Health Information Exchange Strategic Plan

2023-2027 Plan *(2022 Update)*

Submitted: November 1, 2022

Submitted by the Agency of Human Services

18 V.S.A. § 9351(a)(1) The Department of Vermont Health Access, in consultation with the Department's Health Information Exchange Steering Committee, shall be responsible for the overall coordination of Vermont's statewide Health Information Technology Plan. The Plan shall be revised annually and updated comprehensively every five years to provide a strategic vision for clinical health information technology.

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Key Terms

Health information – Information created during care delivery and/or in a social service setting which supports coordination of care, reimbursement, public health and quality reporting, analytics, and the policy and governance surrounding management of the health care system.

Health information exchange (HIE) verb – The action of appropriate and confidential sharing health information across facilities, organizations, and government agencies supporting treatment, payment, and healthcare operation activities according to national standards. HIE is often used as shorthand for programs, tools, and investments that help aggregate and exchange health information.

Health Information Exchange (HIE) noun –An organization that collects health information electronically, manages it, and makes it available across the health care system. There is at least one HIE in almost every state in the nation, and HIEs can offer a variety of services. In Vermont there is one HIE, referred to as the Vermont Health Information Exchange (VHIE), which is operated by Vermont Information Technology Leaders (VITL).

Vermont Information Technology Leaders (VITL)- VITL is the legislatively designated operator of the Vermont Health Information Exchange (sometimes written VHIE and pronounced Vee-high), a secure infrastructure that gives health care organizations in Vermont the ability to electronically share and access their peoples' health information to improve the quality, safety, and cost of people care.

The Centers for Medicare & Medicaid Services (CMS) - CMS combines the oversight of the Medicare program, the federal portion of the Medicaid program and State Children's Health Insurance Program, the Health Insurance Marketplace, and related quality assurance activities.

Data Governance - Data governance is a system of decision rights and accountabilities for information-related processes, executed according to agreed-upon protocols which describe who can take what actions with what information, and when, under what circumstances, using what methods. It clearly identifies the roles and responsibilities of those who take part in those processes and how they should interact.

Data Integration - Data integration is the process of combining data from different sources into a unified view or format.

Unified Health Data Space - Vermont's Health Information Exchange has evolved from a 'first generation' HIE which was focused on sending and receiving clinical records to a 'second generation' HIE with a more robust assortment of data types and services offered. With this transition and with the completion of the technology work, the ecosystem of the health information exchange is referred to as the Unified Heath Data Space. As such, we will no longer be referring to Collaborative Services and instead will use the term Unified Health Data Space. This more accurately captures the second-generation function and needs of the HIE and as such will be used throughout this plan when referring to the ecosystem of the HIE.

HITECH - The Health Information Technology for Economic and Clinical Health (HITECH) Act, enacted as part of the American Recovery and Reinvestment Act of 2009, was signed into law on February 17, 2009, to promote the adoption and meaningful use of health information technology and expired in 2021.

Health Data Utilities (HDU) - are statewide entities that combine, enhance, and exchange electronic health data across care and services settings for treatment, care coordination, quality improvement, and

public and community health purposes.

Outcomes Based Certification - For all systems that comprise the Medicaid Enterprise System (MES), the Streamlined Modular Certification (SMC) approach to Outcomes Based Certification (OBC) is designed to: demonstrate measurable improvements to a State's Medicaid program. This is achieved through data collection and testing to enable operational reporting of performance and functionality. OBC also reduces the burden on States and CMS during the certification process without compromising CMS's responsibility to ensure systems satisfy all requirements.

People/Person – Throughout this plan there are references to "people"/ "person" – not patients, clients, members, or beneficiaries. Fundamentally, all individuals in the health system are people/person, not the diseases they have or the insurance cards they hold. Using this term maintains the reminder that the health systemis here to support health and well-being, not stigmatize or reduce any person to their symptoms, situation, or relationships.[1]

Health System – A "system" can be understood as an arrangement of parts and their interconnections that come together for a purpose. A health system has many parts. In addition to individuals and families, health providers, health services organizations, pharmaceutical companies, government, and other organizations play important roles. The interconnections of the health system can be viewed as the functions and roles played by these parts. The health system includes all activities focused on promoting, restoring, and maintaining health.[2]

Advanced Planning Document (APD) – A brief written plan of action that requests the Centers for Medicare & Medicaid Services (CMS) to accomplish the planning activities necessary for a State agency to determine the need for, feasibility of, projected costs and benefits of an information system or services acquisition, plan the acquisition of information system equipment and/or services and to acquire information necessary to prepare an IAPD.

Implementation Advance Planning Document (IAPD) – A written plan of action requesting to acquire and implement information system services and/or equipment from Centers for Medicare & Medicaid Services.

Operational Advanced Planning Document (OAPD) – Used to request funding for maintenance and operations from the Centers for Medicare & Medicaid Services of information systems when no major development or enhancements are being done.

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[1] Williams, S. T. (2013, November 22). *A person, not a patient: Words about the words we use*. MinnPost. Retrieved from https://www.minnpost.com

[2] World Bank. (2007). *Healthy Development: The World Bank Strategy for Health, Nutrition, and Population Results.* Washington, DC. World Bank. https://openknowledge.worldbank.org/handle/10986/6843 License: CC BY 3.0 IGO.

A note on the name of this plan: 18 V.S.A. § 9351 calls for a Health Information Technology Plan which "shall 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 term *Health Information Exchange* describes the act of sharing health information, often electronically, while the term *Health Information Technology* is a broad term that describes the technical capabilities and equipment an individual or organization might use to meet any variety of health-related needs. Therefore, to best align with the focus of this plan to provide a transparent view of the State's health information exchange needs and challenges, this plan is hereafter referred to as the Health Information Exchange Plan, or the HIE Plan for short.

Executive Summary

The plan is governed by 18 V.S.A. § 9351 which includes criteria and content that need to be included in the plan. This plan is outcomes driven, with specific and achievable goals focused on meeting the needs of each stakeholder – people, providers, payers, public health, and policy makers. Per statute, this year's HIT plan update includes a comprehensive five-year update. The five-year plan update is comprised of 4 main inputs. These inputs include the following: HIE Steering Committee Strategy Planning Session; recommendations from Briljent, the consultant who worked on the HIE Data Strategy and Data Governance; alignment with the Federal Health Information Technology Plan; and current year accomplishments/status. It is worth noting the Federal Health IT mission is "Improve the health and well-being of individuals and communities using technology and health information that is accessible when and where it matters most."[3] Vermont's HIE vision and mission for years has directly aligned to that. It is important to note as stated in legislation, the plan is to be revised annually to provide a 'strategic vision', 18 V.S.A. § 9351(a)(1). Required components in the plan per legislation are referenced and as such this is a five-year strategic plan. The implementation of strategy should not interrupt or disrupt business operations, but instead should improve upon it. As outlined in the HIE Steering Committee charter and in 18 V.S.A. § 9351(a)(3)(A), AHS, in consultation with the HIE Steering Committee, is responsible for administering the Plan, which includes designating VITL to operate the HIE, 18 V.S.A. § 9352(c)(1), and overseeing the implementation of the HIE, 18 V.S.A. § 9351(a)(3)(B), the development of its standards and protocols, 18 V.S.A. § 9351(a)(3)(C), and the manner in which it is operated. 18 V.S.A. § 9352(a)(3)(B).

There are four HIE Goals that underpin the strategy.

HIE Goals:

1. **Create One Health Record for Every Person -** Support optimal care delivery and coordination by ensuring access to complete and accurate health records.
2. **Better Health Outcomes (new) –** Promote health and wellness for individuals and communities.
3. **Improve Health Care Operations -** Enrich health care operations through data collection and analysis to support quality improvement and reporting with the goal to reduce health care costs and provide insight to improve the delivery and experience of care
4. **Use Data to Enable Investment and Policy Decisions –** Bolster the health system's ability to learn and improve by using accurate, comprehensive data to guide investment of time, labor, and capital, and inform policy making and program development.

As the HIE has matured and developed, it has grown from a first generation HIE, focused on sending and receiving clinical data, to a unified health data space utility. This is also reflective of the shift for advanced HIEs to move from a send/receive of clinical data to a data utility. This provides the capability for essential functionality of health information exchange across the health care system while also providing the capability for people to engage with their health information, enhanced public health responses keeping

[3] https://www.healthit.gov/sites/default/files/page/2020-10/Federal%20Health%20IT%20Strategic%20Plan_2020_2025.pdf

communities healthier and safer, and providing opportunities to manage health care with an eye to improved outcomes.

The HIE Plan outlines four components to the operational and strategic success for the HIE. These include funding, data governance, policy/process, and technology. Each component has foundational and future components as the HIE continues to mature and develop and the needs of the ecosystem change and grow. The plan will highlight the previous year's accomplishments and strategic vision for each component. It is important to note, these four components work in concert with each other and contribute collectively to the success of the HIE.

Figure 1: HIE Ecosystem - The Components

Funding: One of the main challenges in the recent year(s) for Vermont's HIE, as well as other HIEs across the country, is sustainable funding. Many HIEs have been undergoing a funding transition. This is due to the original funding that many states used to support their HIE activities, HITECH, coming to an end in 2021. Some HIE's were able to make a transition to sustainable funding and others are still figuring it out. In 2022, Vermont's HIE had a significant accomplishment, as it was one of the first states in the country to achieve CMS Certification. As a result of this certification, Vermont's HIE receives funding from the Federal Government's Medicaid Management Information System (MMIS). While this outcome-based certification requires an additional responsibility from the HIE to work toward the stated outcomes (new metrics and reporting from the State of Vermont to CMS which will be discussed in more detail in Appendix E), it does provide overall more sustainability for Vermont's core HIE activities. CMS funding of the HIE as of 2022, is 75% of maintenance and operations, and 86-90% of the development work. The balance of the funding is from the State providing matching dollars as required. These matched state dollars are often from the health claims tax or from grants. Strategically, funding sustainability is a core component of the HIE.

As such, it is the HIE Steering Committee's desire to continue to keep the HIE functioning as a data utility for the next few years. Specifically, this means continuing the current funding structure. Once the HIE reaches maturity around achieving key milestones associated with the Unified Health Data Space, the HIE Steering Committee is open to exploring private funding for the HIE for innovation or customization. The health information exchange is a valuable data utility for the health community and the HIE Steering Committee intends to continue funding it mainly through public funds and the claims tax until a mature, unified health data space is achieved. HIE Steering Committee actively coordinates with VITL on the

funding structure to ensure both entities are in synch.

Governance: An area that received focus in 2022 was to expand and enhance data governance for the HIE, especially as progress is made toward incorporating new data types into the HIE. The State of Vermont partnered with a consulting firm, Briljent, to assist the HIE Program in documenting and developing a data governance framework for the HIE. As a result, the HIE Program has a robust framework for data governance and has actively started executing on this framework. A key step is the development of the HIE Data Governance Council which is underway as of the writing of this plan. There is a recommended, tiered approach to the data governance which will be outlined in the Strategic Governance section. The HIE Steering committee will continue to be active in overseeing the Data Governance Council. In 2023, a critical initiative is to add the defining detail to each element of the HIE data governance and to develop specific governance for each new domain – such as social determinants of health, Part 2 (substance use disorder), and claims data.

As this year includes a five-year comprehensive update, through the engagement with Briljent, a Data Strategy for the HIE was also provided. This includes comprehensive, actionable steps to help achieve the maturity of the Unified Health Data Space. These steps include establishing a robust data governance plan; defining and communicating the roles for data access; optimizing data utility; and ensuring sustainability and scalability. Taking the HIE Strategic plan and making it operational is very important to the HIE Steering Committee. As such, each strategic goal will have an action plan associated with it in the following months to ensure we realize the strategies set forth in this plan.

Policy/Process: There are six existing statutes that relate to the HIE. The 2022 Legislative Session established Act 167 (S.285)[4]. The HIE plan is aligned to support these laws. A policy goal that was advanced in 2022 in support of 18 V.S.A. **§**1129, was the exchange of immunization data with the Vermont Department of Health and the Health Information Exchange, underscoring the fact that policies help drive and shape the strategic and operational work of the HIE. Aligning to policies and processes for the HIE, VITL provided Vermonters with "health data IT literacy education" to educate the public on the benefit and use of electronic health information. In addition, the 2022 HIE Steering Committee has created the role of a person representative on the HIE Steering Committee. In addition, the HIE Steering Committee has requested the following representatives join the HIE Steering Committee: The Health Care Advocate and a health equity expert. As these representatives are confirmed they will be updated accordingly in the 2023 HIE Steering Committee Charter (Appendix B) and will be updated via the HIE website as they join.

From a strategic perspective, there are key items the HIE Program will focus on over the course of the next few years. These include continuing to diversify the data sets in the HIE – clinical, claims, social determinates of health, person generated data, such as sensor and Internet of Things (IOT) data. This speaks to the sustainability of the data in the HIE. The HIE Program needs to consider future data sources that could augment the Unified Health Data Space but are not yet available for inclusion, for example: patient generated data, data generated from devices, and new federal or state data assets such databases or data warehouses. In addition, to optimize the data utility of the HIE, it will be important to consider data management and data quality to ensure the HIE has the most complete data possible. For strategic sustainability, it will be important to ensure the HIE process and policies evolve as needs evolve. This includes stakeholder needs, policy updates, and changes in technology standards or policies that, include legislation, rules, and standards. A key process will ensure that there is a solid process for managing and

[4] https://legislature.vermont.gov/bill/status/2022/S.285

transferring knowledge within the human side of the organization. This will add to the long-term sustainability of the HIE.

With Vermont's current HIE structure and future enhancements, it is well positioned to assist in addressing the health equity needs across the state and within communities. From a public health and policy position, the HIE can provide data to address the unique needs of the underserved and disadvantaged individuals who disproportionately carry the burden of severe chronic diseases, mental health needs, and socioeconomic barriers that challenge health outcomes, by changing how we develop and use digital technology and data. Public health infrastructure and health equity are two major priorities to emerge from the COVID-19 pandemic for the federal and state governments, community organizations, payers, and providers. Health Information Exchanges play a key role in achieving these goals

Technology: Key technology accomplishments in 2022 helped to solidify the foundational components of the HIE and begin to leverage Vermont's existing infrastructure. Vermont Information Technology Leaders Inc. (VITL) completed a migration of their platform to a fully cloud-based offering that streamlines and modernizes the clinical data warehouse in 2021. Building on that platform, VITL launched new provider portal that supported easier access to VHIE data. In addition, the platform was leveraged to support other data needs, including enhancing the reporting data warehouse, piloting the ingestion of social determinants of health data, and building a bi-directional interface with the State's Immunization Registry.

With many of the foundational elements in place or underway for the four components, we anticipate advancing each component to achieve the four goals stated above. While many core components to the fundamental HIE technology stack are in place, the HIE will continue to require enhancements. Some of these include establishing data marts for appropriate uses and uses; creating and applying an analytics layer to best optimize the data usability; ensuring ease of use through applying single sign on capability; and ensuring bidirectionality of data flow as it aligns with federal and state laws and data security guidelines. As outlined in 18 V.S.A. § 9351 (b)(6), the Unified Health Data Space is well positioned to ensure reuse of technology to make the most efficient use of resources. Per the statute, the HIE will: "incorporate the existing health care information technology initiatives to the extent feasible in order to avoid incompatible systems and duplicative efforts"[5].

[5] 18 V.S.A. § 9351 (b)(6), https://legislature.vermont.gov/statutes/section/18/219/09351

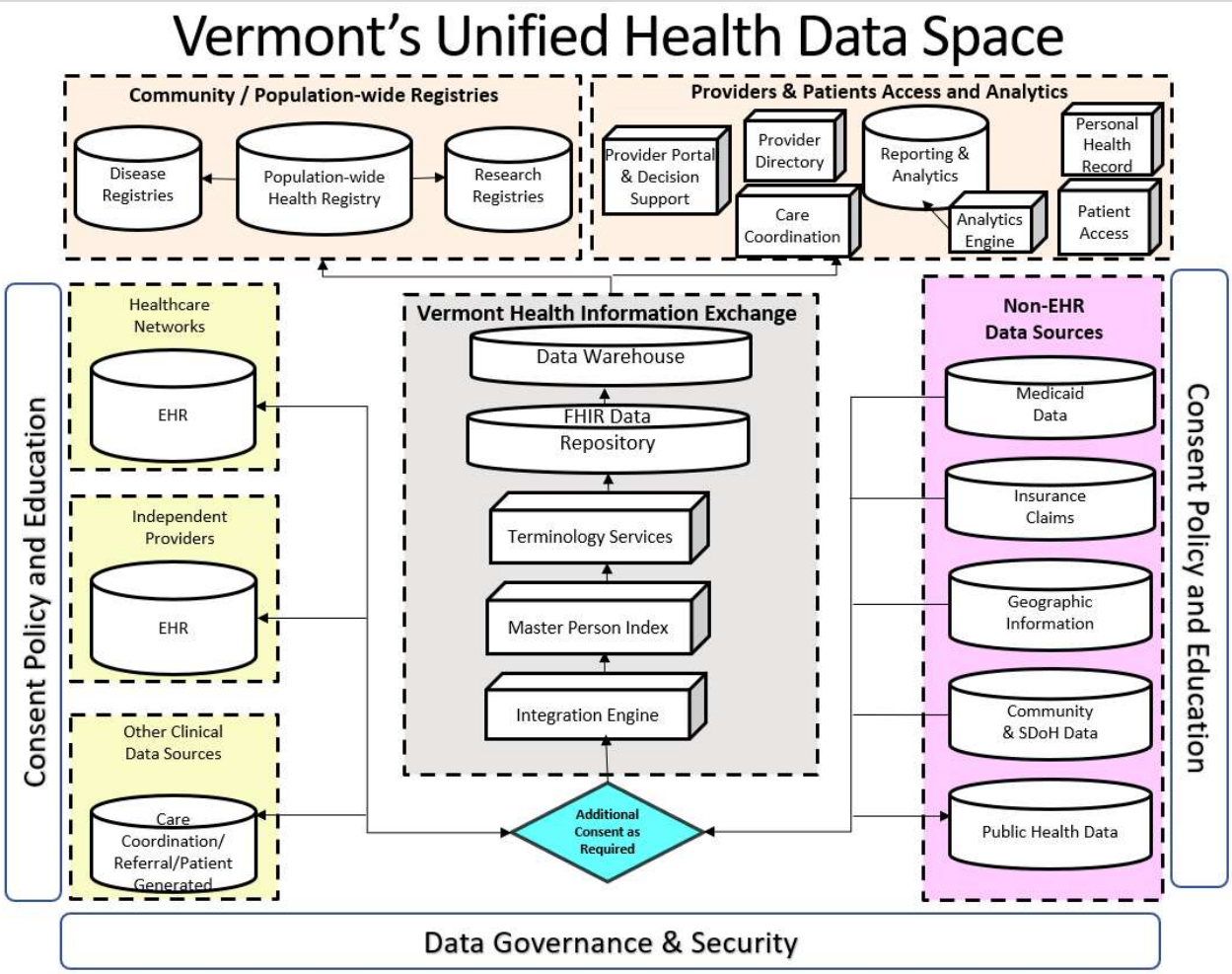


Figure 2: Vermont's Unified Health Data Space Model[6]

[6] This plan is unable to provide assurances requested by the Green Mountain Care Board that insurers will not be able to review medical records through the Unified Health Data Space. We note that this practice is not only authorized by law, as insurers currently review medical records outside of the HIE for various HIPAA permitted uses, but that facilitating of payer access to HIE data is a function expressly required of the HIE under Vermont law. *See* 18 V.S.A. § 9351(a)(3)(A). Blue Cross is currently working with VITL to determine how VITL might be able to support some of those HIPAA permitted uses in ways that are more streamlined than current non-VITL related processes (such as chart pulls). That work is very much in its infancy, although it shows some promise. In addition, Medicaid uses HIE clinical data for care management with the Vermont Chronic Care Initiative, also allowable under HIPAA. Additional context can be found on our website here: https://healthdata.vermont.gov/sites/healthdata/files/documents/Memo_2022_Update_HIE_Plan_Modification_Requests_from_GMCB.pdf

2022 Accomplishments

Funding

A key initiative over the last few years for Vermont's Health Information Exchange, has been to achieve a financially sustainable model for the State's HIE activities. This is especially critical and relevant as the funding stream that was in place for the last ten years, HITECH, ended in 2021. The state identified an option of achieving more sustainable funding under the Medicaid Management Information System (MMIS). The Center for Medicare & Medicaid Services (CMS) provides funding for the MMIS for new development (IAPD funded) and continual maintenance (OAPD funded). Advance Planning Documents (APDs) are the format for federal funding requests for IT system projects. Implementation Advance Planning Document (IAPD) are required for development of new systems and Operating Advance Planning Documents (OAPD) are required for maintenance of an existing system. CMS will only contribute dollars for the Medicaid beneficiaries of the system. For this reason, the costs must be cost allocated between the Medicaid and non-Medicaid benefit. The original cost allocation was submitted to CMS in June of 2021 with the state-wide Medicaid count vs. state-wide population. To improve the federal funding allocation, we worked on obtaining system specific VHIE user data to identify the Medicaid vs. non-Medicaid count. In addition, the MMIS OAPD funding stream requires HIEs to meet federal certification standards. Vermont successfully received approval through CMS' Outcome Based Certification.

This certification was secured on May 11, 2022, with a retroactive effective date of November 11, 2021. Vermont was one of the first states to achieve certification for their HIE. The MMIS APDs also updated cost allocation to the system-specific user data in the quarter ending 9/30/2022. The resulting change in the funding is reflected in the table below. The funding from the MES results in a higher federal rate than Vermont would have received post-HITECH under Medicaid Admin funds. As shown in the table below, state dollars continue to be required. To leverage federal investments, states are required to provide state-sourced matching funds. The main source of this state funding in Vermont is the HIT-Fund, which is funded through a portion of a tax on commercial health care claims. The claims tax requires legislative action for it to continue and prevent it from sunsetting. The HIT Fund next sunsets in July 2023, and accounts for about $3-$4M annually. The State is committed to ensuring that the HIT Fund (the portion of the State's health care claims tax dedicated to health information technology spending for the state) is used to develop and maintain "integrated electronic health information infrastructure." More information on the health care claims can be found in the Policy section under Appendix F - 'Brief Review of Vermont Policy Impacts on HIE'.

Current	Category	Federal	State	Total
Maintenance and Operations (M&O)	All	72%	28%	100%
Design, Development, Implementation (DDI)	Medicaid	90%	10%	100%
Design, Development, Implementation (DDI)	Shared (Medicaid and Non Medicaid)*	86%	14%	100%
Design, Development, Implementation (DDI)	Fully Non Medicaid	0%	100%	100%
Example**				
Maintenance and Operations (M&O)	All	$ 4,680,000	$ 1,820,000	$ 6,500,000
Design, Development, Implementation (DDI)	Medicaid	$ 675,000	$ 75,000	$ 750,000
Design, Development, Implementation (DDI)	Shared (Medicaid and Non Medicaid)	$ 1,720,000	$ 280,000	$ 2,000,000
Design, Development, Implementation (DDI)	Fully Non Medicaid	$ -	$ 250,000	$ 250,000
Total		$ 7,075,000	$ 2,425,000	$ 9,500,000

Previous ***	Category	Federal	State	
Maintenance and Operations (M&O)	All	25%	75%	100%
Design, Development, Implementation (DDI)	Medicaid	90%	10%	100%
Design, Development, Implementation (DDI)	Shared (Medicaid and Non Medicaid)	30%	70%	100%
Design, Development, Implementation (DDI)	Fully Non Medicaid	0%	100%	100%
Example				
Maintenance and Operations (M&O)	All	$ 1,625,000	$ 4,875,000	$ 6,500,000
Design, Development, Implementation (DDI)	Medicaid	$ 675,000	$ 75,000	$ 750,000
Design, Development, Implementation (DDI)	Shared (Medicaid and Non Medicaid)	$ 600,000	$ 1,400,000	$ 2,000,000
Design, Development, Implementation (DDI)	Fully Non Medicaid	$ -	$ 250,000	$ 250,000
Total		$ 2,900,000	$ 6,600,000	$ 9,500,000

* Varies by quarter
** Example only - not representative of actual figures
** Post HITECH funding (10/1/21 - 12/31/21)

Table 1: Cost Allocation based on Outcomes Based Certification

As part of the Outcomes Based Certification (OBC), the state is required to provide quarterly metrics to CMS. One of these metrics involves the percentage of the design, development, and implementation (DDI) for shared projects. More information on the OBC metrics and financial implications can be found in the Appendix E on 'Outcomes Based Certification Metrics'.

Cost allocation requirements by CMS require current quarter statistics. Each quarter the number of Medicaid users and total users of the VHIE is reported. As such, based on the outcome of this percentage, the quarterly federal / state percentage for shared DDI and M&O allocations may vary. We do not anticipate this to fluctuate more than 1-2 points per quarter.

Recognizing, per statute 18 V.S.A. § 9351 (5), the State HIE Program is also responsible for exploring grant programs to complement the existing funding, the state had three impactful grants awarded to assist in developing and advancing health reform across the HIE. These grants included the Health Equity Grant, the ASTHO Grant, and the Global Commitment to Health Waiver. These grants, while awarded in 2022, will contribute to funding a portion of the DDI work associated with them in 2023 and 2024. The Department of Health received a grant focused on addressing differences in health equity, which includes data and data systems. Specifically related to the HIE projects are evaluating race and ethnicity, as well as sex and gender data collection, standards, challenges, deficiencies, and as appropriate implementing plans resulting from the evaluation. Other projects are targeted to develop a strategy for integration of Vermont Department of Health data with the HIE. These projects are expected to be completed by the end of 2023. The Global Commitment to Health Waiver allows the State to focus federal Medicaid investments to further Medicaid's role as a driver of all-payer payment and delivery system reform. Within the waiver, the state can incentivize the procurement of data collection tools for Medicaid providers who could not take advantage of the federal Meaningful Use programs. Additional federal funding for Home and Community Based Services (HCBS) has been secured, in some part, to advance health-IT efforts to support the HCBS sector. We will discuss more in the strategic section the projects associated with the

Global Commitment to Health Waiver.

