Vermont's Health Information Exchange Strategic Plan

2018-2022 Plan (2020 Update)

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 imagine a future where health information exchange (HIE) truly exists and illustrate a path toward realizing that vision. In 2020, Vermont made progress towards its vision for efficient and effective health information exchange, including:

- Demonstrating the essential role of a health information exchange as a tool in effective public health response;
- Supporting patient-centered care by aligning health records across care delivery settings through enhanced record matching capabilities. Preliminary results under the Collaborative Services project indicate 95% match rates (for a reference population); and
- Creating operational efficiency by discontinuing the use of an antiquated clinical data system (the Blueprint for Health's Vermont Clinical Registry) while eliminating duplicative maintenance and support costs and enhancing the VHIE's base technology.

Written by the Department of Vermont Health Access' (DVHA) 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 second annual update to the original strategic plan.

The HIE Plan illustrates important strategic planning concepts which have underpinned HIE progress statewide in recent history and continue to energize planning. The HIE 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 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 will not sufficiently support progress in health data exchange efforts. This plan update addresses each of these components as reflected in the tactical strategies for the year ahead.

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. The impacts of COVID-19 affected all considerations this year and have highlighted several opportunities to make real impacts on the health system through health data collection and exchange. Additionally, this year new federal rules were adopted that aim to empower people to be true consumers of health care by allowing them to access their health records and obtain information about their providers and insurers. These new "interoperability" rules require health care payers, health information exchanges, and other parties to institute new standards, opening the doors for people to access and use their own health records.

2020 Progress

Considerable progress has been made in Vermont's HIE system since 2017. Each year's progress creates opportunity for more robust data exchange in the years ahead. Progress since the HIE Plan was updated in 2019 is summarized as follows.

Collaborative Services

The Collaborative Services Project kicked-off in 2019 with a commitment from various HIE partners to invest in improving the foundational services offered by Vermont's Health Information Exchange (VHIE). The project offers an opportunity to invest in one system for a more efficient way of obtaining valuable, usable data to improve, measure, or direct health care.

The Collaborative Services Project is managed in phases. The first two project phases are on track to be completed by early 2021. Vermont Information Technology Leaders (VITL), in collaboration with the Department of Vermont Health Access (DVHA) and the HIE Steering Committee, have developed a process whereby data users are directly involved in selecting and supporting the implementation of new technical solutions. By the end of 2020, it is expected that VITL will have significantly improved the VHIE's ability to match patient records, translate electronic health records into usable data, and parse and route records depending on need. In 2021, VITL will deploy a new data repository to provide Vermont health care data for data management activities (reporting, analytics, etc.) with the objective of supporting health care quality and efficiency across the care system. The Collaborative Services technical infrastructure is expected to create efficiencies in the system by reducing the need for individual organizations to manage data matching and quality, thereby streamlining access to and use of the data that the VHIE aggregates.

In 2020, the Steering Committee established the Collaborative Services Subcommittee, which was a reinvigoration of a procurement group that VITL used to help them select a vendor for their Collaborative Services data repository. The purpose of the subcommittee is to provide strategic insight to VITL as they progress on the Collaborative Services Project and provide project assessments and recommendations to the HIE Steering Committee so they can oversee successful implementation of this cornerstone effort. In September 2020, the subcommittee's assessment 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 Collaborative Services Subcommittee's assessment is available in Appendix H.

The Collaborative Services Project will not only allow the VHIE to meet the requirements set forth by the 21st Cures Act regulatory framework but to also aggregate new types of health data which have not yet

been integrated into the VHIE. In partnership with VITL, the HIE Steering Committee considered the aspects of financing, policies/processes, and governance that will enable technical advancement to ready the system to integrate new types of data into the VHIE. See **Figure 9: New VHIE Data Types Planning** on page 39 for the roadmap of plans supporting the introduction of new data into the VHIE.

HIE Governance

The HIE Steering Committee was established to ensure that Vermont unites health system stakeholders around the development and oversight of a statewide HIE strategic plan. Since its inception in late 2017, the group has evolved considerably from a focus on strategic planning to implementation of a directive oversight model which relies on guided subcommittees whose members include subject matter experts and direct data users.

The 2020 HIE Steering Committee subcommittees are as follows:

- The **Collaborative Services Subcommittee** as noted above.
- The **Connectivity Criteria Subcommittee** updated the VHIE Connectivity Criteria for existing and new-to-the-VHIE data types. To bolster data quality, the Connectivity Criteria establishes standards for data transmitted to and managed by the VHIE. This work is completed on an annual basis. In 2020, subject matter experts were added to the subcommittee to focus on setting standards for data from Designated Agencies (DA). The effort was a requirement of a state grant aimed at offsetting the DA's cost of newly implemented electronic health record systems. The DA Connectivity Criteria standards are intended to support a pilot whereby VITL begins to manage substance use disorder, mental health, and behavioral health data. The updated Connectivity Criteria is in Appendix E.
- Building on the work done by the Connectivity Criteria Subcommittee, the **Part II+ group** is operated by VITL and supported by the HIE Steering Committee. This group is implementing a stakeholder driven process 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 **Interface Prioritization Subcommittee** crafted criteria for prioritizing which interface connections VITL develops to transmit electronic health records from practices to the VHIE on an annual basis. The prioritization criteria were approved by the Steering Committee and are available in Appendix F.
- The **Consent Subcommittee** continues to work to implement and evaluate Act 53 of 2019 which changed the State's consent policy for sharing information stored in the VHIE from opt-in to opt-out.

Act 53 of 2019: Consent Policy Implementation

On March 1, 2020, Vermont changed the consent policy for sharing information stored in the VHIE from opt-in to opt-out.[3] As a result, Vermonters no longer need to affirmatively express to their provider that they would like their health records shared with their other providers, it happens automatically. However, it is important to note that Vermonters have continued choice and maintain the right and option to not share their health records using the VHIE.

[3] Act 53 of 2019

Act 53 of 2019 required DVHA and VITL to communicate with all Vermonters about:

- The purpose of the VHIE
- The way in which health information is currently collected
- How and with whom health information may be shared using the VHIE
- The purpose for which health information may be shared using the VHIE
- How to opt-out of having health information shared using the VHIE
- How people can change their participation status in the future

With oversight from the HIE Steering Committee, DVHA and VITL worked together to engage a broad swath of stakeholders with different lived experience, interests, and relationships with the health care system to develop a robust outreach effort with the objective of Vermonters making informed, meaningful decisions about who has access to their health records. This effort was commended by stakeholders and reviewed with the Green Mountain Care Board and Vermont Legislature. See full details on the evaluation of this work in Appendix G.

Prior to the policy change, providers were limited to health information on about 40% of Vermont patients. As of this writing, the VHIE contains at least some health information for most Vermonters, making the system more valuable to those who use it.

COVID-19 Response Efforts

The COVID-19 public health emergency has altered the health care system in myriad ways, one of which is a greater focus on the need for seamless, real-time data exchange to support direct care, lab connectivity, syndromic surveillance, immunizations, and state and national reporting. Shortly after the pandemic became widely understood, VITL, the Vermont Department of Health, OneCare Vermont, Bi-State Primary Care, and many others amplified their data capabilities to support their constituents. The HIE Steering Committee focused on the data exchange activities catalyzed by COVID-19 in 2020 and the associated lessons learned drive VHIE priorities for 2021 and beyond.

The *HIE Ecosystem: Technology* section of this plan includes a summary of COVID-19 response activities and the associated future opportunities agreed to by the HIE Steering Committee. Note: as an ongoing and quickly changing situation, this version of the Plan may not fully reflect all response efforts or mitigating activities resulting from the continuously expanding set of lessons learned and needs identified.

This version of the HIE Plan contains an update to the *Protocols for Access to Protected Health Information on the VHIE* in Appendix A to allow for sustained data sharing with Vermont's Department of Health. Under emergency orders of the COVID-19 pandemic, the VHIE has been sharing data with the Department of Health, which has expanded their ability to monitor and respond to the public health crisis. The updated Protocols included in this Plan articulate how the Department of Health 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.

2021 Focus Areas

The HIE Steering Committee has evolved since its establishment, growing from a group focused on the development of a strategic plan to a group that now oversees the execution of plans while setting the strategic path ahead. In 2021 and beyond, the Committee's work will be guided by the

outcomes of executed strategic plans, shifts in the HIE marketplace and the health care system at large, and new opportunities created by the response to the COVID-19 pandemic and federal interoperability mandates.

Vermont's 2021 HIE work can be summarized in four categories:

1. **Catalyzing the Progress Made in the COVID-19 Response** – The work done to accelerate data sharing to support pandemic response has illuminated many opportunities. *The HIE Ecosystem: Technology* section of this Plan includes more detail on maximizing the momentum of enhanced data exchange to support pandemic response.

2. **Complying with New Federal Interoperability Rules** – The Office of the National Coordinator (ONC)[4] and the Center for Medicare and Medicaid Services (CMS) released final rules driving health care payers (insurers), health information exchanges, providers, and Information Technology (IT) developers to make data more accessible to people so they may take ownership of their care, and to the health care community so they can best coordinate and transition care. A summary of the new rules is in included in the *HIE Ecosystem: Policy* section and the *HIE Ecosystem: Technology* section looks at associated next steps.

