Report of the Vermont State Auditor

DOUGLAS R. HOFFER
Vermont State Auditor

Vermont Information Technology Leaders, Inc. (VITL)

The State Has Begun to Address Oversight Deficiencies, but Has Limited Measures in Place to Evaluate Performance

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Mission Statement

The mission of the Auditor's Office is to hold state government accountable.

This means ensuring that taxpayer funds are used effectively and efficiently, and that we foster the prevention of waste, fraud, and abuse.

Dear Colleagues,

Success in health care reform requires that providers have access to relevant information for whom they provide care. A health information exchange allows health care providers to securely share a patient's information contained in an electronic health record.

Vermont's statewide health information network, the Vermont Health Information Exchange (VHIE), is managed by the Vermont Information Technology Leaders, Inc. (VITL). The State has paid VITL over $38 million since 2005. Almost one-third of this amount ($12.3 million) was expended in fiscal years 2015 and 2016 through grants and contracts with the Department of Vermont Health Access (DVHA).

The objective of our audit was to assess whether and how the State evaluated VITL's activities and measured VITL's performance in fiscal years 2015 and 2016 grant and contract agreements executed by DVHA as of June 30, 2016. For certain agreements, DVHA shared oversight responsibilities with the Agency of Administration (AOA).

We found that DVHA and AOA oversaw VITL by obtaining monthly status reports and required deliverables and holding regular meetings with VITL. Nevertheless, there were oversight deficiencies. In particular, the State did not sufficiently oversee the building of a clinical data warehouse by VITL, which stores parsed data from the VHIE to use for analysis and reporting. The State never explicitly included the clinical data warehouse as a deliverable in the agreements with VITL and did not define expected functional and performance requirements. Thus, the State is not in a position to know whether the clinical data warehouse is functioning as it intends.

Also, until recently, DVHA was authorizing payments to VITL even though its invoices did not always include detailed substantiating information, such as specific hours by individual and project. DVHA recently took action to address this issue. For example, in its most recent grant agreement (for fiscal year 2017), DVHA requires VITL to submit invoices that break down the total amount billed into budget categories and be accompanied by detailed accounting information. In 2016, DVHA also received and reviewed VITL's detailed accounting data from July 1, 2014 to December 31, 2015. DVHA has questioned the allowability of some costs in this time period, but as of early September 2016 had not reached a final conclusion.

We also found that while the State's agreements required VITL to report on performance measures related to the quantity of its work ("how much"), the agreements lacked measures to assess the quality ("how well") and impact ("is anyone better off") of VITL's work. The agreements also lacked performance targets. As a result, the State is unable to adequately assess the performance of VITL and to demonstrate the value of the VHIE. DVHA and VITL have begun to

address these issues. For example, DVHA has agreed to fund an impact assessment by VITL that will assess the impacts of VITL's work on those health care organizations that also participate in DVHA's Blueprint for Health initiative. The State also has begun a process to develop targets to be used in future VITL agreements.

We made a variety of recommendations to DVHA, such as adding quality and impact measures in future agreements with VITL.

This report also includes a section on nationwide challenges associated with health care organizations sharing electronic health records, such as insufficiencies in health data standards. These challenges must be overcome to have an efficient health information exchange in Vermont that can be utilized to achieve the State's goals of improving population health, improving quality of care, and reducing health care costs.

In accordance with 32 V.S.A. §163, we are also providing copies of this report to the commissioner of the Department of Finance and Management and the Department of Libraries. In addition, we are providing a copy of this report to the Green Mountain Care Board. This report will be made available at no charge on the state auditor's website, http://auditor.vermont.gov/.

I would like to thank the management and staff at the Department of Vermont Health Access and the Agency of Administration, as well as VITL management, for their cooperation and professionalism during the course of the audit.

Sincerely,

DOUGLAS R. HOFFER
State Auditor

ADDRESSEES

The Honorable Shap Smith
Speaker of the House of Representatives

The Honorable John Campbell
President Pro Tempore of the Senate

The Honorable Peter Shumlin
Governor

Justin Johnson
Secretary, Agency of Administration

Hal Cohen
Secretary, Agency of Human Services

Steven Costantino
Commissioner, Department of Vermont Health Access

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Introduction

For at least a decade, Vermont's state government has been working on initiatives to reform the delivery and financing of health care to try to lower costs and improve the quality of care. Success in health care reform requires that providers have access to relevant information for whom they provide care. This is challenging because the health care system is highly fragmented, with care and services provided in multiple settings, such as physician offices and hospitals, that may not be coordinated with each other. Because of the fragmentation, health care providers may lack ready access to critical information needed to, for example, coordinate the care of patients to ensure that the most informed decisions on treatment options are made.

One way to help achieve care coordination is through the use of a health information exchange, which is the electronic movement of health-related information among organizations according to nationally recognized standards. In 2007, Act 70 designated the Vermont Information Technology Leaders, Inc. (VITL) as Vermont's exclusive operator of the statewide health information exchange network.[1] To perform this role, VITL licenses software from a company called Medicity, which is also responsible for hosting the Vermont Health Information Exchange (VHIE). In addition, VITL helps health care organizations (HCO) establish interfaces[2] between their electronic health records (EHR) systems and the VHIE and provides other services, such as consultation to improve data quality.

We decided to audit the State's oversight of VITL because of its central role in providing technology services related to the State's health care reform activities. Our objective was to assess whether and how the State evaluated VITL's activities and measured VITL's performance. The scope of our audit was limited to the Department of Vermont Health Access' (DVHA) grants and contracts with VITL in fiscal years (FY) 2015 and 2016 that were executed by June 30, 2016 (for purposes of this report, these documents will collectively be termed agreements). DVHA and the Agency of Administration (AOA) shared oversight of these agreements.

Appendix I contains detail on our scope and methodology. Appendix II contains a list of abbreviations used in this report.

1 VITL, Inc. is a nonprofit organization located in Vermont and governed by a Board of Directors to include a member of the general assembly and a member appointed by the Governor.

2 An interface is a connection used to transfer certain types of data between a source or destination organization and the VHIE.

Highlights

A health information exchange allows health care providers to securely share a patient's information contained in an electronic health record. Vermont's statewide health information network, the Vermont Health Information Exchange (VHIE), is managed by the Vermont Information Technology Leaders, Inc. (VITL). The objective of our audit was to assess whether and how the State evaluated VITL's activities and measured VITL's performance, which we address in two separate sections in this report.

Objective 1a Finding on the Evaluation of VITL's Activities

The State established mechanisms to evaluate VITL's programmatic and financial activities, but there were deficiencies in its oversight. In their oversight roles, the Department of Vermont Health Access (DVHA) and the Agency of Administration (AOA) received monthly status reports and required deliverables and held regular meetings with VITL. However, the State did not sufficiently oversee a significant VITL activity, the building of a clinical data warehouse, which is a system that stores parsed data from the VHIE to use for analysis and reporting. Although the State assented to VITL building the warehouse, it was not explicitly included in any agreement as a deliverable, nor did the State define its functional and performance requirements. Without such requirements, the State is not in a position to know whether the clinical data warehouse is functioning as it intends.

DVHA's business office was responsible for ensuring that VITL's invoices were consistent with the terms of the agreements. Until recently the business office authorized payments even though VITL's invoices did not always include detailed substantiating information, such as specific hours by individual and project. In 2016 DVHA took action to address this situation. For example, DVHA received and reviewed VITL's detailed accounting data from July 1, 2014 to December 31, 2015 and questioned the allowability of some costs (DVHA had not reached a final conclusion on the questioned costs as of early September 2016). In addition, in its most recent grant agreement (for FY 2017), DVHA requires VITL to submit invoices that break down the total amount billed into budget categories and be accompanied by detailed accounting information.

In addition, DVHA had VITL work on tasks prior to agreements being finalized, back-dating the start date of those agreements. In some cases, significant delays in finalizing the agreements led to deliverables being eliminated or delayed. For example, in one agreement VITL and the State agreed to eliminate two required deliverables because the contract was signed four months after the beginning of the performance period.

Objective 1b Finding on the Measurement of VITL's Performance

DVHA's FY 2015 and 2016 grants and contracts with VITL contained few performance measures to assess the quality and impact of VITL's work. The agreements contained some measures that required VITL to report on "how much" they were doing, such as the number of interface messages received into the VHIE, but the agreements contained very few quality measures (how well) and no impact measures (is anyone better off). In addition, only one of the performance measures in the FY 2015 and 2016 agreements included a numerical target (also known as benchmarks). As a result, the State is unable to adequately assess the performance of VITL and to demonstrate the value of the VHIE.