Over the course of 2022, significant accomplishments were made in the funding space resulting in sustainable funding for maintenance and operations likely for the duration of the HIE, provided the state can continue to support the required match rate. This plan will propose options in the strategy session for future design, development, and implementation funding mechanisms, aligning to the statute requirement in 18 V.S.A. § 9351 (5).

Governance

As part of the 2021 HIE Plan submission, the Green Mountain Care Board made a recommendation to strengthen the development of data governance. As such, in 2022 AHS partnered with the consulting firm, Briljent, to provide two key deliverables associated with that recommendation. These deliverables included a proposed data strategy and data governance for the HIE. A critical part of the Briljent engagement was to ensure that as an HIE Program, we operationalize data governance. As such, the action items for data governance in the strategic section are tangible and can be directly implemented. A solid foundation for the data governance framework was designed from the Briljent engagement which directly aligns to 18 V.S.A. § 9351 (8) in statute. This includes the following: the governance structure (establishing data governance council, membership); core federated teams, roles and responsibilities for process owners and data domain roles, role-based access, overall HIE data governance and domain driven governance. We will go into each of these areas in in the strategy section.

Policy/Process

In response to legislation that affects the HIE, the 2022 Legislative Session included Act 167 (S.285). This act supports health care reform, and certain elements directly relate to the HIE. To support Act 167, the HIE Steering Committee will continue to work to create one integrated health record in 2023. The HIE Steering Committee will work in collaboration with Agency of Human Services, the Agency of Digital Services, and the State's HIE staff to develop a data integration strategy as required in Act 167. "The act directs the Health Information Exchange (HIE) Steering Committee to include a data integration strategy in its 2023 HIE Strategic Plan and to continue its efforts to create a single, integrated health record for each individual. The act repeals a prohibition on filing information that is required by law to be kept confidential with the GMCB for the Vermont Health Care Uniform Reporting and Evaluation System (VHCURES) in a manner that discloses the patient's identity, but the act retains other protections regarding access to and use of the information consistent with the federal Health Insurance Portability and Accountability Act (HIPAA)."[7] Act 167 (S.285) requires that in next year's HIE Plan we will need to include an integration strategy between VHCURES and the VHIE. To begin preparations for this, a high level "plan for a plan" outlined for this work has been outlined in the Strategy: Technology section.

This integration strategy will need to provide a recommendation in line with the HIE Plan goal of 'creating one health record for each person' and 18 V.S.A. § 9351 (6) and in this exploration it may contemplate the integration of VHCURES in the HIE.

As elaborated in the Strategic Policy/Process section, AHS in concert with the HIE Steering Committee will

[7]https://legislature.vermont.gov/Documents/2022/Docs/ACTS/ACT167/ACT167%20Act%20Summary.pdf

be launching the Medicaid Data Aggregation & Access Program incentive to bolster mental health, substance use disorder services, and social determinants of health data. The integration of these data is assisted by the repeal of 18 V.S.A. § 9410(e), allowing for the transfer of health information from a provider to VHCURES within HIPAA compliance. Prior to the 2022 repeal, this statute created a stumbling block to creating one health record, and removal of the language serves the goal to cumulate Vermonter's health data in a Unified Health Data Space.

Technology

The advancement of the HIE to the Unified Health Data Space, is in service of not just the traditional use case of providing data to support the delivery of care to individuals, but also in support of public health, population health, and Medicaid operational needs. The Unified Health Data Space goes beyond simple clinical document exchange, and collects, matches, standardizes, and secures data to support expanded capabilities through curating complete, longitudinal individual records that can support these expanded needs. All data ingestion, transformation, storage, and access through the UHDS is compliant with all state and federal privacy and security standards.

The VHIE has adopted the NIST Cybersecurity Framework (CSF) to manage its IT security risk. VITL, with ADS oversight and third-party validation, complies with this framework to assess its unique risks, threats, vulnerabilities, and risk tolerances to determine the appropriate risk management plan that complies with State and Federal privacy, security, and consent rules and regulations. Appropriate log collection and analysis occurs to provide timely detection and response to information security incidents leveraging a Security Information and Event Management (SIEM) solution, in accordance with NIST CSF, HIPAA, and which are consistent with national best-practices. The State's annual contract with VITL lays out specific requirements to provide a best practice, secure infrastructure and demonstrate effective security measures and procedures are in place to protect the information within the VHIE and its supporting infrastructure. VITL's contract also includes Security specific deliverables as outlined in NIST CSF that demonstrate their adherence to the framework's requirements. Monthly Security meetings between the State and VITL occur to discuss all relevant security topics and associated action items. VITL also maintains a prioritized, risk-based approach to security through an annual NIST CSF assessment and a continuous monitoring process. It is important to note that the NIST CSF framework is applicable to all aspects of the VHIE including connections, interfaces, and infrastructure. In addition, all data in the VHIE is encrypted, at rest and in transit.

Vermont's transition to the Unified Health Data Space aligns with a national shift seen in HIEs functioning as Health Data Utilities, emerging from the demonstrated value of leveraging HIE data and infrastructure in support of public health purposes throughout the pandemic. Civitas Networks for Health maintains a working definition of Health Data Utilities (HDU) as:

> *Statewide entities that combine, enhance, and exchange electronic health data across care and services settings for treatment, care coordination, quality improvement, and public and community health purposes. They enable specific, defined use cases, with protections to ensure people privacy and appropriate data use. HDUs build on existing technical, organizational, and trust infrastructures that exist across a state to meet the diverse and emerging needs across stakeholders. HDU's rely upon strong, multi-stakeholder governance structures to balance the interests and needs of the individuals, organizations, and agencies they serve.*

Significant progress was made toward creating a Unified Health Data Space in 2022. The achievements include launching a new clinical portal, piloting the collection of Social Determinates of Health (SDoH) data with the Vermont Chronic Care Initiative (VCCI), developing new connections to enable the collection of more health data, integrating Vermont Department of Health's immunization data, expanding data reporting capabilities, providing Medicaid beneficiaries with the individual health data and establishing national data sharing connections. Details about each of these efforts follow.

Technology projects within the Unified Health Data Space leverage Agency of Digital Services (ADS) Enterprise Project Management Office (EPMO) standards.[8] The EPMO has established a "hybrid" approach, utilizing a mix of both traditional (waterfall) and agile methodologies to complete work based on the requirements of each individual project. Waterfall projects utilize a linear system of working, this requires the team to complete each piece of the project before moving on to the next. This is commonly seen on construction projects. An example of this is when building a new home, a foundation must be poured before framing can begin, the final product is also traditionally delivered all at once. Agile projects encourage the team to work simultaneously on different aspects of the project with a focus on delivering value early. With this method, teams can go live with limited, but valuable, functionality on a new application and add additional functionality over time through incremental updates. An example for agile is how when the HIE was first launched, it had limited features, it was focused on delivering initial value, and those features have expanded over time through incremental work.

All projects worked on by EPMO staff follow a hybrid of both waterfall and agile, which includes five-phases comprised of exploration, initiation, planning, execution, and closing. Exploration is where the scope, schedule, and budget of the project are documented. During planning, the project manager and team plan out how the project will be executed. The execution phase is iterative, including cycles of planning, design, building, testing, reviewing, and launching. This phase is repeated as needed to focus on delivering value within the scope, schedule, and budget of the project. The closing phase is focused on documenting lessons learned during the project and ensuring all aspects of the project have been completed.

This approach capitalizes on the clarity of waterfall while providing the flexibility and transparency of the agile process. The standards used by the EPMO are based on industry standards established by the Project Management Institute (PMI)[9] and all Project Managers assigned to the HIE are Project Management Professional (PMP)[10] certified, which is an internationally recognized professional designation.

Clinical Portal Launched

In 2022 VITL launched a new VITLAccess clinical portal, so that portal users would experience the benefits of VITL's new data platform, such as improved people matching and more parsing of data from clinical documents into easily searchable fields. Every step in the configuration and launch of the portal was informed by user needs. VITL conducted user interviews that informed portal customization and piloted the new tool with a group of 49 clinicians and staff who shared feedback about portal features and functionality, data quality, and communications.

Rollout of the new clinical portal began in April and continued through June. Users joined training webinars and accessed new education resources in the VITLAccess Learning Hub including brief videos, a user manual, and quick reference guides. Many additional custom trainings have been provided for

[8] https://digitalservices.vermont.gov/epmo/project-process

[9] https://www.pmi.org/pmbok-guide-standards/foundational

[10] https://www.pmi.org/certifications/project-management-pmp

interested organizations.

Use of the portal by health care organizations has increased significantly since the same time last year (this is without counting the Vermont Department of Health, who used the portal heavily for COVID-19-related work in 2021). Feedback from old and new users has been strongly positive. For instance, users say the new layout allows quicker access to clinically relevant data and is organized more like the EHRs they use every day.

Piloting the Collection of Social Determinants of Health (SDOH) Data with the Vermont Chronic Care Initiative (VCCI)

In 2022 VITL developed a framework to ingest State Social Determinants of Health (SDOH) data from questionnaires completed by people to access certain State services. The long-term objective is to use this and other similar datasets to provide a more complete understanding of the social and economic impact to a person's health for use in risk stratification, to improve equity in access to care and care coordination.

The current pilot will incorporate data collected by the Vermont Chronic Care Initiative's (VCCI) screening tools into the Vermont Health Information Exchange leveraging two phases. Phase one has been completed with the successful development of the framework. Phase two is entering execution to establish data governance for SDOH, map and establish the VCCI data feed in 2023.

Developed New Connections to Collect More Health Data

In support of the goal of creating one health record for every person, activities to develop new connections (interfaces) to integrate new data to the HIE continued. In 2022, priority for these new interfaces was given to support public health's need for laboratory and immunization data. However, work also continued to support the collection of clinical data. As of September 30, 71 interfaces were completed, including:

- 21 new public health priority interfaces
- 39 interfaces to collect data from providers implementing new electronic health records
- 11 interfaces from sites submitting new data

The following table details the connections that exist to collect and share VHIE data.

Interface Counts by Direction			
Location Categories	**Total Organizations or Services Contributing or Receiving Data**	**VHIE Inbound Interfaces**	**VHIE Outbound Interfaces**
Federal/State Agency	1	10	18
Federally Qualified Health Center (FQHC)	11	104	137
Home Health Agency	4	24	
Hospital	16	86	
Long Term Care Services	2	5	3
Mental Health Services	3		97
Other	28	137	
Primary Care	93	222	100
Specialty Care	141	291	134
Total		**879**	**489**

Table 2: Existing connections to collect and share VHIE data

Connected with the Vermont Department of Health's Immunization Registry to Share Up-To-Date Immunization Data with Care Providers

In 2021, the Department of Health began sending flat files of immunization data to the HIE to be incorporated into people's health records. However, the feed was not real-time, and therefore individual's records were not up to date. In 2022, the VDH and VITL teams worked together to design and implement a live, bi-directional feed between the VHIE and the Immunization Registry, which will allow providers to query real-time immunization records directly from their Electronic Health Record (EHR). The integration is being piloted with at least one health care organization in 2022 and will be rolled out to additional providers in 2023. Additional functionality will also be added, including the ability to access forecast data. This enhancement is in support of 18 V.S.A. § 1129, which was amended in 2021 to allow immunization record sharing from the Department of Health's Immunization Registry to the Vermont Health Information Exchange

Continued Efforts to Expand Data Reporting Capabilities

Building on the 2021 implementation of the new data and reporting platform, work continued in 2022 to continue implementation and enhancement of the data warehouse and reporting capabilities. In early 2022, the Blueprint for Health annual report was generated from the new platform for the second year. Opportunities to enhance capabilities and performance were implemented to allow for transition of additional reporting capabilities, with work to transition the daily COVID reporting for VDH underway.

Supported the State Medicaid Agency's Efforts to Provide Medicaid Beneficiaries with Their Health Data

In support of the State Medicaid Agency's requirement to comply with the 21st Century Cures Act and the associated Final Rules, VITL worked with the team at DVHA to design and implement a feed of clinical data

for Medicaid beneficiaries to the state's claims processor to enable the state to make individual clinical and claims data available and accessible to third party applications upon the individual's request.

Worked to Establish a Connection for National Data Sharing

The VITL team worked to build a Hub connection to eHealth Exchange, a network that enables the sharing of people's health data to support health care and public health efforts across the nation, including with the Department of Veterans Affairs and the Department of Defense. Initial planning and implementation began in the spring, with go-live on the Hub planned for the end of the year.

The Data Use and Reciprocal Support Agreement (DURSA), that governs participation in eHealth Exchange, is a comprehensive, multi-party trust agreement that is entered into voluntarily by public and private organizations throughout the United States of America (eHealth Exchange participants) that desire to engage in electronic health information exchange with each other as part of eHealth Exchange. EHealth Exchange is a non-profit health information network that began as a federal program initiative under the Office of the National Coordinator for Health Information Technology (ONC). The DURSA describes the mutual responsibilities, obligations and expectations of all participants and is based upon the existing body of law (federal, state, local, tribal) applicable to the privacy and security of health information. The DURSA creates a framework for safe and secure health information exchange and is designed to promote trust among participants and protect the privacy, confidentiality and security of the health data that may be exchanged among a set of trusted entities. VITL has entered into the DURSA with eHealth Exchange.

Strategy

In previous years, the focus of the HIE Plan was building the technical foundation needed to advance health data exchange in response to local needs and national requirements. While technical enhancements will continue to be necessary as part of ongoing work of the HIE, the technical fundamentals are largely in place and operational. As such, Vermont and its partners are shifting the focus to leverage the systems in the Unified Health Data Space to support the myriad potential uses of a central and modular health data repository built for interoperable cross-system data exchange and efficient access.

The plan articulates a strategic framework required to execute and sustain Vermont's Unified Health Data Space. The plan specifies the recommended activities for the next few years. The Strategic Plan for the Unified Health Data Space is comprised of four high level objectives of funding, governance process/policy, and technology:

- Establish robust data governance plan
- Define and communicate roles for data access
- Optimize data utility
- Ensure sustainability and scalability

There is consensus that the Unified Health Data Space will support a wide range of needs that are likely to expand and evolve over time. Below is an initial list of the ways in which the Unified Health Data Space will support and advance the needs of the data users identified above.

- Public health, including disease surveillance, immunization, addressing key health priorities, and facilitating school readiness.
- Population health, including providing data for a customizable, interdisciplinary approach to connecting practice and policy to facilitate change at a local level
- Clinical decision making
- Value-based care and other innovative payment models
- Consumer empowerment and lowered cost from repetitive utilization through access to their data
- Anticipation and planning for community health needs and resources

Over time, the number of ways in which the data may be used and the identification of specific use cases that will define its use are likely to increase as stakeholders identify new opportunities to operationalize the information. As such, it is important the HIT Plan each year addresses the evolving needs of the stakeholders and the national landscape of best practices. Strong communication across the HIE Steering Committee, VITL, and AHS will be critical to success. Establishing a clear communication plan will increase awareness and reduce disagreements or confusion. In the following sections we will discuss in depth the strategic plan for each component.

Strategy: Funding

Funding for the HIE in Vermont has evolved over time, this section provides historical context and the path forward that the HIE and its provider incentive program are taking to continue to evolve the HIE. In 2009, the U.S. Congress passed the Health Information Technology for Economic and Clinical Health Act (HITECH) as part of the American Recovery and Reinvestment Act (ARRA) to speed adoption of EHR and exchange systems. Under HITECH, CMS constructed the EHR Incentive Program to provide financial incentives for "Meaningful Use" of EHR technology. The Medicare EHR Incentive Program concluded in 2014, and CMS transitioned reporting requirements and payment adjustments for Medicare providers to the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) with the Merit- based Incentive Payment System (MIPS) Quality Payment Program (QPP). Incentives for Medicaid providers meeting Meaningful Use criteria continued through September 2021 under the Medicaid Promoting Interoperability Program.

It is well understood that many areas of the health care system were not eligible for these opportunities, and as a result, EHR systems often may not reflect the unique needs of certain care providers such as those who provide mental health care or those who offer care coordination and referral services in addition to addiction treatment or physical health care.

As the Medicaid Promoting Interoperability Program ended, CMS offered states a new opportunity to design and operate their own EHR Incentive Programs to continue the push toward digitization of health records systems and make possible health data exchange across the continuum of care. CMS has notified states that they will provide funding to design a continued Electronic Health Record Incentive Program.

In 2023, the HIE Steering Committee will provide oversight on the design of a program that will reduce inequities in data access and sharing capabilities to allow a range of health services providers to participate in value-based payment models. The short-term focus of the program will be on those who provide Medicaid-funded long-term care, home, community based, substance use disorder, and mental health services. The first step in designing the program, called the Medicaid Data Aggregation & Access Program, will be to evaluate how Medicaid providers currently store, access, utilize, and share information about the full range of enrollee needs and associated service utilization. Based on the findings, Vermont will determine how to close gaps that are identified and connect Medicaid providers to interoperable data systems. Connecting data systems to the VHIE ensures that health care experiences can be evaluated at an individual and population level.

The State has identified funding sources for 2023 and 2024 HIE activities. This is through: CMS certification; conditionally approved cost allocation methodology; the HIT fund which is from part of the claims tax; and grants. The HIE Steering Committee recommends that the Vermont Legislature continue the HIT Fund (currently extended through 2025) to support execution of the work described in this Plan. To ensure financial sustainability and to ensure we meet the evolving needs of the stakeholders, we want to continue exploring the option for diverse funding structures for uninterrupted and continued operations of the VHIE. We will continue to scan the landscape and apply for grants to further the development and grow stakeholder value. We also over the course of 2023 explore viable options to diversify the funding streams with the HIE Steering Committee that could potentially be applied for in 2025. It will be important to achieve the milestone of operationalizing the Unified Health Data Space prior to offering private funding from the health care system. Based on the HIE's strategic path, we expect by end of calendar year 2024 to have achieved great progress toward further realizing the full potential of the Unified Health Data Space. As such, the HIE Steering committee in partnership with VITL expects to

talk about potentially offering the opportunity for members of the health care system who seek unique customization or want to invest in innovative capabilities and/or technologies to pay for these specific services. Having this discussion, about the potential path for private funding for customization and innovation in 2023 to potentially take effect in 2025, provides adequate time to thoroughly examine the option as well as allowing members of the health care system to potentially built it into their data strategy and budget cycles.

To be clear, private funding in this context would be limited to augmenting the HIE's functionality for purposes already permitted under HIPAA and other state and federal law and authorized as permitted uses of HIE data under this Plan and as expressly detailed in VITL's data use agreements with the health care organizations that submit data to the VHIE. An example of where allowing private funding might be useful is in allowing for the acceleration of work. For instance, if a hospital is changing EHR vendors and is this change is either unplanned or more accelerated then expected, the hospital is not permitted to pay an expedited charge to enable a faster connection. The state pays for all connections and is based on a timeline agreed by VITL and the provider's EHR vendor. As such, this does not allow for flexibility for the providers for unforeseen circumstances. It would also allow for health care organizations to work with VITL to deliver on their custom data needs. For another example, if providers require a very curated set of data for treatment purposes, this may require time and resources to create the query and provide a customized report. Currently, the HIE does not allow for this monetary transaction. For a final example, a health care organization may be on the leading edge of technology – for instance, wearable sensors, and wants to ensure all the treating providers have access to their patient's human activity recognition (HAR) data. Currently, the health care organization is not permitted to pay for the technical development they may require.

The sale of PHI is prohibited under HIPAA, and even the sale of de-identified records created using PHI accessed through the VHIE is prohibited, by VITL or by any other party having access to VHIE data, is prohibited under Appendix A. These restrictions are mutually adopted by VITL and VHIE users in the terms of VITL's Data Use Agreements, that include Business Associate Agreements. It is important to ensure the HIE demonstrates a high value for stakeholders as the whole health care system benefits from robust engagement and sharing of electronic health records by providing the highest care and quality possible for Vermonters.

Strategy: Governance

Establish Robust Data Governance

Data governance is essential to managing the availability, usability, integrity, and security of data and forms the cornerstone for the strategic plan for the Unified Health Data Space. Vermont's updates its HIE strategic plan annually, reflecting progress since the first strategic plan developed in 2018 and approved by the GMCB.

The governance approach for the Health Data Space should build upon the existing HIE framework and align with VHIE's existing governance structure to support the following key objectives:

- Improve data sharing across the Health Data Space
- Improve data quality
- Provide the right data, at the right time, to the right stakeholder
- Improve data analytic capacity and reporting

Following the Vermont HIE governance model, it will be important to establish a Data Governance Council that informs key decisions. As such it is imperative that this body include representation from each stakeholder group. To ensure collaboration, it will be important that all stakeholders have equal input into key decisions. Discussions and any decisions must consider all perspectives so that final decisions are well-informed. The near-term action plan includes:

- Establish the Data Governance Council and identify a representative from each of the stakeholder groups to serve on the Council including a privacy attorney/expert
- Establish a plan for communicating with executive sponsors/council and initial domain stakeholders of Unified Health Data Space
- The Data Governance Council will establish a charter that outlines roles, decision-making processes, meeting structure, and frequency

Define and Communicate Roles for Data Access

The Unified Health Data Space must meet the needs of multiple users who will require access to data at various levels of granularity. Role-based access will ensure that individuals using the Unified Health Data Space only have access to the information at the appropriate level of detail required to meet their individual or organization's needs, while aligning with federal and state laws regarding the protection of patient health information (PHI).

Additionally, several state agencies and stakeholders require aggregated, deidentified data to generate reports or target limited resources to those communities where they will be most effective. To delineate roles, it will be important to identify how data is accessed and used taking into consideration the following key factors:

Current State	Future State
• Who has access to data?	• Who else will need data access?
• What data is currently available to a user?	• What data will the user need?
• How is data currently accessed?	• How should data be accessed?
• What level of granularity is needed (e.g., individual vs aggregated data)	• What level of data granularity will be needed?
• In what format is the data currently received by each user (e.g., tables, reports, patient list)	• What is the ideal format for each user to receive the data?

Table 3: Decision factors for data access

There are natural groupings of information known as data domains, which will be managed by all owners of data included in the HIE. Examples of this may be claims, clinical, public health, or social determinants of health. A key priority will be to identify the data needs for all stakeholders in each domain and clarify which data roles can meet their needs, based on current state and desired future state. Through this process, it will be possible to map each stakeholder to roles in each specific data domain to which they need access. Stakeholders should specify what data is needed to perform their activities. It will be important to consider any future needs that can be clearly defined at this time to avoid rework.

It will be imperative that data be updated at a cadence that reflects the availability of new information. For individuals who will need a single longitudinal record such as providers or caregivers, it will be essential that they have actionable, current, information that reflects recent test results, medical procedures, and diagnoses. Another consideration will be the process by which data is accessed, which may vary across domains and systems. The method for organizing and accessing data (e.g., dashboard, portal) by different user groups must align with the data architecture and available resources. An important component of the HIE data governance is to ensure it is operational.

The State and HIE Steering Committee recognize the criticality of data governance. As the Unified Health Data Space is evolving, it is important that the data governance evolves with it. To realize the vision of an integrated health data infrastructure (Unified Health Data Space), Vermont needs data exchange policies and processes that recognize individualized needs while supporting holistic care, system measurement, and improvement. This section outlines the data governance model that will be established in 2023 and enhanced as necessary for a living and operational framework. The model ensures the appropriate structure for planning and governing the health data space, coordinating services, and appropriate use of the data to advance clinical and public health objectives.

The objectives of data governance include the following themes, originating from various stakeholders of the VHIE:

- Ensure **secure access** to all data provided through the Unified Health Data Space. The stakeholders know the challenges and restrictions of the diversity of data on the

roadmap for this environment. It will take coordination and clear communication to maintain the security of Vermonters' health data and to allow the State to continue to operate as good stewards of that information.

- Ensure the quality of data provided in the environment. Combining data in this environment will have little value without confidence in its quality. The more data in the environment, the more challenging maintaining quality becomes. Governance is essential to guide the processes to **ensure quality data**.
- Accurately **unify data** into a single linkable record while maintaining integrity. Having a single record increases the value of data to the State and ultimately its people by introducing the ability to analyze problems beyond a single domain. Leverage unified data for the benefit of public health and individual care.
- **Enhance the usability** of data for social services and healthcare institutions across the State. In the end, data should be highly usable with as few barriers to access and understanding as possible. Data, when available, should have a very specific purpose or utility.

A data governance framework connects the organization's data strategy and goals to the structure necessary to manage the data that will achieve those goals. It contains the rules, processes, and procedures to implement and maintain the program over time. These themes should live explicitly throughout the governance program as decisions are made, priorities are set, and projects are planned and implemented.

The data governance components for Vermont's Unified Health Data Space are directly tied to the feedback and priorities identified by involved stakeholders. The themes listed above have been condensed to the following components: quality data, secure data, connected data, and purposeful data. Therefore, each decision made, and priority determined, should be in pursuit of these key components.

There are also key elements of data governance that enable the organization to realize the benefits of each component but are not components in and of themselves. For Vermont, these elements include communication, culture, and collaboration. For example, collaboration alone is not a sufficient goal in data governance but prioritizing the element of collaboration will enable the Unified Health Data Space to provide quality, secure, connected, and purposeful data. The HIE is committed to providing timely and effective communication. As such, the HIE Steering committee will contemplate open meetings for the Steering Committee, Data Governance Council, and Sub-Committees. The result of this discussion will be included in the 2023 HIE Plan. As mentioned in the 2020-2025 Federal Health Information Technology Strategic Plan, 'in our everyday routines, we rely on technology to do a lot for us.'[11] As such, the HIE will continue to leverage our website to provide transparency and effective communication. HIE Steering Committee materials are published in advance of the meetings, the meeting minutes are published, and any follow-up material is published. As part of normal course of business, the HIE continues to update and modernize the website to make it as useful and easy to navigate as possible. This website can be accessed at: healthdata.vermont.gov .