3. **Continuing to Support the Collaborative Services Project** – The Collaborative Service Project is a significant step in Vermont's HIE Ecosystem – aligning strategies across data users and unifying investments in one central system, Vermont's Health Information Exchange – in the name of improved results. In 2021, the Collaborative Services Subcommittee will continue to help VITL develop the Collaborative Services infrastructure to meet users' needs. Also, VITL will follow guidance set forth by the Committee to begin managing new types of data, better representing the holistic needs of people and those who care for them.

4. **Evolving Statewide Governance** – The HIE Steering Committee continues to make progress toward achieving health data exchange goals in Vermont. In 2021, the Committee will establish new subcommittees to bring in technical experts to support their oversight, evaluation, and development of the statewide strategic plan. Additionally, the Committee has recommended changes to membership, proposing the addition of representatives from long term care and home health organizations.

In 2021, 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.

[4] 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

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*.

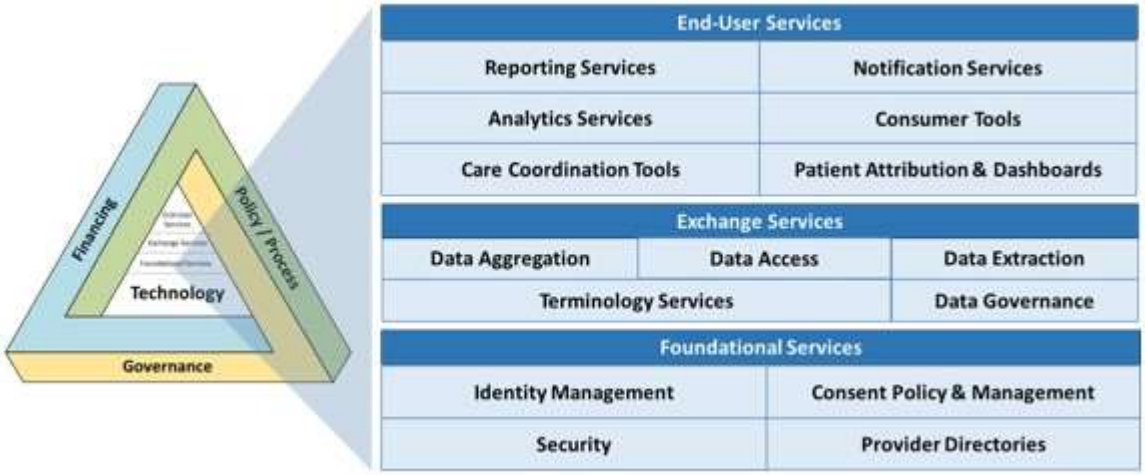

Figure 1: HIE Ecosystem - The Pillars

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 – financing, governance, policy/process, and technology.

HIE Ecosystem: Policy/Process

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

- 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.

In 2008, Vermont's General Assembly established the Health-IT (HIT) Fund to provide dedicated funding for "health information technology adoption and utilization." A .0199% tax on private health insurance claims is the HIT Fund's primary revenue source.[4] Each year since its establishment, the HIT Fund has been extended for another year, except for 2019 when the Fund was extended for two years.

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.

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 (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 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, Information Blocking, and the ONC Health IT Certification Program (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.

The ONC final rule also established a regulatory framework to prevent industrywide information blocking practices and other anti-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 rule advances common data through the United States Core Data for Interoperability (USCDI). The USCDI is a standardized set of health data classes and data

What are APIs?

APIs are technology that allow one software program to access another software program. APIs hold the ability to 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 to an Immunization Registry).

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

[6] 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 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.[7]

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 will be 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 leading to better informed treatment.

This Patient Access API will allow patients 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 (PHR). 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.

In an effort 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.

CMS is also requiring states to send enrollment data daily beginning April 2022 for beneficiaries enrolled in both Medicare and Medicaid, allowing care administrators to understand how people are insured to support coordination of care. Sharing enrollment data is expected to ensure that people gain access to appropriate services and that these services are billed appropriately the first time, eliminating waste and burden.

In addition to the Interoperability rule, in October 2020, CMS partnered with the US Departments of Labor and the US Department of the Treasury to issue a rule on price transparency. Impacting many of the actors covered by the Interoperability rule, this new price transparency rule requires sharing of the cost of specific medical services to allow people to evaluate cost before seeking care. The information required by both rules could be presented together in apps that show people records of their care and the costs of their care with comparison to average costs for like medical services. The public will likely begin to see apps with this newly available data in late 2021.

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

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.

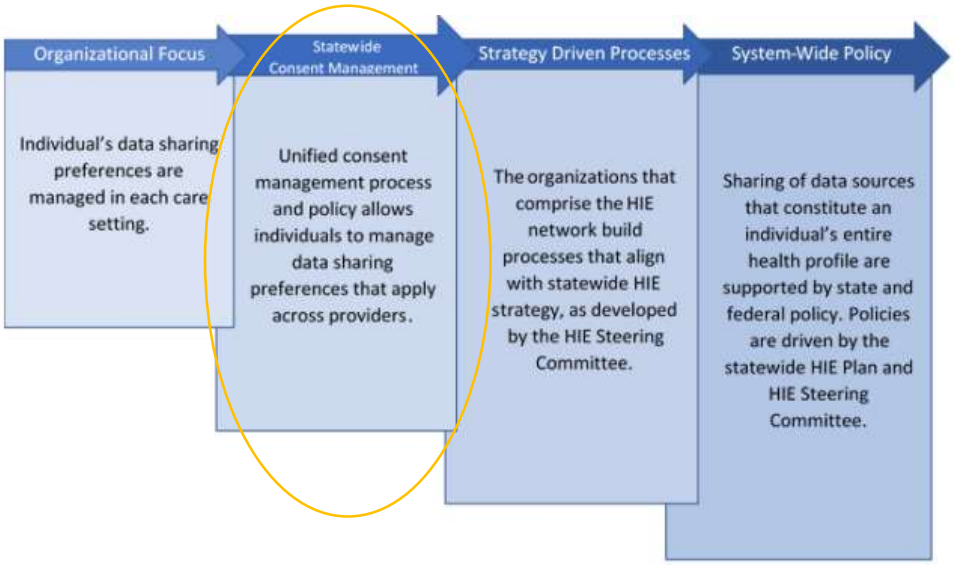

Figure 2: The HIE Policy and Process Maturity Model

Vermont's Act 53 of 2019 created the possibility of a unified consent management process and policy that allows individuals to manage their own preferences for data sharing, however, it is only applicable to physical health data (see Appendix A). In 2021, the HIE Steering Committee and their subcommittees will begin to further develop 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). Exchange of substance use disorder 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 Part 2 data sharing more closely with HIPAA and may reduce consent management burdens on providers.

While the considerable progress made in Vermont's HIE system is evident in this plan, it has been possible because of policies that provided 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 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 expires in late 2021. Therefore, **the HIE Steering Committee recommends that the Vermont Legislature continue the HIT Fund 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 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 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 continue to represent the HIE Steering Committee's focus, as do the original guiding principles. 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**[8]. 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.

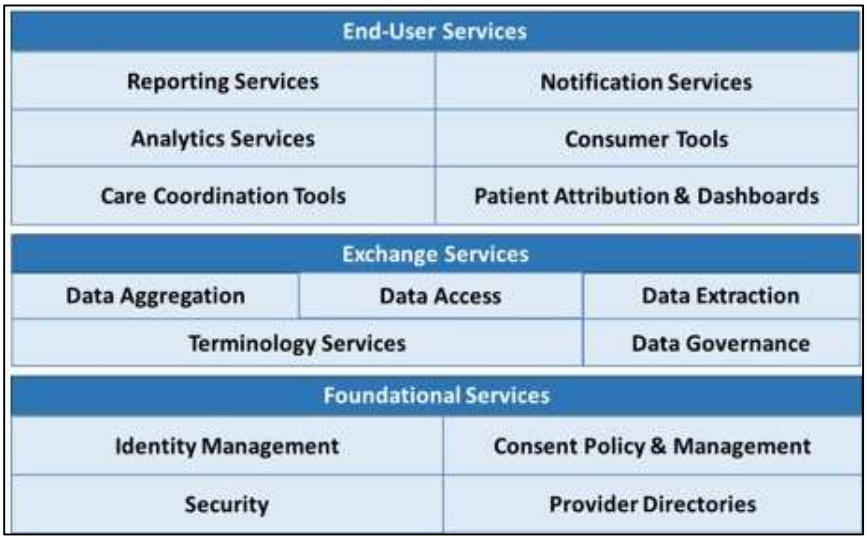

Figure 3: HIE Conceptual IT Services Model

[8] 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.

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 VHIE 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 pushing data to public health registries and analytics engines) and some of the relationships are planned (i.e., integration of claims and social determinants of health data within the VHIE). The VHIE Architecture Diagram was inspired by a similar systems picture developed by Johns Hopkins School of Medicine.

