Health Information Exchange: A Strategy for Improving Access for Rural Veterans in the Maine Flex Rural Veterans Health Access Program

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Acknowlededements

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EXECUTIVE SUMMARY

Rural veterans' access to healthcare has been a Congressional priority over the last several years, with legislation supporting a variety of programs, many of which aim to expand access to local, non-Veterans Administration (VA) health services for rural veterans who have limited access to VA providers and services. The Flex Rural Veterans Health Access Program (RVHAP) is a grant program authorized and funded through the Medicare Improvement for Patients and Providers Act of 2008. Administered by the Federal Office of Rural Health Policy within the Health Resources and Services Administration, Department of Health and Human Services, the program's most recently funded projects in Alaska, Maine, and Montana, aim to enhance rural veterans' access to non-VA healthcare and behavioral health services by expanding direct access to these services through telehealth and/or by facilitating coordination of care and the sharing of clinical information through health information exchange (HIE) connections between VA and non-VA healthcare providers.

This paper reports on the design and implementation of the Maine RVHAP project (MeRVHAP) which seeks to connect clinical providers in the VA Maine Healthcare System to Maine's statewide Health Information Exchange (HIE-HealthInfoNet). The paper focuses specifically on the project's goal of using Maine's statewide HIE to create bi-directional VA and non-VA provider access to rural veterans' health information, thereby improving care coordination, continuity of care, and the quality of care received by veterans. In addition to describing the design and implementation strategies, experience, and progress of the MeRVHAP, we discuss key factors that have contributed to the project's implementation challenges and successes with the aim of extracting lessons relevant to the broader issue of enhancing healthcare access for rural veterans.

Study findings center on the implementation challenges and project accomplishments. Discussions with participants in the MeRVHAP project revealed two key sets of implementation challenges. The first involved problems associated with developing a security and privacy solution that would satisfy the technical and other standards of the VA and HealthInfoNet. Developing acceptable patient consent processes proved challenging as well. The second revolved around difficulties negotiating the organizational complexity of the state, regional, and national VA systems.

Despite significant challenges, the MeRVHAP has successfully established bi-directional connections with the HIE that are allowing the exchange of clinical health information among VA and non-VA providers. Key factors that have contributed to success include:

- The MeRVHAP builds on an existing, state-wide exchange with enough provider connections and buy-in to make it an effective strategy for enhancing access and care provided to rural veterans.
- Project champions in the VA and the HIE, organizational buy-in, and collaboration were critical to navigating and overcoming complex technical and organizational challenges.
- Maine's Rural Health and Primary Care Program played a key convening and facilitation role that helped launch and support the project.
- Additional funding from the VA was critical in covering the true costs of designing and implementing this project.

The MeRVHAP has demonstrated that despite numerous technical challenges, it is technically feasible to establish a VA-HIE connection that allows VA and non-VA providers access to Veterans' health information. Beyond demonstrating the technical feasibility of this project, MeRVHAP provides important lessons regarding factors critical to successfully managing a complex project implementation process. The foundation of strong inter-organizational collaboration in this project bodes well for its sustainability as long as the expected benefits in access and clinical care are realized.

INTRODUCTION

Improving the health of rural veterans by increasing their access to healthcare and behavioral health services has been a national policy priority, driven in part by the high proportion of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans living in rural areas. National and state-specific studies indicate that rural veterans are more likely than their urban counterparts to report poor physical and mental health status.[1-3] Yet, rural veterans are less likely to seek or receive general medical or mental health care.[3,4] Research has also shown that rural veterans are more likely than urban veterans to report needing but forgoing care because of cost[1] and the need to travel long distances to receive services.[5] In a comprehensive study of veterans' mental health needs, veterans identified too few providers, long wait times for appointments, and confidentiality concerns as reasons why they did not seek mental health treatment.[6] In response to these access barriers, Congress and the U.S. Department of Veterans Affairs (VA) have made the health care needs of rural veterans a top priority.

This paper reports on the design and implementation of the Flex Rural Veterans Health Access Program (RVHAP), a grant program authorized and funded through the Medicare Improvement for Patients and Providers Act of 2008.[7] Administered by the Federal Office of Rural Health Policy within the Health Resources and Services Administration, Department of Health and Human Services, the program's most recently funded projects in Alaska, Maine, and Montana, aim to enhance rural veterans' access to non-VA healthcare and behavioral health services by expanding direct access to these services through telehealth and/or by facilitating coordination of care and the sharing of clinical information through health information exchange (HIE) connections between VA and non-VA healthcare providers. Because each of the states' strategies differ significantly, this paper focuses only on Maine's RVHAP project which seeks to

connect clinical providers in the VA Maine Healthcare System to Maine's statewide HIE (HealthInfoNet). The project goal has been to create bi-directional VA and non-VA provider access to rural veterans' health information, thereby improving care coordination, continuity of care, and the quality of care received by veterans. In addition to describing the project's design and implementation process, including strategies, challenges, and successes, our aim is to share generalizable lessons from the project that can inform policy and other strategies for achieving better access for rural veterans through more effective care coordination across VA and non-VA providers.

BACKGROUND

Rural veterans' access to healthcare has been a Congressional priority over the last several years, with legislation supporting a variety of programs, many of which aim to expand access to local, non-VA health services for rural veterans who have limited access to VA providers and services. These efforts include the establishment of the Veterans Health Administration's (VHA) Office of Rural Health in 2007[8], which works to improve access and quality of care for enrolled rural and highly-rural Veterans through a combination of community-based clinic expansion, increased partnerships with non-VA rural providers, increased use of telemedicine and information technology, and efforts to recruit and retain health care providers to rural areas.