[11] 2020-2025 Federal Health IT Strategic Plan, https://www.healthit.gov/topic/2020-2025-federal-health-it-strategic-plan

The figure below illustrates the four data governance components and how they are supported continually by the elements.

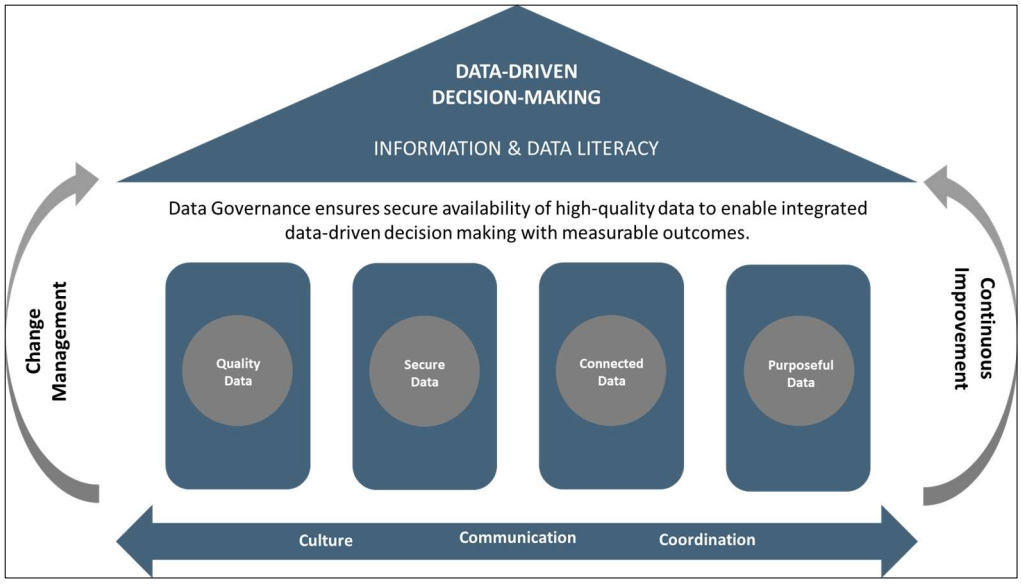


Figure 3: Data governance components

Governing by Domain

Categorizing information is one of the first steps in defining boundaries around information ownership and responsibilities for maintenance. Data domains are an industry standard used to segment data. A data domain is typically a logical business grouping of information, one that may likely go beyond the scope of a singular system. Domains are typically derived through the operations or functions an organization performs and subsequently the data used to support those functions.

In domain-centric governance structures, data is expected to be governed independently by the domain business owners - the group of people who manage the collection and operations of the business functions of the domain. Each domain is therefore responsible for maintaining the quality of its information. This is done with the understanding that the domain's data can then be consumed by other domains within the organization.

As more data domains are integrated into the Unified Health Data Space, it is helpful to refer to any existing standards around domain identification and categorization. Considering and/or conforming to said standards can allow for easier integration across the industry of healthcare systems, making the unified data even more valuable.**Error! Reference source not found.**

For the HIE, the recommended data governance structure is depicted below. As the utility of the Unified Health Data Space grows and evolves over time, the data governance structure will need to adapt accordingly. This structure has the following characteristics:

- Domain-centric ownership

- Operates on the assumption that data is managed by domain owners
- Central function to define standards for integrating and accessing data
- Outcomes-driven operation

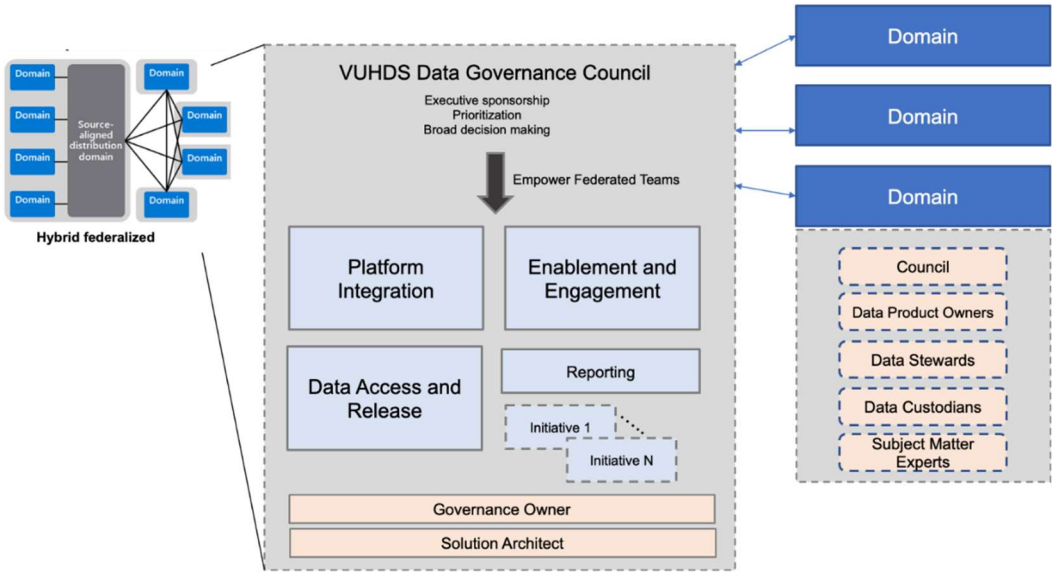


Figure 4: Data governance structure

Data Governance Council

A Data Governance Council provides executive sponsorship, prioritizes the goals, and is responsible for broad decision-making for the Unified Health Data Space. In short, it is the authority that manages the environment. A Unified Health Data Space Council is necessary to include responsible parties who own the data that will eventually live in the environment, which will extend beyond what is currently in the HIE. The Council also acts as an internal authority over how the data is integrated and managed for the environment.

The responsibilities of the Council include:

- Empowering and forming Federated Teams to support the execution and operations of data governance for the Unified Health Data Space.
- Monitoring program effectiveness by tracking the status of governance activities and initiatives. This can be managed by the Governance Owner, whose role is defined below, or by leveraging the Federated Teams.
- Setting priorities for the program by developing and/or evaluating use cases or outcomes for the benefit of Vermonters.
- Setting and approving policies. The Council should provide executive support for policy changes. The Federated Teams and subject matter experts should provide evidence-based support.
- Provide executive sponsorship, including but not limited to funding support,

communications, and being an escalation point for Federated Teams.
- Communicate and educate data use and data governance across their respective stakeholder groups

HIE Steering Committee Model and Structure

The steering committee model is designed to identify where decision makers go for support, who is responsible for oversight, who provides HIE services, and how service providers are held accountable. It also calls for the Steering Committee to:

1. Define an HIE investment portfolio and monitor statewide investments in service of theVermont's HIE goals.
2. Assess the viability of investments, identify the needed level of investments, and consider the appropriate balance of public and private sourced funds.
3. Advance HIE use cases, ensure accountability of all parties involved in furthering the State's HIEgoals, and engage a broad range of stakeholders in the strategic planning and oversight activities.
4. Receive the HIE Data Governance Council recommendations.

The Steering Committee's goals, commitments, and membership are included in its Charter in Appendix B. While the Steering Committee continues to hold the strategic vision for HIE, sub-committees provide subject matter expertise, operational support, and bring specific recommendations to the larger body. Subcommittees have proven to be an effective element of HIE governance. For 2023 there are four existing subcommittees currently identified. As needed, subcommittees will be created for their specific purpose and continue or complete as needed to help inform governance and project success. For some areas, these directly map to domains of data.

2023 Subcommittees of the HIE Steering Committee

Connectivity Criteria Subcommittee

Required by 18 V.S.A. § 9352 (i)(2), Vermont's Connectivity Criteria establishes the standards for creating and maintaining connectivity to the VHIE network. An overarching clear framework expressed through the Connectivity Criteria empowers data sources and data receivers to confidently share health data. Vermont's Connectivity Criteria is based in national standards like the United States Core Data for Interoperability (USCDI) and standards set forth by the federal "Meaningful Use" program, however, it aims to further define data standards to ensure data exchange is possible to meet the specific needs of Vermont's data users.

During 2019 & 2020, VITL has convened stakeholders to contribute to the annual updating of the Connectivity Criteria. Last year, they expanded the purpose of this Subcommittee to allow for the development of Connectivity Criteria for specific data sets. See page 43 for a description of the Designated Agencies (DA's) Connectivity Criteria effort that further defined data standards for substance use disorder, mental health, and behavioral health data to enable Designated Agencies

to share health data using the VHIE. In 2021, the Subcommittee met in September 2021 to create new criteria for Claims data from Payer organizations and to review the existing physical, mental and behavioral health criteria. The group aligned the Criteria with the program needs and the Office of the National Coordinator (ONC) United States Core Data Interoperability v1 (USCDI) data set, as well as the CMS 837 Professional format for Claims. The recommendation from the Subcommittee were to:

1. Create a new Claims data contributor type to include a separate Tier 2 with data elements based on the required data in the CMS 837 Professional format for the first year;

2. Add COVID-19 Test Results to the Physical Health Tier 2 Criteria for 2022;

3. Leave Mental/Behavioral Health Tier 2 Criteria as is for 2022 until more legal guidance from the new Substance Abuse and Mental Health Services (SAMHSA) is available to handle this data type.

In September of 2022, The HIE Steering Committee approved the recommendation that the criteria remain unchanged for 2023 from that of 2022. And for future considerations – complying with Federal Interoperability rules, factoring in Social Determinants of Health (SDOH), Sexual Orientation and Gender Identity (SOGI), and Care plans into the Criteria with focus on data completeness was also recommended.

See Appendix C for updated Connectivity Criteria including the criteria developed for the Claims data type.

Part II+ Group (Domain)

In 2022, the group paused their work to gather stakeholder input on the development of universal policies and procedures for sharing data governed by 42 CFR Part 2 including substance use disorder data, awaiting further federal guidance on changes to 42 CFR Part 2. This plan proposes that group be reengaged in 2023, with a data governance focus.

Social Determinants of Health Subcommittee (Domain - New)

This group will be responsible for working with the HIE data governance council to provide recommendations on data governance for social determinants of health. This subcommittee will be responsible for executing and operationalizing the strategic goal the HIE Steering Committee has around social determinants of health. More detail regarding social determinants of health is included in the Strategy: Process/Policy section.

Medicaid Data Aggregation & Access Program Subcommittee (New)

The Medicaid Data Aggregation and Access Program (MDAAP) Subcommittee will aid the State in designing a program to onboard Medicaid providers to digital health record systems, care coordination or referral tools, which will ultimately be connected to the VHIE. The program will build upon the work started under the HITECH Medicaid EHR Incentive Program (Promoting Interoperability Program), but Vermont now has the opportunity to design program requirements to best support the needs of health care systems and Medicaid providers beyond the previous scope of the program. The initial focus of the program will be on mental health providers,

substance use disorder providers, and long-term services and supports (LTSS) providers, as they were either previously ineligible or their data needs were not met by the previous EHR Incentive Program. These providers also disproportionately serve populations experiencing health disparities, which further aligns with the focus of the Medicaid health reform efforts and allows for shared achievements with other HIE projects. Development of the program will occur in three phases:

Phase I: Evaluate how Medicaid providers currently store, access, utilize, and share information.

Phase II: Using the findings from the evaluation, design a program to increase electronic data collection and exchange amongst the Medicaid provider community.

Phase III: Implement the data collection tool and HIE connection incentive program, now called MDAAP, with pre-identified Medicaid providers that meet qualifying criteria and achieve specific milestones that advance Medicaid's goals.

The Medicaid Data Aggregation and Access Program Subcommittee will provide essential guidance to the program staff and vendor consultant to identify an array of providers that represent the landscape of current data capacity held by the targeted fields. Staff also anticipate relying on the Subcommittee's leadership and relationships to meaningfully engage with targeted providers in the field so we can design an incentive program to meet providers' and peoples' needs. MDAAP Staff will schedule recurring meetings with the Subcommittee culminating in two vendor presentations to the full HIE Steering Committee for an approval vote of vendor recommendations.

The MDAAP incentives for Medicaid providers are scheduled to begin during summer 2023. To meet this timeline, MDAAP staff have undergone standard contract procurement procedures to select a consultant. Staff anticipate executing a contract in December and have already begun to engage the MDDAP Subcommittee in anticipation of the start of the work. Phase I is anticipated to be complete at the end of February or beginning of March 2023, with a Phase II completion and submission of the MDAAP design draft for CMS approval in April of 2023. Staff anticipate receiving approval from CMS and having the resources to launch the incentive payment program in summer 2023.

In anticipation of the programmatic needs for Phase III, staff have begun to seek out technical assistance and program administration support. Staff have continued communication with Washington, D.C.'s post-HITECH EHR incentive program which is also incentivizing mental health, substance use disorder, and long-term services and supports providers. In response to insights gained from DC, staff have expanded focus on the contribution that technical assistance will play in MDAAP. VITL will play an essential role in provider outreach and education to assist providers to select a system that is appropriate for their needs and to begin to send data to the VHIE. DC has shared with Vermont creative solutions that their vendors will be undertaking to help engage providers, the community, and staff look forward to exploring with the MDAAP Subcommittee whether those ideas become successes in DC and whether those successes can be translated to Vermont.

Staff is also preparing to undergo procurement activity to find an IT solution that will allow for appropriate program administration. This software, which staff call the State Level Repository, Attestation, and Incentive Tracking (SLAIT) system, will collect Medicaid provider application data, allow program administrators to process applications, and even process and track payments, all essential aspects of program administration activities. The vendor will need to work with Vermont's current fiscal agent, Gainwell, to process, record and report the incentive payments. (Bidding for the MDAAP data system will be open to all vendors eligible to bid on State of Vermont contracts, including Gainwell.)

The expenditure authority for the MDAAP comes from the State of Vermont's Global Commitment to Health Demonstration Medicaid Waiver, section 8.3. The waiver allows up to $14.9 million total for MDAAP incentives and expires December 31, 2027. The incentives are supported at the Federal Medical Assistance Percentage (FMAP) rate for Medicaid, and the state share to match the FMAP comes from Home and Community-Based Services (HCBS) Enhanced Funding, under section 9817 of the American Rescue Plan Act of 2021. The HCBS funds are effective through March 31, 2025. The MDAAP is anticipated to operate until the HCBS funds expire, unless they are extended, or another funding source is identified. Cost for Phases I and II are capped for the consulting work. The evaluation and system design will further define the specific costs associated with program implementation to include technological and human resources needed to fully implement the program. The state will hire a consultant to perform market analysis and support program design (Phases I and II), and for technical assistance for participating MDAAP providers. The State has allocated funds from federal fiscal year 2023 and 2024 through the Medicaid Management Information System Implementation Advance Planning Document (MMIS IAPD) funding stream for the SLAIT system. The amount of these funds will be included in the request for proposal (RFP) once it is released. Staffing and Technical Assistance for the program will be funded at Administrative Match rate which include federal financial participation through the MMIS Funding Stream.

Strategy: Process/Policy

From a strategic perspective, it will be important to optimize data usability. To ensure that data is useful, it will be important to consider the following three categories: data management; data quality; and diversifying data sets in the HIE. To ensure sustainability and scalability of the HIE, it will be important to consider the following items: knowledge management; human resources; stakeholder needs; and policies.

The prioritization of needs is done through the HIE Steering Committee as stated in Appendix B. This includes 'support development, execution, and oversight of the Vermont's HIE Plan'. In addition, the scope of the Steering Committee 'oversees and manages activities set forth in the annual HIE Plan'. As these are important responsibilities, the HIE Steering Committee expects and encourages each steering committee member to work directly with the organization they represent to ensure strong communication, strategies, and priorities are known. This way each steering committee member can adequately represent their organization. This prioritization is demonstrated through the HIE Steering Committee meetings as well as the Steering Committee planning session. For example, the HIE Steering Committee had an in person planning session in 2022 to identify each Steering Committee member's organization's needs and priorities. This is directly reflected in the HIE Plan. The Steering Committee overwhelmingly identified three key needs for 2023. This included 1. More/additional interfaces with providers to the HIE, 2. More completeness of data in EHRs so providers have better visibility of their patient's medical history and 3. Easier access for stakeholders to query the data in a bulk query method (vs one patient at a time).

Data Management

Data ownership must be considered when establishing an integrated data system. Source data lives in multiple systems which are "owned" by and managed by different entities who must coordinate to ensure the accurate integration of information and compliance with state and federal laws related to data access. The Unified Health Data Space will require coordination and collaboration across each of the data owners with a single, trusted authority assuming responsibility for the comprehensive data set.

Data integration involves an automated process for bringing data together from multiple sources, standardizing it, and preparing it for data analysis. The ultimate objective is to establish software-enabled automated processes that won't require engineers to write custom scripts. In establishing the Unified Health Data Space, it will be necessary to establish a clear process for data integration and identify the parties responsible for managing the process. The process should include detailed steps for preparing the data for integration, transforming it into a standardized format, ensuring data accuracy, and synthesizing the data.

Consent Management

Consent is an integral component of the HIE and an important factor to consider when standardizing access to shared data across an increasingly diverse set of entities. The Protocols for Access, detailed in Appendix A, reflects the current implementation of consent in the HIE. As required by legislation, the HIE's opt-out consent policy is founded upon an education process and opt-out mechanism

described in Attachment A. *See* 2019 VT Act 53 § 5. Under Vermont law, individuals can elect not to have information in the VHIE shared with "health care facilities, health care professionals, and public and private payers." 18 V.S.A. § 9351(a)(3)(B). These consent and access terms, also detailed in Attachment A, apply to all data shared in the HIE.

It will be crucial to engage new and existing HIE participants on an ongoing basis to continue the successful implementation of the consent and education obligations in Appendix A as new data sources are incorporated into the HIE. Additionally, some new data sources may carry additional legal or policy requirements for access, such as an affirmative opt-in or granular consent model, which may require the development of new policies, protocols, or technological solutions.

The HIE's robust framework for data governance is in place to ensure that all of these considerations have been satisfied before VHIE records are accessed or matched across systems, users, and data sources.

Data Quality

The Unified Health Data Space will need to have clearly defined processes for data cleaning and ensuring the data is valid (correctly formatted and stored) and reliable (complete and accurate). Data quality is expected to be managed by the source domain. Specific procedures should be documented for maintaining data quality during the integration into the Unified Health Data Space, including identifying missing data, assessing out of range values, and developing a process for correction. Data completeness is an important item, ensuring the data being ingested into the HIE is as complete and comprehensive as possible. Processes for data integration and the cadence at which this is performed will also need to be documented.

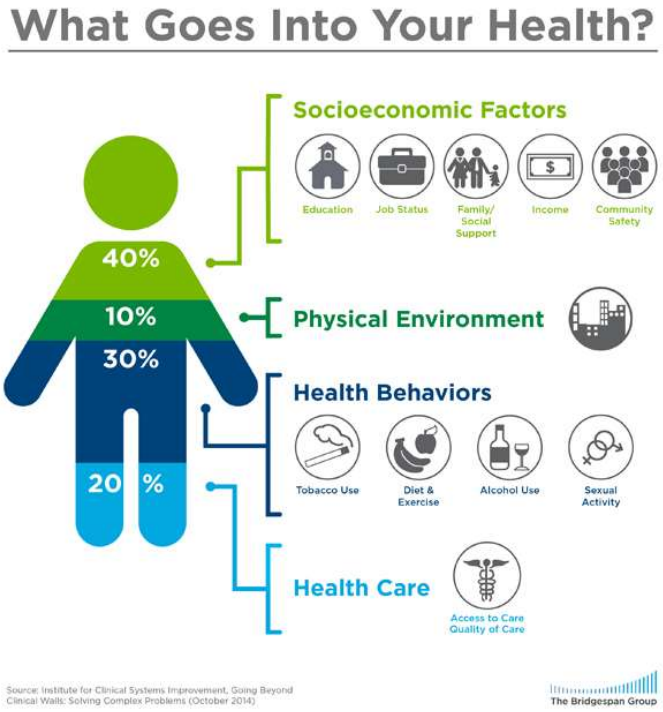
Data

Vermont needs to consider future data sources that could augment the Unified Health Data Space but are not yet readily available for inclusion. This could include people generated data, data generated from devices, and new federal or state data assets such as enhanced surveillance systems or data warehouses. This also includes building on the existing work and continuing to bring in data for social complexity and claims data. Below includes additional details around the importance of Social Determinates of Health (SDOH) and the specific strategic items for inclusion in the HIE as well as opportunities for further integration.

Social Determinants of Health (SDoH)

The Healthy People 2030 initiative by the U.S. Department of Health and Human Services (HHS), designed to guide national health promotion and disease prevention efforts to improve the health of the nation, defines an overarching goal specifically related to SDoH: "Create social, physical, and economic environments that promote attaining the full potential for health and well-being for all."

Data is the key for building a robust and efficient Social Determinants of Health strategy, needed to address health and health care disparities and achieve health equity. CMS Framework for Health Equity 2022–2032 also identified Priority 1 as Expand the Collection, Reporting, and Analysis of Standardized Data.



VHIE strives to improve our collection and use of comprehensive, interoperable, standardized individual-level demographic and SDoH data. As stated in CMS Framework for Health Equity 2022–2032, increasing our understanding of the needs of those we serve, including social risk factors and changes in communities' needs over time, gives us instruments to leverage quality improvement and ensure all individuals have access to equitable care and coverage.

Image Source: The Institute for Clinical Systems Improvement, Going Beyond Clinical Walls: Solving Complex Programs (October 2014)

SDoH Strategy Focus Areas:

- Use case development and implementation to drive prioritization
- Safe aggregation and storage of SDoH data as part of a person-centered approach
- Engaging mental health providers, substance use disorder (SUD) treatment providers, and long-term services and supports (LTSS) providers that predominantly serve the

Medicaid population
- Supporting communities via SDoH

Substance Use Disorder, Mental Health, Behavioral Health VHIE Pilot

Some parts of the health care system were not able to fully take advantage of the federal Medicaid and Medicare EHR Incentive programs which offered funding to health care organizations to offset the cost of purchasing EHR systems. In 2019, Vermont's Joint Fiscal Office (JFO) appropriated funds through a grant administered by the Department of Mental Health (DMH) to Vermont's Designated Agencies (DA) to offset the cost of upgrading EHR systems at 9 of the DAs. Vermont Care Partners, on behalf of the DAs, was required to develop an interoperability strategy that considered the VHIE as a key component of data integration and exchange across the health care system. As a result, VITL and Vermont Care Partners developed DA-specific Connectivity Criteria to ensure that once the DA systems are connected to the VHIE they can seamlessly transmit coded data that can be exchanged across care settings (to the extent that consent and organizational policies allow).

After the HIE Steering Committee approved the DA Connectivity Criteria, VITL established a Part II+ group, uniting stakeholders to create universal policies and procedures for sharing sensitive data types. This subcommittee will be responsible for establishing the data governance for Part II+ group within the HIE, the data elements that will be ingested in parallel while the infrastructure to connect this data to the HIE is being built.

Integrations across the Health System:

To fully participate in the vision of a Unified Health Data Space, public health data and systems must be integrated with the VHIE. In 2023, AHS will partner with VITL to design a strategy for bolstering public health management through partnership with the VHIE. The integration strategy will consider leveraging VHIE infrastructure to enhance public health operations (an effort to reuse existing technical capabilities in support of 18 V.S.A 9351 (6)), incorporating public health data (e.g., immunizations, birth/death, cancer records) into the health record contained on the VHIE, and reporting for public health surveillance and monitoring. The strategy will build on lessons learned from the COVID-19 response and account for new federal requirements for state-level reporting. The HIE Steering Committee will provide feedback on the public health data strategy and use it to inform ongoing efforts to propel state-wide health information exchange. In addition, for future funding options, Public Health registries are also eligible for CMS certification. While there are dedicated funding sources for Vermont's Public Health registries, certifying these systems may create an opportunity for Vermont to receive enhanced federal funding. It is important to note that operations of the registries would have to comply with CMS guidance, such as integration with an HIE and reuse of existing federal investments before certification could be obtained. Certification of public health data capabilities will be further explored as part of the process of developing a public health and VHIE integration strategy.

In addition to integrating public health systems to the HIE, the HIE will also serve as the Data Warehouse for Vermont Medicaid Operations. This will include ingesting Medicaid claims into the HIE, leveraging the existing technology of the HIE and providing the data for the Medicaid Analytics vendor for required reporting and analytics. Having the HIE consolidate data warehouse functions across the State aligns to 18 V.S.A 9351 (6). Future integrations, which also align to 18 V.S.A 9351 (6)

as well as the goals of the HIE Plan, include integrating the Pharmacy Drug Monitoring Program (PDMP), the all-payer claims database (APCD), and integrated enrollment and eligibility data.

Other key items that are important to ensure the HIE is sustainable and scalable includes knowledge management, human resources, and policies. Some of the biggest risks to business continuity and change sustainability, especially during a transformational period, are turnover and the inability to preserve knowledge throughout the organization. Knowledge management is defined as the process of creating, identifying, and managing knowledge of an organization and structuring it for effective and efficient use by individuals and teams. It should exist at the strategic level because operational knowledge is the lifeblood of business continuity. When knowledge is effectively managed, the organization is better equipped to withstand changes that come with time such as shifts in strategic direction, changes in work location, adoption of new processes, or changes in systems. Knowledge management will be necessary to expedite access to information, increase efficiencies, improve decision making, and support innovation. It will be important to develop a knowledge management framework to assess how knowledge is captured within the scope of the Unified Health Data Space as well as transferred across it as necessary. As new staff are onboarded, it will be important to ensure that they have the appropriate knowledge base to sustain the system. There may also be a need for new staff that bring a different set of skills and expertise. This may include partnership opportunities with educational institutions at all levels and providing pathways for current staff to expand their knowledge and skills. It will also be important to create succession plans to minimize loss of institutional knowledge when turnover occurs. As we plan for the HIE in the coming years, it will be important to cultivate a workforce suited for the unique mix of technical, compliance, business, and clinical skills needed for management of Unified Health Data Space.

