



# State of Vermont

## Health Data Strategy & Data Governance Development

### Health Data Strategy

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State of Vermont

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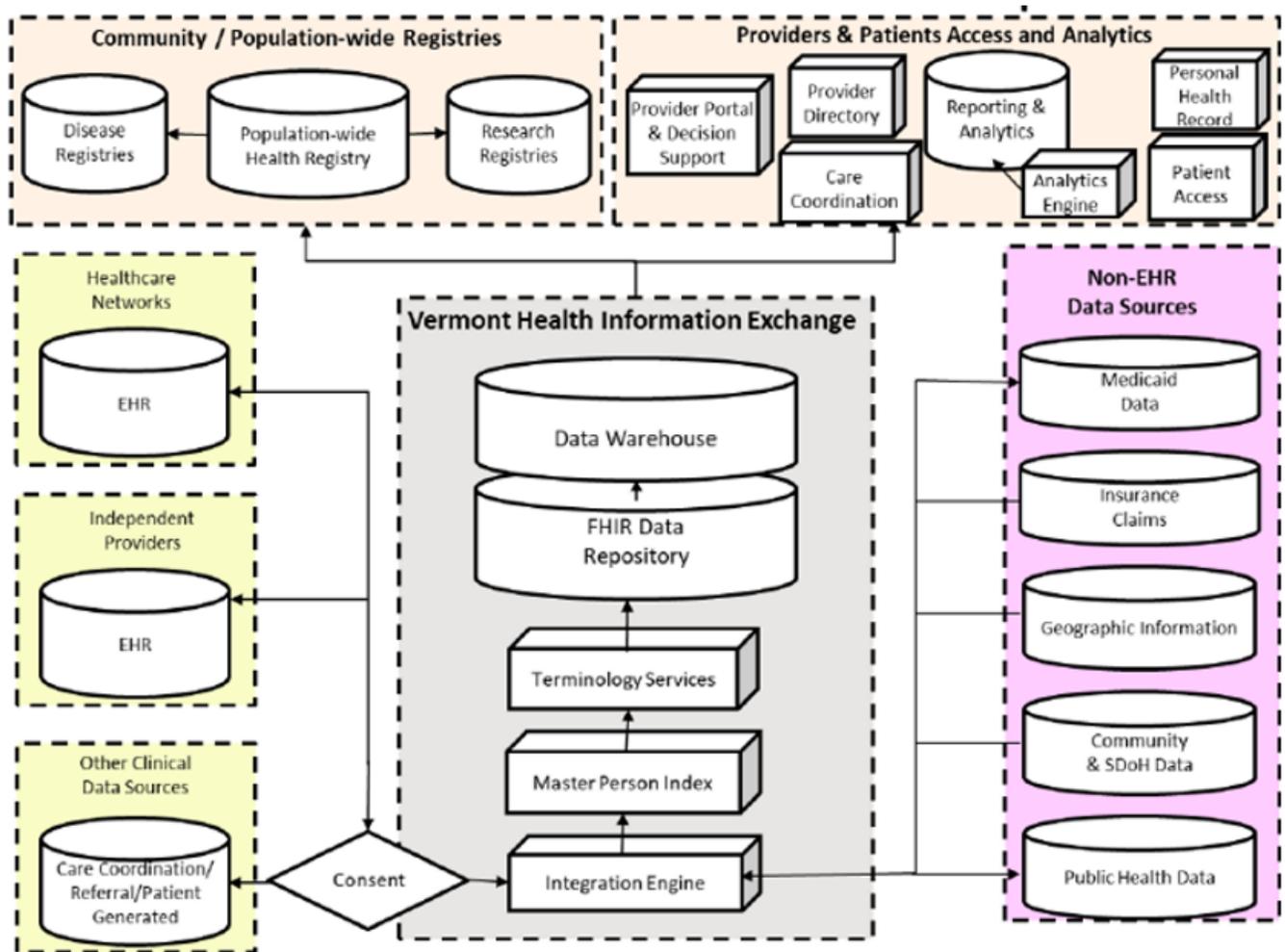
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# Introduction

The State of Vermont envisions creation of a Unified Health Data Space that integrates claims and clinical data, as well as other relevant data. The Unified Health Data Space will support health care delivery and coordination, public health operations, health plan operations, Medicaid-driven delivery system reform, and population health management activities. The data space will incorporate data from multiple data streams including:

- Clinical data for individual healthcare encounters
- Paid claims (including Medicaid, Medicare, and commercial payers)
- Enrollment and eligibility data for individuals receiving health care
- Hospital inpatient, outpatient, and emergency department discharge data regardless of payer
- Vital statistics and registries
- Public health data systems

Figure 1: Vision for Vermont Unified Health Data Space



The purpose of this document is to provide a health data strategy that will serve as a roadmap for establishing a Unified Health Data Space that aligns the needs and missions of multiple public and private entities. Data are reflective of people and should be used to improve health outcomes and advance

population health equity. To achieve this, Vermont must operationalize a strategy for implementing the health data space with a governance model that engages broad stakeholder representation in planning and governing the health data space, coordinating services, and ensuring appropriate use of the data to advance clinical and public health objectives.

The strategy will leverage the capabilities of state agencies, payers, care providers, and consumers to create a fully operational data utility that will support and advance the goals of Vermont to improve care for all Vermonters while supporting and advancing value-based care and increased coordination to enhance access and health care outcomes.

The strategic plan frequently references a Data Governance Framework which complements this document and provides more detailed guidance to inform the successful implementation of the Unified Health Data Space.

