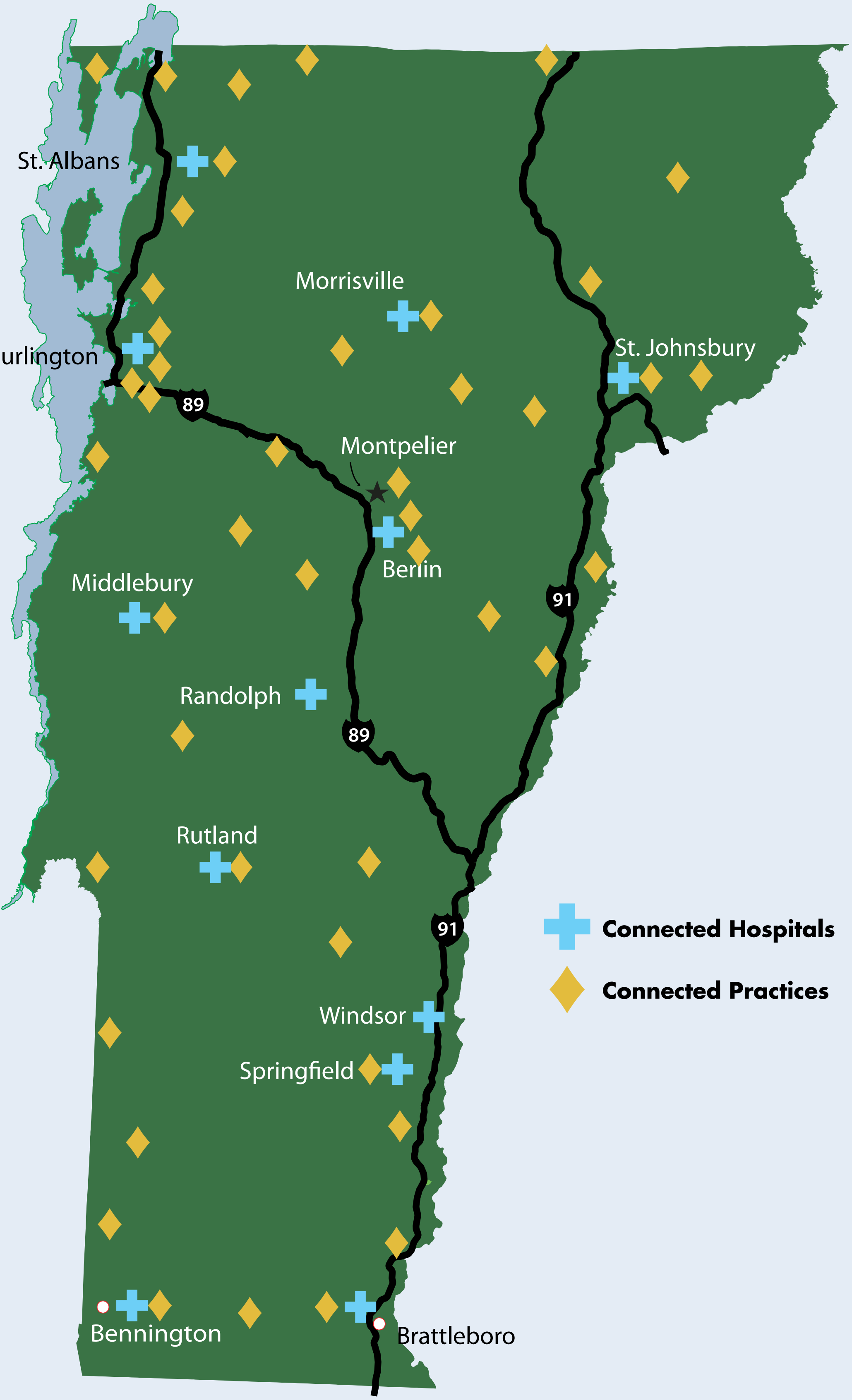
VITL and the Blueprint for Health will further collaborate in 2013 to accelerate deployment of interfaces and improve data quality by integrating teams and developing a program management function. The revised approach will serve to expedite issue reporting and resolution, clarify roles and responsibilities, and establish shared goals that achieve individual project objectives while contributing to the more overarching objectives – improved patient care and increased medical practice efficiencies.

A shared database and online communication tool will also be implemented to exchange information between the multiple professionals from both organizations who interact with the medical practices. It will increase team efficiency and provide a transparent means of communicating progress, issues and risks to project participants and to project sponsors.