In response to concerns about long travel distances and extended wait lists that limit rural veterans' access to VA healthcare services, the VA has implemented pilot programs and contractual arrangements under its Non-VA Medical Care Program to improve access to needed services.[9] The programs include:

- Project ARCH (Access Received Closer to Home)[10], a pilot program implemented by the VA for eligible Veterans living in rural areas in Northern Maine, and near Farmville, Virginia; Pratt, Kansas; Flagstaff, Arizona; and Billings, Montana, to connect them to healthcare services closer to their homes through contractual arrangements with non-VA providers. Project ARCH was extended through August 2016 by the Veterans Access, Choice and Accountability Act of 2014.[11]

- Patient-Centered Community Care, a program that contracts with vendors to develop a network of health care providers for services that include primary care, inpatient specialty care, outpatient specialty care, mental health care, limited emergency care, limited newborn care, skilled home health care, and home infusion therapy.[9]

President Obama signed the Veterans Access, Choice and Accountability Act of 2014 into law[11] following public revelations of serious waiting list problems within the Phoenix, Arizona VA health care system.[12] The Act directed the VA to expand the number of options for veterans to receive timely access to health care. Under the Act, the Veterans Choice Program provides eligible veterans access to a range of community-based healthcare providers when their local VA health care facility cannot provide the services due to access barriers such as lack of medical specialists, delays in scheduling appointments within the VA system, or extraordinary geographic travel burdens.[13] Following a series of oversight hearings conducted by the Senate Committee on Veterans Affairs into problems with the Veterans Choice Program experienced by veterans and providers, the House and Senate passed H.R.3236, Surface Transportation and Veterans Health Care Choice Improvement Act of 2015, directing the VA to address these problems.[14] An important part of this legislation is the requirement that the VA produce a plan to consolidate external provider programs. The ability to share patient information across VA and

non-VA systems is a key challenge in this design and implementation of the VA's plan for expanding its network of non-VA providers.

The Flex Rural Veterans Health Access Program (RVHAP)

With funding from the Federal Office of Rural Health Policy, the RVHAP complements the VA's initiatives by supporting a limited number of states to implement initiatives to expand access to non-VA providers and use technology to improve care coordination and sharing of information between VA and non-VA providers. The grant program was authorized by the Medicare Improvement for Patients and Providers Act of 2008.[7] The Act expanded the Medicare Rural Hospital Flexibility Program and gave the Department of Health and Human Services Secretary authority to award states grants to improve the provision of mental health and other health services to veterans and other residents in rural areas.[7] The goal of the RVHAP is to improve access and services to OIF and OEF rural veterans who are affected by poor accessibility and availability of mental health services and other health care services in rural areas of the United States by funding projects that: (1) enhance access and quality of healthcare and mental health services for veterans residing in rural areas, including the detection of post-traumatic stress disorder, traumatic brain injury, muscular skeletal injuries, and other injuries; (2) support efforts to utilize telehealth and health information technology (HIT) to improve care coordination for veterans who are seen by both the VA and private providers; (3) expand existing networks to provide access to mental health and other services to rural veterans via partnerships with other healthcare entities such as Critical Access Hospitals (CAHs), Federally Qualified Health Centers (FQHCs), Rural Health Clinics (RHCs), home health agencies, community mental health centers and other providers of mental health services, pharmacists, local government, private practice physicians, and other providers; and (4) engage a wide array of

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stakeholders including state hospital associations, rural hospitals, providers of mental health services, and others in the development of program activities.[15]

In July 2008, the first round of projects under the RVHAP was funded in Alaska, Montana, and Virginia. Maine, along with Alaska and Montana, were awarded second round RVHAP funding for 2013-2016.

Study Purpose and Approach

This study examines the progress and experience to date of Maine's RVHAP (MeRVHAP) project. As noted earlier, the MeRVHAP seeks to create bi-directional connections for VA and non-VA healthcare and behavioral health providers to Maine's operational statewide HIE. In doing so, MeRVHAP seeks to improve the quality and effectiveness of healthcare services and enhance the coordination of care received by Maine's rural veterans by facilitating the exchange of clinical information between VA and non-VA providers. As such, the development and implementation of this initiative involves considerable technical and operational complexity. In addition to describing the design and implementation strategies, experience, and progress of the MeRVHAP, our study seeks to identify key factors that have contributed to the project's implementation challenges and successes, thereby extracting lessons relevant to the broad issue of enhancing healthcare access for rural veterans.

The information for this study comes from project-related documents, including the original MeRVHAP grant proposal, progress reports, and communications materials, along with key informant interviews with project leaders and participants from the Maine Department of Health and Human Service's Rural Health and Primary Care Program (MeDHHS), the formal grantee; HealthInfoNet, Maine's HIE that led the technical information exchange design and implementation; the VA Maine Healthcare System which coordinated the implementation of the

technical solutions within the VA; and the Veterans Rural Health Resource Center – Eastern Region (Resource Center). Using a semi-structured interview protocol, we conducted both in-person and telephone interviews with key informants (Appendix A). Interview questions focused on the role of each key player in the MeRVHAP, their implementation approaches and strategies to provide healthcare access to rural veterans through non-VA providers; facilitators and barriers they experienced in the implementation of these approaches and strategies; how the MeRVHAP project has impacted the connection between VA and non-VA providers; and promising practices for future implementation and sustainability efforts. Interviews were recorded and transcribed for analysis using NVivo qualitative data analysis software to identify common themes, similarities, and differences across partner organizations regarding implementation successes, challenges, and lessons learned.

To help us understand the MeRVHAP we constructed a logic model based on Maine's grant application and project progress reports (Figure 1). This logic model provides a visual map of the stakeholders and partners in the MeRVHAP project, the key project resources, and the high-level activities conducted to meet the goals of the project which include technical and collaborative outcomes. By improving healthcare access and care coordination for rural veterans, the project is expected to produce long term outcomes of improved physical and behavioral health for Maine veterans.

Figure 1. Logic Model for the Maine Rural Veterans Health Access Program

CONNECTING VA AND NON-VA PROVIDERS: THE MAINE RURAL VETERANS HEALTH ACCESS PROGRAM

As mentioned previously, Maine, Montana, and Alaska received second-round RVHAP funding. Alaska's project aims to expand existing telehealth networks in the state's southeast region, establish a health network focused on traumatic brain injury, and conduct a series of health fairs. Montana's project aims to increase the utilization of telemedicine, coordinate care between VA and non-VA care providers through HIT; enroll veterans in the VA healthcare system; integrate physical and behavioral health care; and improve the quality of care for veterans through clinician trainings focused on post-traumatic stress disorder; traumatic brain injury, and combat related illness and injuries.

While Montana and Alaska pursued projects with a combination of telehealth- and HIT-focused objectives, the MeRVHAP focuses exclusively on creating interoperable HIT connections between VA and non-VA (community) providers. The importance of improved HIT connections in Maine is clear—of the 41,648 unique Maine veterans seen by a Maine VA Healthcare System provider in 2014, 78% were from rural or highly rural areas.[*] Many of Maine's veterans utilize both VA and non-VA providers including CAHs and rural hospitals. Maine's funding application included three main goals: (1) use the statewide HIE to improve care coordination for veterans receiving dual care (seen by both the VA and private healthcare providers); (2) provide coordinated and collaborative support to VA providers for implementing an HIE connection with HealthInfoNet; and (3) make personal HIE records available to veterans who are accessing their medical record information. Related objectives include:

- connecting all VA clinics in the state and the Togus VA Medical Center to the HIE,

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[*] These data have been obtained from the Veterans Health Administration Support Service Center which queries the VA Corporate Data Warehouse.