Lastly, to ensure the HIE is sustainable and scalable it will be important to continue to monitor the landscape for upcoming policy changes. Rules governing data interoperability and information exchange will continue to be released multiple times a year and will need to be monitored. Legislation often impacts or influences data collection and sharing requirements. As such, as policies evolve, the HIE will need to be responsive to these changes.

Strategy: Technology

With its foundational technical infrastructure in place, the VHIE is well positioned to play a key role in advancing VT's population health, in-line with the State's Strategic Plan. The technology components of the HIE are shown in the figure above in the green box labeled 'Vermont Health Information Exchange (VHIE). From a technology standpoint ensuring the HIE is positioned to be sustainable and scalable over the next few years a few key items are important. These include ease of use; bidirectionality of data; data matching; analytics capabilities; system efficiencies; and tools.

Following is the vision for the analytics platform that is scheduled in 2024-2025. The HIE Steering Committee is committed to not creating redundant processes or IT systems and will collaborate on scope and requirements to ensure effective use of state funds. To set expectations, while we may collaborate on opportunity to consolidate processes or IT systems where it makes sense, the HIE has specific IT security and procurement requirements it must follow. As such, any collaboration will need to include a feasibility assessment to determine if the security, privacy, and procurement guidelines from the HIE can be met.

As the analytics platform will need to service a very broad user group with varying requirements and skillsets, we anticipate the following process, and two RFPs will be required. To date, we anticipate there could be a minimum of 14 different stakeholders that would need / want to engage in the analytics platform. This is a broad and diverse user group – this user group spans HIE Stakeholders of – Payers, Hospitals, Mental Health and Substance Use Disorder Designated Agencies, Providers, Federally Qualified Health Centers, Accountable Care Organizations, The Blueprint, Long Term Care Solutions, Home Health, Public Health, Green Mountain Care Board, Health Care Reform at AHS, and compliance reporting. To most efficiently and effectively collect requirements and user stories, the HIE Steering committee would issue two RFPs. First, an RFP to engage a consultant to perform this diverse requirement gathering, needs assessment, user story documentation (this step includes same reports and descriptions of what is needed for each report), and assist with writing the Analytics Platform RFP. Second, the Analytics Platform RFP would be issued for the analytics platform technology solution.

For expectations setting, due to the diverse stakeholder group and various use cases, it is anticipated the consultant will take about ~6 months to do thorough requirements gathering and writing of the Analytics Platform RFP. As such, this funding request for a consultant will be incorporated into the next funding cycle (please see HIE Cadence table for timing on the funding cycle on our website at healthdata.vermont.gov).

The analytics solution, which will be in the second RFP, will need to include the functional and nonfunctional requirements. The user experience, data quality, and data vintage, privacy and security will be critical to the success of the analytics platform. It is anticipated the second RFP will include the following: detailed training plan for the users, change management process (which could come in the form or a flow diagram for routine or customized reports, but this will be further vetted out in the requirements gathering stage), standard reports as documented in the user stories as well as customized ad hoc reporting capabilities. The successful bidder will demonstrate the analytics platform is capable of servicing users with limited data literacy/experience as well as data experts.

Adoption and utilization of the Unified Health Data Space will depend on the ease by which its users can access the information they need. Providers will need a single sign-on that is integrated into their workflow. They will also look to have VHIE data available within their standard workflow and tools. Stakeholders may need access to interactive dashboards to enable them to analyze data based on certain person characteristics, health, or geography. Working within each user group, it will be possible to define what is currently feasible

(e.g., manual query or data extract) as well as begin to consider how data can be more effectively accessed and shared (e.g., access to sophisticated tools like Tableau that can facilitate data visualization). The ability to analyze and use the data (often called data literacy) from the Unified Health Data Space will vary across user groups. Those groups who will want to run ad hoc queries will require resources to conduct these analyses. These may include hiring staff with expertise in data analytics or training current staff to develop data literacy. Without analytic skills, stakeholders will not be able to effectively manipulate the data to support their individual use cases. Strategic investments for technology for the HIE will involve acquiring and integrating modern, easy-to-use analytic tools to facilitate the effective use of the Unified Health Data Space, enabling staff without training to generate meaningful insights from the data. It will also be important to clearly communicate what tools and resources are available to users of Unified Health Data Space.

It will be important to present each different stakeholder with data fields that will be useful and presented in a format that is meaningful. While enhancing ease of use for the consumers, it will also be important to elevate data literacy skills in the process. Within each user group, it will be important to identify processes to simplify access to data based on their role-based access. To ensure coordination and collaboration across all stakeholders, it is critical that data flows in both directions. That is, if a stakeholder contributes data to the Unified Health Data Space, they must be able to access data that aligns with their designated role, as well as federal and state privacy laws. As such, data must be accessible to stakeholders that are contributing data to the warehouse, aligning with policies, laws, and data security guidelines. VITL currently uses a data matching algorithm that has proven to be highly effective in matching people records. Additionally, VHIE data has been successfully matched to Medicaid claims. Scaling this to include all claims will require time and resources.

During the latter half of 2021, the Claims Subcommittee had articulated 25+ use cases [12] for a linked clinical and claims data set from the perspective of a variety of users. An interesting use case is from that grouping discusses “Cost of Care -- Moving away from payments based on fee for service [FFS] to value based payments [VBP]”[13]. It will be important to document and automate the processes for data matching to ensure there is one record for each person.

One of the primary benefits of the health data space will be reducing redundancy and establishing streamlined processes to increase efficiency. To reduce unnecessary duplication, minimize extraneous costs, and streamline processes, it will be necessary to establish a detailed plan to increase efficiency including optimizing data storage, access, filtering, and sharing. This aligns to 18 V.S.A. § 9351 (3,4,6). Innovative technologies are being developed and evaluated that can help increase access to protected patient data while continuing to respect patient preferences for the sharing of sensitive health information. Developing a strategy that can accommodate emerging technologies like data segmentation, data tagging, HL7 Clinical Decision Support (CDS) Hooks, and SMART on FHIR[14] will be essential. Over time, there will be increasing sophistication in the tools and methods for data automation and refinement. Anticipating the evolution of data tools and algorithms to improve data is essential. Implementing the above technologies and continuously scanning the national landscape of best practices will enable personal health records for longitudinal health information, patient API for efficient and secure access, and the Internet of Things (IoT) for data collection and health monitoring.

Of course, an important piece of privacy is enabling patients to understand how their data is being accessed. At any time, an individual may ask VITL for a copy of their record that is available on the VHIE. In addition,

[12] https://healthdata.vermont.gov/content/2019-hie-steering-committee-meeting-materials-info/2021-hiesc-meeting-materials/2021-vhie

[13] https://healthdata.vermont.gov/sites/healthdata/files/documents/VHIE%20Claims%20Pilot%20-%20Use%20Cases%20Consolidated_Copy.xlsx

[14] What is SMART on FHIR? SMART is an open-source, standards-based API that leverages the OAuth 2.0 standard to provide secure, universal access to EHRs. The SMART platform builds on the existing Fast Health Interoperability Resources (hence the name "SMART on FHIR")

they can request an audit report of all of the accesses of their data on the VHIE that have occurred.

The UHDS will enable the reduction of Vermont's Total Cost of Care (TCOC) by enabling data driven personalized care through Person generated data for a complete health data profile, to promote closer people engagement and drive higher-value care by reducing unnecessary and costly low-value care. Technology enablers for this data driven personalized care include Patients Generated Data (PGD) through IoT devices for timely and complete health data profile, SDoH data collection and access for preventing high-cost clinical encounters and optimizing personalized diagnostics, treatments, and recovery. Risk stratification tools for predicting high-cost encounters before they happen. Payment adjustments tools for promoting value-based care and reducing paying for volume.

The All-Payer ACO Model Quality Framework that supports achieving important population health goals, such as improving access to primary care, reducing deaths from suicide and drug overdose, and reducing prevalence and morbidity of chronic disease (COPD, Diabetes, Hypertension), is a great example of how UHDS can utilize integrated clinical/claims/SDoH data sets to feed into 22 carefully selected measures, see Appendix J. An example of one of these measures with Claims/Clinical set used as data source is to improve performance for Vermont Medicare beneficiaries, a composite measure that includes Diabetes HBA1c poor control, controlling for high blood pressure and all-cause unplanned admissions for patients with multiple chronic conditions.

Other process milestones improvement measures include "improve rate of tobacco use assessment and cessation intervention" and "improve rate of medication management for people with asthma" that use Claims data set as a source. The VHIE doesn't define those metrics but provides support and drives them through an integrated data set. That support and alignment happens after the measures are defined by Vermont priorities (e.g., State Health Improvement Plan) and the 'business' (Health reform team and ACO in this case). A final example of how the UHDS can be used to eliminate unnecessary low value care would be work done on complying with Interoperability and Patient Blocking Rules, that would allow better Patient engagement and contribute to the co-production of care.[15] This will allow both providers and patients to make educated informed choices and limit unnecessary low value care.

In compliance with Act No. 167, which directs the HIE Steering Committee to include a VHCURES data integration strategy in its 2023 HIE strategic plan, the committee proposes the initiation of a VHIE-VHCURES data integration initiative that would deliver a project plan, using the Project Management Institute (PMI) framework, including: project scope, stakeholder analysis, stakeholder requirement analysis, data privacy and consent review, IT security requirements, data uses/outputs, existing systems/modules to leverage and reuse (if any), proposed technical design document, project risk assessment, estimated project cost, and an estimated project schedule.

The HIE Steering Committee recognizes the importance of including relevant stakeholders in the design, development and implement of the VHCURES data integration strategy. As such, when the project kicks off in 2023, the HIE will be focused on including but not limited to representatives from: Green Mountain Care Board, Agency of Digital Services, HIE program staff, Blue Cross Blue Shield, the Health Care Advocate, and a privacy expert. Additional key principles can and will be included as necessary. The HIE is committed to protecting Vermonter's health information and data and as such data privacy, consent, and security will be critical as part of the integration strategy as it is developed. To set expectations, it is expected to take multiple months to assess different integration options and to provide a recommendation in the 2023 plan. As such, it will be important for this team to start their working sessions early in 2023.

[15] Batalden, Paul. "Getting More Health from Healthcare: Quality Improvement Must Acknowledge Patient Coproduction." BMJ 2018;362:K3217.

To Start this initiative, culminating in a project plan with the details outlines above, AHS will be assigning a Project Lead, by January 1, 2023, to initiate the stakeholder's analysis and engagement as outlined above. It is anticipated that the second person on the project will be a GMCB Subject Matter Expert (SME). The first task of the Project Lead and the GMCB SME is to assemble a project team representing the different stakeholders.

The anticipated target date for the completion of the project plan: September 30, 2023.

This work will leverage key business and technical resources from the Green Mountain Care Board, Agency of Human Services, the Agency of Digital Services, HIE program staff, Blue Cross Blue Shield, the Health Care Advocate, and a privacy expert at a variety of levels to achieve success. It is worth noting, per legislation 18 V.S.A. § 9410, Green Mountain Care Board maintains the VHCURES dataset as well as approves, rejects, or requests modification to the HIE Strategic Plan per 18 V.S.A. § 9351(a)(2). The HIE Steering Committee is also committed to ensuring there is no loss of objectivity on these two items and is looking forward to collaborating with GMCB on the best approach to ensure objectivity going forward.

Strategy: Next Steps

This strategic plan outlines the key items necessary to facilitate the successful implementation of the Unified Health Data Space over the course of the next few years. In the following months, AHS with the HIE Steering Committee will build out an action plan for each 2023 Strategic Goal item from the below table and track progress with appropriate key process indicators (KPIs) and metrics.

Ongoing coordination across all stakeholders will support and advance implementation, while efforts to promote data literacy, including outlining use cases for how the data may be used, will increase interest in and use of the Unified Health Data Space. These efforts will be paired with reviews to ensure that professional practice and policy are properly followed to ensure patient education and consent. Throughout the implementation process, the HIE will look for opportunities to improve implementation or make course corrections that will ensure successful development and management of the Unified Health Data Space.

		HIE THEMES					
Year	Goal	Foundational	Value Based Care Mgt	Governance	Grow Value for Stakeholders	Develop Culture of Learning and Innovation	Focus on Health Equity
2023	Establish **Data Governance** for each data type and stakeholder use of it	x		x			
2023	Focus on **clinical data completeness, quality, and standardization**	x		x			x
2023	**Funding Structure** - establish milestones and guardrails for seeking private funding	x				x	
2023	**Establish new / additional interfaces** to increase the richness of data. **Promote portability of EHI** through standards-based APIs and other interoperable health IT that permit individuals to readily send and receive their EHI across various platforms.	x			x	x	
2023	**Enhance accessibility** for Stakeholders			x	x		x
2023	Identify two **use cases for SDoH** and enable end to end implementation of it.		x	x	x		x
2023	**Deveopment work** to start for HIE to serve as the **Medicaid Data Warehouse**		x		x		
2023-2024	**Integrate Dept of Health and HIE** to include: bi - directional exchange of immunization records; vital statistics; electronic case reporting; Pharmacy Drug Monitoring Program		x	x	x		x
2024	Ongoing Technology Enhancements: **ease of use**, employ single sign on capability				x		
2024	**Expand Stakeholders** to include **researchers** to utlize limited datasets of HIE for health improvement			x	x	x	x
2024	**Integrate all-payer claims** and clinical data			x	x		
2024	Capability for **complex care management, care coordination, and referral management**		x		x		x
2024-2025	**Onboard** Integrated Enrollment and Eligibility data			x	x		
2023-2025	Enable HIE to ingest and use data from **Home Health Devices:** Wearable sensors, IOT			x		x	
2024-2025	Enable HIE to **adopt analytics** to empower individuals, address patients' full range of health needs, promote healthy behaviors, and facilitate better health outcomes for individuals, families, and communities					x	x
2025	**Customization** for Provider Portal				x	x	
2025	Explore **person engagement platform**				x	x	

Table 4: Strategic Goals

Appendix A: Protocols for Access to Protected Health Information on VHIE

Protocols for Access to Protected Health Information on VHIE

Section 1 – Purpose

Upon approval by the Green Mountain Care Board, this addendum shall be incorporated into and become part of Vermont's Health Information Technology Plan (the "Plan"). Vermont law requires that the Plan include standards and protocols for 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 individuals receiving care. In particular, 18 V.S.A. § 9351(a)(3)(B)requires that:

> *The Plan shall provide for each patient's electronic health information that is contained inthe Vermont Health Information Exchange to be accessible to health care facilities, health care professionals, and public and private payers to the extent permitted under federal law unless the patient has affirmatively elected not to have the patient's electronic healthinformation shared in that manner.*

This addendum is intended to give effect to these provisions.

As required by statute, Vermont Information Technology Leaders, Inc. ("VITL") has been designated to operate the Vermont Health Information Exchange ("VHIE") in accordance with standards and protocolsthat are consistent with those adopted under the Plan.

Notwithstanding the annual review and approval of the HIE Plan as a whole, these Protocols shall remain in effect for the existence of the VHIE until superseded or modified with approval of the Green Mountain Care Board.

Section 2 - Definitions

"Consent" means an Individual's decision to permit access to the Individual's Protected Health Information on the VHIE by Participating Health Care Organizations and by public or private payers for Permissible Purposes. No affirmative action is required from an individual to establish their Consent. Individuals shall be considered to have given their Consent until and unless the individual affirmatively Opts-Out.

"De-identified" means that all identifying information related to a Person as set forth in the HIPAA Privacy and Security Rules are removed from the Protected Health Information.

"Health Care Operations" means any of those activities identified by federal regulations at 45 C.F.R. § 164.501, as may be amended, including but not limited to, quality assessment and improvement, evaluations relating to the competence of treating providers or necessary administrative and management activities.

"HIPAA" means the Health Insurance Portability and Accountability Act of 1996, as may be amended, and its implementing rules promulgated in 45 C.F.R. Parts 160, 162, and 164, as may be amended.

"HIPAA Privacy Rules" means those privacy rules described in 45 C.F.R. Part 164, Subpart E, as

modified and enlarged by the Health Information Technology for Economic and Clinical Health (HITECH) Act and any other subsequent amendments to the Rules.

“HIPAA Security Rules” means those security rules described in 45 C.F.R. Part 164, Subpart C, as modified and enlarged by the HITECH Act and any other subsequent amendments to the Rules.

“HITECH Act” means the Health Information Technology for Economic and Clinical Health Act of 2009, as may be amended, and its implementing rules promulgated at 45 C.F.R. Parts 160, 162, and 164, as may be amended.

“Medicaid State Plan” means that there is an agreement between a state and the Federal government describing how that state administers its Medicaid programs. It gives an assurance that a state will abide by Federal rules and may claim Federal matching funds for its program activities.

“Medical Emergency” means a condition that poses an immediate threat to the health of any individual and which requires immediate medical intervention. The term “Medical Emergency” specifically is intended to include an “Emergency Medical Condition” which is defined as a medical condition manifesting itself by acute symptoms of sufficient severity such that the absence of medical attention could reasonably be expected to result in (1) placing the health of the individual in serious jeopardy or (2) serious impairment to bodily functions or (3) serious dysfunction of any bodily organ or part.

“Opt-Out” means a Person’s affirmative election to withhold Consent, communicated to VITL through designated process.

“Participating Health Care Organization” means the individual hospital, medical practice, physician practice, home health care agency or other health care provider who has entered into a VHIE Services Agreement. Health Care Organization is either a recipient of Data or a supplier of Data, or both, with respect to Data available through the VHIE. The term “Participating Health Care Organization” shall include all the individual providers and authorized staff employed or otherwise legally associated with the entity or organization.

"Part 2 Provider” means a Participating Health Care Organization provider that has notified VITL that the organization or a unit or staff member within its organization, meets the definition of a Program under 42 C.F.R. Part 2, presently located in 42 C.F.R. § 2.11.

"Part 2 Lawful Holder” means any entity other than a Part 2 Provider that has notified VITL that the records it has provided to VITL consist or are reasonably be expected to consist, in whole or in part, of records protected by 42 C.F.R. Part 2.

“Patient”, “Individual” or “Person” means an individual whose personal demographic information or Protected Health Information is stored or transferred by the VHIE. The term includes a personal representative who has the authority to authorize the disclosure of a Person’s Protected Health Information pursuant to 45 C.F.R. § 164.502 (g) and any other applicable state or federal laws.

“Payment” means any activity undertaken to obtain or provide reimbursement for the provision of health care items or services to a Person.

“Permissible Purposes” means Treatment, Payment, Health Care Operations, consistent with HIPAA

and Vermont law.

“Protected Health Information” and the abbreviation “PHI” shall have the same meaning as the term “protected health information” in 45 C.F.R. § 160.103, limited to the individually identifiable health information created or received by or on behalf of a Participating Health Care Organization. Such term shall also include Electronic Protected Health Information.

“Public Health Authority” means an agency or authority of the United States or a State that has been granted authority and responsibility to protect public health and to prevent or control disease, injury or disability, and, as such, that is authorized by law to collect or receive such information for the purpose of preventing or controlling disease, injury, or disability.

“Significant Public Health Risk” shall have the same the meaning as the term “significant public health risk as” in 18 V.S.A. § 2 (12).

“Revoke” or “Revocation” of Opt-Out means a Person’s withdrawal of a previous election to Opt-Out.

"Substance Use Disorder Identifying Records” or “SUD Identifying Records” means records obtained from a Part 2 Provider or Part 2 Lawful Holder that meet the applicability provisions for restrictions on disclosure in 42 C.F.R. Part 2, presently located in 42 C.F.R. § 2.12(a)(1).

“Treatment” means the provision, coordination, or management of health care and related services by one or more Health Care Organizations.

Section 3 –Access by Participating Health Care Organizations

A. General. Each Individual's electronic Protected Health Information that is contained in the Vermont Health Information Exchange shall be accessible to Participating Health Care Organizations to the extent permitted under law unless the Individual has affirmativelyelected not to have the Individual's electronic Protected Health Information shared in that manner.

Participating Health Care Organizations shall access Protected Health Information on the VHIE only forPermissible Purposes and only with respect to Individuals with whom they have, had, or are about to commence, a Treatment relationship.

B. Responsibilities of Participating Health Care Organizations. Participating Health Care Organizations shall–

(i) execute a VHIE Service Agreement addressing the terms of providing Patient PHI for exchange on the VHIE and the Participating Health Care Organization’s Access to Patient Records

(ii) cooperate in good faith to execute all provider responsibilities under any processes established by VITL to collect and record Individual elections to Opt-Out, and

(iii) have policies and procedures in place to ensure that only those individuals involved in Treatment, Payment or HealthCare Operations may access a Persons’ PHI on the VHIE.

C. VITL Responsibilities. In addition to the obligations provided elsewhere in this addendum, VITL, as the operator of the VHIE, shall–

(i) enter into a Business Associate Agreement ("BAA"), including, if applicable, a Qualified Service Organization Agreement ("QSOA"), with Participating Health Care Organizations addressing the terms of VITL's use and disclosure of Individual PHI obtained from the Participating Health Care Organization and

(ii) ensure mechanisms exist to ensure records of patients who have Opted Out are not available, except in the event of Medical Emergencies as in Section D.

D. Emergency Access to PHI on the VHIE. Notwithstanding a Persons' choice to Opt-Out, a Participating Health Care Organization may access the Individual's PHI through the VHIE for use in Treatment of the Individual for a Medical Emergency, but only if the Participating Health Care Organizationis unable to obtain Individual consent for such access. Participating Health Care Organizations accessing PHI under such circumstances must notify the Individual of such access as soon as is reasonably possible and must obtain a Revocation of the Individual's Opt-Out for further access to PHI of that Individual on the VHIE after the Medical Emergency has ended.

Section 4 – SUD Identifying Records

A. Protections necessary to prevent disclosures. The regulations set forth in 42 C.F.R. Part 2, governing records of covered substance use disorder treatment providers, require additional protections to prevent disclosure of SUD Identifying Records.

B. VITL Responsibilities. In addition to the obligations provided elsewhere in this addendum, including those in Section 3.C, VITL, shall–

(i) work with AHS, Part 2 Providers, and Part 2 Lawful Holders to identify and meet all applicable technical and programmatic requirements before allowing parties to access SUD Identifying Records under Sections 3, 5, or 6,

(ii) take reasonable care to prevent unpermitted disclosure of SUD Identifying Records, including working with Part 2 Providers to appropriately identify, store, and manage, as required by law, SUD Identifying Records transmitted to VITL, and

(iii) disclose SUD Identifying Records as permitted by law and authorized by the Part 2 Provider or Part 2 Lawful Holder or as required by law.

Section 5 – Public Health Access

Patient PHI that is contained in the VHIE shall be accessible to a Public Health Authority for public health purposes to the extent that access is authorized under state and federal law. This access shall not be limited by the patient's election not to share data with Participating Health Care Organizations and public and private payers under 18 V.S.A. § 9351(a)(3)(B). A Public Health Authority that receives PHI for a public health activity or purpose may only disclose such PHI to the extent permitted by state and federal law.

Section 6 – Payer Access

A. General. Each Individual's electronic Protected Health Information that is contained in the

Vermont Health Information Exchange shall be accessible to public and private payers to the extent permitted under federal and state law unless the Individual has affirmatively elected not to have the Individual's electronic Protected Health Information shared in that manner.

Public and Private Payers shall access Protected Health Information on the VHIE only for Permissible Purposes and only with respect to Individuals with whom they have or had a relationship.

B. Payer Responsibilities. Payers shall–

(i) enter into a Data Use Agreement addressing the terms of their Access to Individual Records and

(ii) have policies and procedures in place to ensure that only those individuals involved in Payment or Health Care Operations may access a Person's PHI on the VHIE.

C. VITL Responsibilities. In addition to the obligations provided elsewhere in this addendum, VITL, as the operator of the VHIE, shall–

(i) if receiving PHI from the Payer entity, enter into a Business Associate Agreement ("BAA") with payers addressing the terms of VITL's use and disclosure of Individual PHI obtained from the Payer,

(ii)implement policies and procedures to prevent Payer Access through the VHIE to PHI of Patients who have Opted Out.

Section 7—National Exchange

A. **General.** Each Individual's electronic Protected Health Information that is contained in the Vermont Health Information Exchange shall be available for query-based exchange with national exchanges pursuant to Restatement II of the Data Use and Reciprocal Support Agreement ("DURSA"), April 13, 2019, and as amended in the future, unless a Participating Health Care Organization elects to not make their data available or the Individual has affirmatively elected not to have the Individual's electronic Protected Health Information shared in that manner.

Participants in these exchanges shall access Protected Health information for permitted purposes pursuant to and as defined by DURSA to facilitate and protect eHealth Exchange.

Additionally, an individual's PHI contained on the VHIE shall also be provided for permissible purposes to other organizations as required by federal law.

B. **VITL's Responsibilities.** VITL, in coordination with the HIE Steering Committee, shall participate in the DURSA and any successor agreements thereto and shall comply with the requirements of participation. VITL may also participate in the exchange of Protected Health Information with other state or regional health information exchanges under direct agreements so long as they are consistent with the DURSA's exchange framework and protections for the privacy, confidentiality and security of the health data.

