Vermont's Health Information Exchange Strategic Plan

2018-2022 Plan (2021 Update)

Submitted: November 1, 2021

Submitted by the Department of Vermont Health Access, 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 sharing health information across facilities, organizations, and government agencies 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).

People – Throughout this plan there are references to "people" – not patients, clients, members, or beneficiaries. Fundamentally, all individuals in the health system are people, not the diseases they have or the insurance cards they hold. Using this term maintains the reminder that the health system is 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]

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.

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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.

Executive Summary

There is consensus that the ability to exchange health information across the American health care system is needed and adds value. The goal of Vermont's Health Information Exchange Strategic Plan (HIE Plan) is to envision a future where health information exchange (HIE) is achieving its potential for supporting Vermont's health care system and illustrate a path toward realizing that vision.

Written by the Agency of Human Services' (AHS) HIE Program, in partnership with the HIE Steering Committee, the Plan represents a tangible, transparent, and accountable commitment to keeping Vermont's HIE efforts on track. The HIE Steering Committee has been operating since late 2017 and the first HIE Strategic Plan was approved by the Green Mountain Care Board (GMCB) in 2018. Required by 18 V.S.A. § 9351, this HIE Plan is the third annual update to the original strategic plan.

The HIE Plan includes the strategic planning concepts which have underpinned HIE progress statewide and continue to energize planning. The Plan is driven by three high-level goals that elucidate how functional health data exchange infrastructure in Vermont would make an impact.

HIE System 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. **Improve Health Care Operations -** Enrich health care operations through data collection and analysis to support quality improvement and reporting.
3. **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.

The HIE Plan also defines the HIE Ecosystem and its parts – a formalized governance structure, policy and processes that facilitate system goals, and a financial model that ensures resources are available to maintain and advance HIE systems. The Committee is guided by the perspective that all facets of the HIE Ecosystem must be accounted for because a focus solely on technology cannot alone progress health data exchange.

In 2021, AHS employed the assistance of HealthTech Solutions, a national health-IT consultancy that evaluated Vermont's HIE work in 2017 and 2018, to evaluate the HIE Plan and help to further define the path toward fully realizing the vision of HIE in Vermont. HealthTech Solutions determined that,

- The HIE Steering Committee strategy and direction is correct [for accomplishing the goals set forth in the HIE Plan];
- The Health Data Architecture and VHIE data model is appropriate for what we are trying to accomplish; and
- Stakeholder alignment is critical for success.

2021 Progress

Considerable progress has been made in Vermont's HIE system since the original writing of this strategic plan. Each year's progress creates opportunity for more robust data exchange in the years ahead to embolden care delivery, care coordination, population health management, and health policy making.

Each year, the HIE Program and its partners update the HIE Plan with consideration for what is occurring in the marketplace, new state and federal rules impacting the HIE Ecosystem, how the tactics outlined in this plan were advanced, and the associated next steps. This year, there was a particular focus on developing Vermont's Unified Health Data Space to streamline aggregation of and access to health data. The philosophy of a Unified Health Data Space is that a coordinated health information exchange architecture (relationship of systems and data) ensures there can be one health record for each Vermonter by designating a central health data repository. At the center of this concept is Vermont's Health Information Exchange (VHIE) – the health data repository, a resource dedicated to aggregating health data from various sources, matching patient records across systems, capturing patient consent preferences, translating local terminology into a standard format (code set), and generally making health data interoperable and most useful to those authorized access to provide and coordinate care and improve or evaluate health care operations.

In 2021, two significant advancements occurred with regards to the exchange of health data statewide,

(1) The VHIE continued to upgrade its technical capabilities through an effort called the Collaborative Services Project. In 2019, HIE partners agreed to the concept of a Unified Health Data Space, which is a strategy for crafting technical relationships that produce secure, interoperable, comprehensive health records on the VHIE. Previously, stakeholders were duplicating efforts that de-centralized and fragmented attempts at patient matching and data aggregation making it impossible to achieve the vision of one, comprehensive health record for each Vermonter. Additionally, the Collaborative Services Project not only allows the VHIE to meet the requirements set forth by new federal interoperability rules, but to also aggregate new types of health data which have not yet been integrated onto the VHIE.

> [THE] **VHIE IS RAPIDLY TRANSITIONING FROM A FIRST-GENERATION HIE** BASED ON THE SHARING OF CLINICAL INFORMATION FROM AND TO THE POINT OF CARE **TO A SECOND-GENERATION HIE** WITH A MUCH MORE ROBUST ASSORTMENT OF DATA TYPES AND SERVICES OFFERED.
>
> HealthTech Solutions

Thanks to the completion of Phase I of the Collaborative Services Project, there was a greater than 95% success rate with record matching (across a reference population) and many terms were standardized for exchange across settings. Also, the Blueprint for Health Program was able to cease operations of its Clinical Registry by relying instead on the VHIE for needed data to evaluate the program.

Today, thanks to the progress made in implementing the Collaborative Services Project, the VHIE offers a new data platform (provided by MedicaSoft) underpinned by a standard (Fast Healthcare

Interoperability Resources, FHIR) that allows data to be exchanged across a diversity of systems and expands the types of data that can be exchanged through the VHIE.

As a measure of success, Vermont Medicaid is now sharing claims data with the VHIE and expects to continually link clinical and claims data to support evaluation and improvement of Medicaid operations. This represents a move from technical development to the system-use focused phases of the Collaborative Services project.

VITL is also piloting a new provider portal, to be launched in 2022, that aims to ease providers' burden and improve their experience when accessing health records on the VHIE. The Collaborative Services Project will ultimately allow VITL to decommission older VHIE technologies, which will reduce the overall cost of operating the VHIE system.

(2) The HITECH Act funding that accelerated Electronic Health Record adoption and enabled the development of the VHIE platform expired in September 2021. Traditionally, HITECH Act funding was used as a match for the state's dedicated HIT Fund (a portion of a tax on commercial claims), leveraging state investments to cover 80-100% of costs. Though the HITECH funding is no longer available, the Centers for Medicare and Medicaid Services (CMS) is dedicated to continuing the work that started under the HITECH Act in service of health data exchange to benefit Medicaid providers and patients. In 2021, Vermont began pursuing CMS's Certification of the VHIE to unlock ongoing funding at an enhanced federal match rate. However, at the time of this writing, Vermont, like most other states, is uncertain of exactly how much federal funding will be available on an ongoing basis for health information exchange (HIE) efforts and what the focus and requirements of that work must be.

The loss of HITECH Act funding requires the State and HIE Steering Committee to consider strategies to fund ongoing development of Vermont's Unified Health Data Space. 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."

When consumers have a direct relationship with their service providers, value and demand are aligned. The VHIE recently improved its technical capabilities through the implementation of the Collaborative Services Project, which means that VITL can now offer enhanced HIE services. In support of the vision of a Unified Health Data Space, and in service of maximizing the value realized from state and federal investments, the AHS has begun to procure data services from VITL such as linked clinical and claims data reporting and data warehousing to support federal compliance and performance management. The State is also working with CMS to best leverage the VHIE to support Medicaid operations, including health reform activities, in an ongoing manner.

This HIE Plan Update details how other health data priorities have continued to progress, including the initiation of work to integrate Social Determinants of Health data into the Unified Health Data Space and continual refinement of how the VHIE supports the COVID-19 response and public health data needs.

2022 Focus

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 developments are still required, now that the technical work of the Collaborative Services Project is close to complete, the State and its partners are shifting the focus to leveraging the systems in the Unified Health Data Space (page 8) to support the myriad potential uses of a central and modular health data repository built for cross-system data exchange and efficient access. Below is a summary of focus areas for the State and HIE Steering Committee in 2022.

- ***Governing Use of Expanded Health Records on the VHIE –***
  The planned expansion of data types on the VHIE (social determinants of health, claims, mental health, and substance use disorder services) creates a need for more robust, formalized data governance to ensure quality, accessibility, usability, and security of information newly aggregated by or shared through the VHIE. The HIE Steering Committee is committed to supporting development of functional data governance that aligns stakeholders around policies and processes that safeguard aggregation and exchange of new-to-the-VHIE data. Also, because recent upgrades of the VHIE position VITL to meet data needs of customers, there is a need to enhance governance at AHS and within VITL to ensure that diversifying VITL's business model does not compromise the confidentiality, integrity, and availability of health data for the health care system. The Steering Committee will continually evaluate the role of the Committee itself and its relationship with the VITL Board in service of transparent planning that ensures the intent of Vermont's health information exchange legislation is met.

- ***Improving Public Health Capabilities through Integration with the VHIE –***
  To fully participate in the vision of a Unified Health Data Space, public health data and systems must be integrated with the VHIE. In 2022, 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), 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.

- ***Refining the HIE Conceptual IT Services Model–***
  The HIE Conceptual IT Services Model (page 18) defines services provided by health information exchange systems and illustrates that some services must be built before others. For example, you must be able to match patient records ("identity management") before you can develop one comprehensive health record that will support care coordination. This Plan affirms that public dollars should support foundational services, and services built on the foundation can result from private investment. However, because each service is multi-faceted, there remain questions about what the responsibility of the public sector is (e.g., to ensure that providers have accessible, usable health records at the point of care), what services would be beneficial to

prioritize through short-term public investment opportunities, and what services might be offered for a cost to a subscribing organization. This is important because the sustainability of the Unified Health Data Space is reliant on a functional business model that elicits predictable public and private investment in supporting its systems. In 2022, the HIE Steering Committee will continue to tackle questions like, *with an appreciation for the fact that the quality and diversity of data on the VHIE is linked to the system's value*, *how does the state enhance "data aggregation" efforts with limited public funds available?* And, *if there is a need for a centralized provider directory as a foundational HIE service, how should it be built and managed?*

- ***Leveraging the Unified Health Data Space to Support Medicaid Operations* -**
  A platform that offers a common view of people across care settings and over time is essential to ongoing health care reform efforts. The Department of Vermont Health Access operates as a managed care plan for the Medicaid program. To manage risk and the overall performance of the health plan, Medicaid needs patient-level, linked clinical and claims data. As the data in the VHIE becomes more usable and comprehensive, the more able the health plan will be to look at people, not just individual episodes of care, to make a real impact on health outcomes and costs. However, counter to the goal of using data to improve performance of Medicaid operations, the State still contends with the fact that not all Medicaid providers have a means to collect health records and share them through the central repository, the VHIE. There were many Medicaid providers who could not take advantage of funding from the HITECH Promoting Interoperability Program (EHR Incentive Program/Meaningful Use) to digitize their health records. With ongoing support from CMS, the State plans to address data inequities and amplify records on the VHIE by developing a program to help additional Medicaid providers obtain electronic health record and care coordination tools and connect to the VHIE. In the near term, the focus of the program will align with the State's health reform efforts by targeting long-term care, home and community-based health services, mental health, and substance use disorder providers.
- ***Improving Access to Health Information (for people and those who care for them)-***
  Through new regulations, the federal government is expanding people's ability to access their health information through a third-party app of their choosing. In Vermont, this means that anyone who seeks care in the state can request their health records from the VHIE, and many can request health records (clinical and claims) from their health insurance carrier and/or their health care providers. This marks an unprecedented shift in patient access and is aimed at empowering people to be informed participants in their care. For providers in Vermont who use the VHIE, access to health records is changing as well. In 2022, VITL will launch a new provider portal which is anticipated to offer providers easier-to-use, more robust access to patient records in real time to positively impact care quality.

In 2022, the Committee will continue to pursue the technical objectives set forth in the Technical Roadmap (which have been updated this year), utilize subcommittees for strategic and technical guidance, and oversee data exchange strategies with consideration for all facets of the HIE Ecosystem. The Steering Committee will evolve its strategy as the landscape evolves and technical innovation continues to improve to support providers at the point of care, and more localized data services may be called for to support Vermont-specific population health management needs. The

Committee anticipates many changes ahead in the need for and use of electronic health data exchange.

Building on the Framework for Success

Nationwide, it is accepted that electronic health information supports an efficient health care system that effectively manages costs while promoting improved health and well-being. However, many states have struggled with implementing HIE programs. Accordingly, a state driven HIE program must be clear in its vision, goals, and accountability. To that end, this HIE Plan covers three essential elements:

1. Vermont's specific vision and goals for the exchange of health data that express what the State aims to achieve.
2. The HIE ecosystem - the environment required for HIE to effectively function.
3. Clear objectives and tactical plans - a clear path for achieving progress toward the vision.

The ideal state must be easily understood by stakeholders, policymakers, and the operator of the VHIE. Understandable goals will promote common expectations, accountability, and the likelihood that HIE vendors will meet the needs of health system stakeholders.

The Value Proposition for HIE: Fundamental Goals

The HIE goals set forth in this plan reflect what the State hopes to achieve through HIE to better the health and well-being of Vermonters. The HIE Steering Committee continues to agree with the work done in 2017, in which use cases were gathered to articulate how individuals and organizations from across the continuum of care interact with, and rely upon, HIE tools and services. The use cases reflect current needs across the health delivery system and are intended to support ongoing planning efforts. The use cases represent a variety of needs ranging from public health reports that require the collection of disease data, to quality reports that measure efforts to improve process and outcomes, to the need for real-time notifications of changes to health status to effectively coordinate care. The goals represented through the review of user needs are summarized as:

1. **Create One Health Record for Every Person -** Support optimal care delivery and coordination by ensuring access to complete and accurate health records.

2. **Improve Health Care Operations -** Enrich health care operations through data collection and analysis to support quality improvement and reporting.

3. **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.

These three HIE goals are essential to continuously drive efforts to improve the health delivery system. To build a health care system that uses resources efficiently and realizes the best possible health outcomes, the State requires the right tools. HIE tools are critical to building an efficient and outcome-oriented health delivery system.

The HIE Ecosystem

The environment required for HIE to function effectively is upheld by four pillars. Along with technology, these include a formalized governance structure, policy and processes that facilitate system goals, and a financial model that ensures strategic investment so that resources are available to maintain and advance HIE systems.

Figure 1: HIE Ecosystem - The Pillars illustrates the essential pillars of the HIE Ecosystem – financing, policy/process, governance, and technology – and their interrelated relationships. Ignoring one or more pillars in planning and execution can lead to failure in technical implementation. All must be considered to advance health data exchange. Figure 1 further illustrates the dimensions of the technical pillar, which are further explained in the section titled, *HIE Ecosystem: Technology*.

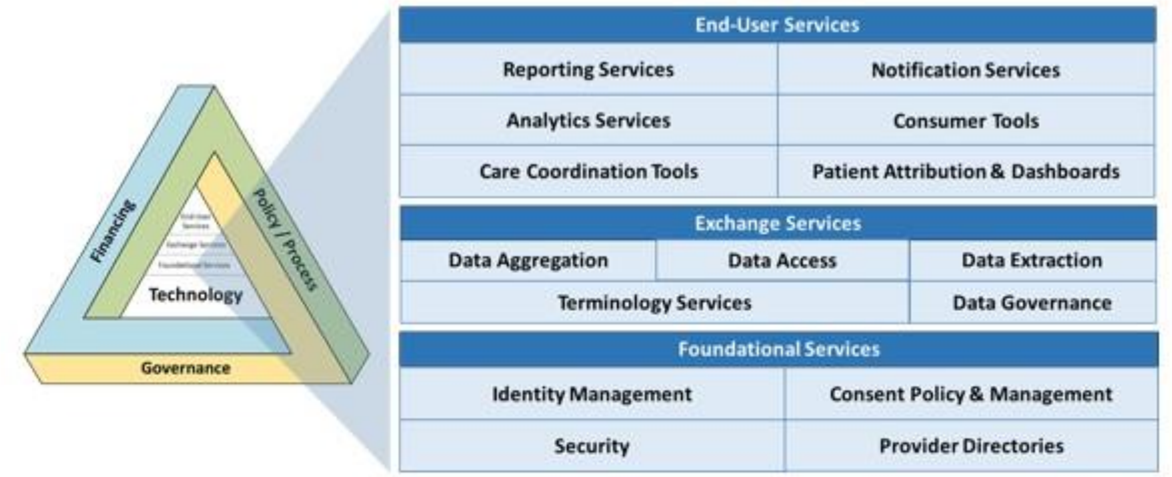

Figure 1: HIE Ecosystem - The Pillars

The following sections provide an overview, discussion of the envisioned future state, an update on associated work, and a look forward at next steps for each of the pillars of the HIE Ecosystem – policy/process, financing, technology, and governance.

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 Assembly passed legislation[3] 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." A .0999% tax on private health insurance claims is collected annually, of which .0199% is distributed to the HIT Fund.[4] 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 now extended through 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 and core services.

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 Steering Committee 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 Steering Committee to develop the statewide Health Information Technology Plan and required DVHA to produce a report 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 through the VHIE. DVHA and VITL were required to execute robust public education and provide substantial opportunities 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 putting people 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 patient 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 by CMS to share health data with patients.

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 people at no cost, but smartphone apps may charge fees for related value-added services.

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.).

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

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 States Core Data for Interoperability (USCDI). The USCDI is a standardized set of health data classes and data

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

[4] Act 192, *An act relating to making appropriations for the support of government*, Sec. 7.004. (2008).

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 the information can be effectively understood when it is received. It also includes essential demographic data to support patient matching across care settings.[5]

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

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, the Children’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 patients 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, patients can be more informed decision makers resulting in better managed care.

This Patient 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 patient’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 patient 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 patient 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.

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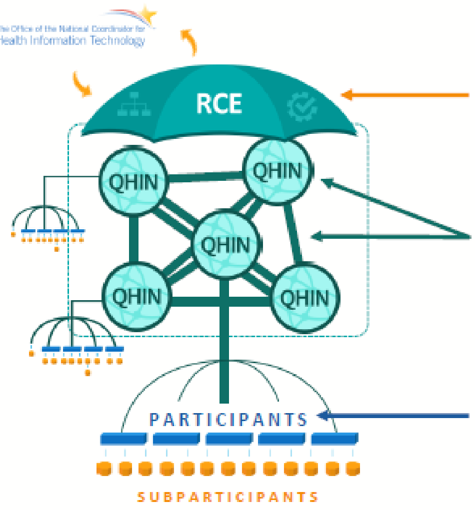
[5] Office of National Coordinator. (2020). *The ONC Cures Act Final Rule*. https://www.healthit.gov/cures/sites/default/files/cures/2020-03/TheONCCuresActFinalRule.pdf

Vermont Medicaid is in the process of developing a solution to comply with the new Patient Access and Interoperability Rules. A solution will be provided by Gainwell, the State's Medicaid claims management service provider, with clinical data feeds provided by the VHIE and Change Health, Vermont's Pharmacy Benefit Management service provider.

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

There is another national effort that pursues enhanced health data exchange - the Trusted Exchange Framework and Common Agreement (TEFCA) - which the federal government introduced three years ago as a basic structure for nationwide interoperability. Fundamentally, TEFCA is a network of networks approach to sharing health data nationwide, meaning that local HIEs create a network by connecting to regional systems (QHINs), that are also connected. The Recognized Coordinating Entity (REC) plays an overarching role in governing data exchange across the network. The Common Agreement, which is expected to be released by the end of 2021, sets the stage for how these data sharing relationships will be governed. It is expected that the FHIR data exchange standard that the VHIE relies upon will be TEFCA's required data sharing standard in the future. 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 trading across regional partners, and there will be fees for local HIEs to connect to QHINs. The VHIE currently connects to a national health data network, and the State and Steering Committee will await the release of the Common Agreement before evaluating TEFCA's impact on Vermont.



RCE provides oversight and governance for QHINs.

QHINs connect directly to each other to facilitate nationwide interoperability.

Each QHIN represents a variety of Participants that they connect together, serving a wide range of Subparticipants.

Evolving State Policy to Support Data Use in the Health Care System

The HIE Steering Committee's vision is to compliment federal action and prompt state action to realize the goals set forth in this Plan. In 2018, the Committee crafted **Figure 2: the HIE Policy and Process Maturity Model** to depict how Vermont's HIE policy may evolve.

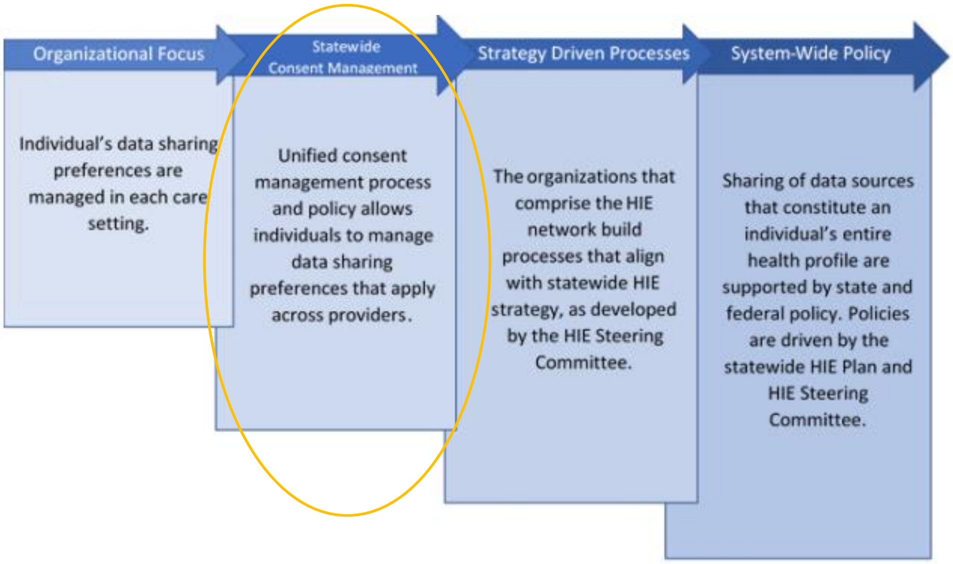


Figure 2: The HIE Policy and Process Maturity Model

Vermont's Act 53 of 2019 augmented the unified consent management process and policy that allows individuals to manage their own preferences for data sharing through the VHIE system by automatically sharing health records with those authorized unless a person opts-out of sharing. In 2021, the HIE Steering Committee and their subcommittees began to contemplate changes to the State's *Protocols for Access to Protected Health Information on VHIE* to enable aggregation and exchange of additional data sources that constitute an individual's health profile (e.g., substance use disorder data, social determinants of health data, and claims). The Protocols were updated to define Public Health data uses in 2020.

