



# The St. Johnsbury Community Health Team Evaluation: Final Report

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## EXECUTIVE SUMMARY

Based on findings from a pre-evaluation assessment, the Centers for Disease Control and Prevention's (CDC) Division for Heart Disease and Stroke Prevention (DHDSPP) and a panel of experts selected the Community Health Team (CHT) model in St. Johnsbury, Vermont, as a promising practice that warrants a more rigorous evaluation to assess how the model is implemented and the extent to which the model helps prevent and control chronic conditions, such as hypertension. DHDSPP, along with ICF International and the St. Johnsbury CHT leadership, conducted a mixed-method evaluation intended to (1) describe the program to identify lessons that other programs might consider and (2) determine the impact of the CHT model on patient outcomes related to quality of life, hypertension, and health care use.<sup>1</sup>

### Evaluation Questions

- What are the core elements of the St. Johnsbury CHT model?
- What are the factors that affect implementation of the St. Johnsbury CHT model?
- What is the reach of the St. Johnsbury CHT?
- What impact does the St. Johnsbury CHT have on patients' quality of life?
- What impact does the St. Johnsbury CHT have on patients' health?
- What is the added value of the St. Johnsbury CHT's efforts to improve quality of life on patient health outcomes?

## Methods

The evaluation used a mixed-methods design. Qualitative methods included systematic document review and in-depth interviews with CHT staff members, health care providers, and Community Connections Team Community Health Worker (CHW) clients. Quantitative evaluation methods involved secondary analysis of data from Community Connections Team Intake Forms and Electronic Health Records (EHRs).

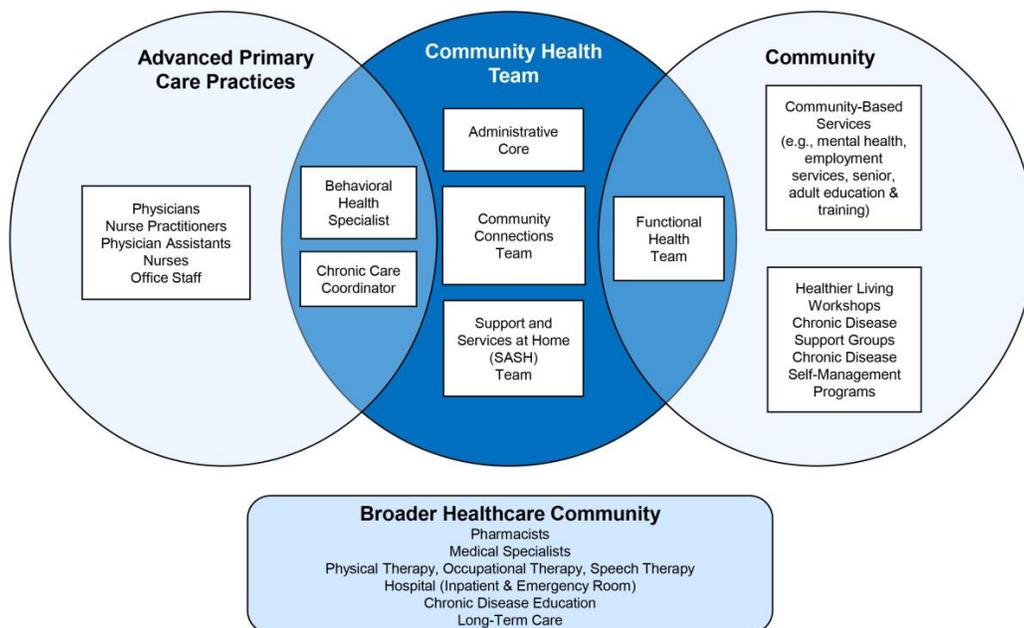
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<sup>1</sup> For more detail on the evaluation study findings, implications, and recommendations, please send an e-mail to [arebheartinfo@cdc.gov](mailto:arebheartinfo@cdc.gov). Additional implementation guidance can be found in the *St. Johnsbury Community Health Team Model Implementation Guide* on the CDC DHDSPP Web site at <http://www.cdc.gov/dhdsp/>

## Core Components of the St. Johnsbury CHT Model

Exhibit 1 depicts the relationships between the core components of the CHT model in the community clinical context.

**EXHIBIT 1. ST. JOHNSBURY CHT FLOW DIAGRAM**



The St. Johnsbury CHT comprises five core components as outlined in Exhibit 2 below.

**EXHIBIT 2. CORE ELEMENTS OF THE ST. JOHNSBURY CHT MODEL**

Core Element	Description
<b>Administrative Core</b>	A program manager provides managerial and programmatic support, as well as oversight, for the CHT. A care integration coordinator is responsible for overseeing CHT components and actively building and sustaining partnerships with community organizations collectively known as the Functional Health Team.
<b>Functional Health Team</b>	The Functional Health Team consists of approximately 30 community partners that provide a variety of services to the community. The Functional Health Team helps establish and maintain relationships that facilitate linkages between the community and clinical entities.
<b>Community Connections Team</b>	<p>The Community Connections Team consists of CHWs and a chronic care CHW. Two CHWs are primarily responsible for linking clients to community-based and local State agencies that can provide financial and other tangible resources to meet clients' needs, such as vouchers for heating and transportation assistance. A chronic care CHW provides similar services, but primarily acts as a health coach to clients to improve their self-management skills related to chronic disease.</p> <p>The Community Connections Team is managed by the care integration coordinator to promote integration with the larger CHT.</p>

## EXHIBIT 2. CORE ELEMENTS OF THE ST. JOHNSBURY CHT MODEL (CONTINUED)

Core Element	Description
<b>Advanced Primary Care Practices</b>	<p>The St. Johnsbury CHT model includes National Committee for Quality Assurance (NCQA)–recognized patient-centered medical homes, referred to as Advanced Primary Care Practices (APCPs).</p> <p>Working in collaboration with the health care providers, office staff, and other CHT members, chronic care coordinators are responsible for coordinating the care of patients with or at risk for chronic conditions. Behavioral health specialists provide short-term, solution-focused therapy to patients (three to eight sessions). They refer patients requiring longer-term mental health services to mental health providers in the community.</p>
<b>Support and Services at Home</b>	<p>Support and Services at Home (SASH) teams connect Medicare patients with health and long-term care systems in an effort to allow individuals to remain living at home safely. The SASH component implements specific interventions for the following key areas: fall prevention, medication management, control of chronic conditions, healthy behaviors, and cognitive and mental health issues. SASH was integrated into the St. Johnsbury CHT model in 2012.</p>

### Key Findings

The following are key findings related to the implementation, reach, and effectiveness of the St. Johnsbury CHT model.

#### Factors Affecting Implementation:

##### Facilitators:

- The CHT members and partners are familiar with one another and understand each other's roles and areas of expertise. These relationships help to facilitate collaboration.
- The CHWs on the Community Connections Team have a strong commitment to patients.
- Health care providers strongly support the CHT's implementation.
- Chronic care coordinators and behavioral health specialists are located within the APCPs.

##### Barriers:

- The workload for CHWs can be demanding at times.
- Chronic care coordinators and behavioral health specialists have to balance their time and workload across multiple APCPs.
- Sometimes, CHWs find it challenging to obtain services from other State or community programs because of restrictions in the funding streams for other organizations.
- The role of the chronic care coordinator is interpreted differently across APCPs, resulting in turnover and difficulty hiring professionals with the right experience for this position.

## Reach:

- The St. Johnsbury hospital service area covers approximately 30,000 people. As of March 2012, 22,106 unique patients were attributed to the five APCPs in the CHT.
- All five primary care practices serving adults in the St. Johnsbury hospital service area (has) are part of the CHT. This includes 29.5 primary care providers.

## Community-Level Outcomes:

- Reaching a population in need
  - Clients served by the Community Connections Team CHWs, Chronic Care Coordinators, and Behavioral Health Specialists appear to have more health needs. Of these clients, a higher proportion were either insured by Medicaid, were current smokers or had diabetes co-morbidity compared to other medical home patients.
- Improved community-clinical linkages and enhanced coordination of care
  - Providers indicated that the CHT model allows them to link patients to other CHT members for support in addressing a full range of patient needs.
  - Compared to the overall sample, higher proportions of individuals exposed to any given component of the CHT also were exposed to other components of the CHT, compared to the overall sample. This suggests CHT members work together to successfully coordinate care for the clients they serve.
- Streamlined primary care practice and increase efficiency
  - Health care providers who participated in the evaluation expressed that the CHT model has helped to streamline their practices. The model provides opportunities for providers to use the limited time available during patient encounters to provide more comprehensive care. Providers also reported needing to do “less teaching and more referring,” making office visits shorter.
  - The location and proximity of CHT staff within the primary care practices allows providers to take care of patients more immediately and link them to services that will help get them out of crisis mode. Patients can get mental health services and other needs met often on the same day as their primary care visit.

## Patient-Level Outcomes:

### Quality of life outcomes

- Improved well-being and increased support to address issues related to the social determinants of health
  - There were statistically significant improvements among CHW clients in key aspects of well-being targeted by the Community Connections CHWs, including: health insurance, prescription drugs, housing, and health education. These areas align with constructs associated with social determinants of health and Healthy People 2020 objectives. Analyses indicate that these improvements may represent the difference of a client in a crisis situation and making progress towards stability.

- CHW clients reported improvements in well-being because CHWs helped them with getting their basic needs met, such as completing “daunting” paperwork that resulted in supplemental nutrition assistance benefits, heating oil, supplemental income, support for hearing and sight aids, improved financial management, and housing assistance.

## Health outcomes

- Increased desirable health behaviors and more attentiveness to overall health
  - Community Connections Team clients who participated in in-depth interviews reported that they were more aware and attentive to their overall health after receiving services from the Community Connections Team. This suggests that CHW efforts have the potential to ultimately impact the overall health of clients.
  - CHW clients also reported getting that assistance with prescriptions and transportation to appointments helps them manage their overall health. This suggests that CHWs efforts may help individuals better manage chronic conditions, such as hypertension.
- Increased patient adherence to treatment
  - Primary care providers recalled examples of patients who had dramatic changes in their health as a result of engaging with the CHT members, highlighting how CHT has contributed to increasing patient adherence to treatment protocols. Examples included better compliance due to patient-led goal setting, making follow-up appointments, and employing tools to improve medication use.

## Conclusions

These promising evaluation findings indicate that the St. Johnsbury CHT model is a public health intervention worth replicating. It is an example of a multi-disciplinary coordinated team offering community-clinical linkages to a high need population in the community. Team members address clients’ social determinants of health and provide an environment of support and empowerment so individuals can more effectively manage their health conditions. There is an increased interest to implement and expand public health interventions that effectively address socioeconomic factors, the broadest base of the health impact pyramid, as these have the greatest potential population impact with the least required effort. (Frieden, 2010) While the findings from this study are inconclusive with regards to the effectiveness of the CHT model on longer term health outcomes like hypertension control, there are a number of findings supporting short-term patient level outcomes that may lead to improved chronic disease management, including hypertension. Equally important are the benefits that this model brings to the healthcare system, including greater practice efficiencies, improved patient-centered holistic care and patient adherence to treatment protocols.

## Considerations for Program Replication

The following are some key lessons learned that are important to take into consideration when replicating the St. Johnsbury CHT model.

- It is important to conduct a systematic assessment of a community’s needs and assets to inform the development of a program similar to the CHT model.
- Public health practitioners will need to identify appropriate and sustainable funding sources for core CHT members. In light of the Affordable Care Act and other health care services initiatives, public health practitioners may need to identify similar payment reforms to support the CHT model.

- Provider involvement early and often in the initiative is necessary to help facilitate collaboration and promote shared ownership of the team.
- It is important to identify a program manager to provide oversight and serve as a central point of contact for the team.
- It is critical to identify a team member to serve as a care integration coordinator. The coordinator plays an active role in building and sustaining partnerships between the clinical entity and community organizations.
- Regular collaboration with a team of community organizations, such as the Functional Health Team, can help facilitate linkages between clinical and community entities.

## CHAPTER 1: OVERVIEW

### Introduction

Despite many efforts in public health, rates of hypertension (also known as high blood pressure) in the United States have remained steady over the past 10 years with no sign of decline. Approximately 67 million Americans are affected by this chronic disease, and it has had a great impact on the U.S. health care system. Among U.S. adults with hypertension, only 70% receive pharmacological treatment, and 47% have their blood pressure under control (Gillespie, Kuklina, Bliss, Blair, & Hong, 2011). This suggests that a comprehensive, more holistic approach toward improving health care quality and access, promoting better adherence to treatment, and offering a more accessible dietary and physical activity regimen is necessary to achieve greater hypertension control rates and cardiovascular disease prevention in the American population (Gillespie et al., 2011).

The Centers for Disease Control and Prevention's (CDC's) 2003 Public Health Action Plan called for developing policies and programs to improve health outcomes and identify gaps in health access and education (U.S. Department of Health and Human Services, 2003). The Institute of Medicine further supported these findings with the release of a report that identified policy and systems strategies using community health workers (CHWs) as a recommended strategy for heart disease and stroke prevention (Institute of Medicine, 2010). Evidence suggests that CHWs can improve health outcomes when they are included in disease prevention and chronic disease management efforts for conditions like asthma, cancer, diabetes, cardiovascular disease, nutrition, and depression. CHWs help lower health care costs by reducing the number of emergency room visits and hospitalizations, and have helped reduce barriers to care and treatment adherence (Brownstein et al., 2007; Brownstein et al., 2005; Martinez et al., 2011; IOM, 2010)

In a survey of 1,000 U.S. physicians conducted on behalf of the Robert Wood Johnson Foundation, four in five physicians (85%) said "patients' social needs are as important to address as their medical conditions" (Robert Wood Johnson Foundation, 2011). This research has highlighted a growing problem known as health care's blind side; that is, there are not enough resources and time for physicians to help patients with their social needs, such as unemployment, housing assistance, nutrition, or regular exercise (Robert Wood Johnson Foundation, 2011). The report stressed the need for tearing down silos and bridging gaps in care. Emerging evidence suggests that CHWs can play an important role in community advocacy to affect issues related to the social determinants of health (Ingram et al., 2014; Sabo et al., 2013).

With these priorities in mind, DHDSP embarked upon a series of evaluation projects to better understand how policy and systems strategies—and health care extenders such as CHWs—might effectively bridge the gap between patients and providers and improve hypertension control.

In 2010, DHDSP contracted with ICF International to implement the systematic screening and assessment (SSA) method (Leviton, Kettel-Khan, & Dawkins, 2010) to help identify promising hypertension and stroke prevention outcomes in CHW programs. Using this method, an ICF International team worked with DHDSP to conduct a series of evaluability assessments on programs and practices that use CHWs. The evaluability assessments helped to inform appraisals of interventions on the basis of the following criteria: potential impact on social or physical environment; reach to target population; health effect size; sustainability of health effect; generalizability; transferability; acceptability to stakeholders; intervention sustainability; and staff and organizational capacity. These evaluability assessments provided important insights regarding initiatives for which the investment of resources in outcomes-focused evaluation would be best applied. Using the findings from the evaluability assessment, DHDSP and a panel of experts selected the Community Health Team

(CHT) Program in St. Johnsbury, Vermont, as a promising practice that was ready for a more rigorous evaluation. DHDSP plans to use the information from this evaluation to make recommendations for replicating and implementing similar models nationwide.

## Purpose of the Evaluation

The evaluation of the St. Johnsbury CHT model was conducted in partnership with the leadership of the St. Johnsbury CHT. This evaluation used a mixed-method approach in order to (1) describe the program and (2) determine the impact of the CHT model on patient outcomes related to quality of life, hypertension, and health care use. CDC planned to use this information to identify lessons learned and make recommendations on how the CHT model can be replicated and have reach on a larger scale.

## Background

The St. Johnsbury CHT was developed under the auspices of the Vermont Blueprint for Health (or Blueprint), a State health reform founded in 2003. A primary goal of the Blueprint's is to promote seamless coordination across the broad range of health and human services (medical and nonmedical) that are essential to optimize patients' experience (including quality, access, and reliability) and engagement; to improve the long-term health status of the population; and, ultimately, to reduce (or at least control) health care costs (Department of Vermont Health Access, 2011).

## Vermont Blueprint for Health

Vermont Blueprint for Health was formally established in 2003 under the administration of Governor Jim Douglas. From its inception, the goal of the program was to address costs associated with chronic diseases with a particular focus on diabetes management (Besio, 2008). Since then, the scope of Blueprint has been expanded to its current role as a health reform agent for the State of Vermont. This expansion was facilitated by a series of actions taken by the legislative and executive branches of State government, as highlighted in Exhibit 3.

### EXHIBIT 3. STATE GOVERNMENT ACTIONS THAT INFLUENCED THE SCOPE AND SCALE OF THE VERMONT BLUEPRINT FOR HEALTH

Date	Milestone
2006	<ul style="list-style-type: none"> <li>Vermont Blueprint for Health officially became law with the passage of Act 19 as part of sweeping health care reform.</li> </ul>
2007	<ul style="list-style-type: none"> <li>As part of Act 71, the Vermont Legislature defined the infrastructure for Blueprint and mandated pilot projects to help identify the best methods for delivering chronic care to patients.</li> <li>Act 71 also introduced voluntary payment reform (highlighted below) to support these pilot initiatives as innovations in health care delivery.               <ul style="list-style-type: none"> <li>The voluntary payment form and the pilot initiatives ultimately formed the foundation of the advanced primary care model.</li> </ul> </li> </ul>
2008	<ul style="list-style-type: none"> <li>Act 204 was passed, which further defined the integrated pilots and required insurer participation.</li> </ul>
2009	<ul style="list-style-type: none"> <li>The Vermont Accountable Care Organization was established.</li> </ul>
2010	<ul style="list-style-type: none"> <li>Blueprint Integrated Health Services Model graduated from pilot status and was officially established as a program.</li> </ul>

**EXHIBIT 3. STATE GOVERNMENT ACTIONS THAT INFLUENCED THE SCOPE AND SCALE OF THE VERMONT BLUEPRINT FOR HEALTH (CONTINUED)**

Date	Milestone
2011	<ul style="list-style-type: none"> <li>▪ The Blueprint Integrated Health Services program was expanded statewide.</li> <li>▪ The Blueprint Implementation Manual was released.</li> </ul>
<p align="center"><b>Vermont Blueprint for Health Multi-Insurer Payment Reforms</b></p> <ol style="list-style-type: none"> <li>1. <i>Enhanced payments above existing fee-for-service reimbursement.</i> Insurers are required to pay an enhanced provider payment above the existing fee-for-service payment. This amount is calculated on a per-patient per-month basis and is dependent upon the quality of care provided as determined by the National Committee for Quality Assurance (NCQA) patient-centered medical home (PCMH) standards.</li> <li>2. <i>Financial support for CHTs.</i> Insurers collectively provide a total of \$350,000 per year for each CHT unit (defined as five full-time equivalents [FTEs] per 20,000 patients). This support allows for CHT-provided services to be offered free of charge to patients and practices with no copay or prior authorization required. These funds are paid to the administrative entity within each HSA.</li> </ol> <p align="right">(Department of Vermont Health Access, 2011)</p>	

**Blueprint Integrated Health Services Program**

The State of Vermont is divided into HSAs; Blueprint project managers are designated in each of these HSAs. Local Blueprint project managers developed integrated multidisciplinary workgroups in their respective HSAs. These workgroups are responsible for implementing and operationalizing the Blueprint Integrated Health Services program at the local level by considering the specific needs of local residents (Department of Vermont Health Access, 2010). The Integrated Health Services program has two key components: (1) advanced primary care practices (APCPs) and (2) multidisciplinary CHTs.

**APCP model.** At the heart of Blueprint is the APCP model, which emphasizes care coordination, preventive health, and patient engagement. Blueprint requires that all practices in the Integrated Health Services program must meet the criteria for patient-centered medical home (PCMH) recognition by NCQA.

**Community Health Teams.** CHTs are defined as “locally based groups of multidisciplinary practitioners that support patients who receive care in the associated APCPs” (Department of Vermont Health Access, 2011). Integrated Health Service Program workgroups were responsible for reviewing the resources and needs of people in the local HSA to determine how to compose the CHT model in a manner that would meet the population’s needs. Where possible, CHTs included local health department staff as well as Department of Vermont Health Access care coordinators and representatives from other organizations providing health and human services in the community. Blueprint specifies that a core CHT unit is based on a ratio of five FTE staff for every 20,000 patients of an individual APCP’s patient population at a cost of \$350,000 (Department of Vermont Health Access, 2010). The size of the CHT may be scaled up or down, depending on the size of the APCP’s patient population.

**St. Johnsbury Community Health Team Pilot and Implementation**

The St. Johnsbury HSA was one of three HSAs selected through a competitive request for proposal process in 2008 to pilot the Blueprint Integrated Health Services (IHS) model. In implementing the Blueprint model, IHS workgroups had to designate an administrative entity (Department of Vermont Health Access, 2010). The St. Johnsbury area workgroup elected the Northeastern Vermont Regional Hospital (NVRH) as its administrative entity. The hospital assigned a program manager to oversee the development and

implementation of the St. Johnsbury CHT model, which includes five core components: (1) CHT administrative core, (2) Functional Health Team, (3) Community Connections Team, (4) Support and Services at Home (SASH), and (5) APCPs that were enhanced to include health care extenders in the form of chronic care coordinators and behavioral health specialists. This model is described in greater detail in Chapter 2 of this document.

**Northeastern Vermont Regional Hospital**

- Established in 1972
- Community, not for profit, acute care critical access hospital
- Provides primary and preventive care, surgical and specialty services, inpatient and outpatient care, and 24-hour emergency services

It is important to note that while the St. Johnsbury CHT was approved as a pilot site for the Blueprint Integrated Health Services Program, components of it were in place before the pilot effort. Specifically, Community Connections began in 2002 as the Women’s Resource Network serving women and their families. In 2007, Northeastern Vermont Regional Hospital changed the name to Community Connections to better reflect that the team serves people of all genders. Community Connections became the cornerstone of the St. Johnsbury CHT when St. Johnsbury HSA was selected as one of the Blueprint Integrated Health Services program pilots. The planning workgroup in St. Johnsbury decided that the best way to achieve results in this pilot was to use CHWs, also known as the Community Connections Team, to address those needs that physicians often do not have the time, skills, or capacity to meet. The St. Johnsbury CHT became the only one of the three pilots to use CHWs in the CHT model.

All five APCPs of the St. Johnsbury HSA achieved NCQA recognition as PCMHs in 2008, and in 2010, the St. Johnsbury CHT was permanently established through Vermont State law. Key milestones in the development and implementation of the St. Johnsbury CHT are presented in Exhibit 4.

**EXHIBIT 4. KEY MILESTONES IN THE DEVELOPMENT AND IMPLEMENTATION OF THE ST. JOHNSBURY COMMUNITY HEALTH TEAM MODEL**

Date	Milestone
<b>2002</b>	<ul style="list-style-type: none"> <li>▪ St. Johnsbury began implementation of the Women’s Resource Network.</li> </ul>
<b>2007</b>	<ul style="list-style-type: none"> <li>▪ Women’s Resource Network was renamed to Community Connections.</li> </ul>
<b>2008</b>	<ul style="list-style-type: none"> <li>▪ NVRH in the St. Johnsbury service area was selected as one of three pilot sites for the CHT model.</li> <li>▪ Five St. Johnsbury APCPs were NCQA-certified PCMHs.</li> </ul>
<b>2012</b>	<ul style="list-style-type: none"> <li>▪ Support and Services at Home (SASH), a statewide program intended to connect health- and long-term care systems for Medicare beneficiaries, was integrated with CHT.<sup>2</sup></li> </ul>
<b>2013</b>	<ul style="list-style-type: none"> <li>▪ Community Transformation Grants program for hypertension was implemented within SASH.</li> </ul>

<sup>2</sup> As illustrated in this timeline, SASH was not originally a core component of the CHT, and thus, was not an original component of the evaluation plan. Interviews were not conducted with SASH team members during the data collection site visit. Existing documents informed the descriptions of SASH presented in this document.

## **CHAPTER 2: EVALUATION METHODS**

The St. Johnsbury CHT evaluation involved mixed-methods design to address the following evaluation questions. Staff from CDC's DHDSP and ICF International, as well as St. Johnsbury CHT evaluation stakeholders, collaborated to identify these evaluation questions.

1. What are the core elements of the St. Johnsbury CHT model?
2. What are the factors that affect implementation of the St. Johnsbury CHT model?
3. What is the reach of the St. Johnsbury CHT?
4. What impact does the St. Johnsbury CHT have on patients' quality of life?
5. What impact does the St. Johnsbury CHT model have on the health of patients served by the CHT?
6. What is the added value of St. Johnsbury CHT's efforts to improve quality of life to patient health outcomes?

With the exception of the qualitative study components, the evaluation study design was one sample observational study design with repeated measures. Qualitative evaluation components were based on an exploratory evaluation study design. Both the qualitative and quantitative evaluation methods are described in greater detail in the subsequent sections.

### **Qualitative Evaluation Methods**

Qualitative evaluation methods included systematic document review and in-depth interviews with three audience segments: (1) CHT staff members, (2) APCP providers, and (3) Community Connections Team CHW clients. ICF's institutional review board (IRB) approved all original data collection activities.

### **Data Collection**

#### **Systematic Document Review**

ICF International team members worked with the St. Johnsbury CHT program manager to identify potential documents to use in a systematic document review. Documents were requested that would help to explain and describe the various components of the St. Johnsbury CHT model. The team identified and reviewed existing documents about the St. Johnsbury CHT model to explain program design/procedures and implementation, and gather information on APCP use rates and CHT program efficiency and effectiveness. A total of 22 documents were identified and reviewed.

#### **Community Health Team Staff Member Interviews**

As part of a data collection site visit September 17–21, 2012, in St. Johnsbury, Vermont, the evaluation team conducted hour-long interviews, in-person, with nine CHT staff members. Before the site visit, a semistructured topical interview guide was developed in a collaborative review process between the ICF International team and evaluation stakeholders (Appendix A). The CHT staff topical interview guide focused on questions about the various CHT team members' background with the CHT model, services provided, perceived impact of Community Connections Team members on their patients, and strengths and barriers of implementing the CHT model in St. Johnsbury (Appendix B). The St. Johnsbury CHT program manager helped identify and schedule interviews with key team members, which included: two chronic care coordinators, three behavioral health specialists, and four Community Connections Team members.

## Advanced Primary Care Practice Provider Interviews

Also as part of the September 2012 sit visit, the evaluation team conducted nine 30-minute interviews, in-person, with primary care providers involved in the St. Johnsbury CHT. A separate semistructured topical interview guide was developed for this audience that addressed the perceived impact of the CHT on the providers' practices and on the providers' patients (Appendix B). This segment included primary care providers (such as physicians, nurse practitioners, and physician's assistants) and nurses. The St. Johnsbury CHT program manager also helped identify and schedule interviews with nine providers (five primary care providers and four nurses) from the five St. Johnsbury APCPs. As with the CHT staff interviews, the interviews took place onsite in private rooms at Northeastern Vermont Regional Hospital, Community Connections offices, and APCP offices, depending on which location was most convenient for interview participants.

### CHT Staff and Provider Interview Procedures

All interviews took place onsite in private rooms at Northeastern NVRH, Community Connections offices, and APCP offices, depending on which location was most convenient for interview participants. One interview was conducted over the telephone with a CHT member who was out of town during the data collection site visit but was available to participate on the telephone. Each interview was conducted by at least two ICF International project team members: an interviewer and a notetaker. The appropriate topical guide was used to conduct the interviews. Before beginning, the interviewer obtained consent to participate in the study from all participants using the informed consent statement script as outlined in the interview guides. Interviews with providers lasted approximately 30 minutes, while interviews with CHT members lasted approximately 60 minutes. All interviews were audio-recorded using a handheld digital recorder. Audio recordings were used as a backup to interview notes. Interviewees were notified that if they did not want their interview audio-taped, the interviewer would conduct the interview without recording it. No one declined to be audio-recorded. Within one week following the interviews, all study participants were sent an e-mail thanking them for their contribution to the study.

## Community Connections Team Client Interviews

To understand the impact of the Community Connections Team from the perspective of the clients, the evaluation methods included in-depth individual interviews with clients of the Community Connections Team CHWs. In an effort to utilize the services of qualitative interviewers who more closely matched potential study participants and who were particularly sensitive to the cultural issues of members of the St. Johnsbury area, ICF subcontracted with NVRH to conduct the interviews. NVRH staff assumed responsibility for recruitment and data collection for the Community Connections client interviews. The sample excluded:

- Individuals who were not a legal resident of the U.S.
- Those who were currently incarcerated
- Those with severe mental health issues
- Those who were receiving end-of-life care
- Those in an in-patient/assistive living situation
- Those who were disgruntled or declined to participate in the interviews

The care integration coordinator recruited nine individuals using the recruitment materials provided by the evaluation team (see Appendix C). The interviews were facilitated in-person by a local qualitative

interviewer in May 2013 using a semi structured interview guide (see Appendix C). Interviews were approximately 30 to 60 minutes in duration and were recorded by the interviewer using a handheld digital audio recorder. ICF provided a secure file transfer protocol Web site to the Northeastern Vermont Regional Hospital team, along with access credentials. Completed recruitment screeners and electronic audio files were uploaded to this site, and the ICF team confirmed receipt of the data via e-mail. The audio files from the study were then transcribed by a professional transcriptionist.

The final sample included nine adults ages 18–70 who had received services from the Community Connections Team within the past year. Participants consisted of primarily females (six), predominantly between the ages of 34 and 64 (five). Most (seven) participants reported two to four encounters with the Community Connections Team. Five participants reported having been told by a physician that they have hypertension.

## **Qualitative Analysis**

Qualitative analysis methods included thematic analysis of the documents selected from the systematic document review, as well as the interview notes from the interviews conducted with CHT staff members, providers, and CHW clients. First, the evaluation team worked with DHDSP staff to establish a qualitative data codebook (Appendix D). Once the codebook was established and defined, evaluation team members coded and sorted all qualitative data (including interview notes and documents obtained as part of the systematic document review), using a qualitative data matrix in Microsoft Excel. The evaluation team met regularly throughout the coding and analysis process to assure continued understanding and consistent application of all codes. Once the data were coded, the data analysts sorted the data thematically to identify any patterns or themes within and/or between segment differences. Throughout qualitative data analysis, the ICF International evaluation team met with the St. Johnsbury CHT program manager and CDC team members to discuss emerging themes and interpretation of the data.

## **Quantitative Evaluation Methods**

Quantitative evaluation methods involved secondary analysis of data from Community Connections Team Intake Forms and electronic health records (EHRs). Based on the availability of data and the feasibility of obtaining the data for analysis, the evaluation team focused on a 21-month time period from January 1, 2012 to September 1, 2013 for the evaluation. ICF IRB exemption was obtained for secondary analysis of these data.

### **Data Collection Data from Community Connections Team Intake Forms<sup>3</sup>**

To assess the effectiveness of the Community Connections Team on factors related to well-being and life satisfaction, the evaluation team conducted secondary analysis of client intake forms completed by Community Connections CHWs. The evaluation team worked with NVRH Information Services (IS) and CHT staff members to abstract data from intake forms of all encounters with the Community Connections Team that occurred between January 1, 2013 and August 19, 2013. These data included all fields in the Community Connections Team intake form (see Appendix E), but individual level identifiers (client name and date of birth) were removed. ICF provided a secure file transfer protocol Web site to Northeastern

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<sup>3</sup> The evaluation team worked with the Community Connections Team to provide technical assistance that informed revisions to Community Connections Team intake/records processes. These changes were intended to facilitate use of this information by Community Connections Team members. The Community Connections Team began using the new intake forms January 1, 2013. The evaluation team abstracted data from intake forms completed between January 1, 2013 and August 19, 2013 for the evaluation study.