Section 8 – Individual Rights with Respect to Access

A. Education. VITL and the Department of Vermont Health Access shall develop, maintain and administer a program of education that enables Individuals to fully understand their rights regarding the sharing of their Protected Health Information through the VHIE and provide them with ways to find answers to associated questions. Educational materials and processes shall be incorporated as appropriate with existing education obligations, such as Notice of Privacy Practices disclosure requirements under HIPAA, and shall aim to address diverse needs, abilities, and learning styles with respect to information delivery.

Education materials and processes shall clearly explain–

(i) the purpose of the VHIE;

(ii) the way in which Protected Health Information is collected;

(iii) how and with whom Protected Health Information may be shared using the VHIE;

(iv) the Permissible Purposes for which Protected Health Information may be shared using the VHIE;

(v) how to Opt-Out and how to Revoke the Opt-Out; and

(vi) how to contact the Office of the Health Care Advocate.

B. Patient Opt-Out. With the exception of access by Public Health Authorities and access in a Medical Emergency, Patients shall be free to Opt-Out of participation in the VHIE at any time, which election shall remain in effect with respect to information requested by Participating Health Care Organizations or Payers, unless and until the Patient Revokes such election in writing.

C. Patient Access to PHI. All patients shall be provided the right of access to their PHI contained in the VHIE to the extent permitted under applicable HIPAA rules.

D. Patient Request for Audit Report. A Patient may request and receive an audit report of access to their PHI on the VHIE by contacting VITL's Privacy Officer. VITL shall provide the requested audit report as soon as reasonably possible, but in no event longer than 30 days after request.

E. Revocation. A Patient who has Opted-Out shall be entitled to Revoke such Opt-Out at any time. VITL shall develop and administer one or more Revocation mechanisms for this purpose, including a mechanism by which the Patient's Opt-Out revocation may be documented by the Payer entity. It is the obligation of VITL to update records of the Patient's Consent status for the VHIE. A Revocation shall remain effective unless the Patient subsequently Opts Out.

F. Deidentified Data. De-identified patient information may be used for research, quality review, population health management and public health purposes, as permitted by HIPAA. No commercial use or sale of de- identified patient information is permitted.

G. VITL Responsibilities.

(i) establish one or more user-friendly mechanisms through which Patients may Opt-Out,

(ii) maintain updated Consent-status records of all Patients who have Opted-Out, and

(iii) ensure the ability to audit access to patient records to facilitate compliance by Participating Health Care Organizations and participating payers with Accounting of Disclosure regulations under HIPAA.

Health Information Exchange Steering Committee Charter

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Purpose of the HIE Steering Committee

The HIE Steering Committee exists to:

1. Serve the needs of HIE users by advancing HIE use cases;
2. Strengthen the relationship between authority and accountability; and
3. Engage a broad range of stakeholders in strategic planning and oversight activities.

The Steering Committee's Vision & Mission

Vision: To enable health information exchange that promotes quality health care in Vermont.

Mission: To work across organizations and disciplines to create and endorse a shared view of the definition, purpose, and goals of HIE in Vermont.

Ultimately, the Steering Committee exists to support development of a state-wide strategic plan (the HIE Plan) and guide implementation of that plan. In 2018, the Steering Committee identified three overarching goals in the HIE Plan that are intended to guide the state's health information exchange work. The goals include:

1. Create One Health Record for Every Person
    a. Support optimal care delivery and coordination by ensuring access to complete and accurate health records
    b. Reduce provider burden by aggregating essential data in one, useful location
    c. Provide people with a comprehensive understanding of their health and care

2. Improve Health Care Operations
    a. Enrich health care practices with data collection and analysis to support quality improvement and reporting
    b. Align data aggregation and data quality efforts to support real need
    c. Reduce burden associated with reporting
    d. Allow providers to analyze their own data and put information into action

3. Use Data to Enable Investment and Policy Decisions
    a. Bolster the health system's ability to learn and improve by using accurate, comprehensive data to guide investment of time, labor, and capital, and inform policy making and program development
    b. Put data in the hands of program's serving population-wide needs
    c. Enable data-informed decision making

The Steering Committee's Guiding Principles

- We commit to creating an HIE Plan that is accurate, reliable, and actionable.
- We drive to use technology and data to support value-based care.
- We are accountable for meaningful work that furthers the goals of HIE.
- We work to optimize what exists today and be thoughtful about future developments.

- We are good stewards of limited public and private resources.
- We exist to develop systems that better the health and well-being of Vermonters.

Scope

In 2019 and beyond, the HIE Steering Committee will:

- Support development, execution, and oversight of Vermont's HIE Plan.
    - Annually, develop and/or update the HIE Steering Committee charter and bylaws to clearly define roles of members, voting procedures, and other essential operational functions.
    - Annually, update the State's HIE plan to support the health system's needs and priorities. The plan must comply with state law and guidance provided by the Green Mountain Care Board (GMCB) through the annual plan review process.
    - Develop and maintain a technical roadmap to support the State's HIE network and achieve the goals stated in the HIE Plan.
    - Oversee and manage activities set forth in the annual HIE plan.

- Continue to grow and evolve the HIE Steering Committee to best meet the State's needs.
    - Identify growth opportunities for the governance body and assign ad-hoc committees as needed (e.g., data governance, connectivity, finance, audit).
    - Act as the central point of review for new or adjusted priorities with HIE stakeholders. Identifying alignment opportunities to further integrate the statewide data management architecture.

- Support the Department of Vermont Health Access (DVHA) and other stakeholders in focusing HIE investments to align with statewide HIE goals.
    - Define the portfolio of investments needed to further HIE goals and, annually, refine the HIE financial sustainability model through evaluation of progress made in the preceding year.
    - Note: The Committee does *not* approve or review public investments. Rather, they aid in the development of strategy that may guide both public and private investments in support of shared, state-wide goals.

- Support development of processes and policies that enable achievement of statewide HIE goals.
    - Provide recommendations to the legislature, GMCB and other stakeholders on actions they can take to support the State's HIE plans and goals and support the development of policy and legislation to further statewide HIE goals and objectives.
    - Identify priority policies that must be focused on to expand interoperability of health information.
    - Review and provide feedback on policies developed by AHS, the VHIE, and other stakeholders related to the exchange of health data.

- Engage stakeholders in the Steering Committee's work.
    - Actively and consistently engage with existing stakeholder advisory groups to ensure that planning and implementation considers insights from impacted and interested parties.
    - Act as ambassadors of and liaisons to individuals' respective population or organization represented as Committee members on matters discussed or pursued by the HIE Steering Committee.

Steering Committee Membership

The members of the committee were selected by the Chair to best enable HIE progress in Vermont. Membership is comprised of 9 voting members and 4 non-voting members. AHS's HIE Unit will act as the Steering Committee's administrative and operational support.

Name	Role	Population or Organization Represented
Kristin McClure	Chair / Voting Member	Vermont's Agency of Human Services
Jessie Hammond	Voting Member	Vermont's Department of Health
Jimmy Mauro *Blue Cross Blue Shield of Vermont*	Voting Member	Payer Representative
Simone Rueschemeyer *Vermont Care Partners*	Voting Member	Mental Health & Substance Use & Intellectual Developmental Disabilities Representative
Georgia Maheras *Bi-State Primary Care Association*	Voting Member	Primary Care Representative
Emma Harrigan *Vermont Association of Hospitals and Health Systems*	Voting Member	Hospital Care Representative
Victor Morrison	Voting Member	Representative of people who engage with the health care system
Josiah Mueller *OneCare Vermont*	Voting Member	Accountable Care Organization Representative
Tim Tremblay	Voting Member	The Blueprint for Health Program
Sandy Rousse *Central Vermont Home Health and Hospice*	Voting Member	Home Health and Hospice Representative
Laura Pelosi *Long Term Care Advocate*	Voting Member	Long Term Care Representative
Vacant	Voting Member	Health Care Advocate
Vacant	Voting Member	Health Equity Expert
Kathryn O'Neill	Non-Voting Member	The Green Mountain Care Board

Emily Wivell	Non-Voting Member	The Agency of Digital Services
Beth Anderson	Non-Voting Member	VITL, Vermont's Health Information Exchange Operator

Vacant	Operational Support / Non- Voting Member	Health Information Exchange Program, Agency of Human Services

Decision Making

Decisions will be made by a majority vote (unanimity minus 2). The committee will make attempts to bring in affected parties beforehand for their advice. Decisions will be logged by the scribe for that meeting, the Committee Coordinator or HIE Program Manager. The committee will produce a decision document that names, explains, and describes the impact of all decisions. Affected entities will be notified within 30 days.

Communications – Meetings

Note: In April 2020, the Steering Committee agreed to revise the in-person meeting structure considering the COVID-19 pandemic and the need to physically distance from others. The Committee agreed to the following:

- Maintain Regular Meetings
- Meet virtually
- Aim to keep meetings under 2 hours
- Strategically Work Through Small Groups (subcommittees) to Ensure Efficient Management of Timely Activities
- Utilize Email More Often to Conduct Committee Business e.g., Consent Updates
- Host Meetings for Special Topics: Individual or Group Meetings to Get Up-to-Speed on Topics like the 21st Century Cures Act

HIE Steering Committee Website

Meeting agenda, minutes, and resource materials will be posted on

https://healthdata.vermont.gov/. Draft materials may be sent via email from the HIE Unit directly to Steering Committee members.

Appendix C: General Connectivity Criteria & Designated Agency Connectivity Criteria

Data Set and Data Quality Standards Worksheet

Tier 2 HC Elements

VHIE Connectivity Criteria Tier 2 Healthcare Common Data Elements

Location(s):

Data Contributor Type:

Vendor:

Date:

Concepts	**Data Elements**	**Standardized Coding System(s)**	**Data Contributor Type**	***HCO use only*** **Documentation Assessment** **Providers are documenting data sets in discrete data fields (Yes or No)**	***VITL use only*** **Connectivity Assessment** **EHR vendor is technically capable of transmitting data sets**
Demographics	First Name	N/A	All		
	Last Name		All		
	Middle Initial (if has middle name)		All		
	Date of Birth		All		
	Gender (self reported)		All		
	USPS address (Street, City, State and Zip Code)		All		
	Medical Record Number		All		
Providers	Assigned PCP NPI (Individual)	National Provider Index(**NPI**)	All		
	Servicing Provider NPI (Individual)		All		

	Additional Members of the Care Team (if available)	NPI (if available)	MH/BH		
	Sending Organization	N/A	All		
Diagnostic Results	Hemoglobin A1C	Logical Observation Identifiers Names and Codes **(LOINC)**	All		
	LDL		Physical		
	HDL		Physical		
	ALT		Physical		
	AST		Physical		
	Cholesterol		Physical		
	Triglycerides		Physical		
	Fecal Occult Blood Test (FOBT)		Physical		
	Stool DNA Test (FIT DNA)		Physical		
	Fasting Blood Glucose Test		Physical		
	Lyme Disease Test		Physical		
	Cervical Cancer Screening (HPV test and Date of test)		Physical		
	COVID-19 Test		All		
	Pregnancy		MH/BH		
	Platelet Count		MH/BH		
	Red Blood Cell Count (RBC)		MH/BH		
	Hematocrit (HCT)		MH/BH		
	Mean Corpuscular Hemoglobin		MH/BH		
	Mean Corpuscular Volume		MH/BH		
	Mean Corpuscular Hemoglobin Concentration		MH/BH		
	Red Blood Cell Distribution Width		MH/BH		
	Absolute Neutrophil Count		MH/BH		
Immunizations	Pneumococcal	CVX codes	Physical		
	MMR		Physical		
	Diphtheria, Tetanus, Pertussis (DTaP)		Physical		
	Tetanus, Diphtheria, Pertussis (Tdap)		Physical		
	Varicella		Physical		

	Haemophilus Influenzae Type B (HiB)		Physical		
	Hep A		Physical		
	Hep B		Physical		
	Rotavirus		Physical		
	Meningococcal ACWY (MCV4)		Physical		
	Meningococcal B (MenB)		Physical		
	Polio (IPV)		Physical		
	HPV		Physical		
	Influenza		Physical		
	COVID-19		Physical		
Problems	Hypertension	IHTSDO SNOMED CT. Will also accept ICD-9, ICD-10, or Z Codes MH/BH: MH Codes Fall in the F range on ICD-10 F01.50 - F99 Mental Behavioral and Neurodevelopmental disorders. HCO may also ocassionally report Z codes: (Z00 - Z99)Factors influencing Health status and contact with health services.	Physical		
	Diabetes		Physical		
	ADHD		Physical		
	Coronary Artery Disease		Physical		
	Obesity		Physical		
	Asthma		Physical		
	End Stage Renal Disease (ESRD)		Physical		
	Smoking Status		Physical		
	Tobacco (Including Nicotine) Use		Physical		
	COPD		Physical		
	Stroke		Physical		
	Anxiety		All		
	Depression		All		
	Colon Cancer		Physical		
	F01-F09 - Mental disorders due to known physiological conditions		MH/BH		
	F10-F19 - Mental and behavioral disorders due to psychoactive substance use		MH/BH		
	F20-F29 - Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders		MH/BH		

	F30-F39 - Mood [affective] disorders		MH/BH		
	F40-F48 - Anxiety, dissociative, stress-related, somatoform and other nonpsychotic mental disorders		MH/BH		
	F50-F59 - Behavioral syndromes associated with physiological disturbances and physical factors		MH/BH		
	F60-F69 - Disorders of adult personality and behavior		MH/BH		
	F70-F79 - Intellectual disabilities		MH/BH		
	F80-F89 - Pervasive and specific developmental disorders		MH/BH		
	F90-F98 - Behavioral and emotional disorders with onset usually occurring in childhood and adolescence		MH/BH		
Vital Signs	Height	Logical Observation Identifiers Names and Codes **(LOINC)** in Unified Code of Units of Measure, Revision 1.9.	All		
	Weight		All		
	BMI (if recorded in EHR)		All		
	Blood Pressure - Diastolic		All		
	Blood Pressure - Systolic		All		
	Heart Rate		All		
	Respiratory Rate		All		
	Pulse Oximetry		All		
Procedures	Colonoscopy	Snomed, CPT, HCPCS, Loinc	Physical		
	Sigmoidoscopy		Physical		
	Mammography		Physical		
	Colectomy		Physical		
	CT Colonography		Physical		
	Cervical Cancer Screening (Pap test and date of test)		Physical		
	Ultrasound or CT scans for cancer		Physical		
	Psycho Social Rehabilitation		MH/BH		
	Individual Therapy		MH/BH		

	Comprehensive Community Support		MH/BH		
	Group Psychotherapy		MH/BH		
	Emergency Service		MH/BH		
	Crisis Intervention Service		MH/BH		
	Psychiatric Evaluation		MH/BH		
	Skills Train and Development		MH/BH		
Medications	Medications	**RxNorm**, a standardized nomenclature for clinical drugs produced by the United States National Library of Medicine	All		
Allergies	Medication Allergies	**RxNorm**, a standardized nomenclature for clinical drugs produced by the United States National Library of Medicine	All		
Screenings/Patient Education	Tobbaco Use Screening	Snomed, CPT, HCPCS, Loinc	All		
	Colorectal Cancer Screening		All		
	Depression Screening		All		
	Substance Use Disorder Screening		All		
	Depression Screening		All		
Payers	Primary Insurance Company	N/A	All		
	Primary Insurance Member ID		All		
Encounters	Hospital Inpatient Admissions (From ADT)	N/A	All		
	Hospital Inpatient Discharges (From ADT)		All		
	Hospital Inpatient Transfers (From ADT)		All		

VHIE Connectivity Criteria Tier 3 Healthcare Expanded Data Elements

Location(s):

Data Contributor Type:

Vendor:

Date:

Concepts	**Data Elements**	**Standardized Coding System(s)**	**Data Contributor Type**	***HCO use only*** **Documentation Assessment Providers are documenting data sets in discrete data fields (Yes or No)**	***VITL use only*** **Connectivity Assessment EHR vendor is technically capable of transmitting data sets**
Demographics	Maiden Name	N/A	All		
	Phone Number		All		
	SSN		All		
	Nickname		All		
	Suffix		All		
	Birth Sex		All		
	Race		All		
	Ethnicity		All		
	Preferred Language		All		
	Phone Type		All		
Providers	Care Team Member NPI (Individual)	National Provider Index (**NPI**)	All		
	Servicing Provider Site Address	N/A	All		

Diagnostic Results	Urinalysis results for substance use and/or treatment adherence	Logical Observation Identifiers Names and Codes **(LOINC)**	Physical		
Problems	Pregnancy	IHTSDO SNOMED CT. Will also accept ICD-9, ICD-10	Physical		
	Fetal Loss		Physical		
	Suicidality		Physical		
	Opioid Use Disorder		Physical		
	Alcohol Use Disorder		Physical		
	Upper Respiratory Infection		Physical		
	Social Determinants of Health (Problems)		Physical		
	Disability/Physical Limitation		Physical		
Vital Signs	Body temperature	Logical Observation Identifiers Names and Codes **(LOINC)** in Unified Code of Units of Measure, Revision 1.9.	Physical		
	Inhaled oxygen concentration		Physical		
	BMI percentile per age and sex for youth 2-20		Physical		
	Weights for age per length and sex		Physical		
	Occipital-frontal circumference for children < 3 years old		Physical		
Procedures	Audiological Evaluation, <= 3 months age	Snomed, CPT, HCPCS, Loinc	Physical		
	Postpartum Care between 21 and 56 days after delivery		Physical		
	Pulmonary Function Test		Physical		
	Developmental Screening <= 3 years		Physical		
	HEDIS Appropriate Treatment for Upper Respiratory Infection ("URI")		Physical		
	Diabetes Eye Screening		Physical		
	Contraceptive Counseling		Physical		
	Long-Acting Reversible Contraception Insertion		Physical		
	Long-Acting Reversible Contraception Removal		Physical		

	Childbirth (live birth)		Physical		
	Abortion		Physical		
	Prenatal Care		Physical		
	First Trimester Care for Pregnancy		Physical		
	Second Trimester Care for Pregnancy		Physical		
	Third Trimester Care for Pregnancy		Physical		
Advance Directives	Advance Directives (Y/N)	N/A	Physical		
	Advance Directives Contents		Physical		
Allergies	Food Allergies	**RxNorm**, a standardized nomenclature for clinical drugs produced by the United States National Library of Medicine	Physical		
	Latex Allergies		Physical		
Screenings/Patient Education	Colorectal Cancer Screening Results	Snomed, CPT, HCPCS, Loinc	Physical		
	Breast Cancer Screening Results		Physical		
	Tobacco Cessation Treatment or Follow-Up		Physical		
	Reproductive Health Screening		Physical		
	Reproductive Health Follow-Up		Physical		
	Depression Treatment or Follow-Up		Physical		
	Substance Use Treatment or Follow-Up		Physical		
	Social Determinants of Health Screening(s)		Physical		
Payers	Secondary Insurer	N/A	Physical		
	Secondary Insurer Member ID		Physical		
Assessment and Plan of Treatment	NQF 0647 + 0648 Receipt of Care Transition Record at Discharge	N/A	Physical		
	NQF 0648 Timely Transmission of Transition Record (Discharges from an Inpatient Facility to Home/Self		Physical		

	Care or Any Other Site of Care) ("CTR")				
Chief Complaint	Chief Complaint	Snomed, CPT, HCPCS, Loinc, ICD-9/10	Physical		
Clinical Notes	Consultation Note	Snomed, CPT, HCPCS, Loinc, ICD-9/10	Physical		
	Contraceptive Use	RxNorm	Physical		
	Long-Acting Reversible Contraception ("LARC") Use	RxNorm	Physical		
	Imaging Narrative	Snomed, CPT, HCPCS, Loinc, ICD-9/10	Physical		
	Laboratory Report Narrative		Physical		
	Pathology Report Narrative		Physical		
	Procedure Note		Physical		
	Progress Note		Physical		
Discharge Instruction	Discharge Instruction	Snomed, CPT, HCPCS, Loinc, ICD-9/10	Physical		
	Discharge Instruction Contents		Physical		
Family History	Family History	Snomed, CPT, HCPCS, Loinc, ICD-9/10	Physical		
	Family History Contents		Physical		
Provenance	Author Time Stamp	N/A	Physical		
Unique Device Identifier(s) for a Patient's Implantable Device(s)	Unique Device Identifier(s) for a Patient's Implantable Device(s)	UDI identifier as described by applicable FDA regulation	Physical		

VHIE Connectivity Criteria Tier 2 Claims Data Elements

Organization(s):

Data Contributor Type: Claims

Vendor:

Date:

Concepts	**Data Elements**	**Standardized Coding System(s)**	***Org use only*** **Documentation Assessment** **Organization is documenting data sets in discrete data fields (Yes or No)**	***VITL use only*** **Connectivity Assessment** **Vendor is technically capable of transmitting data sets**
Insurance and Claim	Primary Insurance Type	N/A		
	Primary Insurance Company			
	Primary Insurance Member ID			
	Primary Insurance Group Number			
	Relationship to Insured			
	Insured Name (if not Patient)			
	Insured USPS address (if not Patient) (Street, City, State and Zip Code)			
	Insured Date of Birth (if not Patient)			
	Insured Sex (if not Patient)			
	Insured Phone Number (If not Patient)			
	Provider, Service, or Supplier Federal Tax ID			
	Total Charges for Claim			

	Enter Total Amount Paid by Patient			
	Physician or Supplier Signature			
	Physician or Supplier Signature Date			
	Service Facility Location			
	Billing Provider Name			
	Billing Provider Address			
	Billing Provider Zip Code			
	Billing Provider Phone Number			
	Billing Provider NPI			
Claim Type	Employment Related Claim	N/A		
	Auto Accident Related Claim			
	Auto Accident Place (if auto related)			
	Other Accident Related Claim			
Demographics	First Name	N/A		
	Last Name			
	Middle Initial (if has middle name)			
	Date of Birth			
	Sex (self reported)			
	USPS address (Street, City, State and Zip Code)			
	Phone Number			
	Patient or Insured Signature			
	Patient or Insured Signature Date			
Providers	Referring Provider Name (if exists)	National Provider Index (**NPI**)		
Diagnosis	Date of Current Illness, Injury, Pregnancy, etc.	ICD9, ICD10		
	Diagnosis Code(s)			
Procedures, Services or Supplies - Can be a repeating data element within a claim	Date(s) of Service	CPT, HCPCS, CMS Place of Service (POS) Codes		
	Place of Service Code			
	Procedure, Service or Supplies			
	Charge for Procedure, Service or Supplies			

	Number of Days or Units for Procedure, Service or Supplies			
	Rendering Provider Name	National Provider Index (**NPI**)		

VHIE Connectivity Criteria Certification Process

Vermont Information Technology Leaders, Inc.

VHIE Connectivity Criteria Certification Process

Overview

The Vermont Health Information Exchange (VHIE) Connectivity Criteria establish the conditions for health care organizations or payers to connect to the VHIE. The VHIE is the technology that aggregates data and facilitates the exchange of patient clinical and claims information. The criteria:

- are designed to be incremental in its approach to set a path for organizations to connect
- guide data contributors in meeting certain conditions to connect and share useful, quality data
- assist health care organizations and payers in selecting or maximizing electronic health record (EHR) and other technology investments
- incorporate tools allowing health care organizations and payers to perform a self-assessment which can then be validated by Vermont Information Technology Leaders (VITL)

The VHIE Connectivity Criteria are incorporated into the Vermont HIE Plan and are reviewed annually for approval by the Green Mountain Care Board (GMCB).

When do Health Care Organizations or Payers complete the VHIE Connectivity Criteria?

Organizations need to complete the criteria when any of the following occur:

- Connecting to the VHIE for each interface contributing data
- Selecting/Purchasing/Implementing a new or replacement EHR
- HIT-related Certificate of Need requests to the GMCB
- Participating in a payment reform program and Data Quality Project (as requested) to contribute data. Programs include: OneCare Vermont care management and data analytics platform, Vermont Department of Health Immunization Registry, Blueprint for Health, Medicaid and other programs as needed

VHIE Connectivity Criteria Process

Health care organizations or payers may need to engage their vendors to complete the VHIE Connectivity Criteria materials and make any necessary technical changes. Health care organizations and payers will complete the items below in bold

1. **Complete the VHIE questionnaire**
2. **Complete the VHIE Data Set and Data Quality Worksheet**
3. VITL will review the materials, develop a VHIE Connectivity Workplan, and meet with the organization to review any gaps and identify solutions
4. **Address areas of improvement in the VHIE Connectivity Workplan. Areas of improvement may include EHR technical documentation, updates and/or practice workflow changes**

Certification

Health care organizations meeting each level of the criteria are issued a letter and certificate of recognition seal (See below). Organizations are encouraged to post the certificate of recognition seal on their website and printed materials demonstrating achievement in meeting the criteria, especially in HIT-related Certificate of Need requests.

VITL • 1 Mill Street, Suite 249 • Burlington, VT 05401 • 802-861-1800 • www.vitl.net

VHIE Connectivity Work Plan

Organization Details

Date: MM/DD/YY
Organization Name:
Location Name(s):

-

Data Contributor Type (Physical Health and/or Mental/Behavioral Health or Claims):
Electronic Health Record or System:
Stakeholders: Blueprint for Health, OneCare Vermont, Vermont Chronic Care Initiative, Medicaid, and the Vermont Department of Health

Live Contributing Interfaces:

- Admission, Transfer, and Discharge (ADT)
- Continuity of Care Document (CCD)
- Immunization (VXU)
- Fast Healthcare Interoperability Resources (FHIR)
- Claims

VHIE Connectivity Criteria

- Required under 18 V.S.A. § 9352(i)(2)
- Establishes the conditions for health care organizations to connect to the Vermont Health Information Exchange (VHIE)
- Part of the State HIE Plan and annually reviewed and approved by the GMCB
- The Criteria measure progress of each organization in supporting point of care and payment and health reform program stakeholders.