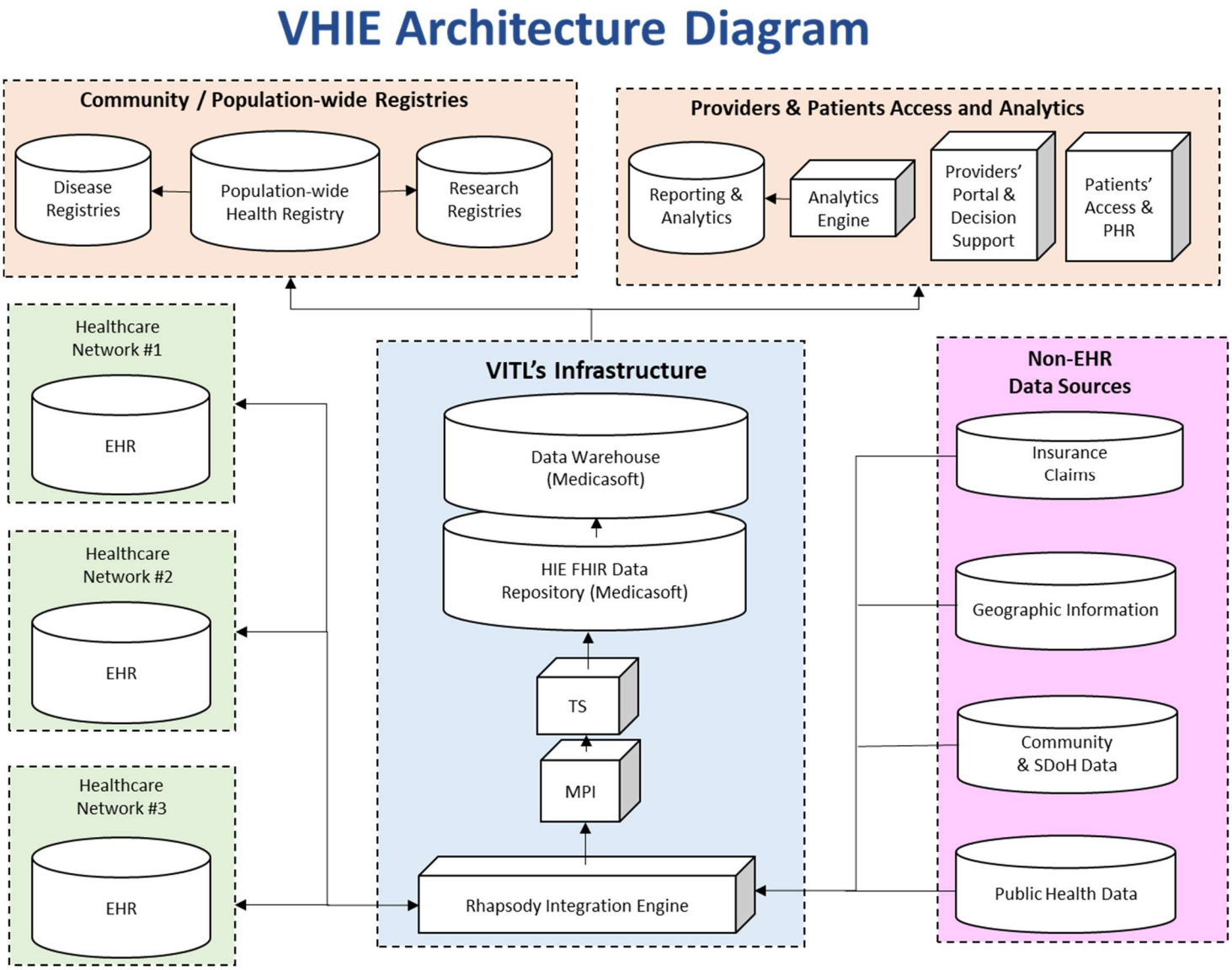

Figure 4: HIE Architecture Diagram

A Review of 2020 Advancement & A Look Ahead

The HIE Steering Committee's IT oversight and planning work in 2020 was 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.
- The successful execution of Phase I of the Collaborative Services Project and the initiation of Phase II that aim to solidify the VHIE's technical infrastructure.
- Newly released final "interoperability" rules from the ONC and CMS that establish a technical and regulatory framework that aims to put people at the center of their own health care by arming them with their health records and information about their providers. The rules expand data sharing standards and requirements.

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 key partners 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 each health care provider 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 because 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 the 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 regulations from the Centers for Disease Control, require that providers, hospitals, and labs send data to their state or local health departments. Even though it is not mandatory, all 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 the HIE 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 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 VHIE, 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 Vermont's Agency of Human Services (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 the 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. Since that time:

- The group developed an interface between VT Public Health Laboratory (VPHL) and the VHIE to allow providers direct access to the VPHL testing data through the VHIE provider portal, VITLAccess, and enabled electronic lab results delivery into EMRs.
- VITL has generated a daily report on positive test results for the State of Vermont's epidemiological modeling.
- A COVID-response focused team of VDH staff have been trained on and gained access to patient records in the VHIE via the provider portal to gather data on patients that have tested positive

for COVID-19. Data gathering enables contact tracing of infected patients, without burdening providers with direct inquiries about health records. This data also supports epidemiology - analysis of the distribution, patterns, and determinants of health and disease conditions in defined populations.

- VITL has been generating data to support VDH's federal reporting requirements to the NNDSS and other federal entities for national disease tracking.

- VITL has been working to connect locally-based Emergency Medical Technicians (EMTs) 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 has been feeding Vermont hospital data directly 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 state and federal reporting.

- The VHIE has been capturing data from the Broad Institute, the main research lab supporting Vermont's hospitals and universities in COVID-19 testing. Test results will soon be available through the HIE system allowing providers, on behalf of the people they treat, and VDH, to gain direct access to test results.

- 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 a direct data feed from the VHIE to the Bi-State systems.

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

With the COVID-19 response efforts in mind, the HIE Steering Committee recommends pursuing the following opportunities catalyzed by this increased focus on public health and HIE integration. It is important to note that these planned activities not only align with national guidance from the ONC, the federal entity charged with coordinating nationwide health data exchange, but with guidance from the Centers for Disease Control and Prevention that promotes new targets for data system interoperability in the CDC Data Modernization Initiative.[9]

> "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)*

- VITL is working with VDH to plan for the connection to national tools being developed to capture and share information about immunization activity. Currently only about 56% of vaccinations are documented in the VHIE. Connecting the VHIE to this national data source will allow providers to have a more complete patient history in one location.

- VITL is also working to move high volume immunizers like pharmacies from a monthly batch file to daily automated HL7 files to help VDH with the CDC's daily reporting requirements for COVID-19 vaccine administration.

- VITL will automate sharing of statewide testing results and enhance vaccine collection through the VHIE. Additional sites may include long term care facilities and added commercial labs.

- VITL is continuing data sharing to support ongoing syndromic surveillance through the VHIE, beyond COVID-19. Note: the *Protocols for Access to Protected Health Information on VHIE* (Appendix A) have been amended to include data sharing from the VHIE to VDH on an ongoing basis.

- VITL will connect additional VDH registries to the VHIE to automate public health reporting to VDH and make essential data available to providers (e.g., birth, death, immunization). Integration of the death registry and the HIE is underway.

- VITL will establish direct feeds of lab results to health care organizations and offer reporting to stakeholders for specialized care needs. The new VHIE data repository (Phase II of the Collaborative Services Project) will allow for on-demand data pulls to support a range of user's needs.

- VITL aims to connect providers to direct lab feeds across the State to ensure they have the real-time information they need to provide care.

- VITL will leverage the VHIE's connection to EMResource to automate hospital reporting in future emergencies.

[9] 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

- VITL is working to expand the VHIE connection to a national network – eHealth Exchange – to enable Vermont's providers and VDH to access Vermont patient data from care that occurred outside of state borders. This connection will also make health data available to providers outside of Vermont providing care to Vermonters.

- VITL is continuing to expand EMT/EMS use of the provider portal, VITLAccess.

Collaborative Services Project – Phase I & II, Next Steps

The Collaborative Services Project is 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. Below are details on technical implementation of the Collaborative Services Project.

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). *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 is focused the procurement of a 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 "master 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. Phase II is well underway and expected to be completed in the first half of 2021.

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). The subcommittee members will continue to work with VITL to ensure that phases III and IV of the project are implemented in a way that meets their unique data needs.

Phase III of the Collaborative Services Project involves managing new data through the technologies established in Phases I and II. The HIE Steering Committee has directed VITL to begin expanding data in the VHIE with a focus on substance use, mental health and behavioral health data, social determinants of health data, and claims.

The technical implementation of this phase is supported by the development of policies and procedures that outline details around data access, security, consent to share, and data governance - a great deal of which will be discussed by Steering Committee subcommittees in 2021. VITL is positioned to execute the technical aspects of Phase III as the MedicaSoft data platform is used to unify clinical and claims data in other states. Data standards for social determinants of health, mental health, behavioral health, and

substance use disorder are well established through the FHIR (Fast Healthcare Interoperability Resources) data standard and other data standardization efforts such as the Gravity Project[10].

Phase IV of the Collaborative Services Project is expected to focus on decision support and analytics. 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. Phase IV of the project represents demand-driven services. This will likely mean deploying the new tools and data to support analytics, alerts, care coordination, population health management, syndromic surveillance, care, research, etc. As VHIE data users, the members of the Collaborative Services Subcommittee will likely influence how this phase of the project is implemented.

Federal Interoperability Rules

The ONC 21st Century Cures Act Final Rule 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 Final Rule describes a technical compliance framework that would deter "information blocking" to ensure that gaining access to one's health information does not to 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 rule. VITL's planned upgrade to the MedicaSoft clinical data repository platform positions them to comply with these new rules. The MedicaSoft platform is based on a FHIR Data Model which CMS and the ONC require in the new interoperability rules. The planned go-live for the platform is early 2021 and compliance with the "information blocking" rules is required by February 2021. Leading up to the start of the enforcement period for these new rules, VITL will be working to augment their policies and procedures to ensure that their operations support compliance with the rules. VHIE compliance is expected.

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

Though HIEs are not 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.