## **Background**

The development of the Vermont Unified Health Data Space supports the goals identified in the Vermont Health Information Exchange (VHIE) strategic plan.

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.

Thus far, the State has undertaken several activities to make progress toward these goals including:

- Conducted a comprehensive study of VHIE (authorized under Act 73) which:
  - Identified gaps
  - Highlighted opportunities to establish a strong foundation to support a sustainable HIE
- Established a strategic plan to support HIE governance which resulted in the creation of the:
  - HIT Advisory Group
  - HIE Steering Committee
- Performed a Strategy Gap Analysis which outlined the following recommendations:
  - Maximize HIE to support health care reform
  - Invest in stakeholder alignment
  - Communicate the VHIE Strategic Plan's mission, vision, and value
  - Determine financial models for sustainability
- Funded the development of a strategic plan for VHCURES which identified four activities:
  - Continued alignment of the VHCURES reporting with the All-Payer ACO Model

- Establish a common-cross payer identification scheme
- Explore a price transparency project
- Investigate future projects to advance ACO and payer network adequacy

## ***Data Contributors***

The Unified Health Data Space will include data from multiple data sources including clinical records currently contributed to VHIE and claims data contributed to the All-Payer Claims Data Base (APCD) known as Vermont Health Care Unified Reporting and Evaluation System (VHCURES), in addition to Medicaid data, hospital discharge data, social determinants of health (SDoH) data<sup>1</sup>, and behavioral health data. These data will be integrated to advance health care priorities including payment reform, care coordination, and access to mental health and substance use disorder services.

### ***VHIE***

VHIE is directed and coordinated by the Agency of Human Services (AHS). AHS contracts with Vermont Information Technology Leaders (VITL), a non-profit organization, to oversee VHIE operations.

The VHIE currently includes clinical data for all patients that have received health services within the State. The VHIE employs a patient matching algorithm to integrate information with the goal of one person-one record (1P-1R).

### ***VHCURES***

VHCURES, Vermont's All Payer Claims Database, is overseen by the Green Mountain Care Board (GMCB). A Data Governance Council oversees the coordination of VHCURES focused on ensuring data quality and utility, ensuring secure data storage and approving access for data use. GMCB contracts with OnPoint to operate VHCURES and provide access to approved users.

### ***Medicaid***

Medicaid data is housed within the Department of Vermont Health Access (DVHA), a department within AHS. The data set includes Medicaid eligibility and enrollment, waiver enrollment, claims, provider files, electronic visit verification, and other reference files. The state of Vermont released a Request for Proposal (RFP) to contract for a Medicaid Data Lake (MDL) and Data Analytics and Reporting (DAR) capabilities. The MDL and DAR will integrate with the current state architecture of the Medicaid Enterprise System (MES), as well as with the State's existing Analytics Data Warehouse (ADW), within the VHIE environment.

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<sup>1</sup> Of special note, it will be important to ensure that information on SDoH is collected in a reliable manner using standardized instruments and structured data fields and that the State determine how to handle missing SDoH values. SDoH data will likely be derived from multiple sources. Care coordination programs will have documentation on individuals who require social services such as meals on wheels indicative of food insecurity while other organizations may have information on individuals without permanent housing (i.e., transient or housing insecure). Some health care providers also collect SDoH data, either using a structured instrument or including open text in their notes regarding a patient's non-medical needs. This information may or may not be integrated into the patient's electronic health record. Given that SDOH data is collected from various places at different times, a federated governance team could be assembled to identify the best ways to collect, aggregate and govern the SDoH Data Domain.

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## *Additional Data Sources*

Additional data sources that will be integrated into the health data space include, but are not limited to, vital statistics, public health data, hospital discharge data, and SDoH data.

## *Data Users*

Data users fall into the following seven categories.

- **Providers and Health Systems:** Individual healthcare providers, as well as health systems including federally qualified health systems, hospitals, and rural health clinics, will benefit from access to a comprehensive and longitudinal record about their patients at point of care.
- **Payers and Accountable Care Organizations (ACOs):** Insurers and ACOs are better able to control cost while ensuring access to care if they have data to inform policy decisions. Healthcare insurers have indicated a desire to access health data for their insured population. Most insurers contribute adjudicated claims to VHCURES and would like the data sharing to go both ways.
- **State Agencies:** Data access will facilitate program management, care coordination, and cost management. For state agencies that make policy or create regulations in the healthcare space, the data can be used to assess value and identify new initiatives.
- **Public Health Surveillance:** Access to the Unified Health Data Space will facilitate planning and targeting public health resources through analysis and interpretation of health-related data.
- **Consumers (and their care givers):** Consumers will have access to a comprehensive view of their healthcare data as well as to health care related resources and tools.
- **Public Health and Social Service Provider Organizations:** Organizations, such as those that support child and maternal care; coordinated care for older adults, or care for individuals with intellectual and/or developmental disabilities, can be supported by access to the Unified Health Data Space as will organizations that facilitate access to housing, food, transportation and other social service needs of Vermonters.
- **Researchers:** Researchers may use data for a variety of purposes that will advance health care including health services research, health care reform, disease management and prevention.

## *Scope of this Plan*

The Strategic Plan for the Unified Health Data Space is comprised of four high level objectives:

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

The plan clearly articulates a strategic framework to serve as the foundation for the activities required to execute and sustain Vermont's Unified Health Data Space. The plan specifies the recommended activities for the next 2 years. Further details for implementation of governance can be found in the Data Governance Framework delivered with this strategy.