	Met	Not Met
Tier 1 – Meet baseline connectivity standards	☐	☐
Tier 2 – Meet common data set and data quality standards for all stakeholders	☐	☐
Tier 3 – Meet expanded data set and data quality standards for stakeholders	☐	☐

Criteria Evaluation

See *[Filename for Data Set and Data Quality Standards Worksheet for this HCO]* for data element evaluation.

Recommendations

This section will identify changes per location that are needed to meet Tier 2. It will include the organizations plan to achieve Tier 2 or Tier 3.

VHIE Connectivity Work Plan

Common Scope:

- Example: Missing data elements will be addressed by an upgrade occurring in 6 months.

Location Specific Scope:

- Example: Location #1 – needs to update their custom template to map data elements to the CCD.

Short paragraph summarizing thoughts, efforts, needs, etc.

Timing

This section will detail the timing that the organization expects to complete the changes needed to meet Tier 2 or Tier 3 Connectivity Criteria.

Tier 1 – Baseline Connectivity Criteria

Tier	Customers	Stakeholders	Customer Responsibilities	Stakeholder Responsibilities	VHIE Responsibilities	Objective and Characteristics	Value in Connecting to the VHIE	Data Criteria	Security	Outcome
1 – Baseline Connectivity	Health care organizations (HCO) contributing patient data for use at the point of care. HCOs and payers contributing data as required by health reform delivery and payment programs (Accountable Care Organization, Blueprint for Health, MU, Vermont Dept of Health, Medicaid, other programs)	Green Mountain Care Board (GMCB), Accountable Care Organization, Blueprint for Health, Vermont Dept for Health, Vermont chronic Care Initiative (VCCI), Medicaid, etc.	Engage with VITL to meet the Baseline Connectivity Criteria; establish connectivity to the VHIE; build interfaces from the Health care or Payer organizations to the VHIE	Identify priority HCOs and their locations needing to contribute data Identify priority Payer organizations needing to contribute data Communicate to the prioritized HCOs and Payers the program's need and use for data.	Establish and publish technical requirements that support secure, standard connections. Assess baseline data compliance for patient matching and message structure to share data using the Baseline Connectivity Criteria scoring worksheet Work with customer to establish connectivity and build interfaces from the HCO or Payer to the VHIE and from the VHIE to the Stakeholder's system(s).	Interfaces are established that meet HL7 industry standards outlined in the VHIE Baseline Connectivity Criteria document. Interfaces to the VHIE are sufficient to support patient identity matching Interfaces to the VHIE are sufficient for transmitting data to Stakeholder(s) Access to patient data is supported by HIPAA and Vermont law, including patient consent	Clinician access to patient information integrated within the provider's EHR or using the VHIE Provider Portal (VITLAccess) Electronic results delivery from the VHIE (e.g., hospital or third-party laboratory results) seamlessly integrated within a provider's EHR. Data electronically delivered to and accessible within Vermont Immunization Registry Data facilitates timely and accurate Event notification systems	Meet the VHIE Baseline Connectivity Criteria which identifies requirements for patient matching and system specifications for sufficient, secure data exchange. Include the Connectivity Criteria tier achievement in HIT-related Certificate of Need requests to the GMCB	Complete VHIE Services Agreement to meet legal business, operational and security requirements. Attest to HIPAA Compliance. 42 CFR Part 2 Data Compliance is needed when applicable.	Clinicians can access patient data across healthcare settings. Records are matched to the correct patients and duplicate patients are avoided. Data is used to analyze population health and support health reform

Tier 2 – Common Clinical Data Set and Data Quality Connectivity Criteria

Tier	Customers	Stakeholders	Customer Responsibilities	Stakeholder Responsibilities	VHIE Responsibilities	Objective and Characteristics	Value in Connecting to the VHIE	Data Criteria	Security	Outcome
2 – Common Clinical and Claims Data Set and Data Quality Standards	Participating HCOs in Accountable Care Organization, VCCI, Blueprint for Health, Bi-State, other programs Participating Payers involved in Health Reform efforts	Population Health Management and Quality care programs Accountable Care Organization; Blueprint for Health; Vermont Department of Health; other) Care management programs being supported (VCCI, Accountable Care Organization, others). Policy makers, clinicians and HCO administrators reliant on data reports from the Accountable Care Organization (ACOs); Blueprint for Health; Vermont Department of Health; Medicaid; other. Green Mountain Care Board (GMCB)	Capture data in discrete data fields in EHR. Capture discrete claims data to be shared with the VHIE Hold vendors accountable for sharing data for program(s) in which the HCO or Payer participates Complete the Data Set and Data Quality Standards Worksheet containing the common data set requirements	Establish common clinical and claims data set. Identify HCOs needing assistance in meeting Clinical Quality measures for their program. Partner with VITL and the HCO or Payer and the program(s) in data quality projects to improve data quality during and/or post-interface implementation.	Assess the ability of HCOs and Payers to document minimum data sets and their vendors capability to send that data using the Data Set and Data Quality Standards Worksheet. Facilitate the effort with HCOs and Payers to improve data quality at the documentation level or the technical level to meet stakeholder's and customer's minimum data requirements. Identify data delivery and standardization opportunities Resolve data delivery and standardization opportunities	Minimum clinical and claims data sets are complete, accurate. Clinical and claims data is standardized and therefore interoperable Expanded applications such as care management, claims and clinical data use can be supported to meet customer specified usage. Performance measurement, population health management, and health reform applications are enabled.	Same as Tier 1 with the addition of: Supports Care management tools (Vermont Chronic Care Initiative, etc.) by those engaged in the care continuum Reduces manual effort by enabling chart abstraction tools for quality measure and population health reporting (Bi-State FQHC, Blueprint for Health, Medicaid, etc.) Robust data analysis and reporting to measure performance (Blueprint for Health practice profiles, Accountable Care Organization, Medicaid, Qlik, etc.)	Participates in and complies with programs that have specific data quality requirements. Meet the common clinical and claims data set requirements in the Data Set and Data Quality Standards Worksheet Include the Connectivity Criteria tier achievement in HIT-related Certificate of Need requests to the GMCB	Same as Tier 1	Increased data quality enables usage and confidence in information for quality performance measurement, population management reporting, and health reform efforts.

Tier 3 – Expanded Clinical Data Set and Data Quality Connectivity Criteria

Tier	Customers	Stakeholders	Customer Responsibilities	Stakeholder Responsibilities	VHIE Responsibilities	Objective and Characteristics	Value in Connecting to the VHIE	Data Criteria	Security	Outcome
3 – Clinical Data Set and Data Quality	Participating HCOs in Accountable Care Organization, VCCI, Blueprint for Health, Bi-State, other programs Participating Payers involved in Health Reform efforts	Population Health Management and Quality care programs Accountable Care Organization; Blueprint for Health; Vermont Department of Health; other) Care management programs being supported (VCCI, Accountable Care Organization, others). Policy makers, clinicians and HCO administrators reliant on data reports from the Accountable Care Organization (ACOs); Blueprint for Health; Vermont Department of Health; Medicaid; other. Green Mountain Care Board (GMCB)	Capture data in discrete data fields in EHR. Capture discrete claims data to be shared with the VHIE Hold vendors accountable for sharing data for program(s) in which the HCO participates Complete the Data Set and Data Quality Standards Worksheet containing the expanded data set requirements	Establish expanded clinical and claims data set Identify standardization issues to achieve interoperability Identify HCOs needing assistance in meeting Clinical Quality measures for their program Partner with VITL and the HCO or Payer and the program(s) in data quality projects to continuously improve data quality	Assess the ability of HCOs and Payers to document minimum data sets and their vendors capability to send that data using the Data Set and Data Quality Standards Worksheet. Facilitate the effort with HCOs and Payers to improve data quality at the documentation level or the technical level to meet stakeholder's and customer's minimum data requirements. Identify data delivery and standardization opportunities Resolve data delivery and standardization opportunities	Clinical and claims data sets are complete, accurate, standardized, and interoperable Performance measurement and population health management applications are optimized.	Same as Tiers 1 and 2 with the addition of: Data can be used for advanced end user tools and services (Care Management tools, custom data marts for customer use Advanced reporting driven by clinical and claims data (Comparative data sets, etc.)	Meet the clinical and claims data set requirements in the Data Set and Data Quality Standards Worksheet Scope of data collected supports performance measures, interoperability supports population health management and health reform efforts. Include the Connectivity Criteria tier achievement in HIT-related Certificate of Need requests to the GMCB	Same as Tier 1	Increased data quality enables usage and confidence in information to optimize quality performance measurement, population management reporting, and health reform efforts.

Appendix D: Interface Prioritization Matrix

Highest Priority

- Large People Volume
- Easy Vendor
- Tier 2 Capable
- Site Ready
- No known Upgrade/switch in next 12 months
- Data Priority in alignment with HIE Steering Committee Direction
- FHIR Capable

Interface Prioritization – Lowest Priority

- Small People Volume
- Hard Vendor
- Not Tier 2 capable
- Site not willing
- Upgrading/Switching EHR in next 12 months
- Data Priority not in alignment with HIE Steering Committee Direction
- Not FHIR Capable

Interface Prioritization – Other Considerations/Tiebreakers

- Contributing Data
- Receiving Data
- Replacements in Past
- Programs supported
- Other special circumstances

Interface Prioritization Matrix - Clinical Key

Categories	Description	Criteria
People Volume	Site serves and generates data on a large people population of unique lives from existing data in VHIE	Large (>10,000), Medium (5000-10,000), Small (<5000) or Unknown
Vendor Ease	Is the vendor one we have worked with in the past? Are they easy to work with?	Easy (1-3 months), Medium (3-6 months), Hard (6 + Months or custom formats needed), or Unknown if new vendor
Vendor/Site Tier 2 capable?	How capable is the vendor for Tier 2?	Yes, No, Not Evaluated Yet, or Vendor working on Tier 2 if the vendor has been evaluated but needs to make changes to achieve Tier 2, or Does not Apply if the vendor does not generate all the data types in Tier 2 and could never send it, for example a commercial lab.
Site ready to engage?	Has the site been vetted yet by any group for willingness to proceed?	Yes, No in 2019, or Unknown if they have not been asked in last year
Known Upgrade/Switch in next 12 months?	Is the site planning on upgrading or replacing their EHR in the next 12 months? Note: for replacement interfaces this will be No, as we have already factored this into the filter	Yes or No
Data Category	What type or category of data does this organization generate, or what sector of health care are they in? Does it align with the HIE Steering Committee Priorities for the year?	Hospital, Ambulatory, Pharmacy, Home Health, Long Term Care (LTC), Dental, Commercial Lab, COVID, SDoH, MH, BH, Etc. These can change each year. For 2021 COVID is a high priority
Contributing Data?	Is this site currently contributing some data to the VHIE?	No or the types of Data being Contributed already
Receiving Data?	Is this site currently receiving Results Delivery data from the VHIE?	No or the types of Data being Received already
Replacements in Past?	How many times has an interface been replaced by VITL?	# of times replacement interfaces were paid for by DVHA in the past

Programs supported	How many programs will this data serve in Vermont	OneCare Vermont (OCV), Blueprint (BP), Bi-State (FQHCs), Vermont Dept of Health Immunization Registry (VDH), Vermont Chronic Care Initiative (VCCI)
FHIR Capable	Is the vendor capable of connecting to the VHIE using FHIR interfaces?	Yes, No, Not Evaluated Yet
Other special circumstances?	Are there any other special reasons for this to move up in priority?	This can be they are contractually required to connect, or any others that emerge.
Highest Priority	Large Volume	
	Easy Vendor	
	Tier 2 Capable	
	Site Ready	
	No known Upgrade/switch in next 12 months	
	Data Priority in alignment with HIE Steering Committee Direction	
	FHIR Capable	
Lowest Priority	Small Volume	
	Hard Vendor	
	Not Tier 2 capable	
	Site not willing	
	Upgrading/Switching EHR in next 12 months	
	Data Priority not in alignment with HIE Steering Committee Direction	
	Not FHIR Capable	
Other Considerations	Contributing Data?	
	Receiving Data?	
	Replacements in Past?	
	Programs supported	
	Other special circumstances?	

Interface Prioritization Matrix - Claims Key

Categories	Description	Criteria
People Volume	Site serves and generates data on a large people population of unique lives from existing data in VHIE	Large (>10,000), Medium (5000-10,000), Small (<5000) or Unknown
Vendor Ease	Is the vendor one we have worked with in the past? Are they easy to work with?	Easy (1-3 months), Medium (3-6 months), Hard (6 + Months or custom formats needed), or Unknown if new vendor
Site ready to engage?	Has the site been vetted yet by any group for willingness to proceed?	Yes, No, or Unknown if they have not been asked in last year
Known Upgrade/Switch in next 12 months?	Is the site planning on upgrading or replacing their EHR in the next 12 months? Note: for replacement interfaces this will be No, as we have already factored this into the filter	Yes or No
Contributing Data?	Is this site currently contributing some data to the VHIE?	No or the types of Data being Contributed already
Receiving Data?	Is this site currently receiving Results Delivery data from the VHIE?	No or the types of Data being Received already
Programs supported	How many programs will this data serve in Vermont	OneCare Vermont (OCV), Blueprint (BP), Bi-State (FQHCs), Vermont Dept of Health (VDH), Vermont Chronic Care Initiative (VCCI), DVHA
FHIR Capable	Is the vendor capable of connecting to the VHIE using FHIR interfaces?	Yes, No, Not Evaluated Yet
Other special circumstances?	Are there any other special reasons for this to move up in priority?	This can be they are contractually required to connect, or any others that emerge.
Highest Priority	Large Volume	
	Easy Vendor	
	Site Ready	
	No known Upgrade/switch in next 12 months	
	FHIR Capable	
Lowest Priority	Small Volume	

	Hard Vendor	
	Site not willing	
	Upgrading/Switching EHR in next 12 months	
	Not FHIR Capable	
Other Considerations	Contributing Data?	
	Receiving Data?	
	Programs supported	
	Other special circumstances?	

Interface Prioritization Matrix – Clinical Scoring

Categories (110 Pt Scale)	
People Volume (35 Pts)	
Large	35
Medium	20
Small	10
Vendor Ease (10 Pts)	
Easy	10
Medium	5
Hard	1
Vendor/Site Tier 2 capable? (20 Pts)	
Yes	20
No	0
Not evaluated Yet	10
Vendor working on Tier 2	15
Tier 2 Does Not Apply	20
Site ready to engage? (20 Pts)	
Yes	20
No - in 2019	5
Unknown	10
Data Category in Alignment (5 Pts)	
Yes	5
No	0
Replacements in Past? (5 Pts)	
0	5
1	2
2+	0
FHIR Capable (10 Pts)	

Yes	10
No	0
Not evaluated Yet	5
Other Circumstances (5 Pts)	
Up	5
None	0
Known Upgrade/Switch in next 12 months?	Not needed as locations were already removed from the proposed list this year
Highest Priority	Large Volume
	Easy Vendor
	Tier 2 Capable
	Site Ready
	No known Upgrade/switch in next 12 months
	Data Category Priority in alignment with HIE Steering Committee Direction
	FHIR Capable
Lowest Priority	Small Volume
	Hard Vendor
	Not Tier 2 capable
	Site not willing
	Upgrading/Switching EHR in next 12 months
	Data Category Priority not in alignment with HIE Steering Committee Direction
	Not FHIR Capable
Other Considerations	Replacements in Past?
	Other special circumstances?
Tiebreakers	Contributing Data?
	Receiving Data?
	Programs supported
NOTE: There are things out of VITLs control that could affect this system and may cause a need to rerank. Ex: If a COVID Vaccine becomes available in late Fall 2020.	

Interface Prioritization Matrix – Claims Scoring

Categories (90 Pt Scale)	
People Volume (35 Pts)	
Large	35
Medium	20
Small	10
Vendor Ease (10 Pts)	
Easy	10
Medium	5
Hard	1
Unknown	5
Site ready to engage? (20 Pts)	
Yes	20
No	0
Unknown	10
FHIR Capable (20 Pts)	
Yes	20
No	0
Not evaluated Yet	10
Other Circumstances (5 Pts)	
Up	5
None	0
Highest Priority	Large Volume
	Easy Vendor
	Site Ready
	No known Upgrade/switch in next 12 months
	FHIR Capable
Lowest Priority	Small Volume
	Hard Vendor
	Site not willing
	Upgrading/Switching EHR in next 12 months
	Not FHIR Capable
Other Considerations	Other special circumstances?
Tiebreakers	Contributing Data?

	Receiving Data?
	Programs supported
NOTE: There are things out of VITLs control that could affect this system and may cause a need to rerank.	

Appendix E: Outcomes Based Certification Metrics

Direct Care/Care Coordination Outcomes

Direct Care/Care Coordination
Metric
1.1a Number of VITLAccess Users
1.1b Number of HCO VITLAccess Users/Number of Potential HCO Users
1.1c Number of Patient Queries through VITLAccess
1.2 Number of Medicaid patient records transmitted from the VHIE to the Medicaid care coordination tool
Direct Care/Care Coordination: Event Notification
Metric
3.1 Number of event notifications (ADT) messages sent to Patient Ping through VHIE connection
3.2 Master Patient Index: Percent Medicaid Match Rate
Direct Care/Care Coordination: Electronic Results Delivery
Metric
4.1 Number of LAB messages captured in the VHIE
4.2 Number of RAD messages captured in the VHIE
4.3 Number of TRANS messages captured in the VHIE

Public Health Outcomes

Metric
5.1 The percent of total immunization messages (VXU) provided by the VHIE to the Immunization Registry by HL-7
5.2 Percent of total death records transmitted from Death Registry to VHIE
6.1 LAB messages captured in the VHIE and transmitted to the Public Health Authority

Value Based Care Outcomes

Metric
7.1 Blueprint for Health Clinical Extract Report from the VHIE *

Appendix F: Policy Background

HIE Ecosystem: Policy/Process

To realize the vision of integrated health data infrastructure (Unified Health Data Space), Vermont needs data exchange policies and processes that recognize individualized needs while supporting holistic care and system measurement and improvement. Since 2006, Vermont's Legislature has repeatedly acted to ensure that HIE policies bolster the health care system.

- Brief Review of Vermont Policy Impacts on HIE -

In 2006, to support the data needs related to the Global Commitment Waiver, the Vermont General Assemblypassed legislation[16] establishing policies and standards to govern the state's health information technology infrastructure.

In 2007, the General Assembly authorized VITL to "operate the exclusive statewide health information exchange network" and develop the State's health information technology plan (what is now called the HIE Plan).

In 2008, Vermont's General Assembly established the Health-IT (HIT) Fund to provide dedicated funding for "health information technology adoption and utilization." Revenue from the health care claims tax is paid by the health insurers on private health insurance claims, and the revenue collected from 0.199 of 1% of all health insurance claims is deposited into the General Fund, pursuant to 32 V.S.A. § 10402(b). The portion of the claims tax allocated for health information exchange activities amounts to approximately $3.5M-$4M annually. Each year since its establishment, the legislature has extended the HIT Fund for one or two additional years; the HIT Fund is nowextended to July 1, 2023.

In 2011, the Green Mountain Care Board (GMCB) became statutorily obligated to review and approve Vermont's statewide health information technology plan.

Vermont Act 54 of 2015 charged the GMCB with oversight of VITL's budget.

Vermont Act 73 of 2017 required the State to conduct a comprehensive review of Vermont's HIT Fund, the Health IT Plan, the VHIE, and VITL. One of the outcomes of the evaluation was the creation of the HIE SteeringCommittee to address issues with fragmented governance.

In 2018, the General Assembly passed Act 187 requiring the State and VITL to operationalize the recommendations from the Act 73 Evaluation Report. Third party reports confirm that VITL and DVHA satisfactorily addressed all recommendations from the evaluation. The Act also authorized the HIE SteeringCommittee to develop the statewide Health Information Technology Plan and required DVHA to produce areport on the State's consent policy.

Act 53 of 2019 called for the adoption of an "opt-out" consent policy for the sharing of health information

[16] Act 191, *An act relating to health care affordability for Vermonters*. (2006).

through the VHIE. DVHA and VITL were required to execute robust public education and provide substantialopportunities for public input in the process. The consent policy officially changed on March 1, 2020.

In 2021, Vermont's law on immunization records, 18 V.S.A. § 1129, was amended to allow immunization record sharing from the Department of Health's Immunization Registry to the Vermont Health Information Exchange.

Policies set forth by the federal government catalyzed digitization of health records systems – particularly the Health Information Technology for Economic and Clinical Health (HITECH) Act and the creation of the Office of the National Coordinator for Health IT (ONC) – and have acted as a driver of health system interoperability efforts. Recent federal rules aim to take this one step further by puttingpeople at the center of health care by giving individuals access to their personal electronic health information.

On March 9, 2020, the HHS Office of ONC and Centers for Medicare & Medicaid Services (CMS) released two rules, which implement the interoperability and people access provisions of the federal 21st Century Cures Act. Together, these rules mark the transition to more robust federal health care data sharing policies from the federal government, requiring both public and private entities to share health information with individuals while keeping information private and secure, thus allowing people unprecedented access to their health data and resources to research health care providers, ultimately empowering them to make informed decisions about their care.

The ONC rule establishes a technical framework that sets standards for information sharing and penalties for information blocking. The CMS rule sets specific requirements of organizations funded byCMS to share health data with peoples.

Federal Interoperability Rules

The ONC 21st Century Cures Act sets forth requirements for health information exchanges and certain health care payers, providers, hospitals (health information networks), and IT developers sharing electronic health information with individuals. The ONC Final Rule describes a technical compliance framework that would deter "information blocking" to ensure that gaining access to one's health information does not require any "special effort" on the individual's part.

VITL, the operator of the VHIE, is required to provide people with access to their electronic health information under this new ONC rule.

VITL is currently offering people's access to data upon request. The VHIE data platform is based on a FHIR Data Exchange Standard which CMS and the ONC require in the new interoperability rules. VITL has worked to augment their policies and procedures to ensure that their operations support compliance with the rules.

VITL will have the technical infrastructure available in the MedicaSoft platform to aid health care payers in opening clinical and claims data to individuals and transmitting data with other payers, as requested by people, and required by the rules.

ONC's Cures Act Final Rule supports seamless and secure access, exchange, and use of electronic healthinformation. The rule is designed to give patients and their healthcare providers secure access to health information. It also aims to increase innovation and competition by fostering an ecosystem of new applications to provide patients with more choices intheir healthcare.

It calls on the healthcare industry to adopt standardized application programming interfaces (APIs), which will help allow individuals to securely and easily access structured electronic health information using smartphone applications.

Source: https://www.healthit.gov/curesrule

21st Century Cures Act: Interoperability and Information Blocking (ONC Final Rule)

ONC's final rule sets the technical framework for the 21st Century Cures Act. The rule establishes secure,standards-based application programming interface (API) requirements to support people's access to their electronic health information. APIs are the foundation of smartphone applications (apps). As a result of the ONC rule, people will be able to obtain and use their electronic health information from their providers' medical records using the smartphone app of their choice. Medical records are available to peopleat no cost, but smartphone apps may charge fees for related value-added services.

The ONC final rule also established a regulatory framework to prevent industrywide information blocking practices and other competitive behavior by those entrusted to hold peoples' electronic health information (EHI).

What are APIs?

APIs are technology that allow one software program to access another software program. APIs may modernize healthcare data sharing, as they have already altered data sharing in other sectors. In the financial sector, online and smart phone banking is enabled by APIs. APIs can help health care professionals improve and simplify care delivery by allowing patients to access and share their information, allowing providers to use electronic tools to securely share health data with other treating providers, and facilitating submissions to registries (e.g., immunizations/vaccinations.).

Additionally, the ONC final rule requires electronic health records to standardize available clinical data to promote new business models of care delivery. The rules advance common data through the United StatesCore Data for Interoperability (USCDI). The USCDI is a standardized set of health data classes and data elements that are essential for nationwide, interoperable health information exchange. The USCDI includes "clinical notes," allergies, and medications among other important clinical data and social determinants of health to help improve the flow of electronic health information and ensure that theinformation can be effectively understood when it is received. It also includes essential demographic data to support people matching across care settings.[17]

To comply with the new federal interoperability rules, the VHIE continues to make people records available to peoples who seek them and will soon offer an API transmission of people records to thosewho request them through third-party applications

[17] Office of National Coordinator. (2020). *The ONC Cures Act Final Rule*. https://www.healthit.gov/cures/sites/default/files/cures/2020-03/TheONCCuresActFinalRule.pdf

Interoperability and Patient Access Final Rule (CMS Final Rule)

Building on the technical and regulatory framework established by the ONC's final rule, CMS' Interoperability and Patient Access final rule requires health plans in Medicare Advantage, Medicaid, theChildren's Health Insurance Program (CHIP), and offered through the federal Health Insurance Exchanges to share claims and encounter data electronically with patients. Beginning in 2021, impacted health plans are required to share claims and other health information with peoples in a safe, secure, understandable, and user-friendly electronic format through a Patient Access API. The goal is the same with the ONC's final rule: with more complete data in their hands, peoples can be more informed decision makers resulting in better managed care.