Pieces of Clinical and Administrative Data Processed per Month



Health Information Network Footprint



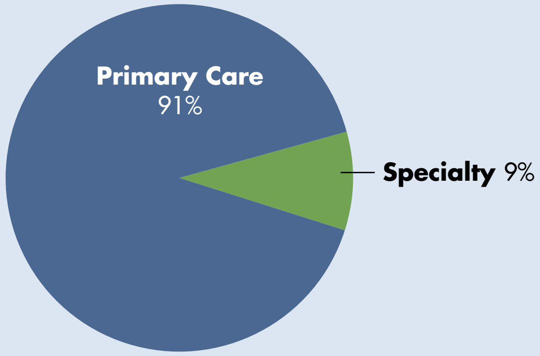
Even though a hospital is connected to the network, it does not mean a full flow of data is being received. The type of data being contributed to the core infrastructure varies greatly from hospital to hospital. In total, VITL estimates that less than half of the potential information from hospitals is being received by the core infrastructure. In 2013 VITL expects to accelerate interface development with hospitals, particularly Fletcher Allen Health Care and Dartmouth Hitchcock Medical Center. These two tertiary care facilities provide care to a large number of Vermont residents and as a result generate a large volume of clinical information often needed by other providers.

VITL has been in discussions with hospitals located in Vermont, and those providing care to Vermont patients, about increasing the pace of interface development. To make this come about, additional legislative support and funding is needed to incentivize hospitals to build more interfaces and contribute data to the core infrastructure.

As noted above, despite the challenges inherent with interface development, VITL has had success in developing interfaces for Vermont primary care practices. VITL is able to use state grant funds to reimburse Vermont primary care practices for their interfacing costs, which has lowered the financial barrier. Developing interfaces for other specialties is also important, and VITL is interested in working with these health care providers. However, in the absence of funding to pay the cost of interfacing for other providers, there has been limited interest.

Interface development for other providers is critical for the network to succeed in providing full value, and VITL would like to respond to the need, but additional resources would be needed to do that. Because it would accelerate interface development and lower costs if more providers are using the same brand of EHR, we would condition the interface reimbursement offer on the selection of an EHR from a limited list (if a provider has yet to make an EHR selection).

Health Care Organizations with Connections to the Health Information Network



Health Care Organizations by Type with Connections to the Health Information Network

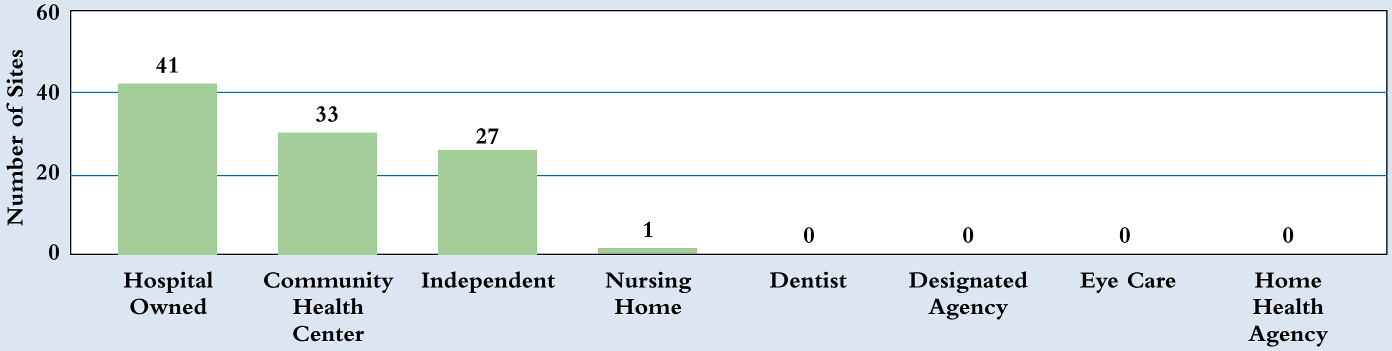


Chart reflects multiple sites for organizations

Tracking Patients With Network Data Improves Health

Like many EHRs, the system used by Community Health Services of Lamoille Valley in Morrisville has built-in tools that enable providers to track patients to determine which ones need recommended preventive care or follow-up tests. The federally qualified health center has been putting those tracking tools to good use.

Care coordinators working under the state's Blueprint for Health program use the EHR throughout the day to look for ways to improve the health of patients, said Mary Donati, clinical coordinator.

Before the EHR and the availability of electronic data over an interface, tracking patients using paper records was cumbersome and took many hours, she explained. It has become a much more practical and manageable task with the EHR and interfaces.

For example, every patient with diabetes is tracked in the EHR. Care coordinators use the EHR to identify patients with the highest hemoglobin A1c levels -- an indicator that their diabetes is not under control. Care coordinators have been able to meet with those patients one-on-one, offering help and education.

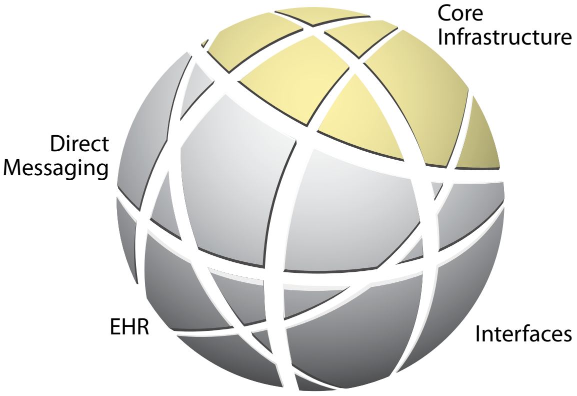
The result, Donati said, is that the highest hemoglobin A1c levels have been reduced significantly and those patients are better managing their diabetes. "We do see significant changes in the health of our patients if we are tracking" clinical measures such as hemoglobin A1c levels, she said.

