CTC-RI Community Health Team Pilot Program
Final Evaluation Report

Prepared by:

Roberta E. Goldman, PhD[1]
Mardia Coleman, MS[2]
Marisa Sklar, PhD[1]
[1]**Alpert Medical School of Brown University**
[2]**May Street Consultants**

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"The best thing is just sitting there talking to her [CHT Community Resource Specialist]. Getting to talk with her about the things I need help with. And she gets it done."
CTC-RI CHT program patient, Sept. 2015
"Somebody in healthcare taking the time to listen, to hear and to help that patient set their own agenda, as opposed to the agenda that the physician or even myself might have."
NCM at a CHT program participating practice, January 2016

1. Executive Summary

1.1 Brief background of community health team (CHT) programs

A small group of health care utilizers uses a larger share of health care resources than do others. In some cases, this disproportionate use is appropriate. We expect people who are sicker and/or have more acute health episodes to use more health resources and to have higher health costs. To illustrate this point, Figure 1 shows that in 2013, across all payers, about one percent of the U.S. population accounted for about 21% of U.S. health expenses. Five percent of the U.S. population accounted for almost half of health care expenses. [1] Further, many patients who are chronically ill and who have multiple chronic conditions also are high health care utilizers. For instance, in 2012, of the top 1% of Medicaid health care utilizers, 83% had at least three chronic conditions and more than 60% had five or more conditions. [2]

Often, patients in that 1% or 5% bracket have multiple providers, have complicated health regimens, and may need to make lifestyle changes to improve their health. They may have mental health or behavioral health disorders, and psychosocial factors impact their health, such as lack of stable housing, food insecurity, or inability to pay for prescriptions. These conditions prevent them from being able to address their health issues fully. Despite, or because of, having multiple providers, most receive care in fragmented physical and behavioral health delivery systems. Multidisciplinary community health teams (CHTs) have been forwarded as a promising response to addressing the myriad needs of the top 1% or 5% of utilizers through enhanced, team-based care coordination and outreach to patients beyond the medical setting, including provision of assistance with issues affecting their health and stemming from the social determinants of health.

1.2 Context and purpose of this CTC-RI pilot CHT evaluation

CTC-RI implemented a pilot Community Health Team (CHT) outreach program in the fall of 2014 for two geographic regions in Rhode Island: Blackstone Valley (BV) and South County (SC). Each CHT contracted with the Rhode Island Parent Information Network (RIPIN) to provide each team's outreach worker staff (Community Resource Specialists.) The purpose of the program is to coordinate with primary care practices to provide services outside of the medical practice offices for patients who have been identified by health plans to be high risk and/or high cost. The anticipated outcomes of these outreach services is to improve patient health and quality of life, enhance appropriate use of health care services, decrease use of inappropriate medical services such as ambulatory sensitive emergency department visits, and, ultimately, decrease unnecessary costs of care.

CTC-RI contracted with the authors of this report beginning in the spring of 2015 to conduct a mixed-methods evaluation of a period constituting approximately the first year and a quarter of this pilot project. The evaluation study was submitted to the Memorial Hospital of RI Institutional Review Board and approved. *A primary application of the findings of the evaluation will be to provide lessons learned prior to considering how to scale up the CTC-RI CHT program to additional RI regions.*

CTC-RI contracted with the authors of this report beginning in the spring of 2015 to conduct a mixed-methods evaluation of a period constituting approximately the first year and a quarter of this pilot project. This report presents 1) a brief literature review of published and online articles about community health team programs in the U.S.; 2) findings from analyses of the quantitative and qualitative data collected from CHT staff, patients served by the CHTs, clinicians at participating primary care practices, and representatives of health plans and the RI Parent Information Network; 3) and recommendations for program enhancements and modifications generated from lessons learned during the pilot program.