- creating the systems needed to provide direct notification of veterans' use of the emergency room and other services to VA and non-VA care managers,

- coordinating HIE activity with behavioral health and primary care integration and patient centered home initiatives, and

- building a personal health record model for use by veterans based on national standards.

The MeRVHAP envisioned a three-pronged approach to the design and implementation of the project. The first phase involves providing approved VA users (e.g. clinicians at the Togus VA Medical Center and the Community Based Outreach Centers (CBOCs)) uni-directional access to view veterans' medical records from any of HealthInfoNet's network of providers. In the second phase, authorized community providers will be allowed bi-directional access to VA patient information through the Virtual Lifetime Electronic Record Health Program (VLER).[16],† In the final phase, the project will provide veterans the capability to share their health information in the form of a continuity of care document (CCD) with a community provider.

Key Partners

The Maine Department of Health and Human Services, Rural Health and Primary Care Program (MeDHHS) is the grantee for the MeRVHAP with two key partnering organizations: HealthInfoNet and the VA. While the Maine VA has been the lead VA participant, the regional and national VA offices have also played significant roles in the project. As the primary funding recipient, MeDHHS is responsible for facilitating communication between the key partners,

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† The VLER is the VA's electronic health program which has two tools for securely sharing veterans' health information. The VLER Health Exchange is a program that utilizes the national eHealth exchange to enable VA and non-VA providers to access veterans' health information which includes, but is not limited to, medical history, procedure results, discharge summaries, medications, allergies, vital signs, and progress notes. VLER Direct allows VA providers to securely send referrals to a non-VA provider.[16]

convening the project's Steering Committee, handling project funds, and managing grant reporting. MeDHHS also offers general project oversite in close collaboration with HealthInfoNet and the Maine VA.

HealthInfoNet, the technical lead on the MeRVHAP project, is an independent, 501(c)3 nonprofit organization designated by the State of Maine to operate Maine's statewide HIE. HealthInfoNet went live in 2009 and now collects data from over 35 hospitals, and 450 physician practices, behavioral health providers, FQHCs, home health facilities, and independent laboratories in Maine.[17] Its clinical data repository contains records for more than 1.5 million people—which accounts for 97% of Maine's residents and over 200,000 out-of-state residents. These records include patient demographics, problem lists, medications, allergies and adverse reactions, lab results, procedures, and other clinical information. HealthInfoNet also offers additional services to providers including predictive analytics, hospital admission and discharge notifications, and accountable care organization patient panel management.[17] Finally, HealthInfoNet automates the reporting of Syndrommic Surveilance information and laboratory information for the Maine Center for Disease Control and Prevention.

The VA Maine Healthcare System represents a network of care providers, including the Togus VA Medical Center and 11 outpatient clinics around the state (Figure 2), that has played a central role in the design and implementation of the MeRVHAP project.[18] The Resource Center, funded by the VA Office of Rural Health, has helped the VA Maine Healthcare System and HealthInfoNet navigate the bureaucratic layers of the national VA. The Resource Center has provided technical assistance to the project through developing a communications plan to introduce the MeRVHAP to the state's veterans, providing support for veterans and staff,

developing training materials, assisting with the initial project rollout into VA facilities, and monitoring project implementation.

Figure 2. VA Maine Healthcare System. Community Clinic Directory
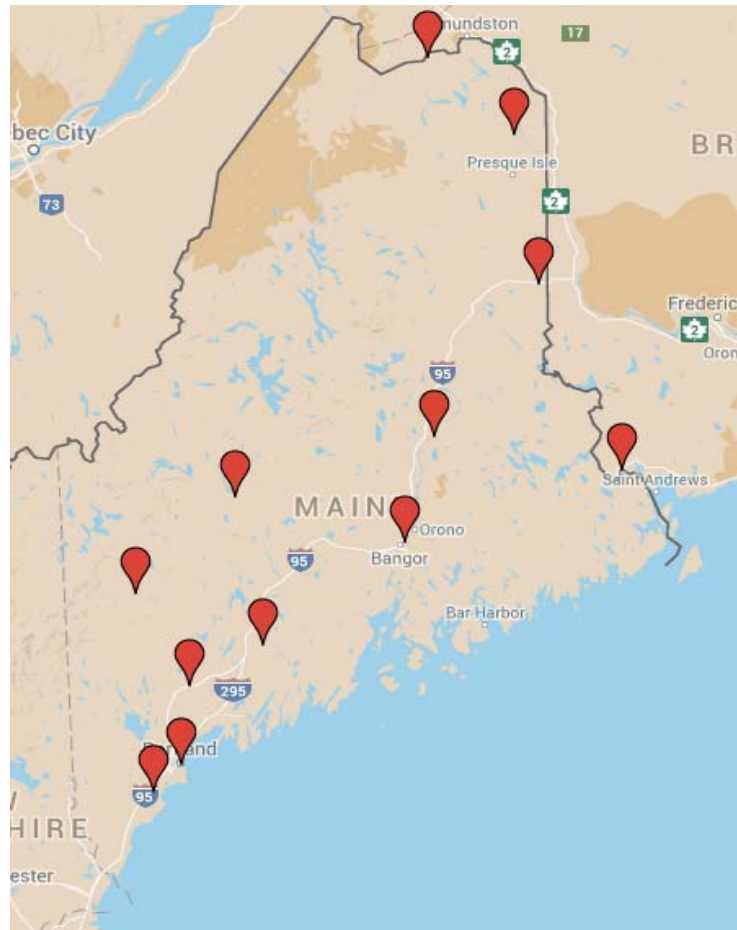
A Steering Committee, with representatives from the Maine VA healthcare system, CAHs, FQHCs, the MeDHHS, HealthInfoNet, the Maine Health Access Foundation, the Maine Primary Care Association, and veterans, oversees and supports the MeRVHAP program activities.