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## Overview and End State

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

- Population health, including disease surveillance, addressing key health priorities, and facilitating school readiness
- Clinical decision making
- Value-based care and other innovative payment models
- Consumer empowerment through access to their data
- Anticipation and planning for community health needs and resources

Over time, the number of ways in which the data may be used and the identification of specific use cases that will define its use are likely to increase as stakeholders identify new opportunities to operationalize the information.

## Objectives and Activities

The plan outlines four high level objectives and associated activities to operationalize the vision of a Vermont Unified Health Data Space.

### *Establish Robust Data Governance*

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

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

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

Below we identify key considerations for Data Governance. The Data Governance Plan contains more detailed information to establish a strong plan for governance of the Unified Health Data Space.

### *Data Governance Council*

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

**Recommended activity:** Establish the Data Governance Council and identify a representative from each of the stakeholder groups to serve on the Council

**Recommended activity:** Establish a plan for communicating with executive sponsors/council and initial domain stakeholders of Unified Health Data Space

**Recommended activity:** The Data Governance Council will establish a charter that outlines roles, decision- making processes, meeting structure, and frequency

### *Stakeholder Collaboration and Coordination*

Ensuring active engagement of all stakeholders will be essential in ensuring success in the development and management of the Unified Health Data Space. Stakeholders should reflect all potential users of the data, as well as entities whose data is included in the data space. This includes patients, providers, payers, public health entities, and researchers, as well as social service providers and community-based entities. Ensuring that everyone has a voice will support transparency while ensuring that decisions reflect the diverse perspectives of all data users and contributors.

**Recommended activity:** Establish processes to solicit input and ensure continuous engagement of all stakeholders including both data users and those contributing data

### **Define and Communicate Roles for Data Access**

The Unified Health Data Space must meet the needs of multiple users who will require access to data at various levels of granularity.

#### *Role-based Access*

Role-based access will ensure that individuals using the health data space only have access to the information at the appropriate level of detail required to meet their individual or organization’s needs, while aligning with federal and state laws regarding the protection of patient health information (PHI). Specific examples of differences between user needs include:

- Providers: only need access to data on their patients
- Patients: only need access to their information, presented in a way that is meaningful and not overwhelming
- Payers: only need access to data for their covered lives

Additionally, several state agencies require aggregated, deidentified data to generate reports or target limited resources to those communities where they will be most effective.

To delineate roles, it will be important to identify how data is accessed and used taking into consideration the following key factors:

**Table 1: Decision factors for data access**

<b>Current State</b>	<b>Future State</b>
<ul style="list-style-type: none"><li>• Who has access to data?</li></ul>	<ul style="list-style-type: none"><li>• Who else will need data access?</li></ul>
<ul style="list-style-type: none"><li>• What data is currently available to a user?</li></ul>	<ul style="list-style-type: none"><li>• What data will the user need?</li></ul>
<ul style="list-style-type: none"><li>• How is data currently accessed?</li></ul>	<ul style="list-style-type: none"><li>• How should data be accessed?</li></ul>
<ul style="list-style-type: none"><li>• What level of granularity is needed (e.g., individual vs aggregated data)</li></ul>	<ul style="list-style-type: none"><li>• What level of data granularity will be needed?</li></ul>

Current State	Future State
<ul style="list-style-type: none"> <li>In what format is the data currently received by each user (e.g., tables, reports, patient list)</li> </ul>	<ul style="list-style-type: none"> <li>What is the ideal format for each user to receive the data?</li> </ul>

Additional details about defining access roles are included in the Data Governance Framework.

*Data Availability Based on Roles*

There are three overarching approaches for stakeholders to access data. These are listed below. Within each of these, the specific data elements and configuration may vary based on user needs.

- Standardized reports
- Ad hoc queries
- Individual record views

There are natural groupings of information known as data domains, which will be managed by all owners of data included of the integrated data. Examples of this may be claims, clinical, public health, or finance data. A key priority will be to identify the data needs for all stakeholders in each domain and clarify which data roles can meet their needs, based on current state and future state. Through this process, it will be possible to map each stakeholder to roles in each specific data domain to which they need access.

Stakeholders should specify what data is needed to perform their activities. It will be important to consider any future needs that can be clearly defined at this time to avoid rework.

*Access to Secure, Timely Data*

The Data Governance Framework provides more context on the roles in each domain that should be defined to effectively manage the data and ensure users have access only to the data (in the data format) that is needed, and they are authorized to access. Protected data such as patient identifiable information and data protected under HIPAA and 42 CFR Part 2 must be carefully safeguarded so access aligns with state and federal regulations.

It will be imperative that data be updated at a cadence that reflects the availability of new information. For individuals that will need a single longitudinal record such as providers or caregivers, it will be essential that they have actionable, current, information that reflects recent test results, medical procedures, and diagnoses.

Another consideration will be the process by which data is accessed, which may vary across domains and systems. The federated domain teams will need to communicate with the data governance council to identify their preferred method of data access aligned with their roles. The method for organizing and accessing data (e.g., dashboard, portal) by different user groups must align with the data architecture and available resources.

**Recommended activity:** Identify all user groups and determine their current and anticipated data needs and preferences for accessing the data.

*Ease of Use*

Adoption and utilization of the Unified Health Data Space will depend on the ease by which its users can access the information they need. Providers will need a single sign-on that is integrated into their workflow. Stakeholder groups may need access to interactive dashboards to enable them to analyze data

based on certain patient characteristics, health, or geography. Working within each user group, it will be possible to define what is currently feasible (e.g., manual query or data extract) as well as begin to consider how data can be more effectively accessed and shared (e.g., access to sophisticated tools like Tableau that can facilitate data visualization).