Mary Donati, clinical coordinator at Community Health Services of Lamoille Valley in Morrisville, says care coordinators have used the EHR to identify patients whose diabetes is not under control. Offering help and education, care coordinators have worked with patients to better manage their condition.

SECTION 5:

Core Infrastructure

With large amounts of patient data stored in digital form in EHRs, and interfaces in place to transmit that data, the core infrastructure is the final component that brings it all together and truly unleashes the power of the health information network.



VITL uses technology developed by Medicity, the U.S. market leader in the health information network business. The company, founded in 2000, has about 300 employees and approximately 150 clients, which include six regional and three statewide health information networks. Medicity's clients support 700 hospitals and have 91 enterprise health information networks.

The core infrastructure is the final component that brings it all together and truly unleashes the power of the health information network.

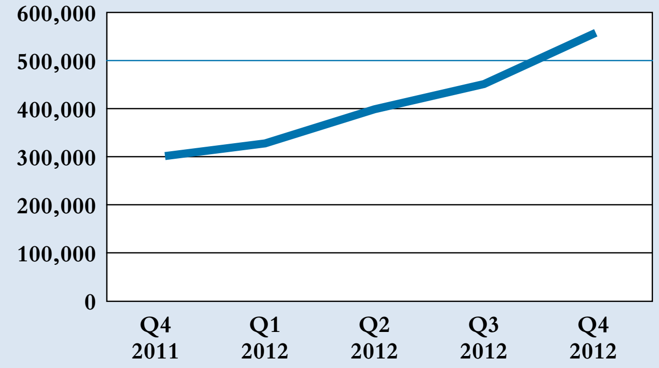
The core infrastructure includes a secure network, patient matching services, clinical database, and a provider portal which can be used to search for health information. The system uses role-based security and is designed to manage patient consent to disclose information and has strong auditing capabilities.

Various types of data from hospitals, physician practices, and other health care organizations are stored in the core infrastructure. This data includes patient demographics, lab test results, radiology reports, hospital discharge summaries, emergency department reports, medication lists, and clinical summaries from physician office visits. A master patient index is used to identify the correct patient and link the various documents together.

Once patient data has been stored in the core infrastructure, it can be used in a number of ways. Some examples include:

- Searches can be done by health care practitioners, with search results providing details of a patient's previous medical problems and test results.
- Identifying which drugs a patient is taking becomes easier with access to prescription data from various providers.
- Hospital readmissions can be prevented as providers in nursing homes and other lower-cost settings have information to initiate treatment sooner.
- Recovery from disasters like Tropical Storm Irene is easier as patients' medication histories can be retrieved electronically from the network.
- Responding to a disease outbreak is quicker, if the clinical data is available in the health information network and organizations can apply population health management tools to spot trends and take action.

Number of Persons in the Master Patient Index



Meeting the Data Needs of Accountable Care Organizations

Supporting the work of accountable care organizations (ACOs) is a major way that the investment in the core infrastructure can be leveraged to help bring about health care reform in Vermont. An ACO is an organization of providers who agree to cooperate to manage care for a defined population, assuming responsibility for cost and quality, within a defined budget, according to the Green Mountain Care Board.

ACOs require certain competencies in order to be successful. At the core of these competencies is the ability to access data from provider organizations in order to assume the risks associated with managing and coordinating the quality and cost of care for a defined population of patients.

As VITL continues to develop its capabilities, it will be able to help by:

- Exchanging data between providers who are participating in ACOs, ensuring a timely, informed, comprehensive and non-duplicative approach to caring for patients;
- Assisting ACOs collect data specific to the measurements required by the Centers for Medicare and Medicaid Services (CMS) as well as other approaches to evidence-based medicine;
- Eventually offering data analysis services;
- Supporting coordination of care across a community of providers; and
- In the future, engaging and informing patients so that Vermonters have more information about their health and can have more informed discussions with health care providers.

Progress Made in 2012

At the end of 2012, there were 543,500 persons in the master patient index, up from 300,000 at the end of 2011. Because Vermont health care organizations serve patients from adjoining states, not all the patients in the master patient index are Vermont residents. As previously stated, 12 of Vermont's 14 hospitals were connected to the network at the end of 2012. Of the 12 connected hospitals, eight were storing data in the core infrastructure.

What is the technology foundation required to adequately support an ACO?

- Integration across disparate applications and care settings.
- A unified view of the patient across institutions and encounters.
- Continuous live updates from participating entities and alerts of such updates to ensure timely care coordination across all responsible parties.
- Disease and case-continuity process and data views tuned for care, outcomes, and bundled-payment contracting.
- Management consoles that enable tracking of a patient's care across all settings for administrative decision-making and reimbursement management.
- Aggregation of population records to enable reporting on quality measures such as follow-up frequencies, readmission rates, and preventive care.