Hospitals are 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

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

the electronic health records they aggregate, they may be able to coordinate the notification services on behalf of hospitals. It is up to the discretion of the hospitals to determine how they meet the requirements of CMS' interoperability rule.

Clarity on VITL's role in aiding the broader health care system in complying with the interoperability rules will come in 2021 and 2022, when the enforcement periods begin.

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 in 2020 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 health care 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**	**Status**	**Timing**
Objective #1: Deliver Quality Data at the Point of Care Share appropriate information with individual's care teams to support care management and care coordination.	Strengthen identity matching and broaden its use across all health services	Executing	Short Term
	Support VHIE connection to national networks	Executing	Short Term
	Ensure that longitudinal health records are based in USCDI and FHIR standards, as detailed by ONC's Interoperability Rules	Executing	Short Term
	Expand use of electronic health records and other technologies across the full spectrum of care delivery	Executing	Short Term
	Include telehealth and consistent with USCDI & FHIR R4 APIs.	Initiating	Medium Term
	Optimize care delivery with evidence-based clinical decision support tools	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.	Leverage VHIE foundational IT infrastructure to support public health data management	Executing	Long Term
	Establish lab interfaces with the VHIE to enable rapid sharing of disease surveillance data to predict epidemics, prevent outbreaks, and save lives	Executing	Short Term
	Establish a bi-directional connection between the Immunization Registry and the VHIE	Exploring	Long Term
	Connect the Death Registry and the VHIE to ensure that providers and analysts can gain timely access to death data	Exploring	Long Term
	Integrate VPMS (PDMP) and the VHIE to expand access to needed pharmacy data	Exploring	Long Term
	Leverage VHIE data to enable electronic clinical reporting	Exploring	Long Term
	Provide mechanisms for 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) while adhering to state and federal regulations.	Develop connectivity criteria to define data elements specific to sensitive care settings	Executing	Short Term
	Connect care settings that create sensitive data with the VHIE e.g., Designated Agencies	Executing	Short 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, BH, women's health, etc.	Initiating	Medium Term
	Map sensitive data to standards	Planning	Medium Term
	Develop consent management model- security tags (granular consent), a FHIR data model feature (opt in)	Exploring	Long 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
	Create technical and operational processes for aggregating claims data; utilize the FHIR model to do so	Planning	Medium Term
	Connect SDoH data sources, like the Agency of Human Services, to the VHIE	Planning	Near Term
	Develop a consent protocols for aggregating and exchanging SDoH data	Exploring	Medium Term
	Ensure VHIE utilizes the Gravity FHIR resource for standardized SDoH data management and exchange	Exploring	Long Term
Objective #5: Automate Quality Reporting Support and enhance quality reporting by harmonizing reporting requirements, standardizing reporting formats, and creating a reliable, predictable pipeline of information captured with minimal disruption to workflow.	Implement a VHIE data repository able to parse and distribute patient-level data based on users' needs (e.g., HEDIS, emergency response systems) Note: the Collaborative Services Project Subcommittee will support VITL in identifying data reporting requirements (individual organizational needs)	Initiating	Medium Term
Objective #6: Provide Consumer Access People 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 ONC's 21st Century Cures Act to open data access to patients via API	Initiating	Medium Term
	Explore a personal health record system that unites data across source systems to illustrate a full health history for patients	Initiating	Medium Term

Figure 5: HIE Technical Objectives & Tactics

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 cover close to 90% of project costs.[11]

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.[12] 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.

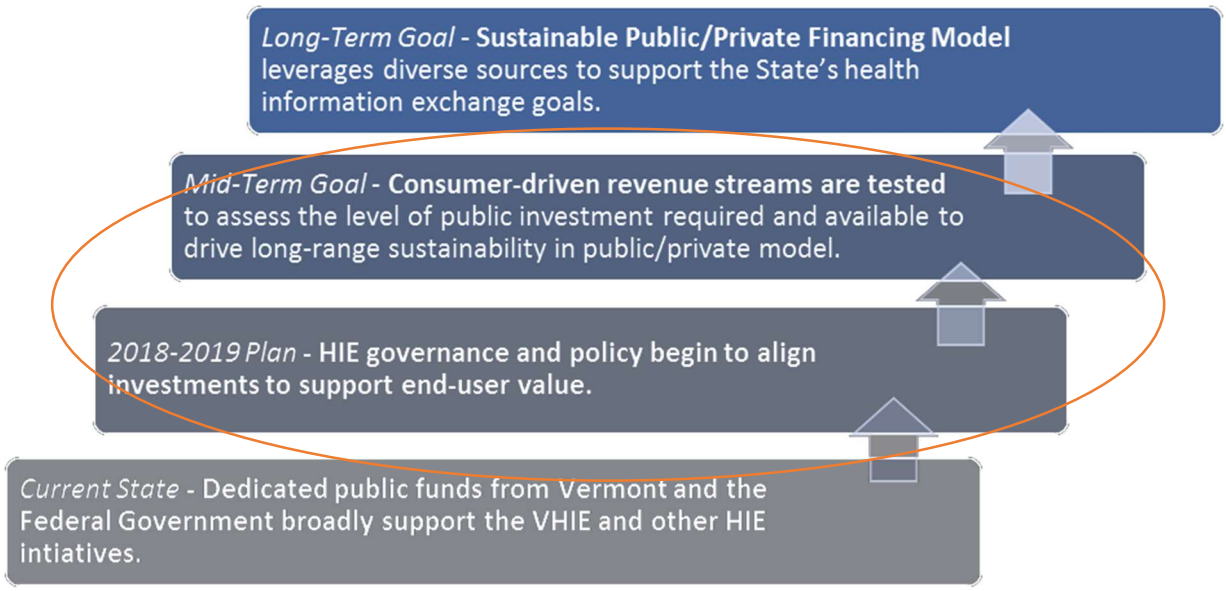

Figure 6: HIE Financing Maturity Model

[11] 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.

[12] 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 (beginning in 2019), 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?*

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

- HITECH (federal Health-IT) funds that support adoption of health-IT and development of HIE infrastructure must be drawn down and managed by Medicaid agencies and the funds must be primarily used to benefit Medicaid members.
- To leverage the significant investment dollars currently available through HITECH, 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.
- As the HITECH Act funding sunsets on September 30, 2021, funding strategies for state directed HIE work begin to shift. The Centers for Medicare and Medicaid Services (CMS) are continuing their commitment to HIE investments but changing the way in which they invest by merging several funding streams together under the Medicaid Enterprise Systems (MES). New mandates, and likely associated funding, are also expected from the US SUPPORT Act (pharmacy and prescribing data) and the CDC (encouraging improved data management and integration with data systems for state Health Departments).
- The federal investment funds that were directly targeted at establishing HIE institutions, like the VHIE, are no longer available.
- Value is intrinsically linked to a financial relationship. Public funds supported the development of the VHIE and offset costs of 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 10). Most providers and stakeholders have not been asked to directly invest in health data exchange which has limited their financial relationship to outcomes.

There are new federal initiatives that may provide funding opportunities or may include new requirements for which some level of federal financial contribution is expected. These opportunities include pursuing the certification of the VHIE through CMS' Outcomes-Based Certification process and Vermont designing and operating a continuation of the Medicaid Promoting Interoperability/EHR Incentive Program.

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.

In 2021, the HIE Steering Committee will hold a short-term subcommittee to focus on the design of the outcomes for the OBC process. The outcomes and supporting metrics will be approved by the Committee, and DVHA will propose the results to CMS. The State believes that the VHIE will be ready for certification following deployment of Phases I and II of the Collaborative Services Project in early 2021. A system must be operating in its certified capacity for 6 months before certification can occur, but funding is retroactive to the date the system began operating in its certified capacity.

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.

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 continue through 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. Though the federal funding available is still being determined, CMS has notified states that they will provide funding for incentive payments that would offset the cost of electronic health data systems (requires approval of a state's program design).

Though the HIE Steering Committee is awaiting more details on the program opportunity, they agree 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. Additionally, more data on health and the impacts on health enables improved analytics to illustrate where delivery system investment is most needed. The HIE Steering Committee agreed to revisit this topic (likely in early 2021) once CMS has provided details on funding and program requirements.

Evolving VHIE Financing

Amplifying the VHIE's base technology through the Collaborative Services Project is assumed to position VITL to provide demand-driven services, such as reporting, data for analytics, and support for providers and hospitals in meeting the requirements of new federal interoperability rules (e.g., providing patients access to payer data through APIs and Admit Discharge and Transfer [ADT] notifications across hospital networks). The Collaborative Services Subcommittee's work in 2021 will aid VITL in defining what services would be most useful to health system data users.

Of note, in 2020, Vermont experienced a similar situation to other states – hurdles to integrating public health and HIE operations diminished by the pressing needs of those responding to the COVID-19 emergency. Detailed further in the *HIE Ecosystem: Technology* section of this plan, a drive to aggregate lab and testing data in in the data exchange system has catalyzed opportunities such as enhancing the State's public health data registries through integration with the VHIE. These new opportunities are likely to result in financed projects in 2021 and subsequent years, particularly because they are so well aligned with the initiatives that CMS has agreed to fund under the HITECH Act and later through the Medicaid Enterprise Systems (MES) funding stream.

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 - 2020.

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 and enable the organization to demonstrate value to customers, garnering investment from private funding sources. The Steering Committee must 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 Sustainable 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)[13] 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."[14] The 2017 Evaluation of Health Information Technology in Vermont noted that the State lacked such a governance structure[15] and in response DVHA established a permanent governing body, the HIE Steering Committee, in 2017 to act as a single point of contact 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[16]).