As previously discussed, patients are likely to be overwhelmed if they are provided a file with all data in their record. Consumer representatives on the steering committee can help determine which data fields will be useful and how the data can be presented in a format that is meaningful. Consideration should also be given to using available resources in the community such as community health workers or library staff to help increase digital literacy among consumers. Within provider offices, videos or handouts in waiting rooms might be effective tools.

**Recommended activity:** Within each user group, identify processes to simplify access to data based on their role-based access.

### *Bidirectionality of Data*

To ensure coordination and collaboration across all stakeholders, it is critical that data flows in both directions. That is, if a stakeholder contributes data to the Unified Health Data Space, they must be able to access data that aligns with their designated role, as well as federal and state privacy laws.

**Recommended activity:** Data must be accessible to all stakeholders that are contributing data to the warehouse, aligning with laws and data security guidelines

### *Data Use and Sharing*

Policies will need to be established to ensure that data is appropriately used. This includes developing procedures for reviewing and approving requests for data access, establishing data use agreements, and alignment with existing data exchange policies such as the Trusted Exchange Framework and Common Agreement (TEFCA). Additional details for creating data sharing policies are in the Data Governance Framework.

**Recommended activity:** Establish clear processes for data sharing

### *Optimize Data Usability*

To ensure that the data is useful, it will be important to consider the following three issues:

#### *Data Management*

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

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

data for integration, transforming it into a standardized format, ensuring data accuracy, and synthesizing the data.

**Recommended activity:** Establish and share clear processes for data management (see Data Governance Framework for more detail)

### *Data Quality*

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

**Recommended activity:** Establish and document processes for ensuring data quality and timeliness

### *Data Matching*

Processes for automating and ensuring the accuracy of data matching will also need to be developed and documented. VITL currently uses a data matching algorithm that has proven to be highly effective in matching patient records. Additionally, VHIE data has been successfully matched to Medicaid claims. Scaling this to include all claims will require time and resources. It will be important to document and automate the processes for data matching to ensure there is one record for each patient.

**Recommended activity:** Document and automate processes for data matching.

### *Analytic Capacity*

The ability to analyze and use the data (often called data literacy) from the Unified Health Data Space will vary across user groups. Those groups who will want to run ad hoc queries will require resources to conduct these analyses. These may include hiring staff with expertise in data analytics or training current staff to develop data literacy. Without analytic skills, stakeholders will not be able to effectively manipulate the data to support their individual use cases.

Currently GMCB and BluePrint contract with OnPoint to perform analyses of the VHIE data for AHS. However, employing OnPoint to perform analyses for non-state entities may be cost-prohibitive. In the future, the state should consider acquiring and integrating modern, easy-to-use analytic tools such as Tableau to facilitate the effective use of the Unified Health Data Space, enabling staff without training to generate meaningful insights from the data. It will also be important to clearly communicate what tools and resources are available to users of Unified Health Data Space.

**Recommended activity:** Ensure appropriate analytic capacity among users of the Unified Health Data Space.

### ***Ensure Sustainability and Scalability***

As the Unified Health Data Space is built, attention should be paid to financial sustainability which goes hand-in-hand with scalability of services and infrastructure that will be needed to assure future relevance and value.

## Financial Model

Ensuring a consistent flow of capital and resources will be critical in both the development and maintenance of the Unified Health Data Space. Establishing the Unified Health Data Space will require investments to fund capital expenses (e.g., equipment), system operations (e.g., data platform, system maintenance), and human resources. These expenses will vary over time.

In addition to federal and state public funding that may be available for participating state agencies, Vermont should look at payment models employed by various HIEs and consider sources of revenue to date that have been used to maintain key data sources (VHCURES, VITL, Medicaid).

There are five primary funding models that have been employed by successful HIEs (defined as those that have been continuously operating for multiple years). These are described in the table below along with the strengths and weaknesses of each. Some HIEs elect to use a combination of models to ensure financial stability.

**Table 2: Funding Models for HIE Sustainability**

Model	Description	Strengths	Limitations
<b>Membership</b>	All users pay a set fee <i>(may vary based on role)</i>	<ul style="list-style-type: none"> <li>• Predictable revenue</li> <li>• Predictable user costs</li> <li>• Encourages use*</li> </ul>	<ul style="list-style-type: none"> <li>• Limited value for infrequent users</li> </ul>
<b>Transaction Fee</b>	Users pay a fee for each transaction	<ul style="list-style-type: none"> <li>• Minimum financial risk</li> <li>• Lower upfront costs</li> <li>• Can incorporate operational costs</li> </ul>	<ul style="list-style-type: none"> <li>• Discourages use</li> <li>• Unpredictability of costs and revenue</li> <li>• No long-term commitment</li> </ul>
<b>Subscription</b>	Services packaged based on offerings <i>(may be tiered based on role)</i>	<ul style="list-style-type: none"> <li>• Predictable revenue</li> <li>• Easy to manage</li> <li>• Encourages use*</li> </ul>	<ul style="list-style-type: none"> <li>• Requires service level agreement</li> </ul>
<b>Tax-Based Model</b>	Tax levied on insurance claims processing <i>(could be levied on payers, providers, transaction fee, hospital licensure)</i>	<ul style="list-style-type: none"> <li>• Predictable revenue</li> </ul>	<ul style="list-style-type: none"> <li>• Discourages insurers from participating</li> <li>• Political sensitivities</li> </ul>
<b>Service/Cost Sharing Model</b>	Fees based on meeting milestones or cost savings for case management or care coordination <ul style="list-style-type: none"> <li>• Example: For HIE-enabled disease management programs, payers and Purchasers pay HIE for delivery of disease management service on a per member basis</li> </ul>	<ul style="list-style-type: none"> <li>• Encourages use*</li> <li>• Clear value case as funding comes from cost savings</li> </ul>	<ul style="list-style-type: none"> <li>• Requires analytics to project and validate cost-savings</li> <li>• Value may not be realized in the short-term</li> </ul>
<b>*Same costs regardless of frequency of use</b>			

The Unified Health Data Space will provide analytic and reporting capabilities. These capabilities are marketable, and a pricing model should be explored.