HIE Architecture and Plan

Establishing a technical connection between Maine's statewide HIE and the VA's Veterans Health Information Systems and Technology Architecture (VistA) required close

collaboration between HealthInfoNet and the VA Maine Healthcare System. VistA is an integrated electronic health record (EHR) developed by the Veterans Health Administration (VHA) in 1996 and is used at more than 1,500 VHA facilities, including medical centers, CBOCs, and community living centers.[19] The program is an open-source EHR available for download on the VA's website. It has been implemented by several non-VA healthcare systems and facilities including the Tennessee Department of Health, Indian Health Services, and other sites worldwide.[20,21]

To establish bidirectional data connectivity with the VHA's VistA architecture, HealthInfoNet built a technical connection through eHealth Exchange—the national HIE gateway that was designed to support data standardization and data governance for the federal government. eHealth Exchange is operated by The Sequoia Project, a public-private collaborative formerly known as Healtheway. eHealth Exchange has technical connections to exchange protected health information (PHI) with four federal agencies: the Veterans Administration, Department of Defense, Social Security Administration, and the Department of Health and Human Services, including the Centers for Medicare & Medicaid Services (Figure 3). Additionally, HealthInfoNet created a new technical connection (query and retrieval system) that allows VA and non-VA providers to retrieve patient records in a common format (e.g. the C32 Continuity of Care Document, also known as a CCD, that includes administrative and clinical information summarizing a patient's health status).

Figure 3. Bidirectional Health Information Data Exchange
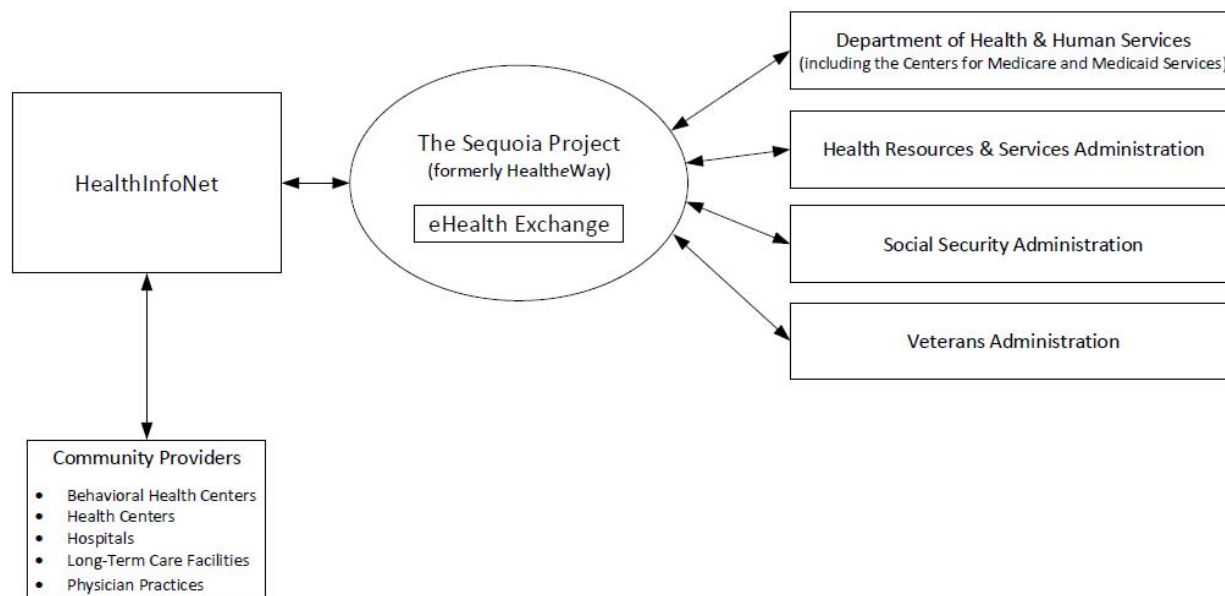
To achieve compliance with the eHealth Exchange's data security standards—and thereby make data exchange with the VA possible—HealthInfoNet established revised data use agreements with participating providers. Specifically, HealthInfoNet developed and signed a Data Use and Reciprocal Support Agreement (DURSA)—a comprehensive, legally enforceable multi-party trust agreement that eliminates the need for individual point-to-point security agreements. The DURSA described the responsibilities and obligations of all participants in the HIE in order to protect the privacy and security of health data in the HIE. This was an important step in overcoming potential security hurdles that could prevent a fully bi-directional exchange.

Accessing a patient's record from HealthInfoNet requires a two factor authentication process to ensure compliance with HealthInfoNet security protocols. First, every VA user that is approved to see PHI must enter a unique password to access the HealthInfoNet clinical portal. Second, every computer in the Maine VA system from which a user accesses information from HealthInfoNet must have Symantec VIP software installed. The software includes a user- and

machine-specific certificate. This certificate—a complex algorithm—allows HealthInfoNet to authenticate the computer before transmitting PHI. HealthInfoNet's clinical portal is currently available to clinical staff at VA healthcare facilities, including physicians, nurse practitioners, physician assistants, registered nurses, licensed practical nurses, pharmacists, certified clinical pharmacy technicians, medical support assistants, and health technicians. The VA Maine Healthcare System is actively considering expanding access to medical administration staff.

The initial technical connection established under the MeRVHAP gave approved VA staff uni-directional view-only access to HealthInfoNet's clinical portal view of the statewide HIE. When a VA health provider uses a secure connection via the encrypted secure software connection from their local computer, they can log in to HealthInfoNet's clinical portal and search for the veteran for whom they are seeking non-VA information. Patient information is displayed in the HealthInfoNet clinical portal format (see Appendix C). The MeRVHAP project team anticipates that a bi-directional exchange between the Maine VA Healthcare System and community care providers in the HealthInfoNet network will be fully operational by the end of the three-year grant period in August 2016, if not sooner. The bi-directional connection between HealthInfoNet, the eHealth Exchange, and the Maine VA Healthcare System will merge the health data from HealthInfoNet's network of providers and then format that data into the federally mandated C32 format. The C32 is a CCD that includes administrative and clinical information summarizing a patient's health status including their insurance provider, advanced directive, allergies, medications, immunizations, vital signs, procedures, and lab results.

Privacy Issues

Privacy and the security of PHI are top concerns for Maine veterans, as was evidenced in the findings of a focus group convened to learn about veterans' concerns regarding the use of

technology in the sharing of their health information.[22] Although veterans acknowledged the

potential benefits of coordinating their VA and non-VA care, and understood the consent process

that would be used to protect the privacy of their medical information, focus group participants

were still concerned that their health information, especially mental health information, could be

compromised. One respondent noted the importance of the privacy issues and concerns by

stating:

> "if VA Maine does not engage in a communications campaign to alert enrolled Veterans
>
> about participation in HealthInfoNet, and the process to opt-out of participation, Veterans
>
> may feel VA has made an arbitrary decision to access their health information (from an
>
> outside source) without their consent. Veterans may perceive this as a lack of respect for
>
> their privacy and a violation of trust."[22, p.12]

Responding to these concerns, the VA and HealthInfoNet developed an *opt-in* and *opt-out* conset framework and an accompanying communications plan explaining the consent options

and process. The *opt-in* and *opt-out* consent framework is different for each phase of the project.

