GREEN MOUNTAIN CARE BOARD

Vermont Health Care Innovation Project State-led Evaluation

Final Environmental Scan

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Contents

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Executive Summary

In spring 2016, the Green Mountain Care Board contracted with John Snow, Inc. (JSI), to conduct a study of three major components of Vermont's state-led evaluation for its State Innovation Model (SIM) Testing Grant from the Centers for Medicare and Medicare Services, referred to as the Vermont Health Care Innovation Project (VHCIP). JSI's evaluation work focuses on: 1) care integration, 2) use of economic and clinical data, and 3) payment reform.

The environmental scan is the first phase of the evaluation and serves the following purposes:

- Develop a picture of the health reform landscape and SIM activities to inform evaluation methods and provide context to evaluation results;
- Recommend site visit locations that will best inform the three evaluation themes;
- Inform site visit and focus group guides and content of interviews;
- Inform the sampling approach for the provider and care integration surveys; and
- Inform survey content.

To conduct the environmental scan, JSI spoke with approximately 30 key stakeholders, reviewed data and documents specific to VCHIP and complementary initiatives, and reviewed peer-reviewed and grey literature in each of the three theme areas.

Findings

A key finding is that a defining feature of VHCIP is its integration and coordination with other health reform programs. Rather than creating new or parallel systems, the majority of VHCIP activities build on existing programs. VHCIP often serves as the impetus for bringing stakeholders together to work collaboratively on payment and health reform efforts.

Care integration **-** Key VHCIP care integration activities include supporting regional and state-wide collaborative structures such as the regional collaborations (UCC/RCPC/etc.) and learning collaboratives; supporting sub-grant investments; and expanding models of care implemented by Vermont's Blueprint for Health, including Community Health Teams, Support and Services at Home, and Hub and Spoke (for individuals with substance use disorders). Based on findings from the environmental scan, it will be important to assess care integration at both the systems level as well as the site level.

Through a review of the literature and State-provided documents, a list of principles/measures is identified for successful care integration that can serve as an organizing structure for the site visit protocol and care integration survey:

- Information technology, access to information
- Commitment and incentives to delivering integrated care
- Clinical care model with clearly defined roles
- Organizational culture and effective communication
- Access to educational opportunities
- Aligned financial incentives
- Quality improvement and performance measurement

Use of Clinical and Economic Data - While there has been consistent agreement that data and health information technology are central to success in a reform-centric environment, there continues to be a gap in Vermont's ability to utilize comprehensive longitudinal patient and population based data. Hospital and primary care systems represent the most advanced facets of the health care system with highest capability to obtain and use data for individual and population health improvement with other clinical systems including long term care, mental health, substance abuse, home health and disability support services lagging significantly further behind. VHCIP has strategically created a data use approach by building upon and leveraging existing data aggregation and dissemination activities. While policy considerations and infrastructure building continues to require an influx of resources beyond the VHCIP timeline, VHCIP has developed a fuller understanding of the future needs of clinical and non-clinical providers by focusing on infrastructure development, stakeholder engagement and long term planning to incorporate into the state health information technology (HIT) plan and, to the extent possible, existing HIT infrastructure. An implication for the evaluation is that assessing the usability of the technology (e.g., intuitive design, subjective satisfaction, efficiency of use, ease of learning) will further inform stakeholders of the potential for moving forward regarding the use of clinical and economic data at the practice level.

Payment Reform and Financial Incentive Structures - The State of Vermont has been and continues to be a leader on movement towards a universal health care system and movement away from fee-for-service payment models. Advancing system transformation through payment reform has been a constant in Vermont's health care reform efforts. VHCIP was able to leverage the ACO's experience with the Medicare Shared Savings Program to expand shared savings payment models for both Medicaid and commercial plans offered through the State's health insurance exchange (Vermont Health Connect). ACO shared savings payment models are primarily focused on medical services and costs. Long term support services are generally not included in Medicare and commercial insurance benefits and are carved out of Medicaid ACO payments. VHCIP has generated remarkable cooperation among the payers and providers that can be leveraged as health care reform efforts continue. VHCIP work has provided significant insights that can be used to inform payment reform models under the all payer waiver. A lot of work has been done with the recognition that payment reform must work at local and regional levels in order to expand participation beyond medical doctors and hospitals, including mental health, home health, Area Agencies on Aging, and consumer representatives.

Other Implications:

The environmental scan led to some refinement of the initial evaluation questions. It also led to a site selection approach based on hospital service areas (HSA), which affords the following value: 1) each region of the State is represented; 2) provides a means of grouping organizations that already work together in communities, 3) enables the matching of existing quantitative data organized by HSA to add context to qualitative data obtained during the site visits. Sources for the sample of providers and care integration professionals are identified for the survey; and suggestions for learning dissemination venues are noted.

Background

Vermont's Green Mountain Care Board (GMCB) is conducting a state-led evaluation of the Vermont Health Care Innovation Project (VHCIP) as a required component of the Center for Medicare and Medicaid Innovation (CMMI) State Innovation Model Testing Grant. This evaluation is complementary to the federal evaluation conducted by RTI International. According to the Centers for Medicare and Medicaid Services (CMS), the purpose of the state-led evaluation is:

- *Sustainability after SIM ends - Build relationship with local research groups;*
- *Provide more timely results than RTI (federal) evaluation; and*
- *Tailor results to in-state stakeholder needs.*

In contrast to the summative findings from the federal evaluation, the state-led evaluation is formative and is designed to provide more real-time feedback. In spring 2016, GMCB contracted with John Snow, Inc., a health care and public health consulting firm, to conduct several major components of the state-led evaluation. The environmental scan is the first phase of this work and will inform all future evaluation activities including site visits, provider surveys, focus groups, and the dissemination of findings. The specific purposes of the Environmental Scan are the following:

- Develop a picture of the health reform landscape as well as State Innovation Model (SIM) Test Grant activities in Vermont to inform evaluation methods and provide context to evaluation results.
- Identify the diverse site visit locations that will best inform the three research themes of the evaluation.
- Inform content of the interviews during the site visits and development of the site visit guide.
- Inform content of consumer focus group guides.
- Inform the sampling approach for the provider survey and survey for providers engaged in care integration.
- Inform survey content and questions based on information found in the literature review and health reform landscape.

The environmental scan includes the collection and synthesis of information within each of the three focus areas of VHCIP: 1) care integration, 2) use of clinical and economic data to promote value-based care, and 3) payment reform and financial incentive structures.

Methods

The major sources of information include:

1. Guiding evaluation questions
2. Key informant interviews with SIM leaders and stakeholders
3. SIM / Vermont-specific document and data review
4. Review of peer-reviewed and grey literature for benchmarks and context

Synthesizing these sources, this scan includes the following outputs:

- Findings by technical area - summaries of the landscape and current SIM activities, and how this understanding will inform ongoing evaluation
- Recommended revisions to guiding evaluation questions based on environmental scan findings
- Completed Site Selection Matrix
- Implications for conducting provider surveys
- Potential learning dissemination forums as recommended by key informants

Each of the four major methods is described in this section, and the associated findings comprise the remaining sections of the document.

Guiding Evaluation Questions

The environmental scan was framed by guiding evaluation questions as outlined by the GMCB in the Request for Proposal (RFP) issued November 2015 for the VHCIP State-Led Evaluation. While these questions were used as originally defined to guide the environmental scan interviews, document review, and literature reviews, the *Implications* section of this environmental scan includes suggestions for changes and refinements to better align evaluation efforts with ongoing VHCIP activities and support course-corrections in ongoing Vermont health reform efforts.

Care Integration

- What are key examples of care integration approaches being tested/implemented across the state?
- What are the key characteristics of each approach in the sites that are studied, and how do they vary in evidence base, design, setting, focus, resource utilization, and cost, and in comparison to national care models?
- What evidence is available to demonstrate effectiveness of each approach? How solid is the evidence? What are the key lessons learned from each?
- What environmental and organizational features enhance care integration approaches? What features result in barriers?
- Based on resources, cost, and perceived success, which appear to be most suitable for scaling up?
- What information do health care providers (physicians, nurses, care coordinators, social workers, others) need from other provider/care settings in order to provide high quality, coordinated and integrated care? How available, timely and high of quality is this information? How are shared clinical plan data used and shared?