What's Ahead in 2013

With the core infrastructure's ability to store data, VITL has been accumulating patient information that will be very helpful to providers as they see patients. A state policy governing the process for accessing the stored patient data was finalized in October 2012.

With the state policy in place, VITL will launch a provider portal in 2013, which will enable authorized providers to search the core infrastructure for data on a patient, if the patient consents to giving a provider organization access to his or her information.

VITL will explore other ways to leverage the investment in the core infrastructure, such as offering data analysis services to ACOs that are doing business in Vermont, and supporting the State Innovation Model. Additional resources will be needed to continue building out the core infrastructure so that it can be further developed to support health care reform initiatives.

SECTION 6:

Challenges

During the last several years, VITL has made considerable progress in three important areas:

- assisting primary care practitioners implement EHRs;
- developing interfaces for the Vermont Blueprint for Health initiative; and
- delivering clinical data generated by hospitals and independent labs to health care provider EHRs.

However, there is substantial work ahead, which is outlined in this section of the report. The three major challenges that face VITL in 2013 and beyond include:

- accelerating development of the health information network;
- implementing the state's patient consent policy; and
- developing approaches to long-term financial sustainability.

In some of these areas, VITL has identified how the challenges can be met and is taking action. In other areas, the solutions are less obvious and assistance from the state, vendors, health care providers, and other stakeholders will be needed to overcome the barriers.

One challenge is leveraging the health information network in support of Vermont's health care reform efforts. VITL is prepared to do this and will be able to provide additional information regarding ways the network and related technologies can be leveraged, as additional details become known.

The health information network will be more valuable to health care providers, and thus to Vermonters in general, if there is more clinical data transmitted and stored in the core infrastructure.

Accelerating Network Development

VITL realizes that the health information network will be more valuable to health care providers, and thus to Vermonters in general, if there is more clinical data transmitted and stored in the core infrastructure. Maximizing the availability of clinical information generated by providers across Vermont, and in some cases by providers in New York and New Hampshire, ensures that anyone involved in caring for patients who is approved to access that information, can rely on it to be timely, comprehensive, and accurate. A health information network that cannot meet these expectations for the providers and patients seeking to utilize it when making critically important decisions, over time will lose value and not be used.

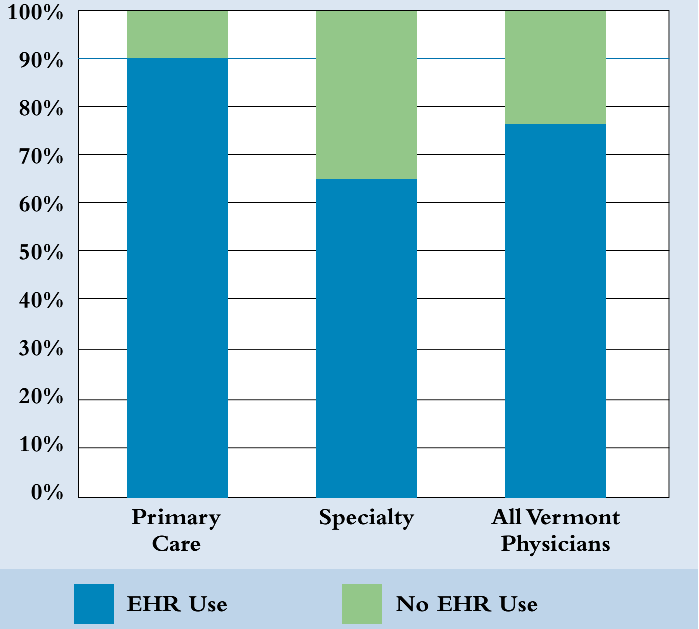
As described earlier in this report, there are several barriers to achieving that goal. The first is achieving a critical mass of EHRs in all parts of the health care system and digitizing most patient information.

Primary care providers who have taken the initial steps in transitioning from paper records to EHRs must continue the journey by achieving Stage 2 of meaningful use — reaching this level will increase the amount of data available on the health information network. Stage 2 criteria include: sending a summary of care record electronically when a patient is referred or transitioned to another care setting; communicating with patients electronically; and submitting data electronically to public health agencies.

VITL's regional extension center program has demonstrated its success in helping a high percentage of Vermont's primary care practitioners go live on EHRs and begin using them

Estimate of EHR Use by Office-based Physicians in Vermont

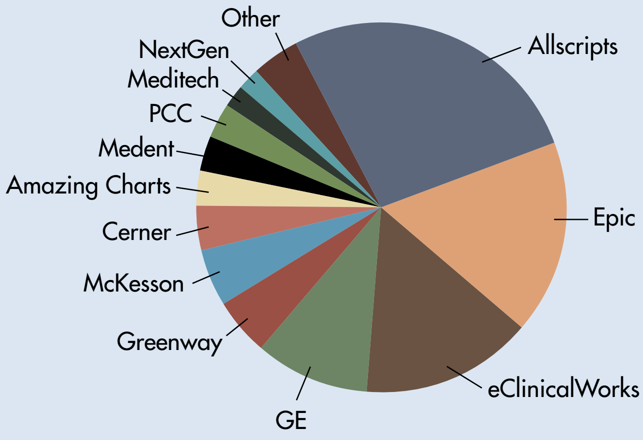
December 2012



Derived from CDC "Use and Characterisics of EHR Systems Among Office-based Physicians Practices", December 2012, VDH Survey of Physicians, 2010, and VITL statistics on EHR Primary Care Use, 2012.

to improve patient care. However, VITL's federal grant for providing assistance to primary care providers is ending in the fall of 2013. To continue working with primary care providers on EHRs and achieving Stage 2 meaningful use, VITL will either need additional state funding or need to consider charging primary care providers a fee, which will represent a significant barrier.