For phase one—which allows approved VA personnel to have uni-directional, view-only access

to Veterans' health information from their community provider(s)—veterans must *opt-out* of

HealthInfoNet if they do not want their health records from community providers shared with the

VA. Consent is "all or nothing." If a veteran chooses to *opt-out* of HealthInfoNet to prevent their

health information from being shared with the VA, their medical information will be deleted

from HealthInfoNet completely. In phase two of the project—with bi-directional exchange of

continuity of care documents between VA and non-VA providers—veterans will need to *opt-in*

by signing a release form for non-VA providers to view their VA records.

Under Maine state law, provider access to some mental, behavioral health, and HIV/AIDS information is limited. During phase one, VA providers can only view mental health information or HIV/AIDS status from a non-VA provider if: 1) a veteran has signed and returned HealthInfoNet's "*Opt-in" Form for Mental Health or HIV/AIDS Information,* 2) if a veteran gives an individual VA provider verbal permission during a visit, or 3) if a veteran is in a medical emergency. Veterans may request an audit report of who has accessed their records through HealthInfoNet.

The communications plan for informing veterans of their consent options included both print and online messages, along with links to the opt-in release form for bi-directional sharing of all medical information, including mental health and HIV care.[23,24] Printed forms will be available to veterans at each VA clinic and hospital and online; the forms will not be pushed out to Maine's veterans through the postal service. A helpline will answer any questions related to VLER, the release form, and data security regarding sharing of patient information with HealthInfoNet.

IMPLEMENTATION CHALLENGES

Our discussions with participants in the MeRVHAP project revealed two key sets of implementation challenges. The first involved the problems associated with developing a security and privacy solution that would satisfy the technical and other standards of the VA and HealthInfoNet. The second revolved around difficulties negotiating the organizational complexity of the state, regional, and national VA systems.

Data security and privacy standards differed between the VA and HealthInfoNet requiring unique, technical solutions.

One of the biggest data security challenges derived from differing expectations for how data security would be managed. At the outset of the project HealthInfoNet assumed the VA would abide by HealthInfoNet's stringent security protocols and agree to use virtual private network (VPN) access to PHI. However, early into project implementation, project partners learned that the VA Maine Healthcare System's information network is controlled by VA National which would have had to approve a VPN approach. The VA informed the team that this could have taken as much as two years. In order to continue the project and not delay implementation, HealthInfoNet and VA Maine Healthcare System did a "workaround" and obtained authorization from VA National to install a security software program onto each user's computer, providing two levels of authentication using a software package configured by HealthInfoNet and installed on authorized computers. VA authorization for this solution took about three months. Even though this authorization process was significantly shortened, the workaround solution created difficulties in project implementation. Instead of the original plan to install the software once on each computer the software requires computer- and user-specific authentication in HealthInfoNet. According to the VA project manager in charge of the trainings, a lot of specific "hand holding" was needed to prepare employees for the implementation of the software.

Navigating the layers within the VA slowed implementation.

Another challenge, not anticipated in the early stages of the project, was the difficulty navigating the layers within the VA—national, regional, and state. It was unclear early on who had authority within the VA to approve various aspects of the MeRVHAP project, and, in the absence of timely approvals, how to keep the project moving forward efficiently. The project

was fortunate to have someone in the Resource Center who was instrumental in helping VA Maine Healthcare System and HealthInfoNet navigate the national VA.

Also, the MeRVHAP project participants did not fully anticipate the complexity of the communications with veterans that would be needed and the approvals that would have to be obtained for those communication materials. As noted earlier, the project developed a Strategic Communications Plan which detailed messages and materials designed to shape veterans' attitudes positively toward sharing their health information and pave the way for full bi-directional exchange. Once approved, the project encountered a major challenge actually implementing the plan. The plan was to conduct a mass mailing to veterans with the consent materials and messages that had to be completed before the launch of the HIE-VA connection. The original launch was slated for January 2015, but the VLER Privacy Officer blocked the mailing, questioning the authority for the Government Printing Office to receive names and addresses to send mail to Veterans, claiming HIPAA violations. This situation was successfully resolved in May when letters to all Maine veterans along with an FAQ and an overview of HealthInfoNet documents were mailed, and flyers and postcards made available in VA medical offices (Appendix C). This allowed the project to officially "go-live" with the HIE connection in June 2015.[25]

PROJECT ACCOMPLISHMENTS

The MeRVHAP successfully launched uni-directional, view-only access for VA clinicians to Maine's HIE by June 2015, with work on track to have bi-directional connections in place by the

end of 2015. According to usage statistics provided by the VA Maine Healthcare System, as of December 6, 2015 over 13,000 HealthInfoNet records had been accessed by VA Maine staff.[‡]

The implementation status through December 2015 includes:

- Clinicians at the VA's main facility, Togus VA Medical Center, and several CBOCs have uni-directional access to the information available in Maine's HIE. The project will connect all of Maine's VA facilities—eight CBOCs, three outreach centers, and the Togus Medical Center—to the HIE clinical portal by the end of 2015. As of December 11, 2015, 611 VA Maine staff have access to the HIE clinical portal (HealthInfonet).

- The MeRVHAP has successfully demonstrated a bi-directional exchange with VLER. For the remainder of the grant period, the project will expand bi-directional data flow between the VA and community providers in the HIE network.

- Authorized VA personnel at all CBOC clinic sites, except the Portland Clinic, are trained and have access to the view-only HealthInfoNet portal. Trained staff from the Caribou and Bangor CBOC clinic sites also cover three outreach clinics that are open with limited access during the week, and so these outreach clinics are considered to have access as well. Figure 4 shows VA sites and departments in Maine sites with view-only access as of July 2015.

[‡] Source: VA Maine Healthcare System, email 12/11/15.