Use of Clinical and Economic Data to Promote Value-Based Care

- What data are being communicated, by whom, how are they being communicated (and through what intermediary structures) and for what purposes are they being communicated?
- What assistance or support is provided to those intended to use data?
- How are data being received, understood and applied?
- Are there unintended consequences associated with provider practice changes? If so, what are they?
- Are the right data being communicated?
- What do providers perceive as most and least useful about the processes and data shared? What elements are most and least useful to improve patient care and practice efficiency? Do the data contain information that providers want and think they can make use of? Are data serving HSA-level local needs?
- How could the content or communication mode of the data be modified to make it coincide more closely with provider needs and allow effective provider responses?
- What data-related burdens or redundancies do providers/practices cite?

Payment Reform and Financial Incentive Structures

- Under what financial and non-financial incentive structure(s) do providers practice in Vermont?
- Are providers aware of the incentive structure under which they practice? If so, how do providers view the current incentive structure(s) under which they practice? Why?
- What changes, if any, have taken place in the way providers practice as a result of these incentive structures? How does payment reform impact care integration, coordination, and provider collaboration?
- How do attitudes toward incentives and changes providers have made in practice (if any) differ across provider types (primary care, specialty care), practice sizes (solo, small and large group), and ownership (hospital-owned vs independent)?
- Are there non-financial provider incentives that influence patient care, quality, and provider collaboration?
- What further adaptations at the practice and provider level do providers anticipate in the transition to next generation payment models, such as shared savings with downside risk, episode-of-care based payment, and global budgeting? What additional support or technical assistance do providers anticipate needing in making this transition?

Key informant interviews with Vermont stakeholders and SIM experts

Approximately 30 interviews were conducted with stakeholders and experts (Appendix 1). The list includes members of the state's six workgroups (Payment Model Design and Implementation, Practice Transformation, Health Data Infrastructure, Workforce, Disability and Long Term Services and Support, and Population Health); representatives from the payer, long-term care, hospital, primary care, and specialist sectors; consumer advocates; and representatives aligned with complementary and intersecting initiatives, such as the Blueprint for Health. A full list of interviewees was developed

collaboratively with VHCIP leadership and informed and incorporated the review of background documents and literature. Interviewees had geographical representation, service population diversity (e.g., pediatrics/adults, private/safety net), and institutional diversity. Some interviewees represented expertise across more than one theme area. A structured interview guide was developed that included questions within each theme, and interviews were conducted by the JSI technical lead for the theme and one other team member as a note taker. Note that several interviews have been scheduled after the environmental scan has been completed, but these interviews will continue to be important and relevant for future evaluation activities.

SIM / Vermont-specific document review

VHCIP evaluation leadership shared almost 200 documents that were directly relevant to VHCIP activities or health reform in Vermont. These documents were reviewed and prioritized based on relevance to the specific research questions, goals of the state-led evaluation, and input from VHCIP leadership (Appendix 2). Prioritized documents have been critical to developing a strong understanding of VHCIP activities as well as CMMI expectations and Vermont defined goals and milestones.

Review of peer-reviewed and grey literature for benchmarks and context

The literature review was directed by JSI's technical lead for each of the three major technical areas. The abstraction of information during the literature was guided by the need for national context to understand the key characteristics and implications for activities in each technical area. For example, within *Care Integration*, the literature review provided a framework for identifying principles that drive successful care integration, while the *Payment Reform* component of the literature review served to understand the performance of other ACO models to identify drivers of success. Appendix 3 identifies search terms used and a list of key articles reviewed based on the search.

Findings

Based on the resources and methods outlined above, this section describes the landscape for each of the three technical areas and how this understanding will serve as the foundation for ongoing evaluation efforts. There is significant overlap between the three technical areas (Care Integration, Use of Clinical and Economic Data, and Payment Reform).

Care Integration

VHCIP has served as a catalyst for care integration activities across the state. A defining feature of VHCIP is its integration and coordination with other health reform programs. Rather than creating new or parallel systems, the majority of VHCIP activities build on and enable existing programs. Key VHCIP care integration activities include supporting regional and state-wide collaborative structures such as the regional collaborations (UCC/RCPC/etc.) and learning collaboratives (Care Management Learning Collaborative and the Accountable Communities for Health Learning Peer Learning Lab); supporting sub-grant investments; and expanding models of care implemented by Vermont's Blueprint for Health, including Community Health Teams, Support and Services at Home (SASH) and Hub and Spoke (for individuals with substance use disorders). Additionally, VHCIP has taken the lead in facilitating discussions of how payment models can better support these efforts through the Medicaid Pathway discussions.

Evaluation of care integration activities will be focused on 1) what are the major care integration approaches currently underway, 2) which of these are most successful, 3) what makes them most successful, and 4) what additional resources could further enhance this work. Being able to define and identify success will be a critical component of the evaluation. While the evaluation will include a review of quantitative outcomes where available, many key informants have suggested that the transformative impact of VHCIP will likely be more qualitative and reflected in the fact that stakeholders who were previously unable or unwilling to work together are now regularly participating in collaborative activities. Based on feedback through these interviews and a review of the literature, the following section outlines principles of successful care integration.

Principles/Measures of Successful Care Integration

Care integration activities are supported at two distinct levels: 1) facilitating structures that enable cross-provider and multi-sector collaborations, and 2) specific care integration models providing direct care.

Activities that target the broader care delivery system aim to create an integrated delivery network in which services are complementary with limited gaps. In the Care Management Work Group report on gaps and duplication of services,[1] one interviewee described an ideal system as "A system that provides 'no wrong door' for anyone seeking care. If a patient seeks help from a home health agency but what is

[1] Bailit Health Purchasing, LLC. "Care Management in Vermont: Gaps and Duplication, Prepared for the Vermont Care Models and Care Management Work Group." 2015.

needed most is assistance from a financial advisor at the Area Agency on Aging, the home care staff must have the knowledge and ability to arrange for the services needed."

While further research is still needed to quantify the impact individual factors have on making a care integration model successful, several key publications from JSI's literature review have pointed to common factors that are frequently identified by experts and practitioners as drivers of a successful system. These factors are outlined in the table below. The final column indicates the factors that JSI recommends including as a framework for assessing care integration for the state-led evaluation, both as a framework for the site visits and for the care integration survey.

Principles of Successful Care Integration

Principle of care integration and team-based care	**Lyngsø Systematic Review[2]**	**IOM 2012 Team-Based Care[3]**	**Gaps and Duplication of Care Mgmt. in VT[4]**	**VHCIP State-Led Evaluation**
IT, access to information, and ability to measure processes and outcomes	✓	✓	✓	✓
Commitment and incentives to delivering integrated care including formal agreements and procedures	✓	✓		✓
Care model including clearly defined roles and awareness of expertise across providers	✓	✓	✓	✓
Organizational culture and effective communication and leadership including common goals, trust and share responsibility	✓	✓	✓	✓
Access to **educational opportunities**	✓		✓	✓
Aligned **financial incentives** that enhance cooperation	✓			✓
Quality improvement and performance measurement including commitment to quality and a structured approach to analytics	✓	✓	✓	✓
Patient focus including patient engagement, patient-centered care and population-based needs assessment	✓			✓

[2] Lyngsø, Anne Marie, Nina Skavlan, Dorte Høst, and Anne Frølich. "Instruments to Assess Integrated Care: A Systematic Review." Int J Integr Care International Journal of Integrated Care 14.9 (2014).
[3] Mitchell, Pamela H., Matthew K. Wynia, Robyn Golden, Bob McNellis, Sally Okun C. Edwin Webb, Valerie Rohrbach and Isabelle Von Kohorn. Core Princicples & Values of Effective Team-Based Health Care. Washington (DC): Institute of Medicine Discussion Paper. 2012.
[4] Bailit Health Purchasing, LLC. "Care Management in Vermont: Gaps and Duplication, Prepared for the Vermont Care Models and Care Management Work Group." 2015.

Since multiple VHCIP activities work in concert to support care transformation, it is likely not necessary for one program to incorporate all principles, but many individual factors are addressed through different VHCIP components – supporting the creation of a cross-entity integrated delivery system. Thus, the evaluation will explore care integration at the systems-level and seek to understand the following contextual factors:

- How is region defined and how does this relate to provider structure?
- What is convening authority to bring people to the table?
- How is governance institutionalized?
- How do care integrators work with each other?
- How is payment linked between groups?

In addition to looking system-wide regarding care integration, specific care integration models will be assessed at sites visited over the course of the evaluation. Site-specific models will be assessed using the principles above but focused on how they are operationalized, factors related to success, challenges, and factors related to spread. Additionally, the evaluation will include an assessment of the site-specific goals articulated by each program.