Vermont Regional Hospital IS, along with access credentials. The dataset was uploaded to this site, and receipt of the data was confirmed by the ICF team via e-mail.

The evaluation team received a limited dataset in Microsoft Excel format from NVRH with 1,165 Community Connections Team intake form entries from January 1, 2013 and August 19, 2013. In 15 cases, the recorded encounter date was outside of the observation period range. In these instances, the evaluation team recoded the encounter date to the “received by” date which represents when the entry was recorded in the computer system. Eighty-three duplicate entries were removed from the dataset. Individuals who were under the age of 18 years as of January 1, 2013 or had more than 25 encounters with the Community Connections Team during the observation period were also removed from the dataset. The final sample used in analysis included 387 cases.

### Data Abstracted from Electronic Health Records

To assess the reach and effectiveness of the CHT on health-related outcomes, the evaluation team conducted secondary analysis of data abstracted from EHRs. The evaluation team worked with NVRH IS and CHT staff members to identify variables described in Appendix F for secondary analysis. The EHR sample included individuals with a diagnosis of hypertension (ICD-9 Code 401) between January 1, 2012 and September 1, 2013. This 21-month time period was determined on the basis of discussions with the Northeastern Vermont Regional Hospital information technology specialists regarding data availability and the evaluation timeline. The criteria for the data abstraction took into account:

- Adult patients 18 years or older
- Patients who were deceased at any point during data collection period were excluded

Prior to delivering the dataset to the evaluation team, chronic care coordinators and behavioral health specialists reviewed data on patients in their respective medical homes to confirm the patients that they worked with. These data were de-identified and the limited dataset was delivered to the evaluation team in Microsoft Excel format. ICF provided a secure file transfer protocol Web site to Northeastern Vermont Regional Hospital IS, along with access credentials. The dataset was uploaded to this site, and receipt of the data was confirmed by the ICF team via e-mail.

The evaluation team further refined the dataset to take into account the following criteria:

- Patients must have been between the ages of 18 and 85 years
- Patients must have had at least one blood pressure measure during the observation period
- Patients must have been diagnosed with hypertension within 6 months of the start of the observation period (by June 1, 2012)
- Incarcerated individuals (as determined by insurance payer) were removed

This final dataset represented 2,734 individuals with a hypertension diagnosis as of June 1, 2012 (within 6 months of the start of the observation period) between the ages of 18–85, with at least one hypertension measure during the observation period.

## Quantitative Analysis

Quantitative analyses were completed using SPSS 20 and STATA 12. For the Community Connections Team intake form data, univariate descriptive statistics were generated for the final dataset to summarize the characteristics and exposure to the Community Connections Team member sample. Measures for central tendency (mean, median) and spread (standard deviation, range) are presented for continuous variables, and percentages and counts are presented for categorical variables. Bivariate analysis (two sample paired *t* tests,  $\chi^2$  tests [chi-square tests]) was used to examine associations between pairs of variables. General (linear model) (GLM) repeated measures analysis was used to examine the change in between the first and the last visit on key topics addressed by Community Connections. Each well-being score, as well as client self-reported health status and satisfaction with the conditions of his or her life, was examined separately.

For the data abstracted from EHRs, univariate descriptive statistics were used to summarize the sample. Bivariate analysis was performed to examine the relationship between variables. Longitudinal analysis of change of blood pressure control was examined using General Estimating Equation (GEE) procedures. Blood pressure control status was defined according to the 2012 Physician Quality Reporting Measure for blood pressure control for individuals with hypertension (#236).

## Study Limitations

The following are limitations of the evaluation that are important to take into consideration when interpreting the study results.

- The generalizability and transferability of the St. Johnsbury CHT model to other practices in different settings is limited due to the unique characteristics of the St. Johnsbury HSA. It is a small, rural community, with a tight-knit CHT network; therefore, the model may not translate exactly the same way when applied to a more urban setting. As a result, the findings may have limited generalizability.
- The evaluation design did not include a comparison sample. Further, baseline (pre-intervention) data were not available for inclusion in the study. Therefore, the extent to which one can attribute the observed findings directly to the St. Johnsbury CHT model is limited.
- The samples for the in-depth interviews were convenience samples. Study samples were limited to individuals who were available and interested in participating in an interview. In particular, because of high turnover rates and staff transitions in the chronic care coordinator position, the ICF International evaluation team was limited to interviewing chronic care coordinators with varying levels of experience. Therefore, the resulting sample may not have been a comprehensive representation of the chronic care coordinator role.
- The observation period for the study was limited. Therefore, the extent to which the evaluation team could assess the intermediate and longer term outcomes of the CHT model was limited. The brief observation period for the Community Connections Team intake form limited the study sample to those exposed to the intervention during that period and made it difficult to assess health-related outcomes associated with the Community Connection Team.
- The evaluation study involved secondary analysis of existing data. The evaluation team was limited to the data that were abstracted in a useable manner from EHR. Further, the evaluation team did not have the ability to confirm the validity of the data provided.

- The evaluation study was limited to data abstracted from the NVRH EHR system. It includes data on patients in two of the five APCPs in St. Johnsbury, as well as any otherwise eligible individuals with a record in the NVRH EHR system due to an in-patient hospital stay or emergency room visit. The evaluation team worked with Northern Counties Healthcare, Inc. to obtain data on patients in three remaining APCPs. However, Northern Counties was able to provide only data on approximately 25% of the patients who would have been eligible for inclusion in the study and a limited selection of variables. As a result, the Northern Counties Healthcare, Inc. data could not be merged with the NVRH data. Appendix G provides a summary of descriptive information on the data obtained from Northern Counties.

## CHAPTER 3: EVALUATION RESULTS

Chapter 3 provides a comprehensive program description of the St. Johnsbury CHT model and findings of the evaluation related to the reach and impact of the model. These findings are presented topically according to the evaluation questions in the subsequent sections.

### Evaluation Questions

- What are the core elements of the St. Johnsbury CHT model?
- What are the factors that affect implementation of the St. Johnsbury CHT model?
- What is the reach of the St. Johnsbury CHT?
- What impact does the St. Johnsbury CHT have on patients' quality of life?
- What impact does the St. Johnsbury CHT have on patients' health?
- What is the added value of the St. Johnsbury CHT's efforts to improve quality of life on patient health outcomes?

### Comprehensive Program Description

This comprehensive program description of the St. Johnsbury CHT model is based on data collected in 2012 (including program documents and in-depth interviews with program staff and providers). This description is intended to reflect the program as it was implemented at that time. The *St. Johnsbury Community Health Team Model Implementation Guide* provides additional guidance for public health practitioners who are interested in implementing the CHT model.

### Program Context and St. Johnsbury Community

The St. Johnsbury HSA is located in what is referred to commonly as the Northeast Kingdom of Vermont. The service area covers 18 towns and their villages in Caledonia and South Essex counties in northeastern Vermont (Ruggles, 2012). The major population centers are St. Johnsbury (7,603 population), Lyndon (5,981 population), and Danville (2,196 population) (U.S. Census Bureau, 2013). All other towns in the HSA have fewer than 2,000 people. Residents of other surrounding towns, including Peacham, Gilman, Ryegate, Glover, Barton, and several others, consider Northeastern Vermont Regional Hospital in St. Johnsbury to be their community hospital. Approximately 30,000 people are in the primary service area that can potentially access health services (Ruggles, 2012).

According to the St. Johnsbury community health needs assessment, people in this area describe the community as “an area known for its rugged rural beauty, and equally rugged and independently spirited people” (Ruggles, 2012). More than 75% of the population is adults (aged 18 and older); a third of the people in the area have a high-school level of education; and nearly 50% of the population has some college education or more. The service area population also is predominantly white, non-Hispanic, with median income around \$34,026. Although a majority of people in the area live at 200% or more above the Federal poverty level (FPL), nearly a third of the population lives below that, and 12% live below 100% of FPL. In this region, the major industries include health, education, human services, trade, transportation, and utilities. Northeastern Vermont Regional Hospital is the largest employer in the service area (Ruggles, 2012). Exhibit 5 provides demographic characteristics of the St. Johnsbury HSA as compared to the State of Vermont.

**EXHIBIT 5. DEMOGRAPHIC CHARACTERISTICS OF THE ST. JOHNSBURY HSA (RUGGLES, 2012)**

	St. Johnsbury HSA	Vermont
<b>Total Population</b>	27,033	608,827
<b>Age (Years)</b>		
Younger Than 18	25%	24%
18–44	35%	38%
45–64	25%	25%
65 and Older	15%	13%
<b>Gender</b>		
Female	50%	49%
Male	50%	51%
<b>Education</b>		
Less Than High School	18%	14%
High School Graduate	37%	32%
Some College	25%	27%
College Graduate	20%	27%
<b>Race</b>		
White, Non-Hispanic	97%	96%
Racial/Ethnicity Minority	3%	4%
<b>Median Income (% Federal Poverty Level)</b>	\$34,026	\$40,856
Less Than 100%	12%	9%
100%–149%	10%	8%
150%–199%	10%	9%
200% or More	65%	71%

As part of the planning and development process of the Blueprint Integrated Health Services Program, HSAs completed a community health needs assessment to identify specific needs and resources within their respective communities. In the St. Johnsbury HSA community health needs assessment, the planning committee identified the following as key health-related issues facing the community (Ruggles, 2012).

- Poverty-related issues:
  - Lack of health insurance or inadequate coverage
  - Transportation barriers
  - Food insecurity
- Substance abuse and mental health issues:
  - Prescription drug abuse
  - Tobacco initiation among youth, tobacco use among adults, second-hand smoke

- Difficulty accessing mental health services
- Rural isolation, lack of social support
- Obesity:
  - Barriers to accessing healthful foods and physical activity
  - Inadequate use of tools and techniques to make healthy behavior changes
  - Built environment not conducive to physical activity
  - Inadequate health policy to encourage healthy behaviors

### **Core Elements of the St. Johnsbury Community Health Team Model**

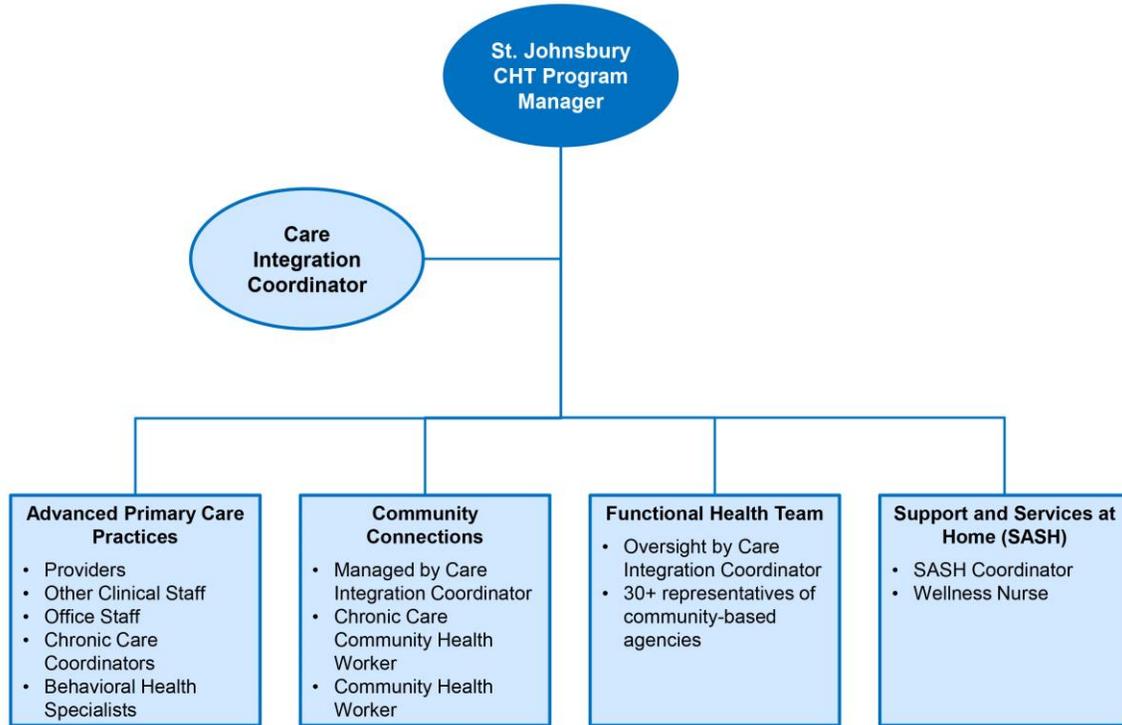
The evaluation team used the information obtained during this evaluation to revise and update the program logic model (Appendix H). The revised logic model is based on the original logic model developed during the evaluability assessment of the program. The revised logic model is organized according to the core components of the St. Johnsbury CHT model. The evaluation team shared the revised logic model with the St. Johnsbury CHT program manager and care integration coordinator to help ensure the accuracy and appropriateness of the logic model and its components.

The St. Johnsbury CHT comprises five core components: (1) an administrative core, (2) the Functional Health Team, (3) the Community Connections Team, (4) APCPs, and (5) SASH, as depicted in Exhibit 6.

**Evaluation Questions**

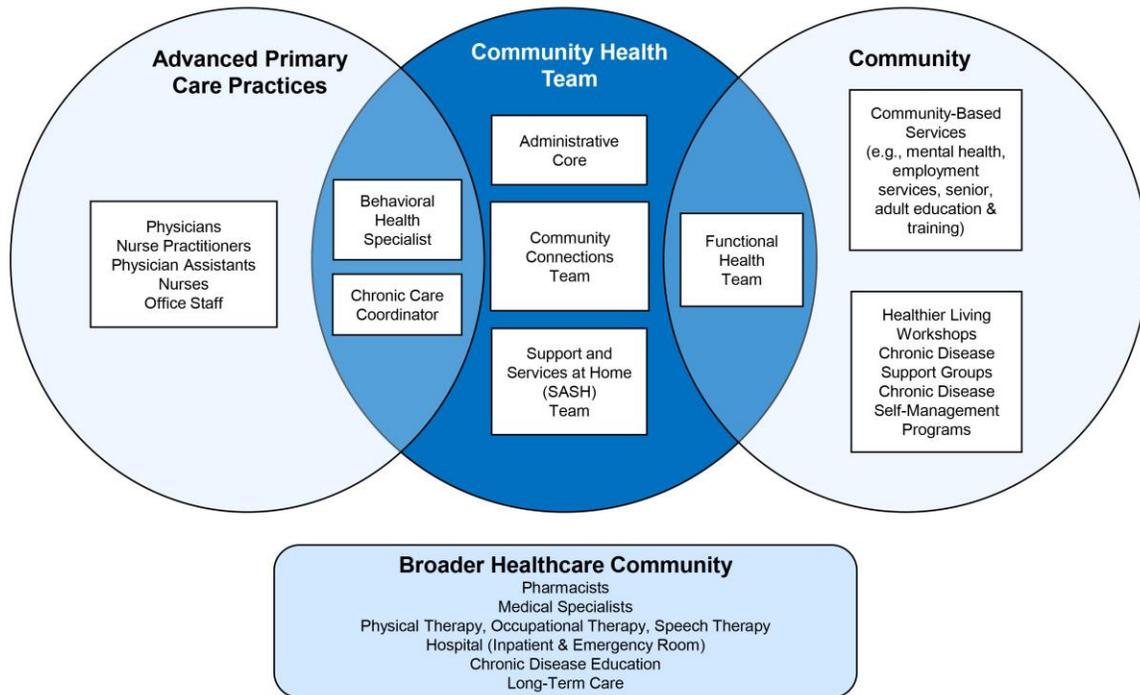
- What are the core elements of the St. Johnsbury CHT model?
- What are the factors that affect implementation of the St. Johnsbury CHT model?
- What is the reach of the St. Johnsbury CHT?
- What impact does the St. Johnsbury CHT have on patients' quality of life?
- What impact does the St. Johnsbury CHT have on patients' health?
- What is the added value of the St. Johnsbury CHT's efforts to improve quality of life on patient health outcomes?

**EXHIBIT 6. ORGANIZATIONAL STRUCTURE OF THE ST. JOHNSBURY COMMUNITY HEALTH TEAM MODEL**



A patient can access the CHT through a number of entry points and is referred to other components within the team, as appropriate. The referral and communication processes are patient-centered, and thus, complex. Exhibit 7 depicts the flow of information and referrals. The subsequent sections include more in-depth discussion of the core components of the St. Johnsbury CHT model and the communication and referral processes both within and outside of each core component.

## EXHIBIT 7. ST. JOHNSBURY COMMUNITY HEALTH TEAM REFERRAL AND COMMUNICATION FLOW CHART



### Administrative Core

The administrative core is the central component of the CHT that unifies all other components of the St. Johnsbury CHT model. The administrative core comprises the program manager, care integration coordinator, and Functional Health Team. These roles are described in detail below.

### Program Manager

The program manager for the St. Johnsbury CHT provides managerial and programmatic support and oversight to the CHT (Department of Vermont Health Access, 2010). The program manager works with the care integration coordinator and CHT members to identify and secure support for the CHT and increase awareness of the CHT services and activities. The program manager also reports to the Blueprint on the implementation of the CHT model.

### Care Integration Coordinator

The care integration coordinator is responsible for overseeing the integration and monitoring of the components of the CHT. The coordinator plays an active role in building and sustaining partnerships with community organizations via the Functional Health Team. The care integration coordinator in St. Johnsbury also provides management and oversight directly to the Community Connections Team.

## Functional Health Team<sup>4,5</sup>

The St. Johnsbury Functional Health Team comprises approximately 30 community partners that provide a variety of services to the community. The team meets for 1 hour once per month. The meetings are scheduled for 8:00–9:00 a.m. so that team members can attend on their way to work. On average, 30–45 individuals participate in these meetings. Site visit interview participants (including CHT staff members and providers) described the purpose of these meetings as “for everyone to know what is available, how to support [collaborate with] each other, and identify the gaps.” Community organizations take turns delivering presentations on different topics. For example, at one Functional Health Team meeting, a representative spoke on depression and exercise. Site visit interview participants also reported that these meetings have met everyone’s needs and kept participants engaged because they cross over into multiple business and organization.

### Examples of Organizations Participating in the Functional Health Team

- Northeast Kingdom Human Services
- Rural Community Transportation
- Vermont Department of Corrections
- Northeast Kingdom Youth Services
- Northeast Kingdom Home Care
- Gilman Housing Trust (doing business as Rural Edge)
- Green Mountain United Way

## Community Connections Team

The Community Connections Team uses an asset-based model of care to link clients to economic, social, health, mental health, and community supports via State agencies and community-based organizations. This model consists of building and sustaining relationships with clients to assist them in improving their quality of life and health. The team is managed by the care integration coordinator and is made up of two CHWs and a chronic care CHW. The Community Connections Team is located in a building directly across the street from Northeastern Vermont Regional Hospital.

Patients may access the Community Connections Team from a variety of entry points within the CHT or through community partners. Some clients learn about Community Connections via word of mouth and seek services without a referral. Organizations may make a referral to the team using paper forms or using secure e-mails. The team also makes referrals to outside sources, usually by telephone or fax. Members of the team use the contact information provided in referrals to follow up with clients by telephone.

The team’s CHWs refer clients to chronic care coordinators at the APCPs if the person is a patient of the practice or does not have a usual source of care; the chronic care coordinators then work to establish the person as a patient of the practice. The CHWs also refer clients, as appropriate, to behavioral health specialists for short-term, solution-focused therapy aimed at addressing and removing the behavioral health-related barriers to self-management. They also may refer clients, as appropriate, to community-based lifestyle intervention programs, such as healthy living workshops. These workshops, led by the chronic care CHW along with several other CHT members, focus on self-management for chronic disease,

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<sup>4</sup> It should be noted that the Functional Health Team was originally conceptualized as a part of the Administrative Core in the comprehensive program description completed as part of this evaluation in March 2013. In the process of developing an implementation guide and through additional discussions with the St. Johnsbury CHT leadership, the evaluation team agreed to separate the Functional Health Team from the Administrative Core and make the Functional Health Team a distinct core element of the program. This program description has been revised to reflect this change; however, please note that the evaluation team did not conduct any interviews with Functional Health Team members as part of the evaluation plan.

<sup>5</sup> Referred to as the Community Health Advisory Team in the St. Johnsbury Community Health Team Implementation Guide.

diabetes, and chronic pain. All CHWs proactively follow up with clients to make sure they are adhering to their actions plans.

**Community Health Worker**

As highlighted in Exhibit 8, CHWs work closely with clients to develop patient-driven action plans to address the financial, economic, and social challenges in clients’ lives that prevent them from effectively managing their chronic conditions. These plans emphasize steps clients should take on their own to more effectively manage and/or address their needs. The CHWs are primarily responsible for linking clients to community-based, local, and State agencies that can provide financial and other tangible resources to meet clients’ needs, such as vouchers for heating and transportation assistance. They also help uninsured clients enroll in health insurance and navigate the eligibility process for other local and State aid programs.

**Chronic Care Community Health Worker**

The chronic care CHW provides the same services as other CHWs, but to a lesser extent. The chronic care CHW primarily acts as a health coach to clients to improve their chronic disease self-management skills. The chronic care CHW also conducts health assessments; plays a more active role in reinforcing provider-initiated treatment plans; provides hands-on assistance in support of chronic disease self-management, such as going grocery shopping with a client to assist him or her with choosing healthful options; and teaches clients stress management techniques. The person in this role also leads Healthier Living Workshops. Exhibit 8 also provides a summary of the chronic care CHW role.

**Healthier Living Workshop Program**  
 The Healthier Living Workshop program is a statewide initiative of the Vermont Department of Health’s Division of Health Promotion and Disease Prevention, in partnership with Vermont Blueprint for Health. The program, based on the Stanford Chronic Disease Management Model, consists of interactive health education workshops designed to promote healthy lifestyles and preventive health behaviors for patients with chronic diseases.

**EXHIBIT 8. COMMUNITY CONNECTIONS TEAM ROLES**

	<b>Community Health Worker</b>	<b>Chronic Care Community Health Worker</b>
<b>Role</b>	The CHW helps clients navigate the health and social service systems. They are advocates for individuals and families, connecting them to services, assisting with scheduling appointments, and identifying their needs.	The chronic care CHW provides hands-on support to assess client needs; provide information and support; educate clients with chronic conditions to reinforce the treatment plans from the primary care office or other health care professionals; and facilitate the patient’s decision making and self-management goals.

### EXHIBIT 8. COMMUNITY CONNECTIONS TEAM ROLES (CONTINUED)

	Community Health Worker	Chronic Care Community Health Worker
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>▪ Links clients to community-based and local State agencies that can provide financial and other tangible resources to meet clients' needs, such as vouchers for heating and transportation assistance</li> <li>▪ Refers clients, as appropriate, to behavioral health specialists for short-term, solution-focused therapy aimed at addressing and removing the behavioral health-related barriers to self-management</li> <li>▪ Refers clients, as appropriate, to community-based lifestyle intervention programs, such as Healthier Living Workshops; leads with the chronic care CHW that focus on self-management for chronic disease, diabetes, and chronic pain</li> <li>▪ Proactively follows up with clients to ensure their adherence to their actions plans</li> </ul>	<ul style="list-style-type: none"> <li>▪ May make home visits and accompany patients to appointments</li> <li>▪ Assists patients in accessing opportunities for physical activity and provides coaching to help overcome barriers</li> <li>▪ Assists patients in stress reduction techniques</li> <li>▪ Assists patients in complying with medications, including setting up pill boxes and assisting with overcoming financial barriers</li> <li>▪ Uses health assessment tools to help identify health conditions, including depression, and communicates findings to the primary care office</li> <li>▪ Makes referrals to Healthier Living Workshops, tobacco cessation, and other community-based programs such as Growing Stronger or A Matter of Balance</li> </ul>
<b>Education, Training, Certification, and Experience Requirements</b>	<ul style="list-style-type: none"> <li>▪ High school diploma</li> <li>▪ Experience working with existing social service and health care agencies</li> <li>▪ Experience working with individuals or families in need</li> </ul>	<ul style="list-style-type: none"> <li>▪ High school diploma</li> <li>▪ Experience working with existing social service and health care agencies preferred</li> <li>▪ Experience working with women or families in need</li> <li>▪ Associate degree in human services or health education preferred</li> <li>▪ At least 2 years of experience in a community health or human service setting</li> <li>▪ Valid driver's license and reliable transportation required</li> </ul>
<b>Reports to</b>	<ul style="list-style-type: none"> <li>▪ Care integration coordinator</li> </ul>	<ul style="list-style-type: none"> <li>▪ Care integration coordinator</li> </ul>

### Advanced Primary Care Practices

The St. Johnsbury CHT is comprised of five APCPs that are NCQA-certified PCMHs.<sup>6</sup> Each APCP has an assigned chronic care coordinator and behavioral health specialist who are at least part time. Chronic care coordinators and behavioral health specialists often work across more than one APCP. It is important to note that chronic care coordinators and behavioral health specialists are staff of APCPs; therefore, these CHT members report directly to health professionals in their respective practices. As members of the CHT,

<sup>6</sup> St. Johnsbury also has a pediatric practice that is recognized as a part of the CHT. However, because this evaluation is focused on assessing the impact of CHT on adults with hypertension, the evaluation is based on the five APCPs that provide primary care to adults.

they coordinate with other CHT members, including CHWs on the Community Connections Team, SASH team, and community partners. These connections are often encouraged and facilitated by the care integration coordinator. This reporting arrangement is designed to underscore the fact that these staff members are accountable to both their practices and the larger CHT. It also helps to build support at the practice level by encouraging a sense of ownership among the staff for the services they provide. Thus, the chronic care coordinator and behavioral health specialist positions can be viewed as extensions that connect the APCPs to the larger CHT.

As APCP staff members, chronic care coordinators and behavioral health specialists (highlighted in Exhibit 9) have access to patient records to identify individuals with chronic diseases. Providers reported that they also directly refer patients to chronic care coordinators or behavioral health specialists in the context of an office visit. Often a patient can be seen by the chronic care coordinator or behavioral health specialist on the same day as a primary care office visit. Outside of the APCP, any member of the CHT may refer clients to a chronic care coordinator or behavioral health specialist, as needed. All CHT members will refer clients to a chronic care coordinator in the APCPs, if the person is a patient of the practice or does not have a usual source of care. CHT members will refer patients to the behavioral health specialists if short-term therapy is needed for behavioral health issues.

### **Chronic Care Coordinators**

The chronic care coordinators work in collaboration with physicians, nurse practitioners, physician's assistants, nurses, and office staff in their offices; they are responsible for coordinating the care of patients with or at risk for chronic conditions. Their responsibilities include tracking patients who are overdue for appointments, laboratory tests, and eye examinations; running and monitoring registry reports and working with information technology to ensure accuracy of reports; providing basic short-term care management for patients with chronic conditions; following up with patients and pharmacies to be sure patients are filling and taking medications as prescribed; tracking and following up on referrals to specialists, diagnostic testing, and health education; and following up with patients to track their progress toward achieving chronic disease self-management goals.

Chronic care coordinators act as liaisons between the primary care practice and the Community Connections Team. In this role, they work to increase physicians' familiarity with the Community Connections Team and assure that information from the team is shared with physicians and used to inform the patients' care. Although anyone in the primary care office can refer to the Community Connections Team, the chronic care coordinator is a primary referral source. Although their additional duties vary by practice, most assist with or lead quality improvement activities, review patient population panels to help make sure that all patients are up to date on diagnostic tests and that patients with chronic diseases receive appropriate monitoring and treatment. They also may follow up with patients who have been hospitalized or treated in the emergency room.

### **Behavioral Health Specialists**

Behavioral health specialists provide short-term, solution-focused therapy to patients (three to eight sessions). For patients who require more intense, longer-term mental health services, behavioral health specialists refer them to mental health care providers in the community.

**EXHIBIT 9. ADVANCED PRIMARY CARE PRACTICE COMMUNITY HEALTH TEAM EXTENSION ROLES**

Details	Chronic Care Coordinator	Behavioral Health Specialist
<b>Role</b>	The chronic care coordinator works with physicians, nurse practitioners, physician’s assistants, nurses, and office staff in the ACP practice offices, coordinates the care of patients with or at risk for chronic conditions, and liaises between the primary care practices and the Community Connections Team.	The behavioral health specialist provides short-term, solution-focused therapy to patients (three to eight sessions).
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>▪ Serves as primary referral source for Community Connections Team</li> <li>▪ Increases physicians’ familiarity with and use of the Community Connections Team</li> <li>▪ Refers patients, as needed, to behavioral health specialists who are also located in the same practice</li> <li>▪ Assists with or leads quality improvement activities, conducts panel management, and provides follow-up to patients who have been hospitalized or treated in the emergency room (depending on practice)</li> <li>▪ Tracks patients for overdue appointments, laboratory tests, eye examinations, and so forth</li> <li>▪ Runs and monitors registry reports and works with IT to ensure accuracy of reports</li> <li>▪ Provides basic short-term care management for complex patients</li> <li>▪ Follows up with patients and pharmacies to make sure patients are filling and taking their medications as prescribed</li> <li>▪ Tracks and follows up on referrals for specialists, diagnostic testing, and health education</li> <li>▪ Follows up with patients to facilitate self-management goals</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provides short-term solution focused therapy</li> <li>▪ Makes referrals to community-based mental health clinicians for ongoing therapy, if needed</li> <li>▪ Works with the providers in the offices to identify patient needs and evaluate medication</li> </ul>
<b>Education, Training, Certification Requirements</b>	<ul style="list-style-type: none"> <li>▪ Though not required, ACPs may prefer individuals with a nursing background (e.g., licensed practical nurse, registered nurse) for this position</li> </ul>	<ul style="list-style-type: none"> <li>▪ Current licensed master’s degree in field related to mental health counseling (e.g., mental health counseling, social work, substance abuse counseling)</li> <li>▪ As needed, training certification in primary care/behavioral health certificate course (e.g., metabolic syndrome, heart disease and stress, pain management, narrative therapy)</li> </ul>
<b>Reports to</b>	<ul style="list-style-type: none"> <li>• ACP manager</li> </ul>	<ul style="list-style-type: none"> <li>• ACP manager</li> </ul>

## Support and Services at Home

SASH is a statewide program intended to connect health- and long-term care systems for Medicare beneficiaries (Department of Vermont Health Access, 2013). Members of the SASH team facilitate streamlined access to medical and nonmedical services necessary for individuals to remain living safely at home (Department of Vermont Health Access, 2013). The program is funded by the Centers for Medicare and Medicaid Innovation Center Multi-Payer Advanced Primary Care Practice Demonstration, which was awarded to Vermont Blueprint for Health in 2011 (Department of Vermont Health Access, 2013). Originally, SASH was part of the Burlington HSA pilot for the Blueprint IHS program in 2009. As of January 2013, the program has been expanded to encompass 26.5 teams across the State of Vermont (Department of Vermont Health Access, 2013). St. Johnsbury began incorporating SASH into the CHT in 2012. The SASH model is staffed by a coordinator and wellness nurse serving a panel of 100 participants. They serve Medicare beneficiaries who live in subsidized housing for seniors as well as those who do not live in subsidized housing. The program implements specific interventions in fall prevention, medication management, control of chronic conditions, healthy behaviors, and cognitive and mental health issues (Department of Vermont Health Access, 2013). Beginning in February 2013, as part of a Community Transformation Grants program initiative, the St. Johnsbury SASH team began implementing an intervention aimed at hypertensive patients (including individuals younger than age 65). This intervention emphasizes self-monitoring and healthy behavior change among individuals with hypertension.