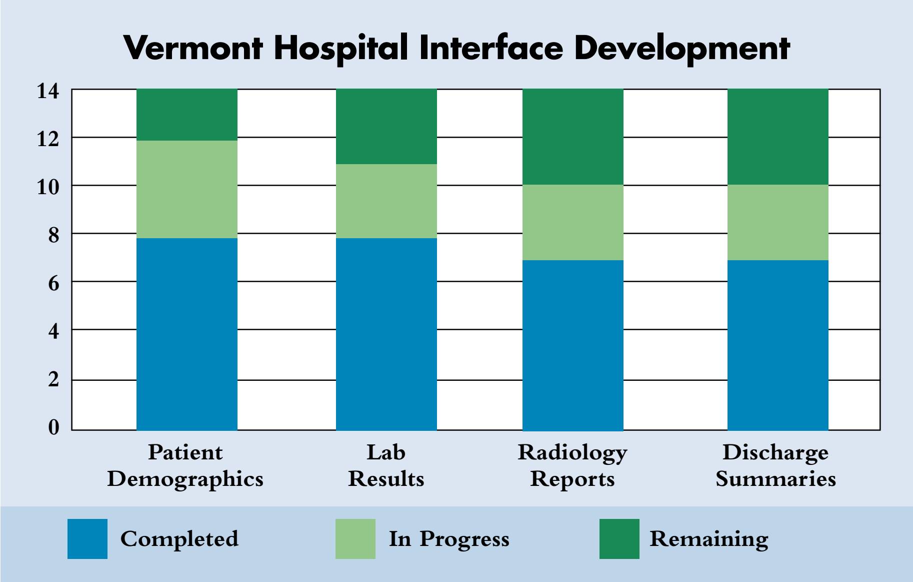
Primary Care EHR Installations in Vermont



Because VITL's federal regional extension center grant does not fund working with other types of health care providers on EHRs, they are charged an hourly fee to cover costs. There have been very few requests for EHR assistance from non-primary care providers, and VITL believes the fee represents a significant barrier. The challenge presented by this situation is that without VITL's assistance, other segments of the Vermont health care system are lagging behind on EHR adoption and implementation, hampering their ability to both send clinical information to the network and search for information generated by other providers (for example, see chart at left). These providers are very important and have a major role in coordinating care, particularly within the at-risk environment of accountable care organizations (ACOs). To overcome this challenge, VITL will need additional state funding to be able to assist non-primary care practitioners without having to charge a fee. VITL's desire is to have as many providers as possible agree to use a limited number of EHRs, thereby reducing the complexity and cost of developing interfaces with multiple EHR vendors, and accelerating the development and use of the network.

After converting paper records to EHRs, the next issue is building interfaces. The high EHR adoption rate among primary care providers, while already producing tangible benefits, has also presented a difficulty regarding interfacing. The EHR market in Vermont is divided among many different vendors, as primary care providers have not been incentivized nor required to select a common system (see chart at lower left). The existence of such a wide variety of EHRs among primary care and other providers in Vermont represents a significant challenge. VITL must divide its interfacing work among a variety of vendors. In the absence of one dominant vendor, VITL has limited leverage to expedite their interfacing work. EHR vendors are interested in selling their products and services and do not view the establishment of interfaces to the network as a priority. The complexity and timelines associated with building interfaces is compounded by the multiple EHR solutions in the market. VITL strongly recommends that the providers who have yet to choose an EHR be given incentives to agree on a common vendor. By focusing new interfacing work on fewer vendors, VITL will be able to take advantage of economies of scale and connect more EHRs to the network faster.

The challenge of building interfaces requires cooperation and coordination among two different teams. On the network side of the playing field is VITL and its vendor Medicity. On the EHR side, there are providers and all of their EHR vendors. To accelerate interface deployment on the network side, VITL is developing a partnership with Medicity to transfer much of its vendor expertise to VITL staff – VITL is the only Medicity client in the country to be afforded this capability. This will include advanced training of VITL staff and access to Medicity's proprietary tools and templates. This new approach is expected to be implemented in early 2013.


Vermont Hospital Interface Development

While VITL expects this change to have a positive effect on accelerating the network side of interface development, we will need help from providers and their vendors in speeding up the EHR side of interface development. Options could include providing EHR vendors financial incentives to prioritize interfacing work in Vermont, and providing health care organizations with additional resources so that they can perform the necessary work to build and test new interfaces. VITL is evaluating new technologies that could expedite this work and has begun reaching out to providers to explore these and other potential solutions.