Figure 4. VA sites with view-only access to HealthInfoNet (as of July 2015)

Togus VA Medical Center	VA Bangor CBOC
Administration	Cardiology
Business Service Line	CBOC - Audiology
Cardiology	CBOC - Mental Health
CBOC - Primary Care	CBOC - Pharmacy
Dermatology	CBOC - Physical Therapy
Emergency Department	CBOC - Primary Care
Gastroenterology	**VA Calais CBOC**
General Surgery	CBOC - Primary Care
General Surgery	**VA Caribou CBOC**
HAS	CBOC - Mental Health
Home Telehealth	CBOC - Pharmacy
Hospitalists	CBOC - Primary Care
Infection Prevention	Non-VA Care Coordination
Mental Health	**VA Lewiston-Auburn CBOC**
Neurology	CBOC - Mental Health
Non-VA Care Coordination	CBOC - Pharmacy
Nursing Informatics	CBOC - Primary Care
Office of Quality and Performance	Non-VA Care Coordination
Oncology	**VA Lincoln CBOC**
Pharmacy	CBOC - Primary Care
Primary Care	**VA Rumford CBOC**
Primary Care - Admin Office	CBOC - Mental Health
Pulmonary	CBOC - Primary Care
Radiology	**VA Saco CBOC**
Rheumatology	CBOC - Mental Health
Urology	CBOC - Primary Care
Vascular	
Women's Clinic	

Source: VA Maine Healthcare System

The MeRVHAP is reported to be the first successful effort in the United States to connect the VA with an HIE.[26] This raises the question of why this project has been successful and whether the design and implementation experience of this project is generalizable to other communities, regions, or states. The MeRVHAP has demonstrated that despite numerous

technical challenges in establishing and implementing a design that reconciles requirements and standards of both the VA and Maine's HIE, it is technically feasible to establish a VA-HIE connection that allows VA and non-VA providers access to Veterans' health information. Our interviews revealed that the implementation process made the technical solutions possible. Throughout our interviews we heard that the MeRVHAP would not have succeeded without a design and implementation process involving significant collaboration between key leaders in the VA Maine Healthcare System, the state Rural and Primary Care program, and HealthInfoNet. In the remainder of this section, we discuss these and other factors that were identified as instrumental in enabling the project to achieve the goal of having a functional, bi-directional connection between the state HIE and the Maine VA.

The MeRVHAP builds on an existing, state-wide exchange with enough provider connections and buy-in to make it an effective strategy for enhancing access and care provided to rural veterans.

Maine's HIE has achieved a critical mass of hospital, primary care, behavioral health, pharmacy, and other providers. Having a functional statewide HIE that is exchanging clinical and other information was a necessary and critical advantage for developing the VA to non-VA provider connections envisioned in the MeRVHAP project. The MeRVHAP also was able to ride the momentum of an expanding HIE. HealthInfoNet has successfully used federal grants from the Office of the National Coordinator for Health Information Technology, the Substance Abuse and Mental Health Adminstration, and the Centers for Medicare and Medicaid Services to continue the expansion of the HIE to new providers (e.g. behavioral health providers).

According to a case study report on Maine's HIE that was included in an evaluation of the State Health Information Exchange Cooperative Agreement Program, "Maine's approach to HIE leverages its longstanding relationships with stakeholders, collaborative environment, and

shared vision for HIE."[27] The buy-in for the HIE from stakeholders, and the demonstrated ability of HealthInfoNet to use information technology to help health systems share data, reflects a culture in the state for collaborative efforts in HIE and data sharing. Adding the VA to this mix was simply the next step.

HealthInfoNet's technical capabilities were also critical and enabled the MeRVHAP project to identify and address the numerous challenges encountered during project design and implementation, including data security issues. For example, at the beginning of the MeRVHAP project, HealthInfoNet learned that although the VLER system is considered a nationwide interoperable system, it was not very user-friendly for clinicians. So, instead of having to go six or seven clicks into the system to find data, HealthInfoNet created a portal that provides access to that clinical information with just a couple of clicks.

The alignment of interests and mutual benefits of this project for the VA Maine Healthcare system and HealthInfoNet provided important incentives and enthusiasm for the MeRVHAP project.

The urgency behind expanding and improving access for rural veterans served as an important facilitator for bringing the VA Maine Healthcare System, HealthInfoNet, and the MeDHHS together behind this project. More importantly, however, the project offered a strong business case for both theVA Maine Healthcare System and HealthInfoNet. The project offered the VA a sustainable way of connecting VA and private health care providers through clinical information exchange, advancing their goal of providing an integrated system that supports care coordination and management that helps reduce the potential for duplicated and expensive healthcare services.[28,29] For the VA, the goal is to have a working system whereby private healthcare providers are able to access veterans' records in a timely and efficient manner, which provides value to the veterans and streamlines work processes for VA staff.

The funding and sustainability of the HIE requires that HealthInfoNet create a system and ancillary services and products that have sufficient added value for users to justify paying HealthInfoNet's participation fee. Connecting the VA Maine Healthcare System to the HIE has potential value for non-VA providers in the HIE. It also creates a large, potential partner/customer for additional HealthInfoNet products that might meet VA needs. A component of HealthInfoNet's business model for sustaining Maine's HIE has been to create tools that utilize the HIE and other data to add value to clinical care and other core health system functions. For example, HealthInfoNet has developed a tool that notifies providers and MaineCare care managers in real time when a MaineCare beneficiary is using the Emergency Department or is admitted or discharged from a hospital setting. HealthInfoNet also developed a predictive analytics tool that uses both HIE and administrative claims data to identify future high-need/high-cost users, future utilization of services, and future probability of developing chronic illness and mortality.

Project champions in the VA and the HIE, organizational buy-in, and collaboration were critical to navigating and overcoming complex technical and organizational challenges.

The MeRVHAP project benefited from having strong and influential champions in all three of the partnering organizations: the MeDHHS, VA Maine Healthcare System, and HealthInfoNet. MeRVHAP participants noted, in particular, the importance of having a well-placed internal champion within the VA. MeRVHAP had two such champions in the regional VA who had the authority not only to make the relational connections both within the organization and externally, but also to provide the necessary operational leverage to move the process along internally to address challenges as they arose. Additionally, the MeRVHAP project enlisted two clinical champions, one from the VA Maine Healthcare System and one from

HealthInfoNet, to work with healthcare providers and with the Steering Committee to provide strategic direction on the implementation of the project. These individuals were vital in building on-the-ground buy-in within the clinical staff who will be the likely users of the VA-HIE connection.

Our interviews identified collaboration and communication as essential factors that helped the project stay on track and move forward. Long-standing and strong professional relationships across Maine's governmental and private agencies, including the VA Maine Healthcare System, enabled the partners to quickly decide to apply for RVHAP funding when the announcement for second round funding was issued. Together with internal support for the project in theVA Maine Healthcare System, those relationships gave the VA enough confidence in the project to pursue and secure additional funding for the project from the Resource Center. The VA Maine Healthcare System facilitated frequent communication between partners through three monthly calls: a VA internal-only call; a VA Maine Healthcare System, and HealthInfoNet call; and a third monthly call focusing on the VLER component of the project. These calls, along with monthly multi-stakeholder Steering Committee meetings have helped keep the project on track both technically and strategically.