In 2022, the Agency of Human Services, in partnership with VITL and the HIE Steering Committee, will articulate how public health operations may be enhanced through integration with the VHIE. This effort will include an analysis of policy and legislative changes that may be required for additional data sharing or data access arrangements between the Department of Health and the VHIE. Additionally, the State and HIE Steering Committee will work to further design consent and data governance processes needed for sharing and accessing claims, social determinants of health (SDoH), and clinically sensitive data.

- *Clinically Sensitive Data:* Exchange of substance use disorder (SUD) data, based on individuals' preferences, may be more easily facilitated thanks to changes in federal law (the CARES Act) that are expected to align requirements for 42 CFR Part 2 data sharing more closely with HIPAA and may reduce consent management burdens on providers. The VHIE PartII+ group has begun engaging SUD providers in the development of consent and data management processes for SUD data that will benefit from new federal requirements for data sharing.

- *Social Determinants of Health (SDoH) Data:* AHS is embarking on an effort to aggregate its SDoH data onto the VHIE and expects that learnings from the endeavor will set the stage for engaging the Population Health Subcommittee in developing policies to support SDoH data exchange amongst authorized VHIE users.
- *Claims:* The State and the Committee will begin to identify organizational and legislative changes that may be needed to facilitate aggregation and exchange of identifiable claims data through the VHIE system.

While the considerable progress made in Vermont's HIE system continues to be made evident in this Plan, it has been possible because of policies that provide needed financial resources. These include the HITECH Act which provided federal funding for the adoption of EHR systems and the development of health information exchange and other data systems, and Vermont's HIT Fund which supports the State in maximizing federal investments to advance health information technology work. The State's contribution to HIE work is becoming increasingly important as the HITECH Act funding expired in September 2021. **The HIE Steering Committee recommends that the Vermont Legislature continue the HIT Fund (currently extended through 2023) to support execution of the work described in this Plan.**

HIE Ecosystem: Technology

Technology remains a foundational pillar of health information exchange in Vermont. With an ever-changing landscape, Health IT efforts nationwide continue to mature and develop. While governance and financing models shift, it is increasingly important that technology efforts are aligned with national initiatives and comply with industry standards and best practices, all while serving Vermonters to ensure positive health care outcomes.

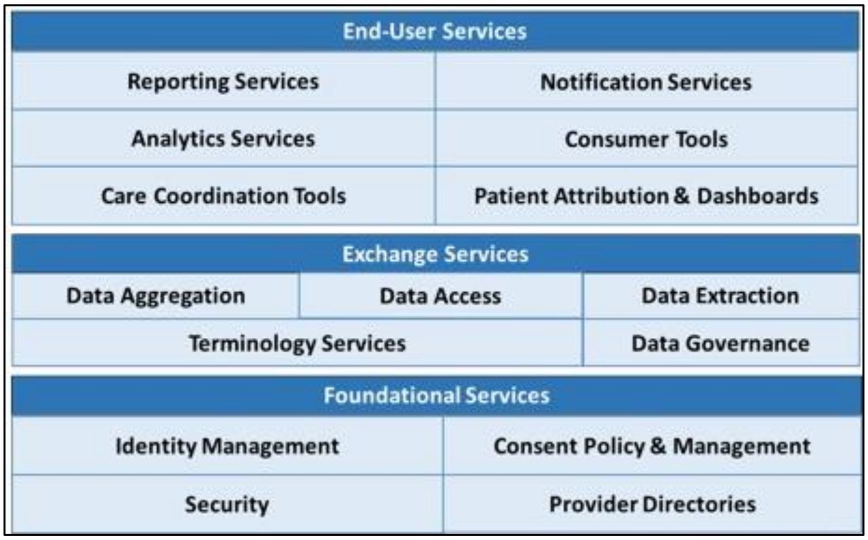
The original version of this HIE Plan, submitted in 2018, set Vermont on a path to mature and consolidate its health information exchange technical infrastructure. The 2018 Plan noted that, "Today in Vermont there are major redundancies, gaps, and inefficiencies in the HIE system and the assignment of responsibility among stakeholders is unclear, redundant, and inefficient. The HIE Steering Committee will be responsible for driving development to meet the strategic HIE goals, which may mean eliminating, replacing, and/or consolidating some aspects of the HIE system's component parts." Since 2018, Vermont, with guidance from the HIE Steering Committee, has taken great strides in both developing and executing IT strategies that attempt to address these issues and align the State with the introduction of new federal rules that drive national interoperability and growth in the HIE marketplace. The Collaborative Service Project is an example of using a technology platform to enhance data use and management across the health care system – a CMS principle for investment – and the HIE Steering Committee guides and oversees the use of the Collaborative Services technology to ensure that Vermont's strategic goals for health data exchange are achieved.

Guiding Principles for HIE Technical Planning

- ❖ Employ an agile, test-driven approach to all implementations.
- ❖ Start with the simple systems. Complex systems that work evolved from simple systems that work (Gall's Law).
- ❖ Start and mature pilot projects to production deployment.
- ❖ Information will outlive the application upon which it is created. Base interoperability and acquisition decisions on that understanding.
- ❖ Evaluate technology from the aspect of avoiding lock-in and ease of migration.
- ❖ Base data reuse decisions on increasing predictability and reliability of information.
- ❖ Data is the most valuable HIE resource and must be portable.
- ❖ Reuse across systems is a bedrock principle

In 2019, the HIE Steering Committee supported the development of an HIE Technical Roadmap that details time-bound health information exchange activities that the State may undertake in pursuit of its goals. The objectives from the Technical Roadmap have been updated to continually represent the HIE Steering Committee's focus. The Steering Committee also continues to rely on the HIE IT Services Model which is based on guidance provided by the ONC. Each HIE service or capability is multi-faceted, and most are dependent on a strong modular technical architecture (system of standardized, connected parts). Overall, these components constitute a three-level service model which is supported by stable

Governance, Financing and Policy/Process, as shown in **Figure 3**[6]. The ultimate value to users is evident in Tiers II and III: Exchange and End-User Services. Tier I (Foundational) is required to enable Tiers II and III.



End-User Services

Reporting Services | Notification Services

Analytics Services | Consumer Tools

Care Coordination Tools | Patient Attribution & Dashboards

Exchange Services

Data Aggregation | Data Access | Data Extraction

Terminology Services | Data Governance

Foundational Services

Identity Management | Consent Policy & Management

Security | Provider Directories

Figure 3: HIE Conceptual IT Services Model

The HIE Conceptual IT Services Model offers a view of HIE services and demonstrates that foundational services must be in place to enable development of tools that are valuable to health system stakeholders. **The Vermont's Unified Health Data Space Architecture Diagram (Figure 4)** offers a different view of an integrated future state by illustrating the relationships between health data sharing systems in Vermont. Many of the pictured relationships exist today (i.e., bi-directional exchange of data between the VHIE and EHR systems and the VHIE exchanging data with some public health registries and analytics engines and health plan claims data feeds to the VHIE) and some of the relationships are planned (i.e., integration of social determinants of health data onto the VHIE). The Architecture Diagram was inspired by a similar systems diagram developed by Johns Hopkins School of Medicine.

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[6] Note: The Office of the National Coordinator developed a graphic to illustrate the Health IT Modular Functions needed to support effective health information exchange. Informally, this graphic is referred to as the "ONC Stack." The HIE Steering Committee further adapted this concept to emphasize foundational functions (or services) of exchange, and how the functions may be built upon to enable development of end-user services. Vermont's HIE Conceptual IT Services Model is intended to ground discussions in a shared nomenclature for strategic planning purposes.
Natarajan, A. (2015). *Health Information Technology (HIT) Toolkit for Advancing Medicaid Transformation (slide 8)*. Office of the National Coordinator for Health Information Technology. Retrieved from: https://www.healthit.gov/topic/innovation/state-innovation-model-resource-center.

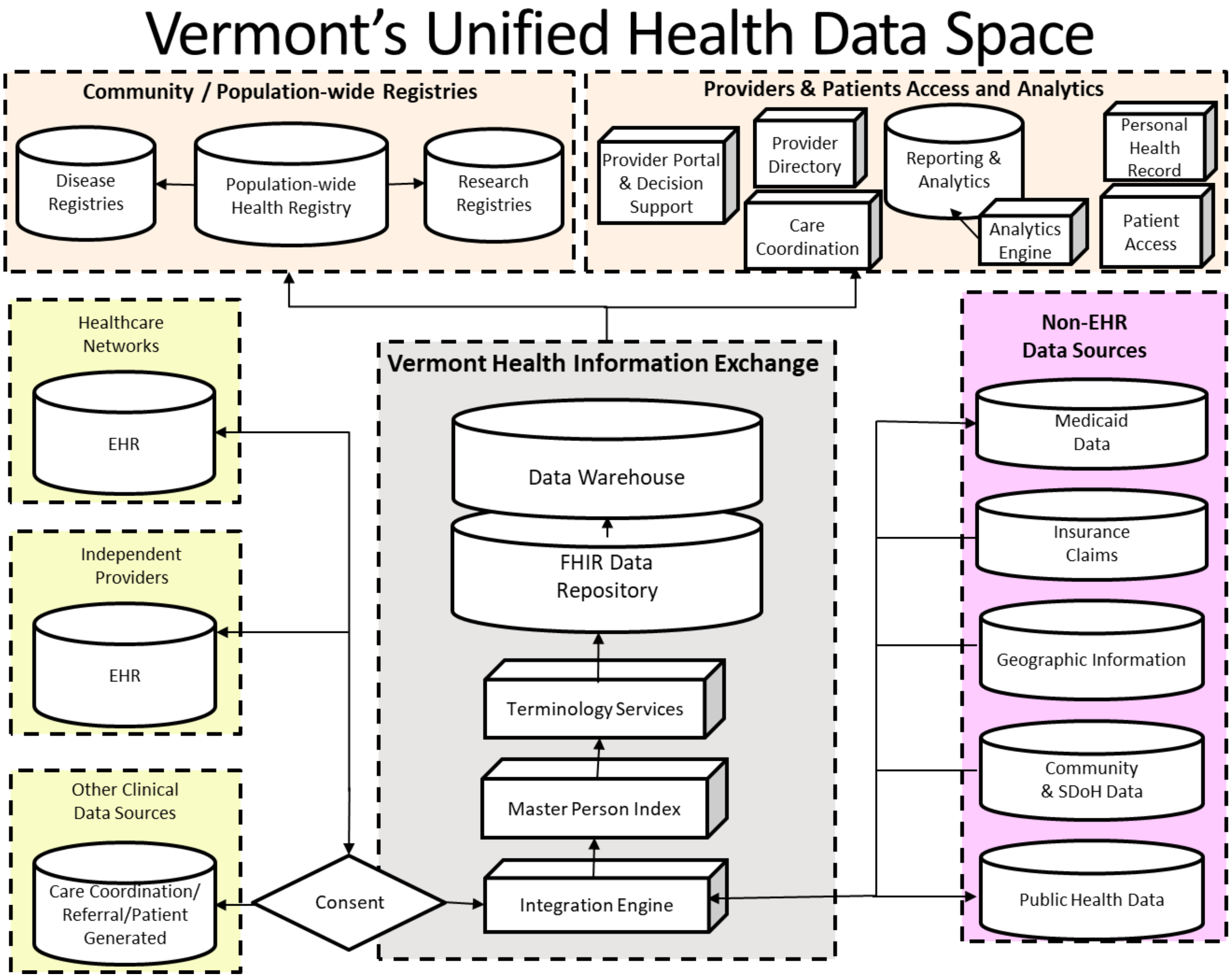

Figure 4: Vermont's Unified Health Data Space Model

A Review of Advancements & A Look Ahead

The HIE Steering Committee's IT oversight and planning work in the HIE Plan continues to be fundamentally influenced by:

- The COVID-19 pandemic and the need to support the Agency of Human Services and health care providers in collecting and accessing robust, real-time patient data, as well as using the lessons learned to plan for future public health needs.

- The Collaborative Services Project, in which significant technical enhancements of the VHIE platform were completed in September 2021, enabling the system to offer improved health record matching, standardized terminology translations, and FHIR-API accessible interoperable and aggregated data.

- Final "interoperability" rules from the ONC and CMS that establish a technical and regulatory framework that aim to put people at the center of their own health care by arming them with efficient API based access to their health records and information about their providers. The rules expand data sharing standards and requirements.

In the coming months, the Steering Committee must also consider how to best expand data feeds to the VHIE, as the quality of the data in the system is the main value it offers to its users. Since the VHIE is now capable of aggregating a variety of data types, once the policies are in place to enable data exchange, the Committee will need to aid the State in identifying priority data feeds to the system which may now extend beyond current EHR generated data to include claims, behavioral health, and social determinants of health. In prioritizing activities that take advantage of the VHIE's new data platform and expand the breadth of data maintained in the VHIE, the Committee may find that financial resources or lack of stakeholder participation may slow the process of connecting data systems to the VHIE and will need to consider related mitigation strategies in their work.

Also, as the Unified Health Data Space becomes more of a reality in Vermont so does the need for accessibility and equitability across the continuum of care. Providers need to have the ability to collect and share health information amongst treating providers and health care programs to ensure ability to participate in value-based purchasing models. The more ubiquitous data collection and exchange becomes, the more powerful the data is to support delivery system reforms. Therefore, the Agency of Human Services plans to develop a Medicaid-focused program that supports providers in procuring data collection tools and connecting to the VHIE. The program will first focus on Medicaid provider types most directly involved in health reform efforts – long term care, home and community-based care, substance use disorder, and mental health service providers.

The following section reviews each of these influences and the associated opportunities for future development of robust data exchange tools and services.

COVID-19 – Public Health and VHIE Integration

National Challenges

Nationwide, the COVID-19 pandemic has presented a multitude of challenges for providers and public health organizations as systems are not reliably able to interchange data or interoperate. As agents of data aggregation and exchange, Health Information Exchanges are recognized as a catalyst to overcome interoperability challenges.

State and federal public health agencies rely on data reported by health care providers to conduct many of their core functions. The electronic transfer of data for public health reporting requires data from all health care providers to be translated from their local structures—its vocabulary or format for storing data, and its protocols for sending the data as messages—into standards defined specifically by and for various public health authorities so the data are consistent and can be analyzed in a uniform fashion. However, the cost of developing interfaces between organizations and the public health agency and associated translation services is high. This is due, in part, to the fact that each specific use of clinical data to support public health (e.g., notifiable disease surveillance, birth and death registration, hospital adverse event reporting, injury prevention, and chronic disease improvement) currently requires a separate, dedicated technical solution and the requisite management and organizational activities on each side to support the initiative. Consequently, electronic data gathering has not been widely adopted for public health purposes and/or public health data systems are developed in isolation from HIE systems, even where the benefits of electronic public health reporting are well understood. These challenges exist despite the Meaningful Use objective to target the "capability to submit electronic data on reportable lab results." Much data exchange still occurs using fax or phone.

At the federal level, regulations have created a public health network called the National Notifiable Diseases Surveillance System, or NNDSS. This system, coupled with requirements from the Centers for Disease Control, require that providers, hospitals, and labs send data to their state or local health departments. Most states send medical information and lab results for notifiable diseases and conditions on to the Centers for Disease Control and Prevention (CDC) for public health reporting and analysis.

While the NNDSS system is crucial to public health surveillance, it has been designed to be a "private network" with a limited scope of what it collects. This system does not share data with the medical community. If a doctor orders a COVID-19 lab test on one of their patients, the doctor would get the lab result and it would be sent to the NNDSS system. If that person later developed worsening symptoms and ended up in the emergency room, those doctors would not have access to the lab results unless both the original provider and hospital were connected to an HIE (like the VHIE) or they had a direct feed of results from the lab itself.

Collaboration with HIEs provides clear benefits to both public health agencies and providers. Integration of public health agencies and HIEs can provide:

- Efficiencies in Connectivity – creating connections from testing sites, laboratories, and health care organizations directly to the HIE eliminates the need for public health entities to create point-to-point connections to all organizations from which they gather data. The HIE acts as the central aggregator of needed data.
- Enhanced Data Quality – HIEs translate coded and unstructured data for exchange across multiple systems. Data standardization allows systems to "interoperate" or exchange data even when the display or syntax is different in each system.

- Record Matching – HIEs match patient records across multiple data providers (generally, EHR systems, pharmacies, and laboratories). Unifying all patient records into one, usable record is essential for both providing care and monitoring a patient population.
- Central Access Point – Through provider portals and direct data feeds from the HIE, with appropriate provisions data users can access patient data directly from an HIE. This can include data from EHRs, public health registries, and national databases.

VHIE Support for Public Health Response

Soon after the COVID-19 response began, VITL partnered with AHS, of which the Vermont Department of Health (VDH) is a part, and the Agency of Digital Services (ADS) to aid in the response. The Secretary of AHS issued a directive to VITL in April 2020 to provide access to patient data in the VHIE to AHS in support of COVID-19 response work during the duration of the Governor's declared State of Emergency and following the US Department of Health and Human Service's Notice of Enforcement Discretion for Business Associates allowing data to be shared for public health purposes during the pandemic. In late 2020, through the HIE Plan Update, the *Protocols for Access to Protected Health Information on the VHIE* [Appendix A] were amended to allow for sustained data sharing with VDH. The *Protocols* articulate how the VDH can use VHIE services to meet their current data and reporting obligations and how data access may change in response to events that risk public health (not specific to COVID-19).

In the time since the pandemic began, stakeholders across the State have partnered on many fronts, including:

- Developed an interface between VT Public Health Laboratory (VPHL) and the VHIE that allows providers direct access to the Vermont Public Health Laboratory testing data through the VHIE provider portal, VITLAccess, and enabled electronic lab results delivery into EMRs.
- VITL developed real time delivery of COVID test results for the Department of Health.
- A COVID-response focused team of VDH staff were trained on and have gained access to patient records in the VHIE via the provider portal to gather data on patients that have tested positive for COVID-19. This data supports the epidemiology teams case investigations, which reduces the burden of manually collecting important information about patients from already-busy providers. It also supports analysis of the distribution, patterns, and determinants of health and disease conditions in defined populations. The VDH epidemiology teams have since been authorized to and begun using the provider portal to collect data for all reportable diseases, further minimizing the burden of manual data collection to providers.
- VITL is working to connect Emergency Medical Services teams (EMS) across the state to the VHIE provider portal so they may see patient records in real-time to support the provision of emergency care.
- The VHIE feeds data daily directly to VDH for use for hospitalization and utilization reporting. Data is fed to EMResource, a tool that hospitals are required to use to report emergency care information, and which is used to perform the required reporting to the US Department of Health and Human Services, thus automating required reporting and minimizing data collection burden on already-busy hospital staff.

- The VHIE captures data from the Broad Institute, the largest laboratory supporting COVID-19 testing in Vermont. Test results are available through the HIE system allowing VDH to monitor lab test results.

- The VHIE is connected to high volume immunizers like pharmacies to support VDH with the CDC's daily reporting requirements for COVID-19 vaccine administration.

- VITL works with VDH to identify and prioritize new locations performing testing and immunizations to build interfaces with them to ensure accurate, timely delivery of this critical data to VDH. As of the summer of 2021, VITL had created interfaces to collect data from over 155 new locations allowing data to flow directly to the Department of Health. Testing data is made available to providers in the provider portal.

- VITL provided data to VDH to assist with the coordination of vaccination scheduling for high-risk individuals.

- The Department of Health provides death records from the Death Registry to the VHIE to ensure providers have the latest information on each patient within the patient record.

- The VHIE to OneCare Vermont "gateway" has been providing lab results which support reporting, analysis, and care coordination for ACO participating providers. OneCare deployed a new self-service application to identify vulnerable members of the attributed population for care coordination outreach.

- Bi-State Primary Care (Bi-State) has been providing data to Federally Qualified Health Centers through Qlik software, enabling risk assessment and patient outreach. Bi-State's Event Impact Assessment application is being used to measure COVID-19 pandemic impact on health centers. VITL is working to provide Bi-State with access to VHIE data for the organizations it serves.

VITL continues to work with VDH to identify and connect labs as new testing locations are established. It is expected that the HIE will establish a direct connection to the sites, automating data access for health care providers and epidemiologists. VITL has also built the capability to take a flat file from labs who cannot send HL7 (standard clinical data sharing format) and translate data into HL7 messages for VDH to use to track lab data.

Looking Ahead: Public Health and the VHIE

> "States should also explore whether they have a health information exchange that can repurpose existing tools to quickly collect and share data. For example, health systems may be able to report information to a health information exchange, which can then aggregate the information to pass to the state health agency."
>
> *-National Governor's Association, A Roadmap to Recovery: A Public Health Guide for Governors (April 2020)*

Close to two years after the COVID-19 response effort began, the benefits of leveraging the VHIE to support public health management, daily and in emergency times, has never been clearer. The benefit of leveraging HIE for public health needs is illustrated in the strong nationwide push for greater data integration through the Centers for Disease Control and Prevention that promotes new targets for data system interoperability in the CDC Data Modernization Initiative.[7]

In 2022, the State will partner with VITL and the HIE Steering Committee to design a strategy for leveraging VHIE infrastructure to bolster public health management. A public health and VHIE integration strategy is essential to realizing the vision of a Unified Health Data Space and exemplifies AHS' commitment to ensuring that the State fully leverages its investment in HIE systems. The strategy will build on lessons learned from the COVID response and account for new federal requirements for state-level reporting, including those related to controlled substance prescribing. It is expected that, at a minimum, the integration strategy will address:

- Ongoing reporting on health disparities,
- Surveillance team access to and notification of specific health events,
- Leveraging VITL expertise to ensure quality of immunization records,
- Existing state policies and legislation as they work to support or prohibit conceived data sharing arrangements, and
- Automated sharing of VITAL health data (birth and death records) between the VDH and the VHIE.