Also, as previously stated in this report, the lack of funding to cover the cost of interfaces for providers in other segments of the health care system, including long-term care and mental health, has been a barrier to connecting EHRs to the network. This has created a considerable disparity between primary care and other health care providers. To overcome this challenge, VITL recommends that state funding for interface development be expanded beyond primary care providers to include other health care provider practices and organizations.

Hospitals represent another type of interfacing challenge for VITL. Hospitals are the source of many different types of patient information. For example they generate admitting and discharge data, lab data, pathology and radiology reports, emergency department notes, and much more. In the larger hospitals there may be separate systems for this data. But regardless of how and where the data is captured these different data types require separate interfaces. This is because the data is often structured quite differently and a different interface standard is used to transmit the data. It is not uncommon that each hospital will require 5 - 10 interfaces to the network. As the chart on the top of this page shows, the task of building some of these interfaces has been completed at some hospitals. But other interfaces have yet to be built or work on them has been deferred – sometimes because the hospital's EHR vendor hasn't yet developed the interface or the hospital has chosen not to at this time. See the chart on the next page for the status of each hospital's interface development.

VITL believes it is essential for all Vermont hospitals to provide a 'minimum data set' to the network. This will ensure common data is available and support the need for the network to provide a threshold of value to providers.

To ensure that the network initially offers providers key clinical information necessary for the care of patients, VITL believes it is essential for all Vermont hospitals to provide a 'minimum data set' to the network. This will ensure common data is available and it will support the need for the network to provide a threshold level of value to providers.

To achieve this minimum data set, VITL plans to complete interface

Hospital Interface Status

As of January 15, 2013

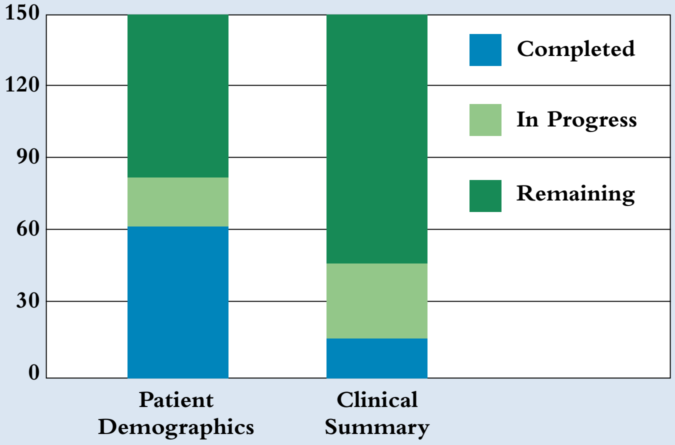
Vermont Hospitals	Patient Demographics	Lab Test Results	Radiology Reports	Discharge Summaries
Brattleboro Memorial Hospital	✓	✓	✓	✓
Copley Hospital	✓	✓	✓	✓
Central Vermont Medical Center	✓	✓	✓	✓
Fletcher Allen Health Care	➤	✱	●	●
Gifford Medical Center	✓	✓	✓	✓
Grace Cottage Hospital	➤	➤	➤	➤
Mount Ascutney Hospital	➤	➤	➤	➤
North Country Hospital	➤	➤	➤	➤
Northwestern Medical Center	✓	✓	●	●
Northeastern Vermont Regional Hospital	●	●	●	●
Porter Medical Center	✓	✓	✓	✓
Rutland Regional Medical Center	✓	✓	✓	✓
Springfield Hospital	✓	✓	✓	✓
Southwestern Vermont Medical Center	●	✱	●	●
Other Hospitals				
Dartmouth Hitchcock Medical Center	➤	➤	●	●

✓ **Complete** — *The interface is in production, and contributing data to the health information network.*

✱ **Pre** — *The interface is in production in a pre-Medicity format, but data is not being stored.*

➤ **In Progress** — *The interface is being developed. It may be at any stage from the pre-work required of the organization, through the analysis, build, and testing prior to being moved to production.*

● **Hold** — *The organization is not actively working on the interface.*



Primary Care Practice Interface Development

(for sending data to the health information network)

Note: Among 150 primary care practices identified as Blueprint for Health participants

development with all hospitals in the following order.

- **Phase One:** Patient demographics and lab test results
- **Phase Two:** Radiology reports, discharge summaries, and medication histories
- **Phase Three:** Pathology reports and radiology images

VITL plans to work with primary care providers to develop interfaces which support the following clinical and health data types:

- **Phase One:** Patient demographics and immunization reports
- **Phase Two:** Clinical care summaries

VITL also expects to offer providers access to their patients' medication histories by establishing connectivity to a third-party source such as the national Surescripts eprescribing network.

Once the interfaces from hospitals and most of the primary care practices have gone live, VITL believes the health information network will be providing substantial value. VITL is working to achieve this goal prior to July 2015.