## Resources Required for Program Implementation

The core St. Johnsbury CHT comprises 13 FTEs:

- Program manager (1)
- Care integration coordinator (1)
- CHWs (3)
- Behavioral health specialists (3)
- Chronic care coordinators (4)
- SASH coordinator (1)

As of 2011, Blueprint funds 6.8 FTE core CHT members in St. Johnsbury (Department of Vermont Health Access, 2012). These funds are used to support the care integration coordinator, chronic care coordinators, chronic care CHW, and SASH coordinator; the remaining positions are funded from various sources through NVRH and APCPs.<sup>7</sup>

Personnel resources in the five APCPs vary, depending on the size of the practice, as follows:

- Primary care providers (including physicians, nurse practitioners, and physician's assistants)—4.8 (3.5–6)
- Mental health professionals (including behavioral health specialists and other master's-level mental health counselors)—0.64 (.5–1.2)
- Registered nurses—4 (1–7)

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<sup>7</sup> A cost analysis of the Community Connections Team was conducted in 2012 and the methods and results were published in 2013. See References section for citation on *A Cost Analysis of a Community Health Worker program in Rural Vermont*.

- Clerical staff—5.82 (4–9.1)

Office space, utilities, and other overhead costs are provided through Northeastern Vermont Regional Hospital and the APCPs. These costs include photocopying, information technology support, accounting/payroll services, and marketing materials.

## Factors that Affect Implementation of the St. Johnsbury Community Health Team Model: Facilitators and Barriers

This section includes findings from interviews with CHT staff members and primary care providers. The evaluation team identified the following themes as factors that affect implementation of the St. Johnsbury CHT model:

- relationships, communication, and collaboration
- commitment to clients
- provider buy-in
- location and positioning of behavioral health specialists and chronic care coordinators within APCPs
- Barriers to implementation of the CHT model included:
  - Navigating EHR systems for interpersonal communication
  - Time and workload
  - Clients' readiness to change
  - Funding silos
  - Lack of clarity of roles

### Evaluation Questions

- What are the core elements of the St. Johnsbury CHT model?
- What are the factors that affect implementation of the St. Johnsbury CHT model?
- What is the reach of the St. Johnsbury CHT?
- What impact does the St. Johnsbury CHT have on patients' quality of life?
- What impact does the St. Johnsbury CHT have on patients' health?
- What is the added value of the St. Johnsbury CHT's efforts to improve quality of life on patient health outcomes?

## Facilitators to Implementation

### Relationships, Communication, and Collaboration

In terms of facilitators, the predominant theme was the strength of the relationships, communication, and collaboration both within the CHT and with community partners. The CHT was described as a tight-knit group. Members communicate with each other regularly through both formal channels (e.g., messaging through EHR system, standing team meetings) and informal channels (e.g., impromptu calls). Knowing one another and each other's roles and areas of expertise has helped CHT members (including Functional Health Team members or partners) to reach out to one another and collaborate.

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[T]here is a strong core group, and they have a strong sense of community. Having a strong relationship with them from the get-go is key. A strong core group is necessary.  
–Notes-based paraphrase from a Community Connections Team member

[A key facilitator is] having everyone on the same page whatever the issue is. For instance, mothers with first-time pregnancies, or mothers with infants, and nobody knew what resources was available. They had an organization present on this at the monthly FHT meeting, showed them what they were doing with the best intake procedures, and gave everyone one number and one person to contact. This made it so much easier for the different community agencies to connect. Everyone is beginning to know all the CHT and other resources available, and they talk to each other.  
–Notes-based paraphrase from Community Connections Team member

The teamwork aspect is important in this community. It's not “that's my job and this is yours,” and so they make it work that way. They have a good understanding of each person's role. They all have the same understanding. –Notes-based paraphrase from an APCP CHT member

Communication for sure—the behavioral health specialists meet with the core CHT every month. And there are different community organizations/programs who rotate and come in each month. The CHT is full of people who are warm and caring, good at their role, and they know the answers most of the time, and if they don't, they brainstorm and figure it out. There are a lot of resources for a small community.  
–Notes-based paraphrase from an APCP CHT member

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## Commitment to Clients

Interview participants highlighted the Community Connections Team members' commitment to patients and willingness to go “above and beyond” for patients as a chief facilitator, coupled with the strong relationships developed by team members both within the CHT and with community organizations.

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By far, the strengths are openness and communication, and the freedom to call on and access one another, which is huge because it doesn't take a lot of time to get information needed by any one of us. Talk and brainstorm together to figure things out. It's that sense of unity and commitment to patients, and the openness of communication. The CHWs are not out to do someone else's job. No one is afraid to take on a piece, and to coordinate together. –Notes-based paraphrase from a Community Connections Team member

Community Connections people are very resourceful. It's an important piece for them to know this area very well and know what options exist locally for patients. –Notes-based paraphrase from a health care provider

Sometimes, the patients are confused about who is who, and their roles. But for the most part, it's just a referral to one person. It's clear that one particular intervention is what's needed now. I think that they're very appreciative. They feel someone really cares about them. They're still appreciative for the efforts. You can tell they [the patients] care because sometimes they go very far out of their way to receive this care. Getting the service matters almost as much as knowing someone cares about you and your health. –Notes-based paraphrase from a health care provider

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## Provider Buy-In

Interview participants suggested that providers in ACPs value the CHT model and strongly support implementation.

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The providers value the CHT, and the providers and the behavioral health specialist will refer to the chronic care coordinator. And that will filter further, if needed. They buy into it. More doctors are referring and believe in it. –Notes-based paraphrase from an ACP CHT member

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### **Providers' Experience With the St. Johnsbury Community Health Team and Perceived Impact on Practice**

During the data collection site visit, primary care providers were interviewed to explore their perceptions of the CHT model and how the CHT model has affected their practice. Most providers in the St. Johnsbury ACPs have worked in the community for more than 10 years and were able to describe the evolution of the St. Johnsbury CHT and its impact on their work.

Overall, providers expressed that implementation of the St. Johnsbury CHT has helped streamline their practice. In particular, providers reported that the model allows them to link patients to other CHT members for support in addressing a full range of needs. This has resulted in several benefits to their practice.

**Enhanced Ability to Monitor Patients and Their Progress.** Providers reported that they now know what is going on with their patients from many different perspectives—via follow-up and EMR notifications.

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The doctor always knows what's going on [with a patient] in many different facets of their health. I know everything will be followed up on and completed. Patients get more services and more complete care [as a result of this model]. –Notes-based paraphrase from a health care provider

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**Enhanced Focus on Patients.** Providers reported that working with CHT has given them the opportunity to do a lot for the patient, even in a limited amount of time in a patient encounter. They said that the CHT model has made it easier to ask patients questions about social, economic, and psychological needs related to their health without fearing the responses because now providers have resources where they can refer patients. This interaction with patients allows providers to become more familiar with the patients, enough to feel comfortable asking them to implement certain self-management techniques, and the patients are more likely to listen to the guidance.

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The doctors can now ask, "Are you depressed?" and, if the patient is, they know they can do a referral to have the patient taken care of right away. –Notes-based paraphrase from ACP CHT member

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This model for care has improved overall practice because they can head things off sooner before they become a bigger problem. –Notes-based paraphrase from provider

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**More Time for Providers.** Providers indicated that working with the CHT members means that they do "less teaching and more referring," which makes office visits shorter. One provider mentioned that this frees up time to engage a patient more and develop a more comprehensive understanding of the patient's health and well-being.

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The doctors don't spend as much time with patients in education, and can instead give them more intensive care, and refer the patients to other people for the additional needs. –Notes-based paraphrase from provider

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## Location and Positioning of Behavioral Health Specialists and Chronic Care Coordinators

Providers and others view the physical placement of chronic care coordinators and behavior health specialists with APCPs as a key facilitator of CHT implementation. As reported by providers, their proximity allows them to take care of patients more immediately, link them to services, even walk them down the hall while they are in the office, and get them out of crisis mode. This means that patients get their mental health needs and other needs met more quickly, most times even in the same day during a doctor's visit.

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We're in the same office. I'm part of the same team [with providers]. There are daily interactions. You can always call them or send information via EMRs. Providers also call or grab someone if there's a particular concern [with a patient] today (i.e., depression). She works closely with the provider. And if they have a crisis situation, they can just grab the behavioral health specialist. –Notes-based paraphrase from an APCP CHT member

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Conversely, it is worth noting that a provider also mentioned that the physical location of the chronic care coordinator within the practice may be a barrier to using this position.

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Also, her [chronic care coordinator's office] location is not optimal. There was not enough attention to this when the building was remodeled. It would be better to have her near the nurse's station [in order to have easy access to her]. –Notes-based paraphrase from provider

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Behavioral health specialists noted that there is often a stigma associated with obtaining mental health services; however, in the context of the CHT, behavioral health specialists are viewed as just another member of the CHT and the practice. As a result, the experience of obtaining care from a behavioral health specialist is viewed as just another trip to the medical home and helps remove some of the stigma associated with mental health.

### Barriers to Implementation

The following describes the challenges across the administrative core, Community Connections Team and APCPs, as expressed by interview participants.

#### Interpersonal Communications Using Electronic Health Record Systems

Interview participants noted that it can, at times, be challenging to navigate the EHR systems in order to communicate with other team members. For example, if a CHT member wanted to send a reminder to another team member to follow-up on a particular issue, the communication may become "lost" in the system. That said, the EHR systems were described as generally easy to use.

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Sometimes, the EMR system does not work very well. I might put my notes in one spot and then other [providers, CHT members] may not even look at it. –Notes-based paraphrase from a Community Connections Team member

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## Time and Workload

With only three CHWs, the demands on their time and workload can be challenging. Most are able to manage these demands by working collaboratively as a team and sharing the burden with each other. At times, the care integration coordinator may be called upon to help assist with clients.

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Another barrier is time—CHWs have so many clients they get overwhelmed. The manager tells them to try and book people out further who are noncrisis. She is trying to train CHWs to be nonreactive. –Notes-based paraphrase from a Community Connections Team member

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Time and workload also have been identified as a barrier in APCPs, in particular, because chronic care coordinators and behavioral health specialists are generally not full time in their practices due to funding limitations.

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Some of the challenges are in balancing meeting people's needs, and not getting too full to be unavailable to patients. I'm starting to get to the point where I may be overbooked. Sometimes I'm relied on for too much and may need to be referred out. –Notes-based paraphrase from an ACP CHT member

We're getting a new one [behavioral health specialist] next week (the 28th). This position should be utilized more. This will not be a full-time position and that also makes it difficult. Patients might not come in when the behavioral health specialist is working. –Notes-based paraphrase from a healthcare provider

There needs to be a full-time chronic care coordinator on staff at each location, or at least 36 hours, someone here Monday to Friday. It would be helpful to be able to pull in a behavioral health specialist or chronic care coordinator when the provider finds a problem. Otherwise, it's hard to get the patient to come back in the office. –Notes-based paraphrase from an ACP CHT member

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## Clients' Readiness to Change

Community Connections Team CHWs use motivational interviewing techniques to provide services to clients. This model focuses on areas where a client expresses interest in making behavior change. The CHWs shared that it can be difficult to observe other changes that clients need to make when they are not ready to make changes.

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Patients need to be ready to make the [healthy behavior] changes before they will do it. I try to enforce that it's small steps. Patients shouldn't try to do everything at once. –Notes-based paraphrase from a Community Connections Team member

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## Funding Silos

Community Connections Team CHWs connect clients with State and community resources for additional services. Sometimes, other State and community agencies have very specific funding streams that may restrict the target population for an agency or the types of services that can be provided. Limits in other agencies' funding can make it difficult for CHWs to secure assistance for patients.

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Funding, but not the funding for the CHT ... but more with the other agencies protecting their funding. A silo effect since the funding stream can be difficult. It can be a problem finding the right connection for a patient sometime. Sometimes people intent on protecting turf, and the CHT job is to make a connection. Anything that stops that is something that is needed to be worked with. They need to be very open and this has been challenging dealing with e-mails/communications with them. –Notes-based paraphrase from a Community Connections Team member

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### Lack of Clarity About the Role of CHT Members in APCPs

As previously mentioned, chronic care coordinators and behavioral health specialists are employed by APCPs. Interview participants shared that the job descriptions for these roles are somewhat vague; as a result, the roles are interpreted somewhat differently across practices. This is particularly notable for the chronic care coordinator position. For example, in one practice interview, participants reported that the primary responsibility of the chronic care coordinator is to perform population panel management, while a participant in another practice reported that the primary responsibility is to provide health education to patients with chronic diseases.

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Building and getting all the players in the different clinics and their roles down is a challenge. Providers and others may not understand the behavioral health specialists' and chronic care coordinators' roles in the CHT. Blueprint has left it up to the agency to decide how they want to do this, which is good because it's less cookie cutter, but it's also more confusing since the roles continue to be unclear. –Notes-based paraphrase from an APCP CHT member

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Interview participants expressed that the lack of clarity about the chronic care coordinator role has resulted in high turnover in this position. Some said that because of the differing interpretations of the position, it is difficult to hire and maintain professionals with the right training and experience.

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I find them [chronic care coordinators] important because they help the patients get to their appointment, and they also help to educate the patients in taking medications. When you have one chronic care coordinator and then don't have one [due to turnover], it's a huge gap in the practice. Goodness, yes [finds chronic care coordinators valuable]! I interacted with one we had had on a regular basis. I felt it was easy to go and talk to the chronic care coordinator at the spur of the moment. –Notes-based paraphrased from provider

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### Reach of the St. Johnsbury Community Health Team

Program reach is defined as the proportion of individuals in the intended audience who are served by the program. The evaluation team assessed the reach of the St. Johnsbury CHT on the basis of the number of patients served by the CHT and the number of primary care practices engaged with the CHT. The results indicate that:

- The St. Johnsbury HSA covers approximately 30,000 people. As of March 2012, 22,106 unique patients were attributed to the five APCPs in the CHT.
- All five primary care practices serving adults in the St. Johnsbury HSA are part of the CHT. This includes 29.5 primary care providers.

Some components of the CHT, specifically, the Community Connections Team and the behavioral health specialists, do not have a quantifiable intended audience, as they are needed-based services. Based on the quantitative data sources, Exhibit 10 below provides descriptive information on individuals in the Northeastern Vermont Regional Hospital EHR system between the ages of 18–85 who had a hypertension diagnosis as of June 1, 2012 (within 6 months of the start of the study observation period) and who had at least one blood pressure measure recorded January 1, 2012 to September 1, 2013. While the samples for each of these components are somewhat different, the evaluation team observed that the individuals served by the Community Connections Team, chronic care coordinators, and behavioral health specialists appear to have more health needs. For example, among Community Connections Team clients, there was a higher proportion of individuals with Medicaid, diabetes comorbidity, and current smokers, relative to medical home patients. Amongst chronic care coordinators, there was a higher proportion of individuals with diabetes comorbidity relative to the medical home patient sample.

- Evaluation Questions**
- What are the core elements of the St. Johnsbury CHT model?
  - What are the factors that affect implementation of the St. Johnsbury CHT model?
  - What is the reach of the St. Johnsbury CHT?
  - What are the factors that affect implementation of the St. Johnsbury CHT model?
  - What impact does the St. Johnsbury CHT have on patients' quality of life?
  - What impact does the St. Johnsbury CHT have on patients' health?
  - What is the added value of the St. Johnsbury CHT's efforts to improve quality of life on patient health outcomes?

**EXHIBIT 10. DESCRIPTIVE CHARACTERISTICS OF INDIVIDUALS IN THE STUDY SAMPLE SERVED BY THE CHT**

	Medical Home Patients <sup>8</sup> (n=2711) <sup>9</sup>	Community Connections Team Clients (n=86) <sup>10</sup>	Chronic Care Coordinator Patients (n=264)	Behavioral Health Specialist Patients (n=72)
<b>Demographic Characteristics</b>				
<b>Age as of January 1, 2012</b>				
Less than 65	1332 (49.1%)	57 (66.3%)	141 (53.4%)	45 (62.5%)
65–85 years	1379 (50.9%)	29 (33.7%)	123 (46.6%)	27 (37.5%)
<b>Sex</b>				
Male	1337 (49.3%)	43 (50.0%)	105 (39.8%)	29 (40.3%)
Female	1374 (50.7%)	43 (50.0%)	159 (60.2%)	43 (59.7%)
<b>Payer Type</b>				
Medicare	1382 (51.0%)	50 (58.1%)	184 (69.7%)	37 (51.4%)
Medicaid	156 (5.8%)	19 (22.1%)	18 (6.8%)	<sup>b</sup> 11
Third party payer	990 (36.5%)	12 (14.0%)	53 (20.1%)	26 (36.1%)

<sup>8</sup> Sample restricted to patients in one of the two medical homes in the Northeastern Vermont Regional Hospital EHR system.

<sup>9</sup> Unless otherwise noted, the valid n for specific variables is the same across variables.

<sup>10</sup> Includes those who may be in the NVRH system due to ER visit or

<sup>11</sup> n<10

**EXHIBIT 10. DESCRIPTIVE CHARACTERISTICS OF INDIVIDUALS IN THE STUDY SAMPLE SERVED BY THE CHT  
(CONTINUED)**

	Medical Home Patients <sup>12</sup> (n=2711) <sup>13</sup>	Community Connections Team Clients (n=86) <sup>14</sup>	Chronic Care Coordinator Patients (n=264)	Behavioral Health Specialist Patients (n=72)
<b>Health Status</b>				
<b>Diabetes comorbidity</b>	607 (22.4%)	37 (43.0%)	130 (49.2%)	21 (29.2%)
<b>Smoking status</b> (as of September 1, 2013)	n=1345	n=58	n=175	n=47
Never smoked	657 (48.8%)	23 (39.7%)	82 (46.9%)	24 (51.1%)
Former tobacco user	540 (40.1%)	20 (34.5%)	66 (37.7%)	14 (29.8%)
Current tobacco user	148 (11.0%)	15 (25.9%)	27 (15.4%)	<i>b</i>
Hypertension medications	2351 (86.7%) <sup>15</sup>	80 (96.4%) <sup>16</sup>	250 (98.0%) <sup>17</sup>	63 (91.3%) <sup>18</sup>
<b>Body Mass Index (n=2603)</b>				
Overweight (25–29.9)	843 (32.4%)	11 (17.5%)	46 (29.4%)	15 (26.8%)
Obese (30 or more)	1390 (53.4%)	44 (69.8%)	106 (57.3%)	30 (53.6%)
<b>Community Health Team Exposure</b>				
<b>Number of PCP Visits</b>				
1 Visit	163 (6.0%)	0 (0.0%)	<i>b</i>	<i>b</i>
2–5 Visits	1268 (46.8%)	24 (27.9%)	62 (23.5%)	16 (22.2%)
6–9 Visits	810 (29.9%)	30 (34.9%)	93 (35.2%)	22 (30.5%)
10 or More Visits	461 (17.0%)	30 (34.9%)	105 (39.8%)	33 (45.8%)
<b>Exposed to behavioral health specialists</b>	63 (2.3%)	<i>b</i>	19 (7.2%)	-
<b>Exposed to chronic care coordinators</b>	199 (7.3%)	39 (45.3%)	-	19 (26.4%)
<b>Exposed to Community Connections Team community health workers</b>	63 (2.3%)	-	39 (14.8%)	<i>b</i>

Secondary analysis of Community Connections Team data provides additional descriptive information on the broader sample of individuals that were served by the Community Connections Team January 1, 2013–August 19, 2013, as provided in Exhibit 11 below. Of note, most individuals in this sample were 45 years or older, one-third of the sample was married, and most individuals did not have children living at home.

<sup>12</sup> Sample restricted to patients in one of the two medical homes in the Northeastern Vermont Regional Hospital EHR system.

<sup>13</sup> Unless otherwise noted, the valid n for specific variables is the same across variables.

<sup>14</sup> Includes those who may be in the NVRH system due to ER visit or

<sup>15</sup> Valid n=2,351

<sup>16</sup> Valid n=83

<sup>17</sup> Valid n=255

<sup>18</sup> Valid n=69

## EXHIBIT 11. COMMUNITY CONNECTIONS TEAM INTAKE FORM SAMPLE CHARACTERISTICS (N=387)

Variable	n (%)
<b>Age (as of January 1, 2013) (n=387)</b>	
18–24 years	35 (9.0%)
25–34 years	53 (13.7%)
35–44 years	48 (12.4%)
45–54 years	75 (19.4%)
55–64 years	98 (25.3%)
65+ years	78 (20.2%)
<b>Marital Status (n=387)</b>	
Single, never married	129 (33.3%)
Married	129 (33.3%)
Living with partner	10 (2.6%)
Separated or divorced	84 (21.7%)
Widowed	35 (9.0%)
<b>Family Composition (n=386)<sup>19</sup></b>	
No children	275 (71.2%)
Child(ren) under age 18 living in home	79 (20.5%)
Child(ren) under age 18, but not living in home	12 (3.1%)
Adult child over age of 18 living in home	25 (6.5%)

Other findings related to CHT reach include:

- As previously noted, approximately 30 member organizations actively participate on the Functional Health Team. The members represent a range of social and health services.
- The SASH coordinator estimates that the number of individuals who participated in SASH in 2013 was approximately 230 (Chester, 2014). All of the individuals in SASH were considered part of the Community Transformation Grants hypertension control project referenced in Chapter 2.

### Impact of the Community Health Team on Quality of Life

This section includes findings from the Community Connections Team Intake Forms and CHW client interviews.

#### **Impact of the Community Health Team on Quality of Life Based on Findings from Community Connections Team Intake Forms**

Exhibit 12 provides descriptive characteristics of the Community Connections Team intake form sample. Additional data tables can be found in Appendix I. Many (45.7%) individuals in the sample had one encounter during the observation period. Forty-seven percent of clients were referred to Community Connections by someone in their medical home. The results also show that key reasons for clients seeking

<sup>19</sup> Valid n (denominator) varies by item as CHWs could select multiple responses.

services from the Community Connections included: money and finances (42.1%), health insurance (37.2%), prescription drugs (23.8%), health education (25.3%) and housing (20.2%). Coincidentally, these also are areas that align with constructs associated with social determinants of health and Healthy People 2020 objectives (Healthy People 2020; Lam, 2011). Because these constructs have been linked with overall health, the evaluation team conducted additional analyses of CHW ratings that reflect their assessment of a client in that area.

- | Evaluation Questions |   |
|----------------------|---|
| ▪                    | What are the core elements of the St. Johnsbury CHT model?  |
| ▪                    | What are the factors that affect implementation of the St. Johnsbury CHT model?                                   |
| ▪                    | What is the reach of the St. Johnsbury CHT?   |
| ▪                    | What impact does the St. Johnsbury CHT have on patients' quality of life?   |
| ▪                    | What impact does the St. Johnsbury CHT have on patients' health?  |
| ▪                    | What is the added value of the St. Johnsbury CHT's efforts to improve quality of life on patient health outcomes? |

**EXHIBIT 12. DESCRIPTIVE CHARACTERISTICS OF COMMUNITY CONNECTIONS TEAM INTAKE FORM SAMPLE (N=387)**

Variable	All clients (N=387)	Clients with 2 or more encounters (N=210)
<b>Number of encounters</b>	n=387	-
1 encounter	177 (45.7%)	-
2 encounters	100 (25.8%)	-
3 encounters	110 (28.4%)	-
<b>Encounter type</b>	n=386	n=210
In-person	223 (57.8%)	112 (53.3%)
Phone	163 (42.2%)	98 (46.7%)
<b>Referral source</b>	n=385	n=208
Medical home <sup>20</sup>	181 (47.0%)	92 (44.2%)
Outside medical home <sup>21</sup>	204 (53%)	116 (55.8%)
<b>Primary purpose of visit<sup>22</sup></b>		
Health insurance	144 (37.2%)	78 (37.1%)
Prescription drugs	92 (23.8%)	47 (22.4%)
Housing	78 (20.2%)	52 (24.8%)
Utilities	19 (4.9%)	12 (5.7%)
Transportation	39 (10.1%)	23 (11.0%)
Food security	30 (7.8%)	19 (9.0%)
Money and finances	163 (42.1%)	88 (41.9%)
Employment	33 (8.5%)	22 (10.5%)

<sup>20</sup> Includes referrals from chronic care coordinators, behavioral health specialists and other medical home staff.

<sup>21</sup> Referrals from outside of the medical home may include external community partners, friend or family member, hospital staff, or no referral (walk-in).

<sup>22</sup> Valid n (denominator) varies by item as CHWs could select multiple responses

**EXHIBIT 12. DESCRIPTIVE CHARACTERISTICS OF COMMUNITY CONNECTIONS TEAM INTAKE FORM SAMPLE (N=387)  
(CONTINUED)**

Variable	All clients (N=387)	Clients with 2 or more encounters (N=210)
<b>Primary purpose of visit (continued)</b>		
Legal	27 (7.0%)	13 (6.2%)
Health education	98 (25.3%)	50 (23.8%)
Family relationships	16 (4.1%)	10 (4.8%)
Family relationships: Children	b <sup>23</sup>	b
Other	51 (13.2%)	38 (18.1%)

CHWs appraised clients at each encounter on a set of topics commonly addressed by the Community Connections Team using a scale of 0 to 10 (where 0 means a client is in a crisis, and 10 means that the client is self-sufficient in the given area). In the same sample, 210 individuals had two or more encounters with the Community Connections Team. This smaller sample was used for further analysis of the effectiveness of the Community Connections Team on factors related to well-being. Across subjects, the results show statistically significant improvements between clients' first encounters and most recent encounters as evidenced by the results of paired sample t-tests statistics: for health insurance (mean increase 6.95 to 7.54, p-value=0.040); prescription drugs (mean increase 6.66 to 7.40, p-value=0.012); housing (mean increase 7.05 to 7.74, p-value=0.007); health education (mean increase 6.23 to 6.87, p-value=0.004). While the absolute value of the increases at the group level appear small, these represent substantial meaningful improvement in participant well-being, in which small changes may reflect a difference between a crisis situation and progress toward stability in a client's well-being. It also should be noted that there was no statistically significant change in clients' scores on money and finances between first and last encounters. This may be due to limitations in CHWs ability to provide financial resources to clients and it may take a longer time to make substantial progress in a client's financial situation.

**EXHIBIT 13. FIRST AND LAST ENCOUNTER MEANS ON SELECT TOPICS ASSESSED BY CHWs**

Topic	First Encounter	Last Encounter	p-value <sup>24</sup>
<b>Health Insurance (n=186)</b>	6.95	7.54	0.040*
<b>Prescription drugs (n=180)</b>	6.66	7.40	0.012*
<b>Housing (n=173)</b>	7.05	7.74	0.007*
<b>Money and finances (n=172)</b>	3.87	4.40	0.061
<b>Health Education (n=142)</b>	6.23	6.87	0.004*
<b>Overall (n=195)</b>	5.28	5.95	0.002*

The evaluation team used multivariate repeated measures General Linear Models (GLM) to assess within-subject changes in scores between clients' first encounter with the CHWs and their most recent encounter during the observation period. The results showed statistically significant within-subject changes in key

<sup>23</sup> b used to indicate n<10.

<sup>24</sup> P-values for paired sample t-tests

areas closely associated with health and well-being: health insurance (p-value=0.001); prescription drugs (p-value=0.000); housing (p=0.004); and health education (p=0.000).<sup>25</sup>

Appendix I provides additional data tables and graphics to describe the GLM results; the following are key findings from this analysis.

- For health insurance, prescription drugs, housing, and health education, the results indicate a statistically significant interaction between a clients' primary purpose of visit and change in the well-being scores between first and last visits during the observation period. For example, clients who indicated that the primary purpose of their visit was for health insurance experienced more improvement in the health insurance scores than those who did not indicate health insurance as the primary purpose of their visits. This might suggest that CHWs are successful in helping connect clients to health insurance resources and are particularly successful in meeting clients' explicit needs related to health insurance. The same could be said for prescription drugs, housing, and health education.
- For health insurance, there also was a significant interaction between the number of encounters with Community Connections and changes in health insurance scores, in that those who had just two encounters experienced greater improvement in health insurance scores than those with three or more encounters. This finding can be interpreted a number of ways. For example, individuals who have numerous life challenges or significant health insurance challenges may require more encounters with the CHWs in order to make significant improvements in this area. Alternatively, this finding may suggest that CHWs are able to adequately help clients resolve challenges within two encounters, rather than multiple ongoing interactions.
- For prescription drugs, there also was a statistically significant interaction between marital status and changes in scores for prescription drugs. Clients who were single, divorced, or widowed had greater improvement in the prescription drug scores than clients who were married or living with a partner. While this finding cannot be fully explained by the results of the evaluation alone, CHT stakeholders suggest that this may be due in part to implications of family status on eligibility requirements for prescription drugs.
- For housing, there also was a statistically significant interaction between marital status and changes in housing scores. Clients who were single, divorced, or widowed had greater improvement in the housing scores, while clients who were married or living with a partner had more modest improvements in housing.
- For CHW overall assessment of clients' well-being, the multivariate GLM results do not indicate a statistically significant change between clients' first and last encounters during the observation period. However, there was a significant three-way interaction between the number of Community Connections Team encounters, marital status, and changes in overall scores. Clients who were single, divorced, or widowed and had just two encounters with the Community Connections Team had improvements in the overall scores than clients who were married or living with a partner, while there was no statistically significant change in overall scores for their counterparts with three or more encounters. Among married clients, there was an inverse relationship between the number of encounters and changes in overall score. Married clients and those living with a partner with just two encounters had declining overall scores, while their counterparts with three or more encounters had some improvements in

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<sup>25</sup> When taking into account the following covariates: number of Community Connections Team encounter, primary purpose of visit, marital status, family composition, referral source, self-reported health status at first encounter, and age.

overall scores. CHT stakeholders suggest that this may be due in part to the fact that individuals who are married or living with a partner have to attend to the issues of their families or households and not just the individual alone.

- It should be noted that there were no significant changes in clients' self-reported health status and satisfaction with the conditions of their life between their first and last encounters with the Community Connections Team January 1, 2013 to August, 19, 2013. However, it is important to keep in mind that the observation period for these data was short. It is possible that more time is needed to observe changes in these factors.

### **Impact of the Community Health Team on Quality of Life Based on Client Interviews**

The evaluation team observed the following themes in the transcript data from interviews with Community Connections Team clients, which are discussed in greater detail in the following sections.

- The Community Connections Team is easy to access.
- CHWs are empathetic and provide a welcoming environment.
- Clients experience immediate results and had regular follow-up from Community Connections Team members.
- Clients felt that they got a two-for-one experience in getting help from the Community Connections Team.
- Clients felt less stressed after working with the Community Connections Team.
- Meeting their basic needs went a long way in improving quality of life.
- Community Connections does not “cure” people but clients have more awareness of their health issues.
- The Community Connections Team provides a vital community service.

### **Easy to Access**

Interview participants shared that they learned about the Community Connections Team from either staff at the hospital or staff from their medical home. They also received referrals from friends and other providers in the area, flyers and pamphlets, and even learned about the team through their own knowledge of the health profession. Participants also reported that, typically, they were able to see Community Connections Team staff the same day as their primary care appointment, and were connected via their nurse, doctor, and chronic care coordinator.