Collaborative Services Project – Phase I & II, Next Steps

The Collaborative Services Project represents a significant step in Vermont's HIE Ecosystem – aligning strategies across data users and unifying investments in one central data aggregation system, Vermont's Health Information Exchange – in the name of improved results. In 2021, VITL completed Phases I and II of the Collaborative Services Project which means most of the technical development and implementation work is complete.

The following offers a description of each of the completed phases and a look at next steps.

Phase I of the Collaborative Services Project aimed to improve the VHIE's foundational services and components – Master Patient Index (MPI), Terminology Services, and the Rhapsody integration engine. In September 2020, VITL completed the final deployment of these systems, including internal operations documentation.

- Master Patient Index – supporting patient-centered care by developing one record per patient through enhanced record matching capabilities. *System*: Verato (with Rhapsody integration).

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[7] Centers for Disease Control and Prevention. (2020). *CDC Data Modernization Initiative: A Roadmap of Activities and Expected Outcomes.* https://www.cdc.gov/surveillance/pdfs/318212-A_DMI_LogicModel_July23b-508.pdf

Live: February 2020. *Preliminary Results*: Match rates for a reference population went from ~65% to over 95% after implementation.

- Terminology Services – automating the translation of health data into one standard "language" to enable communication across users and systems. *System*: Term Atlas (configured with support from Maine's HIE HealthInfoNet and their subsidiary Cureous Innovations) *Live*: April 2020. *Preliminary Results*: 9 data concepts are being translated to over 700 different standard codes, with over 600,000 pieces of data being mapped each month for future use.

- Integration Engine – a platform for routing data and opening data to external users, including individuals seeking to access their health data. *System*: Rhapsody. *Live*: April 7, 2020. *Preliminary Results*: System moved to a hosted model with disaster recovery capabilities and unlimited communication points for future growth.

Phase II of the Collaborative Services Project focused on the procurement and implementation of a new data repository. With the assistance of a procurement team made up of VHIE beneficiaries, VITL selected a data repository from MedicaSoft. This system is referred to as the "data platform". The selection of the system was carried out with the participation and support of a group of real VHIE data users that are expected to benefit from the updates to the VHIE system.

VITL's MedicaSoft Project Implementation Charter (Appendix C) describes Phase II as follows,

> *"Today, there are two major databases in use within the VHIE. The first is the clinical repository database supporting the Health Catalyst (HC) platform. The HC platform functions primarily to support clinicians at the point of care by providing electronic results delivery, a provider portal for viewing patient records, Direct Secure Messaging, and interfaces with provider Electronic Health Records (EHRs) which can transmit patient summary documents known as Continuity of Care (CCD) documents. The second database is known as the Health Data Management (HDM) database. The HDM database is used to provide data to organizations (such as OneCare Vermont) for data analysis and for VITL's use in the management of data quality and metrics.*
>
> *Outside the VHIE, there have recently been two additional significant databases populated by VHIE data. The first of these is the Blueprint for Health's Vermont Clinical Registry (VCR), which was shut down on 12/31/2019 with the goal of incorporating it with the VHIE. The VCR served as the primary repository to support the State's Blueprint program activities. The second is the VITL/OCV Datamart in use today to convey data to OneCare Vermont (OCV), Vermont's Accountable Care Organization (ACO), for use in managing the health of their patient population. The HDM is self-developed and hosted on-premise by VITL. The VCR was a vendor developed system and is no longer supported by the vendor. The HDM and VCR were very similar in their intended purpose.*
>
> *The Future Data Platform project sought to address the fragmented data structures through the selection and implementation of a vendor-supplied platform that will allow the HDM and VCR databases to consolidate and allow the potential consolidation of other repositories in the future.*
>
> *The new platform will allow for rapid capability improvements and future growth of data, eliminating the challenging and complex development and support currently required to advance*

> *the HDM platform, which was developed by VITL. It will also remove the maintenance and dependency for the VCR on the no longer supported legacy software.*
>
> *The project also seeks to expand the scope of available data…*" (Note: Phase III is focused on expanding data available through the VHIE)

The procurement team that supported the selection of the MedicaSoft Platform transitioned into the Collaborative Services Subcommittee. The Committee assessed implementation of Phase I and the selection of the technology for implementation of Phase II finding that the new technologies will offer value and meet user's needs (See Appendix H for assessment).

Collaborative Services: Next Steps

Now that the VHIE systems have been upgraded, VITL will move to managing new sources and types of data through the technologies established in Phases I and II. The HIE Steering Committee has articulated a need for VITL to begin expanding data in the VHIE with a focus on substance use, mental health, social determinants of health data, and claims records. In 2021, the VHIE began ingesting Medicaid claims and in late 2021 VITL will deliver AHS a report of linked clinical and claims data.

The new technical capabilities at the VHIE must be supported by the development of policies and procedures that underpin a governance model for data access, security, and consent to share health records. Data standards for social determinants of health, mental health, and substance use disorder are, in part, established through the FHIR (Fast Healthcare Interoperability Resources) exchange standard and other data standardization efforts such as the Gravity Project[8]. The technical standards will make system interoperability possible, but data governance and consent policies are required to enable data exchange.

As noted in the Financing section, Vermont is pursuing a funding model that allows public funds to target broad-reaching foundational components of HIE and consumer demand to drive development of fee-based services and tools. It is expected that because of Phases I and II of the Collaborative Services Project, VITL can offer new, value-added services to customers. This will likely mean deploying new tools and data to support analytics, alerts, care coordination, population health management, syndromic surveillance, care, and research, depending on demand. New data sharing arrangements will require new data governance arrangements. Both VITL and the HIE Steering Committee have a role in supporting a data governance model that appropriately reflects the requirements of data sharing and release.

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[8] Gravity Project, https://www.hl7.org/gravity/

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 now required to provide people with access to their electronic health information under this new ONC rule. VITL is currently offering patients access to data upon request and they plan to transmit patient records through APIs in 2022. 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.

Though HIEs are not directly required to comply with the Patient Access and Interoperability Final Rule (CMS' interoperability rule based on the ONC's new regulatory framework), VITL may be asked to support organizations in meeting these requirements for sharing data in new ways. 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 patients, and required by the rules. As of this writing, it is planned for the VHIE to make health records available to allow the Department of Vermont Health Access (Medicaid Department) to comply with rules for sharing requested patient records.

ONC's Cures Act Final Rule supports seamless and secure access, exchange, and use of electronic health information. 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 in their 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

Beginning in 2021, hospitals were required to transmit Electronic Event Notifications (e.g., notice of admittance or discharge from their facilities) to the providers treating their patients. Since the VHIE already contains this data in the electronic health records they aggregate, they can coordinate the notification services on behalf of hospitals, upon request. Many hospitals comply with this requirement directly through their Electronic Health Record Systems and others use a third-party notification system offered by VITL. It is up to the discretion of the hospitals to determine how they meet the requirements of CMS' interoperability rule.

Further clarification from CMS and ONC on and expansion of existing interoperability rules is expected, which may impact health care payers and providers not currently under the new rules. Clarity on VITL's role in aiding the broader health care system in complying with the interoperability rules will become more evident as time progresses and more guidance is distributed from the federal government.

HIE Technical Objectives and Tactical Plans

The HIE Steering Committee spent much of 2019 working with a contractor to develop a Technical Roadmap, outlining technical investment strategy for near and medium-term efforts. **Figure 5: HIE**

Technical Objectives & Tactics on the next page is a consolidated and updated look at the objectives set forth in the 2019 Technical Roadmap. The updates to this strategy have been made with consideration for all technical progress made as well as the requirements set by the new federal interoperability rules.

VHIE Goals

Goal #1: Create One Health Record for Every Person

Ensure access to complete and accurate health records to support optimal care delivery and coordination

Goal #2: Improve Health Care Operations

Enrich healthcare operations through data collection and analysis to support quality improvement and reporting

Goal #3: Use Data to Enable Investment and Policy Decisions

Bolster the health system to learn and improve based on accurate, comprehensive data; guide investment of time, labor, and capital; and inform policies and program development

IT Objectives	Tactics	Phase	Timing
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
	Support VHIE connection to national networks	Executing	Short Term
	Ensure that longitudinal health record is based on USCDI and FHIR standards, as detailed by Interoperability Rules	Executing	Short Term
	Expand use of interoperable electronic health records and other technologies across the full spectrum of care delivery	Executing	Medium Term
	Include Telehealth to drive consistency with USCDI & FHIR R4 APIs.	Exploring	Medium Term
	Optimize care delivery through evidence-based clinical decision support and precision medicine	Exploring	Long Term
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
	Leverage VHIE foundational IT infrastructure to support public health data management, bi-directionally as appropriate	Executing	Medium Term
	Leverage VHIE data to augment electronic case reporting	Exploring	Long Term
	Integrate VITAL records and VHIE health records	Exploring	Long Term
	Establish a bi-directional connection between the Immunization Registry and the VHIE	Executing	Medium Term
	Integrate VPMS (PDMP) and the VHIE to expand access to needed pharmacy data	Exploring	Long Term
	VHIE to provide mechanisms for public health stakeholders to use UMPI matching	Exploring	Long Term
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
	Connect care settings that create sensitive data with the VHIE e.g., Designated Agencies	Executing	Medium Term
	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
	Map sensitive data to standards	Planning	Medium Term
	Develop stakeholder-informed consent management process	Planning	Medium Term
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
	Connect SDoH data sources, like the Agency of Human Services, to the VHIE	Planning	Medium Term
	Create technical and operational processes for aggregating claims data; utilize the FHIR standards model to do so	Planning	Medium Term
	Ensure VHIE utilizes the Gravity FHIR resources for standardized SDoH data management and exchange	Exploring	Long Term
	Develop consent protocols for aggregating and exchanging SDoH data	Exploring	Medium Term
Objective #5: Automate Quality & Compliance Reporting Support 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
	Leverage interoperability standards to support and improve quality measurement, including efficient calculations.	Exploring	Medium Term
	Reliably calculate eCQMs in support of NCQA's HEDIS and CMS's OBC metrics	Planning	Short Term
	Automate required federal and health program reporting	Exploring	Medium Term
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
	Comply with the 21st Century Cures Act to open data access to patients via APIs	Initiating	Medium Term
	Deploy patient engagment tool(s) that unite data across source systems to illustrate a full health history	Exploring	Long Term
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
	Integrate health records into care and case management workflows	Executing	Short Term
	Provide data in real-time and/or through reporting to support risk management, program and performance management	Planning	Short Term
	Evaluate patient access to care with population health data	Exploring	Long Term

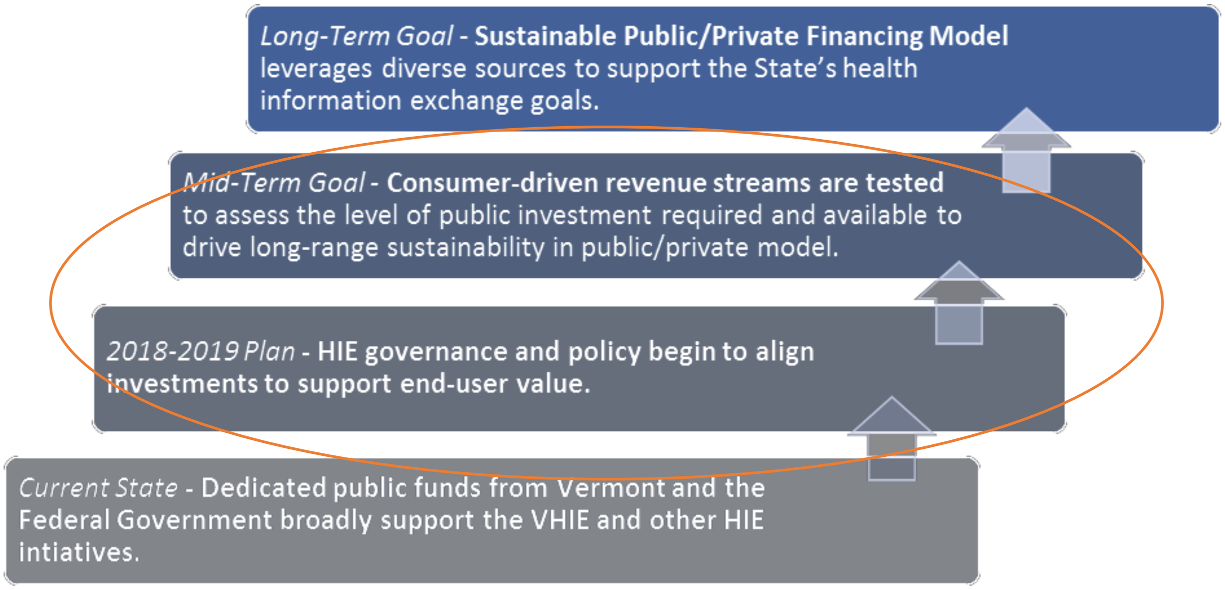
HIE Ecosystem: Financing

Predicated on the idea that HIE infrastructure is necessary to support health care delivery and operations, Vermont has made significant financial investments in the HIE ecosystem over the past decade with substantial support from the federal government. Since 2009, the State has expended an average of $3 million per year from the HIT Fund which has been matched, in many cases, by federal funds that often covered close to 90% of project costs.[9]

Management and continual renewal of the HIE infrastructure requires long-term, dedicated financing for services that support system users and a clear value proposition for those users to generate continued investment. As demonstrated by leading HIE systems around the nation, some level of public investment is needed. However, government does not have the ability to bear the entire financial burden of HIE in the long-term, necessitating an equitable public/private funding model that allows public funds to target broad-reaching foundational components of HIE and consumer demand to drive development of fee-based services and tools.

A sustainable financial model for HIE must draw support from the stakeholders who benefit from it as well as from the State, which recognizes the critical role it plays.[10] The HIE model on which this Plan is based initiates an evolution from the current state of close-to-full reliance on public funds to a sustainable public/private model whereby direct customers are provided valuable services.

Figure 6: HIE Financing Maturity Model below is a depiction of how the HIE Steering Committee envisions the HIE financial model evolving over time toward a sustainable state.



Long-Term Goal - **Sustainable Public/Private Financing Model** leverages diverse sources to support the State's health information exchange goals.

Mid-Term Goal - **Consumer-driven revenue streams are tested** to assess the level of public investment required and available to drive long-range sustainability in public/private model.

2018-2019 Plan - **HIE governance and policy begin to align investments to support end-user value.**

Current State - Dedicated public funds from Vermont and the Federal Government broadly support the VHIE and other HIE intiatives.

Figure 6: HIE Financing Maturity Model

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[9] State of Vermont Agency of Administration. (2019). *Health Information Technology Fund Annual Report per 32* VSA *§ 10301(g).* Retrieved from https://legislature.vermont.gov/reports-and-research.

[10] Health Tech Solutions. (2017). *Vermont Evaluation of Health Information Technology Activities: Final Report*. Retrieved from https://legislature.vermont.gov/reports-and-research

Building a Financing Model

The HIE Steering Committee is responsible for defining an HIE investment portfolio and monitoring statewide investments in service of achieving the goals laid out in this strategic plan. To do this, it must design an HIE network financing model, consistently evaluate the value of the financing model to ensure alignment with goals, and adjust the model in a judicious and timely manner.

The Committee will continually develop the financing model through the lens of the following questions:

- ☐ *Will the State continue to invest in HIE?*
- ☐ *If yes, what criteria will be used to evaluate the viability of current and future investments?*
- ☐ *Based on statewide needs, what is the total level of investment required in the future?*
- ☐ *Considering the nature of future investment, what is the appropriate balance of public and private funds?*
- ☐ *How will investments capitalize on foundational services and opportunities for reuse of existing technologies?*

There are aspects of the HIE landscape that make financing more challenging such as shifting state and federal policies. For instance,

- To leverage federal investments, states are required to provide state-sourced matching funding. The main source of this state funding in Vermont is the HIT-Fund, a tax on private health care claims. The claims tax requires legislative intervention to prevent it from sunsetting. The HIT Fund next sunsets in 2023.
- To date, most providers and stakeholders have not been asked to directly invest in health data exchange and may not have a clear picture of the full value proposition, beyond its relationship to financial outcomes through the Meaningful Use program. Public funds supported the development of the VHIE and offset costs to some providers adopting EHR systems and connecting to the VHIE. It is assumed that public investment is focused on Tiers I and II of the HIE IT Services Model (see page 18), leaving value-added services (Tier III) to VHIE customers.
- The "Meaningful Use" investment funds that offset the cost of Electronic Health Record (EHR) systems and aided in the development of the VHIE and public health data systems expired in September 2021. The Centers for Medicare and Medicaid Services (CMS) are continuing their commitment to HIE but changing the way in which they invest federal funds. CMS continues to develop and refine guidance on how federal investments may be used to maintain and accelerate health information exchange efforts.

As 2021 progressed, Vermont along with states across the nation, learned more about federal initiatives that may provide funding opportunities for health information exchange efforts post-HITECH. One of those initiatives is funding under the MES (Medicaid Enterprise Systems) funding stream, which requires HIEs to meet federal "certification" standards. At the time of this writing, the federal government is still working to determine an equitable way to continue to support state-level HIE endeavors in pursuit of nationwide health data interoperability, efficient Medicaid operations, and functional delivery system reforms.

Through September 2021, funding for the VHIE was largely sourced from federal HITECH funding, which was made available to the State based on its willingness to provide matching funds. In Vermont, matching funds come from the State's HIT Fund (a portion of a tax on commercial claims). Beginning October 1, 2021, federal funding will be available at a reduced amount under the Medicaid Enterprise Systems (MES) program. Funding is predicated on developing outcomes for HIEs and allocating the costs of projects between the costs of the project that benefit the Medicaid Population and the costs that benefit other populations. In August 2021, Vermont requested funding from CMS for health information exchange projects through the MES funding stream. The federal match rates for projects in this request are much lower than those received through the HITECH Act funding. The State anticipates that obtaining certification of the VHIE in late 2021/early 2022 through CMS' Outcomes-Based Certification will open the door to sustained funding for VHIE operations (75 federal /25 state match rates) and allow the state to request enhanced federal funding rates for HIE enhancement projects through the MES funding stream.

The CMS has offered an opportunity for states to continue to operate their own Medicaid Promoting Interoperability/EHR Incentive Program, likely to address the limits in program eligibility which excluded many providers and therefore left gaps in electronic health record-keeping across the continuum of care. The State is working with CMS on how to best to leverage the available opportunities to implement a Vermont Promoting Interoperability Program with considerations for local interoperability and program evaluation goals.

AHS is also embarking on a resubmission of the Global Commitment to Health Waiver which, if approved, will allow 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 has requested that CMS allow the State to 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 in support the HCBS sector.

Outcomes-Based Certification of the VHIE

CMS offers an Outcomes-Based Certification (OBC) process for Medicaid "modules" (e.g., care coordination tools or pharmacy benefit management systems) to ensure that "Medicaid Systems projects are focused on achieving outcomes to improve Medicaid programs." Through certification, states can retroactively and continuously receive operations funding for their Medicaid systems. The OBC process requires systems to meet stated time-based outcomes, which are measured by supporting metrics and data. CMS recently notified states that HIE systems are now eligible for certification through the OBC process. VHIE operations are currently largely funded by state dollars from the HIT Fund.

Since the OBC process is new for HIEs, CMS has asked that states develop and propose their own outcome measures. The HIE Steering Committee agrees that this is a fruitful exercise as (1) it will produce VHIE outcomes measures that can be used by the state and federal government to measure the efficacy of the HIE system and (2) enhanced funding for VHIE operations will free HIT Fund dollars for other efforts aimed at advancing health data exchange in Vermont.

The HIE Steering Committee established a short-term subcommittee to focus on the design of the outcomes for the OBC process. The State enveloped feedback from the subcommittee with evolving federal guidance to develop outcomes measures which were ultimately approved by CMS [see Appendix G], setting Vermont on a path to obtaining certification of the VHIE. The State and VITL have begun collecting data to demonstrate compliance with approved outcomes measures and are scheduled to provide a demonstration of system capabilities to CMS in November 2021. Once all requirements of certification are met, the State may request retroactive operations funding beginning when the system began functioning in its certified capacity (May 2021).

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 beginning in 2022 as part of the process of developing a public health and VHIE integration strategy.

Continued Promoting Interoperability/EHR Incentive Program

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)/Merit-based Incentive Payment System (MIPS) Quality Payment Program (QPP). Incentives for Medicaid providers meeting Meaningful Use 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 ends, CMS is offering 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 for states to design a continued Electronic Health Record Incentive Program.

The HIE Steering Committee agrees that an integrated delivery system needs investment equity across the board. Meaning, all stakeholders in the system need to be afforded the opportunity to use adequate technologies to collect and exchange needed health data. Connecting data systems to the VHIE ensures that health care experiences can be evaluated at an individual and population level.

In 2022, AHS, with assistance from the HIE Steering Committee, intends to begin the process of designing 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 purchasing models. The short-term focus of the program will be on those who provide Medicaid-funded long-term care, home, and 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.

Holding HIE Service Providers Accountable

The 2017 Health Information Technology Evaluation clearly articulated that public and private investments in HIE must be tied to defined outcomes and performance measures. The establishment of a unified HIE governing body (the HIE Steering Committee) that oversees the investment strategy coupled with well-crafted contracts between the State and HIE service providers, such as VITL, will go a long way toward addressing this need. We have seen this validated in 2018 - 2021.

In overseeing the implementation of the statewide HIE Plan, it is incumbent upon the HIE Steering Committee to ensure there are appropriate instruments to hold accountable service providers who receive HIE investment funds, with a focus on public funds. This is particularly true in the case of VITL as the state-designated entity for HIE services.

