



DEPARTMENT OF VETERANS AFFAIRS

Virtual Lifetime Electronic Record (VLER) Health Program Overview: Lessons Learned

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The Program

President Obama announced on April 9, 2009, that the Departments of Veterans Affairs (VA) and Defense (DoD) would create a Virtual Lifetime Electronic Record (VLER) as a means to achieve health record interoperability with private sector providers. The VLER Health Information Exchange (HIE) is intended to

- enhance continuity of patient care by providing data from multiple healthcare providers
- enhance quality of care by allowing rapid access to necessary health information at the point of care
- improve patient safety and reduce medical errors by providing availability of more complete health information
- reduce or eliminate redundant procedures (e.g., laboratory or radiology tests) by making test results more accessible
- improve efficiency of care and administrative processes by lessening the need for information requests from other healthcare providers and shortening delays in obtaining critical information.

VLER Pilot Sites

In 2010, VA and DoD began to develop pilot implementations of HIE with private sector partners. By October 1, 2011, twelve production pilots were established (Table 1). These sites acted as test beds for exchange of health data between VA, DoD, and private partners via eHealth Exchange (formerly the Nationwide Health Information Network (NWHIN)),

Key Findings

Implementation of the VLER HIE program has made significant progress. Based on evaluation of pilot sites, it was found that the program:

- Has achieved most of its required technical capabilities
- Has received a high level of provider and Veteran acceptance
- Is subject to further improvement as areas of risk and weakness (e.g., issues of data display in the user interface (VistA Web) security, patient identity, and matching) have been identified and are the targets of planned solutions.
- Is broadening in scope (including service to rural Veterans), demonstrating that over time VLER HIE will become an increasingly important component of Veteran care.

helping to establish best practices for HIE implementation and inform the broader national rollout of the VLER initiative.

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Table 1. VLER Health Pilot Sites

Pilot Site	Exchange Partner	DoD/VA	Began Exchange
San Diego, California	Kaiser Permanente (KP)	DoD/VA	12/14/09
Hampton, Virginia	MedVirginia	DoD/VA	9/15/10
Richmond, Virginia	MedVirginia	VA	3/25/11
Spokane, Washington	Inland Northwest Health Services (INHS)	DoD/VA	3/25/11
Asheville, North Carolina	Western North Carolina Health Network (WNCHN)	VA	4/4/11
Indianapolis, Indiana	Indiana Health Information Exchange (IHIE)	VA	8/22/11
Puget Sound, Washington	MultiCare Health Systems	DoD/VA	9/30/11
Buffalo, New York	HEALTHeLINK	VA	9/30/11
Minnesota, Minnesota	Community Health Information Collaborative (CHIC)	VA	9/30/11
Charleston, South Carolina	South Carolina Health Information Exchange (SCHIEx)	VA	10/3/11
Salt Lake City, Utah	Utah Health Information Network (UHIN)	VA	10/3/11
Grand Junction, Colorado	Utah Health Information Network (UHIN)	VA	10/3/11

VLER Health Program Evaluation

An assessment and evaluation of the VLER HIE production pilot program was conducted by Westat, an experienced survey organization, between October 1, 2011, and March 31, 2012. The assessment found:

- High acceptance of VLER HIE by Veterans, with over 60,000 Veterans (as of March 2013) having agreed to share their information with private sector providers in the 12 pilots.
- The VLER HIE program has met most technical capability and readiness criteria measures, with data elements being successfully exchanged at each pilot site.
- High acceptance and strong perceived value. Interviews with 50 Veterans and 94 providers showed highly positive impressions, with 90% of interviewed Veterans expressing positive reactions to the program.
- eHealth Exchange Partner usage is increasing. The experience of VA and some eHealth Exchange Partners have demonstrated that over time VLER HIE will become an increasingly important component of Veteran care.
- With future improvement in the quantity and quality of shared data coming from the non-VA partners, VLER HIE Information Exchange usage is expected to grow.