Based on the environmental scan, the following contextual factors will influence the ability to achieve the above principals of care integration and will be explored further through the state-led evaluation:

VHCIP Care Integration Activities

VHCIP funds support care integration at multiple levels of the human/social services and health care system, ranging from testing and supporting specific care management models to enabling regional and statewide infrastructure development and facilitating dialogue across disparate geographies and stakeholders. The multi-pronged approach summarized below has created the opportunity to see both shorter-term health outcome effects and longer-term systems-level transformation.

Convening and collaborative structures

VHCIP has invested in both *regional collaborations* and state-wide initiatives such as the *Integrated Communities Care Management Learning Collaborative* and the complementary core competencies training for care integrators. The regional collaborations were developed in partnership between Blueprint for Health and the three accountable care organizations (ACOs) in every Hospital Service Area (HSA), which allow coordination between major local service provider groups (hospitals, federally qualified health centers (FQHCs), etc.), Designated Agencies, Home Health or the Visiting Nurse Association, Area Agency on Aging, and Designated Regional Housing Organization. The Regional Collaboratives also support data collection, analysis, and reporting, and provide administrative capacity for collaboration. These collaborations serve as the foundation for Accountable Community for Health Peer Learning Labs – funded through the VHCIP payment model work stream – and deepen community-level integration of care. Care management stakeholders have identified these regional collaborations as

key players in addressing potential gaps and duplication in care management services.[5] VHCIP enabled these structures through subgrants to the ACOs which supported staff time and other administrative costs. Complementary to these local efforts, the state-wide Integrated Communities Care Management Learning Collaborative tests interventions to address gaps and duplications in care management, facilitates the use of common tools and methods across regions, and implements core competency trainings focused on care management and disability awareness.

Specific models of care integration

Vermont has had a rich ecosystem of both medical and non-medical providers who are increasingly working together to provider better quality care. A key player in this arena has been Vermont's Blueprint for Health, implementing practice models that support improved primary care (patient centered medical homes (PCMH)), incorporating nurses and navigators to coordinate access to both medical and social services (community health teams (CHT)), access to substance use treatment (Hub and Spoke), and aging in place (SASH). In addition to supporting expansion of the foundation developed through Blueprint for Health models, VHCIP has funded targeted sub-grants to test and expand innovative models and to support ACO infrastructure and care management, and is working in collaboration with Integrated Family Services (IFS) to develop payment models that enable integration of social services and medical care.

- *Blueprint for Health practice transformation and care management models*

  Building on primary care transformation through PCMH incentives, Blueprint for Health leveraged funds from Medicare, Medicaid, and commercial payers to support implementation of CHT, SASH, and Hub and Spoke across the state through a *Transformation Network* including Practice Facilitators (trained in quality improvement and change management), Community Health Team leaders, and Project Managers (who work with PCMHs, CHTs, and local health and human service leaders). Blueprint's emphasis has been on implementing programs that are both evidence-based and locally responsive. PCMH, CHT, and SASH are paid in part through the Multi- Payer Advanced Primary Care Practice (MAPCP) Demonstration which is scheduled to end in 2016. All are included in the all-payer term sheets. However, the state covers a share of the programs and it is not definite that this funding will continue. Additionally, several stakeholders commented on the fact that it is very unusual to have a model where ACOs do not directly manage care management activities like these. An important question for the state-led evaluation will be to understand what the impact of this payment structure has been and to anticipate the implications of the payment approach taken by the all-payer model in the future.

- *Sub-grants*

  Sub-grants serve as a core component of VHCIP care integration. Subgrants were awarded to support community engagement (e.g., RISE VT), screening and intervention (e.g., SiMH/SBIRT, Resilient Vermont InvestEAP behavioral health screening at FQHCs, and health screening and

[5] Bailit Health Purchasing, LLC. "Care Management in Vermont: Gaps and Duplication, Prepared for the Vermont Care Models and Care Management Work Group." 2015.

intervention at King Arthur Flour), care management for high utilizers (e.g., transitional care management at SVMC, White River Family Practice's chronic disease management, the Dual Eligible project in Caledonia and Essex County, a supportive care pilot through the Rutland VNA, and the Development Disabilities Councils clinical enhancements) and other practice transformation efforts (including a statewide surgical collaborative and implementing Choosing Wisely practices to optimize lab testing). Each of these models is being implemented within the care management context described above and will be evaluated both in terms of their success in meeting outcomes defined through their grants as well as through the broader care integration principles.

- *Integrated Family Services*

  Similar to the regional collaborations, IFS supports local efforts to collaborate across stakeholders to best meet the needs of their communities. Central to IFS has been the creation of a new integrated care model and payment structure that provides a per member per month or "*case rate*" payment for traditionally fee-for-service payments for Children's Mental Health services that can be used much more flexibly to meet the needs of children and their families. The case rate system converts all traditional Medicaid payments into a single monthly payment. This case rate model is a marked shift toward transformative blended funding[6] that has significant potential to address fragmentation of services and has informed the Medicaid Pathways component of VHCIP (aimed at informing the next generation of Medicaid payment within the context of an all-payer model). In conducting the state-led evaluation, further research is necessary into how IFS regional efforts interact with the ACO/Blueprint regional collaborations. In particular, determining how regions are defined to correspond to existing structures (e.g. the regional collaborations are built around Hospital Service Areas, which do not align with state agency and community partner service areas).

Impact of Payment Reform and Use of Data Relative to Care Integration

Payment reform has been central to VHCIP implementation, based on the principle that setting up the appropriate financial incentives will drive care delivery transformation. One significant challenge in financing care integration models has been incorporating non-medical providers into new payment models. Some programs, such as the Integrated Family Services Case Rate model, have tested the impact of creating payment models for non-medical that shift from fee-for-service toward global payments (for Medicaid payments only). While this model is not directly tied to VHCIP payment reform, continuing to evaluate and learn from models like this one will provide valuable insight to identify opportunities to further integrate non-medical care delivery and payment models. The *Medicaid*

[6] Clary, Amy and Trish Riley. "Braiding & Blending Funding Streams to Meet the Health-Related Social Needs of Low-Income Persons: Considerations for State Health Policymakers." The National Academy for State Health Policy. (2016). Web.

Pathway discussions focus on opportunities to integrate payments specific to Medicaid, and also will be further explored throughout the evaluation.

There was minimal evidence that use of data efforts had an impact on care integration models through the interviews and the document review. However, this theme will continue to be explored through the site visits and provider surveys as quality improvement and performance measurement and access to information are important principles of successful care integration.

Use of Clinical and Economic Data

Data within the context of VHCIP serves as a tool supporting individual and population based care. Clinical and cost data is a necessary component when participating in alternative payment models but VHCIP also leverages data as a transformative tool; assisting and informing practices throughout their evolution to a system which supports optimal care delivery and population health management. Landmark documents from organizations such as the Institute of Medicine (IOM) have long provided insight to the role of data and health information infrastructure as part of health care reform principles. The 2003 report *Health Professions Education: A Bridge to Quality* set forth in early discussions five key skill sets each health care professional must obtain in order to provide high quality care including:

- Use informatics
- Work in interdisciplinary teams
- Apply evidence based practices
- Provide patient centered care
- Apply quality improvement[7]

Over ten years later while industry thinking remained the same, application of these key principles were considered at the organizational level. In 2014 CMS articulated a set of parallel system level qualities that are closely associated with transformed healthcare delivery systems including:

- Providers across the care continuum participate in integrated or virtually integrated delivery models,
- Care is coordinated across all providers and settings,
- There is a high level of patient engagement and quantifiable results on patient experience,
- Providers leverage the use of health information technology to improve quality,
- Providers perform at the top of their license and board certification,
- Population health measures are integrated into the delivery system, and
- Data is used to drive health system processes.[8]

While there has been consistent agreement that data and health information technology are central to success in a reform-centric environment there continues to be a gap in ability to utilize comprehensive

[7] Health Professions Education: A Bridge to Quality. Institute of Medicine, 2003.