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So she called [CHW], and right after I left here, they made arrangements for me to go over and see [CHW]. I went over and saw [CHW], sat down and talked with [the CHW], and [the CHW] was a godsend. [The CHW] got the ball rolling, told me what I had to do. I went and did it, came back, and saw [the CHW who] had it all done that morning.

So I called one day and asked if I could talk to someone and kind of went from there. It actually worked out as a good thing, the way it worked out. And, of course, I had no clue that any of this stuff was available at all. So when I found out, I was like, whoa, that's awesome.

It's very easy to connect if you know them. If you know about them, then all you have to do is call the number that's on the pamphlet. You can call the hospital, they'll connect you with them. You can call your primary care practice and they have community health care workers there. And you can connect with them, and they'll connect you with the right person. I didn't find it difficult to connect with them at all.

–Quotes from Community Connections Team Clients

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### Welcoming Environment and Empathetic Staff

Participants had little to no issues or challenges accessing the Community Connections Team for the first time. The only possible items that came up were on the part of the client, such as the patient feeling embarrassed about asking for help initially, or being nervous about the change that might come about from accessing Community Connections. Many participants shared that they were initially nervous to go to the Community Connections Team, but found the staff welcoming, understanding and patient.

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It was hard to get help. I was kind of embarrassed at first about asking for help at Community Connections, keep going back and then [CHW] ... explained to me, no, that's what we're here for. And so [the CHW] made it real comfortable.

Honestly, I was nervous, and I didn't quite know, like okay, is this going to be kind of like, oh, [the CHW is] really nice, but that wasn't what I was looking for, but I think the first day I actually met [the CHW] I may have seen [the CHW] for like 2 hours. So [the CHW] actually made me feel not nervous. And I told [the CHW] that I was nervous. And I just told [the CHW] what I was looking for, and we had a lot to say back and forth to each other and I think at one point I may have cried ... But it made me feel good that she didn't judge me. She gave me a hug and made me feel better.

And so I took all my information there, and I was just kind of nervous and [the CHW] just ... kind of set me at ease, and we got the paperwork done.

–Quotes from Community Connections Team Clients

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### Immediate Results and Regular Follow-up

Clients shared that, during the first visit, CHWs got started immediately connecting them to services. Typically, CHWs got the ball rolling by helping clients fill out paperwork, make phone calls, and determine next steps in order to obtain assistance from community resources. They let the patients know what they needed to do on their end, and then the follow-up visits with CHWs generally resulted in completed paperwork and results, usually within the same day. CHWs followed up via phone or in person, whichever was most convenient to the client.

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And [the Chronic Care Coordinator] and [the CHW] worked a lot together. They just communicate. And I just—[the CHW] was so helpful and so patient and [the CHW] just said it's okay, we're going to work through this. And [the CHW] found some resources, got back to me. I went down with my income tax form, [the CHW] made copies, and [the CHW] sent it to the pharmaceutical company that makes the Lantus. And I believe it's out in California, I'm not positive. And they sent back a response: yes, [the patient will] have insulin for free. And I'm thinking, "Oh, my word."

We first went into the computer and filled out forms for assistance, just telling them what was going on, that we didn't know if the business was going to reopen, that we needed help with heat and we never were in this position before and it was kind of scary. And they were wonderful. They spent, I mean, there was no time limit ... And then, the second step was my step, so I would stop in just like saying I don't understand this form that they sent me. It's very—the system is so complicated ... and I didn't understand it. And they were there to help figure things out ... So I had to juggle everything. And they kind of helped me juggle.

—Quotes from Community Connections Clients

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## Two-for-One

In some cases, participants shared that, although they initially came to Community Connections for one specific issue, they found that the CHWs would help them with a number of issues all in one visit. For example, a person might come for help with paperwork initially, and then also find out about exercise and health classes at the same time.

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Yeah, and I was looking for someone to talk to. I was looking for another way of exercising besides going to the gym. And [the CHW] was really the one that got me introduced to their academy and their pool and things like that. And then going through that, I didn't even actually know that my therapy office, they have a program at the pool as well. So [the CHW] was the one that actually got me to realize the office I was working out with had a physical therapy for the pool.

I had had medical insurance through the State ... And so I lost my assistance, and I'm on insulin ... And so I took all my information [to Community Connections] ... and we got the paperwork done. And I noticed that [the CHW] had this pamphlet that I'd seen at [the APCP]. And it was getting into a health regimen of exercise, and it was something that was offered through the college. And so I said I've seen that up at the [the APCP] and I was thinking about getting in touch with somebody about that ... So [the CHW] explained it all to me, and as a result, I got into that program and got to go up to the college and exercise.

—Quotes from Community Connections Team Clients

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## Less Stressed

Interview participants expressed that they felt less stressed, confused, and hopeless as a result of the services provided to them by the Community Connections Team. Participants also shared that they felt more secure with accessing services; more aware of services available to them; and generally more organized in their lives after working with the Community Connections Team.

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Well, before I knew about--before I started using Community Connections, I felt sometimes that things were just kind of hopeless, could get hopeless for me at times and just total, feeling totally overwhelmed. And what's changed since I've started using Community Connections is that when I come in with an issue, I always end up leaving like okay, I can—this issue can be dealt with. It can be handled. I may not be able to do it on my own, but I can work through this. And so that's been really helpful.

And now, I feel like I have an ally here at this office. And sometimes even when I get in a place of feeling overwhelmed, my therapist has to remind me, she says you know you can go to Community Connections to help.

I guess that awareness that people don't have to go through crisis alone, that there are people in this community, a lot of people that can help you, can help anybody. You just need to knock on their door or give them a call and it's a wonderful program. We live in a very rural area, there's a lot of poverty in this area. And I never once felt from them that they were looking down because I needed help.

I'm more positive, and I'm avoiding the negative.

—Quotes from Community Connections Clients

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### Meeting Basic Needs Can Go a Long Way

Participants indicated that they perceive that their well-being has improved because CHWs helped them with getting their needs met, usually by helping them complete "daunting" paperwork. The results led to assistance with food stamps, fuel oil, supplemental income, getting hearing and eyesight aids, figuring out bills, mortgages, budgeting, and housing. In addition, clients made new connections to people in the community. Participants also expressed that the Community Connections has improved well-being by building and boosting patients' confidence, helping them to feel safe and supported, and able to better prioritize the things in their life. As one participant expressed, "It's amazing what a little support can do for someone. Awareness that you're not alone and that there are a lot of people that can help you, can help anybody."

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I just—the load, I can't tell you the load that came off me because of that. It actually improved the quality of my life at that time.

Oh, it's a lot better. It's not great, [inaudible] as I said, my health, but they've helped me get on my feet.

And they give you goals, motivation to want to improve the quality of your life...

—Quotes from Community Connections Clients

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### Not Cured, but More Attention to Health

Participants felt they were doing a lot better health-wise, even if they were not completely better, just due to the assistance they were receiving with prescriptions, transportation to appointments, diabetes management, access to proper medications, and the ability to better attend to their health. There were mixed responses in terms of actual health care usage. Some participants reported going to a primary care doctor more often since they were more aware of the need to take care of themselves; other patients found themselves going less since they did not need as much care once they had managed their initial crisis. With respect to emergency room use, participants shared that they did not find themselves using the emergency room any less or any more than usual. Interview participants seemed to recognize the

emergency room as a place for emergencies, not primary care. It should be noted that one participant mentioned having to go to the emergency room when her foot became infected due to a complication with diabetes.

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She [CHW] had given me information, pamphlets as well as different programs or activities that I could get involved in and so that has been very reinforcing and keeping me conscious of trying to make the right decisions. There's lots of times you'd like to just sit down and eat what you're not supposed to. And if there's one thing I've learned from [the CHW], and that is it's okay to slip, but just get back up and keep going and your quality of life is definitely, my quality of life is definitely improving.

We've always been very into health and exercise. But you can still get sick. So now I just get up in the morning and I just am happy that we can get up in the morning. We're careful now because we know now that it doesn't matter—disaster or crisis can happen. It just happens. It happens. So I'm definitely more aware of it all.

My health feels better by seeing [CHW] when something comes up ... It feels much clearer and better to see [CHW], yeah.

—Quotes from Community Connections Clients

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## A Vital Community Service

Two participants mentioned how terrible it would be and how people would be in trouble if the Community Connections Team did not exist. It has become a place for people to depend on, especially when many clients do not have other family and friends who they can depend on. Many patients expressed a desire to see the CHT model available in other locations, "other connection headquarters," and even across the country. One participant even suggested that in addition to the social and medical needs, the Community Connections Team could hire someone to be a patient advocate to help sick patients ask their providers more specific questions about their health care, and help them understand their options for the care received. These advocates could then help patients review their medications to help explain usage instructions.

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I would say that if you're having difficulties in just getting, just navigating through the various issues involved in life that you have to do, hurdles you have to get through, forms you have to fill out, programs you're trying to qualify for and you just don't have it in you, you're too sick or you're too depressed or what have you, I would highly recommend that you go to Community Connections because they're very understanding, and that's basically why they're there.

—Quote from Community Connections Client

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Exhibit 14 below presents triangulated findings from Community Connections Team client interviews and intake forms to provide a more complete picture of the impact of the Community Connections Team.

**EXHIBIT 14. CROSSWALK OF FINDINGS FROM CLIENT INTERVIEWS AND CCT INTAKE FORMS**

	<b>Intake Forms</b>	<b>Client Interviews</b>
<b>How Clients come to Community Connections Team</b>	<ul style="list-style-type: none"> <li>A total of 181 clients (47%) were referred by their medical home, while 204 (53%) were referred by people outside the medical home.</li> <li>The top five primary purposes of visits were for health insurance, prescription drugs, housing, money and finances, and health education.</li> </ul>	<ul style="list-style-type: none"> <li>Interview participants shared that they learned about the Community Connections Team from a variety of sources, either staff at the hospital or from their medical home. Referrals from friends and other providers in the area, flyers and pamphlets, and even just through their own awareness of the program.</li> <li>Interview participants reported that they generally needed assistance with paperwork and applications required for government assistance and social services.</li> </ul>
<b>Impact of Community Connections on well-being</b>	<ul style="list-style-type: none"> <li>Clients showed statistically significant positive improvement in well-being scores for health insurance, prescription drugs, housing, and health education.</li> </ul>	<ul style="list-style-type: none"> <li>Participants used descriptive words such as "dramatic," "greatly improved," "very positive, very happy," and "a lot better," even while health issues may have persisted.</li> <li>Participants expressed that meeting their basic needs can go a long way in improving their well-being and quality of life.</li> </ul>
<b>Impact of Community Connections on health</b>	<ul style="list-style-type: none"> <li>There was no statistically different change in self-reported health status between clients' first and last encounters with Community Connections.</li> <li>There was a statistically significant increase in health education ratings between clients' first visit (mean: 4.90) and last visit (mean: 6.30) (multivariate repeated measures GLM p-value: 0.000).</li> </ul>	<ul style="list-style-type: none"> <li>Participants reported that they were more aware and attentive to their overall health after receiving services from the Community Connections Team.</li> </ul>

**Impact of the Community Health Team on Health**

This section includes findings from primary care provider interviews and EHR data. The evaluation team analyzed secondary data abstracted from the NVRH EHR system to explore associations between program exposure and on individuals with a hypertension diagnosis who were exposed to different components of the program on hypertension control, emergency room (ER) visits, and inpatient hospitalization. Due to the low rate of exposure to CHT components in the limited sample of individuals with a hypertension diagnosis between the ages of 18 and 85 (as previously discussed) coupled with the short observation period, the ability to identify statistically significant associations between program exposure and health outcomes was limited. It is possible that, with a longer observation period of available data and data on the timing and

frequency of exposure to chronic care coordinators and behavioral health specialists, the health impact of the CHT could be evaluated more accurately. That said, the evaluation team observed some trends that are worth noting about the relationship between program exposure and health outcomes, as provided in Exhibit 15 below.

<b>Evaluation Questions</b>	
■	What are the core elements of the St. Johnsbury CHT model?
■	What are the factors that affect implementation of the St. Johnsbury CHT model?
■	What is the reach of the St. Johnsbury CHT?
■	What impact does the St. Johnsbury CHT have on patients' quality of life?
■	What impact does the St. Johnsbury CHT have on patients' health?
■	What is the added value of the St. Johnsbury CHT's efforts to improve quality of life on patient health outcomes?

**EXHIBIT 15. HEALTH CARE UTILIZATION AND HYPERTENSION CONTROL RATES OF INDIVIDUALS SERVED BY THE ST. JOHNSBURY CHT**

	<b>Medical Home Patients (n=2,711)<sup>26</sup></b>	<b>Community Connections Team CHW clients<sup>27</sup> (n=63)</b>	<b>Chronic Care Coordinator Patients (n=264)</b>	<b>Behavioral Health Specialist Patients (n=72)</b>
<b>Number of ER Visits</b>				
No ER visits	2,128 (78.5%)	36 (57.1%)*	141 (53.4%)	48 (66.7%)
1 ER visit	392 (14.5%)	10 (15.9%)	59 (22.3%)	13 (18.1%)
2 or more ER visits	191 (7.0%)	17 (27.0%)	64 (24.2%)	11 (15.3%)
<b>Inpatient Hospitalization (1 or more inpatient hospital days)</b>	187 (6.9%)	11 (17.5%)*	55 (20.8%)	b
<b>Hypertension control (as September 1, 2013)<sup>28</sup></b>	1,752 (64.6%) <sup>29</sup>	45 (71.4%)	137 (71.4%) <sup>30</sup>	41 (68.3%) <sup>31</sup>

Among Community Connections Team clients, the evaluation team observed a higher proportion of clients had two or more emergency room visits. The team also observed that there was a higher proportion of CHW clients that had one or more inpatient hospital days during the observation period compared to those who were not exposed to the Community Connections Team (Chi-square p-value=0.001). Similar observations were made among chronic care coordinator patients and behavioral health specialists patients.

Based on the data available, one cannot assume that exposure to the CHT is leading individuals to the ER or inpatient hospital care. A number of factors may influence these observations. One also can consider the findings from the viewpoint that perhaps the CHT is serving individuals who are currently in crises and have greater needs in terms of their well-being and health care. It is plausible that these individuals may

<sup>26</sup> Unless otherwise noted, the valid n for specific variables is the same across variables.

<sup>27</sup> Sample restricted to patients in one of the two medical homes in the Northeastern Vermont Regional Hospital EHR system to allow for equitable comparisons with patients exposed to chronic care coordinators and behavioral health specialists.

<sup>28</sup> Based on most recent BP measure between 9/2/2012– 9/1/2013.

<sup>29</sup> Valid n=2542

<sup>30</sup> Valid n=142

<sup>31</sup> Valid n=60

experience an eventual decline in health care utilization, but a longer study observation period would be needed in order to determine this.

Further, there is a growing body of literature around the concept of patient activation. Patient activation can be defined as playing a more active role in one's health and health care based on one's knowledge, skills, and confidence to take on this more active role (Alexander, Herald, Mittler, & Harvey, 2013; Hibbard, Stockard, Mahoney, & Tusler, 2004). There is also research suggesting that patient activation plays an important role in managing chronic illness (Hibbard, Mahoney, Stock, & Tusler, 2007). Further, as noted previously, findings from in-depth interviews suggest that Community Connections Team CHW clients, in particular, may have greater awareness of their health. Future research and evaluation of the St. Johnsbury CHT should account for specific measures of patient activation and exploring whether this may have a moderating effect on health outcomes of the CHT.

With the limited dataset available for this study, the evaluation team did not find an association between CHT exposure and blood pressure control as evidenced in Exhibit 15. Also, given the low rate of exposure to elements of the CHT for the sample and the differences in key health status indicators for individuals exposed to the Community Connections Team, chronic care coordinators or behavioral health specialists (e.g., diabetes comorbidity and smoking status), the team concluded that it was not appropriate to run analyses comparing these populations to others in the sample. Chapter 4 includes recommendations for additional analyses that could be explored in the data with additional time, and provided that the key issues noted in the text below are taken into consideration.

#### **Key Issues to Consider in Interpreting Results of Analyses that Explore the Impact of the CHT on Hypertension**

- The St. Johnsbury CHT was not established to be a hypertension management program. As noted in Chapter 1, the Vermont Blueprint established CHTs to contribute to its central goal of seamless coordination across the broad range of health and human services (medical and nonmedical) in order to optimize patient experience, promote overall health, and ultimately reduce costs.
- The observation period for the study is limited. As per the program logic model in Appendix H, hypertension management should be viewed as a long-term outcome. A longer period of available data on program exposure may be needed to more appropriately determine the impact of the CHT on hypertension.
- Dates of exposure to the chronic care coordinator and behavioral health specialists for the observation period are not available; therefore, it is not possible to associate a timeframe of exposure to the blood pressure measures.

The evaluation team conducted exploratory analysis to try to identify trends in hypertension control over time and other factors that may be linked to hypertension control in two ways.

- Most recent blood pressure control status as of September 1, 2012 (Time 1) and most recent blood pressure control status September 2, 2012–September 1, 2013 (Time 2)
- Most recent systolic pressure reading as of September 1, 2012 (Time 1) and most recent systolic pressure reading September 2, 2012–September 1, 2013 (Time 2)

A multivariate generalized estimating equation (GEE) model resulted in no factors that contribute to change in blood pressure control status. This is primarily due to limited variability in blood pressure control status at Time 1 (70.7%) and Time 2 (70.0%). The evaluation team also found no change in systolic blood pressure between Time 1 (Mean: 130, Standard Deviation: 16.49, Standard Error on Mean: 0.336) and Time 2

(Mean: 130, Standard Deviation: 16.49, Standard Error on Mean: 0.336) (p-value=0.490); therefore, further analysis using multivariate repeated measures GLM was not conducted.

## Added Value of CHT Efforts to Affect Quality of Life on Health

Limitations in the Community Connections Team intake form and EHR datasets affected the team's ability to provide conclusive evidence of the added value of the CHT's efforts to address issues related to quality of life on health. However, a number of findings suggest the plausibility that these efforts have the potential to affect health outcomes, including chronic disease management. In particular, some of the findings in the secondary analysis of the Community Connections Team intake forms provide promising insights that suggest the potential added value of the Community Connections Team. As previously noted, the evaluation team identified statistically significant improvements in areas closely associated with primary care, specifically: health insurance, prescription drugs, and health education.

### Evaluation Questions

- What are the core elements of the St. Johnsbury CHT model?
- What are the factors that affect implementation of the St. Johnsbury CHT model?
- What is the reach of the St. Johnsbury CHT?
- What impact does the St. Johnsbury CHT have on patients' quality of life?
- What impact does the St. Johnsbury CHT have on patients' health?
- What is the added value of the St. Johnsbury CHT's efforts to improve quality of life on patient health outcomes?

It is also worth noting that findings from interviews with primary care providers and community support the added value of these from the perspective of primary care providers. Findings from interviews with Community Connections Team clients also support this. Participants expressed that they were not cured of any health ailments as a result of their exposure to the Community Connections Team, but they had a greater awareness of the importance of their health and managing their health.

Given the constructs of the social determinants of health and following the assumptions of the CHT logic model, these improvements might suggest that the Community Connection Team services can help clients manage their overall health, and ultimately, lead to improved health outcomes. As noted in the introduction section, evidence also suggests that CHWs can improve health outcomes when they are included in disease prevention and chronic disease management efforts for conditions like asthma, cancer, diabetes, cardiovascular disease, nutrition, and depression. CHWs help lower health care costs by reducing the number of emergency room visits and hospitalizations, and have helped reduce barriers to care and treatment adherence (Brownstein et al., 2007; Brownstein et al., 2005; Martinez et al., 2011; IOM, 2010). Also, comanagement of patients by multidisciplinary teams has been found to increase blood pressure control (Bogden et al., 1998; Borenstein et al., 2003; Carter et al., 2012; Carter et al., 2003; Okamoto & Nakahiro, 2001) and decrease the cost of care (Bogden et.al, 1998; Borenstein et al., 2003).

## **CHAPTER 4: CONCLUSIONS**

### **Summary of Key Findings**

This evaluation resulted in a number of key findings about the implementation and effectiveness of the St. Johnsbury CHT model, as noted in the following.

#### **Factors Affecting Implementation:**

##### **Facilitators:**

- The CHT members and partners are familiar with one another and understand each other's roles and areas of expertise. These relationships help to facilitate collaboration.
- The CHWs on the Community Connections Team have a strong commitment to patients.
- Health care providers strongly support the CHT's implementation.
- Chronic care coordinators and behavioral health specialists are located within the APCPs.

##### **Barriers:**

- The workload for CHWs can be demanding at times.
- Chronic care coordinators and behavioral health specialists have to balance their time and workload across multiple APCPs.
- Sometimes, CHWs find it challenging to obtain services from other State or community programs because of restrictions in the funding streams for other organizations.
- The role of the chronic care coordinator is interpreted differently across APCPs, resulting in turnover and difficulty hiring professionals with the right experience for this position.

##### **Reach:**

- The St. Johnsbury HSA covers approximately 30,000 people. As of March 2012, 22,106 unique patients were attributed to the five APCPs in the CHT.
- All five primary care practices serving adults in the St. Johnsbury hospital service area (has) are part of the CHT. This includes 29.5 primary care providers.

#### **Community-Level Outcomes:**

- Reaching a population in need
  - Clients served by the Community Connections Team CHWs, Chronic Care Coordinators, and Behavioral Health Specialists appear to have more health needs. Of these clients, a higher proportion were either insured by Medicaid, were current smokers or had diabetes co-morbidity compared to other medical home patients.
- Improved community-clinical linkages and enhanced coordination of care
  - Providers indicated that the CHT model allows them to link patients to other CHT members for support in addressing a full range of patient needs.

- Compared to the overall sample, higher proportions of individuals exposed to any given component of the CHT also were exposed to other components of the CHT, compared to the overall sample. This suggests CHT members work together to successfully coordinate care for the clients they serve.
- Streamlined primary care practice and increase efficiency
  - Health care providers who participated in the evaluation expressed that the CHT model has helped to streamline their practices. The model provides opportunities for providers to use the limited time available during patient encounters to provide more comprehensive care. Providers also reported needing to do “less teaching and more referring,” making office visits shorter.
  - The location and proximity of CHT staff within the primary care practices allows providers to take care of patients more immediately and link them to services that will help get them out of crisis mode. Patients can get mental health services and other needs met often on the same day as their primary care visit.

## **Patient-Level Outcomes:**

### **Quality of life outcomes**

- Improved well-being and increased support to address issues related to the social determinants of health
  - There were statistically significant improvements among CHW clients in key aspects of well-being targeted by the Community Connections CHWs, including: health insurance, prescription drugs, housing, and health education. These areas align with constructs associated with social determinants of health and Healthy People 2020 objectives. Analyses indicate that these improvements may represent the difference of a client in a crisis situation and making progress towards stability.
  - CHW clients reported improvements in well-being because CHWs helped them with getting their basic needs met, such as completing “daunting” paperwork that resulted in supplemental nutrition assistance benefits, heating oil, supplemental income, support for hearing and sight aids, improved financial management, and housing assistance.

### **Health outcomes**

- Increased desirable health behaviors and more attentiveness to overall health
  - Community Connections Team clients who participated in in-depth interviews reported that they were more aware and attentive to their overall health after receiving services from the Community Connections Team. This suggests that CHW efforts have the potential to ultimately impact the overall health of clients.
  - CHW clients also reported getting that assistance with prescriptions and transportation to appointments helps them manage their overall health. This suggests that CHWs’ efforts may help individuals better manage chronic conditions, such as hypertension.
- Increased patient adherence to treatment

- Primary care providers recalled examples of patients who had dramatic changes in their health as a result of engaging with the CHT members, highlighting how CHT has contributed to increasing patient adherence to treatment protocols. Examples included better compliance due to patient-led goal setting, making follow-up appointments, and employing tools to improve medication use.

## Discussion

The St. Johnsbury CHT is an innovative model of care designed to address health and psychosocial and economic needs of patients in the St. Johnsbury HSA. The five core elements of this model are integrated to provide seamless coordination of care tailored to meet the needs of specific patients. This evaluation of the St. Johnsbury CHT has illuminated a number of lessons learned and implications for public health practice and future research. These lessons and implications are highlighted below.

### Implications of the St. Johnsbury CHT model on Public Health Practice

The key strengths of the St. Johnsbury CHT model that can help to inform public health practice are based on the findings from this evaluation.

- *Underlying theory.* There is general agreement in the field of public health that the social determinants of health are crucial in eliminating health disparities and improving overall health; however, there are few examples in the scientific literature of interventions designed to impact the social determinants of health. The St. Johnsbury CHT demonstrates an intervention intended to address issues related to the social determinants of health in order to create an environment where patients can effectively manage their health.
- *Program design and infrastructure.* The St. Johnsbury CHT model was informed by a systematic assessment of community needs and assets that helped to identify CHT components that would specifically meet the needs of the community. By assessing community assets, the CHT avoided duplication of efforts by other community organizations.
- *Community support.* Community engagement in the development and implementation of the St. Johnsbury CHT model was deliberate. This appears to have resulted in strengthened relationships between community institutions and enhanced care coordination.
- *Provider support.* Providers' support for the St. Johnsbury CHT model cannot be overstated. Providers reported a number of benefits to their practice. They also support community and clinical linkages through the use and promotion of the CHT model.
- *Data accessibility.* While it can sometimes be challenging to use and extract data from the EMR systems, these data have been used to inform the development of the CHT. The data also support ongoing monitoring and evaluation of the CHT model.
- *Funding.* Payment reforms were essential to establishing the St. Johnsbury CHT model. In light of the Affordable Care Act, public health practitioners may identify similar opportunities to implement a model like this.

### Evaluation Findings and CDC Best Practices Criteria

During the development of the plan, the evaluation team used the CDC criteria for best practices to guide evaluation questions and measures (Spencer et al., 2014). Based on this evaluation study alone, there is inconclusive evidence to determine whether the CHT model could be considered a best practice; however,

there are some promising findings worth highlighting when considering the implications of this model in public health. Exhibit 16 below provides a reflection on the study findings as they relate to these criteria.

**EXHIBIT 16. FINDINGS FROM THE ST. JOHNSBURY COMMUNITY HEALTH TEAM EVALUATION AS THEY RELATE TO CDC BEST PRACTICES CRITERIA**

Best Practices Criteria	Discussion
<b>Feasibility</b>	The St. Johnsbury CHT is fully implemented and is in the maintenance phase of program development. It should be noted that the SASH component of the program is relatively new. It should be noted that the SASH component of the program is relatively new, although SASH was formerly a part of the Functional Health Team in the St. Johnsbury CHT. Since the Blueprint deemed SASH as a core element of CHTs in 2012, the feasibility of fully integrating SASH into the CHT and further developing the component cannot be determined based on the findings from this evaluation study.
<b>Sustainability</b>	Given the ongoing support from the Vermont Blueprint for Health, it is likely that the CHT model will be sustained and expanded statewide.
<b>Transferability</b>	Due to the payment reforms instituted by the Blueprint which were essential to establishing the St. Johnsbury CHT model, transferability cannot be determined. In the absence of such payment structures in other jurisdictions, transferability may be limited to the extent to which communities can afford to support this type of model. In light of the Affordable Care Act, public health practitioners may identify similar opportunities to implement this model in other settings; however, the Affordable Care Act does not institute the explicit payment reforms that were used to establish the CHT model.
<b>Reach</b>	There are noteworthy findings with regard to the reach of St. Johnsbury, with regard to the number of individuals who are attributed to medical homes, and given that all of the primary care providers serving adults in the HSA are a part of the CHT. However, the reach of specific components of the CHT cannot be determined based on the findings of this evaluation study alone.
<b>Effectiveness</b>	<p>This evaluation study did not result in sufficient evidence to support the effectiveness of the CHT model on hypertension management. However, if you base the effectiveness on key areas targeted by the CHT and the Vermont Blueprint for Health, the results are quite promising, specifically the following.</p> <ul style="list-style-type: none"> <li>▪ Higher proportions of individuals who were exposed to any given component of the CHT were also exposed to other components of the CHT, compared to the overall sample. This might suggest that the CHT members work together to successfully coordinate care for the individuals they serve. The St. Johnsbury CHT care integration coordinator commonly refers to this as making sure that people are “wrapped” with services.</li> <li>▪ Among Community Connections Team clients, the evaluation team found statistically significant improvements in short-term outcomes associated with chronic disease management.</li> </ul>

## Recommendations

The process and results of the St. Johnsbury CHT evaluation revealed a number of lessons learned and issues to take into consideration in public health practice and future research and evaluation. The following summarizes key lessons learned from the evaluation and subsequent recommendations to consider in research and practice.

### Recommendations for Public Health Practice

- ***Establish a Clear Scope of Practice for CHWs that Promotes Clinical and Community Linkages.*** The scope of practices for CHWs is neither clearly defined nor standardized across the U.S. The Community Connections Team CHWs' scope of practice is focused on the key objective of connecting clients to community services. This differs from other CHW models that may focus on disease management, patient navigation, or health coaching exclusively. As such, this model specifically seeks to establish clinical and community linkages in an effort to serve the “whole” person. Public health practitioners who are considering strategies to enhance an existing CHW model in order to promote clinical and community linkages should carefully consider defining the scope of practice for the CHWs in a manner consistent with that objective.
- ***Key Issues to Consider with Replicating the CHT Model.*** The evaluation study illuminated a number of key issues to consider in replicating the CHT model.
  - It is important to conduct a systematic assessment of a community's needs and assets to inform the development of a CHT.
  - Public health practitioners will need to identify appropriate and sustainable funding sources for core CHT members.
  - Provider involvement early and often in the initiative can facilitate collaboration and promote shared ownership of the team.
  - It is important to identify a program manager to provide oversight and serve as a central point of contact for the team.
  - It is also important to identify a team member to serve as a care integration coordinator. The coordinator plays an active role in building and sustaining partnerships between the clinical entity and community organizations.
  - A clearly and explicitly defined organizational chart and description of team member roles and responsibility will help clarify the relationships between CHT components and promote a shared understanding of the roles and responsibilities of team members.
  - Regular collaboration with a team of community organizations, such as the Functional Health Team can help facilitate linkages between clinical and community entities.
  - It is important to establish formal and informal communication channels with members of the CHT.

### Recommendations for Future Research and Evaluation

- ***Process and Impact Evaluation of SASH as a Component of the CHT Model.*** Because SASH is a relatively new component of the St. Johnsbury CHT, much is unknown about its integration into the larger team and its potential impact on quality of life and health of patients served by the CHT. A

process and impact evaluation of SASH as a component of the CHT will help to address these questions.