Findings from this evaluation helped to inform a recommendation to “Go,” and support was given to the VLER HIE team to bring on new VLER HIE partners

incrementally. The findings also supported expansion of the existing pilot projects and further focus on the policy and technical challenges targeted by this evaluation. As well, a VA eHealth *Exchange Business Readiness Survey* was created by the VLER HIE team based on lessons learned in the pilot program. Through the survey, the VLER HIE Team assesses possible exchange partners for their technical and data readiness with the goal of optimizing the sharing of pertinent, clear data with VA clinicians. Based on responses to the survey and discussions with the VLER HIE team, these potential exchange partners are provided a clear assessment of their readiness to move forward in exchanging health data with the VA.

Rural Pilot Site

One of the VLER HIE pilot sites of interest was the community of Moab, Utah with a 2010 population of 5046. VLER HIE between the Grand Junction VA Medical Center (VAMC) and Moab Regional Hospital community became active on 10/3/2011, utilizing the Utah designated health information exchange, Utah Health Information Network (UHIN). At the time of the pilot, approximately 100 active Veterans known by UHIN resided in the Moab area; these Veterans are served by the Grand Junction VAMC. Sixty of those 100 local Veterans signed VA authorizations to share their VA health information over the eHealth Exchange network.

Veteran enrollment and education regarding the VLER HIE program took place at the Grand Junction VAMC and the local VA telemedicine clinic located in Moab. Face-to-face discussion and follow-up personal phone calls along with state-wide television commercials were used to educate Veterans in the area about the VLER HIE program. At the time of production go-live, the Moab Regional Hospital was able to share only lab results data thru eHealth exchange. Shortly after go-live, Moab Regional Hospital stopped updating data shared through UHIN while evaluating for a possible electronic medical record (EMR) upgrade. However, Moab Regional Hospital restarted lab data sharing in March 2013. Currently, Moab Regional Hospital has no plans for expanding shared data domains thru eHealth Exchange. As of May 2013, one (a Home Care Nurse) out of 4 VA clinicians from the Moab VA Telehealth Clinic and one primary care provider from the Grand Junction VAMC have retrieved Moab Regional Veteran health information from the eHealth Exchange.

Lessons Learned

Through informal observation and communications with clinicians at the pilot sites, the VLER HIE team learned the following lessons.

- Clinicians' eagerness (expressed in interviews) to see Veteran data was greater than expected.
- Patients' desire to have their data shared with their caregivers was also higher than anticipated.
- While HIE remains a complicated process, once it was explained to them the Veterans grasped the general concepts and embraced the premise of HIE.

Additional issues were recognized during the implementation phase.

Human Factors

- *Single Sign-on.* Several private health care partners have established a separate web portal to retrieve eHealth exchange information from VA discrete from their facilities' EMR. In this situation, the clinicians must log on separately to the portal and cannot connect thru their EMR to access eHealth Exchange data. Clinicians expressed a strong reluctance to log on to a second application due to time constraints and the frustration of memorizing yet another

login/password pair. Future eHealth Exchange private sector partners are encouraged to utilize a single sign-on capability to increase retrieval of VA data via the eHealth Exchange.

- *Pre-fetch.* One Private Partner implemented a pre-fetch capability (data is pre-queried and waiting for clinician view). Pre-fetch resulted in increased utilization of VLER HIE and greater need for this capability in future exchange partnerships. The VA is currently working on a technical solution to provide a pre-fetch capability for VA clinicians.
- *Improved response time.* VA and non-VA Clinicians expressed frustration with response times for obtaining eHealth exchange data. All partners (VA included) are working to improve the speed at which this data becomes available for clinicians.

Enrollment Strategies & Mitigation

- *Consenting.* VA requires signed authorization before sharing any health data over the eHealth Exchange, and several of the HIEs in the pilot project also required consent based on state law or policy. The difficulty of obtaining the consent when it is required by both the VA and Partner was unexpected.
- *Face-to-face/Open enrollment.* This strategy was felt to be much more successful for enrollment than direct mailing. Several VAMC Directors preferred the face-to-face approach; they considered Veterans were better served by a project-knowledgeable person available at the enrollment site to explain and answer Veterans' questions. The cost of mail-outs was prohibitive for some VAMCs.
- *VAMC locations for enrollment.* Success varied depending on the number of facility staff. These staff included the HealtheVet representative, those at the Enrollment office, and those at the Release of Information department.
- *Mass mailing to the targeted shared patients.* Response was lower than anticipated, with an 18.5% return of a completed authorization form delivered by direct mail-out (based on May 9, 2012 figures).