DVHA and VITL have begun to address the lack of a measurement process to assess the impact of VITL's work. For example, in April 2016, DVHA agreed to fund a VITL project to perform an impact assessment. This assessment is to quantify VITL's interventions (e.g., message deliveries via inbound and outbound interfaces) with health care practices that are part of DVHA's Blueprint for Health initiative and assess their impact. In particular, this analysis is to assess whether VITL's interventions have reduced utilization of health care services, reduced costs, and improved quality outcomes for patients. The estimated completion date for this effort is January 1, 2017. The State also has begun a process to develop certain targets to be used in the VITL agreements.

We attribute the lack of performance measures to two causes. First, the State's 2010 and current draft Vermont Health Information Technology Plan (VHITP) do not establish specific performance measures with which to measure its health information technology initiatives, such as the VHIE. Second, DVHA's agreements with VITL called for the State and VITL to develop measures, but this was not carried out.

Observation: Challenges and Barriers to Interoperability

Interoperability is a key factor to the success of health information exchanges. Interoperability refers to the ability of health record systems to electronically exchange health information with other systems and process the information without special effort on the part of the user, such as a health care provider. The U.S. Government Accountability Office and the Office of the National Coordinator for Health Information Technology have identified challenges and barriers to achieving interoperability from a national perspective, which include but are not limited to insufficiencies in health data standards and accurately matching patients' health records.

Recommendations

We made a variety of recommendations to DVHA, such as adding quality and impact measures in future agreements with VITL.

Background

A health information exchange allows health care providers to securely share a patient's information that is contained in an electronic health record. Appendix III contains a high level diagram of the VHIE and a table that describes the type of data exchanged.

Between July 1, 2005 and August 2, 2016, the State paid VITL over $38 million. As shown in Table 1, almost one-third of this amount ($12.3 million) was expended for activities under DVHA's agreements with VITL for FY 2015 and 2016. Most of these agreements are still open, which means that though the performance period may be over, DVHA has not received the final invoice for those agreements and payments to VITL may still be forthcoming. The table is organized by the type of work being performed: (1) agreements for the operation, maintenance, and expansion of the VHIE and (2) agreements for work with three Accountable Care Organizations (ACOs).[3]

[3] ACOs are a group of providers and suppliers of services, such as hospital and physicians, that work together to coordinate care for the patients they serve.

Table 1: List of DVHA's FY 2015 and 2016 Agreements with VITL as of August 2, 2016

Agreement Type	Agreement #	Performance Period	Amount Not to Exceed	Amount Paid	Agreement Status[a]	Summary of Work
Operation, Maintenance, and Expansion of the VHIE						
Procurement Grant[b]	03410-256-15	8/15/14 to 6/30/15	$4,781,789	$4,424,875	Closed	Broadly these agreements contain activities related to operating and managing the VHIE and expanding VHIE connectivity by adding HCOs or expanding the type of interfaces[c] with existing HCOs. The agreements also include other activities, such as consulting services to HCOs and data quality work.[d]
Grant	03410-256-16	7/1/15 to 6/30/16	$4,965,693	$2,491,222	Open	
Contract	28155	1/1/2015 to 9/30/15	$1,319,514	$1,038,245	Closed	These agreements fund the expansion of connectivity to the VHIE by HCOs that are eligible for meaningful use incentives under the federal Health Information Technology for Economic and Clinical Health Act.[e] The agreements also fund other deliverables, such as data quality tools and services, security enhancements, analysis on how to meet Federal requirements pertaining to mental health records, and surveys of licensed providers and consumers.
Contract	30205	10/1/15 to 6/30/16	$1,187,562	$800,505	Open	

Agreement Type	Agreement #	Performance Period	Amount Not to Exceed	Amount Paid	Agreement Status[a]	Summary of Work
Work with ACOs						
Grant[f]	03410-1275-14	7/2/14 to 05/01/17	$4,678,989	$3,363,098	Open	This agreement focuses on evaluations of gaps associated with the EHR capability of ACO/HCOs to interface with the VHIE and remediating those gaps. The grant also includes: (1) establishing an electronic gateway for data to be routed to ACO data analytics vendors, (2) implementing an event notification system, which delivers information about a patient's medical service encounters, and (3) other activities.
Contract[g]	31204	1/1/16 to 12/31/16	$530,580	$151,915	Open	This contract provides customer and infrastructure support for the Community Health Accountable Care and Healthfirst ACOs. Under this contract, VITL also provides subject matter experts for health information integration and data transfer and storage to these ACOs.

[a] Open status means that DVHA has not received the final invoice for that agreement and therefore payments to VITL may still be forthcoming. Closed status means that deliverables completed within the period of performance were accepted and paid and the agreement is no longer active.

[b] The Agency of Human Services, DVHA's parent organization, considers a procurement grant to be a contract with a vendor and does not consider it to be a traditional grant.

[c] An interface is a connection used to transfer certain types of data between a source or destination organization and the VHIE. The types of interfaces with the VHIE include those pertaining to (1) admission, discharge, and transfer, (2) laboratory results, (3) radiology reports, (4) other transcribed reports, (5) immunization, (6) continuity of care document, (7) medical document management, and (8) laboratory orders.

[d] For example, the work of eHealth Specialists included training HCOs on using VITL's web portal to the VHIE (VITLAccess) and implementation of the State's patient consent policy.

[e] Meaningful use is a term used to indicate a provider is using certified EHR technology to: (1) improve quality, safety, efficiency, and reduce health disparities; (2) engage patients and families; (3) improve care coordination, and population and public health; and (4) maintain privacy and security of patient health information.

[f] This grant had three amendments. Amendment #2 extended the end date to 5/1/17. However, the State decided to suspend this grant. This grant remains open but the State reported that no work was performed under this grant after 12/31/15.

[g] On August 23, 2016, DVHA signed an amendment to this contract. Our audit was limited to those FY 2015 and 2016 agreements executed prior to June, 30, 2016, therefore this amendment is outside the scope of the audit.

While DVHA signed the agreements with VITL and is charged with their financial oversight, programmatic oversight is split between DVHA and AOA. DVHA has programmatic oversight of the agreements related to the

operations, maintenance, and expansion of the VHIE. AOA has programmatic oversight of the work that VITL performs related to the ACOs. This is because the ACO agreements are part of the Vermont Health Care Innovation Project. AOA manages this project to oversee work funded by the State Innovation Model (SIM) Cooperative Agreement with the federal Centers for Medicare and Medicaid Services.[4]

Objective 1a (Evaluation of VITL Activities): DVHA Had Deficiencies in Evaluating VITL's Activities from a Programmatic View and Lacked Adequate Financial Review Until Recently

DVHA and AOA put mechanisms in place to provide programmatic and financial oversight of VITL, but these mechanisms had deficiencies. On a positive note, VITL provided the required monthly status reports and deliverables and held regular meetings with DVHA and AOA staff. Nevertheless, DVHA was remiss in its oversight of VITL's construction of a clinical data warehouse because none of its agreements included applicable functional or performance requirements. Also, until this year, DVHA had not been receiving financial information from VITL with enough detail to ensure that they were only paying for allowable costs. In 2016, DVHA took steps to remediate this issue and is now receiving detailed financial information to make those determinations. DVHA is currently reviewing VITL's records between July 1, 2014 and December 31, 2015 to ensure that DVHA's payments were only for allowable costs. Lastly, all but one of the agreements with VITL were finalized after the start date of the agreement. Among other effects, these delays resulted in the elimination or reduction in planned work.

Program Evaluation

Bulletins 3.5 and 5, are the State's contract and grant policies respectively. Among other things, these policies set forth requirements for State entities to describe the scope of work to be performed or the products to be delivered under these agreements, as well as the expectations to monitor the work or deliverables. Both policies outline various monitoring methods, such as including reporting requirements in agreements and reviewing programmatic reports.

[4] The federal Centers for Medicare and Medicaid Services Innovation Center created the SIM initiative for states/entities that are prepared for or committed to planning, designing, testing, and supporting evaluation of new payment and service delivery models in the context of larger health system transformation.