- **Evaluate a Replication of the CHT Model.** The evaluation was limited in that it did not involve a comparable comparison group and baseline (pre-intervention) data were not available. Further, as noted in Chapter 3, interview participants questioned the extent to which the St. Johnsbury CHT model might be implemented in other locations. Replication of the model in another community in another state would allow for more rigorous evaluation of the model. This would also provide an opportunity to incorporate key elements of translation research and implementation science into the evaluation design in order to provide more empirical evidence of the transferability of the St. Johnsbury CHT model and inform additional implementation guidance for public health practitioners.
- **Explore the Potential Moderating Effect of Patient Activation.** Among Community Connections Team CHW clients, the evaluation team observed that a higher proportion of clients had two or more emergency room visits and one or more inpatient hospital stays. Similar observations were made among chronic care coordinator patients and behavioral health specialists patients. Further, findings from in-depth interviews suggest that Community Connections Team CHW clients in particular may have greater awareness of their health. There is a growing body of literature around the concept of patient activation and its relationship to chronic disease management. Future research and evaluation might take include specific measures of patient activation and exploring whether this may have a moderating effect on health outcomes of the CHT.
- **Conduct Additional Analyses to Further Explore Associations Between Exposure to CHT Components and Hypertension.** Within the EHR dataset, the subsamples that were exposed to CHT components were small (2.5% were exposed to Community Connections Team; 7.3% were exposed to chronic care coordinators; and 2.4% were exposed to behavioral health specialists). This limited the evaluation team's ability to merge data files and fully assess the effectiveness of the components of the CHT on health outcomes. A few additional post-hoc analytical procedures may offer additional insight into the relationship between exposure to the CHT components and health outcomes. In the absence of randomization of intervention and comparison cases, the evaluation team anticipates that some differences will remain between the subsamples of individuals exposed to individual components of the CHT. Further, any additional analyses of the evaluation data should take into account the considerations highlighted in Chapter 3.
  - One recommendation for further analysis of the evaluation study data is to use a propensity score matching (PSM) analysis approach. The goal of PSM analysis is to create a comparison sample that is as similar as possible to the intervention sample on the relevant characteristics (e.g., age, sex, smoking status, and so forth) that predict hypertension. The full EHR sample might be used as a source for creating comparison samples for the aforementioned subsamples. In PSM, an auxiliary model in which the probability of being in the intervention group (the specific subsamples) vs. the comparison group (those not exposed to the specific components of the CHT) is predicted by a set of variables (i.e., potential confounders) using a logistic regression. The results from this auxiliary regression could then be used to adjust the comparison across the subsamples.
  - A GMM approach might also be considered for additional analyses of the data abstracted from EHRs. Within the sample, the number of monthly blood pressure measures for the 21-month observation period varies greatly between 1 and 19 measures. GMM is used to manage variable longitudinal data and identify distinct subgroups of patients with their change patterns of blood pressure overtime. GMM can be constructed as a multilevel modeling technique. It has been a

popular approach used to identify homogeneous subpopulations within the larger heterogeneous population and for the identification of meaningful groups or classes of individuals. The GMM also relaxes the assumption that all individuals are drawn from a single population with common parameters by using latent trajectory classes, resulting in separate intercepts, slopes and variance parameters for each subgroup.

- ***Continue to Measure and Assess Exposure to CHT Components and Health-Related Outcomes Over a Longer Timeframe.*** The observation period for this evaluation study was limited. The findings related to short-term outcomes are promising. A longer study observation period using stable and consistent measures may provide stronger empirical evidence of the effectiveness of the CHT model on health-related outcomes.
- ***Study the Impact of the CHT Model on Health Care Costs.*** The long-term outcomes of the St. Johnsbury CHT model include outcomes related to health care costs. DHDSP conducted a study on the costs associated with implementing the Community Connections Team component (Mirambeau, et al., 2013). Future research and evaluation might build upon those findings to assess the impact of the full CHT on health care costs.

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# **Appendix A**

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## **Data Collection Instruments: Community Health Team Staff Interviews**

## **APPENDIX A. DATA COLLECTION INSTRUMENTS: COMMUNITY HEALTH TEAM STAFF INTERVIEWS**

### **Informed Consent Statement St. Johnsbury Community Health Team Program Staff**

ICF International is conducting a series of interviews on behalf of the Centers for Disease Control and Prevention (CDC), Division of Heart Disease and Stroke Prevention (DHDSP) to conduct a rigorous evaluation of the St. Johnsbury Community Health Team (CHT) to: (1) describe the program to identify lessons that other programs might consider, and (2) determine the impact of the Community Health Model on patient outcomes related to quality of life and health. We want to learn about your role and responsibilities as a part of the St. Johnsbury CHT in order to get a full picture of the program for our evaluation. You are the expert on your experience and your opinions and thoughts are invaluable. Should you agree to participate in the interview, here are some points you should know:

- This interview is completely voluntary.
- All the information we collect from you is confidential, and we will not tell anyone what you said specifically in here.
- Some information could be included in a published article, but your name will not be used in any reports about the interview. No quotes or comments you make will be linked with your name in any way, unless we have your direct written permission.
- We will be audio-taping the discussion. Again, no quotes or comments you make would be linked with your name in any way.
- We will keep all information, notes, and audiotapes locked in a file cabinet or a secure computer file. Only study staff will be able to access the information.
- We will answer any questions you have about this discussion before you take part.
- You may choose not to take part in the interview at any time. You may also choose to not answer certain questions and continue in the interview.
- We expect this interview to take about 60 minutes.

#### **Contact Information**

If you have questions about this study, you may contact the ICF International project director, Thearis A. Osuji, at 404.321.3211.

## CHT Program Staff Topical interview guide

### Introduction

I would like to thank you for agreeing to speak with me today. This discussion is part of the evaluation of the St. Johnsbury Community Health Team (CHT) program being implemented by ICF International on behalf of the Division for Heart Disease and Stroke Prevention (DHDSP) at the Centers for Disease Control and Prevention (CDC). I would like to ask you a few questions about your role in the St. Johnsbury CHT.

### Informed Consent

*[Provide copy of informed consent statement.]*

Let me share a copy of our informed consent statement so you can follow along. The discussion will take no more than 1 hour of your time. I am conducting this discussion to learn more about the experiences that you and your staff have had working as part of the St. Johnsbury CHT. We want to learn about your role and responsibilities to get a full picture of the program for our evaluation. You are the expert in your experiences, and your thoughts and opinions are greatly valued and appreciated. We want to learn from you. There are no right or wrong answers. Please speak candidly and honestly.

We will not link your name or your role or title to specific responses in any reports developed from this study. Everyone's answers will be combined to give us a better understanding of the program activities.

I will take notes of our discussion to capture the information. These notes will be destroyed upon conclusion of the project. With your permission, this interview will be recorded for internal use only and is strictly confidential—meaning that information that identifies you will not be shared with anyone except our project staff members. The recordings will be saved in a secure location in our offices at ICF International and will be destroyed at the conclusion of this project.

Your participation is voluntary. You may choose not to answer some of the questions, or you may choose not to participate without penalty. You can choose to discontinue the discussion at any time for any reason.

If you have any questions about this discussion or the evaluation, please contact the ICF International project director, Thearis A. Osuji, at (404) 321-3211.

**Before we begin with the discussion, I would like to get your verbal consent to proceed.**

*[IF NO: Thank participant for his or her time and end conversation.]*

*[IF YES, READ: Thank you. I will confirm that you are willing to answer the questions in this discussion and will note your verbal consent.]*

Do you have any questions for me before we begin?

*[Pause for participant's response.]*

Please feel free to ask questions at any time during the discussion.

## Discussion

**NOTE:** Before conducting any interviews with CHT staff, ICF International interviewers will review available documents and tailor the interviews based on their current understanding of the program to reduce burden on participants and focus the interviews on the priority questions presented in **bold** font below.

1. First, I would like to learn a little about the background of how you got involved with the St. Johnsbury Community Health Team. *(for chronic care coordinators and behavioral health specialists)*
  - **Probe:** Length of time with CHT?
  - **Probe:** Role in program development?
  - **Probe:** Describe current role.
2. Now, I would like to learn about the services that you provide as a chronic care coordinator or behavioral health specialist. *(for chronic care coordinators and behavioral health specialists)*
  - **Probe:** Types of services?
  - **Probe:** Types of activities?
  - **Probe:** Patient population?
3. What kind of training and/or support did you receive to perform your role in this program? *(for chronic care coordinators and behavioral health specialists)*
4. On the basis of your experience working with patients as a chronic care coordinator or behavioral health specialist, what changes have you observed in your patients with regard to their quality of life? What changes have you observed with regard to their health? *(for all interviewees)*
  - **Probe:** Specific examples?
  - **Probe:** Perceived impact on patients' life situation and well-being?
  - **Probe:** Perceived impact on hypertension or cardiovascular health risk?
5. How do you see your role as a chronic care coordinator or behavioral health specialist fitting within the broader St. Johnsbury CHT program model? *(for chronic care coordinators and behavioral health specialists)*
  - **Probe:** Relationship to providers?
  - **Probe:** Relationship to chronic care coordinators or behavioral health specialists?
  - **Probe:** Relationship to Community Connections Team?
  - **Probe:** Contribution to the goals of the CHT?
6. What impact has the activities of the Community Connections Team *(community health workers)* had on your work with patients specifically?
  - **Probe:** Referrals to Community Connections Team?
  - **Probe:** Communication with Community Connections Team regarding patients?
  - **Probe:** Observed changes in patients' life situation or well-being after working with Community Connections Team?

*[Share copy of DRAFT program conceptual/logic model. Introduce the program conceptual/logic model.]*

7. What are your impressions of this *draft* program model [conceptual model/logic model]? Does it align with how you perceive the St. Johnsbury CHT model? How so? What changes, if any, would you suggest for this program model? *(for all interviewees)*
8. What would you say are the strengths of the broader St. Johnsbury CHT? What factors do you think positively affect the functioning of the program? *(for all interviewees)*
  - **Probe:** Availability of resources (e.g., personnel, financial, material, technology)?
  - **Probe:** Methods of delivery?
  - **Probe:** Communications?
  - **Probe:** Patient load?
  - **Probe:** Protocols?
  - **Probe:** Community resources?
  - **Probe:** Level of support from advanced primary care practices (APCP)?
  - **Probe:** Support from Vermont Blueprint for Health leadership?
  - **Probe:** Contextual factors (e.g., increased national attention regarding dietary sodium intake, health care reform featuring electronic medical records [EMR])?
9. What, if any, barriers have been encountered in *implementing* the broader St. Johnsbury CHT model? *(for all interviewees)*
  - **Probe:** Availability of resources (e.g., personnel, financial, material, technology)?
  - **Probe:** Methods of delivery?
  - **Probe:** Communications?
  - **Probe:** Patient load?
  - **Probe:** Protocols?
  - **Probe:** Community resources?
  - **Probe:** Level of support from advanced primary care practices (APCP)?
  - **Probe:** Support from Vermont Blueprint for Health leadership?
  - **Probe:** Contextual factors (e.g., increased national attention regarding dietary sodium intake, health care reform featuring electronic medical records [EMR])?

## Closing

This wraps up my list of questions for you at this time. We've talked about a number of topics today, but before we conclude, I would like to know if you have anything that you would like to add to the discussion about the St. Johnsbury CHT that we may not have covered. *[DISCUSS ANY ADDITIONAL COMMENTS.]* Do you have any questions for me? *[ANSWER ANY QUESTIONS.]*

*[IF NO QUESTIONS, SAY: "Thank you again for taking the time to speak with me. We sincerely appreciate and value your input!"]*

## **Thank You E-mail Text**

Dear [participant name],

Thank you so much for taking time out of your busy schedule to talk about the St. Johnsbury Community Health Team. We appreciate you sharing your thoughts, experiences, and opinions with us. If you have any questions or concerns about our discussion or the evaluation, please feel free to contact me at 404-321-3211 or [Thearis.Osuji@icfi.com](mailto:Thearis.Osuji@icfi.com).

Many thanks,

Thearis A. Osuji, MPH | Manager | 404.321.3211 (o) | [Thearis.Osuji@icfi.com](mailto:Thearis.Osuji@icfi.com) | [icfi.com](http://icfi.com)  
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# **Appendix B**

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**Data Collection Instruments: Advanced  
Primary Care Practice Providers**

## **APPENDIX B. DATA COLLECTION INSTRUMENTS: ADVANCED PRIMARY CARE PRACTICE PROVIDERS**

### **Informed Consent Statement St. Johnsbury Community Health Team Healthcare Providers**

ICF International is conducting a series of interviews on behalf of the Centers for Disease Control and Prevention (CDC), Division of Heart Disease and Stroke Prevention (DHDSP) to conduct a rigorous evaluation of the St. Johnsbury Community Health Team (CHT) to: (1) describe the program to identify lessons that other programs might consider, and (2) determine the impact of the Community Health Model on patient outcomes related to quality of life and health. We want to learn about your role and responsibilities in order to get a full picture of the program for our evaluation. You are the expert in your experiences, and your thoughts and opinions are greatly valued and appreciated. We want to learn from you. Should you agree to participate in the interview, here are some points you should know:

- This interview is completely voluntary.
- All the information we collect from you is confidential, and we will not tell anyone what you said specifically in here.
- Some information could be included in a published article, but your name will not be used in any reports about the interview. No quotes or comments you make will be linked with your name in any way, unless we have your direct written permission.
- We will be audio-taping the discussion. Again, no quotes or comments you make would be linked with your name in any way.
- We will keep all information, notes, and audiotapes locked in a file cabinet or a secure computer file. Only study staff will be able to access the information.
- We will answer any questions you have about this discussion before you take part.
- You may choose not to take part in the interview at any time. You may also choose to not answer certain questions and continue in the interview.
- We expect this interview to take about no more than 30 minutes.

#### **Contact Information**

If you have questions about this study, you may contact the ICF International project director, Thearis A. Osuji, at 404.321.3211.

## Advanced Primary Care Practice provider Topical Interview Guide

### Introduction

I would like to thank you for agreeing to speak with me today. This discussion is part of the evaluation of the St. Johnsbury Community Health Team (CHT) program being implemented by ICF International on behalf of the Division for Heart Disease and Stroke Prevention (DHDSP) at the Centers for Disease Control and Prevention (CDC). I would like to ask you a few questions about your role in the St. Johnsbury CHT.

### Informed Consent

*[Provide copy of informed consent statement.]*

Let me share a copy of our informed consent statement so you can follow along. The discussion will take no more than 30 minutes of your time. I am conducting this discussion to learn more about the experiences that you and your staff have had working as part of the St. Johnsbury CHT. We want to learn about your role and responsibilities to get a full picture of the program for our evaluation. You are the expert in your experiences, and your thoughts and opinions are greatly valued and appreciated. We want to learn from you. There are no right or wrong answers. Please speak candidly and honestly.

We will NOT link your name or your role or title to specific responses in any reports developed from this study. Everyone's answers will be combined to give us a better understanding of the program activities.

I will take notes of our discussion to capture the information. These notes will be destroyed upon conclusion of the project. With your permission, this interview will be recorded for internal use only and is strictly confidential—meaning that information that identifies you will not be shared with anyone except our project staff members. The recordings will be saved in a secure location in our offices at ICF International and will be destroyed at the conclusion of this project.

Your participation is voluntary. You may choose not to answer some of the questions or you may choose not to participate without penalty. You can choose to discontinue the discussion at any time for any reason.

If you have any questions about this discussion or the evaluation, please contact the ICF International project director, Thearis A. Osuji, at (404) 321-3211.

**Before we begin with the discussion, I would like to get your verbal consent to proceed.**

*[IF NO: Thank participant for his or her time and end conversation.]*

*[IF YES, READ: Thank you. I will confirm that you are willing to answer the questions in this discussion and will note your verbal consent.]*

Do you have any questions for me before we begin?

*[Pause for participant's response.]*

Please feel free to ask questions at any time during the discussion.

## Perceived Impact on Practice

1. First, I would like to learn more about how the CHT has affected your practice. How have things changed as a result of working as part of the CHT?
  - **Probe:** Nature of practice before CHT?
  - **Probe:** Ways CHT has streamlined practice?
  - **Probe:** Ways CHT has added complexity to practice?
  - **Probe:** Nature of interaction with chronic care coordinators (CCC)?
  - **Probe:** Nature of interaction with behavioral health specialists (BHS)?
  - **Probe:** Nature of interaction with Community Connections Team (CCT)?
  - **Probe:** Referral practices?
2. What impact has the activities of the CHT Team as a whole had on your practice?
  - **Probe:** Ways CHT has streamlined practice?
  - **Probe:** Ways CHT has added complexity to practice?
  - **Probe:** Referral practices?
  - **Probe:** Nature of interaction with chronic care coordinators (CCC)?
  - **Probe:** Nature of interaction with behavioral health specialists (BHS)?
  - **Probe:** Nature of interaction with Community Connections Team (community health workers )?
3. What impact has the activities of the Community Connections Team (community health workers), specifically, had on your practice?
  - **Probe:** Ways Community Connections Team has streamlined practice?
  - **Probe:** Ways CCT has added complexity to practice?

## Perceived Impact on Patients

4. How do you think the CHT program has affected your patients?
  - **Probe:** Any noticeable changes in your patients' health and/or self-management practices?
  - **Probe:** For patients with hypertension, any specific noticeable changes in health care utilization health, and/or self-management practices?
5. Considering the work of the Community Connections (community health workers), in particular, how do you think these efforts have affected your patients?
  - **Probe:** Any noticeable changes in your patients' health and/or self-management practices?
  - **Probe:** For patients with hypertension, any specific noticeable changes in health care utilization, health, and/or self-management practices?

## Closing

Thank you so much for this information. That is all of the questions that I have for you at this time. We've talked about a number of topics today, but before we conclude, I would like to know whether you have anything that you would like to add to the discussion about the St. Johnsbury CHT that we may not have covered. *[DISCUSS ANY ADDITIONAL COMMENTS.]* Do you have any questions for me? *[ADDRESS ANY QUESTIONS.]*

*[IF NO QUESTIONS, SAY: “Thank you again for taking the time to speak with me. We sincerely appreciate and value your input!”]*

### **Thank You E-mail Text**

Dear [participant name],

Thank you so much for taking time out of your busy schedule to talk about the St. Johnsbury Community Health Team. We appreciate you sharing your thoughts, experiences, and opinions with us. If you have any questions or concerns about our discussion or the evaluation, please feel free to contact me at 404-321-3211 or [Thearis.Osuji@icfi.com](mailto:Thearis.Osuji@icfi.com).

Many thanks,

Thearis A. Osuji, MPH | Manager | 404.321.3211 (o) | [Thearis.Osuji@icfi.com](mailto:Thearis.Osuji@icfi.com) | [icfi.com](http://icfi.com)  
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# **Appendix C**

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**Data Collection Instruments: Community  
Connections Community Health Worker  
Client Interviews**

**APPENDIX C. DATA COLLECTION INSTRUMENTS: COMMUNITY CONNECTIONS  
COMMUNITY HEALTH WORKER CLIENT INTERVIEWS**

**CCT Patient interview Recruitment Screener**

Eligibility Criteria	Ineligibility Criteria
<ul style="list-style-type: none"> <li>▪ Mix of gender (male/female)</li> <li>▪ Range of adults ages 18–70 years</li> <li>▪ Have received services from Community Connections within the past year                             <ul style="list-style-type: none"> <li>– Up to three participants who have received services within the past three months</li> </ul> </li> <li>▪ Have had contact with a Community Connections CHW at least two times</li> <li>▪ At least four participants with hypertension</li> </ul>	<ul style="list-style-type: none"> <li>▪ Someone who is not a legal resident of the United states</li> <li>▪ Someone who is currently incarcerated</li> <li>▪ Someone with severe mental health issues</li> <li>▪ Someone who is receiving end-of-life care</li> <li>▪ Someone who is in an in-patient/assistive living situation</li> <li>▪ Someone who is disgruntled</li> </ul>

Hello. My name is \_\_\_\_\_ and I am calling from the Northeastern Vermont Regional Hospital. We are working with ICF International, a research consulting firm in Atlanta, Georgia, and the Centers for Disease Control and Prevention (CDC) to talk with patients about their experiences with Community Connections.

To do this, we will be conducting interviews with patients that will last about 1 hour. The interview will take place in-person at Northeastern Vermont Regional Hospital (NVRH). The topics that will be discussed include:

- Your experience as a Community Connections client
- How you became involved with Community Connections
- How the program helped you and/or not helped you obtain the services you need

If you participate in the interview, you will receive a \$25.00 gift card in appreciation of your time. We also will be giving a \$5 transportation supplement to help offset costs to get you to the interview. Do you think that you might be interested in participating in this type of discussion?

- Yes (Continue with screener.)
- No (Thank person for his/her time and end the conversation.)

Would you mind if I ask you a few questions in order to determine whether or not you meet the requirements to participate in the interviews?

- Yes (Continue with screener.)
- No (Thank person for his/her time and end the conversation.)

## Record and Keep all Screened Data

**1. Record gender.**

- Male
- Female

**2. How old are you?**

Record which age group they belong to:

- 18–34
- 35–64
- 65–70

**3. When did you first go to Community Connections? \_\_\_\_\_, \_\_\_\_\_ (Month/Year)**

- a. When was the last time you talked with a community health worker at Community Connections?  
\_\_\_\_\_, \_\_\_\_\_ (Month/Year)

**4. To the best of your knowledge, about how many times would you say you have met with or talked with your community health worker?**

- 1 [Thank person for his/her time and end the conversation.]
- 2–4 times
- 5 or more

**5. Have you ever been told by your doctor that you have high blood pressure?**

- Yes
- No

**6. This interview will be audio-taped. Are you willing to participate in an interview that is recorded?**

- Yes
- No [Thank person for his/her time and end the conversation]

<b>TERMINATION SCRIPT:</b> “We appreciate your willingness to answer each of the questions. Unfortunately, one of your answers does not meet our requirements for participation in the interview. Thank you for your time.”
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**7. You are eligible to participate in the interview. Are you still interested in participating?**

- Yes
- No [Thank person for his/her time and end the conversation.]

I'm glad that you will be able to join us! The interview will last about an hour. We will be conducting the interviews on the following dates:

Date	Time

**8. Will one of these days and times work for you?**

- Yes
- No (Get other available times that might work. Otherwise, thank person for her time and end the conversation.)

We also would like to be able to send you a confirmation and reminder of your interview date and time. Can you please confirm your name, address, telephone number, and e-mail?

<b>Name:</b>	
<b>Primary Telephone:</b>	
<b>Alternate Telephone:</b>	

Also, please contact **XXXX XXXX** at **XXX-XXX-XXXX** if your plans change, so that we may invite someone else to attend instead. I'll give you a call a day or two before the interview to remind you of the interview. We will look forward to seeing you on **[Month/Day/Year]** at **[Time]**.

## Informed Consent Statement St. Johnsbury Community Connections Client Interviews

This interview is part of the study of the St. Johnsbury Community Health Team being done by Northeastern Vermont Regional Hospital and ICF International, a research consulting firm in Atlanta, Georgia, for the Centers for Disease Control and Prevention (CDC). We would like to learn specifically about Community Connections to determine whether the program is helpful to people and to identify lessons that may help programs in other communities. We would like to ask you a few questions about your experiences working with the community health workers at Community Connections. We want to learn about your experiences in order to get a full picture of the program. You are the expert, and your thoughts and opinions are greatly valued and appreciated. We want to learn from you. There are no right or wrong answers. If you agree to participate in the interview, here are some points you should know:

- We expect this interview to take about 60 minutes.
- Your participation is voluntary. You may choose not to answer some of the questions or you may choose not to participate without consequences. You can choose to end the discussion at any time for any reason. This will not affect any services or assistance that you receive from Community Connections.
- All the information we collect from you is confidential, and we will not tell anyone what you said specifically in here.
- We will NOT include your name in any reports developed from this study. Your answers will NOT be shared with your community health worker.
- Some findings from the study could be included in a published article, but your name will not be used in any reports about the interview. Everyone's answers will be combined to give us a better understanding of the program activities.
- We will be audio-taping the discussion. We will keep all information locked in a file cabinet or a password protected computer file. This includes all notes and audio files. Only study staff will be able to access the information. The Community Connections Community Health Workers will not have access to this information.
- We will keep all information, notes, and audiotapes locked in a file cabinet or a secure computer file. Only study staff will be able to access the information.
- You will receive a \$25 gift card in appreciation of your time today, even if you do not complete the discussion.

### Contact Information

If you have questions about this study, you may contact the Northeastern Vermont Regional Hospital co-Principal Investigator for the study, Loral Ruggles at 404.321.3211.

Please sign below to indicate that you have read the above and agree to take part in this interview.

Print your name:

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Sign your name:

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Date:

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## Vermont Community Health Team Evaluation Community Connections Client interview guide

### Introduction

Thank you for agreeing to speak with me today. This interview is part of the study of the St. Johnsbury Community Health Team being done by Northeastern Vermont Regional Hospital and ICF International for the Centers for Disease Control and Prevention (CDC). We would like to learn specifically about Community Connections to determine whether the program is helpful to people and to identify lessons that may help programs in other communities. I would like to ask you a few questions about your experiences working with the Community Connections Community Health Workers (including Abby, Connie C., Connie S., Gina, Steve, or Shauna).

### Informed Consent

Before we begin, I would like to review an informed consent statement with you to make sure you are aware of your rights as a participant in this research.

*[Give participant two copies of the informed consent form.]*

Should you agree to participate in the interview, here are some points that you should know. The discussion will take no more than 1 hour of your time. I am conducting this discussion to learn more about the experiences you have had with the Community Connections Community Health Workers (including Abby, Connie C., Connie S., Gina Steve, or Shauna). We want to learn about your experiences in order to get a full picture of the program. You are the expert, and your thoughts and opinions are greatly valued and appreciated. We want to learn from you. There are no right or wrong answers. Please speak openly and honestly.

We will NOT include your name in any reports developed from this study. Your answers will NOT be shared with your community health worker. Everyone's answers will be combined to give us a better understanding of the program activities.

The interview discussion will be audio-recorded to make sure that we capture all of the information. We will keep all information locked in a file cabinet or a password protected computer file. This includes all notes and audio files. Only study staff will be able to access the information. The Community Connections Community Health Workers will not have access to this information.

Your participation is voluntary. You may choose not to answer some of the questions or you may choose not to participate without consequences. You can choose to end the discussion at any time for any reason. This will not affect any services or assistance you receive from Community Connections.

You will receive a \$25 gift card in appreciation for your time today, even if you do not complete the discussion.

If you agree to participant, please sign one copy of this informed consent statement and keep the other copy for your records. If you have any questions or concerns about this discussion the study, or your experiences with Community Connections, please contact Laural Ruggles at 802-748-7590.

*[IF No consent given: Thank participant for his or her time and end conversation.]*

Do you have any questions before we begin?

*[Pause for participant response.]*

Please feel free to ask me questions at any time during the discussion. *[NOTE: For any questions that you cannot address, please encourage participants to contact Laural Ruggles.]*

## **Experience with Community Connections**

1. How did you find out about Community Connections?
  - **Probe:** What was the issue or concern that prompted your first visit to Community Connections?
  - **Probe:** Did anyone refer you to Community Connections? Was it your doctor or someone at your doctor's office? Was it someone else?
2. Now, I would like to learn about your interactions with Community Connections. How long have you been working with a community health worker at Community Connections? What have your visits or conversations with the community health workers been like?
  - **Probe:** Which community health workers have you worked with? (Abby, Connie C., Connie S., Gina, Steve, or Shauna?)
  - **Probe:** What was your first visit like?
  - **Probe:** How would you describe the other communications or visits you had with the community health workers?
  - **Probe:** What has made it easy to connect with the community health workers? What has made it difficult to connect with the community health workers?
  - **Probe:** How would you describe your experiences with Community Connections to a friend or family member?

## **Perceived Impact on Well-Being and Health**

3. Think about the issues *[repeat issues discussed in question #1]* that you worked on with the community health workers. What was your life or situation like before? How have things changed as a result of this experience?
  - **Probe:** What kinds of assistance or services did the community health workers offer you during your visits?
  - **Probe:** What was your life or situation like before you went to Community Connections? How is it now?
  - **Probe:** What has been the most significant change in your well-being or situation? What do you think helped in this instance?
  - **Probe:** Are there any issues or challenges that you are still working on?
4. Thinking about the issues *[repeat issues discussed in question #1]* that you have worked on with Community Connections, how do you think this has affected your health?
  - **Probe:** What was your health like before you went to Community Connections? How do you feel your health is now?
  - **Probe:** Do you think that working with Community Connections has made a difference with your health? How so? What do you think made the difference in your health?

- **Probe:** What were you doing to help manage your health before you went to Community Connections? Are you doing anything differently now? What steps are you taking to help manage your health now?
- **Probe:** Have you made any changes in how you use health care services? Do you go to your primary doctor more often? Less often? What about the emergency room? Do you find that you have more visits to the emergency room or fewer?

## Closing

Thank you so much for this information. Those are all of the questions that I have for you at this time. We've talked about a number of topics today, but before we finish, I would like to know if you have anything that you would like to add about Community Connections that we may not have covered. (**DISCUSS ANY ADDITIONAL COMMENTS**) Do you have any questions for me? (**ADDRESS ANY QUESTIONS**)

- If no questions, "Thank you again for taking the time to speak with me. I sincerely appreciate and value your input!"

## **Thank You Card Text**

Dear <insert name>,

Thank you so much for taking time out of your busy schedule to talk about Community Connections. We appreciate you sharing your thoughts, experiences, and opinions with us. If you have any questions or concerns about our discussion or the study, please feel free to contact the Northeastern Vermont Regional Hospital co-Principal Investigator, Laural Ruggles by phone at 802-748-7590 or by e-mail at [l.ruggles@nvrh.org](mailto:l.ruggles@nvrh.org). You also may contact the ICF International Investigator, Thearis Osuji by phone at 404-321-3211 or by e-mail at [Thearis.Osuji@icfi.com](mailto:Thearis.Osuji@icfi.com).

Sincerely,

Laural Ruggles

Thearis A. Osuji

# **Appendix D**

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## **Community Health Team Evaluation Qualitative Data Codebook**

## **APPENDIX D. COMMUNITY HEALTH TEAM EVALUATION QUALITATIVE DATA CODEBOOK**

This is a codebook to code qualitative data collected as part of the rigorous evaluation of the St. Johnsbury Community Health Team (CHT). This codebook was developed in partnership with the Centers for Disease Control and Prevention (CDC) Division for Heart Disease and Stroke Prevention (DHDSP). ICF International evaluation team members will use the codebook to code and analyze all qualitative data. Qualitative data include documents obtained from the program manager as part of the systematic document review process and in-depth interviews with identified audience segments.