**Recommended activity:** Identify financial model(s) to enable the sustainability of the Unified Health Data Space

### *Resource Allocation*

Vermont will also need to consider how to distribute the finances generated by the Unified Health Data Space. This determination should take into consideration several factors including: (1) upfront costs; (2) ongoing costs; (3) roles and responsibilities outlined in the Data Governance Framework; (4) anticipated system changes (e.g., new data streams, technology, policy guidelines)

**Recommended activity:** Identify initial costs for development, design, and implementation, as well as ongoing maintenance and operations of the Unified Health Data Space

**Recommended activity:** Identify resources based on roles & responsibilities outlined in the Data Governance Framework

**Recommended activity:** Annually revisit resource allocation based on previous year's costs and revenue

### *Systematic Efficiencies*

One of the primary benefits of the health data space will be reducing redundancy and establishing streamlined processes to increase efficiency. To reduce unnecessary duplication, minimize extraneous costs, and streamline processes, it will be necessary to establish a detailed plan to increase efficiency including optimizing data storage, access, filtering, and sharing. Additionally, each process will need to be assigned to an "owner" who executes and oversees the associated activities and determines how each function will be executed. More details are included in the Data Governance Framework.

### *Communication*

Once roles and responsibilities for data ownership, management, and maintenance have been determined, it will be important to broadly communicate this information to all stakeholders. Establishing a clear communication plan will increase awareness and reduce disagreements or confusion. Part of the communication plan should include a clear description of the content of the Unified Health Data Space, its intended users, and how stakeholders can access the data. The communication plan and strategy for outreach must be tailored to the audience for which it is intended. For example, the messaging will differ between current and future users and between stakeholder groups (e.g., patients, payers, providers)

### *Scalability*

In executing the strategic plan, stakeholders need to consider the future state and develop processes that are agile and can accommodate changes in data, technology, policy, and tools.

### *Data*

Vermont needs to consider future data sources that could augment the Unified Health Data Space but are not yet readily available for inclusion. This could include patient generated data, data generated from devices, and new federal or state data assets such as enhanced surveillance systems or data warehouses.

**Recommended activity:** Future iterations of the strategy must take into consideration the changing landscape to support scalability and leverage innovation.

### *Human Resources*

As new staff are onboarded, it will be important to ensure that they have the appropriate knowledge base to sustain the system. There may also be a need for new staff that bring a different set of skills and expertise. This may include partnership opportunities with educational institutions at all levels and providing pathways for current staff to expand their knowledge and skills. It will also be important to create succession plans to minimize loss of institutional knowledge when turnover occurs.

**Recommended activity:** Cultivate a workforce suited for the unique mix of technical, compliance, business, and clinical skills needed for management of Unified Health Data Space.

### *Stakeholder Needs*

The needs of the stakeholders are also likely to evolve. Current standardized reports may be retired while new reports may be required by the state or federal government. New data sources will generate new use cases which will require different ways of capturing, reporting, or analyzing data.

### *Policies*

The guidelines for sharing patient health information are defined by HIPAA and 42 CFR Part 2. New guidance from the Department of Health and Human Services is anticipated which may alter the requirements outlined in these two federal rules. The Department also recently updated rules regarding data interoperability between entities (e.g., payer to payer exchange), as well as active promotion of the Trusted Exchange Framework and Common Agreement (TEFCA). Rules governing data interoperability and information exchange will continue to be released multiple times a year and will need to be monitored. Legislation often impacts or influences data collection and sharing requirements. Active advocacy at the federal and state levels should occur for the best interest of the Unified Health Data Space.

### *Technologies to Facilitate Patient Privacy*

Innovative technologies are being developed and evaluated that can help increase access to protected patient data while continuing to respect patient preferences for the sharing of sensitive health information. Developing a strategy that can accommodate emerging technologies like data segmentation, data tagging, HL7 Clinical Decision Support (CDS) Hooks, and SMART on FHIR<sup>2</sup> will be essential.

**Recommended activity:** Monitor changes in technology standards or policy, including legislation, rules, and standards.

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<sup>2</sup> What is SMART on FHIR? SMART is **an open-source, standards-based API that leverages the OAuth 2.0 standard to provide secure, universal access to EHRs**. The SMART platform builds on the existing Fast Health Interoperability Resources (hence the name "SMART on FHIR")

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## *Data Tools*

Over time, there will be increasing sophistication in the tools and methods for data automation and refinement. Anticipating the evolution of data tools and algorithms to improve data is essential.

## *Knowledge Management*

Some of the biggest risks to business continuity and change sustainability, especially during a transformational period, are turnover and the inability to preserve knowledge throughout the organization. Knowledge management is defined as the process of creating, identifying, and managing knowledge of an organization and structuring it for effective and efficient use by individuals and teams. It should exist at the strategic level because operational knowledge is the lifeblood of business continuity.