As part of its programmatic oversight of VITL's work, the State required VITL to provide monthly status reports and deliverables. In addition, AOA and DVHA held regular meetings with VITL.

- *Monthly status reports.* VITL provided every required monthly status report and these reports generally contained the status of their activities for all of the DVHA agreements. We noted one exception pertaining to data quality tools and services, which entailed designing and deploying data quality software tools and services. In this case, VITL did not provide status information in 8 of 18 months between January 2015 and June 2016 even though VITL charged hours to this project in all of these months.

- *Deliverables.* The VITL agreements require many deliverables of various types (e.g., written reports, interfaces, and surveys). The State provided evidence that they received deliverables in FY 2015 and 2016. DVHA and AOA also provided e-mails that demonstrated that they corresponded with VITL regarding the acceptability of deliverables.

- *Meetings.* According to the DVHA and AOA managers, they held regular meetings with VITL at which they discussed the status of projects. The State did not maintain meeting minutes for these meetings, but DVHA and AOA provided evidence that they had scheduled quarterly meetings with VITL.

VITL has also provided information to other state entities with an interest in its work. In June 2015, Act 54 assigned the Green Mountain Care Board[5] the responsibility to review VITL's activities and budget and approve VITL's budget. Since that time, VITL met regularly with the Green Mountain Care Board and provided updates on its activities and budget. On April 6, 2016, the Board approved VITL's FY 2017 budget and core activities, effective March 31, 2016. In addition, the Board reviewed and approved criteria established by VITL that health care providers and health care facilities must meet to create or maintain connectivity to VHIE. VITL also met regularly with stakeholder groups for the SIM-funded agreements.

DVHA's programmatic oversight was remiss in one significant area—VITL's building of a clinical data warehouse, which is a system that stores parsed data from the VHIE in a manner that allows for analysis and reporting. None of DVHA's agreements with VITL explicitly authorized VITL to build this warehouse. When we asked State oversight officials which agreement authorized building the warehouse, they cited the data quality deliverables in

[5] Act 48 (2011) established the Green Mountain Care Board, which regulates health insurance rates and approves hospital budgets and major health care capital expenditures.

contracts #28155 and #30205 and the VHIE base activities in grant #03410-256-15 as authorizing the warehouse. In particular, according to the oversight officials, the following language in the grant agreement authorized the VITL to build the clinical data warehouse: "grantee will employ core management, operations staff, and consultant resources that are sufficient in order to develop, conduct, and manage the core operations of the VHIE, including but not limited to: … a Secure Data Repository."[6]

Even if we accept that this language authorizes the construction of a clinical data warehouse, which we believe is unclear,[7] no evidence was provided to indicate that the State defined the functional and performance requirements of the warehouse. Without such requirements, the State is not in a position to know whether the clinical data warehouse is functioning as it intends. To contrast this with another recent project, DVHA contracted with Capitol Health Associates to build a Blueprint Clinical Registry and migrate data from a previous registry to this new registry.[8] In the contract with Capitol Health Associates, DVHA outlined service level requirements,[9] defined success criteria for validation testing, and outlined vulnerability testing requirements. DVHA did not memorialize similar requirements with VITL for the clinical data warehouse.

Another concern relates to the lack of explicit contractual language in the agreements related to the ownership and use of the clinical data warehouse. The warehouse was built using licensed software from Rhapsody®, and VITL developed algorithms to parse clinical data in continuity of care documents provided by the HCOs, translation tables, and reports.[10] Based on communications with a DVHA staff attorney and VITL, it appears that the State owns the licenses and products that VITL provided associated with the warehouse,[11] but it is not clear whether the State owns or can use the data in the warehouse. According to a DVHA staff attorney, the State has title to all data and software obtained with Federally-matched funds and that all of DVHA's grants and contracts provide that such work belongs to the State.

6 We also requested the cost of the clinical data warehouse. The State oversight officials responded that they have not determined the specific cost to build the clinical data warehouse.

7 We believe that it is unclear for two reasons. First, VITL's June 2015 status report seems to reference work on the clinical data warehouse under contract #28155. Second, grant #03410-256-15 defines the term "secure data repository" as "the secure database where patient demographics and clinical data are stored in the VHIE. Within the VHIE each source (contributing organization) has their own secure depository." This definition seems to apply to the Medicity VHIE system since patient information is not comingled in this system, but stored in separate data vaults by provider organization.

8 The Vermont Blueprint for Health is a state-led initiative for transforming health care delivery and payments. The Blueprint Clinical Registry houses clinical data used by Blueprint for Health for analytics.

9 Service level requirements are performance level items that included, but were not limited to the percent of time the registry would be available online, disaster recovery parameters, and software maintenance request resolution times.

10 VITL did not develop source code.

11 VITL generally agreed that the State owned various elements of the clinical data warehouse, but said that the State "may" own the algorithms VITL developed to parse clinical data in continuity of care documents provided by the HCOs.

However, when we asked VITL this question, they pointed out they may only use or disclose the personal health information stored in the clinical data warehouse as permitted by the HCO in the agreements signed between VITL and the HCO. The standard agreement does not mention the State. Accordingly, VITL contends that the agreements do not currently permit VITL to disclose the personal health information in the warehouse to the State and, therefore, the State does not have any rights to access, use, or disclose this data. According to the AOA program official that oversees VITL, the State intends to use the data in the clinical data warehouse in the future, so it would behoove the State to resolve this potential issue expeditiously.

The VITL agreements also do not include a requirement that the State be provided an annual service organization control report from VITL subcontractors, including the two organizations that are responsible for housing the VHIE and clinical data warehouse.[12] At our request, the State requested, and VITL provided, copies of the most recent service organization control reports pertaining to these two organizations. It is important that individuals' health care data be secure, and it would be prudent for the State to obtain and review copies of these reports annually to check whether there are deficiencies for which it needs to be concerned. Although it was not receiving and reviewing these service organization control reports, the State did include other security requirements in its agreements with VITL. Moreover, a State security specialist reviewed the results of a system penetration test[13] and vulnerability assessment[14] of security enhancements.

Financial Evaluation

The Department of Finance and Management requires departments to devise techniques and procedures for the proper approval and payment for goods and services. To fulfill this requirement. DVHA and AOA program officials and DVHA's business office received and reviewed VITL's invoices. The program officials were responsible for reviewing and signing invoices, thereby indicating that VITL had provided the services/deliverables. In all invoices reviewed, the applicable program manager had approved the invoice.

DVHA's business office was responsible for ensuring that VITL's invoices were consistent with the terms of the agreements. DVHA's agreements with VITL specify the basis for payments, which include: (1) acceptance of

[12] This is a report of a service organization's controls that contains an opinion by an independent auditor. There are multiple types of these reports. The reports for the vendor that hosts the VHIE were service organization control report type 1, which addresses controls relevant to user entities' internal control over financial reporting, and service organization control report type 2, which addresses controls relevant to security, availability, processing integrity, confidentiality or privacy. The report for the subcontractor that houses the clinical data warehouse was a service organization control report type 1.

[13] Penetration testing is a type of security testing in which evaluators attempt to circumvent the security features of a system based on their understanding of the system design and implementation.

[14] A vulnerability assessment is a formal description and evaluation of the vulnerabilities in an information system.

deliverables, (2) employee time charges, and (3) reimbursement of specific expenses. With respect to the time charges, DVHA's business office approved payment for VITL's invoices for the data quality and services deliverable even when invoices did not include substantiating information, such as hours worked by individual and project. In the case of reimbursements of specific expenses, DVHA did not receive enough detail from VITL to assess whether all expenses were allowable.

In 2016, this situation began to change. For example, in January 2016 VITL began providing the hours worked for the data quality and services deliverable by individual employee, which allows for a better audit trail. In addition, a FY 2017 DVHA grant to VITL that started July 1, 2016, requires that invoices include the total amount billed broken down by budget category and accompanied by details for the expenditures invoiced.

VITL also submitted all accounting entries from July 1, 2014 to December 31, 2015. Based on a review of this data, in April 2016, DVHA sent a letter to VITL questioning whether some costs were allowable. As of early September 2016, DVHA had not reached a final conclusion on the allowability of the costs it questioned. In addition, DVHA has not decided whether they will review prior years for unallowed costs and will make that determination after they conclude their current review.