At the same time that the number of interfaces to the health information network increases, in 2013 VITL will be implementing key components of the core infrastructure specifically designed to allow providers to receive the benefit of sending clinical information. These include:

- Data storage
- Patient identification and matching
- Patient consent management
- Provider portal
- Retrieval of stored clinical documents

Implementing Patient Consent

The state's patient consent policy, adopted in October 2012, represents a challenge to VITL, which is charged with implementing the policy.

The policy specifies that a patient must give consent to each health care organization, before providers from that organization can search for information about the patient on the health information network. For example, a patient could grant consent to his or her primary care provider, while withholding consent from a specialist physician practicing in a different health care organization.

A consent, once granted, is good until revoked or the individual is no longer a patient. Each consent that is granted must be documented by the patient in writing, and then the patient's consent preferences must be entered into the Medicity provider portal, which is being used to search and retrieve information stored in the core infrastructure. A patient can revoke consent at any time by signing a revocation form.

One concern is that clinical information on a patient may exist in the health information network, but in the absence of the patient's consent to 'opt-in', the provider will be precluded from accessing and using that information to care for the patient. Additionally, waiting until a patient visits his or her provider to sign the consent will delay the process.

Providers have expressed concern to VITL that the administrative work involved in obtaining and handling patient consents is substantial. The administrative work is perceived as a significant barrier to participating in the patient consent program. To lower this barrier and accelerate the patient consent process, VITL plans to offer to relieve providers from as much of the administrative work as possible.

Health care organizations which obtain patient consents will be offered the option of sending the signed forms to VITL for the patient's consent preferences to be entered in the Medicity portal. VITL will also host an online consent form that patients can use to verify their identity and give consent to one or more health care organizations. VITL will enter patient consent preferences obtained online into the Medicity portal and then notify the appropriate health care organization(s) that consent has been received.

To meet its obligation under the state policy to provide patient education, VITL will supply health care organizations with printed brochures, exam room posters, and other educational materials. Health care organizations will be given patient communication templates, so that they can send letters or emails to their patients and ask them to sign and return consent forms before they come in for treatment. VITL will put information for patients on its website, including answers to frequently asked questions. Patients will be able to call a toll-free number and talk to a consumer information specialist who can answer their questions about consent. VITL's consumer information specialist will also be able to respond to patients' written requests for information (which they are entitled to under the state policy), such as audit logs showing the providers who have accessed the patient's health care data.

While VITL expects that this approach will help make participating in the patient consent program more attractive to health care providers, it does come at a cost. Personnel will be needed for staffing the toll-free phone line, entering patient consent preferences into the Medicity portal, and working with health care organizations to incorporate the process of asking for patient consent into their daily workflow. Materials will have to be purchased, including consent forms, brochures, and exam room posters. As of this writing, VITL is quantifying the additional resources that will be needed and will be presenting a budget request to the state for approval.

Financial Stability

As noted earlier in this report, more than 60 percent of VITL's annual budget is derived from a state grant, which in turn is partly funded by the 0.199 percent fee on commercial health insurance claims that constitutes the state Health IT Fund.

Providers will be more willing to pay for the services they receive from the health information network if it is demonstrating value in the short-term from a day-to-day clinical decision making standpoint.

The availability of funding from the state has been extremely beneficial. It has enabled VITL to proceed with building the health information network without asking health care organizations to pay a subscription or transaction fee. This has eliminated a financial barrier to providers participating in the network.

VITL has already demonstrated value to early users of the health information network. At the same time, VITL recognizes the need to transition from state funding to a self-sustaining model. Providers will be more willing to pay for the services they receive from the health information network if it is demonstrating value in the short-term from a day-to-day clinical decision making standpoint, and in the long-term as coordination of care, data analysis, and assuming increased risk for outcomes becomes more prevalent under health reform. VITL will need to accelerate development of the network to demonstrate increasing value to users. Once accomplished, VITL can then quantify the value being delivered and begin the transition to self-sustainability.

At the same time, VITL is exploring its ability to offer new services. These include serving as the health IT infrastructure for accountable care organizations and other forms of governmental and payer health care delivery models. VITL is investigating the development of an image archiving service — the ability to store radiology images needed for historical and trend comparisons. Image archiving is a cost that hospitals currently bear individually and can be offered more cost-effectively by consolidating hospital storage requirements into one source. VITL is also evaluating ways to provide on-going technology services to individual providers after EHR implementation, as well as ways to leverage VITL's current and planned technology to support the coordination of care across a community of providers.

Over the next two years VITL will be working diligently to deliver a health information network to Vermont that is highly valued, can be leveraged to improve care delivery by providers and increase patient engagement in a new era of health reform, while at the same time seeking to offer new services designed to improve efficiencies and reduce the cost of care.

SECTION 7:

Conclusion

Considerable progress was made in 2012 with developing all four major components of the health information network. The number of EHRs in use increased substantially, providers began using VITLdirect for secure messaging, more interfaces went live, and the core infrastructure continued to develop.