Code	Linked SEQs	Label (Corresponds to Initial Label in the Code List)	Definition	Example (Excerpts From Available Documents Received From St. Johnsbury CHT Document Review)
<b>Core Elements And Implementation</b>				
CORE_CCT	1.a	Community Connections Team Core Element	Comprehensive (overarching) description of how of the Community Connections Team (CCT) core element is implemented, including description of the role of this component in the overall Community Health Team (CHT) This includes key components, description of the services provided, and methods used to provide services in the CCT (e.g., in person, via telephone, individual sessions, group sessions).	<p>From the “VT EA Community Summary Report 07122011” Report:</p> <p>The Community Connections Team located at the Northern Vermont Regional Hospital (NVRH) in St. Johnsbury, VT, uses CHWs to link clients with the economic, social, mental health, and community supports needed to help clients effectively manage their conditions and improve their quality of life. Clients are strongly encouraged to actively participate in the decisions and actions necessary to manage their own care.</p> <p><b>Community Health Workers</b> Community Health Workers help clients navigate the health and social service systems. They are advocates for individuals and families, connecting them to services, assisting with scheduling appointments, as well as identifying client needs.</p> <p><b>Chronic Care Community Health Worker</b> The Chronic Care Community Health Worker provides hands-on support to people with chronic conditions to reinforce the treatment plans from the primary care office or other health care professionals, and the patient’s self-management goals. May make home visits, and accompany patients to appointments. Assists patients in accessing opportunities for physical activity and provides coaching to help overcome barriers. Assists patients in stress reduction techniques. Assists patients in complying with medications, including setting up pill boxes and assisting with overcoming financial barriers. Uses health assessment tools to help identify health conditions, including depression, and communicates findings to the primary care office. Makes referrals to Healthier Living Workshops, Tobacco Cessation, and other community based programs such as Growing Stronger or A Matter of Balance.</p>

Code	Linked SEQs	Label (Corresponds to Initial Label in the Code List)	Definition	Example (Excerpts From Available Documents Received From St. Johnsbury CHT Document Review)
<b>Core Elements And Implementation (continued)</b>				
CORE_CCC	1.a	Chronic Care Coordination Core Element	Comprehensive description of how the chronic care coordination (CCC) core element is implemented.	<p>From the “Community Connections Team Roles” Word document:</p> <p><b>Care Coordinators</b></p> <p>Care Coordinators are based in each of the primary care offices: Danville Health Center, Concord Health Center, <del>Caledonia Internal Medicine</del>, St. Johnsbury Family Health Center, Corner Medical, and St. Johnsbury Pediatrics.</p> <p>Working with physicians, nurse practitioners, PAs, nurses, and office staff in their offices, the Care Coordinators are responsible for coordinating the care of patients with or at risk for chronic conditions. Duties include: tracks patients for overdue appointments, lab tests, eye exams, etc.; runs and monitors registry reports and works with IT to ensure accuracy of reports; provides basic short term care management for complex patients; follows up with patients and pharmacies to be sure patients are filling and taking their medications as prescribed; tracks and follows up referrals to specialists, diagnostic testing, and health education; follows up with patients to facilitate self-management goals.</p>
CORE_BHS	1.a	Behavioral Health Core Element	Comprehensive description and illustration of behavioral health specialist (BHS) activities in the CHT program.	<p>From the “Community Connections Team Roles” Word Document:</p> <p><b>Behavioral Health Specialists</b></p> <p>Behavioral Health Specialists are based in each primary care office: Behavioral Health Specialists will provide short term solution focused therapy to patients (3–8 sessions). They refer to community based mental health clinicians for ongoing therapy, if needed. They work with the providers in the offices to identify patient needs, as well as medication evaluation.</p>

Code	Linked SEQs	Label (Corresponds to Initial Label in the Code List)	Definition	Example (Excerpts From Available Documents Received From St. Johnsbury CHT Document Review)
<b>Core Elements And Implementation (continued)</b>				
CORE_APCP	1.a	Advanced Primary Care Practices Core Element	Comprehensive description of how the advanced primary care practices (ACPC) core element is implemented. This includes key components, description of the services provided, and methods used to provide services.	From the "Blueprint Annual Report Final 01.23.12" PDF document:  APCPs are primary care practices that deliver care consistent with the National Committee for Quality Assurance (NCQA) standards for a Patient Centered Medical Home (the PPC-PCMH standards). In the Blueprint model, practices prepare to be evaluated against these standards, which involves a substantial amount of work and often changes in the way a practice operates. The NCQA PPC-PCMH standards are designed to assure high quality primary care that provides improved access for patients, improved communication and follow-up, more consistent care based on national guidelines for prevention and control of chronic diseases, improved coordination of care and linkages January 2012 Vermont Blueprint for Health Annual Report 7 with other services (medical and non-medical), support patient-level self management, and enhanced use of health information technology and decision support systems (Table 1). The Blueprint helps practices meet the NCQA PPC-PCMH standards by providing the infrastructure each practice needs—from CHTs to the DocSite centralized registry to population management tools. Each standard involves a focus on the patient as the center of the activity.
CORE_FHT	1.a	Functional Health Team Core Element	Comprehensive description of how the advanced primary care practices (ACPC) core element is implemented.	From the "VT EA Community Summary Report 07122011.pdf" report:  The Community Connections Team, along with other staff of the Community Health Team, meets as a group with the State and local organizations on a monthly basis to discuss individual cases, update one another on the availability of or changes in services, and discuss issues related to the overall functioning of the team. This group is known as the Functional Health Team. In addition to these monthly meetings, staff from local agencies and CBOs participate in meetings as needed to develop plans to comprehensively address the needs of specific clients and make referrals to the program.

Code	Linked SEQs	Label (Corresponds to Initial Label in the Code List)	Definition	Example (Excerpts From Available Documents Received From St. Johnsbury CHT Document Review)
<b>Core Elements And Implementation (continued)</b>				
GEN_CORE	1.a	General core Elements	All other general core element descriptions involving activities and methods of delivery not otherwise captured in other codes.	<p>Functional Team (From the “Community Connections Team Roles” Word document):</p> <p><u>Location: Community:</u></p> <ul style="list-style-type: none"> <li>▪ Department of Vermont Health Access Care Managers, Heather Bollman: provide care management for the highest users of Medicaid with chronic conditions.</li> <li>▪ Other: hospital tobacco cessation counselors, advocates from Area Agency on Aging, Umbrella (sexual abuse and domestic violence), Justice Center, Department of Corrections, and Legal Aid, Vermont Agency of Human Services, NEK Community Action, Vermont Department of Health WIC, Northeast Kingdom Human Services, and other agencies as needed.</li> </ul>
ORGS_CHT	1.b	CHT Organizational Structure	Description of the roles and responsibilities of team members relative to other members of the Community Health Team (CHT). This includes a description of the lines of authority, communication, and relative responsibilities.	<p>From “VT EA Community Summary Report 07122011.pdf” Report:</p> <p>The Care Integration Coordinator (CIC) provides leadership, managerial oversight, and support to the CHWs. Her responsibilities include, but are not limited to, assisting CHWs as needed with service delivery, pursuing and securing grants and other funding to support program activities, and compiling data collected by CHWs regarding client interactions. The Care Integration Coordinator also plays an active role in building and sustaining partnerships with local service organizations. She coordinates monthly meetings with the CHWs, other Community Health Team staff, and representatives from the local agencies. These individuals comprise the Functional Health Team, whose purpose is described in more detail below. The Care Integration Coordinator also provides leadership and managerial support to the other staff on the Community Health Team (Chronic Care Coordinators and Behavioral Health Specialists).</p>

Code	Linked SEQs	Label (Corresponds to Initial Label in the Code List)	Definition	Example (Excerpts From Available Documents Received From St. Johnsbury CHT Document Review)																																																																																
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APCP_Serv	1.b	Medical Practice Characteristics— Services	Services offered within the medical practices that participate in the CHT program.																																																																																	
APCP_Staff	1.b	Medical Practice Characteristics— Staffing	Staffing within the medical practices that participate in the CHT program.	<p>From the “APCP Patient Load and Prescription Information” Excel file:</p> <table border="1"> <thead> <tr> <th colspan="10">St. Johnsbury Area ACPC's Stats for CDC</th> </tr> <tr> <th colspan="10">May-12</th> </tr> <tr> <th></th> <th>Corner Medical</th> <th>St J Pedi</th> <th>Kingdom Internal</th> <th>Total for NCHC</th> <th>St J Family Health</th> <th>Concord Health</th> <th>Danville Health</th> <th>Caledonia Internal Medicine</th> <th></th> </tr> </thead> <tbody> <tr> <td>Active Patients</td> <td>6500</td> <td>4492</td> <td>2200</td> <td>18363</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Patient Visits per Week (Average)</td> <td>445</td> <td>289</td> <td>175</td> <td>964</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Medicaid Patients</td> <td>10%</td> <td>61%</td> <td>18%</td> <td>19%</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Mean and Range</td> <td>54% between 40 and 70, range 6 - 100 years</td> <td>0 - 12 years of age</td> <td>average age 60, patient age range 19 - 102</td> <td>57. 0-100+</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Medications Prescribed</td> <td>Medication in 3 months = 7195, patients seen in this time was 4561</td> <td>NA</td> <td>NA</td> <td>NA</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	St. Johnsbury Area ACPC's Stats for CDC										May-12											Corner Medical	St J Pedi	Kingdom Internal	Total for NCHC	St J Family Health	Concord Health	Danville Health	Caledonia Internal Medicine		Active Patients	6500	4492	2200	18363						Patient Visits per Week (Average)	445	289	175	964						Medicaid Patients	10%	61%	18%	19%						Mean and Range	54% between 40 and 70, range 6 - 100 years	0 - 12 years of age	average age 60, patient age range 19 - 102	57. 0-100+						Medications Prescribed	Medication in 3 months = 7195, patients seen in this time was 4561	NA	NA	NA					
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APCP_loc	1.b	Medical Practice Characteristics— Location	Location information within the medical practices that participate in the CHT program.	<p>From the “APCP Patient Load and Prescription Information” Excel file:</p> <table border="1" data-bbox="1037 462 1862 833"> <thead> <tr> <th colspan="10">St. Johnsbury Area ACPC's Stats for CDC</th> </tr> <tr> <th colspan="10">May-12</th> </tr> <tr> <th></th> <th>Corner Medical</th> <th>St J Pedi</th> <th>Kingdom Internal</th> <th>Total for NCHC</th> <th>St J Family Health</th> <th>Concord Health</th> <th>Darville Health</th> <th>Caledonia Internal Medicine</th> <th></th> </tr> </thead> <tbody> <tr> <td>Active Patients</td> <td>6500</td> <td>4492</td> <td>2200</td> <td>18363</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Patient Visits per Week (Average)</td> <td>445</td> <td>289</td> <td>175</td> <td>964</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Medicaid Patients</td> <td>10%</td> <td>61%</td> <td>18%</td> <td>19%</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Mean and Range</td> <td>54% between 40 and 70, range 6 - 100 years</td> <td>0 - 12 years of age</td> <td>average age 60, patient age range 19 - 102</td> <td>57. 0-100+</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Medications Prescribed</td> <td>Medication in 3 months = 7195, patients seen in this time was 4561</td> <td>NA</td> <td>NA</td> <td>NA</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	St. Johnsbury Area ACPC's Stats for CDC										May-12											Corner Medical	St J Pedi	Kingdom Internal	Total for NCHC	St J Family Health	Concord Health	Darville Health	Caledonia Internal Medicine		Active Patients	6500	4492	2200	18363						Patient Visits per Week (Average)	445	289	175	964						Medicaid Patients	10%	61%	18%	19%						Mean and Range	54% between 40 and 70, range 6 - 100 years	0 - 12 years of age	average age 60, patient age range 19 - 102	57. 0-100+						Medications Prescribed	Medication in 3 months = 7195, patients seen in this time was 4561	NA	NA	NA					
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Comm	1.b	Community Demographics	Demographic information on the community.	<p>From the “Health Status of VT Report 2008 Appendix.pdf”:</p> <p>Median income for St. Johnsbury residents is: \$34,151 (based on 2000 Census information, p. 13).</p>																																																																																

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FIN_ RESOURce	1.c	Financial Resources	Budget, funding sources, and amounts.	<p>From the "VT EA Community Summary Report 07122011.pdf" document:</p> <p>The Community Connections Team is primarily supported by funding from the major private insurers in Vermont. These insurers are mandated by State law to provide up to \$350,000 to support up to five full-time equivalent staff. This funding enables the Community Connections Team to provide its services free of charge. The current costs for the Community Connections Team, including labor and other program costs, is \$241,744.50 annually. These costs are detailed below:</p> <ul style="list-style-type: none"> <li>▪ Salaries (includes four full-time staff members: three CHWs and one CIC)—\$174,470</li> <li>▪ Fringes at 35%—\$61,064.50</li> <li>▪ Patient transportation—\$500</li> <li>▪ Subscriptions—\$210</li> <li>▪ Patient education materials—\$1,500</li> <li>▪ Training/travel for staff—\$4,000</li> </ul>

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REs_partner	1.c	Resources—Partners	Specific to the functional health team.																																																																																												
RES_FAC	1.c	Facility Resources	Description of facilities for any of the core elements.																																																																																												
RES_Oth	1.c	Other Resources	Description of other resources, including materials, technology, and so forth.	<p>From “VT EA Community Summary Report 07122011.pdf”:</p> <p>Office space, utilities, and other overhead costs are provided in-kind by NVRH. This includes photocopying, information technology support, accounting/payroll services, and marketing materials. The Community Connections Team, specifically the Care Integration Coordinator, with assistance from the Vermont Blueprint for Health project manager, also pursues grant funding to support specific community-based activities and initiatives, such as providing babysitting training to interested youths in the area.</p>																																																																																											

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<b>Factors Affecting Implementation</b>				
Barrier	2.a	Description of Barriers	<ul style="list-style-type: none"> <li>▪ Description of barriers, including the following topical areas:               <ul style="list-style-type: none"> <li>– Availability of resources (e.g., personnel, financial, material, technology)</li> <li>– Methods of delivery</li> <li>– Communication</li> <li>– Patient load</li> <li>– Protocols</li> <li>– Community resources</li> <li>– Level of support from APCP</li> <li>– Support from Vermont Blueprint for Health leadership</li> <li>– Contextual factors (e.g., increased national attention regarding dietary sodium intake, health care reform featuring electronic medical record [EMR])</li> </ul> </li> </ul>	

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<b>Factors Affecting Implementation (continued)</b>				
Facilitat	2.b	Description of Facilitators	<ul style="list-style-type: none"> <li>▪ Description of facilitators, including the following topical areas:               <ul style="list-style-type: none"> <li>– Availability of resources (e.g., personnel, financial, material, technology)</li> <li>– Methods of delivery</li> <li>– Communications</li> <li>– Patient load</li> <li>– Protocols</li> <li>– Community resources</li> <li>– Level of support from advanced primary care practices (APCP)</li> <li>– Support from Vermont Blueprint for Health leadership</li> <li>– Contextual factors (e.g., increased national attention regarding dietary sodium intake, health care reform featuring EMR)</li> </ul> </li> </ul>	<p>From “VT EA Community Summary Report 07122011.pdf”:</p> <p>The Community Connections Team is implemented as a component of the larger multidisciplinary Community Health Team, which serves as the hub for the coordinated, integrated approach to care that is the hallmark of the medical home model. The use of CHWs as staff for the Community Connections Team enhances the likelihood that this approach is applicable to and can be adapted and implemented in other settings. However, to maximize effectiveness, it appears that high levels of communication and coordination among primary care practices, hospital staff, CHWs, local agencies, and community-based agencies are critical to successful and effective implementation.</p> <p>For example, Chronic Care Coordinators and Behavioral Health Specialists at the primary care practices are a primary referral source. Although others can and do refer, these members of the Community Health Team are in a better position to target their referral efforts to those with chronic conditions such as hypertension as well as to facilitate communication between the providers and the CHWs. Behavioral Health Specialists are also in a unique position to address behavioral health issues that influence one’s quality of life and health. Similarly, hospital staff work closely with the practices and CHWs to let them know when current clients have been admitted and released as well as to refer patients in need of a primary care provider or additional community supports.</p> <p>Another critical ingredient is close working relationships and good communication with local service providers.</p>

Code	Linked SEQs	Label (Corresponds to Initial Label in the Code List)	Definition	Example (Excerpts From Available Documents Received From St. Johnsbury CHT Document Review)
<b>Factors Affecting Implementation (continued)</b>				
PROV_EXP	2.c	Provider Experience With CHT	Description of provider experience with the CHT.	From "Blueprint Annual Report Final 01.23.12.pdf": "I feel really proud of being a Blueprint practice. It just makes you feel good. We have a new physician who says he has never been in a practice where everybody knows about the process and helps, from the front desk person to the chronic care coordinator to the physicians and nurses. He doesn't have to spend half of his day trying to figure out how to take care of that tough patient, because there is a Community Health Team. So you can take care of the whole patient." —Blueprint physician, St. Johnsbury area
PROV_STREAM	2.c	Ways CHT Streamlines Practice	Provider descriptions of the extent to which the CHT streamlines the existing procedures in medical practices.	From "Blueprint Annual Report Final 01.23.12.pdf": "I feel really proud of being a Blueprint practice. It just makes you feel good. We have a new physician who says he has never been in a practice where everybody knows about the process and helps, from the front desk person to the chronic care coordinator to the physicians and nurses. He doesn't have to spend half of his day trying to figure out how to take care of that tough patient, because there is a Community Health Team. So you can take care of the whole patient." —Blueprint physician, St. Johnsbury area
PROV_COMPLEX	2.c	Ways CHT Makes Practice Complex	Provider descriptions of the extent to which the CHT adds complexity to the existing procedures in medical practices.	

Code	Linked SEQs	Label (Corresponds to Initial Label in the Code List)	Definition	Example (Excerpts From Available Documents Received From St. Johnsbury CHT Document Review)																																		
<b>CHT REACH</b>																																						
REACH_APCP	3.b	Proportion of PCP That Is APCP; Characteristics of APCP	Characteristics, including proportion of PCP participating as APCP in CHT.	E-mail from program manager at NVRH:  There are 6 out of 9 APCPs in the area, including family practices, internal medicine, and pediatrics, which are APCPs that participate in the CHT program.																																		
REACH_FHT	3.c	Proportions and Types of Organizations Participating in Functional Health Team	Characteristics, including proportion of organizations participating in CHT.	From "St J Functional Health Team Agencies and Descriptions.doc":  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: center;">St. Johnsbury Functional Community Health Team</th> </tr> <tr> <th style="text-align: left;">Agency/Organization</th> <th style="text-align: left;">Description/Comments</th> </tr> </thead> <tbody> <tr> <td>Vermont Department of Health</td> <td>District Office Director Public Health Nurses</td> </tr> <tr> <td>Vermont Agency of Human Services</td> <td>Field Manager</td> </tr> <tr> <td>Northeastern Vermont Regional Hospital</td> <td>Diabetes Educator Hospital Care Managers Tobacco Cessation and Prevention Services Community Connections Community Health Workers Chaplain</td> </tr> <tr> <td>Vermont Vocational Rehab</td> <td>Exec Director</td> </tr> <tr> <td>Vermont Department of Economic Services</td> <td>Director</td> </tr> <tr> <td>Northeastern Vermont Human Services</td> <td>Community Mental Health Agency</td> </tr> <tr> <td>Northeast Kingdom Youth Services</td> <td>Services for Youth and Teens</td> </tr> <tr> <td>Northeast Kingdom Community Action</td> <td>Services targeted for low income residents</td> </tr> <tr> <td>Umbrella, Inc</td> <td>Domestic and sexual abuse</td> </tr> <tr> <td>Vermont Department of Corrections</td> <td>Probation Officer</td> </tr> <tr> <td>Health Insurance Partners</td> <td>Blue Cross Blue Shield of VT Case Manager</td> </tr> <tr> <td>Rural Community Transportation</td> <td>Public transportation</td> </tr> <tr> <td>Northeastern VT Area Agency on Aging</td> <td>Patient advocates</td> </tr> <tr> <td>Caledonia Home Health and Hospice</td> <td>Clinical Director</td> </tr> <tr> <td>Northeast Kingdom Home Care</td> <td>For profit home health</td> </tr> </tbody> </table>	St. Johnsbury Functional Community Health Team		Agency/Organization	Description/Comments	Vermont Department of Health	District Office Director Public Health Nurses	Vermont Agency of Human Services	Field Manager	Northeastern Vermont Regional Hospital	Diabetes Educator Hospital Care Managers Tobacco Cessation and Prevention Services Community Connections Community Health Workers Chaplain	Vermont Vocational Rehab	Exec Director	Vermont Department of Economic Services	Director	Northeastern Vermont Human Services	Community Mental Health Agency	Northeast Kingdom Youth Services	Services for Youth and Teens	Northeast Kingdom Community Action	Services targeted for low income residents	Umbrella, Inc	Domestic and sexual abuse	Vermont Department of Corrections	Probation Officer	Health Insurance Partners	Blue Cross Blue Shield of VT Case Manager	Rural Community Transportation	Public transportation	Northeastern VT Area Agency on Aging	Patient advocates	Caledonia Home Health and Hospice	Clinical Director	Northeast Kingdom Home Care	For profit home health
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Northeast Kingdom Home Care	For profit home health																																					

# **Appendix E**

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## **Community Connections Team Intake Form**

## St. Johnsbury Community Connections Team Intake/Monitoring Form

<b>Community Health Worker Name</b>	LAST, FIRST					
<b>Client Name</b>	LAST, FIRST MI					
<b>Date of Birth</b>	mm/dd/yyyy					
<b>Encounter Date</b>	mm/dd/yyyy					
<b>Encounter Type</b>	<input type="checkbox"/> In person <input type="checkbox"/> Phone					
<b>Referral Source</b> <i>(select one)</i>	<input type="checkbox"/> Medical home <input type="checkbox"/> Chronic Care Coordinator <input type="checkbox"/> Behavioral Health Specialist <input type="checkbox"/> External/community partner <input type="checkbox"/> Friend/family member <input type="checkbox"/> Hospital staff <input type="checkbox"/> None <input type="checkbox"/> Other (please specify):					
<b>Primary Purpose of Visit</b> <i>(select up to three)</i>						
<b>Marital Status</b> <i>(select one)</i>	<input type="checkbox"/> Single, never married <input type="checkbox"/> Married <input type="checkbox"/> Living with partner <input type="checkbox"/> Separated or divorced <input type="checkbox"/> Widowed					
<b>Family/Household Composition</b>	<input type="checkbox"/> No children <input type="checkbox"/> Child(ren) under age of 18 living in home <input type="checkbox"/> Child(ren) under age of 18, but not living in home <input type="checkbox"/> Adult child over age 18 living in home					
<b>Patient Life Satisfaction:</b> <i>At the beginning of the encounter, please ask the client the following questions and note the client's responses. Use "cushioning" language to introduce questions. For example, after greeting the client you might say, "Before we get started I just want to do a quick 'check-in' with you to see how you are feeling in general lately."</i>						
1. Would you say, in general, the conditions of my life are ...	<b>Excellent</b>	<b>Very Good</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>	<b>No response</b>
	5 0	4 0	3 0	2 0	1 0	N/A 0
2. Would you say, in general, your health is ...	<b>Excellent</b>	<b>Very Good</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>	<b>No response</b>
	5 0	4 0	3 0	2 0	1 0	N/A 0
<b>Case Notes:</b>						

**Overall Assessment of Patient Well-Being:** *To be completed by the community health worker as soon as possible after the encounter (i.e., preferably, immediately after the encounter). When you think about each of these things below, please address how the client was doing at the BEGINNING of the encounter in each of these areas. Select the number that corresponds with your assessment in each category. If a specific category is not applicable to the client (for example, if the client does not have children), select “does not apply”. If you did not assess the client on a specific category during this encounter, please select “did not assess”.*

	Crisis (Immediate threat or crisis)		Neither crisis nor self sufficient					Self-sufficient (No additional assistance needed)		Does not apply	Did not assess		
	0	1	2	3	4	5	6	7	8	9	10	N/A	X
1. Health insurance	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
2. Prescription drugs	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
3. Housing	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
4. Utilities	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
5. Transportation	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
6. Food security	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
7. Money and finances	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
8. Employment	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
9. Legal	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
10. Health education	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
11. Family relationships	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
a. Children	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
12. Other (please specify):	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o
13. Overall	0 o	1 o	2 o	3 o	4 o	5 o	6 o	7 o	8 o	9 o	10 o	N/A o	X o

# **Appendix F**

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## **Electronic Health Record Variables Extracted**

## APPENDIX F. ELECTRONIC HEALTH RECORD VARIABLES EXTRACTED

Variable	Description
Medical record number	Assigned medical record number as of September 1, 2013
Medical Home Facility	Medical home where patient is established, most recent as of September 1, 2013.
Age as of January 1, 2012	Age of patient as of January 1, 2012
Gender	Patient gender recorded as of September 1, 2013
Zip code of patient residence	5 digit zip code of the patient's residence, most recent as of September 1, 2013
Primary health insurance provider	Patient's primary health insurance provider, most recent as of September 1, 2013.
Chronic Care Coordinator exposure	Flag for Chronic Care Coordinator record January 1 2012 - September 1, 2013
Behavioral Health Specialist exposure	Flag for Behavioral Health Specialist exposure January 1, 2012 - September 1, 2013
Date of hypertension diagnosis	Date of hypertension diagnosis in MM/DD/YYYY format
Flag for diabetes status	Flag for diabetes status as of September 1, 2013
Height (inches)	Most recent height as of September 1, 2013 in inches
Weight (kg)	Most recent weight as of September 1, 2013 in kilograms
Smoking status	Most recent smoking status recorded as of September 1, 2013
Medications	Most recent medications list
Number of PCP appointments	Number of PCP appointments January 2012 - June 2013
number of blood pressure measures	number of blood pressure measures on record January 2012 - June 2013
Diastolic BP -January 2012	Diastolic blood pressure based on most recent PCP visit as of January 1, 2012; if multiple measures were recorded, the last measure was abstracted
Systolic BP - January 2012	Systolic blood pressure based on most recent PCP visit as of January 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - February 2012	Diastolic blood pressure based on most recent PCP visit as of February 1, 2012; if multiple measures were recorded, the last measure was abstracted
Systolic BP - February 2012	Systolic blood pressure based on most recent PCP visit as of February 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - March 2012	Diastolic blood pressure based on most recent PCP visit as of March 1, 2012; if multiple measures were recorded, the last measure was abstracted

Variable	Description
Systolic BP - March 2012	Systolic blood pressure based on most recent PCP visit as of March 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - April 2012	Diastolic blood pressure based on most recent PCP visit as of April 1, 2012; if multiple measures were recorded, the last measure was abstracted
Systolic BP - April 2012	Systolic blood pressure based on most recent PCP visit as of April 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - May 2012	Diastolic blood pressure based on most recent PCP visit as of May 1, 2012; if multiple measures were recorded, the last measure was abstracted
Systolic BP - May 2012	Systolic blood pressure based on most recent PCP visit as of May 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - June 2012	Diastolic blood pressure based on most recent PCP visit as of June 1, 2012; if multiple measures were recorded, the last measure was abstracted
Systolic BP - June 2012	Systolic blood pressure based on most recent PCP visit as of June 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - July 2012	Diastolic blood pressure based on most recent PCP visit as of July 1, 2012; if multiple measures were recorded, the last measure was abstracted
Systolic BP - July 2012	Systolic blood pressure based on most recent PCP visit as of July 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - August 2012	Diastolic blood pressure based on most recent PCP visit as of August 1, 2012; if multiple measures were recorded, the last measure was abstracted
Systolic BP - August 2012	Systolic blood pressure based on most recent PCP visit as of August 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - September 2012	Diastolic blood pressure based on most recent PCP visit as of September 1, 2012; if multiple measures were recorded, the last measure was abstracted
Systolic BP - September 2012	Systolic blood pressure based on most recent PCP visit as of September 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - October 2012	Diastolic blood pressure based on most recent PCP visit as of October 1, 2012; if multiple measures were recorded, the last measure was abstracted

Variable	Description
Systolic BP - October 2012	Systolic blood pressure based on most recent PCP visit as of October 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - November 2012	Diastolic blood pressure based on most recent PCP visit as of November 1, 2012; if multiple measures were recorded, the last measure was abstracted
Systolic BP - November 2012	Systolic blood pressure based on most recent PCP visit as of November 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - December 2012	Diastolic blood pressure based on most recent PCP visit as of December 1, 2012; if multiple measures were recorded, the last measure was abstracted
Systolic BP - December 2012	Systolic blood pressure based on most recent PCP visit as of December 1, 2012; if multiple measures were recorded, the last measure was abstracted
Diastolic BP -January 2013	Diastolic blood pressure based on most recent PCP visit as of January 1, 2013; if multiple measures were recorded, the last measure was abstracted
Systolic BP - January 2013	Systolic blood pressure based on most recent PCP visit as of January 1, 2013; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - February 2013	Diastolic blood pressure based on most recent PCP visit as of February 1, 2013; if multiple measures were recorded, the last measure was abstracted
Systolic BP - February 2013	Systolic blood pressure based on most recent PCP visit as of February 1, 2013; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - March 2013	Diastolic blood pressure based on most recent PCP visit as of March 1, 2013; if multiple measures were recorded, the last measure was abstracted
Systolic BP - March 2013	Systolic blood pressure based on most recent PCP visit as of March 1, 2013; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - April 2013	Diastolic blood pressure based on most recent PCP visit as of April 1, 2013; if multiple measures were recorded, the last measure was abstracted
Systolic BP - April 2013	Systolic blood pressure based on most recent PCP visit as of April 1, 2013; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - May 2013	Diastolic blood pressure based on most recent PCP visit as of May 1, 2013; if multiple measures were recorded, the last measure was abstracted

Variable	Description
Systolic BP - May 2013	Systolic blood pressure based on most recent PCP visit as of May 1, 2013; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - June 2013	Diastolic blood pressure based on most recent PCP visit as of June 1, 2013; if multiple measures were recorded, the last measure was abstracted
Systolic BP - June 2013	Systolic blood pressure based on most recent PCP visit as of June 1, 2013; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - July 2013	Diastolic blood pressure based on most recent PCP visit as of July 1, 2013; if multiple measures were recorded, the last measure was abstracted
Systolic BP - July 2013	Systolic blood pressure based on most recent PCP visit as of July 1, 2013; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - August 2013	Diastolic blood pressure based on most recent PCP visit as of August 1, 2013; if multiple measures were recorded, the last measure was abstracted
Systolic BP - August 2013	Systolic blood pressure based on most recent PCP visit as of August 1, 2013; if multiple measures were recorded, the last measure was abstracted
Diastolic BP - September 2013	Diastolic blood pressure based on most recent PCP visit as of September 1, 2013; if multiple measures were recorded, the last measure was abstracted
Systolic BP - September 2013	Systolic blood pressure based on most recent PCP visit as of September 1, 2013; if multiple measures were recorded, the last measure was abstracted
ER visits	Number of ER visits January 1, 2012 - September 1, 2013; if multiple measures were recorded, the last measure was abstracted
In-patient hospital days	Number of in-patient hospital days January 1, 2012-September 1, 2013; if multiple measures were recorded, the last measure was abstracted

# **Appendix G**

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## **Descriptive Findings from Analysis of Northern Counties EHR**

## APPENDIX G. DESCRIPTIVE FINDINGS FROM ANALYSIS OF NORTHERN COUNTIES EHR

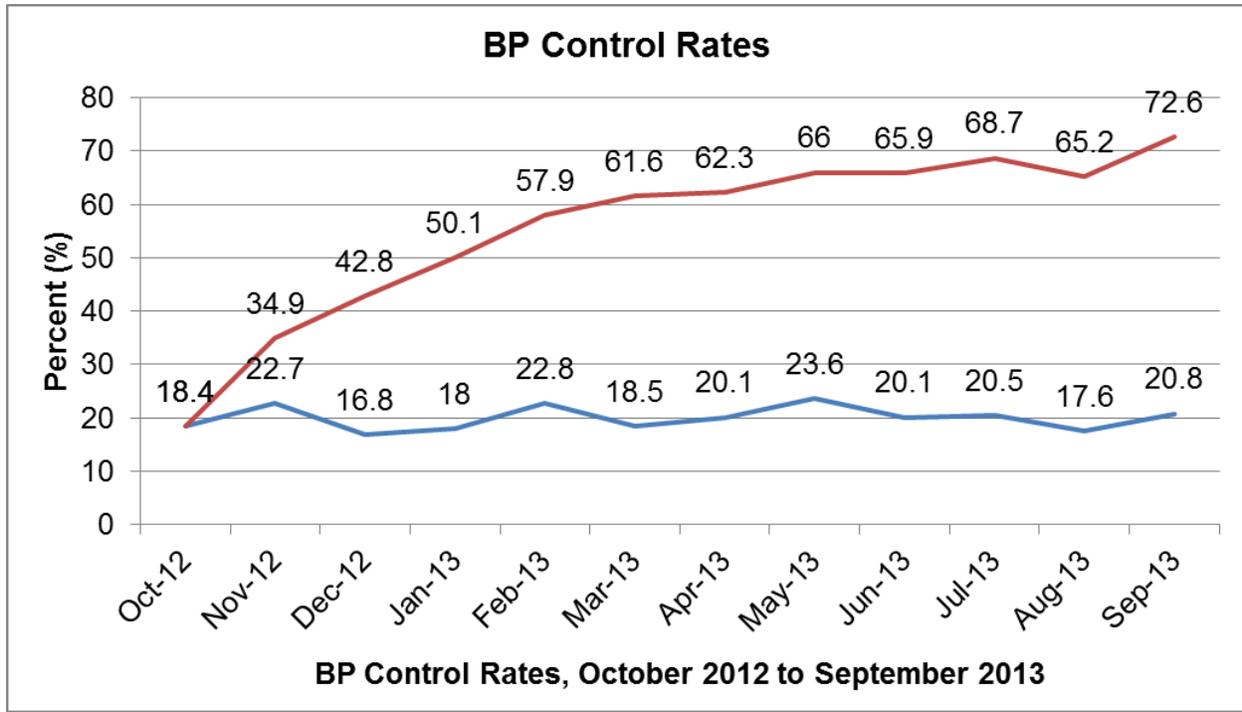
TABLE 1. CHARACTERISTICS OF INDIVIDUALS AGES 18–85 WITH A HYPERTENSION DIAGNOSIS SERVED BY THE NORTHERN COUNTIES INC., SEPTEMBER 1, 2012–SEPTEMBER 1, 2013. (N=745)

Variable	All (N=745)
<b>BMI</b>	
Normal	82 (14.0%)
Overweight	165 (28.1%)
Obese	340 (57.9%)
<b>Age</b>	
18–24 years	<sup>b 1</sup>
25–34 years	26 (3.5%)
35–44 years	56 (7.5%)
45–54 years	144 (19.3%)
55–64 years	238 (31.9%)
65–85 years	278 (37.3%)
<b>Sex</b>	
Female	374 (50.2%)
Male	371 (49.8%)
<b>Smokeless tobacco use</b>	
Precontemplative	17 (4.0%)
Contemplative	<sup>b</sup>
Former user	21 (5.0%)
Never used	381 (90.7%)
<b>Smoking Status</b>	
Precontemplative	107 (15.9%)
Contemplative	15 (2.2%)
Ready	<sup>b</sup>
Former smoker	279 (41.4%)
Never a smoker	272 (40.4%)

<sup>1</sup> Used to denote n < 10.