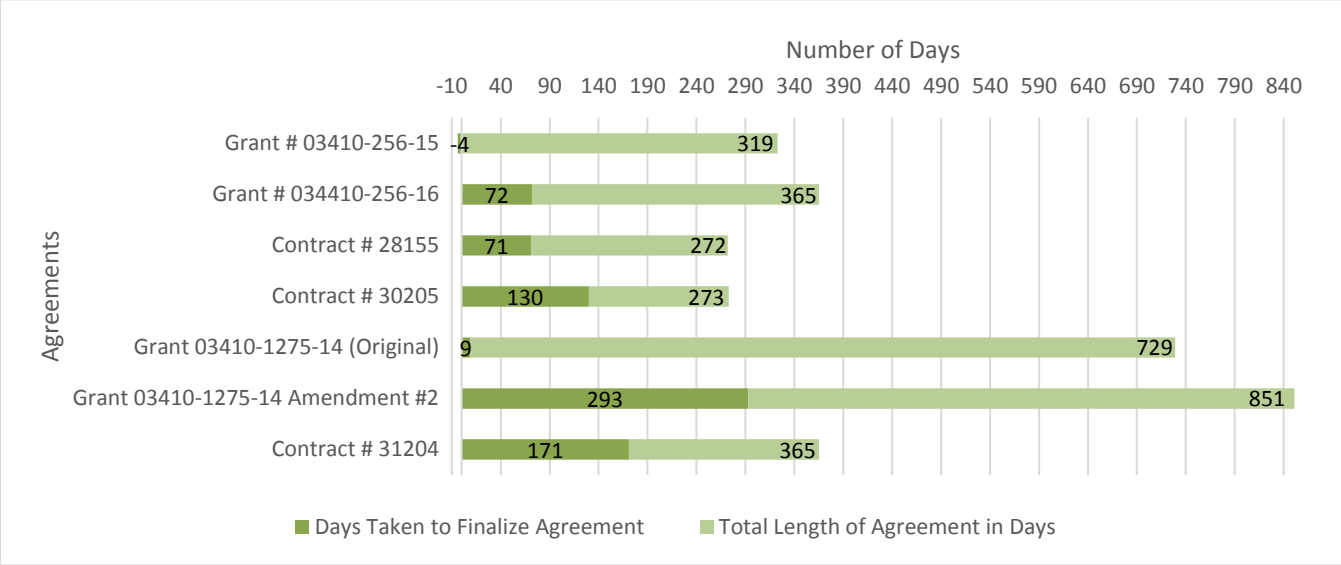
Another way in which DVHA took action to improve its financial oversight of VITL was to include a requirement in one of the grant agreements for VITL to obtain an independent review of its cost accounting methodology. The independent audit firm issued two reports, in November 2015 and February 2016. In the first report, while the firm concluded that VITL's methodology provided a sound and reasonable basis for accumulating time and allocating costs, it also made several recommendations for improvement. The firm's follow-up report in February 2016 reported that VITL had successfully implemented improvements to its processes.

Agreement Delays

There were significant delays in finalizing the majority of agreements between VITL and DVHA. Only one of six agreements were finalized prior to the start date of the agreement (this count pertains to the original contracts and does not include amendments), and more than half of the agreements were finalized over 70 days after the start of the agreement (start dates were made retroactive in these agreements). As a result, VITL at times performed work prior to the agreement being finalized. Figure 1 illustrates the length of these delays. We included amendment #2 to grant #03410-1275-14 because it extended the period of performance for the grant as a whole and included new tasks billable from the start date of the amendment. The figure shows

the lag between this start date and when the amendment was signed and reflects the period of retroactive approval.

Figure 1: Delays in Finalizing the Agreements with VITL[a]



[a] Grant #03410-256-15 shows a negative number because this agreement was signed prior to the start date of the performance period.

The current contracting policy (effective since 2009) of DVHA's parent organization, the Agency of Human Services, states that emergency or other unforeseen circumstance could result in work being performed before contract approvals are received (the agency's grant plan did not contain similar language). The contracting policy does not define what constitutes an emergency or unforeseen circumstance. Without criteria for determining when a contract meets the retroactive approval requirement, the policy could be misapplied. In addition, such criteria could limit the timeframes in which retroactive approval can be sought and approved. This would be particularly applicable to the VITL agreements given the lengthy time between the beginning of the period of performance and the signed agreement (in some cases more than four months). In addition, the practice of retroactive approval does not appear to be consistent with the revision of Bulletin 3.5 issued this year. The revised bulletin states that agencies must plan to allow sufficient time for all required approvals before a contractor can begin work.

The delays had several negative effects. First, having VITL perform work without a signed agreement inhibited the State's ability to hold VITL accountable to desired standards because they had not been formally documented and agreed upon. Second, the Green Mountain Care Board reported that delays in finalizing VITL's contracts resulted in uncertainty

about what terms would ultimately be agreed to or omitted, what work should be prioritized, and if and how to allocate staff, contractors, and other resources to various projects. Third, because of the four-month delay in signing contract #30205, VITL and the State agreed to eliminate two required deliverables (connecting the Cancer Registry and the Vermont Prescription Monitoring System to the VHIE). VITL also reported that the delays in signing other agreements resulted in a reduction in the number of completed activities (e.g., fewer interfaces were developed) and certain projects being completed later than expected (e.g., the event notification system was delayed four months).

DVHA and AOA oversight officials explained that the delays in signing the agreements were mostly due to delays in federal approval, although one grant was delayed due to negotiations with VITL regarding cost allocation methodologies. Further, SIM-funded agreements went through a stakeholder review process at the State level, which contributed to a delay in contract #31204. Regardless of the cause, the risks and negative effects of the delays in signing the agreements remain.

Objective 1b (Measurement of VITL's Performance): Performance Measures Were Generally Limited to Those that Assessed Quantity, Not Quality or Impact

DVHA's FY 2015 and 2016 agreements with VITL contained few performance measures that assess the quality and impact of VITL's work. While DVHA's agreements with VITL did contain quantity measures (how much), there were very few quality measures (how well), and no impact measures (is anyone better off). Further, the state's current Vermont Health Information Technology Plan (VHITP) does not specify any performance measures for gauging the performance of the VHIE. A draft revision of the VHITP suggests that metrics be developed to measure the progress of the VHIE and provides some possible examples of metrics. The contract and grant agreements with VITL contained mechanisms to develop metrics to gauge success, but these were never implemented. Having few quality measures and no impact measures leaves the State unable to adequately assess VITL's performance and demonstrate the value of the VHIE.

In order to evaluate the completeness and caliber of the measures incorporated in DVHA's agreements with VITL, we used the Results-Based

Accountability™ (RBA) framework[15] utilized by DVHA and other state organizations. Under RBA, performance accountability focuses on the program level and entails developing performance measures[16] that assess quantity (how much), quality (how well), and impact (is anyone better off) of a program. We also considered the Agency for Healthcare Research and Quality's (AHRQ)[17] 2014 guide for evaluating health information exchange projects.[18] This guide emphasizes the importance of evaluating a health information exchange from patient safety, quality of care, and cost performance perspectives and includes specific measures that can be utilized, data sources for these measures, and practical notes and considerations.

Table 2 lists the measures in the six FY 2015 and 2016 agreements with VITL by RBA performance measurement category along with our evaluation. As shown in the table, while the State included quantity-type measures in the agreements, it included only very limited quality and no impact measures. Without these types of measures, the State does not have sufficient information to adequately assess VITL's performance and demonstrate the value of the VHIE.

15 Results-Based Accountability was developed by Mark Friedman and described in his book *Trying Hard is Not Good Enough*, FPSI Publishing.

16 A performance measure is a measure of how well a program, agency, or service system is working.

17 The Agency for Healthcare Research and Quality is 1 of 12 agencies within the federal Department of Health and Human Services and supports health services research initiatives that seek to improve the quality of health care in America.

18 *Guide to Evaluating Health Information Exchange Projects*, Agency for Healthcare Research and Quality (September 2014).