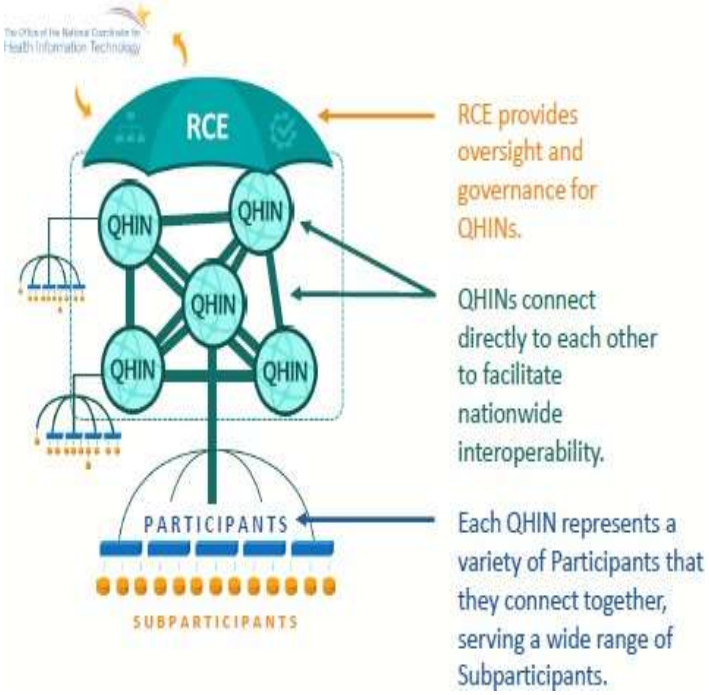
This People Access API will allow people to access their data through any third-party app they choose to connect to the API and could also be used to integrate a health plan's information to a person's electronic health record (EHR). By requiring relevant health information to be shared with them, people can take this information with them as they move from plan to plan, and provider to provider throughout the health care system.

Additionally, to advance the mission of fostering innovation and support care coordination, the CMS final rule establishes a new Condition of Participation (CoP) for all Medicare and Medicaid participating hospitals, that requires electronic notifications to other health care facilities or community providers or practitioners when a person is admitted, discharged, or transferred. These notifications provide information to receiving providers that should lead to early outreach and immediate follow up care which in turn improves people outcomes. Vermont hospitals are currently complying with this new requirement in one of two ways – (1) their electronic health record (EHR) system automatically generates and sends notifications to facilitate transitions of care or (2) they are taking advantage of a third-party alerting systems, such as the Route solution offered by VITL in partnership with Bamboo Health (formerly PatientPing).

CMS is also requiring states to send enrollment data daily for beneficiaries enrolled in both Medicare and Medicaid, allowing care administrators to understand how people are insured to bolster coordination of care. Sharing enrollment data is expected to ensure that people gain access to appropriate services and that these services are billed appropriately the first time, eliminating waste and burden.

In addition to the Interoperability rule, in October 2020, CMS partnered with the US Departments of Labor and the US Department of the Treasury to issue a rule on price transparency. Impacting many of the actors covered by the Interoperability rule, this new price transparency rule requires sharing of the cost of specific medical services to allow people to evaluate cost before seeking care. The information required by both rules could be presented together in apps that show people records of their care and the costs of their care with comparison to average costs for like medical services.

TEFCA: A Basis for Nationwide Interoperability



In support of its goal to expand access to health data to improve outcomes, in 2016 the US Department of Health and Human Services (HHS), Office of the National Coordinator for Health Information Technology (ONC) introduced the creation of the Trusted Exchange Framework and Common Agreement (TEFCA) as part of the 21st Century Cures Act. In early 2022, ONC and the Sequoia Project, the Regional Coordinating Entity selected for implementation, published the Trusted Exchange Framework, Common Agreement version 1 and several Standard Operating Procedures (SOPs), that set the foundation for implementation. A Roadmap for future FHIR support was also released.

Fundamentally, TEFCA creates a nationwide system that enables secure sharing of health data through a network of networks, in compliance with the myriad of federal and state health data privacy and access laws. Interested participants, such as hospitals, primary care providers, health networks, and HIEs can connect through to-be-selected Qualified Health Information Networks (QHINs), that agree to abide by TEFCA technical standards (Trusted Exchange Framework) and operating terms (Common Agreement). The Recognized Coordinating Entity (REC) plays an overarching role in governing data exchange across the network.

Eventually, TEFCA will also provide a path for data exchange beyond traditional clinical providers, a tactic for improved health data use that Vermont is already pursuing. There are no mandates for participating in TEFCA and sharing data across regional partners, and there will be fees for local HIEs to connect to QHINs.

Appendix G: HIE Strategic Plan 2023-2027 (2022 Update) Presentation

The following appendix is a presentation given to the Green Mountain Care Board (GMCB) on the 2022 update to the HIE Strategic Plan and is included for reference. It is important to note that the Unified Health Data Space Diagram has been updated since the presentation was given, see "Figure 2: Vermont's Unified Health Data Space Model" under the Executive summary for the updated version.

Health Information Exchange (HIE) Strategic Plan 2023-2027 (2022 Update)

VERMONT

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Agenda

- Goals of the Health Information Exchange
- Steering Committee Composition
- Components of the Health Information Exchange
- Ecosystem – Unified Health Data Space
- 2022 Accomplishments
- Strategic Plan

Goals of the Health Information Exchange:

Create 1 health record for every person

Better health outcomes

Improved healthcare operations

Use data to enable investment and policy decisions

HIE Steering Committee

VOTING MEMBERS

Kristin McClure - Chair
(Agency of Human Services)

Emma Harrington
(VAHHS)

Jessie Hammond
(Vermont Dept. of Health)

Josiah Mueller
(OneCare Vermont)

Victor Morrison
(Person Advocate)

Sandy Rousse
(Central Vermont Home Health and Hospice)

Jimmy Mauro
(BCBS of VT)

Georgia Maheras
(Bi-State Primary Care)

Simone Rueschemeyer
(Vermont Care Partners)

Laura Pelosi
(Long Term Care Advocate)

Timothy Tremblay
(Blueprint for Health)

NON –VOTING MEMBERS

Beth Anderson
(VITL)

Vacant
(Agency of Digital Services)

Kathryn O'Neil
(Green Mountain Care Board)

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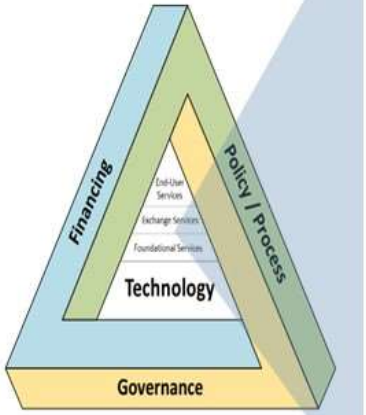
HIE Ecosystem: Four components



End-User Services	
Reporting Services	Notification Services
Analytics Services	Consumer Tools
Care Coordination Tools	Patient Attribution & Dashboards

Exchange Services		
Data Extraction & Aggregation		Data Access
Interoperability	Data Quality	Data Governance

Foundational Services	
Identity Management	Consent Policy & Management
Security	Provider Directories

What Is The Unified Health Data Space (UHDS) ?

The Unified Health Data Space (UHDS) is a collaborative initiative to streamline data services required to improve healthcare in the state of Vermont. Costs and usage of technology will be shared among the participants to avoid duplicative efforts and purchases.

This Project is an integral part of reform efforts to support a broad spectrum of healthcare stakeholders and uses;

- ✓ Point of Care (Providers)
- ✓ Quality (ACO Provider Networks)
- ✓ Policy Evaluation & Regulation (GMCB, VDH, Blueprint)
- ✓ Patients (telehealth, personal health responsibility)
- ✓ Population Health (preventative, health equity)

Once this project is completed it will provide efficient access to needed information to a broad spectrum of important players in the healthcare reform arena. That information includes; **Clinical** data, **Behavioral Health & SUD** data, **Claims** data, and **Social Determinants of Health (SDoH)** data.

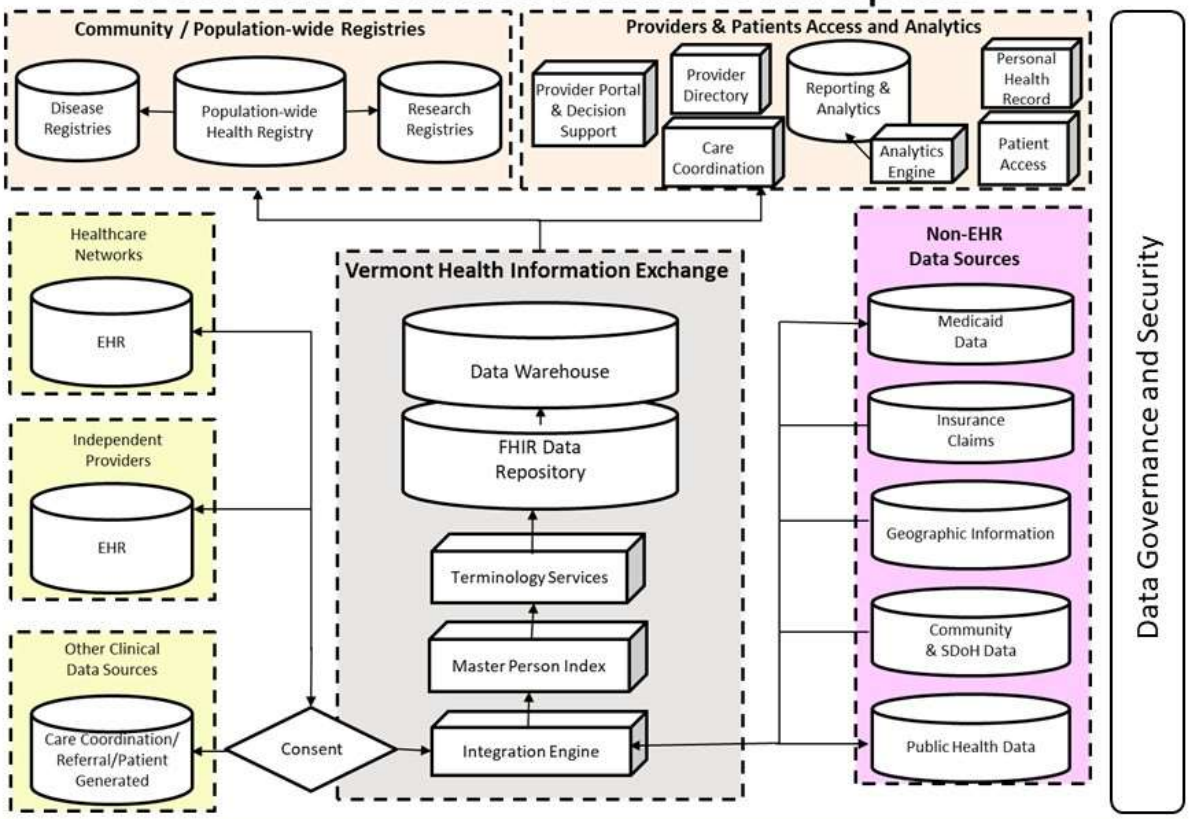
The Case For The UHDS To Enable Value Based Care in VT

As performance-based and risk-based reimbursement programs continue to drive health reform initiatives, the value of having an accurate, up-to-date, and complete health data set becomes more and more critical.

VHIE, a component of VT's UHDS, is the engine to collect, normalize, and exchange health data and enables it to be transformed into actionable and meaningful insights for patient care. The information is used for preventive care, evidence-based disease management, population health management, physician alignment, clinical integration, and participation in various reimbursement programs.

When complete, the VT Unified Health Data Space (UHDS) will include tools for comprehensive population health management including point of care decision support, care gap analysis, automated patient outreach, roll-up and drill-down outcomes reporting, predictive modeling and risk assessment, and care management and coordination.

Vermont's Unified Health Data Space



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2022 Key Accomplishments

Category	2022 Goals	Actual	Status
Collaborative Services	New Provider Portal	Complete	Complete
	Okta Identity Management - ID Authentication & Authorization - Smart on FHIR	Planning	Delayed
	FHIR R3 to FHIR R4 upgrade	Executing	On Track
Medicaid Services	21st Century Cures Act Compliance - Interoperability Project - Clinical Data for API (Patient Access	Executing	On Track
	Unified Health Data Space - MDWAS Project - Leverage VHIE's DW for Medicaid Operations	Planning	On Track
	Medicaid Data Aggregation & Access Program (MDAAP)	Planning	On Track
CMS Funding & Federal Compliance	VHIE System CMS Certification	Complete	Complete
	OBC Compliance & Federal Reporting	Complete	Complete
	Post-HITECH Cost Allocation	Complete	Complete
Population Health	Integrate Social Determinants of Health (SDoH)	Executing	On Track
	Integrate Claims Data with VHIE's Clinical Data (& SDoH Data)	Planning	On Track
	Blueprint extracts & Access	Complete	Complete
Public Health	New Interface Connections & Existing Interface Remediations	Executing	On Track
	Implement bi-directional data exchange with IZ registry incl. Mulesoft & Rhasody Interface	Executing	On Track
	Provide COVID-19 Reporting	Executing	On Track
VHIE Operations	Ensure VHIE Services are operationsl 24 hrs, 7 days / wk, 94% uptime. Maintain system security.	Executing	On Track

- **Funding**
  - ✓ Received CMS Certification – Federal Funding implications
  - ✓ Received CMS approval for conditional cost allocation
- **Technology**
  - ✓ Launched new provider portal
  - ✓ Established infrastructure for ingesting Social Determinants of Health
  - ✓ Expanded Data Connectivity Network
  - ✓ Expanded Data Warehousing & Reporting Capabilities
- **Governance**
  - ✓ Engagement with Briljent, consulting, on Data Strategy and Data Governance
- **Policy / Process**
  - ✓ Supported 1129 with bi-directional exchange of immunization data with Vermont Department of Health
  - ✓ Provided Vermonters with electronic patient health data education

2022 Funding Key Accomplishments

- Key Items
  - CMS Certification and conditional cost allocation allows for increased Federal match rate
  - Federal Maintenance & Operations: 72% (vs. 25% post HITECH)
  - Federal Design, Development, and Implementation for shared: ~86% (vs. 30% post HITECH)
  - State match: largely from Health Informational Technology (HIT) Fund:
    - Background: Health Care Claims Tax ($1 out of every $100 is collected for the Health Care Claims Tax. Of that 80 cents goes to the General Fund and 20 cents goes to the Health Information Technology (HIT) Fund.
  - Recommendation to maintain current funding strategy (Data Utility) through maturity of Unified Health Data Space

Example

Current	Category	Federal	State	Total
Maintenance and Operations (M&O)	All	72%	28%	100%
Design, Development, Implementation (DDI)	Medicaid	90%	10%	100%
Design, Development, Implementation (DDI)	Shared (Medicaid and Non Medicaid)*	86%	14%	100%
Design, Development, Implementation (DDI)	Fully Non Medicaid	0%	100%	100%
Example**				
Maintenance and Operations (M&O)	All	$ 4,680,000	$ 1,820,000	$ 6,500,000
Design, Development, Implementation (DDI)	Medicaid	$ 675,000	$ 75,000	$ 750,000
Design, Development, Implementation (DDI)	Shared (Medicaid and Non Medicaid)	$ 1,720,000	$ 280,000	$ 2,000,000
Design, Development, Implementation (DDI)	Fully Non Medicaid	$ -	$ 250,000	$ 250,000
Total		$ 7,075,000	$ 2,425,000	$ 9,500,000

Previous***	Category	Federal	State	
Maintenance and Operations (M&O)	All	25%	75%	100%
Design, Development, Implementation (DDI)	Medicaid	90%	10%	100%
Design, Development, Implementation (DDI)	Shared (Medicaid and Non Medicaid)	30%	70%	100%
Design, Development, Implementation (DDI)	Fully Non Medicaid	0%	100%	100%
Example				
Maintenance and Operations (M&O)	All	$ 1,625,000	$ 4,875,000	$ 6,500,000
Design, Development, Implementation (DDI)	Medicaid	$ 675,000	$ 75,000	$ 750,000
Design, Development, Implementation (DDI)	Shared (Medicaid and Non Medicaid)	$ 600,000	$ 1,400,000	$ 2,000,000
Design, Development, Implementation (DDI)	Fully Non Medicaid	$ -	$ 250,000	$ 250,000
Total		$ 2,900,000	$ 6,600,000	$ 9,500,000

* Varies by quarter
** Example only - not representative of actual figures
*** Post HITECH funding (10/1/21 - 12/31/21)

2022 Technology Key Accomplishments

✓ **Launched new provider portal**

- Extensively configured to meet user needs
- Successfully piloted with 49 clinicians & staff
- Supported by extensive training & educational resources
- Received very positive feedback from users (quick access to clinically relevant data, familiar EHR-like look & feel)

✓ **Established infrastructure for ingesting Social Determinants of Health**

- Requirements gathered, through questionnaires, from users of State services
- The objective is to leverage data to gain a complete understanding of the social and economic impact to a person's health
- A pilot to incorporate data collected by the Vermont Chronic Care Initiative's screening tools into the Vermont Health Information Exchange is underway.

✓ **Expanded Data Connectivity Network**

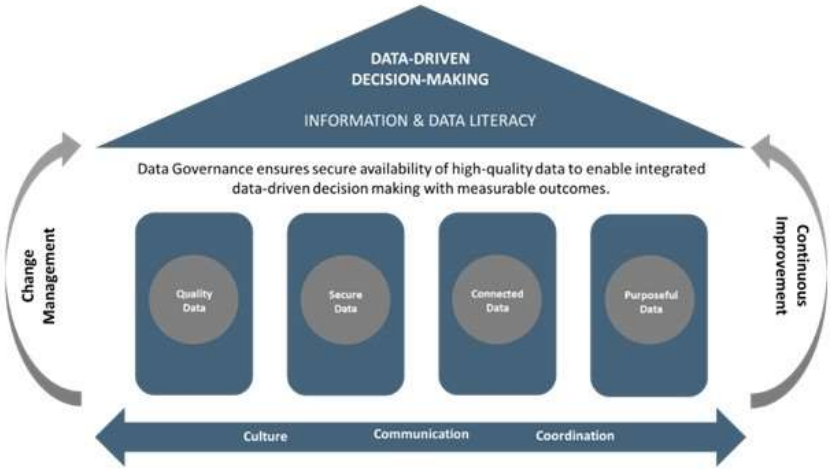
- 21 new public health priority interfaces
- 39 new provider interfaces implementing new electronic health records
- On target to complete, by year end, a pilot to establish a live, bi-directional interface between the VHIE and VDH's Immunization Registry.

✓ **Expanded Data Warehousing & Reporting Capabilities**

- Delivered the Blueprint for Health annual report from the new platform.
- Started the transition of daily COVID reporting to VDH

2022 Governance Key Accomplishments

- Governance Plan
  - Align Strategically
  - Establish Objectives
  - Build Framework
  - Govern by Domain
  - Operationalize
  - Communicate
  - Metrics for Success



And our Next Stop is…

- **Data Governance Council**
  - "A Data Governance Council provides executive sponsorship, prioritizes the goals, and is responsible for broad decision-making for the Unified Health Data Space.
  - A Unified Health Data Space Council is necessary to include responsible parties who own the data that will eventually live in the environment, which will extend beyond what is currently in the HIE."

2022 Policy/Process Key Accomplishments

✓ **Bi-directional exchange of Immunization Data**

- Implementing bidirectionality through a two-way encrypted VDH-HL7-SOAP-API allows the healthcare provider organizations to query the Vermont Immunization Registry (IMR) and retrieve an individual's immunization history
- Providers have a choice to embed this functionality in their EHR
- The pilot, slated to go-live in January of 2023, is establishing business processes and onboarding 1 provider organization

✓ **Patient Electronic Health Data Education**

- Educate the public on the benefit and use of electronic health information
- Supported the State Medicaid Agency in complying with the 21st Cures Act by supplying Medicaid beneficiaries' clinical data for integration with their claims data for access by third party applications (test data feed successfully completed & currently finalizing data interfacing details with claims processor).

✓ **Act 167**

- "The act directs the Health Information Exchange (HIE) Steering Committee to include a data integration strategy in its 2023 HIE Strategic Plan and to continue its efforts to create a single, integrated health record for each individual."
- Collaboration in 2023 with GMCB, HIE Steering Committee, and Agency of Digital Services to provide recommended data integration strategy in next years HIE Strategic Plan – data privacy and protections, governance, technical considerations, efficiencies

Strategic Planning Process

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1 Create One Health Record For Each Person:

WHAT:

- Support optimal care delivery and coordination by ensuring access to complete and accurate health records

STRATEGIC PLAN & CRITERIA:

STRATEGIC PLAN	18 V.S.A. § 9351	18 V.S.A. § 9371	OTHER LEG.	BEST PRACTICES / FEEDBACK	PRIVACY PROTECT.	CAPACITY NEEDS	FEASIBILITY
Establish new / additional interfaces to increase richness of Data - 2023	• (a)(3)(B), (b)(3), (b)(4)	• (4),(9)	• (9352)	• Fed HIT	•	•	•
Development work for HIE to serve as Medicaid Data Warehouse - 2023	• (b)(6)	• (10)	1902a	•	•	•	•
Integrate all-payer claims and clinical data - 2024	• (b)(6)	• (10)	• Act 167	•	•	•	•
Onboard Integrated Enrollment and Eligibility Data - 2025	• (b)(6)	• (12)		•	•	•	•

*Each 2023 item has a full action plan being developed by Dec 2022

15

Better Health Outcomes:

WHAT:

- Promote health and wellness for individuals and communities

STRATEGIC PLAN & CRITERIA:

STRATEGIC PLAN	18 V.S.A. § 9351	18 V.S.A. § 9371	OTHER LEG.	BEST PRACTICES / FEEDBACK	PRIVACY PROTECT.	CAPACITY NEEDS	FEASIBILITY
Enable end to end implementation of 2 social determinants of health use cases - 2023	• (b)(8)	• (12)		• Fed HIT	•	•	•
Integrate VDH and HIE: bi-directional exchange of immunization records – 2023	• (a)(3)(B),(b)(3),(b)(6)	• (9)	• (1129)	• Fed HIT	•	•	•
Potential integration of electronic case reporting and Pharmacy Drug Monitoring Program (PDMP) – 2024	• (b)(6)	•		•	•	•	•
Explore Patient Engagement Platform: receive health data, and send health data such as wearable sensors, home health devices, IoT - 2025	• (b)(2),(b)(4)	• (7),(9)		• Fed HIT	•	•	•

*Each 2023 item has a full action plan being developed by Dec 2022

16

Improve Health Care Operations:

WHAT:

- Enrich health care operations through data collection and analysis to support quality improvement and reporting with the goal to reduce health care costs and provide insight to improve the delivery and experience of care

STRATEGIC PLAN & CRITERIA:

STRATEGIC PLAN	18 V.S.A. § 9351	18 V.S.A. § 9371	OTHER LEG.	BEST PRACTICES / FEEDBACK	PRIVACY PROTECT.	CAPACITY NEEDS	FEASIBILITY
Improve completeness of clinical data – includes standardization of data (from providers) - 2023	• (a)(3)(B), (b)(3), (b)(4)	• (9)	• (9352)	• Fed HIT	•	•	•
Enhance accessibility for Stakeholder - 2023	• (a)(3)(B)	• (9)		• Fed HIT	•	•	•
Capability for complex care management, care coordination, and referral management - 2024	• (b)(4)	• (4)		•	•	•	•
Adopt new algorithms, analytics, machine learning to address patients' full range of health needs, promote health behaviors, facilitate better health outcomes – 2024/2025	• (b)(4)	• (7), (9)		• Fed HIT	•	•	•

*Each 2023 item has a full action plan being developed by Dec 2022

Use Data To Enable Investment And Policy Decisions:

WHAT:

- Bolster the health system's ability to learn and improve by using accurate, comprehensive data to guide investment of time, labor, and capital, and inform policy making and program development.