Each component is demonstrating benefits and providing value to the health care system. Providers are using their EHRs to identify patients in need of preventive services and follow-up care, and are intervening to help patients improve their health and lower costs. Direct messaging is helping practitioners in different organizations better coordinate care. Interfaces are speeding up the flow of data to EHRs, which in turn is helping alert providers to medical problems that can be treated before more expensive hospitalizations are needed.

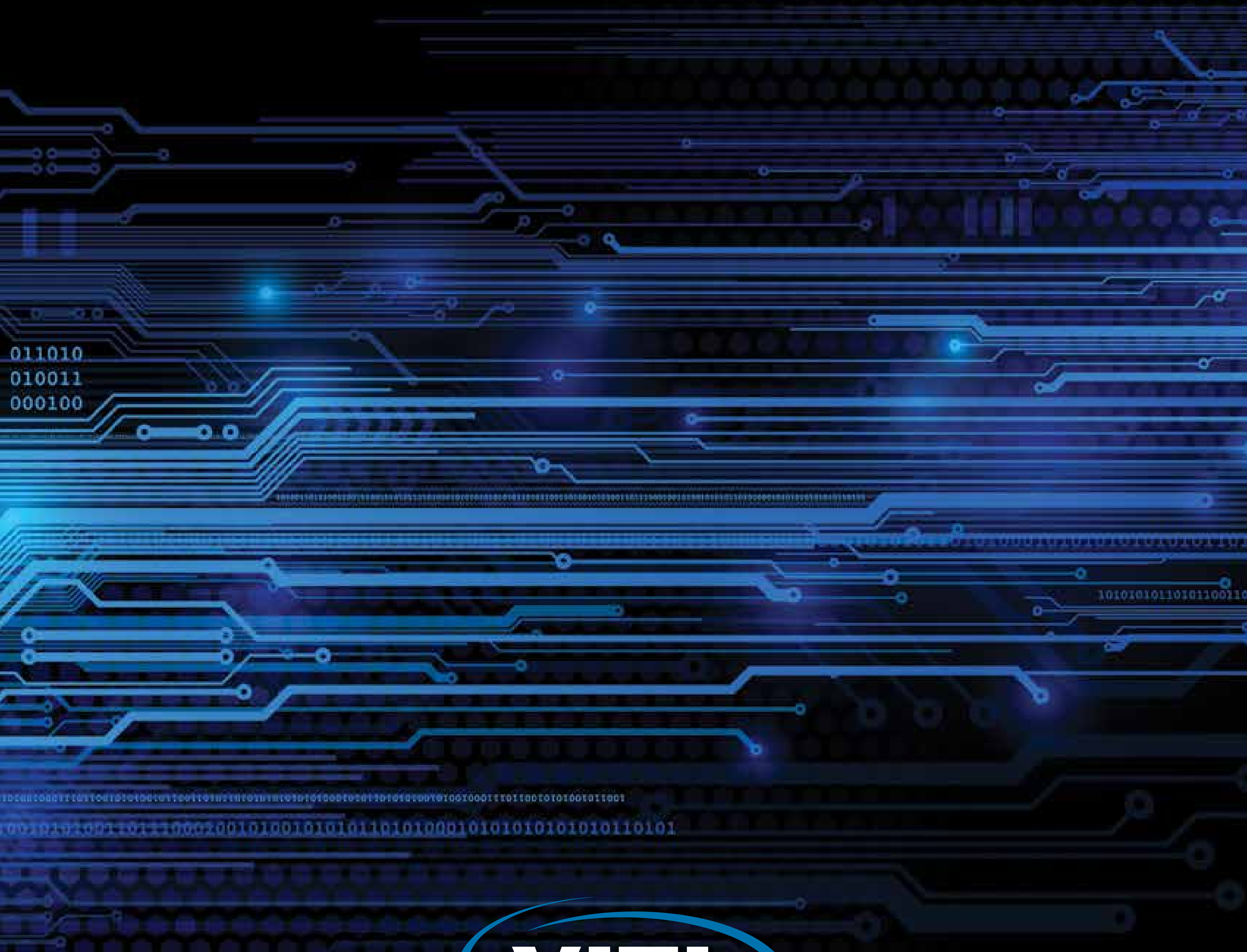
VITL is capitalizing on the investment made in the Medicity core infrastructure, as the majority of Vermont's hospitals are now contributing data and the pace of interface development has quickened over the past year.

Despite the positive steps that were taken in 2012, VITL faces a number of challenges and much work remains:

- EHR adoption services should be offered to non-primary care providers;
- the development of interfaces will be accelerated;
- the state patient consent policy must be implemented;
- additional core infrastructure capabilities will be deployed; and
- VITL will develop a plan for long-term financial stability.

VITL is developing plans to meet all of those challenges and will be implementing them in 2013. Depending on the state's priorities, additional resources will be needed. VITL is prepared to assist in quantifying the resources needed and providing information about the specific costs.

VITL is now positioned to leverage health information technology to meet Vermont's needs, but continued support from all stakeholders will be needed – health care organizations, health insurers, employers, consumers, and state government — to fully realize the investments made to date.



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