[8] CMS State Innovation Models Cooperative Agreement Announcement (May 2014). Available at: http://innovation.cms.gov/Files/x/StateInnovationRdTwoFOA.pdf

longitudinal patient and population based data. Electronic health records (EHRs), payers, governmental agency databases, registries and other data sources are distributed widely across the health care system and create a fragmentation of data. High variability in data quality, coding, timing of availability and computerization affect provider ability to access the data they need when they need it.[9] Until inter-operability, data standardization, and compatibility are addressed, the expectation for the application of data at the provider and provider organization level should be approached with caution. Attempts at leveraging further use by providers in advance of addressing these infrastructure issues may indeed have a detrimental effect, moving providers to reject data initiatives if complexity, diminishing value, and overall burden become unwieldy. Hospital and primary care systems represent the most advanced facets of the health care system with highest capability to obtain and use data for individual and population health improvement with other clinical systems including long term care, mental health, substance abuse, home health and disability support services lagging significantly further behind. As health care reform integrates non-clinical providers to address patients' social determinants of health, an even wider gap exists in their competency and infrastructure as compared to their traditional clinical counterparts.

With an awareness of the potential to further encumber clinical and non-clinical providers and organizations, VHCIP has strategically created a data use approach by building upon and leveraging existing data aggregation and dissemination activities. Rather than developing parallel data initiatives, the existing foundational work of the Blueprint, Department of Health, Department of Vermont Health Access has been leveraged for VHCIP purposes with VHCIP-centric value added. Similar to VHCIP, these existing efforts leverage stakeholder input to gain insight to data needs to deliver usable and actionable data for clinical and non-clinical stakeholders.

While provider and system capacity concepts have long been articulated, it was not until the Health Information Technology for Economic and Clinical Health (HITECH) provisions of the American Recovery and Reinvestment Act of 2009 that US health care began to actualize the benefits and challenges of pursuing provider and system level HIT capacity and knowledge.[10] Through regional extension centers, beacon communities, state funding, EHR incentivization and, meaningful use, our understanding has been significantly enhanced. Efforts to move towards shared risk and value-based payment arrangements further provided insight to the infrastructure needed to meet the data and data analytic needs of providers including:

- Electronic Health Records
- Health Information Exchange Services
- Predictive and Retrospective Analytics
- Quality Reporting and Measurement Tools

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[9] Institute of Medicine (US) Roundtable on Value & Science-Driven Health Care. Clinical Data as the Basic Staple of Health Learning: Creating and Protecting a Public Good: Workshop Summary. Washington (DC): National Academies Press (US); 2010. 2, U.S. Healthcare Data Today: Current State of Play. Available from: http://www.ncbi.nlm.nih.gov/books/NBK54296/

[10] Melinda Beeuwkes Buntin, Sachin H. Jain and David Blumenthal Health Information Technology: Laying The Infrastructure For National Health Reform Health Affairs 29, no.6 (2010):1214-1219 doi: 10.1377/hlthaff.2010.0503

- Tools to Engage Patients in Self-Management[11]

VHCIP's data strategy has significantly focused on infrastructure investments to increase the utility and availability of clinical data. Vermont Information Technology Leaders (VITL), the state health information exchange (HIE), has targeted efforts to increase the number of providers connected to the HIE, addressed data gaps and quality of data, and developed analytic functions. Given the gap in capacity of clinical providers in mental health, substance abuse, long term care and disability support services, specific investments were made to expand the use of telehealth and electronic health records and to develop data warehousing solutions to integrate and make available sensitive data (mental health and substance use) necessary for whole-person care and further enable a vision of shared responsibility for patient outcomes. These initiatives required the consideration and, when possible, resolution of key health data policy issues including:

- Privacy and security
- Data governance
- Data sharing, particularly with community partners
- Patient matching
- Patient consent[12]

While policy considerations and infrastructure building continues to require an influx of resources beyond the VHCIP timeline, VHCIP has developed a fuller understanding of the future needs of clinical and non-clinical providers by focusing on infrastructure development, stakeholder engagement and long term planning to incorporate into the state health information technology (HIT) plan and, to the extent possible, existing HIT infrastructure. Given the findings of the data environmental scan, key principles will be examined as part of the evaluation process. As Vermont continues to advance health care reform and examine the role of data and data infrastructure the same key principles should be considered, these include:

- **Data drives transformation** of practices and practice behavior.
- **HIT** enables data use.
- **Data, HIT and HIE** work synergistically to enable:
    - Predictive and Retrospective Analytics
    - Quality Reporting and Measurement Tools
    - Tools to Engage Patients in Self-Management
- Technology is **user friendly** in its design.

[11] Health Information Technology to Support Accountable Care Arrangements. Office of the National Coordinator for Health Information Technology, October 2014

[12] Health Information Technology to Support Accountable Care Arrangements. Office of the National Coordinator for Health Information Technology, October 2014.

- Technology is **interoperable**, **compatible** and data is **standardized**.

Payment Reform

Overall Understanding of the Landscape and Related SIM Activities

The State of Vermont has been and continues to be a leader on state-led health care reform. Vermont's health reform efforts have included movement towards a universal health care system and movement away from fee-for-service payment models. Advancing system transformation through payment reform has been a constant in Vermont's health care reform efforts. For example, the Vermont Oncology Pilot Program in St. Johnsbury, continues to demonstrate success. Early adoption of alternative payment models (APM) has also fostered the development of ACOs in Vermont. Healthfirst, one of three ACOs in Vermont, was approved for Medicare Shared Savings Program (MSSP) in 2013 but dropped out in 2015. OneCare, was also approved for a Medicare Shared Saving Program (MSSP) in 2013 and Community Health Accountable Care (CHAC, FQHC-based ACO) followed in 2014. VHCIP was able to leverage OneCare's experience with the Medicare Shared Savings Program to expand shared savings payment models for both Medicaid and commercial plans offered through the State's health insurance exchange (Vermont Health Connect). The GMCB facilitated alignment of the three ACOs on payment models, avoiding anti-trust issues. The GMCB brought together an inclusive stakeholder group including consumer representatives to develop standards for the ACOs for governance, savings calculation, meeting expenditure targets, distributing savings, and quality measures. This group predated VHCIP, but morphed into the SIM Payment Models and Quality Measurement workgroups. Many of the quality measures came from the Medicare Shared Savings Program, but changes were made relevant to the Medicaid and commercial populations; for example, measures related to maternal and child health were developed. The goal was to have as much alignment as possible between Medicare, Medicaid and ACO commercial plans, informing the development of the proposed all payer model. ACO commercial plans currently include only those offered by the exchange; including other commercial plans was considered to be too complicated at the time. The goal under VHCIP was to have 80% of Vermonters in alternative payment arrangements. The goal has not been achieved. Those interviewed to date as part of the environmental scan provided some ideas as to what may have contributed to the actual percentage being lower than desired, but more research is needed to understand the reasons more fully and accurately. One reason given was the delay in getting the state's health insurance exchange fully operational..

VHCIP resources were also used to analyze claims data for cost and quality performance and build provider capacity to contribute to and use Vermont's health information exchange (VITL). These efforts identified challenges to obtaining complete data that could be collected and used in support of value-based payments.

Shared savings results by ACO are available for 2014. What is less well known is how these savings have been distributed across and within partner organizations and this will be included in further research to inform the evaluation. Another challenge going forward will be to provide sufficient incentives to

continue to achieve or maintain savings. Vermont's health care costs per capita are already relatively low. In addition, health care savings represent lost revenues to the State's hospitals.

VHCIP has expanded the number of individuals covered under shared payment models for Medicaid and exchange-based commercial plans. Vermont has asked permission from CMS to remove testing of bundled payment/Episode-Based Payment arrangement from VHCIP activities and goals. The general feeling was that providers had "too much on their plates" already and had limited capacity to engage in another payment reform pilot. Small number of providers engaged in these programs and a late start in the grant coupled with the fact that the State is potentially moving to new payment models in 2017 also contributed to the removal of these payment reform initiatives. Bundled payment arrangements could be a part of future payment models, but they would be implemented post SIM. Other payment models are being tested in SASH and Hub and Spoke programs; JSI currently does not have much information about these, but they will be important to explore during the evaluation.

ACO shared savings payment models were primarily focused on medical services and costs. Long term support services (LTSS) are generally not included in Medicare and commercial insurance benefits and were carved out of Medicaid ACO payments. The Medicaid Pathway initiative and Integrated Family Services pilot can provide some insights into how community based organizations can be included in alternative payment arrangements. Accountable Communities for Health collaborative peer learning may provide additional insights for the state-led evaluation.

VHCIP has generated remarkable cooperation among the payers and providers that can be leveraged as health care reform efforts continue. VHCIP work has provided significant insights that can be used to inform payment reform models under the all payer waiver. A lot of work has been done with the recognition that payment reform must work at local and regional levels and to expand participation beyond medical doctors and hospitals, including mental health, home health, Area Agencies on Aging, and consumer representatives. In addition, ACO shared savings programs currently do not include those covered under employer-based commercial plans.