When knowledge is effectively managed, the organization is better equipped to withstand changes that come with time such as shifts in strategic direction, changes in work location, adoption of new processes, or changes in systems. Knowledge management will be necessary to expedite access to information, increase efficiencies, improve decision making, and support innovation.

**Recommended activity:** Consider a strategic knowledge management framework and assess how knowledge is captured within the scope of the Unified Health Data Space.

## *Use Cases*

Identifying new use cases that can demonstrate the value of the integrated health data space will be important moving forward. These will enhance the usability of the data while also potentially attracting new users.

**Recommended activity:** Create a compilation of use cases and identify new ones.

## Roadmap

The following table provides a summary of the recommendations above along with proposed timing of these tasks.

**Table 3: Roadmap of Activities by Objective**

Activity	Year	Month
<b>Establish Robust Data Governance</b>		
Establish the Data Governance Council and identify a representative from each of the stakeholder groups to serve on the Council	Year 1	0-3
Establish a plan for communicating with executive sponsors/council and initial domain stakeholders of Unified Health Data Space	Year 1	0-3
Establish processes to solicit input and ensure continuous engagement of all stakeholders including both data users and those contributing data	Year 1	0-6
Establish a charter that outlines roles, decision making processes, meeting structure and frequency	Year 1	3-6
<b>Define and Communicate Roles</b>		
Identify all user groups, and determine their current and anticipated data needs and preferences for accessing the data	Year 1	3-9
Establish clear processes for data sharing	Year 1	3-10
Make data accessible to all stakeholders contributing data to the Unified Data Space, aligning with laws and data security guidelines	Year 1	0-12 ongoing
Within each user group, identify processes to simplify access to data based on their role-based access.	Year 2	13-24
<b>Optimize Data Usability</b>		
Establish and share clear processes for data management	Year 1	0-6
Establish and document processes for ensuring data quality and timeliness	Year 1	0-6
Document and automate processes for data matching	Year 1	6-12
Ensure appropriate analytic capacity among users of the Unified Health Data Space	Year 2	12-24 ongoing
<b>Ensure Sustainability</b>		
Identify resources based on roles and responsibilities outlined in Governance Plan	Year 1	0-3
Identify initial costs for development & maintenance of Unified Health Data Space	Year 1	0-6
Create a compilation of use cases and identify new ones	Year 1	3-12 ongoing
Identify financial model(s) to enable sustainability	Year 2	13-18
Cultivate a workforce and talent pipeline suited for the unique mix of technical, compliance, business, and clinical skills needed for management of Unified Health Data Space.	Year 2	13-24 ongoing

Activity	Year	Month
Consider a strategic knowledge management framework and assess how knowledge is captured	Year 2	19-24
Monitor changes in technology standards or policy, including legislation, rules, and standards	Annual	Ongoing
Annually revisit resource allocation based on previous year's costs and revenue	Annual	Ongoing
Annually update the strategy taking into consideration the changing landscape to support scalability and leverage innovation.	Annual	Ongoing

## Next Steps

This strategic plan outlines recommendations to facilitate the successful implementation of the Unified Health Data Space. In the next few months, the State should establish a process to engage all stakeholders, initiate the recommendations detailed in the Data Governance Framework, and develop a roadmap that identifies the individual(s) responsible for each activity along with metrics to track progress.

To ensure the success and optimized use of the Unified Health Data Space, the state should identify approaches to enhance outreach, communication, and ongoing coordination. The audience for the outreach should include not only current and future data contributors and users, but also include individuals and organizations that are not yet familiar with the state's plans to establish it.

Ongoing coordination across all stakeholders will support and advance implementation, while efforts to promote data literacy, including outlining use cases for how the data may be used, will increase interest in and use of the Unified Health Data Space. Promoting data literacy will be especially important for patients who will want access to their data but will need assistance understanding the data.

Throughout the implementation process, the State should consider opportunities to improve implementation or make course corrections that will ensure successful development and management of the Unified Health Data Space.

## Appendix

**Table 4: Stakeholders Interviewed and their Goals for the Unified Health Data Space**

NAME TITLE AGENCY	RESPONSIBILITIES	INTEREST IN UNIFIED HEALTH DATA SPACE <sup>3</sup>	INTERVIEWED DATE/TIME
<b>Alex Ma</b> Sr. Health Data Analyst Onpoint Health Data	Vermont lead analyst		2022.09.01 11:30a – 12:30 PM
<b>Anne VanDonsel</b> Division of Substance Use Programs Department of Health	Oversees programs that support access to substance use disorder testing, treatment	Ensure compliance with privacy laws Access to ad hoc reports to inform program	2022.08.24 11:30a – 1:00 PM
<b>Bechir BenSaid</b> HIE Program Manager Agency of Digital Services	HIE Program Manager	Enabling value-based care by leveraging data to improve health outcomes and reducing cost by shifting from diagnostics/treatment care to preventative care	2022.08.23 8:30 – 10:00 AM
<b>Bill Clark</b> Medicaid Compliance Officer Department of Health	Oversees Medicaid payment	Support Medicaid data analytics Improve public health and policy decisions	2022.08.19 1:00 – 2:30 PM
<b>Cynthia Hooley</b> Vital Statistics Information Manager Department of Health	Oversees electronic vital statistics system and reports data to Federal government	Strong data governance Data security	2022.08.24 11:30a – 1:00 PM
<b>Devon Holgate</b> Director of Software Engineering Onpoint Health Data	Development of APCD data processing and analytics solution		2022.09.01 11:30a – 12:30 PM
<b>Emma Harrigan</b> Director of Policy, Analysis, and Development VAHHS	Coordinates policy on behalf of VAHHS	Improve care delivery Support measurement Ensure data security	2022.08.10 12:00 – 1:00 PM

<sup>3</sup> Answers to the interview question, “What is your interest in the Vermont Unified Health Data Space? That is, what are you hoping to gain for your organization or your constituents?”