**FIGURE 1. NORTHERN COUNTIES BLOOD PRESSURE CONTROL RATES OVER TIME, N=745**

[Red line = based on most recent blood pressure within the observation period. Blue line = based on most recent blood pressure within the preceding month and reflects only those patients seen within that time period]



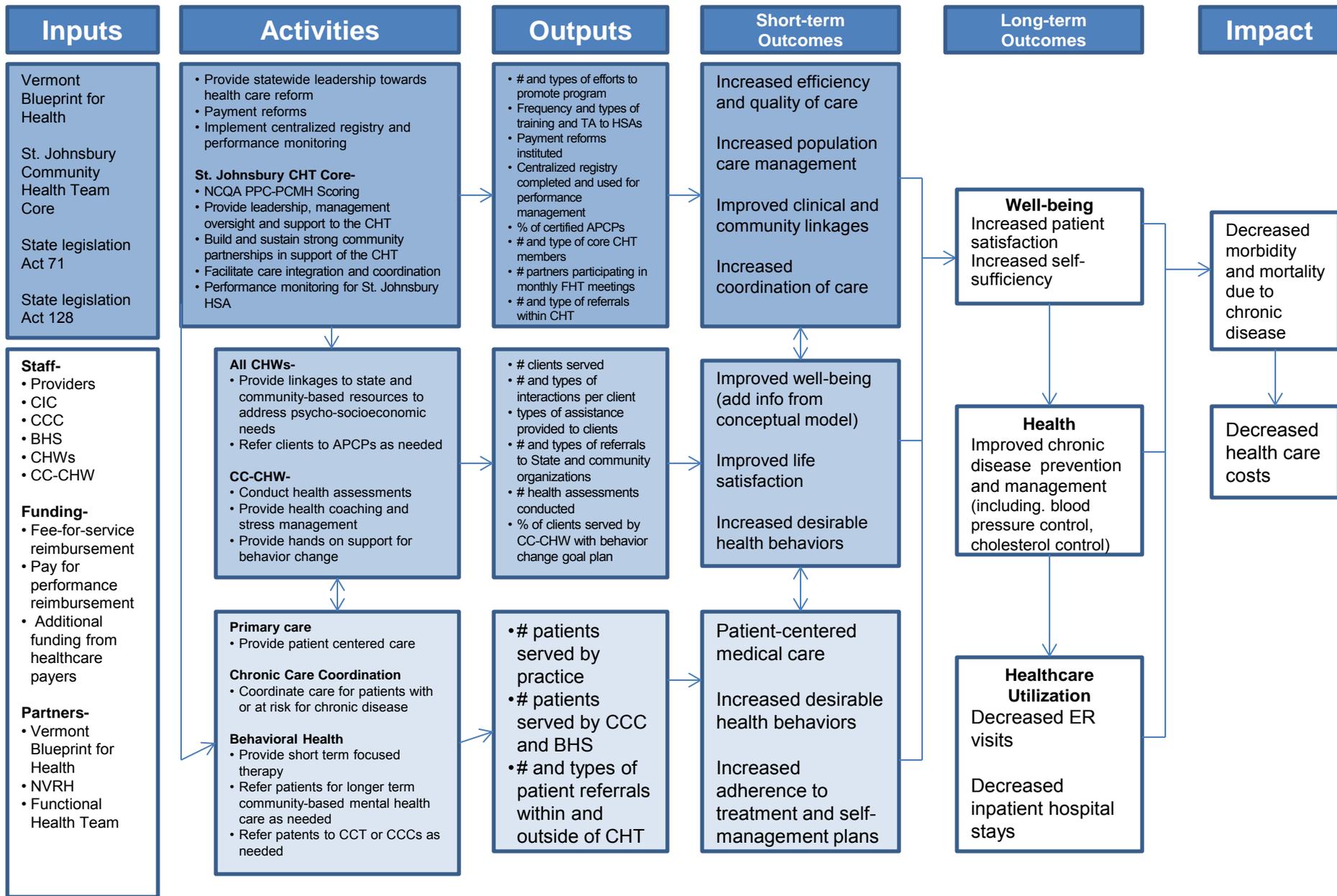
# **Appendix H**

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## **St. Johnsbury Community Health Team Logic Model**

# St. Johnsbury Community Health Team

The St. Johnsbury Community Health Team is a model of coordinated care using a multidisciplinary team approach that involves CHWs who work in partnership with health and behavioral health providers, State and community-based providers, and patients and their families to improve the management of chronic conditions.



# Logic Model Key



Administrative Core



Community Connections Team



APCPs



All Elements

## Acronyms

APCP	Advanced Primary Care Practice
BHS	Behavioral Health Specialist
CCC	Chronic Care Coordinator
CC-CHW	Chronic Care Community Health Worker
CCT	Community Connections Team
CHT	Community Health Team
CHW	Community Health Worker
CIC	Chronic Integration Coordinator
ER	Emergency Room
FHT	Functional Health Team
HSA	Hospital Service Area
NCQA PPC-PCMH	National Committee for Quality Assurance Physician Practice Connections – Patient Centered Medical Home
NVRH	Northeastern Vermont Regional Hospital
SASH	Support and Services at Home program
TA	Technical Assistance

# **Appendix I**

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**Additional Data Tables and Results from  
Analysis of Community Connections  
Team Intake Forms**

**APPENDIX I. ADDITIONAL DATA TABLES AND RESULTS FROM ANALYSIS OF COMMUNITY CONNECTIONS TEAM INTAKE FORMS**

**TABLE 1. SAMPLE CHARACTERISTICS (N=387)**

Variable	All (N=387)	2 or more (N=210)	1 visit only (N=177)	2 visits (N=100)	3 or more visits (N=110)
<b>Number of Encounters</b>	n=387	n=210	-	-	n=110
1 visit	177 (45.7%)	-	-	-	-
2 visits	100 (25.8%)	-	-	-	-
3 or more visits	110 (28.4%)	-	-	-	-
Mean	2.618	3.981	-	-	5.782
Median	2.000	3.000	-	-	4.000
Standard Deviation	2.911	3.401	-	-	3.913
<b>Age</b>	n=387	n=210	n=177	n=100	n=110
18-24 years	35 (9.0%)	18 (8.6%)	17 (9.6%)	11 (11.0%)	7 (6.4%)
25-34 years	53 (13.7%)	31 (14.8%)	22 (12.4%)	14 (14.0%)	17 (15.5%)
35-44 years	48 (12.4%)	27 (12.9%)	21 (11.9%)	13 (13.0%)	14 (12.7%)
45-54 years	75 (19.4%)	36 (17.1%)	39 (22.0%)	13 (13.0%)	23 (20.9%)
55-64 years	98 (25.3%)	55 (26.2%)	43 (24.3%)	27 (27.0%)	28 (25.5%)
65+ years	78 (20.2%)	43 (20.5%)	35 (19.8%)	22 (22.0%)	21 (19.1%)
<b>Encounter Type</b>	n=386	n=210	n=176	n=100	n=110
In-person	223 (57.8%)	112 (53.3%)	111 (63.1%)	54 (54.0%)	58 (52.7%)
Phone	163 (42.2%)	98 (46.7%)	65 (36.9%)	46 (46.0%)	52 (47.3%)
<b>Community Health Worker</b>	n=387	Valid n=210	Valid n=177	Valid n=100	Valid n=110
Barrett	90 (23.3%)	43 (20.5%)	47 (26.6%)	21 (21.0%)	22 (20.0%)
Kline	125 (32.3%)	96 (45.7%)	29 (16.4%)	33 (33.0%)	63 (57.3%)
O'Meara	170 (43.9%)	70 (33.3%)	100 (56.5%)	46 (46.0%)	24 (21.8%)
Smart	2 (0.5%)	1 (0.5%)	1 (0.6%)	N/A	1 (0.9%)

**TABLE 1. SAMPLE CHARACTERISTICS (N=387) (CONTINUED)**

Variable	All (N=387)	2 or more (N=210)	1 visit only (N=177)	2 visits (N=100)	3 or more visits (N=110)
<b>Referral Source</b>	n=385	n=208	n=177	n=99	n=109
Medical home	181 (47%)	92 (44.2%)	89 (50.3%)	44 (44.5%)	48 (44.0%)
<i>Medical home</i>	23 (6.0%)	14 (6.7%)	9 (5.1%)	5 (5.1%)	9 (8.3%)
<i>Chronic care coordinator</i>	126 (32.7%)	66 (31.4%)	60 (33.9%)	31 (31.3%)	35 (32.1%)
<i>Behavioral health specialist</i>	32 (8.3%)	12 (5.8%)	20 (11.3%)	8 (8.1%)	4 (3.7%)
Outside medical home	204 (53%)	116 (55.8%)	88 (49.8%)	55 (55.5%)	61 (56.0%)
<i>External/Community partner</i>	47 (12.2%)	29 (13.9%)	18 (10.2%)	17 (17.2%)	12 (10.9%)
<i>Friend/family member</i>	40 (10.4%)	23 (11.1%)	17 (9.6%)	9 (9.1%)	14 (12.8%)
<i>Hospital staff</i>	50 (13.0%)	24 (11.5%)	26 (14.7%)	13 (13.1%)	11 (10.1%)
<i>None</i>	59 (15.3%)	35 (16.8%)	24 (13.6%)	13 (13.1%)	22 (20.2%)
<i>Other</i>	8 (2.1%)	5 (2.4%)	3 (1.7%)	3 (3.0%)	2 (1.8%)
<b>Primary Purpose of Visit<sup>1</sup></b>					
Health Insurance	144 (37.2%)	78 (37.1%)	66 (37.3%)	37 (37.0%)	41 (37.3%)
Prescription drugs	92 (23.8%)	47 (22.4%)	45 (25.4%)	20 (20.0%)	27 (24.5%)
Housing	78 (20.2%)	52 (24.8%)	26 (14.7%)	23 (23.0%)	29 (26.4%)
Utilities	19 (4.9%)	12 (5.7%)	7 (4.0%)	6 (6.0%)	6 (5.5%)
Transportation	39 (10.1%)	23 (11.0%)	16 (9.0%)	9 (9.0%)	14 (12.7%)
Food security	30 (7.8%)	19 (9.0%)	11 (6.2%)	8 (8.0%)	11 (10.0%)
Money and Finances	163 (42.1%)	88 (41.9%)	75 (42.4%)	40 (40.0%)	48 (43.6%)
Employment	33 (8.5%)	22 (10.5%)	11 (6.2%)	12 (12.0%)	10 (9.1%)
Legal	27 (7.0%)	13 (6.2%)	14 (7.9%)	8 (8.0%)	5 (4.5%)
Health Education	98 (25.3%)	50 (23.8%)	48 (27.1%)	25 (25.0%)	25 (22.7%)
Family relationships	16 (4.1%)	10 (4.8%)	6 (3.4%)	4 (4.0%)	6 (5.5%)
Family relationships: Children	8 (2.1%)	4 (1.9%)	4 (2.3%)	4 (4.0%)	0 (0.0%)
Other	51 (13.2%)	38 (18.1%)	13 (7.3%)	14 (14.0%)	24 (21.8%)

<sup>1</sup> Valid n (denominator) varies by item, as CHWs could select multiple responses.

**TABLE 1. SAMPLE CHARACTERISTICS (N=387) (CONTINUED)**

Variable	All (N=387)	2 or more (N=210)	1 visit only (N=177)	2 visits (N=100)	3 or more visits (N=110)
<b>Marital Status</b>	n=387	n=210	n=177	n=100	n=110
Single, never married	129 (33.3%)	73 (34.8%)	56 (31.6%)	37 (37.0%)	36 (32.7%)
Married	129 (33.3%)	69 (32.9%)	60 (33.9%)	28 (28.0%)	41 (37.3%)
Living with partner	10 (2.6%)	6 (2.9%)	4 (2.3%)	2 (2.0%)	4 (3.6%)
Separated or divorced	84 (21.7%)	42 (20.0%)	42 (23.7%)	20 (20.0%)	22 (20.0%)
Widowed	35 (9.0%)	20 (9.5%)	15 (8.5%)	13 (13.0%)	7 (6.4%)
<b>Family Composition<sup>2</sup></b>	n=386	n=209	n=177	n=100	n=109
No children	275 (71.2%)	149 (71.3%)	126 (71.2%)	72 (72.0%)	77 (70.6%)
Child(ren) under age of 18 living in home	79 (20.5%)	43 (20.6%)	36 (20.3%)	19 (19.0%)	24 (22.0%)
Child(ren) under age of 18, but not living in home	12 (3.1%)	7 (3.3%)	5 (2.8%)	3 (3.0%)	4 (3.7%)
Adult child over age of 18 living in home	25 (6.5%)	13 (6.2%)	12 (6.8%)	7 (7.0%)	6 (5.5%)
<b>Life Satisfaction at First Visit</b>					
<b>Conditions of Life</b>	n=370	n=199	n=171	n=96	n=103
Poor or fair	190 (51.4%)	105 (52.8%)	85 (49.7%)	54 (56.3%)	51 (49.5%)
<i>Poor</i> <sup>3</sup>	51 (13.8%)	37 (18.6%)	14 (8.2%)	21 (21.9%)	16 (15.5%)
<i>Fair</i>	139 (37.6%)	68 (34.2%)	71 (41.5%)	33 (34.4%)	35 (34.0%)
Good, very good, or excellent	180 (48.6%)	94 (47.2%)	86 (50.3%)	42 (43.8%)	52 (49.5%)
<i>Good</i>	108 (29.2%)	64 (32.2%)	44 (25.7%)	25 (26.0%)	39 (37.9%)
<i>Very Good</i>	69 (18.6%)	29 (14.6%)	40 (23.4%)	17 (17.7%)	12 (11.7%)
<i>Excellent</i>	3 (0.8%)	1 (0.5%)	2 (1.2%)	N/A	1 (1.0%)

<sup>2</sup> Valid n (denominator) varies by item, as CHWs could select multiple responses.

<sup>3</sup> Used the "last" visit information.

**TABLE 1. SAMPLE CHARACTERISTICS (N=387) (CONTINUED)**

Variable	All (N=387)	2 or more (N=210)	1 visit only (N=177)	2 visits (N=100)	3 or more visits (N=110)
<b>Life Satisfaction at First Visit (continued)</b>					
<b>Health</b>	n=371	n=199	n=172	n=96	n=103
Poor or fair	186 (50.1%)	97 (48.7%)	89 (51.7%)	52 (54.2%)	45 (43.7%)
<i>Poor</i>	75 (20.2%)	46 (23.1%)	29 (16.9%)	25 (26.0%)	21 (20.4%)
<i>Fair</i>	111 (29.9%)	51 (25.6%)	60 (34.9%)	27 (28.1%)	24 (23.3%)
Good, very good, or excellent	185 (49.9%)	102 (51.3%)	83 (48.3%)	44 (45.8%)	58 (56.3%)
<i>Good</i>	113 (30.5%)	68 (34.2%)	45 (26.2%)	28 (29.2%)	40 (38.8%)
<i>Very Good</i>	65 (17.5%)	30 (15.1%)	35 (20.3%)	14 (14.6%)	16 (15.5%)
<i>Excellent</i>	7 (1.9%)	4 (2.0%)	3 (1.7%)	2 (2.1%)	2 (1.9%)
<b>Well-Being at First Visit</b>					
<b>Health Insurance</b>	n=363	n=196	n=167	n=91	n=105
Mean	7.20	7.04	7.40	7.02	7.05
Median	9.00	9.00	9.00	9.00	9.00
Standard deviation	3.516	3.564	3.459	3.512	3.625
Minimum	0	0	0	0	0
Maximum	10	10	10	10	10
<b>Prescription Drugs</b>	n=355	n=193	n=162	n=87	n=106
Mean	6.98	6.71	7.31	6.86	6.58
Median	9.00	8.00	10.00	9.00	8.00
Standard deviation	3.605	3.568	3.633	3.645	3.516
Minimum	0	0	0	0	0
Maximum	10	10	10	10	10
<b>Housing</b>	n=343	n=188	n=155	n=89	n=99
Mean	7.50	6.90	8.22	7.25	6.59
Median	10.00	8.00	10.00	10.00	8.00
Standard deviation	3.197	3.354	2.843	3.341	3.350
Minimum	0	0	0	0	0
Maximum	10	10	10	10	10

**TABLE 1. SAMPLE CHARACTERISTICS (N=387) (CONTINUED)**

Variable	All (N=387)	2 or more (N=210)	1 visit only (N=177)	2 visits (N=100)	3 or more visits (N=110)
<b>Well-Being at First Visit (continued)</b>					
<b>Utilities</b>	n=325	n=175	n=150	n=80	n=95
Mean	8.05	7.45	8.75	7.94	7.03
Median	10.00	8.00	10.00	10.00	8.00
Standard deviation	2.720	2.836	2.402	2.716	2.882
Minimum	0	0	0	0	0
Maximum	10	10	10	10	10
<b>Transportation</b>	n=332	n=176	n=156	n=81	n=95
Mean	7.52	7.05	8.05	7.48	6.68
Median	10.00	8.00	10.00	10.00	7.00
Standard deviation	3.163	3.268	2.962	3.225	3.276
Minimum	0	0	0	0	0
Maximum	10	10	10	10	10
<b>Food Security</b>	n=334	n=179	n=155	n=82	n=97
Mean	7.84	7.30	8.47	7.44	7.19
Median	9.00	8.00	10.00	8.00	8.00
Standard deviation	2.540	2.583	2.345	2.695	2.493
Minimum	0	0	0	1	0
Maximum	10	10	10	10	10
<b>Money and Finances</b>	n=348	n=187	n=161	n=88	n=99
Mean	4.09	3.82	4.41	3.49	4.12
Median	5.00	4.00	5.00	3.00	4.00
Standard deviation	2.927	2.709	3.139	2.733	2.666
Minimum	0	0	0	0	0
Maximum	9	9	9	9	9

**TABLE 1. SAMPLE CHARACTERISTICS (N=387) (CONTINUED)**

Variable	All (N=387)	2 or more (N=210)	1 visit only (N=177)	2 visits (N=100)	3 or more visits (N=110)
<b>Well-Being at First Visit (continued)</b>					
<b>Employment</b>	n=200	n=105	n=95	n=47	n=58
Mean	6.39	5.94	7.38	5.55	5.43
Median	8.00	5.00	10.00	5.00	5.00
Standard deviation	3.940	4.095	3.523	4.221	4.027
Minimum	0	0	0	0	0
Maximum	10	10	10	10	10
<b>Legal</b>	n=103	n=52	n=51	n=26	n=26
Mean	6.91	6.06	7.78	6.88	5.23
Median	8.00	5.00	8.00	6.50	5.00
Standard deviation	3.043	3.232	2.587	3.051	3.253
Minimum	0	0	1	1	0
Maximum	10	10	10	10	10
<b>Health Education</b>	n=296	n=164	n=132	n=74	n=90
Mean	6.54	6.26	6.89	6.19	6.32
Median	7.00	6.00	8.00	7.00	6.00
Standard deviation	2.471	2.365	2.564	2.563	2.202
Minimum	0	1	0	1	1
Maximum	10	10	10	10	10
<b>Family Relationships</b>	n=274	n=143	n=128	n=61	n=85
Mean	8.18	7.64	8.80	8.13	7.28
Median	9.50	9.00	10.00	9.00	8.00
Standard deviation	2.494	2.716	2.056	2.247	2.971
Minimum	0	0	0	1	0
Maximum	10	10	10	10	10

**TABLE 1. SAMPLE CHARACTERISTICS (N=387) (CONTINUED)**

Variable	All (N=387)	2 or more (N=210)	1 visit only (N=177)	2 visits (N=100)	3 or more visits (N=110)
<b>Well-Being at First Visit (continued)</b>					
<b>Children</b>	n=151	n=85	n=66	n=39	n=46
Mean	8.41	8.00	8.94	8.26	7.78
Median	10.00	9.00	10.00	9.00	9.00
Standard deviation	2.501	2.704	2.119	2.436	2.921
Minimum	0	0	1	2	0
Maximum	10	10	10	10	10
<b>Overall</b>	n=373	n=203	n=170	n=96	n=107
Mean	5.56	5.27	5.91	5.20	5.33
Median	6.00	5.00	7.00	5.00	5.00
Standard deviation	2.475	2.258	2.676	2.342	2.188
Minimum	0	0	0	0	0
Maximum	9	9	9	9	9

**TABLE 2. MEAN SCORES FOR KEY WELL-BEING MEASURES AT FIRST AND LAST VISIT**

Category	All clients with 2+ encounters (n=210)				Clients with 2 encounters (n=100)				Clients with 3+ encounters (n=110)			
	n pairs	First Visit	Last Visit	p-value <sup>4</sup>	n pairs	First Visit	Last Visit	p-value	n pairs	First Visit	Last Visit	p-value
Health Insurance	186	6.95	7.54	0.040*	83	6.87	7.69	0.058	103	7.02	7.43	0.293
Prescription Drugs	180	6.66	7.40	0.012*	77	6.79	7.36	0.180	103	6.65	7.43	0.033*
Money and Finances	172	3.87	4.400	0.061	79	3.51	4.53	0.033*	93	4.17	4.29	0.725
Health Education	142	6.23	6.87	0.004*	63	6.19	6.76	0.101	79	6.27	6.95	0.015*
Housing	173	7.05	7.74	0.007*	80	7.40	8.24	0.023*	93	6.75	7.31	0.113
Overall	195	5.28	5.95	0.002*	90	5.20	6.21	0.002*	105	5.35	5.72	0.193

<sup>4</sup> P-values for paired sample t-tests.

**TABLE 3. CLIENT LIFE SATISFACTION AT FIRST AND LAST VISIT**

Category	All clients with 2+ encounters (n=210)					Clients with 2 encounters (n=100)					Clients with 3+ encounters (n=110)				
	n	First Visit	Last Visit	X <sup>2</sup> p-value <sup>5</sup>	Gamma p-value	n	First Visit	Last Visit	X <sup>2</sup> p-value	Gamma p-value	n	First Visit	Last Visit	X <sup>2</sup> p-value	Gamma p-value
<b>Health Status</b>	186			0.002*	0.002*	88			0.007*	0.005*	98			0.171	0.170
Poor or fair		97 (48.7%)	93 (48.2%)				52 (54.2%)	51 (56.0%)				45 (43.7%)	42 (41.2%)		
Good, very good, or excellent		102 (51.3%)	100 (51.8%)				44 (45.8%)	40 (44.0%)				58 (56.3%)	60 (58.8%)		
<b>Life Conditions</b>	184			0.138	0.135	89			0.602	0.601	95			0.142	0.138
Poor or fair		105 (52.8%)	89 (46.6%)				54 (56.3%)	46 (50.0%)				51 (49.5%)	43 (43.4%)		
Good, very good, or excellent		94 (47.2%)	102 (53.4%)				42 (43.8%)	46 (50.0%)				52 (50.5%)	56 (56.6%)		

<sup>5</sup> P-values for paired sample t-tests.

**TABLE 4. KEY WELL-BEING MEASURES AT FIRST AND LAST VISIT FOR CLIENTS WHO IDENTIFIED MEASURE AS PRIMARY PURPOSE OF FIRST VISIT**

Primary Purpose of Visits			
Category	First Visit	Last Visit	p-value
Health Insurance (n=77)	Mean: 4.36 Median: 5.00 Standard deviation: 3.749	Mean: 4.36 Median: 5.00 Standard deviation: 3.749	0.000*
Prescription Drugs (n=46)	Mean: 3.91 Median: 5.00 Standard deviation: 3.437	Mean: 6.57 Median: 8.00 Standard deviation: 3.643	0.000*
Money and Finances (n=83)	Mean: 3.42 Median: 3.00 Standard deviation: 2.278	Mean: 3.71 Median: 4.00 Standard deviation: 2.916	0.534
Health Education (n=47)	Mean: 4.90 Median: 5.00 Standard deviation: 2.131	Mean: 6.30 Median: 7.00 Standard deviation: 2.519	0.001*
Housing (n=45)	Mean: 3.10 Median: 2.00 Standard deviation: 2.703	Mean: 6.49 Median: 7.00 Standard deviation: 3.335	0.000*

## Summary for Examining Change in Patient Well-Being Ratings Overtime using General Linear Model (GLM) Repeated Measures

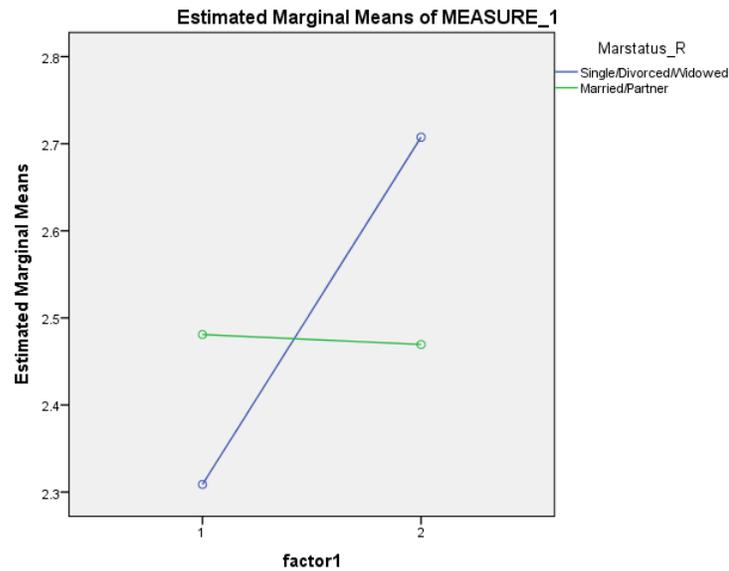
### 1. Patient Life Satisfaction: Conditions of life

TABLE 5. TESTS OF WITHIN-SUBJECTS EFFECTS FOR PATIENT LIFE SATISFACTION: CONDITIONS OF LIFE  
MEASURE: CONDITIONS OF LIFE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
factor1(time)	2.078	1	2.078	3.363	.069	.025	3.363	.445
factor1(time) * Number of Visits	.052	1	.052	.084	.773	.001	.084	.059
factor1(time) * Age	.602	5	.120	.195	.964	.007	.975	.095
factor1(time) * Marital status	2.591	1	2.591	4.193	.043	.031	4.193	.529
factor1(time) * Initial health status	.020	1	.020	.033	.856	.000	.033	.054
factor1(time) * Referral	.006	1	.006	.010	.920	.000	.010	.051
factor1(time) * Number of encounters * Age	3.261	5	.652	1.056	.388	.038	5.278	.367
factor1(time) * Number of Visits * Marital status	.503	1	.503	.814	.369	.006	.814	.146
factor1(time) * Number of Visits * Initial health status	2.554	1	2.554	4.134	.044	.030	4.134	.523
factor1(time) * Number of Visits * Referral	.178	1	.178	.288	.592	.002	.288	.083
Error(factor1(time))	82.184	133	.618					

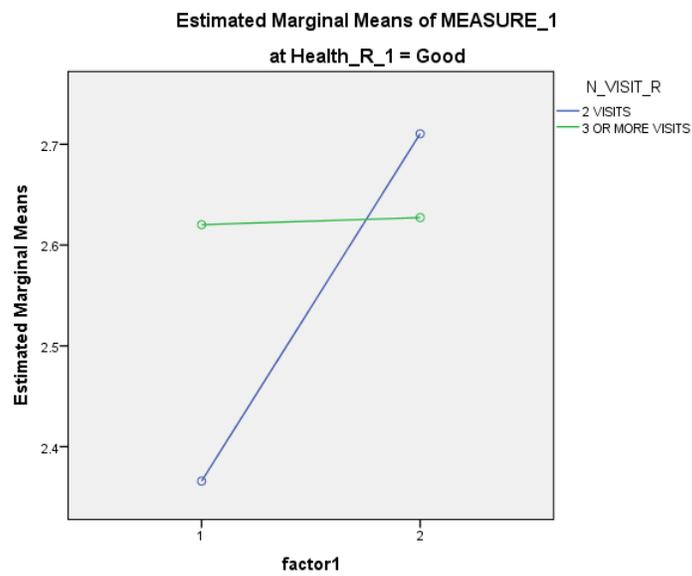
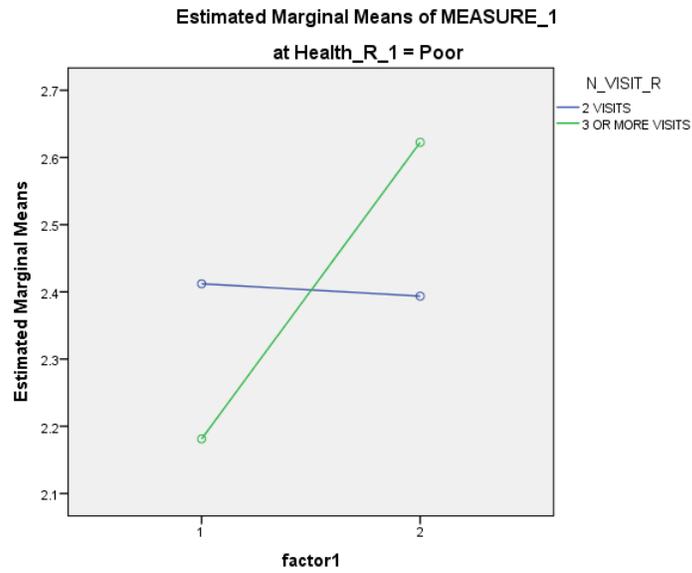
- There was a statistically significant association between change in client self-reported conditions of life and marital status. There was no significant change between the first and most recent Community Connections Team encounter for clients who were married or living with a partner. However, single or divorced or widowed clients experienced statistically significant improvements in self-reported conditions of life.