- *VAMC mailroom readiness for a large mail-out needed to be assessed.* Factors include equipment age and capabilities, staffing, and time availability for large projects. This required more in-depth investigation than originally anticipated.
- *Identifying shared patients between the VAMCs and the private partners.* VA data must be scrubbed to eliminate Veterans whose information is not relevant to a shared patient list used in a focused mail-out recruitment campaign (e.g., employees, non-active Veterans, deceased).
- *Direct phone calls.* Personally calling Veterans was very time intensive, and there is no efficient way to collect analytics on the success of this particular enrollment process.

Issue Mitigation

- Staffing levels must be verified in key project-dependent departments, including Release of Information, Information Technology, and the Administration branch.
- VA remote Community-Based Outpatient Clinic staff must be included in initial VLER HIE education. These are sites heavily used by rural Veterans and must be included in the education program at the same time as the hospital-wide roll-out.
- HIEs must be encouraged to develop a training plan and nominate a “hospital VLER HIE champion” to ensure that non-VA clinicians are trained and that VLER HIE information is distributed throughout the partner hospital. The private partner must be reminded to inform the Health Information Management Department in the participating non-VA medical facilities that records are being exchanged electronically outside of their health system.
- Sustaining health information exchange in the production environment takes constant oversight due to issues with technical upgrades on both the VA and private partner sides. Other issues include eHealth Exchange certificate expiration, IP address changes, data display issues on both sides, variable interpretation of standards by different partners, and required VA internal support software applications requiring ongoing maintenance development.

The manpower required for these tasks took VA and some private sector partners by surprise. Testers should be involved prior to User Acceptance Testing (UAT) so that they have an awareness of what will be tested and its relationship to their daily workflow processes. Test scenarios should be clearly described and expected outcomes identified.

- The local VAMC VLER HIE Lead and an HIE Representative should be involved in the testing process so data exchange and Vistaweb data display issues can be resolved while in testing or initial production stages. There were/are many data mapping issues related to the style sheet and X-path display of data in EMRs.
- In the early production stage, “live” patient data should be used to assess whether data updates and changes are being displayed properly.
- The private partner must anticipate and provide ongoing testing, training, and technical troubleshooting beyond initial implementation.
- VA error reporting processes for new data display issues should be defined early to the VLER production Validation team (VLER National Team).
- The Private Partner must have a customer base that serves Veterans and will be participating in HIE (now covered by the Business Survey).
- It should be verified that the Private Partner will be utilizing third party data such as that from a medication vendor, and will investigate the frequency of data display updates (now covered by the Business Survey).
- The Private Partner’s EMR system should be demonstrated in order to help understand its functionality and how the exchange data would be accessed by community clinicians.
- The partner HIE should name a representative who can be present during testing calls and available to review weekly progress throughout project development software applications should be defined early.

Patient Matching

That patient matching is a complicated and difficult task is acknowledged by all partners. The VA uses a probabilistic matching routine while some external partners use a deterministic approach or a combination of both. Matching was further complicated by the high weight the VA has placed on the Social Security Number (SSN) as a trait in the matching algorithm. Many partners do not collect and therefore cannot send the SSN in their patient discovery message, limiting the success of VA matching. The failure rates when a partner does not include the SSN to the VA in the patient discovery message are approximately 80%, while success rates can reach 98% when the SSN is provided as an identity trait to the VA. This level of matching or matching failure was unexpected.

Next Steps

- The VLER HIE program is prepared to expand, bringing on new partners incrementally.
- Development of the program will be aided by the lessons learned from the pilot sites.
- The VLER HIE eHealth Exchange Business Survey tool will help identify the readiness of potential exchange partners.
- For the program to reach its potential, the eHealth Exchange must be supported in its efforts to enhance data quality standards for all HIE partners.



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