Table 2: Types of Measures Reported by VITL as Required by the FY 2015 and 2016 DVHA Grants and Contracts

Type of Measure	In Place?	Measures Reported by VITL Required by Grants and Contracts	Comment
Quantity—How much?	Yes	• Number of interface messages received into the VHIE • Number of signed patient consent forms • Number of medication history queries • Number, site, and interface types in progress and completed • Number, identity, assigned resources, and status of data quality improvement projects • Number of providers profiled, enrolled, and launched to use VITLAccess, which is a portal used to query patient health information in the VHIE • Number of unique patient queries and results delivered • Number of data quality dashboards delivered and their capabilities	Quantities do not, in themselves, tell if the service delivered actually achieved the desired results. Out of the three types of RBA performance measures, this one is the easiest to report on and control.
Quality—How well?	Very limited	• Increasing the percentage of data that can meet Accountable Care Organization measures • Opt-in consent rate	Quality performance measures are very important and are used to determine whether the service is delivered at the best possible level. The AHRQ guide provides examples of quality measures, including the (1) percentage of practices that used the health information exchange, (2) provider usage rate of data exchange capabilities with radiology centers, or (3) decrease in time to report critical results by laboratories.
Impact—Is anyone better off?	No	• None	Impact performance measures are the most important, but the hardest to collect and control. In April 2016, DVHA agreed to fund a VITL project to quantitatively assess the impact of VITL's interventions (e.g., message deliveries via inbound and outbound interfaces) with health care practices aligned with the State's Blueprint for Health project and to determine whether they have reduced costs, reduced utilization of health care services, and improved quality outcomes for patients. The estimated completion date is January 1, 2017.

VITL also provided the State with the results of more performance measures than was required in the agreements. These were additional quantity measures, such as the number of health care locations using VITLAccess and number of patient data queries per user.

Another important element missing from the State's evaluation of VITL's performance is the use of targets. Only one of the measures in the FY 2015 and 2016 grants and contracts included a numerical target (also known as benchmarks). In this case, grant #03410-1275-14 requires that ACO member organizations be capable of sending 22 clinical measures electronically for 62 percent of the aggregate beneficiary population. The ACOs and VITL had suggested this target to a SIM health information exchange work group, and that was why this target was incorporated into the grant.

Without numerical targets, the measures that VITL reports are of limited value because they lack context for the user to evaluate VITL's performance. To illustrate, VITL reports annually on the number of interfaces to the VHIE by health care organization type, and in 2015 it reported 288 interfaces for primary care organizations. However, VITL did not compare this number to the total number of primary care organizations in Vermont, and the State failed to provide a target for the number of interfaces it hoped to achieve with those organizations. Indeed, neither the State nor VITL have a definitive list of HCOs, either in total or by type, although they are working on compiling such a list. Without such a list of HCOs, a comparison cannot be made between the 288 primary care organization interfaces that VITL reports and what the State expected. This greatly limits the State's ability to evaluate VITL's efforts and progress. Appendix IV contains a table showing the known HCO landscape and connectivity to the VHIE as of June 30, 2016. The table is based on data from VITL and demonstrates the importance of targets because it indicates how many HCOs have yet to connect to the VHIE.[19]

Likewise, VITL reports on the use of the VHIE web portal (called VITLAccess), which can be used to query patient records. VITL reported that for the month of June 2016, there were 2,133 authorized users of VITLAccess at 130 healthcare locations. VITL also reported that these users made 278,285 patient data queries (an average of 130 queries per VITLAccess user) during the month of June.[20] However, without targets to assess whether the usage of VITLAccess by providers is at a level the State intended, the State does not have a way to effectively interpret VITL's progress. This is important because

[19] These numbers are derived from VITL's connectivity report, which is a report it provided to DVHA that lists HCOs to the best of VITL's knowledge and identifies whether or not these HCOs have interface connections to the VHIE. Neither the State nor VITL have a definitive list of all HCOs.

[20] Authorization to use VITLAccess is given to individual users not to HCOs as a whole.

a recent survey of providers showed few users of VITLAccess (17 of 377 who responded to the relevant question in the survey, or 4.5 percent) and even fewer who used it frequently.[21]

In July 2016, a work group of the Vermont Health Care Innovation Project started a process to develop interface targets for various types of health care providers. The AOA manager that oversees this project expects to have the targets developed by November 2016 and to have these targets incorporated into future agreements with VITL.

We attribute the dearth of performance measures in the VITL grants and contracts to two causes: (1) the State's 2010 and current draft VHITP do not require performance measures for the VHIE, and (2) DVHA's agreements with VITL called for the development of measures, but this was not carried out.

VHITP

The VHITP is a statewide plan that is to include the implementation of an integrated electronic health information infrastructure for the sharing of electronic health information among health care facilities, health care professionals, public and private payers, and patients. The Secretary of Administration or designee is responsible for administering and updating the plan. The current VHITP, which was approved in 2010, did not include any performance measures of the VHIE or outline a plan to measure the performance of the VHIE.

The April 2016 draft revision of this plan suggests that a five-year plan for VHIE operations be developed to include performance targets and specific measurements.[22] The draft VHITP includes an initiative entitled "Ensure VHIE Connectivity and Access to Health and Patient Information for All Appropriate Entities and Individuals." This initiative suggests that progress on the VHIE be measured by developing metrics that focus on the amount, type, and relevance of information flowing, not just on raw numbers of transactions or connections. According to the plan, VITL, as the entity operating the VHIE, is responsible for accomplishing this initiative in collaboration with DVHA.

The draft April 2016 plan includes examples of measures that could be used to evaluate the VHIE, such as the:

[21] *VITL Vermont Health Care Provider Survey Summary Report* (Castleton Polling Institute at Castleton University, June 2016). The survey had a sample size of 3,000 with 388 providers responding which equals a 13 percent response rate. The overall margin of sampling error for the total number of responses was +/- 4.8 percent at the 95 percent confidence level for a 50/50 distribution.

[22] The Green Mountain Care Board is responsible for approving this plan, which it had not done as of early September 2016.

- percentage of providers connected to the VHIE and sharing patient information, including trends,
- percentage of population whose records are shared through VHIE,
- percentage of queries that result in expected patient information, and
- percentage of providers actively using the VHIE.

VITL Agreements

All but two of the agreements between DVHA and VITL called for an executive management team[23] to oversee the activities of the agreement and to develop the protocols and metrics to gauge program success. However, according to a DVHA program official, the executive management team never established metrics to gauge program success, but instead was used to manage disputes about the deliverables contained in the agreements, should any arise.[24]

In addition, the contracts called for VITL to develop business plans that included performance measures for certain deliverables, but the approved business plans did not contain quantifiable performance measures. Furthermore, the SIM-funded agreements (grant #03410-1275-14 and contract #31204) called for quality management plans to be developed that would identify target areas of performance measurement and methods of measurement, and establish baseline metrics. This quality management plan was not developed for grant #03410-1275-14. The plan was developed for contract #31204, but it did not include metrics or quantifiable methods of measurement.

DVHA added performance measures to a grant issued to VITL on July 1, 2016 for the operations, maintenance, and expansion of the VHIE for fiscal year 2017. The grant requires VITL to report a baseline measurement of the average number of VITLAccess queries at the start of the fiscal year and then increase that average by ten percent over the term of the grant. While this is a step in the right direction, the grant does not address the performance measures that are contained in the draft VHITP. For example, it does not include the percentage of providers connected to the VHIE and sharing patient information or the percentage of the population whose records are shared through the VHIE.

[23] The executive management team members generally consisted of the director of Blueprint for Health, VITL's chief executive officer, and DVHA's health care reform manager. In one contract the team consisted of the State's health information exchange program manager and VITL's chief executive officer.

[24] According to one of these officials, there were no disputes within FY 2015 and FY 2016.

Observation: Challenges and Barriers for Achieving Interoperability

According to a 2012 article in the Journal of the American Medical Association, although electronic health records make clinical data sharing within the same organization relatively easy, sharing across organizations is difficult.[25] In cases in which providers wish to exchange electronic health information but do not have interoperable systems, health information exchange organizations like VITL can serve as key facilitators of such an exchange.

The Federal Office of the National Coordinator for Health Information Technology (ONC) reported that while the adoption of electronic health records has seen a dramatic increase in the last five years, the nation has yet to see widespread interoperability between those systems.[26] ONC defines interoperability as the ability of a system to exchange electronic health information with and use electronic health information from other systems without special effort on the part of the user. This means that all individuals, their families, and health care providers should be able to send, receive, find, and use electronic health information in a manner that is appropriate, secure, timely, and reliable to support the health and wellness of individuals through informed, shared decision-making.