**FIGURE 1. CHANGE IN PATIENT LIFE SATISFACTION: CONDITIONS OF LIFE BY MARITAL STATUS**



- There was also a statistically significant three-way interaction in change of self-reported conditions of life, number of visits, by self-reported health status at intake. Clients who reported that their health status was poor at intake, with three or more encounters with the Community Connections Team experienced greater increases in their self-reported conditions of life compared to those with only two encounters. In contrast, clients who reported a good health status at intake with only two encounters experienced greater improvement in self-reported conditions of life compared to those with three or more encounters.

**FIGURE 2. CHANGE IN PATIENT LIFE SATISFACTION: CONDITIONS OF LIFE BY INITIAL HEALTH STATUS AND NUMBER OF VISITS**



## 2. Patient Level Satisfaction: Health Status

**TABLE 6. TESTS OF WITHIN-SUBJECTS EFFECTS FOR PATIENT LIFE SATISFACTION: HEALTH STATUS MEASURE: HEALTH STATUS**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
factor1(time)	1.073	1	1.073	1.403	.238	.010	1.403	.217
factor1(time) * Number of Visits	.723	1	.723	.946	.333	.007	.946	.162
factor1(time) * Age	3.124	5	.625	.817	.540	.030	4.084	.286
factor1(time) * Marital status	.286	1	.286	.374	.542	.003	.374	.093
factor1(time) * Condlife_R_1	.004	1	.004	.005	.943	.000	.005	.051
factor1(time) * Referral	.245	1	.245	.320	.573	.002	.320	.087
factor1(time) * Number of Visits * Age	2.086	5	.417	.545	.742	.020	2.727	.197
factor1(time) * Number of Visits * Marital status	.243	1	.243	.317	.574	.002	.317	.087
factor1(time) * Number of Visits * Condlife_R_1	.613	1	.613	.801	.372	.006	.801	.144
factor1(time) * Number of Visits * Referral	.250	1	.250	.327	.568	.002	.327	.088
Error(factor1(time))	102.492	134	.765					

- There were no statistically significant findings.

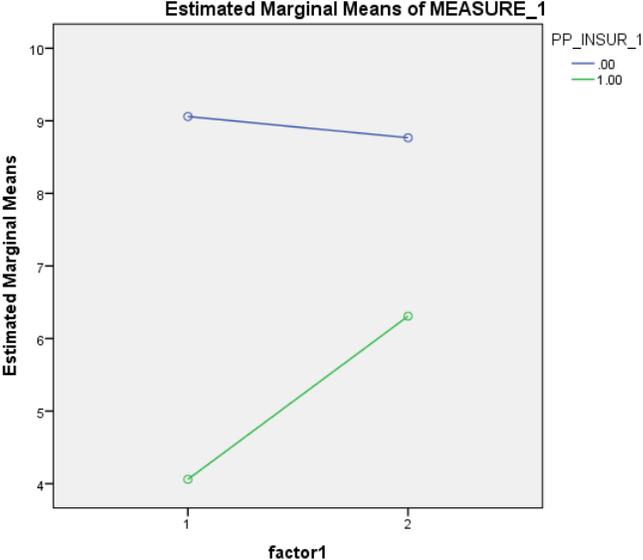
### 3. Well-Being: Health Insurance

**TABLE 7. TESTS OF WITHIN-SUBJECTS EFFECTS FOR CHANGE IN WELL-BEING: HEALTH INSURANCE MEASURE:  
WELL-BEING OUTCOME-INSURANCE**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
factor1(time)	46.820	1	46.820	10.947	.001	.080	10.947	.907
factor1(time) * Number of Visits	18.851	1	18.851	4.407	.038	.034	4.407	.549
factor1(time) * Age	13.426	5	2.685	.628	.679	.024	3.139	.223
factor1(time) * Marital status	11.173	1	11.173	2.612	.109	.020	2.612	.361
factor1(time) * Initial condition of life	4.383	1	4.383	1.025	.313	.008	1.025	.171
factor1(time) * Initial health status	10.888	1	10.888	2.546	.113	.020	2.546	.353
factor1(time) * Referral	.445	1	.445	.104	.748	.001	.104	.062
factor1(time) * Number of Visits * Age	8.542	5	1.708	.399	.848	.016	1.997	.152
factor1(time) * Number of Visits * Marital status	.270	1	.270	.063	.802	.001	.063	.057
factor1(time) * Number of Visits * Initial condition of life	6.214	1	6.214	1.453	.230	.011	1.453	.223
factor1(time) * Number of Visits * Initial health status	13.559	1	13.559	3.170	.077	.025	3.170	.424
factor1(time) * Primary purpose being insurance	102.477	1	102.477	23.959	.000	.160	23.959	.998
factor1(time) * Number of Visits * Primary purpose being insurance	14.807	1	14.807	3.462	.065	.027	3.462	.455
factor1(time) * Number of Visits * Referral	5.821	1	5.821	1.361	.246	.011	1.361	.212
Error(factor1(time))	538.925	126	4.277					

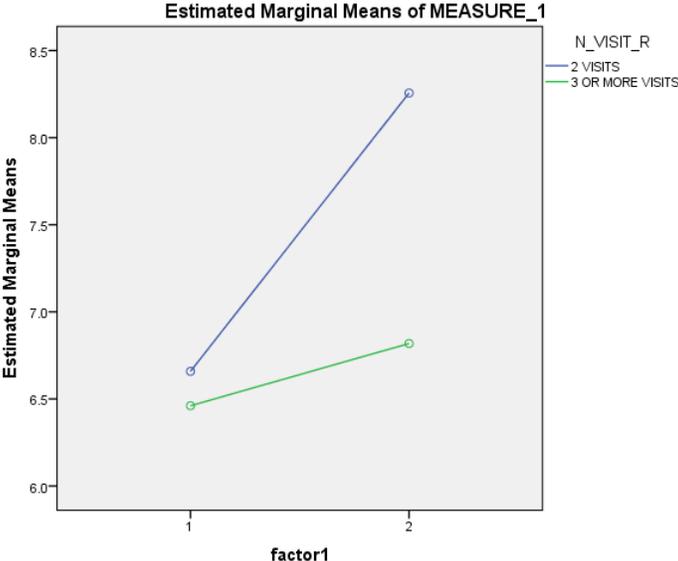
- There was a statistically significant increase in the health insurance measure between the first and most recent encounter for the observation period.
- There was a statistically significant association between change in the health insurance measure and the primary purpose of the client’s encounter. If the client indicated that the primary purpose of the visit was for health insurance specifically, he or she experienced greater improvements in health insurance compared to those who did not indicate health insurance as the primary purpose of their visit.

**FIGURE 3. CHANGE IN WELL-BEING: HEALTH INSURANCE BY PRIMARY PURPOSE OF VISIT**



- There was a statistically significant association between change in health insurance and the number of client visits with the Community Connections Team. Clients who had two visits experienced more improvement than those who had three or more visits during the observation period.

**FIGURE 4. CHANGE IN WELL-BEING: HEALTH INSURANCE BY NUMBER OF ENCOUNTERS**



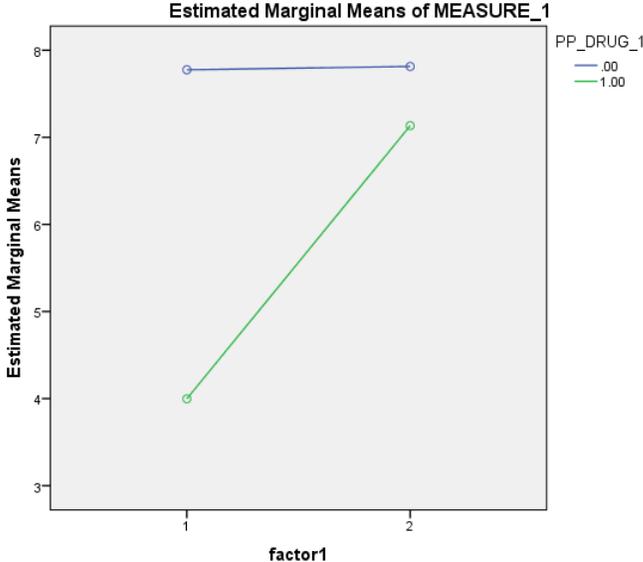
#### 4. Well-Being: Prescription Drugs

**TABLE 8. TESTS OF WITHIN-SUBJECTS EFFECTS FOR CHANGE IN WELL-BEING: PRESCRIPTION DRUGS MEASURE:  
WELL-BEING—PRESCRIPTION DRUGS**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
factor1(time)	90.741	1	90.741	17.154	.000	.124	17.154	.984
factor1(time) * Number of Visits	4.644	1	4.644	.878	.351	.007	.878	.153
factor1(time) * Age	21.830	5	4.366	.825	.534	.033	4.127	.288
factor1(time) * Marital status	23.826	1	23.826	4.504	.036	.036	4.504	.558
factor1(time) * Initial condition of life	6.466	1	6.466	1.222	.271	.010	1.222	.195
factor1(time) * Initial health status	1.099	1	1.099	.208	.649	.002	.208	.074
factor1(time) * Number of Visits * Age	22.457	5	4.491	.849	.518	.034	4.245	.296
factor1(time) * Number of Visits * Marital status	6.521	1	6.521	1.233	.269	.010	1.233	.196
factor1(time) * Number of Visits * Initial condition of life	.744	1	.744	.141	.708	.001	.141	.066
factor1(time) * Number of Visits * Initial health status	6.624	1	6.624	1.252	.265	.010	1.252	.199
factor1(time) * Primary purpose being drug	103.501	1	103.501	19.566	.000	.139	19.566	.992
factor1(time) * Number of Visits * Primary purpose being drug	.054	1	.054	.010	.920	.000	.010	.051
factor1(time) * Referral	.001	1	.001	.000	.989	.000	.000	.050
factor1(time) * Number of Visits * Referral	1.175	1	1.175	.222	.638	.002	.222	.075
Error(factor1(time))	640.076	121	5.290					

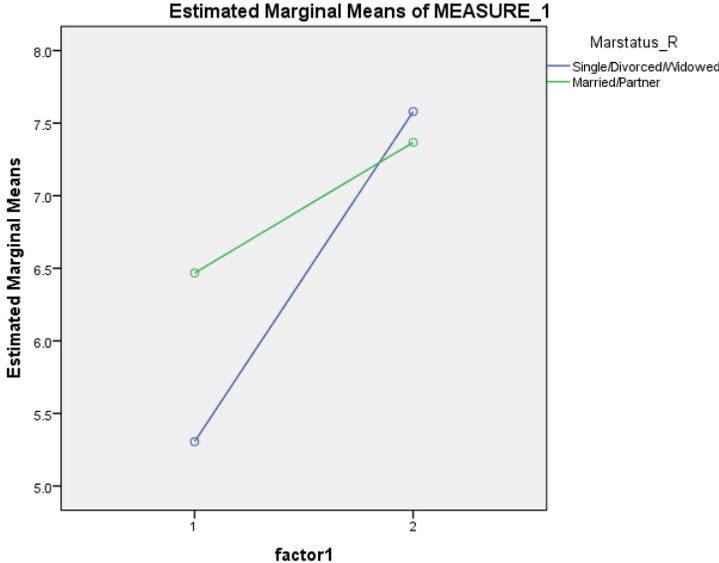
- There was a statistically significant increase in the prescription drug measure between clients' first encounter and the most recent encounter during the observation period.
- There was a statistically significant association between change in the prescription drugs measure and the primary purpose of the client's encounter. If the client indicated that the primary purpose of the visit was for prescription drugs specifically, he or she experienced greater improvements in prescription drugs compared to those who did not indicate prescription drugs as the primary purpose of their visit.

**FIGURE 5. CHANGE IN WELL-BEING: PRESCRIPTION DRUGS BY PRIMARY PURPOSE OF VISIT**



- There was a statistically significant association between change in the prescription drugs measure and marital status. Single, divorced or widowed clients experienced greater improvements in the prescription drugs measure than those who were married or living with a partner.

**FIGURE 6. CHANGE IN WELL-BEING: PRESCRIPTION DRUGS BY MARITAL STATUS**



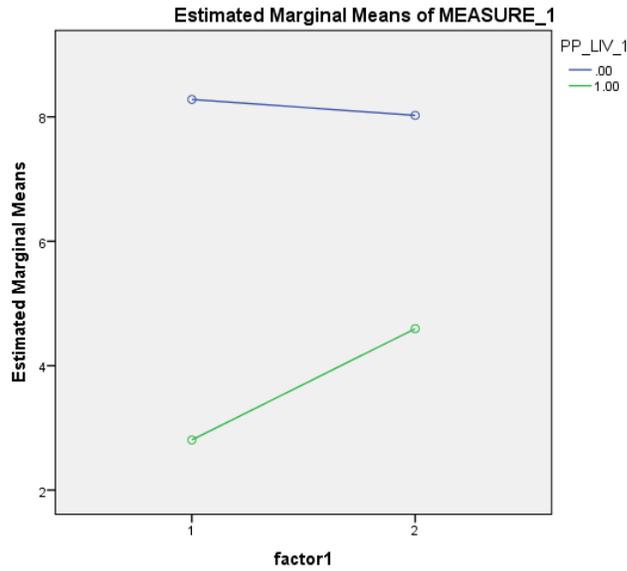
## 5. Well-Being: Housing

**TABLE 9. TESTS OF WITHIN-SUBJECTS EFFECTS FOR CHANGE IN WELL-BEING: HOUSING MEASURE:  
WELL-BEING–HOUSING**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
factor1(time)	22.780	1	22.780	8.426	.004	.063	8.426	.821
factor1(time) * Number of Visits	.065	1	.065	.024	.877	.000	.024	.053
factor1(time) * Age	18.190	5	3.638	1.346	.249	.051	6.729	.463
factor1(time) * Marital status	15.622	1	15.622	5.779	.018	.044	5.779	.665
factor1(time) * Initial condition of life	.705	1	.705	.261	.610	.002	.261	.080
factor1(time) * Initial health status	.786	1	.786	.291	.591	.002	.291	.083
factor1(time) * Number of Visits * Age	6.460	5	1.292	.478	.792	.019	2.390	.175
factor1(time) * Number of Visits * Marital status	4.565	1	4.565	1.689	.196	.013	1.689	.252
factor1(time) * Number of Visits * Initial condition of life	4.264	1	4.264	1.577	.212	.012	1.577	.238
factor1(time) * Number of Visits * Initial health status	.342	1	.342	.127	.723	.001	.127	.064
factor1(time) * Primary purpose being housing	48.371	1	48.371	17.893	.000	.125	17.893	.987
factor1(time) * Number of Visits * Primary purpose being housing	.658	1	.658	.243	.623	.002	.243	.078
factor1(time) * Referral	3.152	1	3.152	1.166	.282	.009	1.166	.188
factor1(time) * Number of Visits * Referral	.207	1	.207	.077	.782	.001	.077	.059
Error(factor1(time))	337.921	125	2.703					

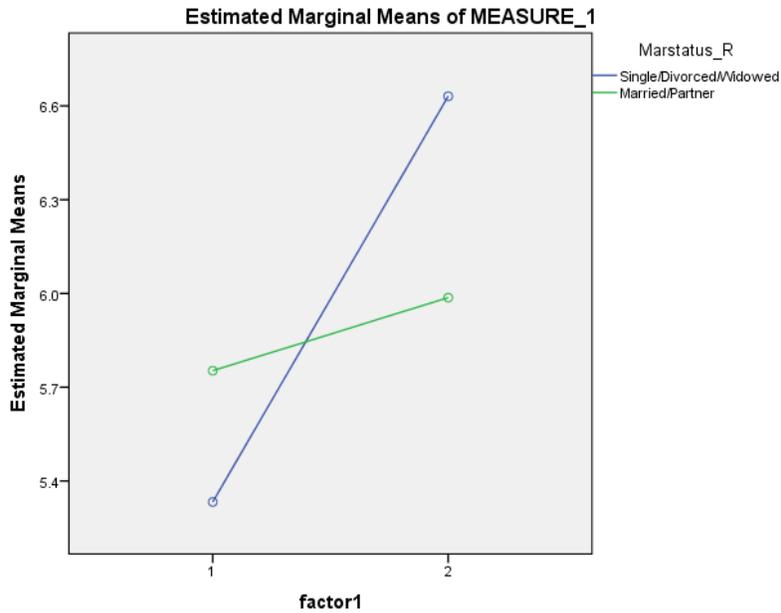
- There was a statistically significant increase in the housing measure between clients' first encounter and most recent encounter during the observation period.
- There was a statistically significant association between change in the housing measure and the primary purpose of the client's encounter. If the client indicated that the primary purpose of a visit was for housing specifically, he or she experienced greater improvements in prescription drugs compared to those who did not indicate prescription drugs as the primary purpose of their visit.

**FIGURE 7. CHANGE IN WELL-BEING: HOUSING BY PRIMARY PURPOSE OF VISIT**



- There was a statistically significant association between change in the housing measure and marital status. Single or divorced or widowed clients experienced greater improvements in the housing measure than those who were married or living with a partner.

**FIGURE 8. CHANGE IN WELL-BEING: HOUSING BY MARITAL STATUS**



## 6. Well-being: Money and Finances

**TABLE 10. TESTS OF WITHIN-SUBJECTS EFFECTS FOR CHANGE IN WELL-BEING: MONEY AND FINANCES MEASURE: WELL-BEING-MONEY**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
factor1(time)	25.903	1	25.903	3.774	.054	.030	3.774	.487
factor1(time) * Number of Visits	3.267	1	3.267	.476	.492	.004	.476	.105
factor1(time) * Age	50.649	5	10.130	1.476	.202	.056	7.380	.505
factor1(time) * Marital status	4.230	1	4.230	.616	.434	.005	.616	.122
factor1(time) * Initial condition of life	4.603	1	4.603	.671	.414	.005	.671	.128
factor1(time) * Initial health status	.012	1	.012	.002	.967	.000	.002	.050
factor1(time) * Number of Visits * Age	41.914	5	8.383	1.221	.303	.047	6.107	.422
factor1(time) * Number of Visits * Marital status	9.194	1	9.194	1.340	.249	.011	1.340	.209
factor1(time) * Number of Visits * Initial condition of life	3.382	1	3.382	.493	.484	.004	.493	.107
factor1(time) * Number of Visits * Initial health status	4.444	1	4.444	.647	.423	.005	.647	.126
factor1(time) * Primary purpose_FINAN_1	.117	1	.117	.017	.896	.000	.017	.052
factor1(time) * Number of Visits * Primary purpose_FINAN_1	.564	1	.564	.082	.775	.001	.082	.059
factor1(time) * Referral	.007	1	.007	.001	.975	.000	.001	.050
factor1(time) * Number of Visits * Referral	12.771	1	12.771	1.861	.175	.015	1.861	.273
Error(factor1[time])	851.051	124	6.863					

- There are no significant findings.

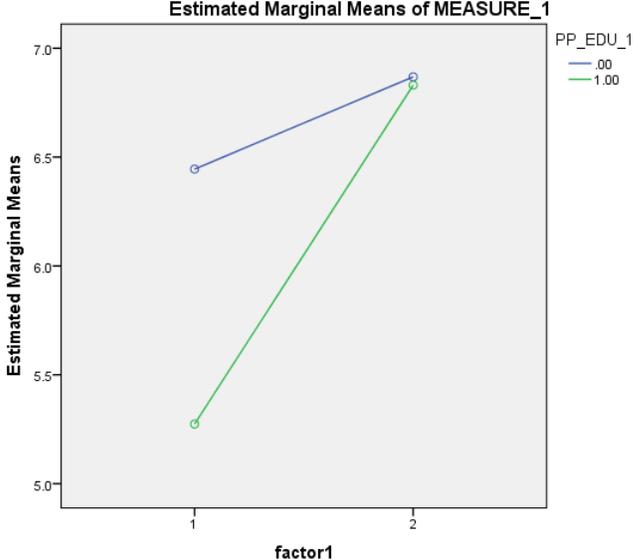
## 7. Well-Being: Health Education

**TABLE 11. TESTS OF WITHIN-SUBJECTS EFFECTS FOR CHANGE IN WELL-BEING: HEALTH EDUCATION**  
**MEASURE: WELL-BEING OUTCOME–HEALTH EDUCATION**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
factor1(time)	37.526	1	37.526	14.293	.000	.126	14.293	.963
factor1(time) * Number of Visits	.011	1	.011	.004	.948	.000	.004	.050
factor1(time) * Age	36.074	5	7.215	2.748	.023	.122	13.740	.806
factor1(time) * Marital status	.297	1	.297	.113	.737	.001	.113	.063
factor1(time) * Initial condition of life	.078	1	.078	.030	.864	.000	.030	.053
factor1(time) * Initial health status	.065	1	.065	.025	.875	.000	.025	.053
factor1(time) * Number of Visits * Age	23.312	5	4.662	1.776	.125	.082	8.879	.589
factor1(time) * Number of Visits * Marital status	9.482	1	9.482	3.612	.060	.035	3.612	.469
factor1(time) * Number of Visits * Initial condition of life	.386	1	.386	.147	.702	.001	.147	.067
factor1(time) * Number of Visits * Initial health status	.606	1	.606	.231	.632	.002	.231	.076
factor1(time) * Primary purpose_EDU_1	12.433	1	12.433	4.736	.032	.046	4.736	.577
factor1(time) * Number of Visits * Primary purpose_EDU_1	.135	1	.135	.051	.821	.001	.051	.056
factor1(time) * Referral	6.159	1	6.159	2.346	.129	.023	2.346	.329
factor1(time) * Number of Visits * Referral	.193	1	.193	.073	.787	.001	.073	.058
Error(factor1(time))	259.923	99	2.625					

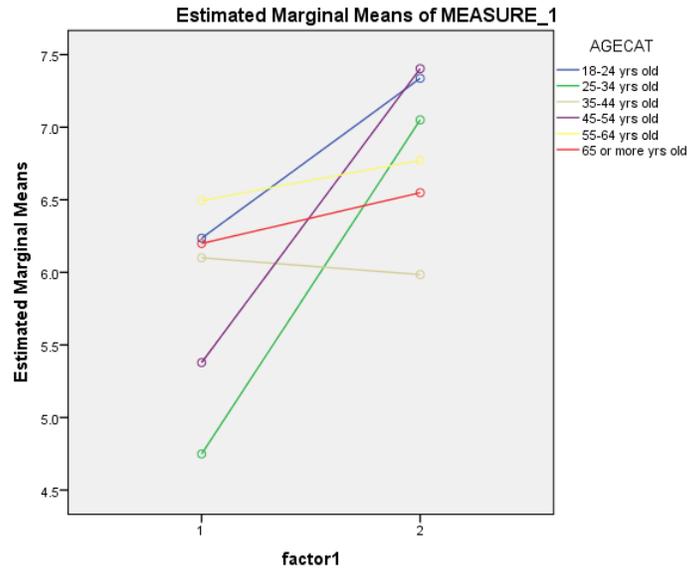
- There was a statistically significant increase in the health education measure between clients' first encounter and most recent encounter during the observation period.
- There was a statistically significant association between change in the health education measure and the primary purpose of the client's encounter. If the client indicated that the primary purpose of the visit was for prescription drugs specifically, he or she experienced greater improvements in prescription drugs compared to those who did not indicate prescription drugs as the primary purpose of their visit.

**FIGURE 9. CHANGE IN WELL-BEING: HEALTH EDUCATION BY PRIMARY PURPOSE OF ENCOUNTER**

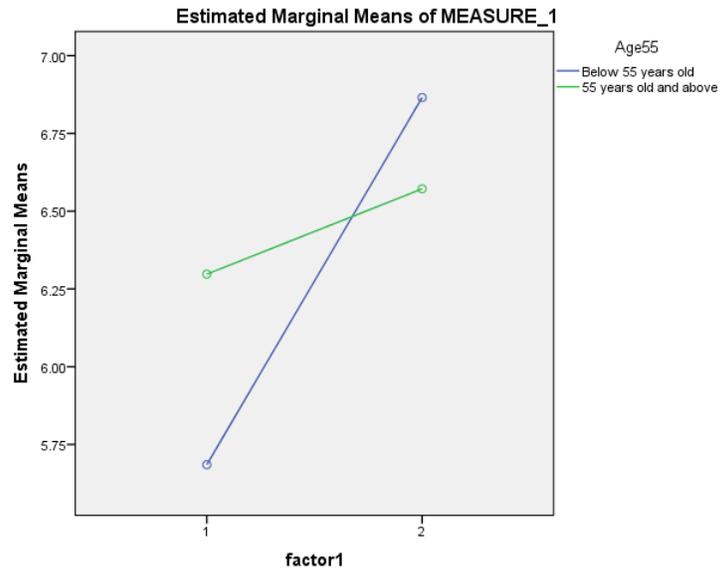


- There was a statistically significant association between change in the health education measure and age. Clients who were ages 25–34 years seem to have experienced the most improvement in the health education outcome rating.

**FIGURE 10. CHANGE IN WELL-BEING: HEALTH EDUCATION BY AGE**



(Additional analysis was done by categorizing age into “55 and above” and “below 55” years. Clients below 55 years experienced more improvement in health education outcome than those ages 55 or older).



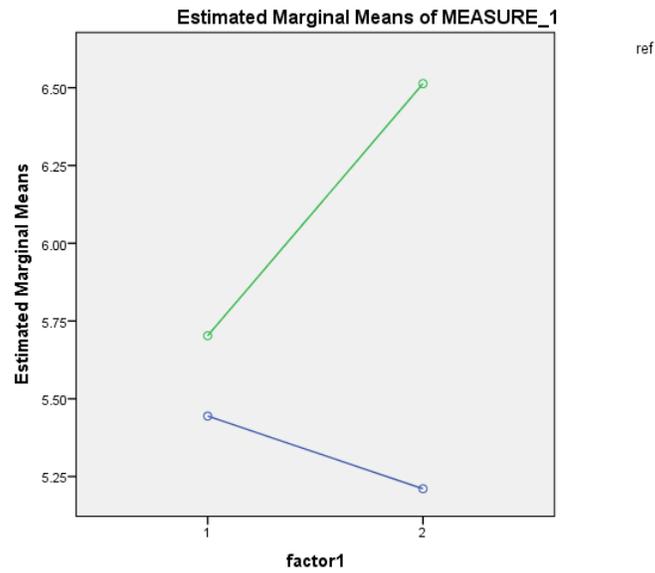
## 8. Well-Being: Overall

**TABLE 12. TESTS OF WITHIN-SUBJECTS EFFECTS FOR CHANGE IN WELL-BEING: OVERALL WELL-BEING MEASURE: OVERALL WELL-BEING OUTCOME**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
factor1(time)	4.733	1	4.733	1.478	.226	.011	1.478	.227
factor1(time)* Number of Visits	.513	1	.513	.160	.690	.001	.160	.068
factor1(time)* Age	22.567	5	4.513	1.409	.225	.049	7.045	.485
factor1(time)* Marital status	8.278	1	8.278	2.584	.110	.019	2.584	.358
factor1(time)* Initial condition of life	5.320	1	5.320	1.661	.200	.012	1.661	.249
factor1(time)* Initial health status	.309	1	.309	.096	.757	.001	.096	.061
factor1(time)* Number of visits * Age	19.061	5	3.812	1.190	.317	.042	5.951	.413
factor1(time)* Number of visits * Marital status	19.285	1	19.285	6.021	.015	.042	6.021	.683
factor1(time)* Number of visits * Initial condition of life	.311	1	.311	.097	.756	.001	.097	.061
factor1(time)* Number of visits * Initial health status	4.842	1	4.842	1.512	.221	.011	1.512	.231
factor1(time)* Referral	18.840	1	18.840	5.882	.017	.041	5.882	.673
factor1(time)* Number of visits * Referral	7.326	1	7.326	2.287	.133	.017	2.287	.324
Error(factor1(time))	435.614	136	3.203					

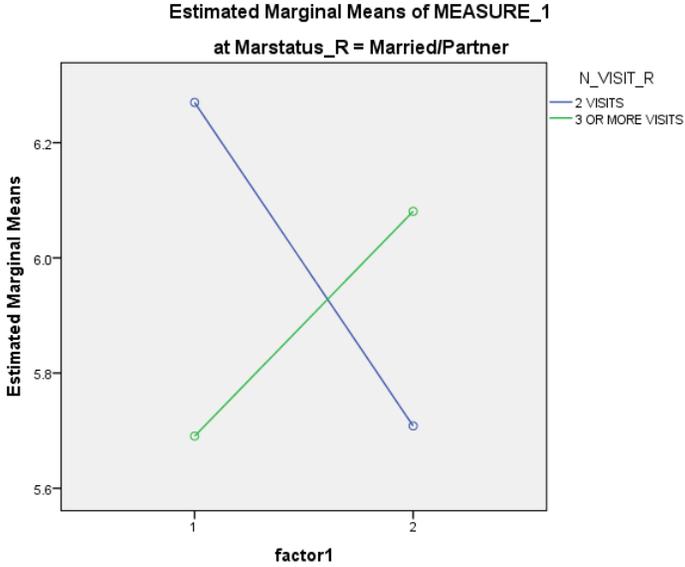
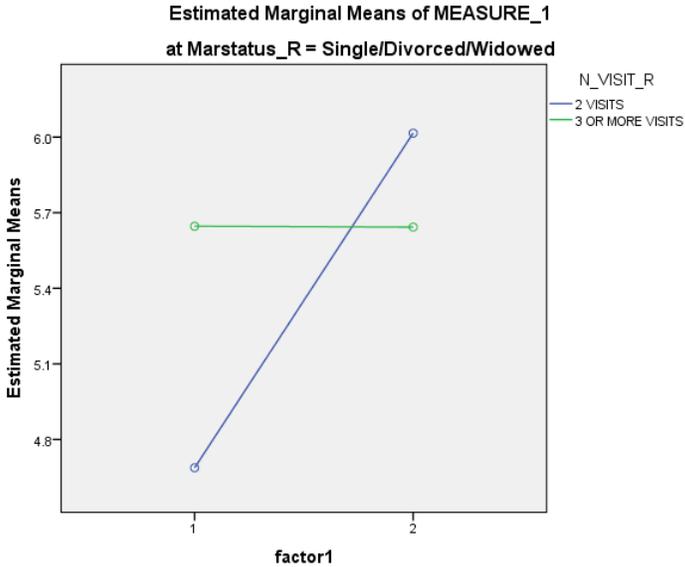
- There was a statistically significant association between change in the overall well-being measure and the client's referral source. Clients referred by someone from within their medical home experienced more improvement in the overall well-being rating than those who were not referred to the Community Connections Team by someone within their medical home.

**FIGURE 11. CHANGE IN WELL-BEING: OVERALL WELL-BEING BY REFERRAL SOURCE**



- There also was a statistically significant three-way interaction in change in overall well-being by marital status and number of encounters. Clients who were single or divorced or widowed reported and had two encounters with the Community Connections Team experienced a statistically significant improvement in overall well-being, while those with three or more encounters did not experience improvement in overall well-being. In contrast, clients who were married or living with a partner and only two encounters showed a decline in overall well-being, while their counterparts with three or more encounters experienced improvement in overall well-being.

**FIGURE 12. CHANGE IN WELL-BEING: OVERALL WELL-BEING BY MARITAL STATUS AND NUMBER OF ENCOUNTERS**





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