Implications for Ongoing VHCIP State-Led Evaluation Activities

The environmental scan has implications for:

1. Refinements to the evaluation questions
2. Site selection
3. Provider and care integration surveys
4. Potential learning dissemination channels

Specific recommendations for each of these areas are detailed in this section.

Refinements to Evaluation Questions

JSI recommends using the following evaluation questions, adapted from the initial guiding evaluation questions included in the initial RFP for evaluation services. These updated questions are designed to more closely align to both current VHCIP activities and the continuing health reform landscape to maximize relevance and actionability. Removed text is indicated by ~~strikethrough formatting~~ while new suggested text is in ***bold and italicized.***

Care Integration

Changes in this section are focused on incorporating enabling structures that span entities and to incorporate both qualitative and quantitative indicators of success. Additionally, questions have either been added or tailored to address the impact of SIM-related payment reform and health data-related activities.

- What are key ~~examples of~~ care integration approaches, ***including facilitating structures (such as cross-region and multi-sector collaborations) supported by VHCIP? How do these programs interact with other care integration models*** being tested/ implemented across the state?
- What are the key characteristics of each approach in the sites that are studied, and how do they vary in evidence base, design, setting, focus, resource utilization, ***affiliation with a larger network, coordination/duplication with other providers and cost, and*** in comparison to national care models?
- ***How do stakeholders define success - what are the primary principles/characteristics of a successful model? This applies both to specific client-facing models as well as facilitating structures.***
- What ***qualitative and quantitative*** evidence is available to demonstrate effectiveness of each approach? How solid is the evidence? What are the key lessons learned from each?
- What environmental and organizational features enhance care integration approaches? What features result in barriers?
- Based on resources, cost, and perceived success ***of specific SIM-funded care integration programs***, which appear to be most suitable for scaling up? ***Which SIM-funded facilitating entities should be expanded?***

- ***How have payment reform activities impacted the viability of SIM-related care integration models?***
- What information do health care providers (physicians, nurses, care coordinators, social workers, others) need from other provider/care settings in order to provide high quality, coordinated and integrated care? How available, timely and high ~~of~~ quality is this information? How are shared clinical plan data used and shared? ***In particular, how have SIM-related investments in health data sharing impacted care integration programs?***

Use of Clinical and Economic Data to Promote Value-Based Care

Changes in this section shifted the focus away from access to specific data elements and toward infrastructure development and enabling technologies.

- ~~What data are being communicated, by whom, how are they being communicated (and through what intermediary structures) and for what purposes are they being communicated?~~
- ***What data use is being enabled by improved health information technology (VITL, EHRs, registries)?***
- What assistance or support is provided to those intended to use data via one of these technology platforms? **What further assistance or support is needed?**
- How are data ***from these sources*** being received, understood and applied?
- Are there unintended consequences associated with provider practice changes? If so, what are they?
- Are the right data being communicated? ***What types of data would providers (hospitals, primary care, specialty), community health partners (LTDSS, home health, mental health and substance abuse providers), and community social service providers) would be useful and for what purposes?***
- ~~What do providers perceive as most and least useful about the processes and data shared? What elements are most and least useful to improve patient care and practice efficiency? Do the data contain information that providers want and think they can make use of? Are data serving HSA-level local needs?~~
- ~~How could the content or communication mode of the data be modified to make it coincide more closely with provider needs and allow effective provider responses?~~
- ***To what extent is technology enabling more use of data?***
- ***What is the usability of the technology? Intuitive design; Subjective satisfaction; Efficiency of use; Memorability; Error frequency and severity; Ease of learning***
- What data-related burdens or redundancies do providers/practices cite ***and how might these be addressed (technology or non-technology solutions)?***

Payment Reform and Financial Incentive Structures

Some additions to the payment reform evaluation questions are included to highlight how individual providers are compensated relative to the ACOs as well as how these new payment models are impacting the way medical providers hire or collaborate with care coordinators.

- Under what financial and non-financial incentive structure(s) do providers ***(hospitals, primary care, specialty), community health partners (LTDSS, home health, mental health and substance abuse providers), and community social service providers)*** practice in Vermont?
  Note: this question would remain but would not be answered through provider survey, but through site visit interviews and from existing records. We learned from the environmental scan that generally non-medical providers are not included in incentive structures.
- Are providers ***(hospitals, primary care, specialty)*** aware of the incentive structure under which they practice? If so, how do providers view the current incentive structure(s) under which they practice? Why? ***How are providers individually compensated (salary, productivity, etc.)? Have providers received incentive payments from ACO shared savings programs? If so, what percentage of compensation is from incentive structures?***
- What changes, if any, have taken place in the way providers ***(hospitals, primary care, specialty),*** practice as a result of these incentive structures?
- How does payment reform impact care integration, coordination, and provider ***(hospitals, primary care, specialty), community health partners, and community social service providers)*** collaboration? ***Have providers, community health partners, community social service providers hired/ or plan to hire care coordinators… staff to provide preventive services, such as nutrition counselors?***
- How do attitudes toward incentives and changes providers have made in practice (if any) differ across provider types (**hospital,** primary care, specialty care), practice sizes (solo, small and large group), and ownership (hospital-owned vs independent)?
- Are there non-financial ~~provider~~ incentives that influence patient care, quality, and provider collaboration?
- What further adaptations at the practice and provider level do providers (***hospitals, primary care, specialty), community health partners, and community social service providers)*** anticipate in the transition to next generation payment models, such as shared savings with downside risk, episode-of-care based payment, and global budgeting? What additional support or technical assistance ~~do providers anticipate needing in making~~ **is needed to make** this transition?
- ***How can community-based health and social service providers be included in alternative payment arrangements, including but not limited to shared savings, bundled payment, etc.?***
- ~~Work on this focus area will incorporate inquiry into whether and~~ How **has** payment reform ~~impacts~~ **influenced** the practice of preventive medicine? ~~, and whether and how payment models are driving care integration.~~

Site Selection Matrix

The development of a site visit selection matrix was predicated upon engagement in an iterative process that JSI expects will continue as the findings of the site visits and overall evaluation evolve. While JSI presents a recommended slate of sites, it is understood that sites may be added or substituted to assure organizations present at site visits are best suited to provide insight on the VHCIP core evaluation questions. Initial selection criteria focused on the identification of a diverse set of organizations representing clinical and non-clinical providers, varying sectors of the health care industry (hospitals, primary care, long term care) and geographic distributed throughout the state. Stakeholders were queried and key informant interviews conducted to gain insight to stakeholder perception of potential sites to include.

A preliminary list of sites was developed and expanded to include any VHCIP subgrants not already identified as priority sites. The list was organized according to hospital service areas as defined by the Blueprint. This level of organization provided additional value 1) by assuring each HSA region was represented; 2) providing a means of grouping organizations that already work together in communities, particularly through the Unified Community Collaboratives, and leveraging the potential for group meetings; and 3) enabling the pairing of existing quantitative data organized by HSA to add to qualitative data obtained during the site visits. Within the list of approximately 50 sites, five were identified as having state wide impact, and this category was added to the list of HSAs.

Finally, input from VHCIP Management Team and the VHCIP Evaluation Advisory Committee was obtained. Supplementing the review from a diversity perspective, the Management Team and Advisory Committee considered the addition and/or subtraction of sites based upon their relevance to the evaluation questions, program generalizability, operational maturity, scope and scale, and implementation performance. The resulting matrix provides an overview of recommended sites and is included in Appendix 4.

Implementation of Provider and Care Integration Survey

Several existing surveys and resources have been identified that will be built on in terms of both reaching out to providers and developing survey questions. These include:

- Care Integration survey currently underway through the Learning Collaboratives for all participating providers
- Physicians Census conducted annually by the Department of Health
- Blueprint Practice List – used to develop Practice Profiles

The content in each of the three technical areas laid out in this environmental scan will inform the content of the surveys, including using the principles of care integration and usability criteria presented in the care integration and data use sections respectively. The site visits will further inform the content.