ONC[27] and the U.S. Government Accountability Office[28] have reported on challenges and barriers pertaining to achieving interoperability. These organizations also describe public and private initiatives being undertaken to address these issues.[29] Among the challenges and barriers cited were:

- *Insufficiencies in health data standards.* Information that is exchanged from one provider to another must adhere to the same standards, and these standards must be implemented uniformly in order for the

[25] Julia Adler-Milstein and Ashish K. Jha, *Sharing Clinical Data Electronically: A Critical Challenge for Fixing the Health Care System* (Journal of the American Medical Association, vol. 307, no. 16, April 25, 2012).

[26] ONC, which is located within the U.S. Department for Health and Human Services, is charged with coordination of nationwide efforts to implement and use the most advanced health information technology and the electronic exchange of health information.

[27] *Report to Congress: Update on the Adoption of Health Information Technology and Related Efforts to Facilitate the Electronic Use and Exchange of Health Information* (ONC, February 2016), *Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap, version 1.0* (ONC, October 6, 2015), and *Report to Congress: Report on Health Information Blocking* (ONC, April 2015).

[28] *Electronic Health Records: HHS Strategy to Address Information Exchange Challenges Lacks Specific Prioritized Actions and Milestones* (U.S. Government Accountability Office, GAO-14-242, March 24, 2014) and *Electronic Health Records: Nonfederal Efforts to Help Achieve Health Information Interoperability* (U.S. Government Accountability Office, GAO-15-817, September 16, 2015).

[29] For example, ONC has issued a vision and roadmap for improving interoperability: *Connecting Health and Care for the Nation: A 10-Year Vision to Achieve and Interoperable Health IT Infrastructure* (ONC, 2014) and *Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap, version 1.0* (ONC, October 6, 2015).

information to be interpreted and used in EHRs. According to ONC, there is insufficient specificity when it comes to standards implementation and not enough industry-wide testing prior to nationwide deployment. According to the Green Mountain Care Board, Vermont providers currently use more than 70 different EHRs, which shows why standards are important.

- *Difficulty in accurately matching patients' health records.* When a patient's electronic health information is sent from one system to another the receiving system must identify which patient the information corresponds to and link the new information to the correct patient's record. Many EHR systems use demographic information, such as the patient's name and date of birth, to match different health records for an individual from one provider to another, but such demographic variables do not always yield accurate results.

- *Applying appropriate privacy and security standards.* The public must be able to trust that health information systems are secure and available only to those with authorization. Variation in Federal and state privacy laws can cause confusion among data exchange partners, which makes it difficult and expensive to ensure privacy compliance. In addition, according to a recent report by the U.S. Government Accountability Office, organizations have struggled to select appropriate security and privacy controls.[30] According to this report, while the U.S. Department of Health and Human Services has established guidance for covered entities, such as health care providers, for use in their efforts to comply with Federal requirements regarding the privacy and security of protected health information, this guidance does not address all elements called for by other federal cybersecurity guidance.

- *Health information blocking.* This occurs when persons or entities knowingly and unreasonably interfere with the exchange or use of electronic health information. According to ONC, "based on the evidence and knowledge available, it is apparent that some health care providers and health IT [information technology] developers are knowingly interfering with the exchange or use of electronic health information in ways that limit its availability and use to improve health and health care."

- *Costs.* In a 2014 report, the U.S. Government Accountability Office reported that providers reported challenges covering costs associated with health information exchange, including upfront costs associated with purchasing and implementing EHR systems. The federal government

[30] *Electronic Health Information: HHS Needs to Strengthen Security and Privacy Guidance and Oversight* (U.S. Government Accountability Office, GAO-16-771, August 26, 2016).

has provided billions of dollars in incentives to health care providers under the Federal Health Information Technology for Economic and Clinical Health Act to address this issue. However, the Act did not cover all types of health care providers, and these uncovered organizations lag behind in the adoption of health information technology.

Interoperability is key to the success of health information exchanges. Therefore, these issues indicate the difficulties that must be overcome to have a health information exchange in Vermont that can be efficiently utilized by the State and HCOs to achieve its goals of improving population health, improving quality of care, and reducing health care costs.

Conclusion

DVHA and AOA provided programmatic and financial oversight of contract and grant agreements with VITL. However, weaknesses existed in this oversight. For example, these agreements did not include functional and performance requirements related to the construction of a clinical data warehouse. Without such requirements, the State is not in a position to know whether the clinical data warehouse is functioning as the State intends. In addition, DVHA's agreements with VITL included limited performance measures for its work, and neither DVHA nor AOA used mechanisms called for within the agreements to develop quantifiable performance measures after the agreements were finalized. Without quantifiable performance measures, the State's ability to judge VITL's efforts and gauge success is significantly inhibited.

Recommendations

We make the recommendations in Table 3 to the Commissioner of the Department of Vermont Health Access.

Table 3: Recommendations and Related Issues

Recommendation	Report Pages	Issue
1. Define the functional and performance requirements of the clinical data warehouse and validate that they are being met.	12	DVHA has no documentation of the functionality or performance levels they expected VITL to meet for the clinical data warehouse. Without such requirements, the State is not in a position to know whether the clinical data warehouse is functioning as it intends.

Recommendation	Report Pages	Issue
2. Clarify the State's ability to use the data in the clinical data warehouse.	12-13	It is not clear whether the State owns or can use the data in the clinical data warehouse. According to a DVHA staff attorney, the State has title to all data and software obtained with Federally-matched funds and that all of DVHA's grants and contracts provide that such work belongs to the State. However, when we asked VITL this question, they pointed out they may only use or disclose the personal health information stored in the clinical data warehouse as permitted by the HCO in the agreements signed between VITL and the HCO. The standard agreement does not mention the State.
3. Require that VITL provide service organization control reports of any vendor it uses to house Vermont health care data and review these reports.	13	DVHA's agreements with VITL do not include a requirement that the State be provided an annual service organization control report from vendors that are responsible for housing the VHIE and clinical data warehouse.
4. Expeditiously conclude the allowable cost review, and if significant unallowed costs are determined for fiscal year 2015, review prior years for unallowed costs.	14	As of early September 2016, DVHA had not finalized its review nor reached a final conclusion on allowability of costs between July 1, 2014 and December 31, 2015. DVHA will decide whether to review prior years after they conclude this review.
5. Define the criteria for determining when work may be retroactively approved in a contract or grant, ensure that these criteria are consistent with Bulletins 3.5 and 5, and apply these criteria to future VITL agreements.	15	The current contracting policy (effective since 2009) of DVHA's parent organization, the Agency of Human Services, states that emergency or other unforeseen circumstance could result in work being performed before contract approvals are received (the agency's grant plan did not contain similar language) but does not define what constitutes an emergency or unforeseen circumstance. Without criteria for determining when a contract meets the retroactive approval requirement, the policy could be misapplied. In addition, such criteria could limit the timeframes in which retroactive approval can be sought and approved. This would be particularly applicable to the VITL agreements given the lengthy time between the beginning of the period of performance and the signed agreement (in some cases more than four months). In addition, the practice of retroactive approval does not appear to be consistent with the revision of Bulletin 3.5 issued this year, which states that agencies must plan to allow sufficient time for all required approvals before a contractor can begin work.
6. Include well-defined quality and impact performance measures that include targets in the grants and contracts with VITL, taking into consideration the measures in the draft 2016 revision to the VHITP and/or the AHRQ Guide to Evaluating Health Information Exchange Projects.	17-19	DVHA's agreements with VITL contained quantity measures (how much), but there were very few quality measures (how well), and no impact measures (is anyone better off). In addition, only one of the measures in the FY 2015 and 2016 grants and contracts included a numerical target.

Recommendation	Report Pages	Issue
7. Define the provider universe for each provider type that interfaces with the VHIE.	19	Neither the State nor VITL have a definitive list of HCOs, and therefore there is little context to evaluate VTIL's performance.

Management's Comments

On September 28, 2016, the Commissioner of the Department of Vermont Health Access and the Deputy Secretary of Administration provided comments on a draft of this report. These comments are reprinted in Appendix V. In their comments, the Commissioner and Deputy Secretary outlined actions that they intend to take in response to our recommendations.

The scope of our audit was limited to the DVHA grants and contracts with VITL in FY 2015 and 2016 that were executed by June 30, 2016.