The HIE Steering Committee's goal is to focus the VHIE's work in support of statewide goals and enable the organization to demonstrate value to customers, garnering investment from private funding sources. The Steering Committee must continue to work to identify the appropriate balance of public and private funds to ensure that basic HIE needs are met statewide.

HIE Ecosystem: Governance

Developing a Viable Governance Model

Governance establishes the structure for effective leadership including the rules of engagement, decision making rights, and accountability, creating a trusted environment for sharing information. The Office of the National Coordinator (ONC)[11] defines HIE governance as, "The establishment and oversight of a common set of behaviors, policies, and standards that enable trusted electronic health information exchange among a set of participants."[12] The 2017 Evaluation of Health Information Technology in Vermont noted that the State lacked such a governance structure[13] and in response DVHA established a permanent governing body, the HIE Steering Committee, in 2017 to act as a single point of contact

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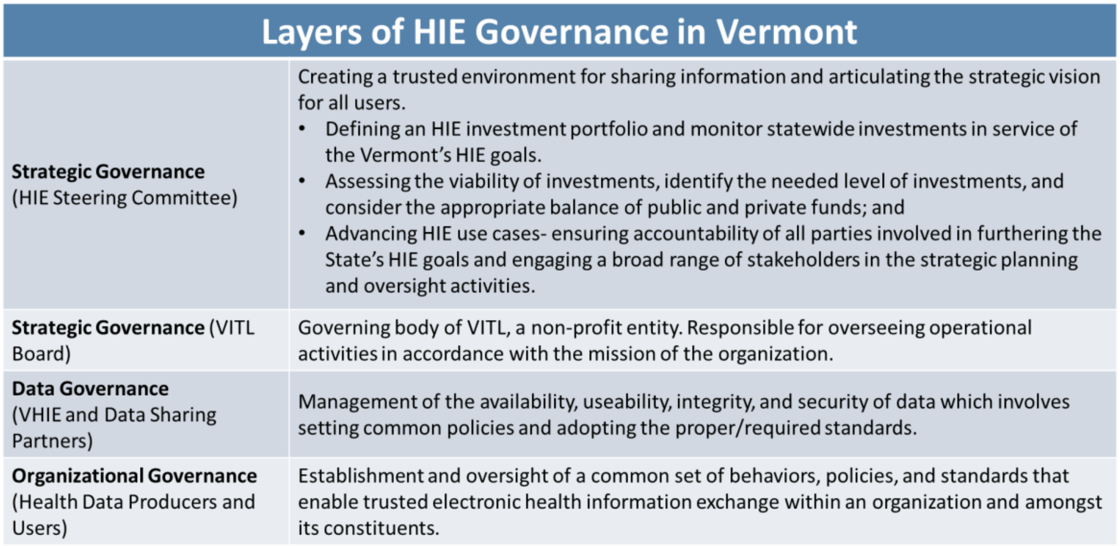
[11] The Office of the National Coordinator (ONC) is the principal federal entity charged with coordination of nationwide efforts to implement and use the most advanced health information technology and the electronic exchange of health information. The position of National Coordinator was created in 2004, through an Executive Order, and legislatively mandated in the Health Information Technology for Economic and Clinical Health Act (HITECH Act) of 2009.

[12] Daniel, J. G., The Office of the National Coordinator for Health Information Technology. (2014). *Health Information Exchange Governance.* Retrieved from https://www.healthit.gov/topics.

[13] Health Tech Solutions. (2017). *Vermont Evaluation of Health Information Technology Activities: Final Report*. Retrieved from https://legislature.vermont.gov/reports-and-research.

responsible for formally convening key HIE stakeholders to develop and oversee execution of an annual statewide HIE strategic plan.

In addition to the Steering Committee, which establishes the strategic direction and monitors progress, Vermont's HIE Governance landscape involves multiple checks and balances and oversight entities including DVHA (contract manager), the VITL Board (oversight of VHIE operations), and the GMCB (approval of VITL budget and the statewide HIE Strategic Plan[14]).



Layers of HIE Governance in Vermont	
Strategic Governance (HIE Steering Committee)	Creating a trusted environment for sharing information and articulating the strategic vision for all users. • Defining an HIE investment portfolio and monitor statewide investments in service of the Vermont's HIE goals. • Assessing the viability of investments, identify the needed level of investments, and consider the appropriate balance of public and private funds; and • Advancing HIE use cases- ensuring accountability of all parties involved in furthering the State's HIE goals and engaging a broad range of stakeholders in the strategic planning and oversight activities.
Strategic Governance (VITL Board)	Governing body of VITL, a non-profit entity. Responsible for overseeing operational activities in accordance with the mission of the organization.
Data Governance (VHIE and Data Sharing Partners)	Management of the availability, useability, integrity, and security of data which involves setting common policies and adopting the proper/required standards.
Organizational Governance (Health Data Producers and Users)	Establishment and oversight of a common set of behaviors, policies, and standards that enable trusted electronic health information exchange within an organization and amongst its constituents.

Data Governance and the HIE Steering Committee

In addition to the functions that constitute HIE governance in Vermont, (the HIE Steering Committee's strategic planning role, VITL's Board of Directors overseeing VHIE operations, DVHA as a contracting entity and manager of federal investments, and the GMCB in its oversight role) there is a need for "data governance" to occur at an enterprise and organizational level (see **Figure 7: Key Attributes of Data Governance** below). Data governance is the management of the availability, useability, integrity, and security of data.

Attribute	Description
Availability	The data must be available to the applications of all HIE users when needed
Accessibility	The agreement must ensure that the data is accessible, regardless of the application used
Interoperability	The data must be both semantically and syntactically interoperable across systems
Auditability	There must be a trail of the data from its source to its destination
Quality	The data must be accurate and complete
Security	The data must be kept secure

Figure 7: Key Attributes of Data Governance

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[14] 18 V.S.A. § 9375(b)(2)(A)

This HIE plan outlines a vision for health data exchange across multiple entities in service of many users. Critical to achieving that vision is a unified set of policies and procedures that allow for trusted, credible management of data that is exchanged across different settings. Managing data as a valuable asset requires strong data governance, which involves setting common policies, and adopting and enforcing the proper standards, in alignment with national standards when available and applicable, that affect the whole network.[15] In Vermont, there is a partnership between the HIE Steering Committee and VITL, the operator of the State's HIE, in developing policies and processes that enable the secure exchange of health data. However, VITL does not own health data, rather it acts as a custodian of health data that originates from various sources, which is why a comprehensive, and well understood, data governance effort is so important. The newly released final rules of the 21st Century Cures Act create a system that forces health data system owners to share health records with individuals, to a certain extent, espousing the assumption that people are the owners of their own health information.

A credible data governance program includes a governing committee, a defined set of policies, and a plan to enforce and execute those policies. Each user of an HIE may have a different organization structure or a varied technical architecture, but they are all dependent upon seamless quality data exchange for their success. As the state looks to expand the data available on the VHIE, effective data governance has become ever more necessary. In 2022, the HIE Steering Committee will guide the development of data governance efforts related to the aggregation and exchange of claims, social determinants of health and behavioral health data. Current data governance activities are managed by VITL, articulated in the protocols of this HIE Plan, and administered at an organizational level as directed by federal and state policy. As new data sources and new data types are introduced to the VHIE, data governance policies must be informed by both law and the ethical framework defined by impacted data sources and users.

The following section offers a look at subcommittees who provide technical expertise to the Steering Committee on select topics. To ensure efficiency in health data exchange, it will be the responsibility of the HIE Steering Committee to align data governance strategies across the subcommittee's work.

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 the Vermont'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; and
3. Advance HIE use cases, ensure accountability of all parties involved in furthering the State's HIE goals, and engage a broad range of stakeholders in the strategic planning and oversight activities.

The Steering Committee's goals, commitments, and membership are included in its Charter in Appendix B. For 2021, the Steering Committee has agreed that adding representatives from long-term care and home health organizations to its membership would add value to the Committee's work.

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[15] EHealth Initiative, Central Indiana Beacon Community, Indiana Health Information Exchange. ***SPECIAL REPORT*** *Building Elective Data Governance Models, Policies and Agreements in a HITECH World**,** 2012.*

While the Steering Committee continues to hold the strategic vision for HIE in Vermont and is responsible for updating and monitoring progress on the HIE Strategic Plan, sub-committees or workgroups provide subject matter expertise, operational support, and bring specific recommendations to the larger body. The subcommittees convened in 2021 are described below.

2021 Subcommittees of the HIE Steering Committee

Collaborative Services Subcommittee

The Collaborative Services Subcommittee was formed to (1) provide strategic insight to VITL as they progress on the Collaborative Services Project and (2) provide a project assessment and recommendation to the Steering Committee to enable their evaluation of this strategic effort to solidify the foundation of the VHIE to benefit its many users. VITL leads this Subcommittee, and they drafted a *Project Governance Plan* to define how the subcommittee would be managed which is included in Appendix C.

As of September 2021, the Collaborative Services Subcommittee concluded that Phase I of the project offers real value and met its objectives and the data platform selected in Phase II will meet the data needs of members of the subcommittee. The subcommittee's assessment is available in Appendix H.

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.

Over the past two years, 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 DA 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. 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, and 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.

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

Interface Prioritization Subcommittee

Establishment of the Interface Prioritization Subcommittee was an effort to engage the HIE Steering Committee in setting VHIE Connectivity priorities for each annual period. For 2021, the HIE steering committee requested an annual review of the prioritization criteria to accommodate the three new data types (Mental Health/Behavioral Health, Claims, and SDoH) and the inclusion of Fast Healthcare Interoperability Resources (FHIR) capabilities. Bi-State, OneCare, the Vermont Department of Health and Blueprint representatives joined VITL to enhance the criteria. The group also incorporated FHIR capability of the EHR into the scoring rubric. For the Claims data type, the Subcommittee determined that claims connections merit a unique scoring and prioritization system. Mental Health and Behavioral Health data will be scored and prioritized with "physical health" data. The Subcommittee deferred any updates with regards to Social Determinates of Health data until next year.

The Interface Prioritization Matrix is available in Appendix F.

Claims Subcommittee

For many years, health care stakeholders have requested the ability to link clinical and claims data as aggregating demographic, clinical, and claims data is foundational to evaluate population health statistics and emerging value-based programs. The All-Payer ACO Model Implementation Improvement Plan noted, "Consistent with the Health Information Exchange Strategic Plan, the AHS, VITL, the State HIE Steering Committee and the GMCB need to accelerate progress in making integrated claims and clinical health data available to providers."

The Claims Subcommittee came together to articulate specific use cases for an integrated clinical and claims data set in service of DVHA's payment reform efforts, Medicaid and BlueCross BlueShield operations, OneCare Vermont's implementation of the All-Payer Model, the Blueprint for Health Program and field services, Bi-State for Health's FQHC data analytics services, and the Green Mountain Care Board's evaluation and reporting obligations. Representatives from various organizations collectively developed close to 20 use cases, or detailed descriptions of how and why data is needed to meet their specific needs. While VITL staff worked to implement their new data platform which can link claims and clinical data, they participated in the Subcommittee because the use case process (defining user needs first) is expected to inform priorities for the technical design effort. The Claims Subcommittee focused on uses of linked clinical and claims data to aid in plan and performance management and program evaluation. They agreed that there is more work to do to uncover if there is a use for claims data to support direct care delivery (e.g., pharmaceutical reconciliation) and how VHIE services may meet those needs.

Part II+ Group

The group continued their work to gather stakeholder input on the development of universal policies and procedures for sharing data governed by 42 CFR Part 2 (substance use disorder data), and other sensitive data types.

2022 Subcommittees

In 2022, the HIE Steering Committee intends to continue and/or convene the following subcommittees.

The ***Connectivity Subcommittee*** will combine the work of the Interface Prioritization Subcommittee, to prioritize connections to the VHIE, annually, and the Connectivity Criteria Subcommittee, who sets standards to ensure quality of data exchanged through the VHIE.

The ***Population Health Subcommittee*** ***(New)*** will focus on developing a stakeholder informed data governance model for the aggregation and exchange of SDoH data on the VHIE and prioritize SDoH data exchange initiatives. The Subcommittee will discuss data sources, data standards, data access, and needed policies and procedures such as SDoH Connectivity Criteria, consent policies, and data sharing agreements to facilitate aggregation and exchange of SDoH data through the VHIE. The subcommittee must contend with the fact that some SDoH data elements may fall under greater or different legal protections than existing health data elements on the VHIE while others may not have legal protections at all. The subcommittee will need to work with focus as they identify means for treating SDoH data with a minimum of the same protections as data on the VHIE is treated today – informed consent, as people have a right to understand how and with whom their data is shared and a right to keep their records confidential if they so choose.

The Subcommittee will work to advance work done through the Center for Health Care Strategies grant agreement between DVHA and OneCare Vermont which fostered the exchange of SDoH data from AHS to OneCare using VHIE technologies. They will also build upon AHS' efforts to define all SDoH data elements housed within the Agency for aggregation on the VHIE. The subcommittee will chart a path forward for governing SDoH data in the VHIE system to allow those providing or measuring health care to have information representing both care provided and influences on people's health and well-being. The Population Health Subcommittee will complement other subcommittee's work to prioritize annual system connections to the VHIE.

The ***Part II+ Group*** will continue their work to develop universal policies and procedures for sharing data governed by 42 CFR Part 2 (substance use disorder data), and other sensitive data types. The State continues to wait for updated federal guidance on the exchange of substance use disorder data which may significantly impact how this data can be shared. It is expected that they will continue to gather stakeholder input and propose to the HIE Steering Committee an update to Vermont's policy for sharing VHIE data to reflect the consent process for exchanging Part 2 and other clinically sensitive data through the VHIE.

The ***Claims Subcommittee*** will continue to meet to guide implementation of efforts to aggregate and utilize claims data on the VHIE. The Subcommittee will offer VITL an opportunity to gain stakeholder feedback on services that may meet the most urgent needs for data to enhance care quality, bolster care coordination, and improve performance of payer operations.

A ***Medicaid Data Aggregation & Access Program Subcommittee*** ***(New)*** will aid the State in designing a program to onboard Medicaid providers to digital health record systems or care coordination or referral tools, which will ultimately be connected to the VHIE. The program will be based on the current Medicaid EHR Incentive Program (Promoting Interoperability Program), but Vermont now has the opportunity to design program requirements to best support the needs of the health care system, and Medicaid operations specifically. The initial focus of the program will be on long-term care, home, and community based, substance use disorder, and mental health services, as those areas best align with the focus of Medicaid health reform efforts. The first step in designing the 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.

Considering the Pillars of the HIE Ecosystem to Enable the Collaborative Services Project

The Collaborative Services Project is an illustrative example of why considering and progressing all facets of the HIE Ecosystem (policy, governance, financing) is essential to realizing the promise of new technologies. Conceived in 2019, the Collaborative Services Project is an effort to solidify the foundational technologies underpinning the VHIE to ensure that it can serve the needs of its many users. This project reduced the number of HIE investments the State had planned, as bolstering the VHIE capabilities alleviates the need for other health system stakeholders to build similar technical solutions to serve their individual needs.

In 2020, the HIE Steering Committee agreed that leveraging the Collaborative Services Project technical advancements to aggregate new data types through the VHIE could be advantageous at both the care setting and when data is used for analysis. Adding new data to the VHIE will support users with more information about people's physical, mental, and behavioral health, as well as influences on people's health such as housing and food security. Historically, the VHIE has focused on extracting and aggregating "physical health" data from traditional clinical settings.

Figure 8: HIE Ecosystem: Physical Health Data[16] illustrates how each of the HIE Ecosystem pillars are addressed to facilitate exchange of physical health data through the VHIE. Without adequate policies, funding for technical and operational work, and the support of real governing bodies, data exchange is not possible. Policies like the *Protocols for Access to Protected Health Information on VHIE* in Appendix A ensure that Vermonter's preferences are represented, and that providers can gain appropriate access to patient records through the VHIE. Through a contract with DVHA, VITL is provided financial resources to develop interface connections between electronic health record systems and the VHIE, collecting data from the point of care for exchange with other treating providers. The HIE Steering Committee and its subcommittees aid VITL and the State in prioritizing data collection projects to align with the statewide strategy and annual objectives.

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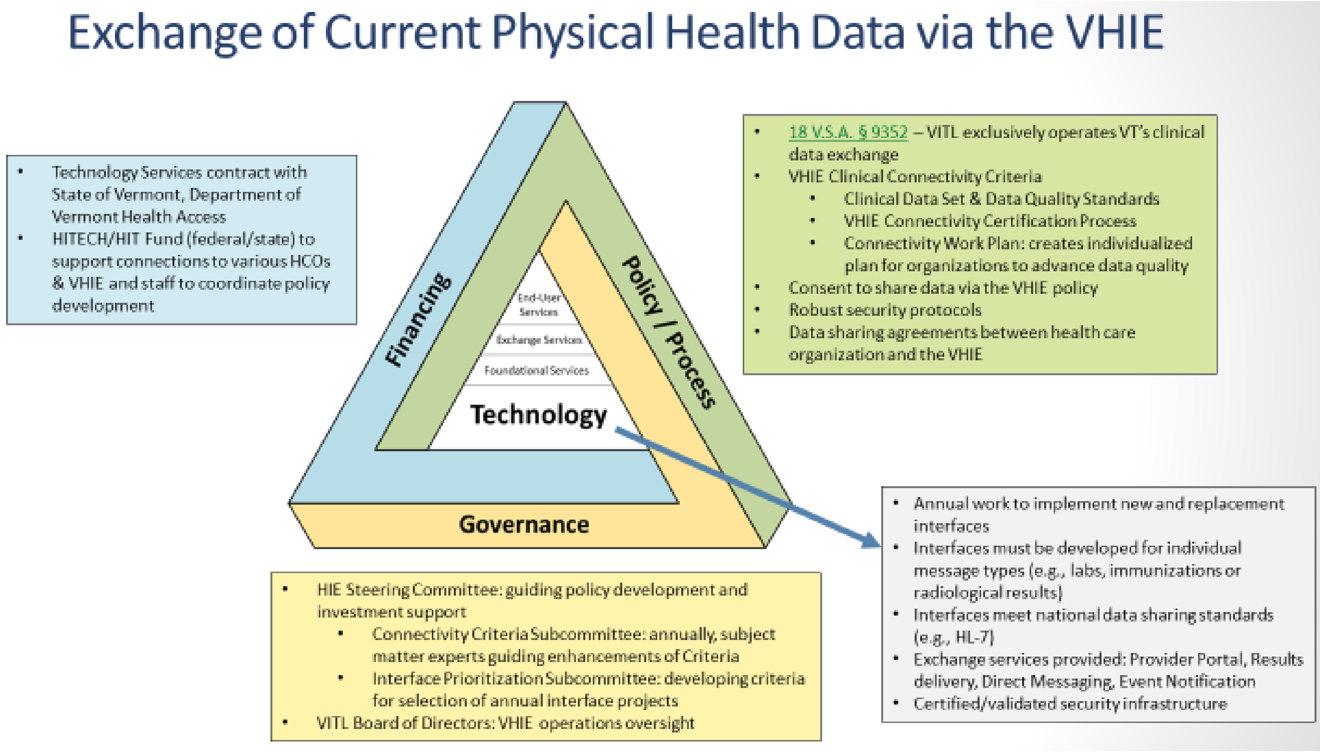
[16] "Physical Health" data refers to the data sourced from electronic health records that is currently exchangeable through the VHIE. It is important to note that the health records may contain reference to substance use disorder or mental health treatment if contained in health records attributed to primary care or hospital care settings.



Exchange of Current Physical Health Data via the VHIE

- Technology Services contract with State of Vermont, Department of Vermont Health Access
- HITECH/HIT Fund (federal/state) to support connections to various HCOs & VHIE and staff to coordinate policy development

- 18 V.S.A. § 9352 – VITL exclusively operates VT's clinical data exchange
- VHIE Clinical Connectivity Criteria
  - Clinical Data Set & Data Quality Standards
  - VHIE Connectivity Certification Process
  - Connectivity Work Plan: creates individualized plan for organizations to advance data quality
- Consent to share data via the VHIE policy
- Robust security protocols
- Data sharing agreements between health care organization and the VHIE

- Annual work to implement new and replacement interfaces
- Interfaces must be developed for individual message types (e.g., labs, immunizations or radiological results)
- Interfaces meet national data sharing standards (e.g., HL-7)
- Exchange services provided: Provider Portal, Results delivery, Direct Messaging, Event Notification
- Certified/validated security infrastructure

- HIE Steering Committee: guiding policy development and investment support
  - Connectivity Criteria Subcommittee: annually, subject matter experts guiding enhancements of Criteria
  - Interface Prioritization Subcommittee: developing criteria for selection of annual interface projects
- VITL Board of Directors: VHIE operations oversight

Figure 8: HIE Ecosystem: Physical Health Data

Getting physical health data "right" is the Steering Committee's priority. However, considering the advancements made through the Collaborative Services Project, the VHIE now has the technical capacity to manage additional data types beyond physical health. Therefore, the Committee directed efforts toward gathering use cases, evaluating feasibility, establishing policies and processes, and ultimately, onboarding other key data including:

- Substance use disorder, mental health, and behavioral health data (SUD/MH/BH),
- Social Determinants of Health (SDoH) data, and
- Claims data

Figure 9: New VHIE Data Types Planning offers a roadmap of when the Steering Committee, or its directed subcommittees or partners, may address the policy, governance, technology, and financing aspects of introducing new sources of data and new data types onto the VHIE.

As noted, integrating new data on the VHIE is not solely a technical endeavor – the policies and processes that govern how this data is sourced, accessed, and managed are essential to respecting people's privacy and supporting effective care coordination. Due to the nature of this effort, stakeholders will be involved in the development of data management processes and policies and opportunities for public input will be made available. In 2021, there were projects involving the exchange of SDoH data and SUD/MH data, allowing existing efforts to act as the pilot for onboarding these new data types to the VHIE. Additionally, the Steering Committee launched a pilot with Medicaid claims data to assess the integration of clinical and claims data using the VHIE data platform.