As noted earlier, the VA Maine Healthcare System and HealthInfoNet worked closely together to create a separate project management structure to develop and roll out the complex communications plan to explain to veteran the *opt in* and *opt out* consent frameworks. According to interviewees, this collaboration was important in helping overcome governmental delays in the roll out of the communications plan and in the development and implementation of the training provided to the healthcare staff at selected VA facilities. Two training manuals were jointly developed by HealthInfoNet's Communication Manager and the VA Eastern Region's

Communications Specialist: one specifically for information about the project's *opt-in/opt-out* consent framework, the other for clinical portal users. According to feedback received by the VA Maine Healthcare System, the HealthInfoNet portal is very easy to use and the targeted training was well received by the Emergency Department at the Togus VA Medical Center (physicians, nurse practitioners, physician assistants and nursing staff), four CBOCs, Anticoagulation Clinic pharmacists, and certified clinical pharmacy technicians. The plan is to also provide access to the VA Maine's Primary Care Teams (which includes the Women's Clinic) and the remaining seven CBOCs.

Maine's Rural Health and Primary Care Program played a key convening and facilitation role that helped launch and support the project.

Grant support through the Federal Office of Rural Health Policy enabled the MeRVHAP project to have an administrative "home" which allowed for programmatic oversight of the key partners and the political presence to work with the VA. Early in the project, MeDHHS's Rural and Primary Care Program was instrumental in facilitating discussions between theVA Maine Healthcare System and HealthInfoNet on whether to use the RVHAP funding opportunity to extend Maine's HIE to the VA system. Although the Rural and Primary Care Program does not play a technical role in the project, it is responsible for managing the financial and administrative functions related to the grant and actively engaged in monitoring the project by participating in the regular conference calls and Steering Committee meetings.

The support of the Rural and Primary Care Program to help communicate about the project with CAHs, FQHCs and the hospital systems—to provide the "heads-up" about the process and the benefits of the project to non-VA providers and to veterans—was noted as critically important.

Additional funding from the VA was critical in covering the true costs of designing and implementing this project.

Although the federal RVHAP grant program provided essential core funding for the MeRVHAP project, the grant funds were less than what was needed to fully cover the cost of designing and implementing the project. The MeRVHAP project was very fortunate in having been able to access additional funding from the Resource Center. Additional funds for the project were available in FY 2014 when the Resource Center funding could be requested on a flexible, out-of-cycle schedule based on project needs. This funding request was available only in FY 2014 and aligned well with the shared vision across governmental agencies.

ADDITIONAL LESSONS LEARNED

Interviews with key project participants revealed several additional key lessons. Everyone we spoke with noted the importance of building and maintaining interagency relationships. Without the personal and professional connections and the level of trust that the partners brought to the project and developed over the course of the project, there could have been several instances where the project would have languished or died. The general sense among participants that this project was "the right thing to do" helped motivate the project team. Interviewees also noted that the workplan and timelines with structured times for communication between and across the key partners were critical.

Overcoming the technical and inter-organizational challenges of this project required significant flexibility and creativity on the part of the participants, especially HealthInfoNet. Having strong technical expertise was a pre-requisite for such flexibility and creativity in designing, for example, the security and privacy workaround described earlier.

And finally, the project participants noted that they learned the importance of having a strong education and outreach plan and capacity. They all noted that involving key players from the partner organizations in the development of the communications outreach plan allowed MeRVHAP participants to clarify goals and develop a uniform way to talk about the project to providers and veterans. Additionally, having dedicated staff to design and implement the communication effort to veterans through a dedicated helpline and to providers through a training program was key to project buy-in.

CONCLUSIONS

The MeRVHAP has demonstrated the technical feasibility of establishing bi-directional connections between VA facilities and community healthcare providers. Although the MeRVHAP builds on Maine's statewide HIE, the project's experience is generalizable to local and regional HIEs. The technical solutions in connecting non-VA providers to a system that allows viewing veterans' records could certainly be replicated. And perhaps more importantly, the collaboration and communication strategies the stakeholders developed in the implementation of this project could be used by others interested in pursuing similar strategies for connecting VA and non-VA providers.

As discussed earlier, the expectation is that the sharing of clinical information allowed by these connections will contribute to improved access and care for rural veterans receiving care from non-VA community providers. Access to clinical information in real-time is expected to enhance care coordination and management with VA, community providers, and veterans sharing access to the same information. Continued project monitoring and evaluation will be needed to determine whether the system that has been built through the MeRVHAP project produces these expected results.

Beyond demonstrating the technical feasibility of this project, MeRVHAP provides important lessons regarding factors critical to successfully managing a complex project implementation process. The foundation of strong inter-organizational collaboration in this project bodes well for its sustainability as long as the expected benefits in access and clinical care are realized.

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APPENDIX A. LIST OF INTERVIEWEES

Shaun Alfreds, Chief Operating Officer, HealthInfoNet

Matthew Chandler, Assistant Director, Division of Licensing and Regulatory Services, Bureau of Health System Oversight, and Director, Maine Rural Health and Primary Care Program

Penelope Markle, Associate Director, Veterans Rural Health Resource Center—Eastern Region

Katie Sendze, Director of Client Services, HealthInfoNet

Kevin Watson, Project Manager, VA Maine Healthcare System

Kristen Wing, Communications Specialist, Veterans Rural Health Resource Center—Eastern Region

APPENDIX B. SCREENSHOT OF HEALTHINFONET (HIN) PORTAL

PATIENT SUMMARY

HIN will automatically display the Patient Summary screen, which contains the following information:

- All Identifiers, Emergency Contact, Primary Care Provider, Demographics and Accountable Care Organizations (ACO)
- Active Problems
- Allergies
- Prescription Medications
- Encounter Visit History Information

NOTE: Click on the >> icon, to view more information

Demographics

HINTEST, DEMO

Demographics		Primary Care Provider	
Sex	Male	Name	N/A
Date of Birth	Sep 11 1952 (62 years)		
Address	126 PRESUMPSCOT ST PORTLAND ME 04103	Emergency Contact	
Phone	(207)541-1952	Name	CATHY ADMTEST