To address our audit objective, we reviewed Vermont statutes pertaining to VITL. We reviewed State contracting and granting policies and the Agency of Human Services' contract policy and grant plan to understand the contracting and grant rules applicable to these agreements with VITL. We also reviewed the State's and VITL's single audit reports and independent accountant reports pertaining to VITL's cost allocation methodologies to gain an understanding of any identified audit findings and compliance issues that pertain to the State's agreements with VITL.

We analyzed state grants and contracts with VITL to determine the deliverables, performance measures, and metrics outlined in these agreements.

We interviewed DVHA grants office personnel, the DVHA Associate State Health Information Technology Coordinator responsible for VITL project oversight, and the AOA Director responsible for VITL's SIM grant oversight to identify how the State measures and validates the performance information reported to them by VITL.

We reviewed status reports from VITL to determine the type of reporting that VITL had provided to the State on the work it was performing related to the agreements with DVHA. We also reviewed VITL's presentations to the Green Mountain Care Board to determine the type of reporting that it provided to the Board.

We interviewed officials from VITL to gain an understanding of the various components of the VHIE and how lags in finalizing agreements affected VITL's work, and we obtained the definition for each of the VHIE interfaces.

We performed limited fraud and compliance testing by judgmentally selecting a sample of deliverables from grants and contracts with VITL and validated that the State received those deliverables. We also reviewed the federal U.S. Health and Human Services Grants Policy Statement and federal SIM cooperative agreements that are used to fund the state SIM grants with VITL, as well as the state grants agreements and contracts with VITL to determine unallowable costs. We examined DVHA's review of questionable costs in VITL's general ledger to determine if there were any unallowable costs that DVHA was not questioning.

We queried the State's accounting system, VISION, to identify all vendor payments made to VITL between July 1, 2014 and March 17, 2016 and

judgmentally selected invoices to determine if those invoices had been approved for payment by a State official with programmatic oversight of VITL's agreements.

We reviewed the VHITP (2010) to determine the current measures for VHIE goals/initiatives and we also reviewed the draft VHITP (April 2016) to determine if the State was in the process of developing measures for future VHIE initiatives.

We reviewed SIM progress reports to the federal Centers for Medicare and Medicaid as well as work group and core team documents that related to work performed by VITL that was funded by federal SIM funds.

We reviewed the U.S. Government Accountability Office and ONC reports pertaining to health information exchanges to gain a broad understanding of the national landscape of health information exchanges and the associated challenges of establishing such exchanges.

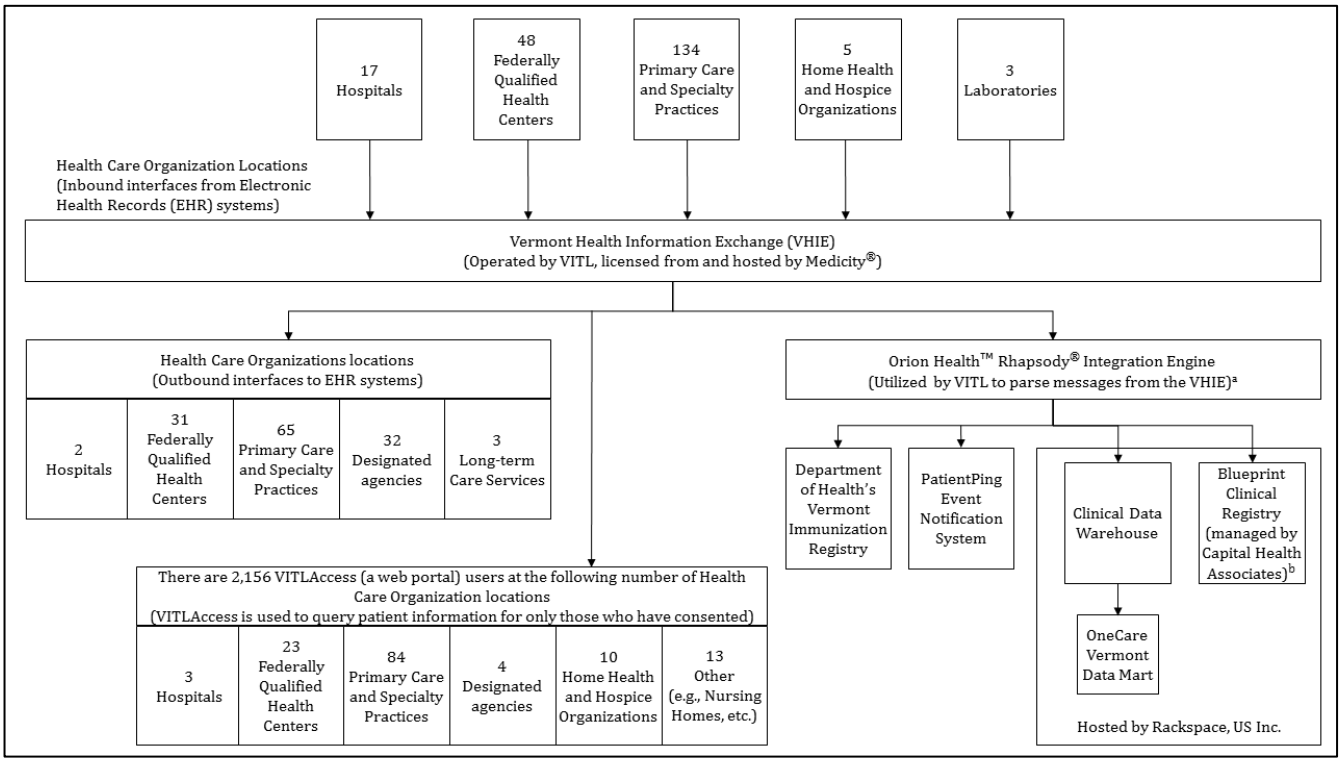
We performed our audit work between April and September 2016. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II
Abbreviations

ACO	Accountable Care Organization
AHRQ	Agency for Healthcare Research and Quality
AOA	Agency of Administration
DVHA	Department of Vermont Health Access
EHR	Electronic Health Records
FY	Fiscal Year
HCO	Health Care Organization
ONC	Office of the National Coordinator for Health Information Technology
RBA	Results-Based Accountability™
SIM	State Innovation Models
VHIE	Vermont Health Information Exchange
VHITP	Vermont Health Information Technology Plan
VITL	Vermont Information Technology Leaders, Inc.
V.S.A.	Vermont Statutes Annotated

A health information exchange is the electronic movement of health-related information among organizations according to nationally recognized standards. Figure 2 is a high-level diagram of the sources and users of VHIE data. According to the State program officials that oversee agreements with VITL, they consider the VHIE to include all parts of this diagram except the Vermont Immunization Registry, PatientPing Event Notification System, and the Blueprint Clinical Registry.[31] This diagram shows the number of health care locations connected to the VHIE as of June 30, 2016. For example, Vermont has 11 designated agencies.[32] Four of these designated agencies have a combined total of 28 locations connected to the VHIE through outbound interfaces, as shown below.

Figure 2: High-level Diagram of the Sources and Users of the VHIE Data as of June 30, 2016



a According to VITL, it "architected" and operates the Rhapsody® integration engine, clinical data warehouse, Blueprint clinical registry, and the OneCare data mart, which it collectively terms the clinical management infrastructure.

b VITL provides hosting services (via its contract with Rackspace, US Inc.) under a subcontract from Capital Health Associates.

31 The Blueprint Clinical Registry houses patients' health records from primary care physicians as part of DVHA's Blueprint for Health program.

32 Designated agencies are non-profit organizations across the state that provide a range of services to individuals with mental illnesses and/or developmental disabilities.

Table 4 describes the various types of VHIE interface connections that HCOs may have and whether those interfaces can be inbound to the VHIE, outbound from the VHIE to an HCO, or both.