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**

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[13] 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.

[14] 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.

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

[16] 18 V.S.A. § 9375(b)(2)(A)

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

This 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 the proper standards, in alignment with national standards when available and applicable, that affect the whole network.[17] 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 steward 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. The following section offers a look at subcommittees who provide technical expertise to the Steering Committee on select topics. Each of these subcommittees will be tasked with enabling appropriate data governance of new and existing data through efforts like defining ownership, access and data elements and proposing data management protocols and polices. 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.

[17] 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.***

2. Assess the viability of investments, identify the needed level of investments, and consider the appropriate balance of public and private 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.

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 2020 are described below.

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 2020, 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. This year, they expanded the purpose of this group (subcommittee) to allow for the development of Connectivity Criteria for specific data sets. See page 38 for 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.

See Appendix D for the Connectivity Criteria Subcommittee Charter.

See Appendix E for updated Connectivity Criteria including the criteria developed specifically to allow for data aggregation from Designated Agencies' EHR systems.

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. The 2020 subcommittee began their work well into the year, and ultimately, the VHIE's interface work was largely dictated by COVID-19 response efforts. That said, representatives from the Blueprint for Health program, OneCare Vermont, and Bi-State Primary Care, collaborated with VITL to develop an Interface Prioritization Matrix that can be utilized in the coming years to assess and set annual connectivity priorities. The Interface Prioritization Matrix is available in Appendix F.

Consent Subcommittee

The Consent Subcommittee was established to support the shift in Vermont's consent policy for sharing information through the VHIE from "opt-in" to "opt-out" as authorized by Vermont Act 53 of 2019. *Protocols for Access to Protected Health Information on VHIE* are included in Appendix A.

The Consent Subcommittee developed and implemented a comprehensive patient engagement effort throughout 2019 and the early part of 2020. The Subcommittee's efforts are well-documented in the previous version of this plan posted on: healthdata.vermont.gov.

Act 53 of 2019 requires DVHA, in consultation with the HIE Steering Committee to, "identify a methodology for evaluating the extent to which the public outreach regarding the VHIE, consent policy, and opt-out processes has been successful." To this end, DVHA, in partnership with the Agency of Digital Services and VITL, established the Consent Policy Evaluation Committee, which includes membership from the Vermont Department of Health, the Disabilities Council, the Office of the Health Care Advocate, the Vermont Association of Hospitals and Health Systems, the Vermont Medical Society, Bi-State Primary Care Association, and Vermont Care Partners.

A baseline measurement of patient understanding of their options was established through a statewide patient experience survey conducted before the opt out policy change took effect and future patient experience surveys will be used to assess progress. More on the evaluation is available in Appendix G.

2021 Subcommittees

In 2021, the HIE Steering Committee intends to continue and/or convene the following subcommittees.

The ***Collaborative Services Subcommittee*** will continue their work in aiding VITL in implementing new technologies to meet the needs of their users. In 2021, VITL intends to develop a technical roadmap with the assistance of the members of this subcommittee.

The ***Interface Prioritization Subcommittee*** will meet at the end of each year to develop annual connectivity priorities for the year to come to ensure VITL has ample time to prepare to meet the interface development guidelines set forth by the HIE Steering Committee.

The ***Connectivity Criteria Subcommittee*** will meet annually to update the VHIE Connectivity Criteria for inclusion in the annual update to this plan. Each year, VITL and the HIE Steering Committee will work together to determine if there are data-type specific areas of the Criteria that must be developed. Based on the priorities set forth by the Steering Committee in 2020, it is expected that the Criteria will soon contain standards for claims (if necessary, beyond existing codes) and SDoH.

The ***Population Health Subcommittee*** will advise VITL and other health data producers and aggregators on needed data sets to augment research and population health management efforts. In 2021, the subcommittee will focus on the advancement of work done under 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. 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. See more on this work in the next section.

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. It is expected that they will continue to gather stakeholder input throughout 2020 and propose to the HIE Steering Committee an update to Vermont's policy for sharing VHIE data.

A short-term group will be formed to support the State in developing the outcome measures for Vermont's HIE ***Outcomes-Based Certification*** effort. The OBC is a process offered by CMS to ensure that Medicaid systems are most efficiently serving the needs of Medicaid programs. Through certification, the State can receive enhanced federal funding for VHIE operations.

Aggregating demographic, clinical, and claims data is foundational to evaluate population health statistics and emerging value-based programs. The ***Claims Pilot Subcommittee*** will design a pilot to test the integration of claims data into the VHIE system. VITL has purchased a data management tool that has an established track record of integrating clinical and claims data. If the VHIE can effectively link claims and clinical data, there may be an opportunity to consolidate the technologies used to aggregate claims data. The claims pilot will be based on Medicaid claims, though Committee members agree there will be important distinctions between public and private payer claims that will need to be accounted for before the VHIE can accept claims from all payers.

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

The Collaborative Services Project is an illustrative example of why considering all facets of the HIE Ecosystem (policy, governance, financing) are 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 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.

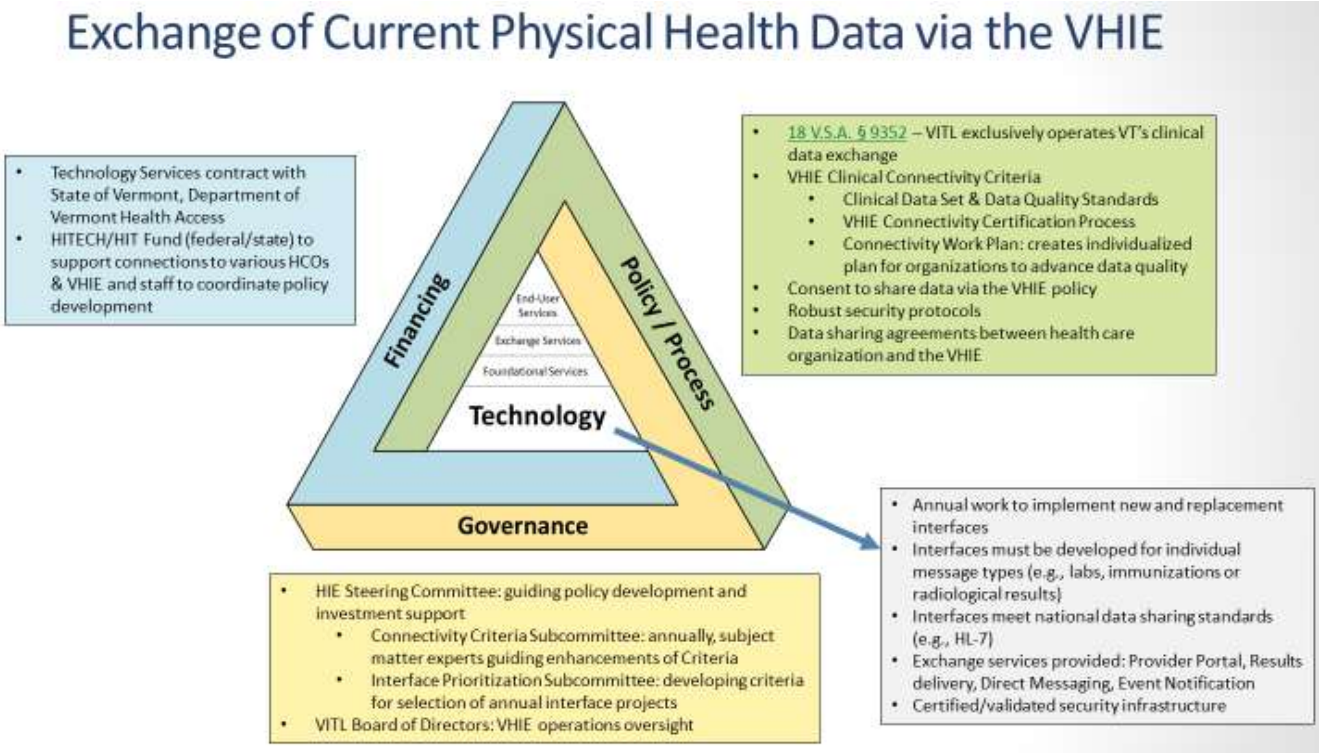

Figure 8: HIE Ecosystem: Physical Health Data

Getting physical health data "right" is the Steering Committee's priority. However, considering the advancements made through the Collaborative Services Project, beginning in 2021, the VHIE will have 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 data onto the VHIE. The timing of plans illustrated in **Figure 9** may shift to better align with existing priorities, such as integrating clinical and claims data through one system to bolster implementation and evaluation of Vermont's All Payer Model, and project schedules of the pilot efforts detailed below.

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 confidentiality 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 2020, there were projects involving the exchange of SDoH data and SUD/MH/BH data, allowing existing efforts to act as the pilot for onboarding

these new data types to the VHIE. Additionally, the Steering Committee agreed to launch a pilot with Medicaid claims data to assess the integration of clinical and claims data using the VHIE data platform.

SDoH 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. They hope to incorporate 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. Those connections will be leveraged to automate data delivery from VCCI to the VHIE and in turn to OCV. The VHIE's new Master Patient Index will be used to identify and match patient records across systems. The next phase of this grant work is expected to involve sharing of some data elements from the Agency's Economic Services Program to OCV through the VHIE infrastructure. All of this work requires AHS, VITL, and OCV to execute data sharing agreements to govern use of data and VITL to implement internal policies for aggregating and protecting this data.