Socials Determinants of Health VHIE Pilot

OneCare Vermont (OCV) received a grant from the Center for Health Care Strategies to develop a data- and systems-driven collaboration with Vermont's AHS and DVHA to integrate social complexity data (social determinants of health – SDoH) into OCV's complex care coordination program. Incorporating social determinants of health data into their risk stratification method to use additional factors to understand people's health risk. Ultimately, they are striving to use social complexity data as deliberately as medical complexity data when considering an individual's overall need for coordinated care.

In 2020, OCV began receiving social complexity data from DVHA's Vermont Chronic Care Initiative (VCCI), a care coordination program focused on connecting Medicaid patients to care and coordinating care for those at highest risk. It was determined that the VHIE can act as a data steward for this effort as there is an existing data connection which delivers health records on the VHIE to VCCI's electronic health management system (eQHealth). The VHIE also has a "gateway" delivering VHIE data to OCV. In 2021, those connections were leveraged to automate data delivery from VCCI to the VHIE and in turn provide Medicaid data directly to OCV. The VHIE's new Master Patient Index was used to identify and match patient records across systems. This work required AHS and OCV to execute a Data Use Agreement (DUA) to govern use of data. The existing agreement between DVHA and VITL was sufficient for VITL to perform data aggregation, enrichment, to protect this data, as well as updating consent language.

The Steering Committee intends to leverage the Population Health Subcommittee to determine next steps as AHS defines its SDoH data elements and plans for SDoH data aggregation on the VHIE.

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 group will assess changes to be made both to the statewide policy for consent to share data through the VHIE as well as VITL's internal policies. The new policies will consider the updates to federal regulations for SUD data sharing included in the US CARES Act, which is expected to change 42 CFR Part 2 to align requirements for Part 2 data sharing more closely with HIPAA and reduce consent management burdens on providers. Following the release of directive guidance on changes to federal SUD data sharing regulations, policies to regulated sharing of clinically sensitive data via the VHIE will be proposed to the Steering Committee and included in subsequent versions of this plan.

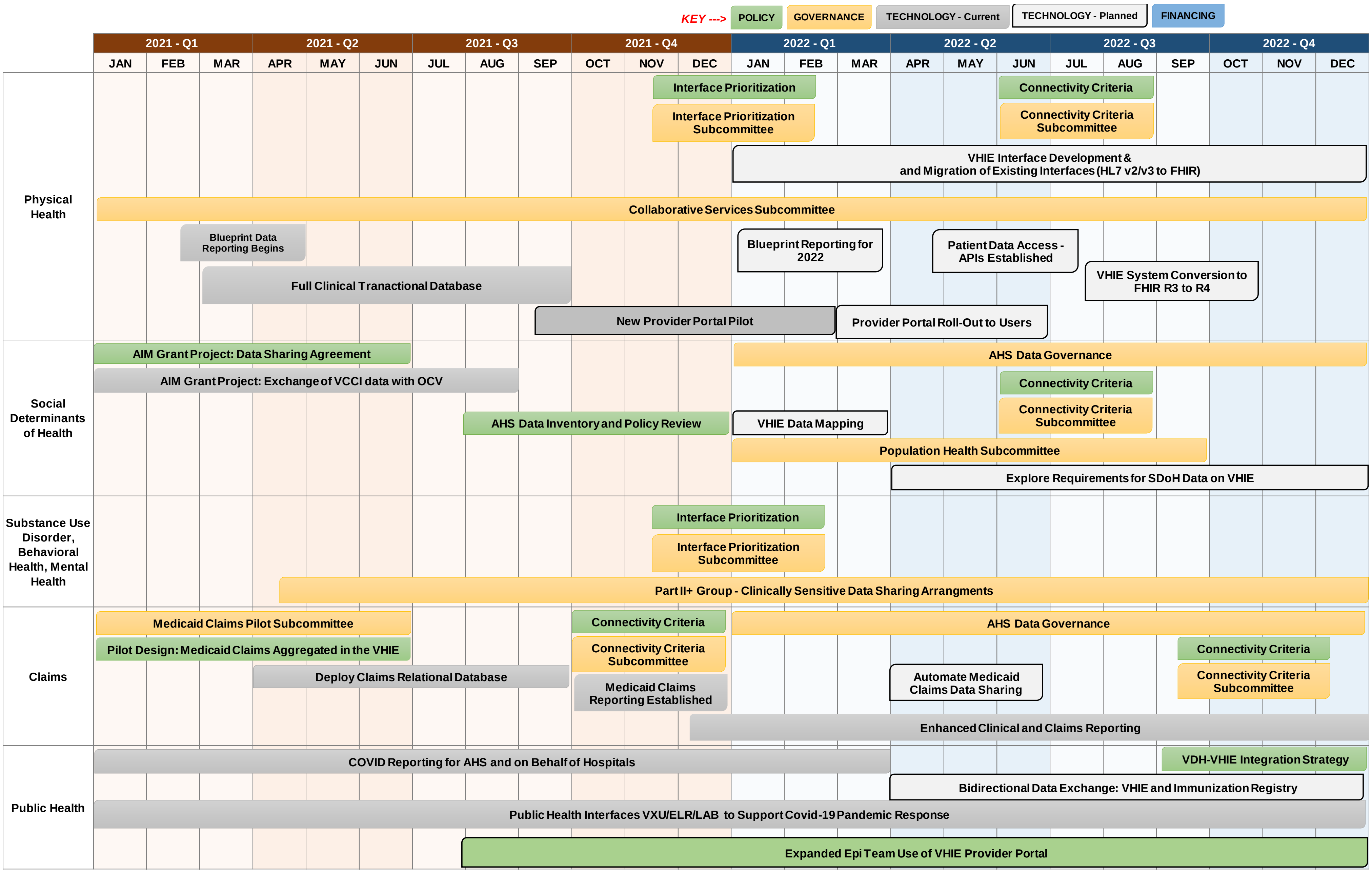


Figure 9: New VHIE Data Types Planning

Future HIE Planning

The HIE Steering Committee recognizes that technology is always changing. Whether it is an announcement that Silicon Valley firms are taking on the challenge of HIE, the EHR companies are collaborating on a national exchange network, or the federal government is taking a new look at drivers of interoperability, the only constant is change. The HIE Steering Committee's most crucial role going forward will be to develop a consistently reliable governance and financing model that can adapt to, and thrive in, a constantly evolving landscape. HIE investments should be assessed considering stakeholder needs, where the value provided by the network begins, where network services support value provided by end user applications, and the current state of maturity.

Each year, the HIE Plan is updated by AHS in partnership with the HIE Steering Committee. State law (18 V.S.A. § 9351) states that, *The Plan shall be revised annually and updated comprehensively every five years to provide a strategic vision for clinical health information technology*. Next year, 2022, will be five years since this Plan was adopted, and therefore a time to update Vermont's strategic vision for health information as a crucial tool for integrated care and conducting effective population health management.

In service of compressively updating Vermont's HIE Plan, in 2022 the AHS and the HIE Steering Committee will:

- Validate that the goals and objectives for health information exchange in Vermont described in this Plan continue to represent the needs and interests of health system stakeholders.
- Further develop the vision for sustained public investment in health data exchange infrastructure and opportunities for private investment with the objective of transparently communicating and vetting shifts in the HIE funding structure well before changes are planned to occur.
- Review the HIE Steering Committee membership and governance structure to ensure that (1) essential roles are filled and (2) the structure and organization emboldens progress.
- Contemplate how HIE governance in Vermont functions and may be improved, including but not limited to, aligning the HIE Steering Committee and governance sub-committee with existing groups like the Green Mountain Care Board's Data Governance Council.
- Develop a data strategy to provide a consistently updated description of how and why data elements are aggregated and shared through the central data repository, the Health Information Exchange. This HIE Plan provides a strategic vision for health data exchange while the data strategy, an accompanying reference, will detail the mechanisms by which data is shared and protected and how and why data systems are connected to the Unified Health Data Space.

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

Protocols for Access to Protected Health Information on VHIE

Approved by the Green Mountain Care Board and effective as of December 2, 2020.

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 patients. 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 in the 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 health information 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 protocols that 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 Patient's decision to permit access to the Patient'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 Patient to establish his or her Consent. A Patient shall be considered to have given his or her Consent until and unless the Patient affirmatively Opts-Out.

"De-identified" means that all identifying information related to a Patient 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.

"Medical Emergency" means a condition that poses an immediate threat to the health of any Patient 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 Patient in serious jeopardy or (2) serious impairment to bodily functions or (3) serious dysfunction of any bodily organ or part.

"Opt-Out" means a Patient's affirmative election to withhold Consent.

"Participating Health Care Organization" means a Health Care Organization, including a physician practice and any health care organization, that has contracted with VITL to participate in the viewing or exchange of health information on 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.

"Patient" means an individual whose personal demographic information or Protected Health Information is stored or transferred by the VHIE. The term "Patient" includes a personal representative who has the authority to authorize the disclosure of a Patient'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 Patient.

"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 Patient’s withdrawal of a previous election to Opt-Out.

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

Section 3 – Provider Access

A. General. Each Patient's electronic Protected Health Information that is contained in the Vermont Health Information Exchange shall be accessible to Participating Health Care Organizations, and public and private payers to the extent permitted under law unless the Patient has affirmatively elected not to have the Patient's electronic Protected Health Information shared in that manner.

Patients shall be free to Opt-Out at any time, which election shall remain in effect unless and until the Patient Revokes such election.

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

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.

B. Patient Education. VITL and the Department of Vermont Health Access shall develop, maintain and administer a program of Patient education that enables Patients 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 Patient 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.

Patient 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; and

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

C. Provider Responsibilities. Participating Health Care Organizations shall (1) enter into a Business Associate Agreement ("BAA"), including, if applicable, a Qualified Service Organization Agreement ("QSOA"), with VITL, (2) cooperate in good faith to execute all provider responsibilities under any processes established by VITL to collect and record Patient elections to Opt-Out, and (3) have policies and procedures in place to ensure that only those individuals involved in Treatment, Payment or Health Care Operations may access a Patient's PHI on the VHIE.

D. VITL Responsibilities. In addition to the obligations provided elsewhere in this addendum, VITL, as the operator of the VHIE, shall (1) establish one or more user-friendly mechanisms through which Patients may Opt-Out, (2) maintain updated Consent-status records of all Patients who have Opted-Out, and (3) for Patients who have Opted-Out, ensure no access through the VHIE except in the event of Medical Emergencies.

E. Patient Access to PHI. All patients shall be provided the right of access to his or her PHI contained in the VHIE through his or her Participating Health Care Organization to the extent permitted under applicable HIPAA rules.

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

G. Patient Request for Audit Report. A Patient may request and receive an audit report of access to his or her PHI on the VHIE, including access by Public Health Authorities, as detailed in Section 5, 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.

H. 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. It is the obligation of VITL to update records of the Patient's Consent status for the VHIE. A Revocation shall remain effective until and unless the Patient subsequently Opts Out anew.

Section 4 – Substance Abuse Treatment Information

The regulations set forth in 42 C.F.R. Part 2, governing substance abuse treatment records, require additional protections before PHI from such records may be available to be shared between providers on the VHIE. DVHA intends to supplement this addendum to accommodate PHI from substance abuse treatment programs upon the completion of necessary due diligence and a final plan for the implementation of a 42 CFR Part 2-compliant VHIE and consent architecture that will enable the legal and appropriate exchange of PHI from substance abuse treatment programs.

Section 5 – Public Health Access

A. General. Section 5 has been proposed and approved in accordance with 18 V.S.A. § 9351(c), reflecting the newly emerging need for access to VHIE data by Public Health Authorities. Each Patient's PHI that is contained in the VHIE shall be accessible to a Public Health Authority as provided for in this policy and to the extent permitted 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).

B. **Access by Public Health Authorities.** Public Health Authorities shall access PHI on the VHIE only for the following public health activities and purposes, as permitted under state and federal law:

(i) preventing or controlling disease, injury, or disability to the extent permitted under subsection D; and

(ii) Reporting to a Public Health Authority by Participating Health Care Organizations and participating payers when such reporting is required by law.

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 laws governing disclosure. Any de-identified patient information may only be disclosed for research, quality review, population health management and public health purposes or as required by law. No commercial use or sale of de-identified patient information is permitted.

C. **VITL Responsibilities**. VITL shall ensure the ability to audit access to patient records by Public Health Authorities to facilitate compliance by Participating Health Care Organizations and participating payers with Accounting of Disclosure regulations under HIPAA.

D. **Access to PHI on the VHIE in response to a Significant Public Health Risk**. Except for reporting required by law, a Public Health Authority may only access the Patient's PHI through the VHIE upon a determination by the Commissioner of Health that such access is necessary for the mitigation of a Significant Public Health Risk.

E. **Patient Request for Audit Report**. A Patient may request and receive an audit report from VITL of access by Public Health Authorities to his or her PHI on the VHIE by contacting VITL's Privacy Officer as described in Section 3.

Appendix B: HIE Steering Committee Charter

VERMONT
AGENCY OF HUMAN SERVICES

Health Information Exchange Steering Committee Charter

Table of Contents

HIE Defined

Health Information Exchange (HIE) is used as both a verb and a noun.

Health information exchange (HIE) verb – The action of sharing health information across facilities, organizations, and government agencies 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 the Vermont Information Technology Leaders (VITL).

HIE is widely thought to have the potential to allow health care providers, payers, and policymakers to measure and understand the impact and efficacy of clinical choices and health care reform efforts. At its core, the purpose of HIE, or making health data available for exchange across treating providers, analysis, and measurement, is to support the Quadruple Aim: improving the health of populations, enhancing the experience of care for individuals, reducing the per capita cost of health care, and improving the work life of health care providers, including clinicians and staff.

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. DVHA's HIE Unit will act as the Steering Committee's administrative and operational support.

Name	Role	Population or Organization Represented
Ena Backus	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
Vacant	Voting Member	Representative of people who engage with the health care system
Josiah Mueller *OneCare Vermont*	Voting Member	Accountable Care Organization Representative
Vacant	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
Kathryn O'Neill	Non-Voting Member	The Green Mountain Care Board
Kristin McClure	Non-Voting Member	The Agency of Digital Services
Beth Anderson	Non-Voting Member	VITL, Vermont's Health Information Exchange Operator

Emily Richards	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: MedicaSoft Implementation Project – Project Governance Plan

Vermont Information Technology Leaders (VITL) – May 2020

Introduction

October 2019 marked the start of an exciting journey to establish a new, robust clinical data repository to provide Vermont health care data for reporting and analytic activities, with the objective of supporting the improvement of health care quality and efficiency of the health care system. The initial phase of the project, then referred to as the “Future Data Platform”, was initiated by the Department of Vermont Health Access (DVHA) and executed by VITL to select a vendor platform for the repository, with participation and support of an important group of stakeholders that represented potential users and beneficiaries of the new system. The initial steps consisted of a comprehensive effort to review the technology marketplace to identify a vendor partner that could fulfill the requirements identified for the platform by DVHA, VITL, and the project stakeholders. The plan is for VITL to operate and manage the system as part of the scope of the Vermont Health Information Exchange (VHIE) in its role as contractor to the State of Vermont.

Today, there are two major databases in use within the VHIE. The first is the clinical repository database supporting the Health Catalyst Interoperability (HCI) platform. The HCI platform functions primarily to support clinicians at the point of care by providing electronic results delivery, a provider portal for viewing patient records, Direct Secure Messaging, and interfaces to provider Electronic Health Records (EHRs) which can transmit patient summary documents known as Continuity of Care (CCD) documents. The second database is known as the Health Data Management (HDM) database. The HDM database is used to provide data to organizations (such as OneCare Vermont) for data analysis and for VITL’s use in the management of data quality and metrics.

Outside the VHIE, there have recently been two additional significant databases populated by VHIE data. The first of these is the Vermont Clinical Registry (VCR), which was terminated on 12/31/2019 with the goal of incorporating it with the VHIE. The VCR served as the primary repository to support the State’s Blueprint program activities. The second is the VITL/OCV Datamart, still in operation, used to convey data to One Care Vermont (OCV), Vermont’s Accountable Care Organization (ACO), for use in population health management. The HDM is self-developed and hosted on-premise by VITL. The VCR was a vendor developed system, but no longer supported by the vendor. The HDM and VCR were very similar in their intended purpose.

The overall Future Data Platform project seeks to address the fragmented data structures to date (the HDM and VCR) through selection and implementation of a vendor-supplied Future Data Platform that will allow the described databases to consolidate and allow the potential for consolidation of other data repositories in the future.

Using a vendor-supplied system to replace the HDM will streamline support and allow for rapid capability improvement and future growth of data, eliminating the challenging and complex development currently required to advance the HDM platform, and remove the maintenance and dependency for the VCR on the legacy software, which as stated is no longer vendor supported.

Furthermore, the project seeks to expand the scope of the current available data. Limitations in today's systems prevent the inclusion of health care data with needs for specific patient consent to share, such as 42 CFR Part 2 (substance use disorder) data, and mental health data. There is also a desire to include additional data such as health care claims, which would expand the power of the platform.

With the decommissioning of the VCR, it became critical to have the new platform up and running by January 2021, to meet the needs of the Blueprint program.

Efforts to Date

The expertise of the stakeholder team for the selection effort was critical in ensuring that requirements and needs for the new platform were fully understood and that the best possible vendor choice was identified. The group that participated was as follows:

Future Data Platform Selection Team	
Organization	**Member Name**
ADS	Bechir Bensaid
ADS	Richard Terricciano
ADS	Mahesh Thopasridiran
Bi-State Primary Care Association	Lauri Scharf
DVHA/Blueprint	Tim Tremblay
Green Mountain Care Board	Sarah Lindberg
Green Mountain Care Board	Jessica Medizabal
OneCare Vermont	Tyler Gauthier
OneCare Vermont	Katelyn Muir
Vermont Care Partners	Ken Gingras
Agency of Human Services/Vermont Department of Health	Darin Prail
VITL	Gayle Goodwin
VITL	Frank Harris
VITL	Christopher Shenk
VITL	Carolyn Stone

The Selection Team collaborated to charter the project and document requirements in detail. They reviewed the potential vendor partners available in the marketplace in a comprehensive process and made a unanimous recommendation that MedicaSoft be chosen as the partner to provide the new system. VITL and DVHA leadership met to discuss the recommendation of the Selection Team and it was accepted by DVHA and VITL Leadership on February 27, 2020. VITL conducted contract negotiations and the initiative was approved by the VITL Board on March 24th. VITL executed the contract for the new system with MedicaSoft on April 22, 2020.

Project Implementation

Now it is time to move forward to implement the system. As before, the expertise and guidance of stakeholders will be critical to a successful outcome.

This document describes VITL's proposal for strategy and structure to ensure proper guidance and oversight of the project.

Project Organization and Participants

Proposed organizational structure for the project is illustrated in Figure 1.

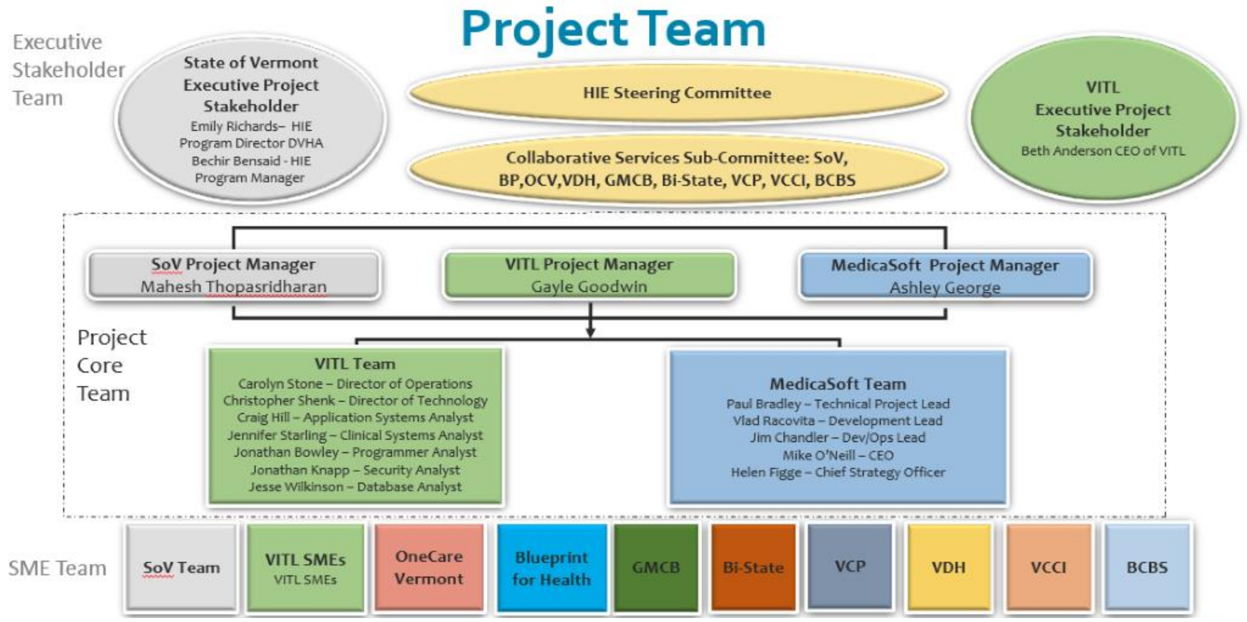


Figure 1: Proposed Project Organization

The groups illustrated on the diagram are as follows:

<u>EXECUTIVE STAKEHOLDERS</u>

Executive Project Stakeholders: The Executive Project Stakeholders will provide executive level oversight, decision making, and troubleshooting for the project team. They are the organizational leaders ultimately accountable for the success of the project.

HIE Steering Committee: Vermont's HIE Steering Committee supports the development, execution, and oversight of Vermont's HIE plan. The MedicaSoft implementation represents a significant investment and strategic effort to advance HIE capability and sustainability, therefore the HIE Steering Committee should provide oversight and guidance to the project.