Learning Dissemination

VHCIP leadership and JSI are working together to identify primary audiences and the appropriate communication tools and pathways. In addition to researching existing groups and forums, JSI received a

number of recommendations through key informants that may be incorporated into the learning dissemination plan depending on final prioritization. Potential audiences for dissemination include:

Policy/Program Administrators	• Vermont Blueprint managers community health teams, practice facilitators, and agency field directors • Vermont Department of Health • Legislators and policy makers • Vermont Department of Mental Health • Learning Collaboratives/UCCs • SIM workgroups • Vermont Information Technology Leaders (including VITL) • Vermont Family Network (VFN)
Payers	• DVHA • MVP • Commercial (United Healthcare, BCBSVT)
Providers, provider groups, provider associations	• Care Management Learning Collaborative and the Accountable Communities for Health Learning Peer Lab participants • Blueprint project managers community health teams, practice facilitators, and agency field directors • Vermont Medical Society • Vermont Organization of Nurse Leaders (VONL) • Vermont State Nurses Association (American Nurses Association VT) • Kappa Tau, Vermont's Chapter of Sigma Theta Tau • ACOs and ACO members • National Association of Social Workers Vermont Chapter (NASW-VT) • Vermont Psychological Association • Vermont State School Nurses' Association (VSSNA) • The Physician Assistant Academy of Vermont • Vermont Mental Health Counselors Association
Practice Managers and Office Staff	• Vermont Medical Group Management Association (VTMGMA)
Consumers and Consumer Groups	• National Alliance on Mental Illness Vermont • People Education Advocacy Recovery (PEAR) – The Vermont Association for Mental Health and Addiction Recovery • Health Care Advocate Project • The Vermont Public Interest Research Group in Montpelier (VPIRG) • Vermont Legal Aid Health Care Advocate Project • Vermont Coalition for Disability Rights (VCDR)
Institutional Providers and Provider Associations	• VNAs of Vermont • Vermont Council of Developmental and Mental Health Services and Vermont Care Network (Vermont Care Partners) • Vermont Council of Developmental and Mental Health Services and Vermont Care Network (Vermont Care Partners) • Vermont Health Care Association • Vermont Association of Hospital and Health System (VAHHS) • Vermont Nurses in Partnership (VNIP) • VT Coalition of Clinics for the Uninsured • Vermont Health Information Management Association (An affiliate of American Health Information Management Association)
Non-governmental Health and Human Services	• Community Catalyst (National organization also works in Vermont)

Appendix 1: Key Informant Interview Summary

	Key Informant	Role	Technical Areas Addressed		
			Care Integration	Data Use	Payment Reform
1	Michael Bailit	Bailit Health Purchasing	X		X
2	Ena Backus / Michael Costa	All Payer Model Negotiation Team			X
3	Bob Bick	Howard Center for Mental Health-Designated Agency		X	X
4	Peter Cobb	VNAs of Vermont	X	X	X
5	Alicia Cooper	Vermont Health Access (Medicaid)			X
6	Pamela Farnham	University of Vermont Medical Center	X		
7	Kim Fitzgerald	SASH	X		
8	Joyce Gallimore	Community Health Accountable Care LLC at Bi-State Primary Care Association			X
9	Dale Hackett	Consumer	X	X	X
10	Stephanie Hartsfield	Cathedral Square Corporation	X		X
11	Karen Hein	Population Health Workgroup, GMCB	X		X
12	Scott Johnson	Lamoille Family Center	X		
13	Pat Jones	Green Mountain Care Board	X		
14	Cy Jordan	Vermont Medical Society		X	X
15	Deborah Lisi-Baker	DLTSS SIM Consultant			X
16	Georgia Maheras	SIM Project Director	X	X	X
17	Carol Maloney and Susan Bartlett	Integrated Family Services- Special Projects	X		
18	Ed Paquin	Disability Rights Vermont	X		
19	Mary Val Palumbo	UVM (workforce workgroup chair)	X		
20	Allan Ramsay	Green Mountain Care Board	X	X	X
21	Allen Repp	University of Vermont Medical Center		X	X
22	Simone Rueshmeyer	Vermont Care Network & HDI committee co-chair	X	X	X
23	Jenney Samuelson	Blueprint for Health	X		

	Key Informant	Role	Technical Areas Addressed		
			Care Integration	Data Use	Payment Reform
24	Julia Shaw	VT Legal Aid/Health Care Advocate Project		X	
25	Richard Slusky	Green Mountain Care Board			X
26	Julie Tessler	VT Council of Developmental & Mental Health Services- Designated Agency	X	X	X

Appendix 2: VHCIP Priority Documents Reviewed

Category	Name of Document	Description
VT SIM Documents for CMMI	Attachment A NCE Work to be Performed final	Year 2 SIM no cost extension (NCE) request
	High Level Goals with detail 12.23.15	Memo (7 pages) on 4 high level goals for VT SIM
	SIM Eval - State Activity Summary - NOA terms	Details on state-led evaluation activities - helpful summary of which entities are responsible for each task
	Vermont_Year_3_Operational_Plan_11.02.2015	VT SIM Operational Plan
	VHCIP Status Reports for December 2015	Excellent overview of SIM programs, goals and timeline
	Year 3 Ops - Spring 2016 - Appendix 1	Beneficiary/Provider/Provider Organization Outputs – Participation in Alternatives to Fee-For-Service
	Year 3 Ops - Spring 2016 - Sec Q._4_11	Summary of State-Led Evaluation Plan
	Year 3 Ops - Spring 2016 - Sec H	Quality, Financial, and Health Goals and Performance Measurement Plan
	Year 3 Operational Plan - Update	Original plan was rescinded. This is an update
VT SIM Implementation	VHCIP Evaluation Steering Committee	List of steering committee participants
	W-Georgia Maheras, Esq.-Vermont Health Care Innovation Project Update-1-6-2016	January update to the board by project director
	4th Quarter 2015 VHCIP Provider Sub-grant Quarterly Reports	Sub-grant Quarterly Reports
	VHCIP Status Reports Sept 2015 - March 2016	Monthly VHCIP Status Reports
	VT's SIM Health Care Innovation Plan	VT Health Care Innovation Plan
	VHCIP Provider Sub-grant Symposium Materials Submission to CMMI Final	Collection of all symposium materials including agenda, project descriptions for sub-grantees, notes and evaluation results
CCMI Evaluation	RTI Report Round1-ModelTest-FirstAnnualRpt_5_6_15	State Innovation Models (SIM) Initiative Evaluation - Model Test Base Year Annual Report
Evaluation Planning	SIM Pilots 02-23-2015 kmh model type_AP	High level summary of SIM Pilots / Sub-grants
	LiteratureReview_DRAFT_VT_Comments	Best Practices literature review to inform SIM design
VT SIM Evaluation	VHCIP_State-Led_Eval_11_13_15	November 2015, good summary of state-led evaluation activities. Would be helpful to clarify exactly which ones JSI will be involved in and who is responsible for the other evaluation activities
	WorkgroupSurveyReport_2_29	Anonymous quality improvement survey of stakeholder work group participants from July 2014 – March 2015, feedback was largely positive and any criticism was on communication between groups / time spent to process information

Category	Name of Document	Description
ACO SSP Measures	2015 ACO Core Measure Set Narrative Specifications 2015 9-21 clean	Appears to be final core measure set for the year - need to confirm
	2015 M and E Measure Set Narrative Specifications 2015 9-21 clean	Appears to be final monitoring and evaluation core measure set - need to confirm
Payment Reform	Payment_Reform_Series_Final_081315	Presentation to GMCB on Payment and Delivery System reform in VT - 2016 and Beyond
	Payment_Reform_Series_Session7_23_15	Presentation to GMCB on Payment and Delivery System reform in VT - level setting
	2015 VMS Physician Survey Summary	Results from 2015 Vermont Medical Society physician survey
Care Integration	Care Management in VT - Gaps and Duplication 2015-08-31	Bailit Health has summarized gaps and duplication in care management services. Bailit Health has also summarized recommendations from presenters on how to address gaps and duplication.
	CC Box Diagram	Diagram of Key Interventions in Vermont's Integrated Communities Care Management Learning Collaborative
	CMCM Survey Report 2015-03-09 FINAL	Care Management Inventory Survey Results
	Integrated Communities Care Management Learning Collaborative Background Material for Round 2 - Final	Description of learning collaborative model
	Sample Community Collaborative Survey from Brattleboro	Community collaboration survey to be implemented Spring 2016
	VT Integrated Model of Care Overview May 5, 2016	Description of integrated care activities in VT
Health Data	20 lessons on unintended consequences	Background reading to inform identification of health performance measures
	Draft HDI Work Group Year 2 Work Plan 10 08 2015	Health Data Infrastructure workplan
	unintended consequences of performance data	Background reading to inform identification of health performance measures
	VTHealthData Inventory_FinalReport_12312015	Inventory of health data available in Vermont - references a Health Data Inventory Database that was created
Other Background Resources	History of VT HR	Good resource for those not familiar with VT health reform effort, though doesn't include most recent events
	Vermont-Blueprint-for-Health-2015-Annual-Report-FINAL-1-27-16	Vermont Blueprint for Health 2015 Annual Report

Appendix 3: Literature Review Summary

Formal Search (including search terms databases used)

Review documents from the last 3 years (2014 to present). Documents will be used to understand the national landscape and identify best practices. Documents will be included in the review based on number of times referenced, relevance, and recency.