The Steering Committee intends to convene a Population Health Subcommittee in 2021 to determine how the Center for Health Care Strategies grant work may be expanded upon. They will discuss data sources, 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 assess 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 – 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 Population Health Subcommittee will complement other subcommittee's work to prioritize annual system connections to the VHIE. However, it is expected that connections with labs and other sources supporting the COVID-19 response effort will take priority in 2020.

SUD/MH/BH VHIE Pilot

It is understood that 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, the 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 are able to 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. Updated policies will be proposed to the Steering Committee and included in subsequent versions of this plan. In 2021, it is anticipated that the DAs will begin feeding data to the VHIE. It is expected that additional sources of SUD/MH/BH data will be connected to the VHIE in subsequent years.

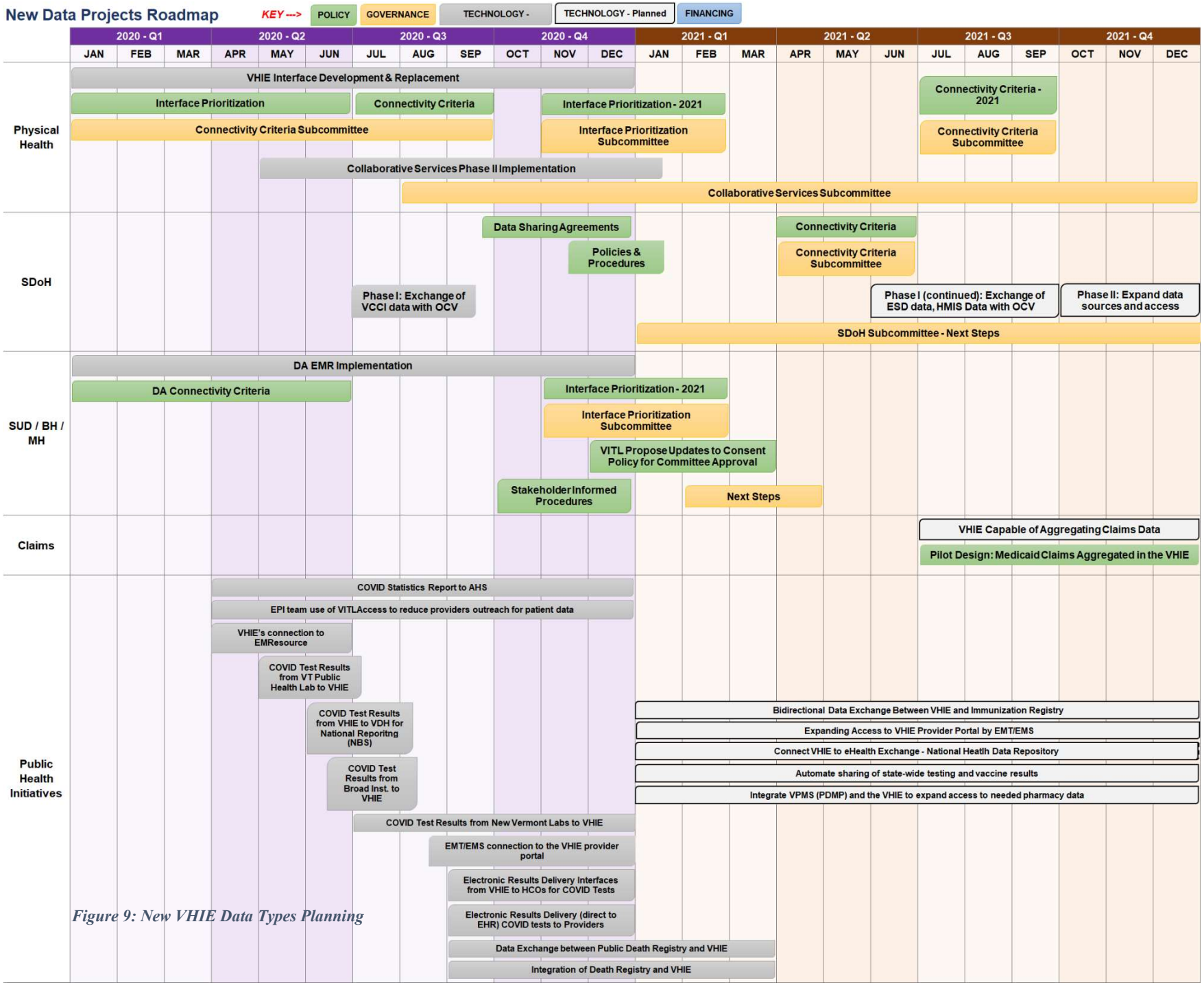

Figure 9: New VHIE Data Types Planning

Future HIE Planning

The HIE Steering Committee recognizes that technology is always changing. Whether it's an announcement that Silicon Valley is taking on the challenge of HIE, the EHR companies are collaborating on an 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 will be updated by DVHA in partnership with the HIE Steering Committee. DVHA, in consultation with the HIE Steering Committee, will fulfill statutory requirements and ensure that the Plan is revised annually and updated comprehensively every five years in order to support continued progress in attaining Vermont's vision for health information exchange.

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 _____.

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

Health Information Exchange Steering Committee Charter

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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
Sandi Hoffman	Chair / Voting Member	Vermont's Agency of Human Services
Tracy Dolan / 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
Tyler Gauthier *OneCare Vermont*	Voting Member	Accountable Care Organization Representative
Beth Tanzman	Voting Member	The Blueprint for Health Program
Sarah Kinsler	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	DVHA Health Information Exchange Unit, 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
BiState 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.

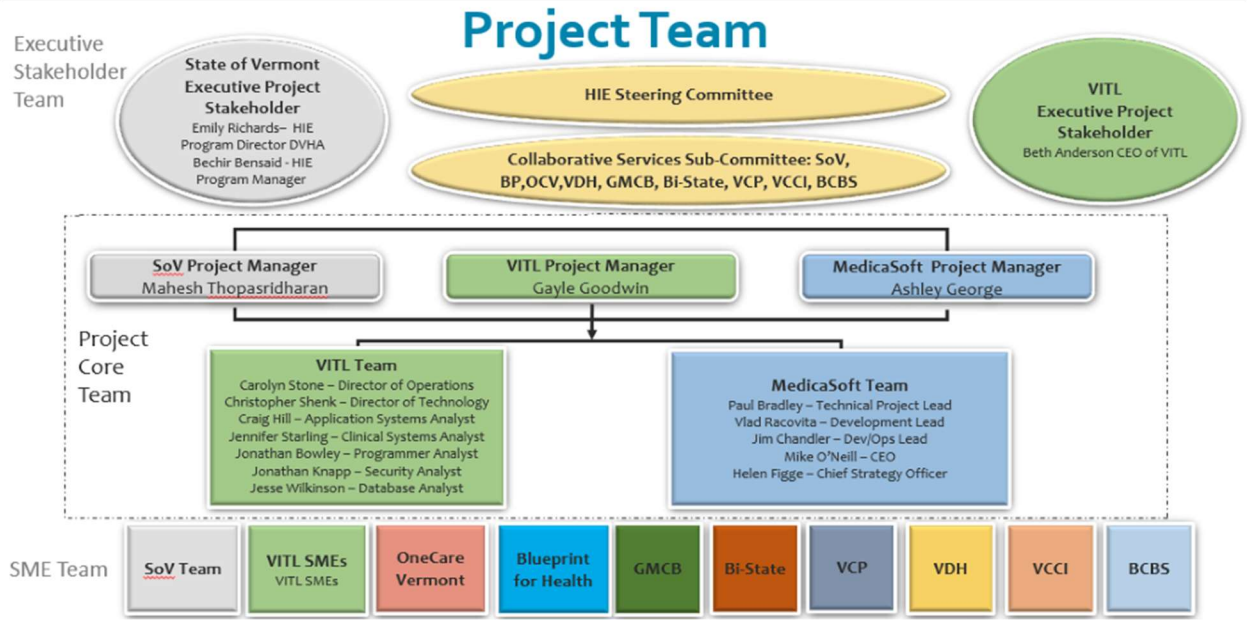

Figure 1: Proposed Project Organization

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 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

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.