Collaborative Services Subcommittee: The Collaborative Services Subcommittee is proposed to provide general strategic oversight to the project with comprehensive stakeholder representation to ensure that goals are properly prioritized, and that the implementation will meet stakeholder needs. It is intended to be broadly representative of those stakeholders that are (or may be) impacted by the project, both in the first phase and in future planned enhancing phases. Proposed membership and working methodology for this group are described below. Upon approval of the HIE Steering Committee, this group will be organized and function as a subcommittee of the HIE Steering Committee. Assessment of project progress by the Subcommittee and reporting to the HIE Steering Committee will be expected and encouraged. In addition, to support detailed work on specific project tasks, Subject Matter Experts (SMEs) from many of the same entities will be engaged on an ad-hoc, need-driven basis as described below.

PROJECT MANAGERS

Project Managers: The proposal calls for three Project Managers to manage the project planning and execution. VITL and MedicaSoft will each have a project manager; Gayle Goodwin and Ashley George respectively. These two will be fully engaged in the detail of managing and planning the project, helping to ensure timely execution and adequate resourcing from the two organizations. DVHA has assigned Mahesh ThopaSridharan as its Project Manager to provide due diligence oversight of the execution of the project plan and reporting to DVHA leadership as required.

PROJECT TEAM

VITL/MedicaSoft Project Team: Under the terms of its contract with the State of Vermont, VITL is responsible for project implementation, working with MedicaSoft. The Project Team consists of the VITL and MedicaSoft resources that will provide the primary labor for project implementation. In general, involvement of these resources is to be focused on execution of the scope and direction provided by Executive Project Stakeholders, the HIE Steering Committee, and the Collaborative Services Subcommittee. The Project Team will be expected to provide high-level reports on progress and issues to the Executive Project Stakeholders and HIE Steering Committee, and to exercise careful judgement in escalating details, issues, and options to the Collaborative Services Subcommittee for decision-making, feedback, and troubleshooting when appropriate.

SMEs

Subject Matter Experts (SMEs): A number of project objectives will require intensive involvement from specific project stakeholders external to VITL and MedicaSoft in order to be executed successfully. For example, the State’s Blueprint for Health is a critical partner in the project, as the new platform is replacing the primary platform (the Vermont Clinical Registry) which has historically provided data to the Blueprint. The same is true for OneCare Vermont, which has relied on VITL’s HDM platform, also being replaced by MedicaSoft. Phases of the project which will implement these features will engage the relevant SMEs from these organizations in the detail required for successful implementation. These are but two examples, and as shown in Figure 1 other phases of the project are likely to require similar involvement from additional SMEs. This engagement will be driven by the scope and timing of project tasks as they are identified in project planning and execution. VITL will work with the Collaborative Services Subcommittee to identify the individuals to serve as SMEs for their respective organizations, as needed.

High Level Attributes and Milestones

Charter and Scope Validation

As is typical for projects of this nature, it is critical that a project charter be documented and agreed upon as a first step in management of the project. VITL's usual methodology for project charters is well-established and known to DVHA and is typical of project best practices. The charter will include project background, business objectives, expected outcomes, high level requirements, timing, organizational structure, governance and membership, and project scope (describing both "in scope" and relevant "out of scope" elements).

In regard to project scope, while there has been significant high-level project scope discussion and definition which involved project stakeholders during the vendor selection process, it makes sense that the scope be revisited and validated at this time, since it naturally drives the project tasks and value proposition. The prior discussions have not been significantly revisited since October 2019, and it also is prudent to review them now that the vendor has been chosen. It will be important to recognize, however, that there are already critical time-dependent project objectives and opportunities that have been identified, and it will be essential not to stray too far when determining the scope so as not to threaten these critical objectives – these are discussed below ("Critical Areas of Focus").

To review, during the prior discussions the following timing was agreed upon for high-level objectives:

1. Clinical data which covers the current functionality of the HDM and VCR, by end of 2020.
2. Additional Clinical data to expand the current capability - beginning 2021. This will be used for the HDM, VHIE, OCV and BluePrint:
   - Substance use data
   - Mental health data
   - Ability to protect sensitive data, including support for consent requirements
3. Claims data – TBD
4. Social determinants of health (SDH) data - TBD

VITL will ensure that scope validation is carried out with the Collaborative Services Subcommittee, the HIE Steering Committee, and the Executive Project Stakeholders, and engaging the SMEs as necessary to refine the scope.

Critical Areas of Focus

There are a number of critical areas of focus which must be addressed in the first phase of the project. Some of these are driven by established requirements for the platform in a particular timeframe which cannot be changed. Others are significant opportunities which are compelling. Still others are simply unavoidable elements of work which are de facto requirements to make the platform work at all or are needed to ensure a prudent approach. This document offers these elements to provide perspective to the reader and to ensure their consideration – not to dictate the project scope. It is recognized that the scope will be validated by the governance and execution groups (Executive Stakeholders, HIE Steering Committee, Project Team and Collaborative Services Subcommittee) that have been defined. Critical Areas of Focus to consider include:

- Establishment of the technical infrastructure for the platform (Amazon Web Services (AWS) infrastructure components, MedicaSoft software components).
- Establishment of operational methodologies, processes, and cadence to ensure reliable operation of the new platform.
- Integration of the Rhapsody Interface Engine, Verato Master Patient Index, and Term Atlas terminology service established in the Collaborative Services Phase 1 Project.
- Implementation of security components and processes to ensure the management of security and privacy of protected health information.
- VHIE Consent functionality in place per Vermont's existing patient consent statutes.
- Replacement of VITL's HDM platform.
- Access to data for the Blueprint for Health Program that provides for data extracts or views to meet requirements of the Blueprint for Health.
- Access to data for OneCare Vermont for patients attributed to OneCare.
- Implementation of reports to support the operation of the platform, for example, data quality reports and reports to monitor interface volumes to identify potential interface issues.
- Data quality dashboard
- Direct Secure Messaging – HISP service is configured and live.
- Ensuring MedicaSoft receives HITRUST certification.
- Ensuring MedicaSoft receives eHealth Exchange certification.
- Support for FHIR R3 and OAuth 2.0, with a plan to achieve R4
- Support for a Consolidated CCD via FHIR.
- Support for the interoperability and access rules of the Centers for Medicare & Medicaid Services (CMS) and the ONC. This will include implementation of the applicable requirements which take effect near the initial platform go-live date (e.g., ONC Information Blocking requirements). In subsequent phases, the system will maintain compliance as additional requirements take effect.

These Critical Areas of Focus represent substantial effort during the timeline for the first project phase. Again, it will be critical to be extremely careful in defining the elements of the project scope to avoid risk to these essential outcomes.

Working Methodology

The MedicaSoft Implementation Project implements more than just a system. It also represents a strategic change in approach to providing the relevant functionality to the Vermont Health Information Exchange (HDM) and the Blueprint for Health (VCR).

With the HDM and the VCR, there was heavy emphasis on internal development and management of all components of each of the platforms. The HDM was developed by VITL and all aspects of the system, from hardware infrastructure to software and database management and design, were managed by VITL. Similarly, the VCR, while based on a vendor platform, was no longer supported by the original vendor and all aspects of operating the system were provided by the State's subcontractor for this purpose.

With the implementation of the MedicaSoft system, the strategy shifts to a cloud-based, software-as-a-service approach. The vendor's development, operations, and infrastructure capabilities as well as the Amazon Web Services infrastructure itself can now be leveraged. Similarly, the vendor's expertise and methodology in successful implementation of their platform must be leveraged to realize the full value of this strategic shift, and to minimize risk in the implementation.

MedicaSoft's implementation methodology is based on Agile software development. A full discussion of that methodology is beyond the scope of this document. MedicaSoft uses the Atlassian platform to support their Agile process. Agile methodologies have achieved rapid and positive results in large and complex software development and project implementation. Some key aspects of this approach are:

The project is broken up into large components of work known as epics.
Epics are further broken down into smaller tasks known as stories.
MedicaSoft and VITL plan to use the agile "scrum" methodology. In this methodology, the work is managed in short term mini projects which typically consist of multiple two week long "sprints". Each sprint has a defined goal and definition of success.
There are several meetings in sprint management known as "ceremonies". These include sprint planning, where the work scope for the sprint is defined, daily rapid "stand-ups" for the development team to quickly update status and plans for daily work, sprint reviews, where the results of the sprint are reviewed (often demonstrated) upon completion of the sprint, and sprint retrospectives, which review sprint process and ways of working after a sprint for potential changes based on lessons learned.

The methodology has proven to reduce project risk through rapid completion and validation of manageable sub-components as a way of breaking down large complex implementations.
VITL proposes to involve the Collaborative Services Subcommittee members and SMEs in the sprint process as follows:

VITL and MedicaSoft will engage SMEs as needed in project sprints which require detailed involvement of the relevant SMEs.
As sprints are completed, VITL will utilize the Collaborative Services Subcommittee and SMEs as appropriate to validate successful sprint outcomes through sprint reviews.
Each sprint will have a review that will present the work completed for approval and feedback. All stakeholders will be welcome to attend any of the sprint reviews.
A summary of what will be presented in a sprint review will be shared in advance so stakeholders can select reviews that they wish to attend.
Specific stakeholders (SMEs and/or Collaborative Services Subcommittee members) will also be explicitly asked to attend the reviews when the subject matter makes their feedback on results of a sprint essential.

This approach is key to realizing the benefits of the Agile approach, since it allows for early feedback as the project progresses to be sure the final product is on track to meet stakeholder needs.

Discovery and Draft Planning

VITL proposes that the Collaborative Services Subcommittee be engaged at a strategic and tactical level, rather than requiring the stakeholders be engaged in all details of the project. Instead, as previously described, it is proposed that the Project Team will develop the details of proposed project plans and requirements and validate these with the Collaborative Services Subcommittee, and as appropriate, with the Executive Project Stakeholders and HIE Steering Committee.

It should be recognized that both the VITL and MedicaSoft members of the Project Team have much to learn. VITL needs to begin to learn details of MedicaSoft's system and implementation methodology, and MedicaSoft needs to learn about the VHIE ecosystem, objectives, and needs. Toward these goals, VITL has begun a series of discovery and planning sessions with MedicaSoft. Upon approval of this plan, VITL will recruit Collaborative Services Subcommittee membership and then work within the described governance structure (Collaborative Services Subcommittee, HIE Steering Committee, and Executive Project Sponsors) to charter the project, including validation of project scope. VITL will then draft a project plan and validate the plan through the project governance groups as appropriate.

Potential Opportunities

Often large system implementations such as the MedicaSoft Project make the mistake of viewing the objective as implementing existing processes and ways of working using a new system. This misses an important opportunity to use the new system capabilities to enable new and better ways of working.

While this document has described some "Critical Areas of Focus", it will be important during project scoping and throughout project execution to be prudently entrepreneurial in identifying opportunities to do things in different, better ways, as enabled by new capabilities. As examples, stakeholders may be able to take advantage of new data elements or ways of accessing data. All of the groups involved in the project, including the Stakeholder Working Group and the Project team, should be alert to identify these opportunities, but at the same time be careful to avoid introducing excessive risk to the implementation of the Critical Areas of Focus according to the required timeline.

Proposed Collaborative Services Subcommittee Membership

For the HIE Steering Committee's consideration, the following membership is proposed for the Collaborative Services Subcommittee. It is extremely similar to the membership of the Selection Team utilized in selecting the system vendor. The members of that group were extremely engaged and collaborated exceptionally well. They provided critical insights throughout the system selection, and if available, are likely to do so again during the implementation.

Proposed Collaborative Services Subcommittee	
Name	**Organization**
Bechir Bensaid	HIE Program
Tyler Gauthier	OneCare Vermont
Ken Gingras	Vermont Care Partners
Jessie Hammond	Vermont Department of Health
Craig Hill	VITL
Sarah Lindberg	Green Mountain Care Board
Jimmy Mauro	Blue Cross Blue Shield
Lauri Scharf	Bi-State Primary Care Association
Carolyn Stone	VITL
Richard Terricciano	ADS-EA
Mahesh Thopasridharan	ADS-EPMO-HIE PM
Tim Tremblay	DVHA - Blueprint
Dawn Weening	Vermont Chronic Care Initiative

While some of the above group members will likely also serve as SMEs to the project, the individuals serving as SMEs may differ or include additional experts. As stated previously, the Collaborative Services Subcommittee will be utilized by VITL to identify appropriate SMEs as needed to complete project tasks. Figure 1 illustrates likely organizations from which SMEs will be sought.

VITL will request validation of the membership of the Collaborative Services Subcommittee from DVHA, from the Subcommittee itself as it forms, and from the HIE Steering Committee when this proposal is reviewed with the Steering Committee in a progress report from VITL.

The above proposed group represents a good cross-section of stakeholders that will be impacted by the initial scope, but the HIE Steering Committee should consider involving clinicians and operational staff in the Subcommittee who work at the point of care. This will become particularly important as the new platform advances and there are opportunities to provide added value to clinicians as they care for patients. It is essential to get these perspectives when determining priorities and strategies to provide optimal support for clinical needs.

Tasks and Time Requirements

The following lists the anticipated project tasks for the Collaborative Services Subcommittee and the SMEs, and the anticipated time requirements:

Collaborative Services Subcommittee Requirements

Project Step	**Tasks**	**Hours**	**Timeline**	**Assumptions**
Planning Stage	**Requirements**			
Project Kickoff	Group formation. Familiarize with Stakeholder Working Group role. Discuss next steps	1.5	Late June	
Project charter and scope validation	Review, discuss, and refine project charter. Discuss project scope and decide on issues.	0.5	Late June	
Requirements document review	Review detailed requirements document as drafted by VITL and MedicaSoft, including project plan. Refine as necessary	0.5	Late June	
Implementation Stage				
Project check-ins	Periodic check-ins on project progress. Meetings to discuss ad-hoc issues.	4	Late June through Dec	Assume several general check-ins.
Discuss ad-hoc issues	Meetings to discuss ad-hoc issues that may require advice/decision making from the Subcommittee	As Needed	Late June through Dec	Variable - allowance for work sessions on specific design issues (e.g., consent, terminology services, etc.)
Total Hours		**6.5**		

Members of the Subcommittee may also optionally attend sprint reviews, where results of sprint work will be presented and/or demonstrated.

SME Requirements

Project Step	**Task**	**OCV**	**Blueprint**	**VCP/GMCB/Bi-State**
Planning Stage	**Includes Discovery Working Sessions to gather Detailed Requirements**			
Project Kickoff	Group formation. Familiarize with Stakeholder Working Group role. Discuss next steps	1.5	1.5	1.5
Data requirement gathering	Data requirements gathering	4	4	NA
Requirements document review	Review detailed requirements document as drafted by VITL and MedicaSoft, including project plan. Refine as necessary	1	1	NA
Implementation Stage				
MedicaSoft Implementation work	Includes asking questions, QA work and sprint reviews and demonstrations if applicable	TBD	TBD	TBD
Data Quality work	Resolving data quality issues for standardization of code sets, normalization of values, deduplication at the patient level, granularity of data, trackability back to the message	TBD	TBD	NA
OCV/Blueprint work to connect and configure MedicaSoft data into their databases	Includes making MedicaSoft data extracts populate correctly into sites databases. Depending on the final requirements this could vary. VITL will provide estimates when more information is available	TBD	TBD	NA
Training	Training at 2-4 hours per stakeholder. Based on 4 hours for 5 resources	2-4	2-4	2-4
Total Hours		**10.5**	**10.5**	**10.5**

Communication Plan

The following communication plan is proposed:

Communication Type	Objective of Communication	Medium	Frequency	Audience	Deliverable
Kick Off Meeting	Review project scope, team, roles and communication plans	• Conference call meeting	Once	• Entire project team including Collaborative Services Subcommittee and SMEs	• Kick off Deck • Minutes
Project Team Meetings	Working meeting to keep project on track	• Conference call meeting	Weekly	• Project Team and Project Managers	• Work sessions • Minutes
Ad-hoc emails	Provide updates when requested	• Email	As needed	• Entire project team including Subcommittee and SMEs	• email
Working Group Meetings	Small break-out groups for detailed discussion	• Conference call meeting	As needed	• Break-out groups including SMEs	• Work sessions • Minutes
Collaborative Services Subcommittee Meetings/ Demos	Demonstrate work products to date for review and feedback	• Conference call meeting	Periodically Monthly	• Entire project team including Subcommittee and SMEs	• Presentations of work from last presentation
HIE Steering Committee Meeting	Provide updates for feedback	• Conference call meeting	Every 2 months	• HIE Steering Committee	• Slide(s) presented by VITL
Status Reports	Provide updates to DVHA and project stakeholders	• Email	Every 2 weeks	• Entire project team including all stakeholders and SMEs, and DVHA	• email

The Collaborative Services Subcommittee will also need to plan on making a report to the HIE Steering Committee in late summer/early fall for inclusion on the update to the HIE Strategic Plan, which will be finalized in October and presented to the Green Mountain Care Board on November 1, 2020.

Next Steps

The following steps are proposed to begin immediately upon approval of this plan:

VITL to continue discovery sessions with MedicaSoft, to begin work on drafting project charter (including scope) and project plan.

VITL to recruit members of the Collaborative Services Subcommittee.

VITL to conduct project kickoff with the Collaborative Services Subcommittee.

Collaborative Services Subcommittee to validate draft project charter, scope, and project plan. Once validated by the Subcommittee, these items will be reviewed and validated by the Executive Project Stakeholders and the HIE Steering Committee.

VITL to work with MedicaSoft to develop a Project Requirements Document to include the detailed final project plan and specifications for implementation and documentation of all system components, features, and functions.

Collaborative Services Subcommittee to validate the Project Requirements Document.

Appendix D: Connectivity Criteria Subcommittee Charter

VERMONT
AGENCY OF HUMAN SERVICES

Health Information Exchange

Version <0.8>

REVISION HISTORY

Date	Version	Description	Author
4/6/2020	0.1	Initial Draft	Mahesh T.
4/13/2020	0.2	Feedback from Carolyn S. incorporated.	Carolyn S./Mahesh T.
5/4/2020	0.3	Feedback from Emily R. incorporated	Mahesh T.
5/12/2020	0.4	Feedback from VITL incorporated	Carolyn S.
5/13/2020	0.5	Feedback from Emily R. incorporated	Mahesh T.
5/14/2020	0.6	Feedback from Carolyn S. and Emily R. incorporated	Mahesh T.
5/15/2020	0.7	Feedback from Emily R. incorporated. Answers to Emily's questions.	Mahesh T.
5/15/2020	0.8	Added Appendix. Removed resolved comments. Accepted all changes.	Mahesh T.

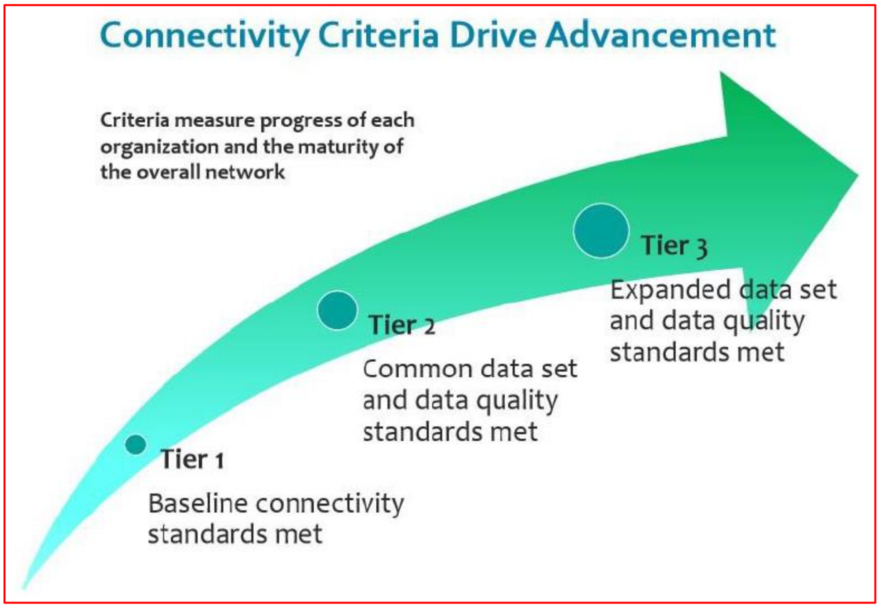
Table of Contents

BACKGROUND

"VHIE Connectivity" is a series of activities aimed at onboarding different data types to the Vermont Health Information Exchange (VHIE). The concept is that the VHIE can act as a central aggregator for health data including, but not limited to, clinical data from electronic health records, claims data, substance use, mental health data, and social determinants of health data. The data can then be made exchangeable across permitted users to advance point of care and care coordination activities, as well as population health/health program measurement and analysis.

The Connectivity Criteria is an essential component of the VHIE Connectivity work, as it enables Vermont data users to define the specific data elements that will be captured and exchanged through the VHIE. This definition can guarantee that end users receive the required data to support their needs (e.g., providing care or conducting population health analysis).

The Connectivity Criteria *[required under 18 V.S.A. § 9352 (i)(2)]* establishes the standards for creating and maintaining connectivity to the State of Vermont's Health Information Exchange network. An overarching clear framework expressed through the connectivity criteria will empower data sources and data receivers to confidently share meaningful data throughout Vermont and nationwide.



In 2019, the Connectivity Criteria for clinical data was updated through the work of an ad hoc sub-committee. This group was informally organized, but the work was very effective in achieving consensus and approval for the Connectivity Criteria update recommendations.

For 2020 and beyond, the HIE Steering Committee (SC) will consider formal adoption of this sub-committee candidate. *[See Health Information Exchange Strategic Plan 2019-2020 (Version 3)]*

STANDARDS

Connectivity Criteria is intended to build on currently established industry and federal standards and protocols to ensure that Vermont's data users can confidently use data managed through the VHIE. Currently the Connectivity criteria is aligned towards US Core Data for Interoperability (USCDI) version 1 data set.