Payment Reform: "**alternative payment models**" or "**payment reform**" or "**financial incentives**" or "**non-financial incentives**" AND

"evaluation," or "frameworks," or "models" or "best practices" or "outcomes" or "quality" or "provider perception" or "provider attitudes" or "metrics" or "unintended consequences" or "scalability" or "replication" AND

"Health system" "accountable care organization" or "hospital" or "primary care" or "population health"

Use of Data: "**Quality improvement data**," or "**dashboards**" AND "provider perception" or "provider attitudes" or "value" or "best practices" or "cost," or "unintended consequences"

Care Integration: "**Care integration**" or "**care coordination**" or "**care management**" or "**multi-sector collaboration**," AND "cost" or "models" or "evaluation" or "frameworks" or "best practices" or "outcomes" or "quality" or "provider perception" or "provider attitudes" or "reimbursement" or "payment reform" or "alternative payment models" or "scalability" or "replication"

Number of Articles Identified: 400

- Payment Reform- 160
- Data Use- 41
- Care Integration- 199

Number of Articles Selected for Review: 101

- Payment Reform- 45
- Data Use- 13
- Care Integration- 43

Process for Supplementing with Outside Research

In addition to the process for identifying of peer-reviewed journal articles outlined above, the literature review incorporates articles recommended by the steering committee and key informants as well relevant grey literature identified either through JSI's experience in the technical areas or through drawing on subject matter experts across JSI.

Key Articles Informing the Environmental Scan	Topic Area Addressed		
	Care Integration	Data Use	Payment Reform
Total number of sources	***18***	***5***	***16***
Albright, Benjamin B., Valerie A. Lewis, Joseph S. Ross, and Carrie H. Colla. "Preventive Care Quality of Medicare Accountable Care Organizations." *Medical Care* 54.3 (2016): 326-35. Web.			x
Alternative Payment Model Framework and Progress Tracking (APM FPT) Working Group. *Alternative Payment Model (APM) Framework.* Health Care Payment Learning & Action Network. 2016. Web.			x
Auerbach, John. "Creating Incentives to Move Upstream: Developing a Diversified Portfolio of Population Health Measures Within Payment and Health Care Reform." *Am J Public Health American Journal of Public Health* 105.3 (2015): 427-31. Web.			x
Averill, Richard F., Norbert Goldfield and John S. Hughes. "Distributing Shared Savings for Population Health Management." *Healthcare Financial Management* 68,4 (2014): 46. Print.			x
Bamford, Terry. "Integration Is Not A Cure-all for Health and Care - Look at Northern Ireland." *The Guardian.* 30 April 2015. Web.	x		
Buntin, Melinda B., Sachin H. Jain and David Blumenthal. "Health Information Technology: Laying the Infrastructure for National Health Reform." *Health Affairs.*29, no. 6 (2010):1214-1219. Web.		x	
Burke, Robert E., Ruixin Guo, Allan V. Prochazka, and Gregory J. Misky. "Identifying Keys to Success in Reducing Readmissions Using the Ideal Transitions in Care Framework." *BMC Health Services Research BMC Health Serv Res* 14.1 (2014): 423. Web.	x		
Cantor, Jeremy, Rachel Tobey, Kiely Houston and Eliana Greenberg. *Accountable Communities for Health Strategies for Financial Sustainability*. JSI Research & Trainning Institute, Inc. 2015.	x		
Clary, Amy and Trish Riley. "Braiding & Blending Funding Streams to Meet the Health-Related Social Needs of Low-Income Persons: Considerations for State Health Policymakers." *The National Academy for State Health Policy.* (2016). Web.	x		
Conrad, Douglas A., David Grembowski, Susan E. Hernandez, Bernard Lau, and Miriam Marcus-Smith. "Emerging Lessons From Regional and State Innovation in Value-Based Payment Reform: Balancing Collaboration and Disruptive Innovation." *Milbank Quarterly*			x

Key Articles Informing the Environmental Scan	Topic Area Addressed		
	Care Integration	Data Use	Payment Reform
92.3 (2014): 568-623. Web.			
Conrad, Douglas A., Matthew Vaughn, David Grembowski, and Miriam Marcus-Smith. "Implementing Value-Based Payment Reform: A Conceptual Framework and Case Examples."*Medical Care Research and Review* (2015). Web.			x
Damery, Sarah, Sarah Flanagan, and Gill Combes. "The Effectiveness of Interventions to Achieve Co-ordinated Multidisciplinary Care and Reduce Hospital Use for People with Chronic Diseases: Study Protocol for a Systematic Review of Reviews." *Systematic Reviews Syst Rev* 4.1 (2015): 4:64 Web.	x		
Decamp, Matthew, Neil J. Farber, Alexia M. Torke, Maura George, Zackary Berger, Carla C. Keirns, and Lauris C. Kaldjian. "Ethical Challenges for Accountable Care Organizations: A Structured Review." *J GEN INTERN MED Journal of General Internal Medicine* 29.10 (2014): 1392-399. Web.			x
Douven, Rudy, Thomas G. Mcguire, and J. Michael Mcwilliams. "Avoiding Unintended Incentives In ACO Payment Models." *Health Affairs* 34.1 (2015): 143-49. Web.			x
Edwards, Samuel. T., Asaf Bitton, Johan Hong, and Bruce E. Landon. "Patient-Centered Medical Home Initiatives Expanded In 2009-13: Providers, Patients, And Payment Incentives Increased." *Health Affairs* 33.10 (2014): 1823-831. Web.			x
Feldman, Roger. "The Economics of Provider Payment Reform: Are Accountable Care Organizations the Answer?" *Journal of Health Politics, Policy and Law* 40.4 (2015): 745-60. Web.			x
Graffunder, Corinne, and Brian Sakurada. *Preparing Health Care and Public Health Professionals for Team Performance: the Community as Classroom.* Washington (DC): National Academy of Medicine Discussion Paper. 2016. Web.	x		
Greiner, Ann C., Elisa Knebel. *Health Professions Education: A Bridge to Quality.* Washington (DC): The National Academies Press, 2003. Print.		x	
Hayen, Arthur P., Michael J. Van Den Berg, Bert R. Meijboom, Jeroen N. Struijs, and Gert P. Westert. "Incorporating Shared Savings Programs into Primary Care: From Theory to Practice." *BMC Health Services Research BMC Health Serv Res*15.1 (2015): 580. Web.			x

Key Articles Informing the Environmental Scan	Topic Area Addressed		
	Care Integration	Data Use	Payment Reform
Humphries, Richard and Lillie Wenzel. *Options for Integrated Commissioning.* London: The King's Fund. 2015. Print.	x		
Institute of Medicine (US) Roundtable on Value & Science-Driven Health Care. *Clinical Data as the Basic Staple of Health Learning: Creating and Protecting a Public Good: Workshop Summary.* Washington (DC): National Academies Press (US), 2010.Print.		x	
Kogan, Alexis Coulourides, Kathleen Wilber, and Laura Mosqueda. "Person-Centered Care for Older Adults with Chronic Conditions and Functional Impairment: A Systematic Literature Review." *Journal of the American Geriatrics Society J Am Geriatr Soc* 64.1 (2016). Web.	x		
Lyngsø, Anne Marie, Nina Skavlan, Dorte Høst, and Anne Frølich. "Instruments to Assess Integrated Care: A Systematic Review." *Int J Integr Care International Journal of Integrated Care 14.9 (2014). Web.*	x		
Mackie, Sue, and Angela Darvill. "Factors Enabling Implementation of Integrated Health and Social Care: A Systematic Review." *British Journal of Community Nursing* 21.2 (2016): 82-87. Web.	x		
Mcwilliams, J. Michael. "ACO Payment Models and the Path to Accountability." *J GEN INTERN MED Journal of General Internal Medicine* 29.10 (2014): 1328-330. Web.			x
Mitchell, Pamela H., Matthew K. Wynia, Robyn Golden, Bob McNellis, Sally Okun C. Edwin Webb, Valerie Rohrbach and Isabelle Von Kohorn. *Core Princicples & Values of Effective Team-Based Health Care.* Washington (DC): Institute of Medicine Discussion Paper.. 2012. Web.	x		
Montero, José T., Monica Valdes Lupi and Paul E. Jarris. *Improved Population Health Through More Dynamic Public Health and Health Care System Collaboration.* Washington (DC): Institute of Medicine Discussion Paper. 2015. Web.	x		
Morrison, Jessica, Mary Val Palumbo, and Betty Rambur. "Reducing Preventable Hospitalizations With Two Models of Transitional Care." *Journal of Nursing Scholarship* 48.3 (2016): 322-29. Web.	x		
The Population-Based Payment (PBP) Work Group. *Accelerating and Aligning Population-based Payment Models: Financial Benchmarking.* Health Care Payment Learning & Action Network. 2016. Web.			x