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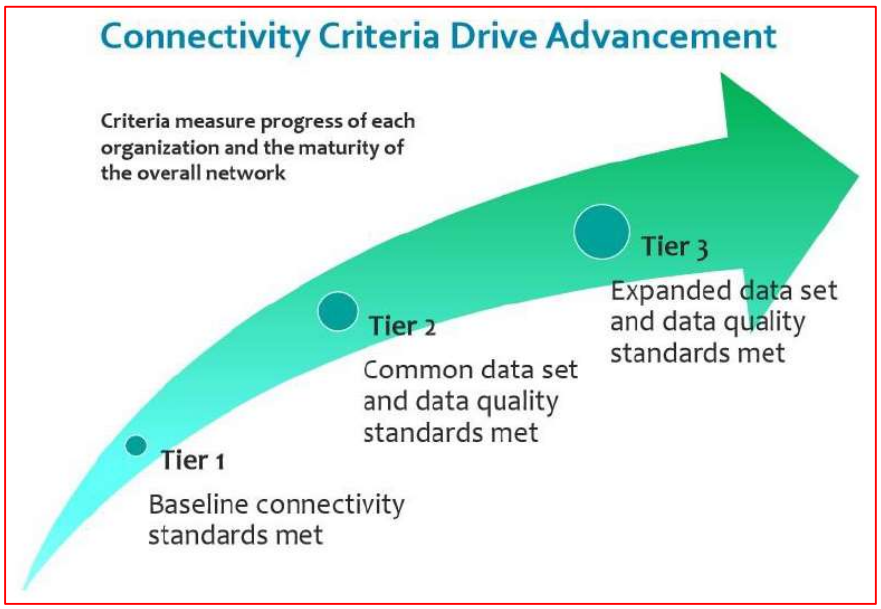
BACKGROUND

"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

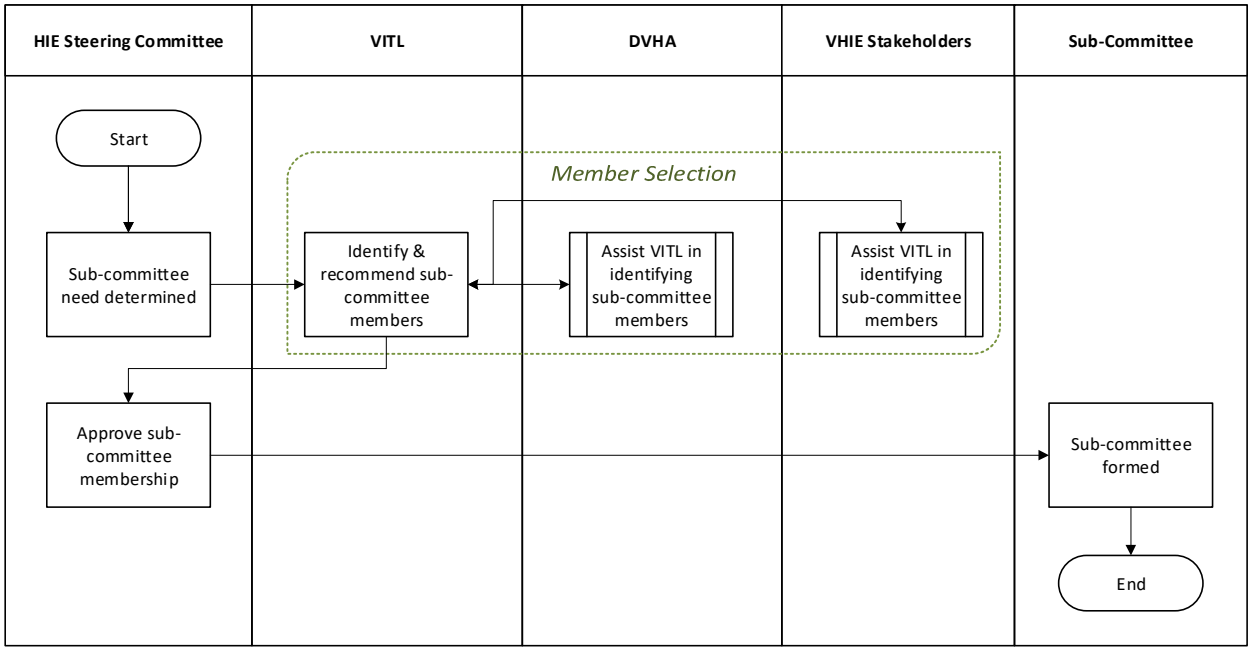
- Review and approve the Connectivity Criteria, including updates, yearly.

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 Elements

VHIE Connectivity Criteria Tier 2 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		
	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		

Tier 2 Elements

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
	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	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: 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	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		

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
	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	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		

Tier 2 Elements

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
	F40-F48 - Anxiety, dissociative, stress-related, somatoform and other nonpsychotic mental disorders	Health status and contact with health services.	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		

Tier 2 Elements

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
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 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		
	Audiological Evaluation, <= 3 months age		Physical		
	Postpartum Care between 21 and 56 days after delivery		Physical		

Tier 3 Elements

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
Procedures	Pulmonary Function Test	Snomed, CPT, HCPCS, Loinc	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 Care or Any Other Site of Care) ("CTR")		Physical		
Chief Complaint	Chief Complaint	Snomed, CPT, HCPCS, Loinc, ICD-9/10	Physical		

Tier 3 Elements

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

VHIE Connectivity Criteria Certification Process

Vermont Information Technology Leaders, Inc.

VHIE Connectivity Criteria Certification Process

Overview

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

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

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

When do Health Care Organizations complete the VHIE Connectivity Criteria?

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

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

VHIE Connectivity Criteria Process

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

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

Certification

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

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

VHIE Connectivity 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):
Electronic Health Record:
Stakeholders: Blueprint for Health, OneCare Vermont, Vermont Chronic Care Initiative, and the Vermont Department of Health

Live Contributing Interfaces:

- Admission, Transfer, and Discharge (ADT)
- Continuity of Care Document (CCD)
- Immunization (VXU)

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 Clinical 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 contributing data as required by health reform delivery and payment programs (ACO, Blueprint for Health, MU, Vermont Dept of Health, other programs)	Green Mountain Care Board (GMCB), ACO, Blueprint for Health, Vermont Dept for Health, VCCI, etc.	Engage with VITL to meet the Baseline Connectivity Criteria; establish connectivity to the VHIE; build interfaces from the Health care organization's EHR to the VHIE	Identify priority HCOs and their locations needing to contribute data Communicate to the prioritized HCOs 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 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

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 Data Set and Data Quality Standards	Participating HCOs in ACO, VCCI, Blueprint for Health, Bi-State, other programs	Population Health Management and Quality care programs (Accountable Care Organization (ACOs); Blueprint for Health; Vermont Department of Health; other) Care management programs being supported (VCCI, OneCare, others). Policy makers, clinicians and HCO administrators reliant on data reports from the Accountable Care Organization (ACOs); Blueprint for Health; Vermont Department of Health; other. Green Mountain Care Board (GMCB)	Capture data in discrete data fields in EHR. Hold EHR vendors accountable for sharing data for program(s) in which the HCO participates Complete the Data Set and Data Quality Standards Worksheet containing the common data set requirements	Establish common clinical data set. Identify HCOs needing assistance in meeting Clinical Quality measures for their program. Partner with VITL and the HCO and the program(s) in data quality projects to improve data quality during and/or post-interface implementation.	Assess the ability of HCOs to document minimum data sets and their EHR's capability to send that data using the Data Set and Data Quality Standards Worksheet. Facilitate the effort with HCOs to improve data quality at the documentation level or the EHR 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 data sets are complete, accurate. Clinical data is standardized and therefore interoperable Expanded applications such as care management and clinical data use can be supported to meet customer specified usage. Performance measurement and population health management 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, etc.) Robust data analysis and reporting to measure performance (Blueprint for Health practice profiles, ACO OneClick, etc.)	Participates in and complies with programs that have specific data quality requirements. Meet the common clinical data set requirements in the Clinical 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 and population management reporting.

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 ACO, VCCI, Blueprint for Health, Bi-State, other programs	Population Health Management and Quality care programs (Accountable Care Organization (ACOs); Blueprint for Health; Vermont Department of Health; other) Care management programs being supported (VCCI, OneCare, others). Policy makers, clinicians and HCO administrators reliant on data reports from the Accountable Care Organization (ACOs); Blueprint for Health; Vermont Department of Health; other. Green Mountain Care Board (GMCB)	Capture data in discrete data fields in EHR. Hold EHR 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 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 and the program(s) in data quality projects to continuously improve data quality	Assess the ability of HCOs to document full data sets and their EHR's capability to send that data using the Data Set and Data Quality Standards Worksheet. Facilitate the effort with HCOs to improve data quality at the documentation level or the EHR technical level to meet stakeholder's and customer's data requirements. Identify data delivery and standardization opportunities Resolve data delivery and standardization opportunities	Clinical 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 data (Comparative data sets, etc.)	Meet the clinical data set requirements in the Clinical Data Set and Data Quality Standards Worksheet Scope of data collected supports performance measures and interoperability supports population health management. 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 and population management reporting.

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

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

Interface Prioritization – Other Considerations/Tiebreakers

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

Interface Prioritization Matrix - 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 Priorites for the year?	Hospital, Amubulatory, Pharmacy, Home Health, Long Term Care (LTC), Dental, Commercial Lab, etc.
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)
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	
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	
Other Considerations	Contributing Data?	
	Receiving Data?	
	Replacements in Past?	
	Programs supported	
	Other special circumstances?	

Interface Prioritization Matrix – Scoring

Categories (100 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
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
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
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.	

Appendix G: Act 53 of 2019, Consent Policy Change Evaluation

Act 73 of 2017 required an evaluation of the performance of the HIE and highlighted Vermont's consent policy environment as a barrier to health information exchange. The evaluation report identified that the exchange of health information was restricted by the opt-in policy resulting in limited value due to limited usage of the HIE. Further, a majority of other states had adopted opt- out consent policies and Vermont was out of sync with much of the rest of the country.

Act 53 of 2019, *An act relating to informed health care financial decision making and the consent policy for the Vermont Health Information Exchange*, adopts an opt-out consent policy for the sharing of patient health information through the Vermont Health Information Exchange (VHIE). The change to the consent policy will allow a higher volume of patient records to be exchanged in the Vermont Health Information Exchange which supports improvements in patient outcomes by allowing providers to make better informed decisions at the point of care.

Act 53 specifies that the implementation strategy include substantial opportunities for public input and includes two major areas of implementation that are the responsibility of the Department of Vermont Health Access (DVHA) – an updated statewide Health Information Technology Plan (the HIE Plan) that provides for the new consent policy and development of an implementation strategy for the new consent policy. Act 53 further specifies several requirements for associated patient education mechanisms and processes.