As part of the 21st Century Cures Act Final Rule (45 CFR Parts 170 and 171, RIN 0955-AA01), and building on efforts by the Office of the National Coordinator (ONC) for Health Information Technology, CMS's Interoperability and Patient Access Final Rule (CMS-9115-F) has identified HL7 FHIR Release 4.0.1 as the foundational standard to support data exchange via secure APIs and US Core Data for Interoperability (USCDI) version 1 data set for defining electronic health information (EHI).

PURPOSE OF THE VHIE CONNECTIVITY CRITERIA SUB-COMMITTEE

The purpose of the VHIE Connectivity Criteria Sub-Committee is to -

1. Annually refine/update the existing Connectivity Criteria to enable the Vermont Health Information Exchange to provide services that further the goals outlined in the statewide HIE Strategic Plan.
2. Establish Connectivity Criteria to enable aggregation and management of additional data types – beyond current clinical data – including social determinants of health (SDoH), claims, women's health, substance use and mental health data.

SCOPE

CONNECTIVITY CRITERIA DEVELOPMENT

1. VITL, in partnership with DVHA, will convene the Connectivity Criteria Sub-Committee as directed by the HIE Steering Committee, or at a minimum annually to refine/update the criteria as mandated.
2. Existing data type projects (ex: clinical data):
    a. The sub-committee will review the current 'Clinical Data Set and Data Quality Standards', propose updates/recommendations to VITL.
    b. Updates to the Connectivity Criteria are to be approved by the HIE Steering Committee for inclusion in the annual HIE Strategic Plan.
3. New data type projects (ex: SDoH, Claims, 42 CFR Part 2):
    a. Membership for a data-type specific sub-committee will be propose by VITL to the HIE Steering Committee. The purpose and focus area of each sub-committee must be approved by the Steering Committee before they begin work in developing additions to the Connectivity Criteria.
    b. The sub-committee may work with additional stakeholders and subject matter experts as required to create recommendations on these new data sets and standards and provide them to VITL.

ROLES AND RESPONSIBILITIES

VITL

- Propose sub-committee members and sub-committee annual objectives to the HIE Steering Committee for approval.
- Assess current standards specific to area of focus and present the sub-committee members with how standards impact the types and volume of data the VHIE may be able to manage. An example of these standards is the USCDI.

- Through meeting facilitation and materials development, enable sub-committee members to apply their subject-matter expertise to the discussion and provide feedback on each tier of the connectivity criteria.
- Annually, gain approval from the HIE Steering Committee on updates or modifications to the Connectivity Criteria.
- Develop materials that articulate the purpose and scope of Connectivity Criteria to be presented to the GMCB, included in the HIE Plan annually, and prepared for a general audience.
- Support conversations with end users to develop Tier III Connectivity Criteria standards specific to individual/organization needs.
- To be compliant with the standards mentioned in this document, VITL will review these standards and ensure that proposed criteria are in alignment with the standards and keep the committee apprised of any updates, changes or new applicable standards that could influence the Criteria in the future.

CONNECTIVITY CRITERIA SUB-COMMITTEE

- Create recommendations on Connectivity criteria for all data type projects in line with the standards as listed on this document.
- Participate in annual and new data type Connectivity criteria reviews and creation.
- Provide input for their programs and relevant data types into the process.
- Help VITL communicate the recommendations to the HIE Steering Committee

HIE STEERING COMMITTEE

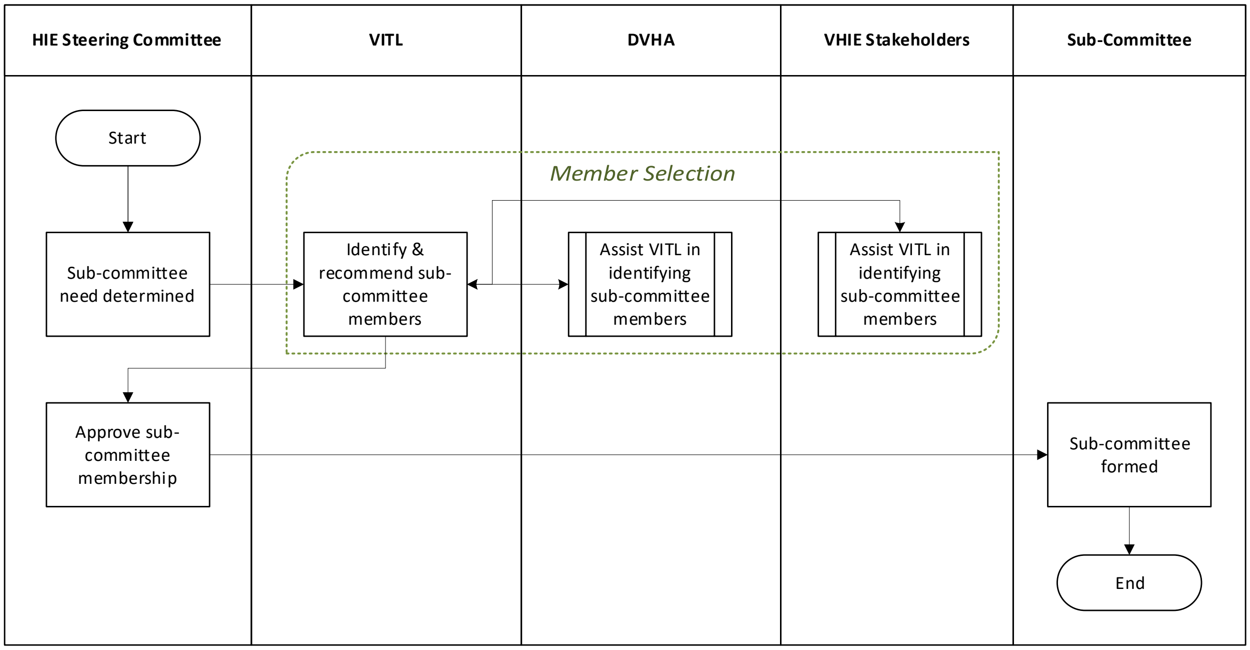
- Review and approve the Connectivity Criteria, including updates, yearly.

DVHA

- Incorporate the Connectivity Criteria, including updates, yearly into the HIE Plan for approval by GMCB.

SUB-COMMITTEE MEMBERSHIP

SUB-COMMITTEE MEMBER SELECTION PROCESS



Please refer to Appendix: A for proposed sub-committee membership.

TIMELINE

HIE STEERING COMMITTEE

- **June 2020**
    - Review and approve Connectivity Criteria Subcommittee Charter.
- **July 2020 to Dec 2020**
    - Determine next priority data type for subcommittee to focus on (Claims or SDoH).
- **September 2020**
    - Review and Approve Connectivity Criteria for inclusion into the HIE Plan.

CONNECTIVITY CRITERIA SUBCOMMITTEE

- **Present to June 2020**
    - Create Tier 2 Connectivity Criteria for the Designated Agencies (DA) data set involving Substance Use Disorder (SUD) data.
    - Develop Connectivity Criteria Subcommittee Charter and submit to HIE SC.
- **July 2020 to Fall 2020**
    - Review/update the existing Clinical (Physical Health) Connectivity Criteria for Tier 2 & 3
        - This group will need to stay focused on the current Tier 2/3 model this year with small adjustments as required.

Please NOTE: *Shift in terminology from the existing 'Clinical' Connectivity Criteria to 'Physical Health' Connectivity Criteria is required since we are starting work with other data types like DA (SUD) data which is also 'Clinical'.*

- **September 2020**
    - Support presentation of annual Connectivity Criteria updates to HIE SC for review and approval (Physical and DA data types).
- **Early 2021 to June 2021**
    - Review and incorporate planning for FHIR interfaces into this round of criteria definition and update the connectivity model as needed.
    - Create/define criteria for next priority data type (Claims or SDoH) once determined by HIE SC.
    - Reach out to any new groups needed for new data types and determine the individuals from the new and existing member groups who will best be able to speak to this new data type.
- **July 2021 to Fall 2021**
    - Create/define criteria for second priority data type once determined by HIE SC.
    - Reach out to any new groups needed for new data types and determine the individuals from the new and existing member groups who will best be able to speak to this new data type.
    - Review/update the existing Physical Health Criteria for Tier 2 & 3 to align with new connectivity model.
    - Review/update the existing Designated Agency Criteria for Tier 2 and creation of Tier 3 criteria after usage to align with new model.
    - Review/update charter document.
- **Oct 2021**
    - Support presentation of annual Connectivity Criteria package to HIE SC for review and approval (Physical, DA, Claims, and SDoH data types)

VITL

- **July to December 2020**
    - Identify any additional member groups that should be included in the process for new data types (Claims & SDoH).
- **September 2020**
    - Present annual Connectivity Criteria package to HIE SC for review and approval (Physical and DA data types).
- **November 2020**
    - Incorporate into HIE Plan for GMCB.
- **Fall 2020 to Early 2021**
    - VITL will start to develop plans for how to adjust the model for FHIR APIs once we know more about how MedicaSoft utilizes the FHIR standards and their true capabilities.
- **October 2021**
    - Present annual Connectivity Criteria package to HIE SC for review and approval (Physical, DA, Claims, and SDoH data types)
- **November 2021**
    - Work with DVHA to Incorporate Connectivity Criteria update into HIE Plan for GMCB's review and approval.

APPROVALS

Name	Organization/Team/Role	Signature	Date
HIE Steering Committee	HIE Plan Development & Oversight 6/22		6/22/20

APPENDIX: A

Proposed sub-committee membership organization/team

Organization/Team	Reason for Selection
VITL	Operate, maintain, and enhance the VHIE. Lead Connectivity Criteria Sub-Committee.
OneCare Vermont	Total cost of care and health outcomes for risk population via contracts with DVHA, Medicare, and Commercial payers. VHIE Data Recipient.
Blueprint (DVHA)	Practice level health care reform and evaluation. VHIE Data Recipient.
Vermont Care Partners	Mental health, substance use, and developmental disability services.
Vermont Department of Health (VDH)	Public health registries. VHIE Data Recipient.
Green Mountain Care Board (GMCB)	Approval of the strategic HIE Plan, & Budget.
Vermont Chronic Care Initiative	Holistic, intensive, and short-term case management services to Vermont's most vulnerable members. VHIE Data Recipient.
Bi-State Primary Care Association	Represent Community Health Centers in NH and VT.
HIE Program Team (DVHA)	HIE Program operations, oversight, and facilitation.
Other groups as defined by new data types	As new data types are brought onboard, this group might need to be expanded to find experts in the new data types, like Claims for example.

Appendix E: 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		

Tier 2 Claims Elements

VHIE Connectivity Criteria Tier 2 Claims Data Elements

Organization(s):

Data Contributor Type: Claims

Vendor:

Date:

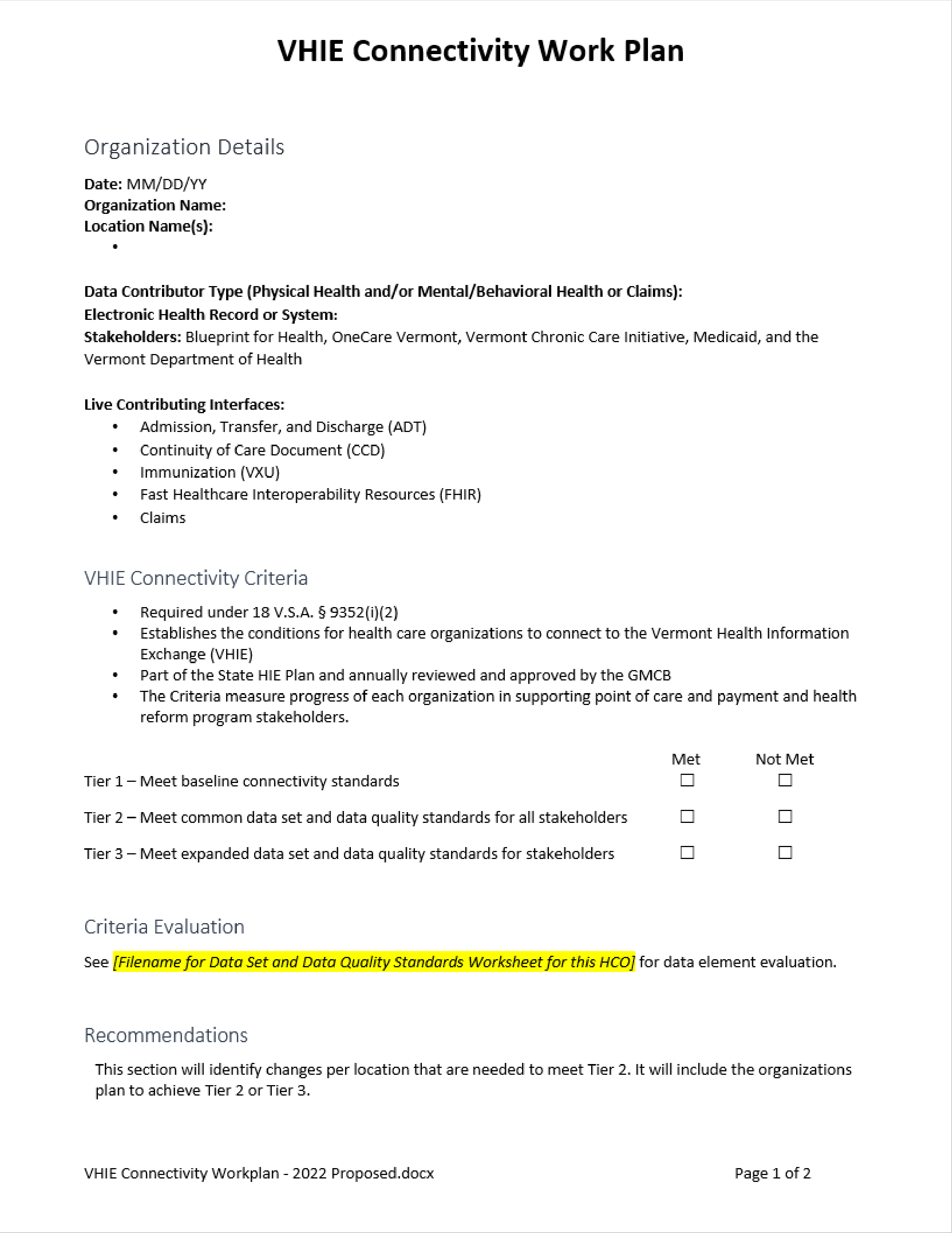
Concepts	**Data Elements**	**Standardized Coding System(s)**	***Org use only*** **Documentation Assessment** Organization is documenting data sets in discrete data fields (Yes or No)	***VITL use only*** **Connectivity Assessment** Vendor is technically capable of transmitting data sets
Insurance and 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

VHIE Connectivity Workplan



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.

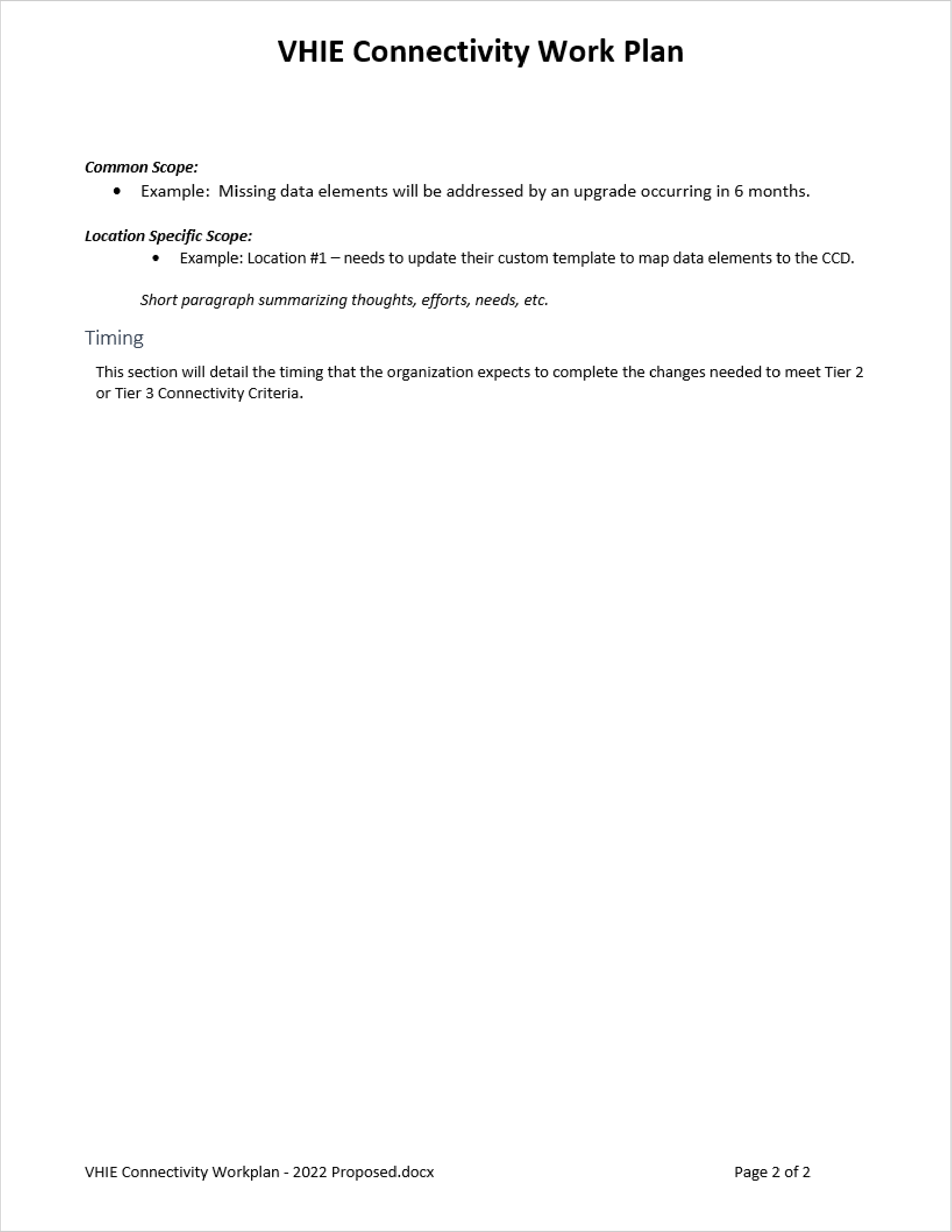
	Met	Not Met
Tier 1 – Meet baseline connectivity standards	☐	☐
Tier 2 – Meet common data set and data quality standards for all stakeholders	☐	☐
Tier 3 – Meet expanded data set and data quality standards for stakeholders	☐	☐

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:

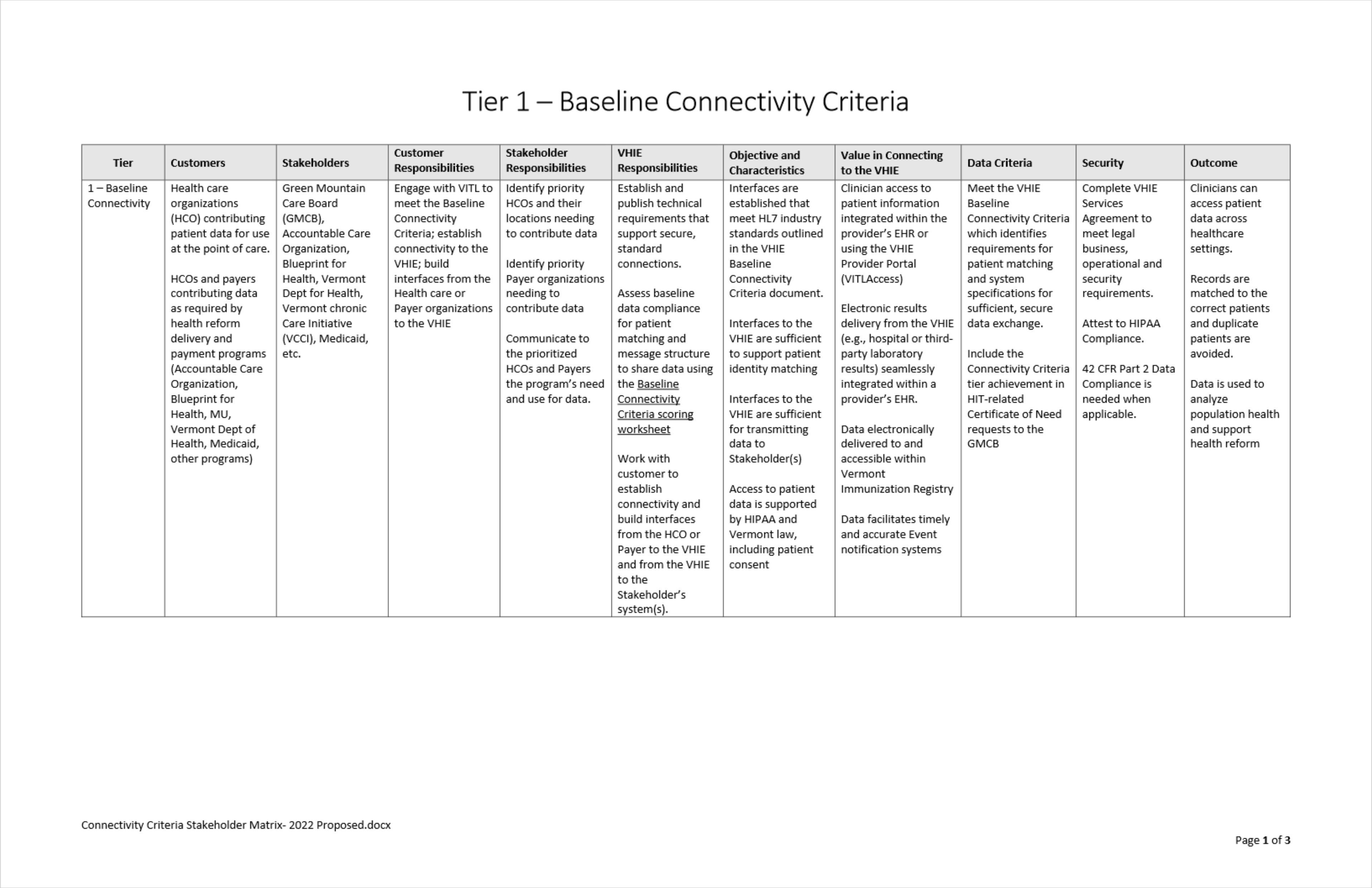
- Example: Location #1 – needs to update their custom template to map data elements to the CCD.