Key Articles Informing the Environmental Scan	Topic Area Addressed		
	Care Integration	Data Use	Payment Reform
Quinn, Kevin. "The 8 Basic Payment Methods in Health Care." *Annals of Internal Medicine Ann Intern Med* 163.4 (2015): 300. Web.			x
Robinson, Carol, Chris Coughlin and Stephen Palmer. *Health Information Technology Infrastructure to Support Accountable Care Arrangements.* The Office of the National Coordinator for Health Information Technology. 2014. Print.		x	
Roper, Karen L., Jonathan Ballard, Wade Rankin, and Roberto Cardarelli. "Systematic Review of Ambulatory Transitional Care Management (TCM) Visits on Hospital 30-Day Readmission Rates." *American Journal of Medical Quality* (2015). Web.	x		
School of Public Health, State University of New York at Albany.Center for workforce studies. *Core Curriculum Guidelines - for Care Coordination Worker Training.* 2016.Web.	x		
Schulz, Ralph. *A New Model for Private Sector Partnerships to Improve Economic Well-Being and Community Outcomes.* Washington (DC): Institute of Medicine Commentary. 2015. Web.	x		
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Appendix 4: Site Selection Matrix

		SIM Involvement								Site Type								
Region	**Site**	**Subgrant**	**UCC/RCPC**	**ACO**	**Accountable Communities for Health**	**SASH**	**Community Health Teams**	**Hub & Spoke**	**IFS**	**Hospital**	**Home health and hospice**	**PC (FQHC, independent, hospital)**	**Critical Access**	**LTDSS**	**Designated Agency**	**Specialist Practice**	**Social Service CBO**	**Consumer Advocacy**
Barre	Screening, Brief Intervention, and Referral to Treatment (SBIRT) in medical home	1						1		1		1			1			
Barre	Downstreet Housing & Community Development					1											1	1
Barre	Green Mountain United Way																1	
Barre	Central VT Council on Aging (Washington, Lamouille, and Orange Counties)																1	
Barre	Clinical Enhancements for Adults with Developmntal Disabilities: Inclusive Partnership Healthcare Project, Developmental Disabilities Council	1												1				
Bennington	System-wide Transitional Care Model (TCM) with high-risk patients, SVMC - Bennington	1								1		1						
Bennington	Independent practices (Battenkill Valley Halth Center, Bennington Family Practice, Brookside Pediatrics & Adult Med, Manchester Health Services, Angela Wingate, Avery Wood, Eric Seyferth, Keith Michl, Primary Care Health Partners - Mount Anthony Primary Care, Shaftsbury Medical Associates)											1						
Bennington	West Ridge Center for Addiction Recovery							1										
Burlington	UVMMC - Community Health Team			1			1											
Burlington	Independent practices (Alder Brook Family Health, Burlington primary Care, Champlain Center for Natural Med., Charlotted Health Center, Community Health Centers of Burlington, Essex Pediatrics, Evergreen Family Health, Good Health, Hagan et al Pediatricians, Frank Landry, Gener Moore, Richmond Family Medicine, James Hebert, Timber Lane Pediatrics, Winooski Family Health, Thomas Chittendon Health Center)											1						
Burlington	Resilient Vermont - Burlington Community Health Center	1										1						
Brattleboro	Brattleboro Memorial Hospital									1								
Brattleboro	BMH - Care Management			1						1								
Brattleboro	Independent practices (Craig Goldberg, Brattleboro Primary Care)																	
Brattleboro	Habit OPCO - Brattleboro							1										

		SIM Involvement								Site Type								
Region	**Site**	**Subgrant**	**UCC/RCPC**	**ACO**	**Accountable Communities for Health**	**SASH**	**Community Health Teams**	**Hub & Spoke**	**IFS**	**Hospital**	**Home health and hospice**	**PC (FQHC, independent, hospital)**	**Critical Access**	**LTDSS**	**Designated Agency**	**Specialist Practice**	**Social Service CBO**	**Consumer Advocacy**
Middlebury	IFS Site - Case Rate payment								1									
Middlebury	SASH					1												
Middlebury	UCC		1															
Morrisville	Community Health Services of Lamoille Valley (Barre or Burlington?)			1								1						
Morrisville	UCC		1															
Morrisville	Morrisville Family Practice Stowe Family Practice Family Practice Associates Paul Rogers											1						
Newport	Family Practice of Newport (Family Medicine) Community Medical Associates Newport Pediatrics and Adolescent Medicine Island Pond Health Center Orleans Family Medicine North Country Primary Care Barton Orleans											1						
Newport	North Country Hospital									1			1					
Randolph	Downstreet Housing & Community Development					1												
Randolph	Gifford Medical Center - Gifford Primary Care											1						
Randolph	Habit OPCO - West Lebanon "Hub"							1										
Rutland	Rutland Area Visiting Nurse Association and Hospice	1					1			1						1	1	
Rutland	Southwestern Vermont Council on Aging																1	
Rutland	Community Health Centers of the Rutland Regions (CHCRR)			1								1						
Springfield	SMCS – Community Health Team			1			1											
Springfield	SMCS - Springfield Health Center			1								1						
Springfield	SMCS - Community Health Centers			1								1						
Springfield	Springfield Housing Authority - SASH					1												
St. Albans	Community-wide Campaign Encouraging Healthy Behaviors: RISE VT, Northwestern Medical Center, St. Albans	1										1						

		SIM Involvement								Site Type								
Region	**Site**	**Subgrant**	**UCC/RCPC**	**ACO**	**Accountable Communities for Health**	**SASH**	**Community Health Teams**	**Hub & Spoke**	**IFS**	**Hospital**	**Home health and hospice**	**PC (FQHC, independent, hospital)**	**Critical Access**	**LTDSS**	**Designated Agency**	**Specialist Practice**	**Social Service CBO**	**Consumer Advocacy**
St. Johnsbury	Northern Counties Health Care (NCHC) - also involved in Resilient subgrant	1		1								1						
St. Johnsbury	NEK Community Action																1	
St. Johnsbury	Northeastern Vermont Regional Hospital (NVRH)	1		1	1	1				1			1				1	
Windsor	Mt. Ascutney Hospital and Health Center (MAHHC)									1			1					
Windsor	Southeastern Vermont Community Action (SEVCA)																	
Windsor	King Arthur Flour (Norwich)- Workplace Behavioral Health Screening and Intervention	1																
Windsor	System-wide Transitional Care Model (TCM) with high-risk patients, White River Family Practice	1																
Upper Valley	Central Vermont Council on Aging																	
Upper Valley	Downstreet Housing & Community Development - SASH Program					1											1	
Upper Valley	Habit OPCO - West Lebanon "Hub"							1										
Upper Valley	Little Rivers Health Care			1								1						
Upper Valley	WRJ Family Practice	1										1						
Upper Valley	Visiting Nurse and Hospice for Vermont and New Hampshire (VNH)										1							
Statewide																		
	CHAC ACO (FQHCs)	1		1														
	HealthFirst ACO (commercial, independent)	1		1														
	OneCare ACO	1		1														
	NSQIP Statewide Surgical Services Collaborative - VPQHC lead organization, Montpelier	1								1						1		
	Vermont Hospital Medicine 'Choosing Wisely' Program, VMS Education and Research Foundation of VT Medical Society, Montpelier	1								1								
TOTALS		**16**	**2**	**10**	**1**	**6**	**3**	**5**	**1**	**10**	**1**	**16**	**3**	**1**	**1**	**2**	**8**	**1**