DVHA, in consultation with stakeholders, developed an implementation plan for the new opt-out consent policy to support Vermonters in making meaningful choices about how they share their health information. Details were reported in, *Progress Report on the Stakeholder Engagement Process and Consent Policy Implementation Strategy of November 1, 2019*, included in the previous version of this plan. After review of this implementation plan and assessment of stakeholder's input, Vermont's consent policy changed from "opt in" to "opt out" on March 1, 2020.

Consent Policy Evaluation

Act 53 requires that Department of Vermont Health Access (DVHA) in consultation with the HIE Steering Committee to, "identify a methodology for evaluating the extent to which the public outreach regarding the VHIE, consent policy, and opt-out processes has been successful." To this end, DVHA, in partnership with the Agency of Digital Services and VITL, established the Consent Policy Evaluation Committee, which includes membership from the Vermont Department of Health, the Disabilities Council, the Office of the Health Care Advocate, the Vermont Association of Hospitals and Health Systems, the Vermont Medical Society, Bi-State Primary Care Association, and Vermont Care Partners. The Committee began meeting on December 6th, 2019 and has met or received an update bi-monthly. The Committee first approved three key study questions that aligned with the objectives and goals outlined in the statutory language of Act 53 (2019). These questions were:

1. Are Vermonters aware of their ability to choose whether their health care providers can see their health information available in the VHIE?

2. Do Vermonters have enough information about the VHIE to make a decision with which they are comfortable about whether to allow their health care providers to see their health information through the VHIE?
3. How easy is it for Vermonter to opt out of sharing their health information with participating providers through the VHIE?

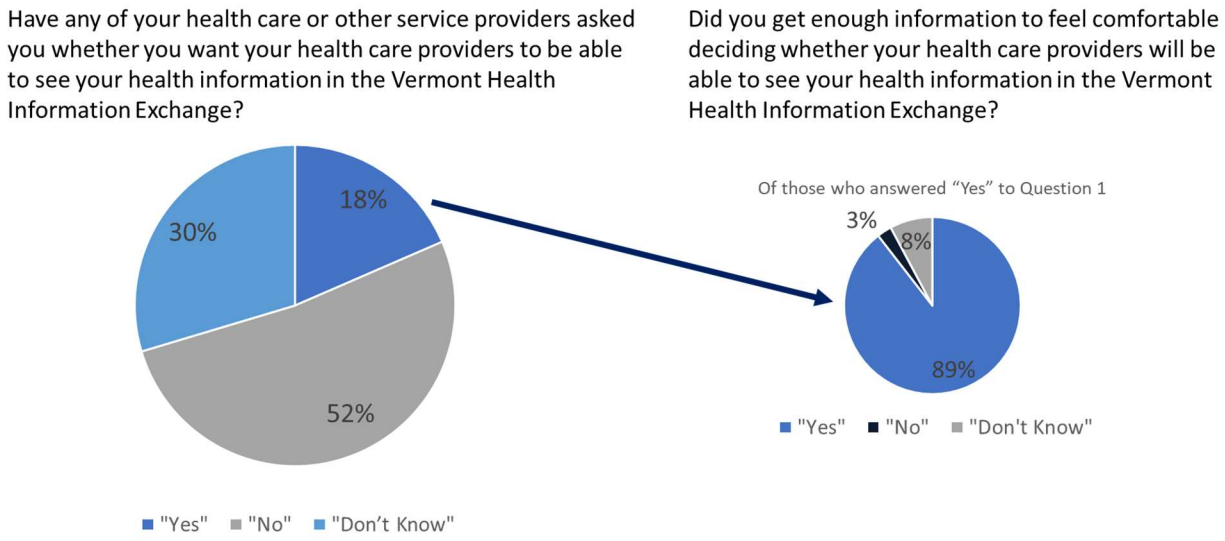
The Evaluation Committee then approved the data sources that had been identified to date. The primary sources of data are: 1) questions specific to the VHIE consent policy included in the Consumer Assessment of Health care Providers and Systems (CAHPS) survey administered annually by DVHA[18] and 2) data from VITL on the number of Vermonters connecting with the organization regarding consent (such as calls to the consent hotline or hits to the consent policy website) and the number of registered opt-in and opt-out decisions.

The 2019 CAHPS survey included two questions that assessed respondents' awareness of their ability to choose whether their health information is shared with their provided through the VHIE and whether they received enough information about the risks and benefits to make a decision with which they were comfortable. The specific text was:

> *The next two questions ask about your knowledge of the Vermont Health Information Exchange. The Vermont Health Information Exchange may electronically collect information about the health care you receive. You can choose whether your health care providers can see this information.*
>
> 1. *Have any of your health care or other service providers asked you whether you want your health care providers to be able to see your health information in the Vermont Health Information Exchange?*
> - *Yes*
> - *No, Go to Question … [Note: In the survey document, a "no response" directs a respondent to a later question]*
> - *Do not know*
>
> 2. *Did you get enough information to feel comfortable deciding whether your health care providers will be able to see your health information in the Vermont Health Information Exchange?*
> - *Yes*
> - *No*
> - *Do not know*

For the 2019 CAHPS survey, 54,051 surveys were sent to Vermonters who had visited their patient-centered medical home in the previous 6 months. Of those, 10,678 Vermonters (a 20% response rate including both adult and pediatric patients) responded. The results for the VHIE consent questions are presented in the below figure. The main findings were that 82% of respondents stated that their provider did not ask, or they did not know if their provider asked them whether they wanted their data shared with providers through the VHIE. Of the 18% of respondents whose providers did ask them, the vast majority (89%) felt they had enough information to make a decision.

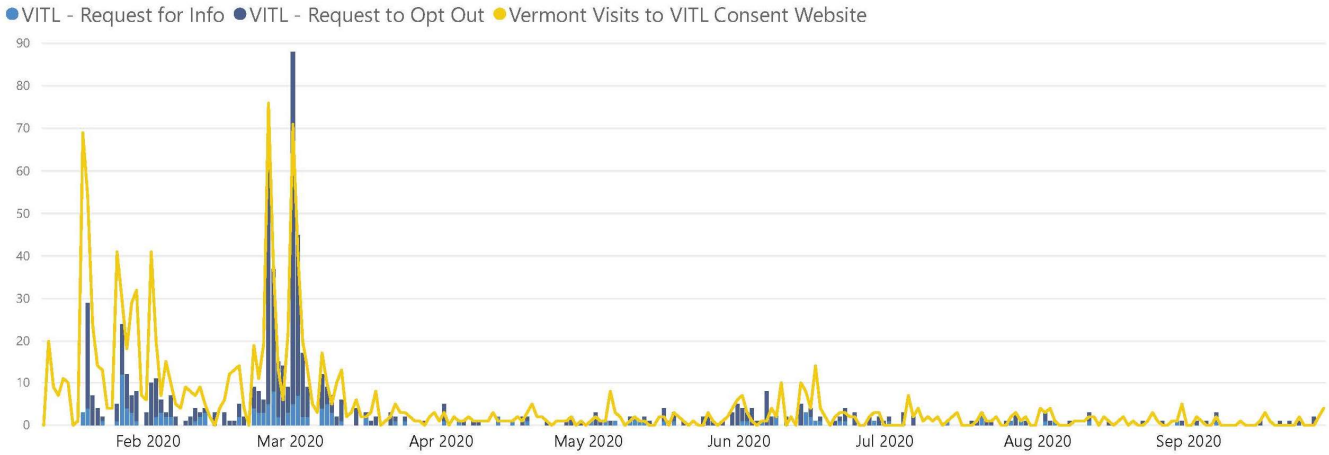
[18] CG-CAHPS Patient-Centered Medical Home (PCMH) Item Set. Content last reviewed August 2020. Agency for Healthcare Research and Quality, Rockville, MD. https://www.ahrq.gov/cahps/surveys-guidance/item-sets/PCMH/index.html

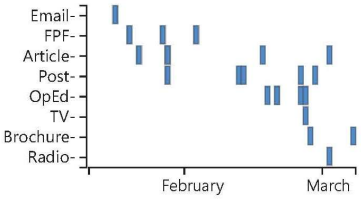


The VHIE consent policy questions in the 2020 CAHPS survey, which will be fielded in November 2020, have been modified to more accurately reflect the shift to an "Opt-Out" policy and that VITL (and not participating providers) will be responsible for consent management. The Evaluation Committee had a key role in drafting these questions. Responses from these questions are expected to be available March 2021. In the meantime, the Committee is also exploring additional opportunities to ask these questions to a broader Vermont audience; however, the presence of the COVID-19 pandemic has limited these options.

Using VITL's data on Vermonters engaging with the organization through the consent hotline and website and on documented consent decisions, the below timeline shows how the number of engagements align with public outreach efforts by the state and VITL. Based on this information, Vermonters appear to respond to public announcements about the VHIE consent policy. While engagement drops during the height of the COVID-19 pandemic, it appears to pick up slightly even with no additional public announcements. Planning for additional outreach is in development, and continued monitoring of engagement with VITL after such outreach will provide more information about the outreach's efficacy.

Figure. Vermonters reaching out to VITL (top) compared to public outreach events (bottom), by month.





Email: engaging privacy advocates on upcoming information campaign
FPF: Front Port Forum posting
Article: Article in paper or on-line news media
Post: on-line post to social media sites
TV: television news media
Brochure: mailing of brochures to physician offices

Appendix H: 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.