<b>NAME TITLE AGENCY</b>	<b>RESPONSIBILITIES</b>	<b>INTEREST IN UNIFIED HEALTH DATA SPACE<sup>3</sup></b>	<b>INTERVIEWED DATE/TIME</b>
<b>Erin Carmichael</b> Director of Quality Management, Department of Health	Works with Pat Jones to support planning and design of alternate payment models	Assess costs and quality Inform quality improvement efforts	2022.08.11 9:00 – 10:30 AM
<b>Erin Flynn</b> Payment Reform Project Director Department of Health	Reporting on quality measures Oversees quality improvement initiatives	Assess appropriateness of reimbursement Evaluate health care quality Generate information at point of care for providers	2022.08.11 9:00 – 10:30 AM
<b>Heather McPhee</b> Nurse Administrator, VCCI Department of Health	Nurse administrator for chronic care initiative supporting case workers that coordinate care	Integrate clinical data with Medicaid claims to support care coordination	2022.08.19 1:00 – 2:30 PM
<b>Heather Skeels</b> Director of Health Data Operations Bistate Primary Care Association	Data operations related to both Bistate (policy) and VERA (digital) activities.	Generate quality measures to inform payers Support health care providers	2022.08.17 1:00 – 2:00 PM
<b>Jessie Hammond</b> Director, Division of Health Statistics and Informatics Department of Health	Oversees and analyzes data	Access to aggregate data to inform state's work	2022.08.24 11:30a – 1:00 PM
<b>Jim Harrison</b> President/CEO Onpoint Health Data	President and CEO		2022.09.01 11:30a – 12:30 PM
<b>Jimmy Mauro</b> Chief Data Officer Blue Cross Blue Shield of Vermont	Oversees data for BCBS Vermont Leads monthly data submission to VHCURES	Data analytics and methods to use data Integration of SDOH data	2022.08.19 3:00 – 4:00 PM
<b>Joanna Duncan</b> Chief Operating Officer Onpoint Health Data	Chief Operating Officer		2022.09.01 11:30a – 12:30 PM
<b>Dr. Joshua Plavin</b> Chief Medical Officer Blue Cross Blue Shield of Vermont	Oversees clinical care for BCBS Vermont	Access to health and maternity data Data to support care management	2022.08.19 3:00 – 4:00 PM

<b>NAME TITLE AGENCY</b>	<b>RESPONSIBILITIES</b>	<b>INTEREST IN UNIFIED HEALTH DATA SPACE<sup>3</sup></b>	<b>INTERVIEWED DATE/TIME</b>
<b>Kate Davis</b> Client Account Manager Onpoint Health Data	Provider relations and practice management		2022.09.01 11:30a – 12:30 PM
<b>Kate O'Neill</b> Dir. of Data Mgmt. Analysis and Data Integrity Green Mountain Care Board	Leads GMCB data governance, use of data assets and manages all aspects of data use agreements.	Clear long-term goal related to data integration, governance and security	2022.08.29 8:00 – 9:00 AM
<b>Katherine Jones</b> SPHINX Manager Department of Health	Liaison between the information technology group and other programs within the Dept of Health	Clearly defined processes, roles, and responsibilities	2022.08.24 11:30a – 1:00 PM
<b>Ken Gingras</b> Health IT Director Vermont Care Partners	Leads database design, analysis, data aggregation	Access to data for all Vermonters Reduce administrative burden (support required state reports) Information exchange	2022.08.26 9:00 – 10:00 AM
<b>Kristin McClure</b> Health Care Reform Integration Manager Agency of Human Services	Strategic direction for integrating initiatives within current health reform initiatives.	Creating one health record and longitudinal health record. Add research capability for analytics Data governance	2022.08.29 8:00 – 9:00 AM
<b>Kristina Choquette</b> Director of Operations VITL	Director of Operations for VITL	Curating the data for future needs. Data governance	2022.08.23 8:30 – 10:00 AM
<b>Mary Kate Mohlman</b> Director of Health Data Policy Bistate Primary Care Association	Work directly with the Vermont Health Centers to support access to primary care for Vermonters.	Assess patient experience Coordinate and integrate care	2022.08.17 1:00 – 2:00 PM
<b>Mike Nagle</b> Interim IT Director Department of Health	Coordinates information technology for State	Consistent approach for data sharing Appropriate data governance	2022.08.24 11:30a – 1:00 PM
<b>Pat Jones</b> Deputy Director, Payment Reform Department of Health	Leads planning and design for alternate payment models	Increase understanding of health care quality Evaluate costs of care Understand factors that impact health outcomes	2022.08.11 9:00 – 10:30 AM