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.

Connectivity Criteria Stakeholder Matrix



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 F: Interface Prioritization Matrix

Highest Priority

- Large Patient 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 Patient 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
Patient Volume	Site serves and generates data on a large patient 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, Amubulatory, 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
Patient Volume	Site serves and generates data on a large patient 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)	
Patient 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)	
Patient 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 F: Collaborative Services Subcommittee Assessment of Collaborative Services Efforts So Far

September 2020

This document summarizes an assessment of the Collaborative Services efforts so far on behalf of the Collaborative Services Subcommittee (“the Subcommittee”) of the Health Information Exchange Steering Committee (HIESC). It was prepared by VITL to summarize the points agreed to by the Subcommittee in their meeting on August 31, 2020.

As a brief review, the Collaborative Services Effort so far has consisted of two major phases:

Phase 1: Implement a new Master Patient Index (MPI), and Terminology Service, and establish a new architecture for HIE interfacing using the Rhapsody interface engine.

Phase 2: Implement a new “Future Data Platform”; a repository of data to support reporting activities by Vermont Information Technology Leaders (VITL) in support of Vermont Health Information Exchange (VHIE) operations and data quality management, and by VHIE stakeholders in support of healthcare system and quality improvement.

In Phase 1, Verato was chosen as the MPI technology. A partnership was also formed with a subsidiary of HealthInfoNet (HIN, the Maine HIE) known as Cureous Innovations (CI) to utilize HIN’s Term Atlas terminology services technology, and to supply licensing and hosting of the Rhapsody interface engine. In addition, VITL established a new cloud based “landing point” destination for interface connections in the Microsoft Azure computing cloud, using “next generation” firewall technology.

Phase 2 is currently being implemented. Through an extensive process of evaluation involving VHIE stakeholder organizations, MedicaSoft was chosen as the new data platform. VITL is currently implementing the platform with guidance from the Subcommittee and its members including the Department of Vermont Health Access (DVHA) and the Vermont Agency of Digital Services (ADS).

Phase 1

In Collaborative Services Phase 1:

The Verato MPI has been successfully implemented and has been in production operation since January 2020:
Consistent with the goals of Phase 1, this has established the MPI as a modular component of the HIE architecture, enabling maintenance of patient identification independent of any of the systems which require use of the identity data. This eliminates the significant limitations of depending on the Health Catalyst Interoperability (HCI) platform for patient identity assignment.

Verato is provided in a Software as a Service (SaaS) model, avoiding the need for owned, on-premises infrastructure. Verato utilizes advanced “referential matching” techniques, where data beyond the source health care data is used to enhance patient matching capability.

The MPI is currently being used to support OneCare Vermont (OCV), Vermont Chronic Care Initiative (VCCI) and Blueprint data applications.

Metrics demonstrate the improved patient identity results. For example, the ability to match reference patient population identities to VHIE data to support an important data extract application has increased from matching less than 65 percent of population identities to VHIE data, to matching greater than 95 percent.

During 2021 use of the MPI is expected to be extended to the VHIE provider portal.

The Term Atlas terminology service has been successfully implemented and has been in production operation since April 2020:
Consistent with the goals of Phase 1, the Term Atlas software is provided in a SaaS model, eliminating the owned, on-premises infrastructure used for the prior solution. The prior application suffered from reliability problems which have also been eliminated.

So far, 9 clinical concepts including over 700 unique codes have been mapped through Term Atlas. Over 600,000 instances of the 700 codes were mapped in data received during August alone. This demonstrates clear successful use of the terminology service.

The scope of clinical concepts being mapped will continue to be expanded through use of the tool.

The improved VHIE interface architecture has been successfully implemented and has been in production operation since April 2020:

Consistent with the goals of Phase 1, the Rhapsody software is provided in a SaaS model, eliminating the previously used owned, on-premises infrastructure.

The landing point for VHIE interface connections has been migrated to the Azure cloud, creating a modular architecture which separates the interface connections from the interface engine technology used (and its location). VITL is moving existing interfaces to Azure over time as clients and their vendors can be engaged.

The new solution licensing supports unlimited software communication points. Previously these communication points were licensed individually at incremental costs, resulting in the need to design interface structure to minimize these costs. Interface design is now freed from this constraint, allowing for optimal design without regard for any incremental connection module costs.

The new solution has a geographically separate disaster recovery (DR) instance which has been fully tested. The prior solution did not have a disaster recovery capability.

In conclusion, the Subcommittee endorses the following statements:

- **The technologies stood up in Phase I act as the HIE foundation and provide real value:**
    - **Significant improvement in patient matching**
    - **Shed on-premise infrastructure for Rhapsody. Unlimited communication points allow flexible interface design and support future growth**
    - **Significant progress in terminology services**
- **The Collaborative Services Phase 1 project has met its stated objectives**

Phase 2

As previously mentioned, Phase 2, implementation of the MedicaSoft NXT data platform, is under way. The test system infrastructure has been established and is running in the Amazon Web Services (AWS) cloud. Once implemented, this will replace the decommissioned (Blueprint) Vermont Clinical Registry and VITL's self-developed, on-premises Health Data Management platform with a new, modern vendor platform provided in a SaaS model with full redundancy and DR capabilities.

The following outcomes are anticipated:

- Better data to support health care and health care system improvement
- More efficient data access for clinicians through FHIR API support
- Improved data and access for VHIE stakeholders
- Support for patient access to data
- More efficient and sustainable technology platform
- Strong security and compliance with interoperability rule requirements

It should be noted patient access to data, with emphasis on FHIR APIs, will now be required for all HIEs based on the Office of the National Coordinator for Health Information Technology (ONC) interoperability rules. Compliance with FHIR API standards is anticipated as a requirement for continued funding of VHIE initiatives through CMS. Without this initiative, the VHIE would have no practical path to achieve compliance with these requirements in the timeframe needed.

Testing and validation of interface configurations and historical data conversion is currently underway. The Subcommittee has approved the project charter and scope, and a detailed document of system requirements.

To summarize, the Subcommittee endorses the following statement:

- **The MedicaSoft platform will meet the needs of the users on the subcommittee**

Next Steps

There is significant opportunity to advance VHIE capability using the MedicaSoft platform. The Subcommittee will continue to support VITL through development of a near term technical and functional roadmap including validation of use cases. The Subcommittee will also provide guidance as needed in the current implementation and in future related projects.

Appendix G: Outcomes Based Certification Proposal

Submitted: 4/22/21

Vermont's Health Information Exchange Outcomes Based Certification Proposal –2021

Overview of Vermont's Health Data Infrastructure

The Vermont Health Information Exchange (VHIE) is a secure, statewide data network that gives health care organizations in Vermont the ability to electronically exchange and access their patients' health information to improve the quality, safety, and cost of patient care.

VITL is legislatively designated to operate the VHIE. VITL operates the VHIE system to collect, match, and standardize patient data from health care organizations across the state, including hospitals, primary and specialty care providers, Federally Qualified Health Centers, home health providers, nursing homes, pharmacies, testing sites, and commercial labs. The data is made available to participants, which include health care organizations, to inform providers' point-of-care decisions; OneCare Vermont (Accountable Care Organization) and the Vermont Blueprint for Health (a Patient Centered Medical Home Program) for their work to improve and reform care; the Vermont Chronic Care Initiative (VCCI) for their work with high-risk Medicaid patients; and the Vermont Department of Health to inform public health efforts in service of all Vermonters.

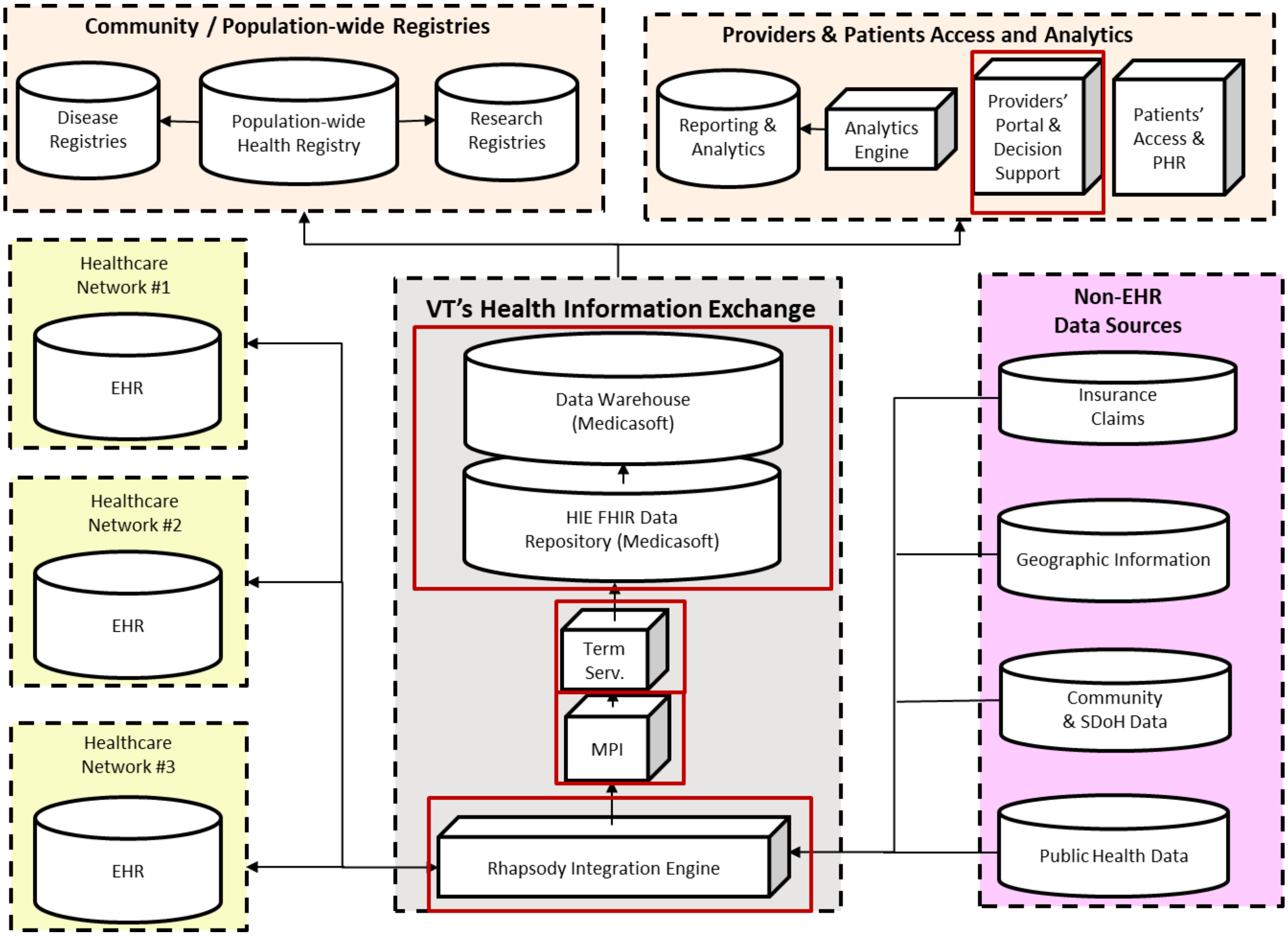
Vermont's health data infrastructure strategy is directed by the State in partnership with a cross-sector stakeholder group called the Health Information Exchange (HIE) Steering Committee. The HIE Steering Committee envisions that Vermont's health data infrastructure will allow the state to realize the following 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. **Improve Health Care Operations -** *Enrich health care operations through data collection and analysis to support quality improvement and reporting.*
3. **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.*

To enable achievement of these health system goals, annually the State and the HIE Steering Committee evaluates performance against the state-wide Health Information Exchange strategic plan (HIE Plan) and updates the plan for the coming year. In the HIE Plan, the strategic advisory group illustrates the VHIE role as central to health data aggregation and exchange in service of many use cases.

Through the Certification process, Vermont aims to certify the modules and functions that constitute the VHIE technical architecture as the system exists to support the Vermont health care system in service of all patients, including Medicaid patients. In the future, the State will request Outcomes Based Certification of additional components of the health data infrastructure that serve Medicaid patients by enhancing the efficiency and effectiveness of Medicaid operations.

The following diagram provides an overview of the HIE data infrastructure:



In this initial proposal, the State recommends Outcomes Based Certification of systems that enable:

- Direct Care/Care Coordination

    - Event Notification
    - Electronic Lab Results Delivery
- Public Health Management
- Value Based Care (Program Management)

Direct Care/Care Coordination

A longitudinal health record provides a history of the patient's clinical experience to support optimal care delivery and coordination. The State of Vermont and its health system partners aim to develop this historical and continuously updated record for all patients seeking care in the state. A full view of a patient's history can aid in care decision making and reduce duplicative testing or services. The VHIE aggregates health record data from electronic systems state-wide and utilizes its Master Patient Index and integration engine technologies to ensure patient's multiple care experiences are unified into one record that can serve as the source of truth.

As an example of how HIE data supports the provision of care in Vermont, health care providers can access aggregated patient records through the VHIE provider portal, VITLAccess, which is available directly or by signing-in through the electronic health record system. The VITLAccess system recently demonstrated its critical value when a cyberattack shut-down the electronic medical record system of the state's main integrated delivery network, the University of Vermont Medical Center Network. During the network's multi-week downtime, clinicians across the state relied on VITLAccess to gain access to their patient's medical histories to avoid gaps or inadequacies in care delivery.

Additionally, Medicaid care coordinators operating through the Vermont Chronic Care Initiative (VCCI) receive a direct feed of Medicaid patient records into their electronic care coordination tool. Among other things, this allows the VCCI care coordinators to have needed information to connect those new-to-Medicaid with care and coordinate care for the highest cost and highest risk Medicaid beneficiaries.

1. **Proposed Care Delivery/Care Coordination Outcome**: **Improve Medicaid providers' ability to effectively treat and coordinate care for Medicaid beneficiaries by creating one health record for every Vermonter accessible to treating providers and care coordinators.**

2. **Proposed Care Delivery/Care Coordination Outcome: Enable longitudinal, population-based evaluation of Medicaid patients to optimize Medicaid services and care delivery.**

IT Systems Enabling Outcomes: Rhapsody (integration engine), Master Patient Index, Provider Portal, Clinical Data Repository*, Data Feed to Medicaid Care Coordination Tool*

Metrics	Rationale
Metric 1.1: Health records made available to treating providers through the VHIE demonstrated by use of the provider portal.	The *<u>number of VITLAccess (provider portal) users</u>* (with direct accounts) quantifies the number of Vermont-based providers accessing longitudinal patient health data from the VHIE. Note: VITLAccess data is also available through national networks (Veterans Affairs and Department of Defense) and those uses are not counted here. The *<u>number of health care organizations accessing VITLAccess over the number of potential health care organizations</u>* provides context for how much of Vermont's health care delivery system is using the HIE to enhance care delivery.

	The *number of unique patient queries through VITLAccess* provides a look at how many times individual patient records were searched for through the HIE system.
Metric 1.2: Medicaid records transmitted from the VHIE to the Medicaid care coordination tool	The number of Medicaid patient records transmitted from the VHIE to the Medicaid care coordination tool shows how the VHIE data system can provide data which enables care coordination efforts for Medicaid beneficiaries.

Metrics	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021
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						

**Note: The Provider Portal and Clinical Data Repository technologies will be upgraded/transitioned in late 2021. The services provided will go uninterrupted.*

Direct Care/Care Coordination: Event Notification

Through third party partners, providers can receive alerts on their patient population(s) based on admission, discharge, and transfer messages submitted to the VHIE. In Vermont, the VHIE offers this service by connecting local records to the Patient Ping event notifications system for health care organizations that do not have event notifications built into their systems (the University of Vermont Network uses *Epic* which contains an event notification capability).

Leveraging the VHIE to receive clinical event notifications about a patient's admissions, discharges, or transfers of care keeps providers involved as their patients transition from various healthcare settings back to their care. The use of event notifications to inform healthcare providers when a patient is admitted to or discharged from an Emergency Department supports care coordination activities across disparate providers. Coordinated information across settings and providers is key to enabling quality care delivery.

3. **Proposed Care Delivery/Care Coordination Outcome: Improve Medicaid providers' ability to effectively treat and coordinate care for Medicaid beneficiaries by alerting providers to admissions, discharges, and transfers of their patients.**

IT Systems Enabling Outcome: Patient Ping event notification service in partnership with the VHIE, Rhapsody (integration engine), Master Patient Index

Metrics	Rationale
Metric 3.1: Event notifications exchanged through VHIE connection to event notification service, Patient Ping. **Metric 3.2: Master Patient Index Medicaid Record Match Rate**	The VHIE's event notification system delivers real-time notifications for a provider's panel of previously identified patients. The VHIE's master patient index (MPI) system ensures that patient data is matched appropriately to ADT messages to ensure there is an accurate longitudinal health record stored in the VHIE's data repository. The MPI Medicaid match rate demonstrates the effectiveness of the system.

Metric	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021
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

Electronic Results Delivery is the transmission of laboratory, radiological, and transcribed reports (LAB, RAD, TRANS) collected through the VHIE directly into the electronic health record systems of care providers, to public health registries, and/or made available through the VHIE provider portal. Results delivery enhances the longitudinal health record accessible to providers aiding in care delivery and reducing instances of duplicative testing.

4. **Proposed Care Delivery/Care Coordination Outcome: Improve Medicaid providers' ability to effectively treat and coordinate care for Medicaid beneficiaries by delivering laboratory, radiological, and transcribed reports through the VHIE.**

IT Systems Enabling Outcomes: Rhapsody (integration engine), Master Patient Index, Clinical Data Repository, Data Warehouse, Terminology Services

Metrics	Rationale
Metrics 4.1 - 4.3: LAB, RAD, TRANS messages captured by the VHIE and made available to health care organizations through VHIE .	The VHIE is a central aggregator of data from lab systems and electronic health record systems. This measure demonstrates the system's ability

	to capture needed LAB, RAD, and TRANS messages and make them available to treating providers.

Metrics	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021
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

The VHIE systems and data are used to support public health activities in Vermont. Currently, immunization data is captured by the VHIE from connected electronic health record systems and pharmacies and transmitted to the state's Immunization Registry. Providers are required by state law to report immunization data to the Immunization Registry; using the VHIE to do so reduces provider reporting burden and gains efficiencies in reporting time and accuracy. The VHIE also captures laboratory data, including COVID-19 test results, and makes that data available to the Public Health Authority for specific diseases. Additionally, Vermont death data is collected in the Public Health Authority's Death Registry and transmitted to the VHIE to ensure that treating providers have up-to-date death information on their patients.

5. **Proposed Public Health Outcome: Enhance public health management of the Medicaid population (and general population) by automating capture and exchange of public health data through the VHIE system.**
6. **Proposed Public Health Outcome: Support response to epidemic monitoring and emergency response by capturing and making available related data for the state's Public Health Authority.**

IT Systems Enabling Outcomes: *Rhapsody (integration engine), Master Patient Index, Data Repository, Data Warehouse, Terminology Services*

Metrics	Rationale
Metric 5.1: Percent of total immunization data captured by the VHIE and transmitted to the Immunization Registry	Leveraging the VHIE, a system designed to capture health data for Vermont's patients, to enhance public health management is an efficient and effective use of resources and public investment in the HIE system. Capturing COVID-19 vaccine data from pharmacies, health care organizations and other inoculation sites aids in epidemic monitoring and management.

Metric 5.2: Percent of total death records captured in the VHIE system from the state's Death Registry (note: expectation is 100% of applicable records are transmitted)	The state's Death Registry is the only source-of-truth for state-wide death data. Enhancing the VHIE's longitudinal health records with this information arms providers with needed knowledge to best provide for patients and manage their practices.
Metric 6.1: Capability to submit electronic data on reportable lab results and other health records to the Public Health Authority to aid in epidemic monitoring and response.	The VHIE system enables capture of lab results from commercial and state labs, and pharmacies. A direct feed or lab results and other health record data is provided to the Public Health Authority as permitted under state and federal law to prevent or control disease, injury, or disability and/or mitigate a significant public health risk.

Metrics	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021
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 (Program Management)

The State of Vermont is committed to moving away from fee-for-service reimbursement for health care services and to the health care system transforming to deliver value-based care. In service of this commitment, the state is pursuing a variety of delivery system reform efforts, including but not limited to, the Blueprint for Health Patient Centered Medical Home Program and the Accountable Care Organization (ACO) All-Payer Model.

The VHIE is a crucial component in the success of delivery system reforms as these initiatives are hinged on engaging providers with tools, supports, and data to focus care on improved health outcomes, and data is essential to evaluating and understanding the impacts of value-based care models. The VHIE provides health data on people attributed to delivery system reform programs directly to program operators. For instance, the VHIE provides the Blueprint for Health program with a clinical data extract which is used to evaluate program performance and inform quality improvement activities.

7. Proposed Value Based Care Outcome: Availability of the HIE system to positively impact health policy priorities.

IT Systems Enabling Outcomes: Terminology Systems, Master Patient Index, VHIE to OneCare Gateway, Data Warehouse

Proposed Metric Supporting Outcome	Rationale for Proposed Metric
Metric 7.1: Blueprint for Health Clinical Extract Report from the VHIE	The Blueprint for Health Clinical Extract Report produced by the VHIE represents the use of the health information exchange system in providing needed data to support operation and evaluation of value-based care programs in Vermont.

Metric	May 2021	January 2022	May 2022	September 2022
7.1 Blueprint for Health Clinical Extract Report from the VHIE				