STRATEGIC PLAN & CRITERIA:

STRATEGIC PLAN	18 V.S.A. § 9351	18 V.S.A. § 9371	OTHER LEG.	BEST PRACTICES / FEEDBACK	PRIVACY PROTECT.	CAPACITY NEEDS	FEASIBILITY
Establish data governance for each data type and stakeholder use of it -2023	• (b)(8)	• (3)	• (9352)	•	•		•
Sustainable Funding Structure: establish milestones and guardrails for seeking private funding - 2023	• (b)(5)	• (11)	• (9352)	•			•
Ongoing technology enhancements – focus on ease of use: Single Sign On capability – 2024	• (b)(4),(b)(6)	• (10)		• Fed HIT	•	•	•
Expand stakeholders to include researchers to utilize limited datasets for health improvement - 2024	• (a)(3)(B)	• (4)		• Fed HIT	•	•	•
Customization of Provider Portal - 2025	• (a)(3)(B), (b)(4)	• (4)		•	•	•	•

*Each 2023 item has a full action plan being developed by Dec 2022

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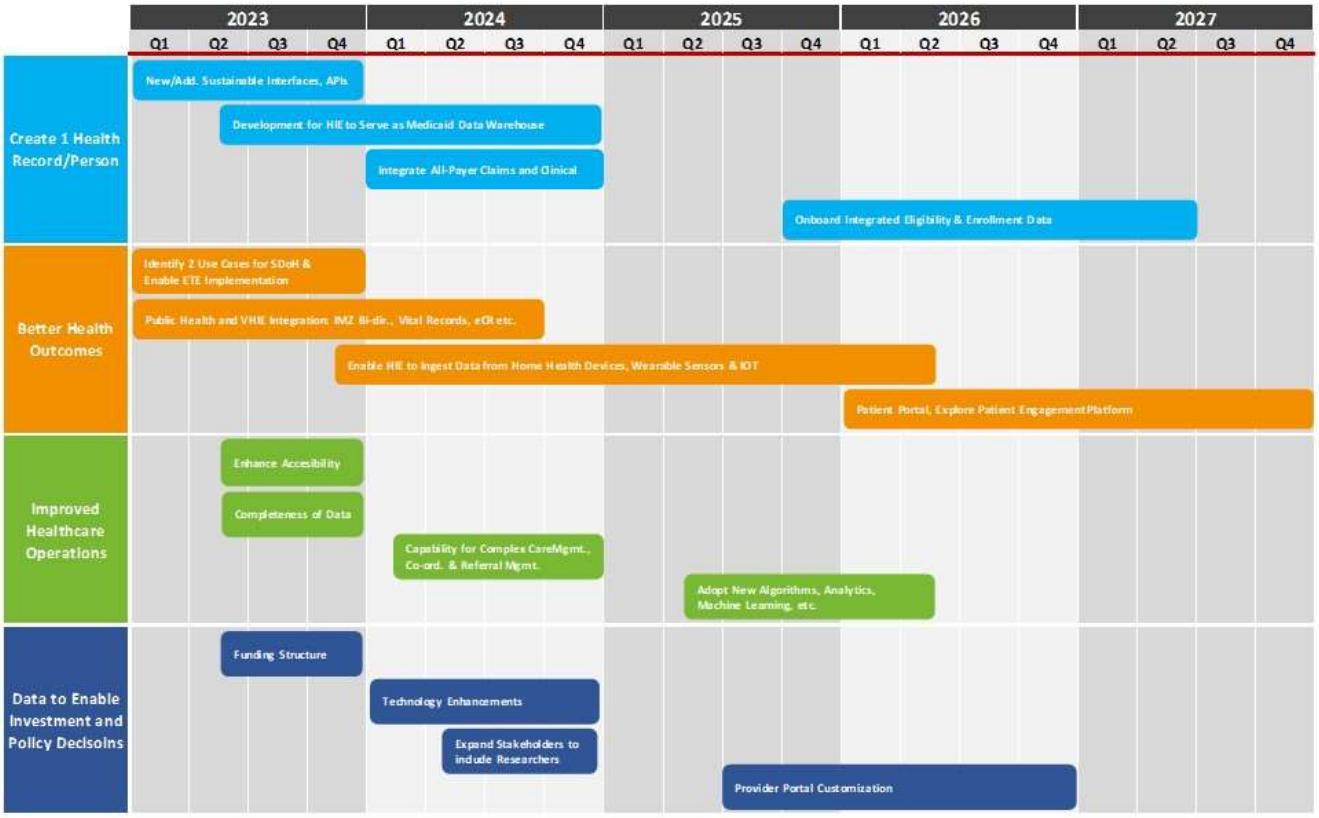
2023-2027 Roadmap



HIE KPIs / Metrics

1. **Uptime: 24 hours / 7 days a week uptime of 94%**
2. **Growth of Interfaces: 2023 – 10% total increase, ~135 new connections**
3. **Security Compliance Reports**
   - **Monthly**
4. **Outcomes Based Certification Metrics (App E)**

Direct Care/Care Coordination										
Metric	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**	**Jan-22**	**Feb-22**	**Mar-22**	**Apr-22**	**May-22**	**Jun-22**
1.1a Number of VITLAccess Users	3,512	2,393	2,402	2,425	2,485	2,504	2,261	2,265	2,128	1,980
1.1b Number of HCO VITLAccess Users/Number of Potential HCO Users	234/1549	234/1549	239/1549	239/1586	242/1586	241/1587	237/1587	237/1589	236/1591	237/1593
1.1c Number of Patient Queries through VITLAccess	17,653	21,051	23,065	28,283	18,373	11,329	10,169	10,502	9,969	6,014
1.2 Number of Medicaid patient records transmitted from the VHIE to the Medicaid care coordination tool	686,127	728,101	664,399	661,222	660,722	590,470	667,850	624,984	608,164	574,776
Direct Care/Care Coordination: Event Notification										
Metric	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**	**Jan-22**	**Feb-22**	**Mar-22**	**Apr-22**	**May-22**	**Jun-22**
3.1 Number of event notifications (ADT) messages sent to Patient Ping through VHIE connection	3,648,690	3,717,003	3,558,781	3,463,535	3,502,426	3,115,652	3,665,794	3,376,094	3,309,448	3,205,041
3.2 Master Patient Index: Percent Medicaid Match Rate	96.75%	97.07%	97.03%	97.42%	97.59%	97.69%	97.80%	98.01%	98.10%	98.06%
Direct Care/Care Coordination: Electronic Results Delivery										
Metric	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**	**Jan-22**	**Feb-22**	**Mar-22**	**Apr-22**	**May-22**	**Jun-22**
4.1 Number of LAB messages captured in the VHIE	684,213	752,616	754,074*	793,326*	838,814	612,218	652,547	606,892	603,639	562,590
4.2 Number of RAD messages captured in the VHIE	78,992	78,652	74,396	75,777*	71,863	70,344	81,132	73,293	85,884	77,521
4.3 Number of TRANS messages captured in the VHIE	388,666	395,257	386,618	381,894	359,419	329,804	380,259	353,173	370,774	374,258
* Updated based on data review and quality improvement process										

5. **Value Based Care Metric:**
   - **30 Day hospital readmission rate of the ACO attributed population**

Appendix H: VHIE Goals - 2021 Goals & Dec'22 Status update

VHIE Goals 2021 Goals & Dec'22 Status Update				
Goal #1: Create One Health Record for Every Person				
Goal #2: Improve Health Care Operations				
Goal #3: Use Data to Enable Investment and Policy Decisions				
IT Objectives	**Tactics**	**Phase**	**Timing**	**Dec'22 Status**
Objective #1: Deliver Quality Data at the Point of Care Share appropriate information with patient's care team to support care management and care coordination.	Strengthen identity matching and broaden its use across all relevant health services	Executing	Short Term	Operational
	Support VHIE connection to national networks	Executing	Short Term	Operational
	Ensure that longitudinal health record is based on USCDI and FHIR standards, as detailed by Interoperability Rules	Executing	Short Term	Operational
	Expand use of interoperable electronic health records and other technologies across the full spectrum of care delivery	Executing	Medium Term	Executing
	Include Telehealth to drive consistency with USCDI & FHIR R4 APIs.	Exploring	Medium Term	Exploring
	Optimize care delivery through evidence-based clinical decision support and precision medicine	Exploring	Long Term	Exploring
Objective #2: Integrate Public Health Systems and the VHIE Increase adoption and efficiency of electronic Public Health Registry reporting and integrate into provider workflow.	Establish lab interfaces with the VHIE to enable rapid sharing of disease surveillance data to predict epidemics, manage pandemic(s), prevent outbreaks	Executing	Short Term	Operational
	Leverage VHIE foundational IT infrastructure to support public health data management, bi-directionally as appropriate	Executing	Medium Term	Executing
	Leverage VHIE data to augment electronic case reporting	Exploring	Long Term	Exploring
	Integrate VITAL records and VHIE health records	Exploring	Long Term	Operational
	Establish a bi-directional connection between the Immunization Registry and the VHIE	Executing	Medium Term	Executing
	Integrate VPMS (PDMP) and the VHIE to expand access to needed pharmacy data	Exploring	Long Term	Exploring
	VHIE to provide mechanisms for public health stakeholders to use UMPI matching	Exploring	Long Term	Exploring
Objective #3: Manage Sensitive Health Information Create safe, effective solutions to share sensitive data (e.g., SUD, behavioral health, other), adhering to state and federal regulations.	Develop connectivity criteria to define data elements specific to sensitive care settings including 42CFR data	Executing	Medium Term	Executing
	Connect care settings that create sensitive data with the VHIE e.g., Designated Agencies	Executing	Medium Term	Executing
	Develop VHIE capabilities to identify, parse and translate specific data types to manage consent and access to specific data types such as SUD, MH, women's health, etc.	Initiating	Medium Term	Planning
	Map sensitive data to standards	Planning	Medium Term	Planning
	Develop stakeholder-informed consent management process	Planning	Medium Term	Planning
Objective #4: Integrate Health & Human Services Data into the VHIE Develop tools and methods to collect, aggregate, and share Social Determinants of Health (SDOH) data.	Establish VHIE infrastructure to aggregate SDOH data through the collaborative services project infrastructure	Planning	Medium Term	Executing
	Connect SDoH data sources, like the Agency of Human Services, to the VHIE	Planning	Medium Term	Executing
	Create technical and operational processes for aggregating claims data; utilize the FHIR standards model to do so	Planning	Medium Term	Executing
	Ensure VHIE utilizes the Gravity FHIR resources for standardized SDoH data management and exchange	Exploring	Long Term	Exploring
	Develop consent protocols for aggregating and exchanging SDoH data	Exploring	Medium Term	Exploring
Objective #5: Automate Quality Reporting Support and enhance quality reporting by harmonizing reporting requirements, standardizing reporting formats, and creating a reliable, predictable pipeline of information captured with minimal disruption to workflow.	Enhance data repository to parse and distribute patient-level data based on user's needs	Initiating	Medium Term	Delayed
	Leverage interoperability standards to support and improve quality measurement, including efficient calculations.	Exploring	Medium Term	Exploring
	Reliably calculate eCQMs in support of NCQA's HEDIS and CMS's OBC metrics	Planning	Short Term	Executing
	Automate required federal and health program reporting	Planning	Medium Term	Executing
Objective #6: Provide Consumer Access Individual consumers and their personal caregivers (family and friends in their support network) should have access to comprehensive longitudinal record of their own care.	Expand FHIR and query-based capabilities	Initiating	Medium Term	Executing
	Comply with the 21st Century Cures Act to open data access to patients via APIs	Initiating	Medium Term	Delayed
	Deploy patient engagment tool(s) that unite data across source systems to illustrate a full health history	Exploring	Long Term	Exploring
Objective #7: Support Medicaid Operations Enhance Medicaid operations by leveraging Medicaid patient data for risk stratification, performance management, health reform implementation and evaluation,etc.	Warehouse Medicaid data on the VHIE	Initiating	Medium Term	Planning
	Integrate health records into care and case management workflows	Executing	Short Term	Executing
	Provide data in real-time and/or through reporting to support risk management, program and performance management	Planning	Short Term	Planning
	Evaluate patient access to care with population health data	Exploring	Long Term	Exploring

Appendix I: VHIE Project Management Process

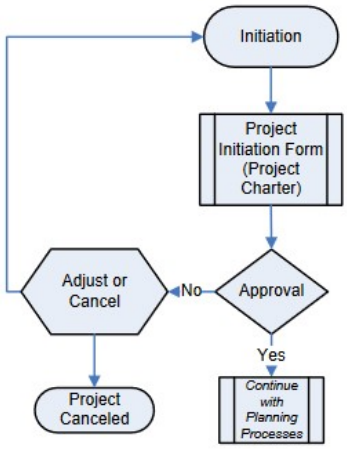
The VHIE manages its HIT projects according to the standards established by the Project Management Institute (PMI - www.pmi.org) and followed by CMS. PMI identifies five process groups or phases in managing projects. The five phases are initiating, planning, executing, controlling & monitoring, and closing.

Every project is constrained in some way by scope, cost, and time. These limitations are known as the triple constraint. Scope is related to the work that needs to be done and what is expected by the customer at the end of the project. Cost is related to the budget that will be required to complete the project. Time is related to the duration and the schedule of the project.

1. Initiation Phase

The initiation phase is the first phase of the project management process. It is during this phase that the project is selected and defined. The business's need, goals, and objectives define what the project needs to accomplish and why it is being done.

Identification of stakeholders is the first task for the project manager during the initiation phase. Stakeholders are any people with an interest in the project. This includes the business owners, project team members, project sponsors, end-users, and any other internal & external customers that will be affected by the project or the project deliverables. The stakeholders are involved in defining the high-level deliverables, constraints, assumptions, and measures of success, as well as time, cost, and resource estimates for the project. A critical component of this phase is the explicit identification of any rules, regulations, policies, and standards that the project must comply with. Privacy, Security, and consent are typical domains that any VHIE project must evaluate and ensure compliance with. Once this information is gathered and verified, it is documented in a project charter.

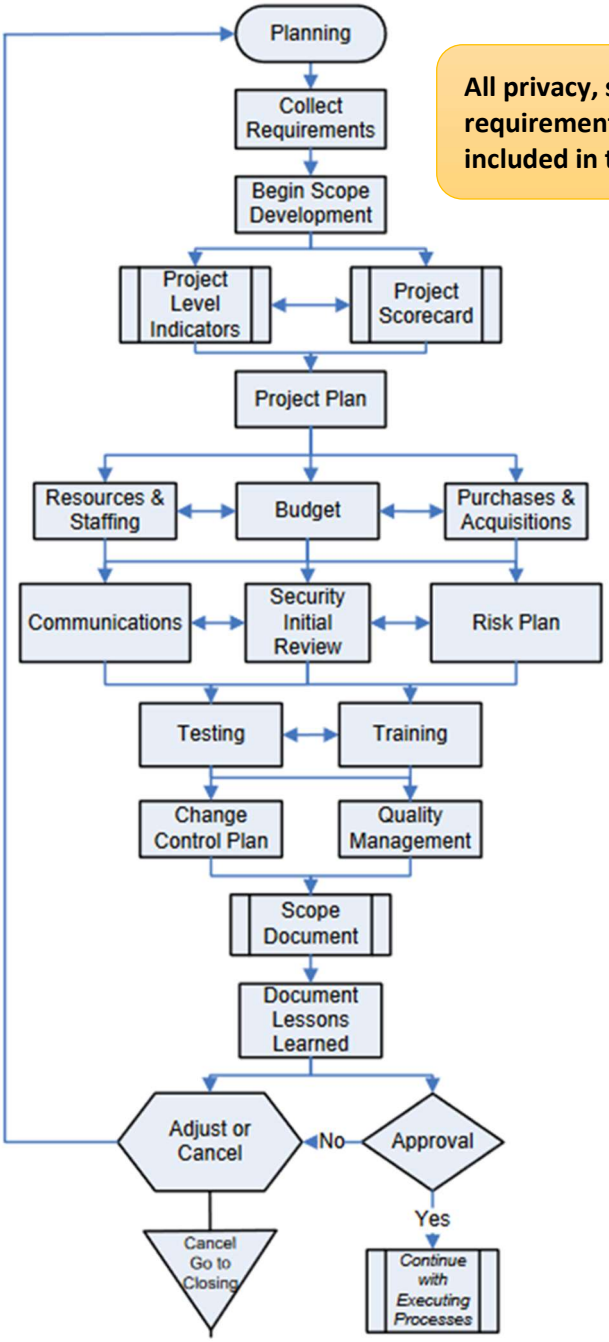


All privacy, security, and consent rules, regulations, policies, and standards must be explicitly identified before the project charter moves to the approval stage.

2. Planning Phase

The planning phase is where decisions are made about how to complete the project and accomplish the goals and objectives defined in the initiation phase (documented in the charter).

The planning phase ends with a kickoff meeting for all project stakeholders. This is where the project plans are all reviewed and validated. The approval of the project plan closes this phase, and the implementation work of the project begins with the next phases.



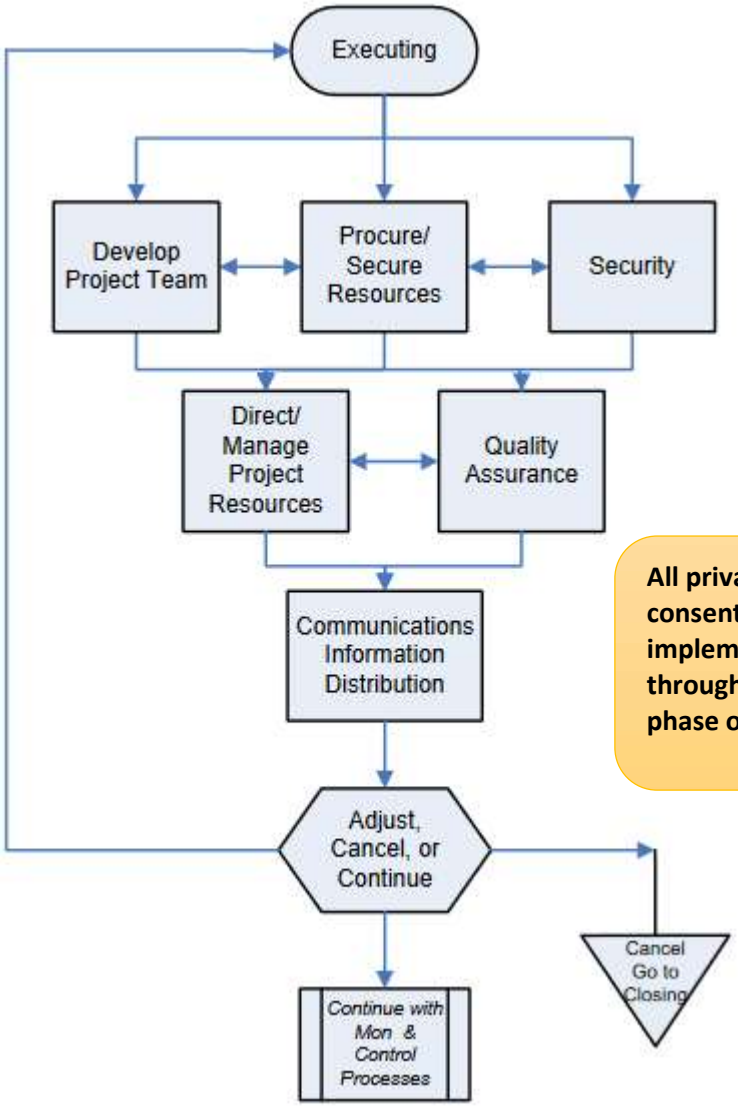
All privacy, security, and consent requirements must be gathered and included in the project scope definition.

3. Execution and Monitor/Control Phases

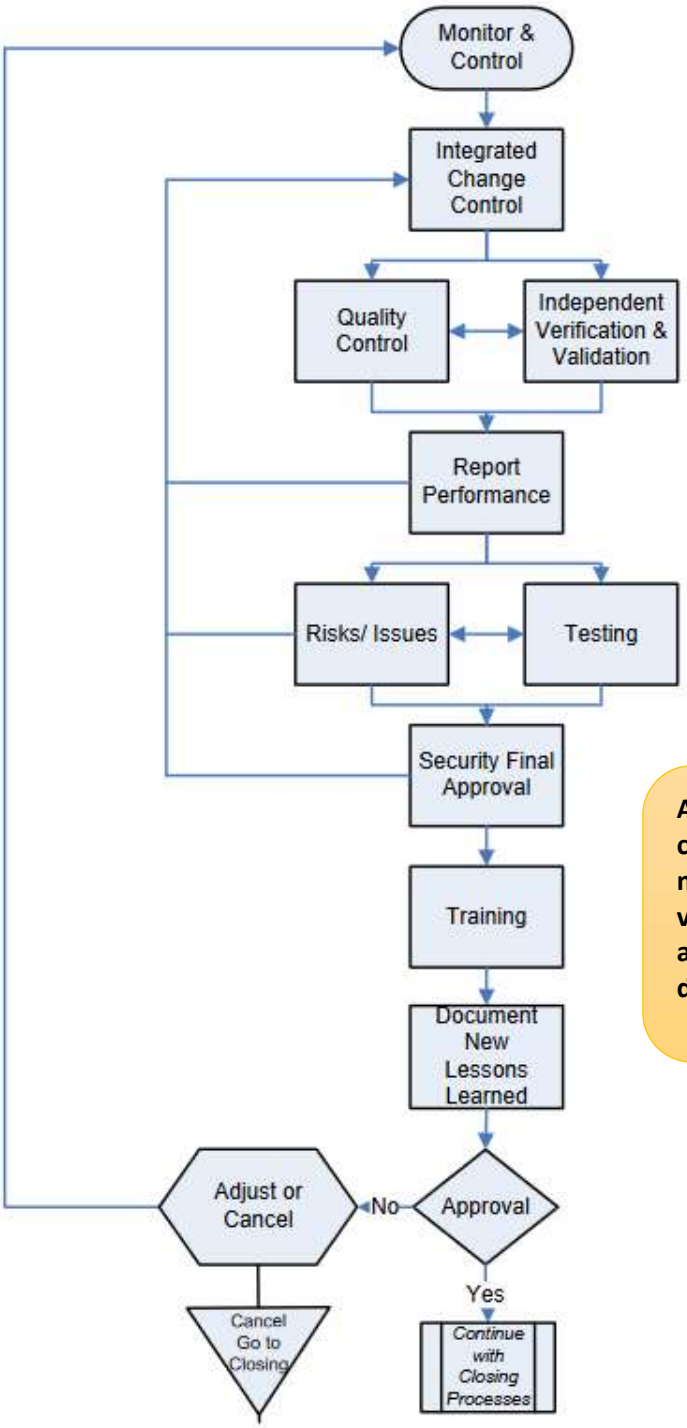
The execution and control phases occur concurrently, but the activities are different. During the execution phase, the project progress is managed, and all project plans are executed. In other words, what the team said they would do in planning is done in execution. In the controlling phase, the project performance is measured and controlled. The project performance includes scope change, quality control, and risk control.

The project manager ensures that the project happens as planned and takes corrective action when any

variances occur. The project plans are iteratively updated and modified as needed (agile), until the project reaches the closing phase.



All privacy, security, and consent requirements must be implemented and validated throughout the execution phase of the project.

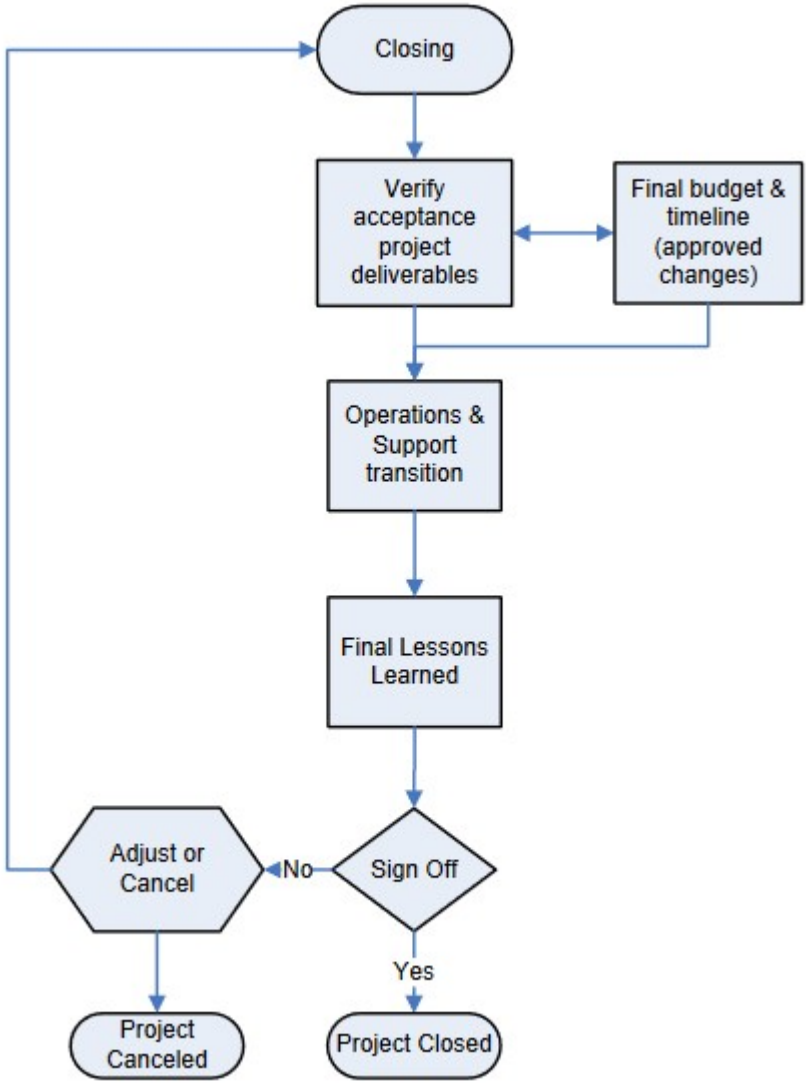


All privacy, security, and consent requirements must be tested and/or validated before final acceptance of project deliverables.

4. Closing Phase

The closing phase is the last phase of the project. This is where the final verification occurs to ensure that what was produced by the project is what the team set out to produce. Final analysis of scope, cost, and time is completed and documented. The sponsors accept the project deliverables and agree and sign-off that the

project is completed to their satisfaction.



Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

Appendix J: All-Payer Model Measures and Data Sources

Improving access to primary care	Pop.Health Outcome	Increase percent of Vermont adults reporting that they have a personal or health care provider	BRFSS
	Health Care Delivery System Quality Targets	Increase in percent of Vermont Medicare Beneficiaries reporting getting timely care, appointments, and information	ACO CAHPS Survey
		Medicaid patient caseload for specialist and non-specialist physicians	TBD
	Process Milestones	Increase in percent of Vermont Medicaid Adolescents with well-care visits	Claims
		Increase in percent of Vermont Medicaid Beneficiaries Aligned with a Vermont ACO	PCP selection and claims
Reducing deaths from suicide and drug overdose	Pop.Health Outcome	Reduce deaths from drug overdose	Vital Statistics
		Reduce deaths from suicide	Vital Statistics
	Health Care Delivery System Quality Targets	Increase initiation of alcohol and other drug dependencies	Claims
		Increase engagement of alcohol and other drug dependencies	Claims
		Improve follow-up after discharge from ED for mental health	Claims
		Improve follow-up after discharge from ED for substance abuse	Claims
		Reduce rate of growth of ED visits for mental health and substance abuse conditions	Hospital Discharge Data
	Process Milestones	Increase use of Vermont's Prescription Monitoring Program	VPMS
		Increase number of Vermont residents receiving MAT for opioid dependence	VDH Data
		Increase screening for clinical depression and follow-up plan	Clinical
Reducing prevalence and morbidity of chronic disease	Pop.Health Outcome	Prevalence of chronic obstructive pulmonary disease, diabetes, and hypertension will not increase by more than 1%	BRFSS
	Health Care Delivery System Quality Targets	For Vermont Medicare beneficiaries, improve performance on composite measure that includes: * Diabetes HBA1c poor control * Controlling for high blood pressure * All-cause unplanned admissions for patients with multiple chronic conditions	Claims and Clinical
	Process Milestones	Improve rate of tobacco use assessment and cessation intervention	Clinical
		Improve rate of medication management for people with asthma	Claims