<b>NAME TITLE AGENCY</b>	<b>RESPONSIBILITIES</b>	<b>INTEREST IN UNIFIED HEALTH DATA SPACE<sup>3</sup></b>	<b>INTERVIEWED DATE/TIME</b>
<b>Sandy Rousse</b> President & CEO Vermont Home Health and Hospice Association	Care coordination for vulnerable members of community including those receiving long term services and support, mothers, young children	Provider access to data to coordinate care Integrated health data	2022.08.23 2:00 – 3:00 PM
<b>Sean Judge</b> Enterprise Architect MDWAS Agency of Digital Services	Supporting the Agency of Human Services	Consolidated data, one person one record Better data inventory	2022.08.23 8:30 – 10:00 AM
<b>Sherry French</b> IS Coordinator, Public Health Laboratory Department of Health	Supports systems for laboratory information management system	Integrated data	2022.08.24 11:30a – 1:00 PM
<b>Simone Rueschemeyer</b> Executive Director Vermont Care Partners	Oversees network of state designated behavioral health/SUD/ID organizations	Demonstrate impact of community-based services Enhanced public partnerships to determine policies/resource allocation	2022.08.26 9:00 – 10:00 AM
<b>Tim Tremblay</b> Data Analyst Blueprint for Vermont	Works with primary care association to support providers and preventive care	Generate data to calculate HEDIS measures Access to data to support primary care	2022.08.19 1:00 – 2:30 PM
<b>Veronica Fialkowski</b> VHCURES Architecture Green Mountain Care Board	Project Manager with data and analytics team	Have a space for data to be integrated for better understanding	2022.08.23 8:30 – 10:00 AM
<b>Victor Morrison</b> Consumer Representative VHIE Steering Committee	Serves as consumer representative on HIE Steering Committee	Simplify data so that consumers have access to information that is useful	2022.08.23 2:00 – 3:00 PM

**Table 5: Documents Reviewed**

Document Name
AISP_Finding-A-Way-Forward_Final 2022.06.16.pdf
NIST.SP.800-53r4.pdf
Non-EHR Data Source Owners.pdf
RFP Background.pdf
StakeholdersList_Prioritized_v2_UPDATED 2022.08.03 .xlsx
AHS Dept Org Structure .PNG
Governor and Agency AHS Strat Plan 2022 - MH-SUD - Data Integration Strat Action 2022.06.pptx
GMCB 2021 Annual Report Updated.pdf
GMCB Data Governance Charter - v1.4.3_APPROVED03.14.2018.pdf
GMCB Data Linkage Policy_20200814.pdf
GMCB Draft Data Governance Rules-Statutes.pdf
GMCB DUA Application Process for a NonStateEntity_2018_0619_.pdf
GMCB DUASate Agency Application Process_2018_0619_.pdf
GMCB State_Agency_Criteria_Memorandum.pdf
GMCB Statutory Authority 2017 Oversight Slides for Board Compiled 12 14 2107.pdf
GMCB_Data_Stewardship_Principles&Policies-V2.0_April2019-ADOPTED.pdf
GMCB_Technology_Overview (2022-08-26).pdf
GMCB_Vermont Uniform Hospital Discharge Data System (VUHDDS).pdf
HTS_EHRIPteam090221 PIP VT 2021 Environmental Scan Survey Paper 09022021_Tracked Changes.docx
HTS_Final SMHP Content Recommendations 2021.07.docx
HTS_HIE stakeholder interview questions V6.1 (051021) final version.docx
HTS_VT Gap Analysis HIE Plan Recommendations_080421_HTS.pptx
HTS_VT HIE Plan Recommendations_08.04.21_HTS.docx
HTS_VT Stakeholder Engagement Plan_v3.docx
Status of HTS Recommendations.docx
SUMMARY HTS_VHIE Strategic Plan Gap Analysis and Recommendations 2021.08.docx
AHS Interview-BCBSVT Comments_Reporting Manual Changes (Privacy) 2022-08-01 - signed.pdf
AHS Interview-M-BCBSVT Comments Reporting Manual Changes (technical) 2022-08-03.pdf
GMCB-Vermont Health Care Uniform Reporting and Evaluation System - VHCURES.url
2018_0619_DUAFlow_NonStateEntity.pdf

Document Name
2018_0619_DUAFlow_State_Agency.pdf
Data Submission Rule 8.000 (Adopted 1.5.22).pdf
GMCB - Previous Special Public Comment Periods - Aug 2022.url
GMCB Public Hearings Excerpt - Aug 2022.pdf
Onpoint - Data Submission Guide for VHCURES (Version 2.2) (2018-04).pdf
2022.08.02 Health Data Strategy Data Governance_Kickoff_Final_Updated.pdf
MDWAS Data Flow and Conceptual v2.0.pdf
MDWAS-CXD-00001_Medicaid Enterprise System (MES)_Interim State for MDWAS RFP_v 0.06.pdf
2021-05-01-Strategic-Planning-Summary-Set-D17.pdf
OneCareVT 2021-2023 Strategic-Planning-Summary-Set-D17.pdf
OneCareVT FY2022 OneCare Budget Presentation DF2.pdf
OneCareVT FY22ACOBudgetGuidanceMaster_BoardMaterials_20210609.pdf
OneCareVT Summary Vermonts All Payer ACO Model and OneCare-D3.pdf
OneCareVT Value-of-OneCare.pdf
OneCareVT_OneCare-Accountable-Care-Organization-LLC-2019-Financial Report FINAL.pdf
Onecare-VT-2020-Financials-Form-990-FINAL-SIGNED-FOR-PUBLIC-DISCLOSURE.pdf
2021.05.01-Strategic-Planning-Summary-Set-D17.pdf
VHCURES Capabilities.pdf
VHCURES Data Release Rule 9.000 (Adopted 1.5.22).pdf
VHCURES Data Submission Guide for VHCURES (Version 2.2) (2018-04).pdf
VHCURES Data Submission Rule 8.000 (Adopted 1.5.22).pdf