Table 4: List of VHIE Inbound and Outbound Interfaces

Interface	Description	Inbound to VHIE	Outbound from VHIE
Admission, Discharge, Transfer	Demographics; events; insurance information.	X	
Laboratory Results	Results from commercial and hospital laboratories.	X	X
Radiology Reports	Provides the radiologist's interpretation of a radiology image.	X	X
Other Transcribed Reports	Different types of reports to include endoscopy reports, discharge notes, etc. but does not include pathology or radiology reports.	X	X
Immunization	Vaccine information.	X	
Continuity of Care Document	Summary of care.	X	
Medical Document Management	A precursor to the continuity of care document.	X	
Laboratory Orders	Ordering physician request for a laboratory test.	X	X

Table 5 shows the landscape of known HCO locations by provider type and the number of those locations that have connections to the VHIE as of June 30, 2016.[33] An HCO may have various practices at multiple locations (e.g., Gifford Medical Center has offices in Bethel and in Sharon). In addition, some of the locations counted in this table include New Hampshire and New York HCOs that are connected to the VHIE, such as Dartmouth-Hitchcock Medical Center in New Hampshire or Plattsburgh Primary Care in New York. The figures in this table represent locations. Neither DVHA nor VITL have a definitive list of all health care organizations and locations in Vermont, however, this table represents those HCOs that are known to DVHA and VITL.

Table 5: Known HCO Landscape and Connectivity to the VHIE (By Locations) as of June 30, 2016[a]

Provider Type	Number of Known HCO Locations	Number of HCO Locations Connected to the VHIE[b]	Number of HCO Locations with Inbound Interfaces to the VHIE[c]	Number of HCO Locations with Outbound Interfaces from the VHIE
Specialty Care	897	68	50	30
Primary Care	159	91	84	35
Long-term Care Services	83	3	0	3
Federally Qualified Health Centers	82	57	48	31
Designated Agency	61	32	0	32
Home Health Agency	19	5	5	0
Hospital	19	17	17	2
Commercial Laboratory	3	3	3	0
Total	1,323	276	207	133

[a] Neither DVHA nor VITL have a definitive list of HCOs either in total or by type and therefore this list is not a valid representation of the entire HCO landscape. This list represents those HCO locations that were known as of June 30,2016.

[b] HCO locations may have inbound or outbound interfaces or both. The column represents the number of HCO locations that have at least one interface regardless of the interface type.

[c] 42 CFR Part 2 is a federal regulation that includes patient consent and information disclosure requirements associated with alcohol and substance abuse treatment programs. Currently, there is no solution in place that will enable the legal and appropriate exchange of drug and alcohol treatment encounter data. Therefore, providers like designated agencies that offer such treatment programs do not send data to the VHIE (i.e., do not have inbound interfaces).

[33] These numbers are derived from VITL's June 30, 2016 connectivity report that it provided to DVHA, which lists HCOs to the best of VITL's knowledge and identifies whether or not these HCOs have interface connections to the VHIE. Neither the State nor VITL have a definitive list of all HCOs.

VERMONT

State of Vermont

Agency of Human Services - DVHA

Agency of Administration

280 State Drive
NOB South 1
Waterbury, VT 05671

September 28, 2016

RE: RESPONSE TO VITL REPORT

Dear Mr. Hoffer:

Thank you for the opportunity to respond to the draft report on V*ermont Information Technology Leaders, Inc. (VITL): The State Has Begun to Address Oversight Deficiencies, but Has Limited Measures in Place to Evaluate Performance.* Please find our responses enclosed.

Respectfully,

Steven M. Costantino
Commissioner

Michael Clasen
Deputy Secretary of Administration

Findings & Recommendations Response

Recommendation	Report Pages	Issue	Response
1. Define the functional and performance requirements of the clinical data warehouse and validate that they are being met.	11	DVHA has no documentation of the functionality or performance levels they expected VITL to meet for the clinical data warehouse. Without such requirements, the State is not in a position to know whether the clinical data warehouse is functioning as it intends	***DVHA will develop functional and performance requirements for the clinical data warehouse and validate these. This will be in effect for SFY18.***
2. Clarify the State's ability to use the data in the clinical data warehouse.	11-12	It is not clear whether the State owns or can use the data in the clinical data warehouse. According to a DVHA staff attorney, the State has title to all data and software obtained with Federally-matched funds and that all of DVHA's grants and contracts provide that such work belongs to the State. However, when we asked VITL this question, they pointed out they may only use or disclose the personal health information stored in the clinical data warehouse as permitted by the HCO in the agreements signed between VITL and the HCO. The standard agreement does not mention the State.	***During the SFY18 contracting cycle, DVHA will work with its legal department to develop contractual language to ensure the State has the ability to use the data in the clinical data warehouse.***
3. Require that VITL provide service organization control reports of any vendor it uses to house Vermont health care data and review these reports.	12	DVHA's agreements with VITL do not include a requirement that the State be provided an annual service organization control report from vendors that are responsible for housing the VHIE and clinical data warehouse.	***DVHA will require VITL to provide service organization control reports of any vendor in all agreements moving forward.***
4. Expeditiously conclude the allowable cost review, and if significant unallowed costs are determined for fiscal year 2015, review prior years for unallowed costs.	13	As of early September 2016, DVHA had not finalized its review nor reached a final conclusion on allowability of costs between July 1, 2014 and December 31, 2015. DVHA will decide whether to review prior years after they conclude this review.	***The DVHA Business Office will complete its review of FY15 questioned costs and make a final determination of unallowable expenses no later than October 31, 2016. Prior year expenses will be reviewed depending upon whether significant disallowed costs are found to occur in the subsequent***

			fiscal year's data. Significant shall be defined as those costs incurred that are directly prohibited by Federal or State statutes, rules or regulations and costs not supported by evidence as required by Federal or State statutes, rules or regulations.
5. Define the criteria for determining when work may be retroactively approved in a contract or grant, ensure that these criteria are consistent with Bulletins 3.5 and 5, and apply these criteria to future VITL agreements.	14	The current contracting policy (effective since 2009) of DVHA's parent organization, the Agency of Human Services, states that emergency or other unforeseen circumstance could result in work being performed before contract approvals are received (the agency's grant plan did not contain similar language) but does not define what constitutes an emergency or unforeseen circumstance. Without criteria for determining when a contract meets the retroactive approval requirement, the policy could be misapplied. In addition, such criteria could limit the timeframes in which retroactive approval can be sought and approved. This would be particularly applicable to the VITL agreements given the lengthy time between the beginning of the period of performance and the signed agreement (in some cases more than four months). In addition, the practice of retroactive approval does not appear to be consistent with the revision of Bulletin 3.5 issued this year, which states that agencies must plan to allow sufficient time for all required approvals before a contractor can begin work.	***DVHA abides by the Agency of Administration and retroactive contracts require an approved waiver from the Secretary of Administration. A contractor working prior to execution of a contract is working at risk and if a contract is not executed covering that work; then, they would not be paid.*** ***DVHA endeavors to execute all agreements in a timely manner; however, there are times when negotiations with a vendor take longer and to rush a negotiation would disadvantage the State. Both parties, Vendor and State are required to comport and commit to adhering to Federal reporting requirements and guidelines before a contract can be executed.*** ***Since early 2016, DVHA has developed more streamlined processes for executing agreements with VITL and also timing and sequencing of various agreements and amendments. This effort is resulting in faster agreement execution minimizing retroactive contracting. DVHA is working to start negotiations earlier than in prior years to ensure that the State is able to fulfill its fiduciary obligations.*** ***In the 2015-2016-time period, DVHA executed grants and contracts with VITL using federal SIM funds in addition to the usual federal and state funding***

			sources. The federal SIM program expressly allows retroactive contracting because of delays in receipt of federal approvals. SIM-funded contract and grant start dates, usually retroactive, are expressly approved by the Core Team at public meetings each month.
6. Include well-defined quality and impact performance measures that include targets in the grants and contracts with VITL, taking into consideration the measures in the draft 2016 revision to the VHITP and/or the AHRQ Guide to Evaluating Health Information Exchange Projects.	16-18	DVHA's agreements with VITL contained quantity measures (how much), but there were very few quality measures (how well), and no impact measures (is anyone better off). In addition, only one of the measures in the FY 2015 and 2016 grants and contracts included a numerical target.	***DVHA will continue to expand the performance measures used for grants and contracts with VITL in the SFY18 contracting cycle.***
7. Define the provider universe for each provider type that interfaces with the VHIE.	18	Neither the State nor VITL have a definitive list of HCOs, and therefore there is little context to evaluate VTIL's performance.	***DVHA and VITL are currently engaged in an activity that identifies the provider universe. This information will be used by the VHCIP Health Data Infrastructure Work Group to establish connectivity targets by the end of November 2016.*** ***DVHA will work with VITL to refine the HCO list at least once a year, as providers shift over time, to ensure the list is accurate.***