Accountable Care Organization
Test for SJH

Active Problems

Code	Description	Status	Onset Date	Location
784.0	Headache		01/29/2013	WSFP
787.1	Heartburn		01/29/2013	WSFP
625.2	Mittelschmerz		01/29/2013	WSFP
780.79	Other malaise and fatigue		10/31/2012	WSFP
372.30	Conjunctivitis, unspecified		03/22/2012	WSFP
718.55	Ankylosis of joint of pelvic region and thigh		02/06/2012	EMHS
716.25	Allergic arthritis involving pelvic region and thigh		02/06/2012	EMHS
788.1	Dysuria		02/06/2012	EMHS
596.0	Bladder neck obstruction		02/06/2012	EMHS
719.47	Pain in joint involving ankle and foot		01/10/2011	WSFP
571.4	Chronic hepatitis		01/10/2011	WSFP
250.02	Diabetes mellitus without mention of complication, type II or unspecified type, uncontrolled		09/02/2009	WSFP

Allergies

Details	Reaction	Severity	Date Entered	Location
Iodine			10/04/2013	SJH
Iodinated Contrast Media - IV Dye	Hives		10/04/2013	SJH
Azithromycin	HIVES	MI	09/09/2011	CARY
ALTEPLASE	RA	Severe	03/07/2011	EMHS
No Known Allergies			02/18/2011	MMC

>>

Prescription Medications (Non-Medicaid) Dispensed within Last 120 Days

Date Dispensed	Drug Name	Dose	Qty	Refill	Prescribed By	Pharmacy	Instructions
12/14/2011	HYDROCODONE/APAP 7.5/750 TB		120		MARTIN MD, JOHN	WAL-MART PHARMACY 10-0253	TAKE 1 TABLET EVERY 4 TO 6 HOURS
11/02/2011	ACYCLOVIR 200MG CAPSULE		180		UNKNOWN, PROVIDER	ACME MAIL ORDER	
07/17/2011	PREVACID 30 MG CAPSULE		10	0	BLINDER, MORRIS	RITEAID	TAKE 1 TABLET EVERY 6 TO 8 HOURS AS NEEDED
11/10/2011	RANITIDINE 150MG CAPSULE		30		KRISTY, REED	ESI Mail Order Pharmacy	

Encounter/Visit History (Hovering Over Data Under Columns Marked with an Asterisk "*" May Show Additional Information)

Admission	Discharge	Visit Type	Service	Chief Complaint	Clinician	Dx Category*	Dx Code*	Px Code*	Insurance Type*	Location*
10/04/2013		Emergency	EMERGENCY ROOM		MARIAN BENNER					SJH
02/15/2013	02/15/2013	Outpatient			BH PROVIDER					CCC
02/03/2013	02/03/2013	Outpatient	EMERGENCY ROOM		JOHN HENSON	780-799	780.39 (2 diagnoses not shown)	80053		MERCY
12/10/2012		Emergency	Brain Injury		CHARLES MORRIS - MD				Self-Pay	TAMC
08/03/2012		Outpatient	Unknown Hospital Service		UNKNOWN PROVIDER	390-459	428.0 (1 diagnoses not shown)	86.22	Self-Pay	EMNC
09/09/2011	09/10/2011	Inpatient	ODS		BROWN DAVID	240-279	250.9 (0 diagnoses not shown)			CARY
05/10/2011	05/10/2011	Outpatient	Internal Medicine		LEE WILLIAM M	V01-V89	V57.1 (0 diagnoses not shown)			CMMC
04/21/2011		Inpatient	MEDICAL UNIT		WILLIAM WOOD					SJH
02/22/2011		Outpatient	Family Practice		LITTLE DANA					CMMC
02/18/2011		Inpatient	Medicine		UNKNOWN PROVIDER	V01-V89	V57.1 (0 diagnoses not shown)			EMNC
02/16/2011		Outpatient	Medical Service		PHYSICIAN, GENERIC GENERI	800-999	822.1 (0 diagnoses not shown)	27524		MMC
10/13/2010	03/07/2011	Inpatient	Medicine		PROVIDER TEST - MD					SVH
10/15/2009		Other	Medical Service		PHYSICIAN TEST					MMC
		Preadmit	Internal Medicine		CLOUTIER LISE					CMMC

APPENDIX C. COMMUNICATION LETTER TO VETERANS

VA **U.S. Department of Veterans Affairs**

VA Maine Healthcare System
1 VA Center
Augusta, ME 04330
www.maine.va.gov

In Reply Refer To: VA MAINE HIE

February 16, 2015

<VETERAN NAME>
<STREET>
<CITY>, <STATE> <ZIP>

Dear Mr. Veteran,

I am writing to share exciting news about how VA Maine Healthcare System is working to improve your VA care. In February of 2015, VA Maine will be joining HealthInfoNet, Maine's statewide health information exchange.

Health information exchange is a secure, electronic way for health care providers to share medical information. It gives doctors, nurses, case managers, and other providers access to information they need to make more informed decisions about your health care. There are over 450 community doctors' offices, hospitals and other non-VA health care providers in Maine currently participating in HealthInfoNet. Approximately 96.8% of Maine's residents, over 1.3 million people, are sharing their health information using HealthInfoNet.

By late Spring 2015, VA providers throughout the VA Maine Healthcare System will be able to view a Veteran's electronic health record in HealthInfoNet. They will be able to see lab and test results, prescriptions, immunizations, allergies, conditions, health problems, and medical visit notes from the Veteran's community provider(s).

Connecting to HealthInfoNet will help VA Maine providers better coordinate care for Veterans who also receive health care outside VA. Sharing health information electronically is more convenient and efficient than sharing paper records. It can prevent repeat tests and procedures, and reduce conflicting treatment and medication recommendations. It can also help avoid unnecessary costs.

There are two documents enclosed with this letter to give you more information. Please see *"Questions and Answers for Veterans"* and the *overview of HealthInfoNet*. If you would like more information, please call the VA Maine Health Information Sharing Helpline toll-free at 1-877-421-8263 extension 2738 or visit www.maine.va.gov/healthinfosharing.

Sincerely,

RYAN S. LILLY, MPA
Director

APPENDIX D. LIST OF ACRONYMS

CAH   Critical Access Hospital

CBOC   Community-Based Outreach Clinic

CCD   Continuity of Care Document

DURSA   Data Use and Reciprocal Support Agreement

EHR   Electronic Health Record

FQHC   Federally Qualified Health Center

HIE   Health Information Exchange

HIT   Health Information Technology

MeDHHS   Maine Department of Health and Human Service's Rural Health and Primary
            Care Program

MeRVHAP   Maine Flex Rural Veterans Health Access Program

OEF   Operation Enduring Freedom

OIF   Operation Iraqi Freedom

PHI   Protected Health Information

RVHAP   Rural Veterans Health Access Program

VA   Veterans Administration

VHA   Veterans Health Administration

VistA   Veterans Health Information Systems and Technology Architecture

VLER   Veterans Lifetime Electronic Record

VPN   Virtual Private Network