1.3 Overview of evaluation findings

Findings from this evaluation study indicate that the CTC-RI CHT program is highly valued by patients who receive its services, as well as by the practice clinicians who are engaged in collaborating with the CHTs on patient care. The CHTs have achieved numerous successes in assisting patients to fulfill the pressing needs that had become detrimental to patients' health, and that had contributed to their high risk and/or high cost utilization of health care services. Along with these achievements, over the past year and a quarter of operation, the fledgling CTC-RI CHTs encountered a variety of challenges that at times may have impeded optimal function of their teams' work. It is anticipated that lessons learned from this pilot will be useful in considering how to most efficiently and effectively design an expanded CTC-RI CHT program across the state.

1.4 Recommendations for CHT program design: Lessons learned from the CTC-RI CHT pilot

1.4.1 CHT structure
- Identify the essential components of a successful CHT program prior to expansion.
- Prior to expansion of the program, establish and communicate universal, detailed, transparent policies and procedures for all aspects of the oversight entity's and CHTs' workflow and functioning. Clearly lay out roles and responsibilities.
- Best practices from successful care management programs call for establishment of a central program office to coordinate activities, monitor progress, and help stakeholders reach their goals. While the pilot rolled out with a focus on regional development to meet regional needs, before scaling up to a larger program it is recommended that the central, coordinating role of CTC-RI be reinforced, and a staff person dedicated to this role would need to be hired.
- Create CHT services and outreach documentation procedures and categories for use across all CHT regions. This process has been started in the pilot; build upon previous work to create a systematic approach to be used by all sites.
- Establish a centralized data warehouse or data repository.
- Reconsider staffing needs to enhance the CHT's reach (additional CRSs and behavioral health staff, additional specialties such as nutrition)
- Streamline supervision of CHT staff.
- Design CHT regions to minimize long hours driving between patients' homes.
- Identify sustainable funding sources.

1.4.2 Patient identification and selection for CHT services
- Standardize identification of eligible, appropriate, impactable patients for CHT services. Reinforce mechanisms for practice NCMs and other providers to be integral to the referral process, thus creating enhanced engagement of the practices and collaborative approach with the CHTs.

- Reduce time lag between identification of 'high risk/high cost' patients by the health plans and onset of enrollment in the CHT program.

1.4.3 CHT functioning
- Initial intake of patients is thorough and effective, and this process should be maintained. To ensure ongoing recognition of patients' conditions over time, institute a protocol for reviewing patients' problems on a periodic basis after initial critical issues are addressed.
- Increase patients' understanding of the role of the CHT and care planning.
- Periodically re-educate patients about available and appropriate CHT services.
- Communicate to patients how contact will be maintained with the CHT at each stage of service.
- Enhance CRSs' role in patient education. This is a task that the CRSs already engage in to some extent, that they have expressed interest in doing, and could be expanded with further training by RIPIN, online training and other mechanisms.
- Enhance coordination between the CHTs and the multiple other sources of case management provided to patients by different stakeholder organizations.
- Teams have much to learn from each other. Enhance communication and collaboration between all teams in a format such as all-staff meetings focused on sharing best practices, identifying and addressing issues that are common to both/all teams.
- Establish data use agreements and information sharing protocols between the CHTs and the health plans.
- Establish real time alerts to CHTs about patients they are serving who have an ED visit or are hospitalized.
- Standardize generation and delivery of patient high risk/high cost lists.
- Compile geographic-specific community resource lists before start-up of new CHTs in additional RI regions.

1.4.4 Enhanced collaboration between the CHTs and the practices
- Strong relationships with many NCMs are contributing to high level collaboration with the CHTs. Establish explicit mechanisms to ensure optimal ongoing communication between CHTs and NCMs and other providers in participating practices.
- Institute protocols such that the 'warm handoff' from the practice (usually the NCM) to the CHT is the standard.
- Establish means for CHTs to regularly communicate patient successes to the practices.

1.4.5 Enhanced communication between the CHTs and the health plans
- Insurers need to know which beneficiaries are receiving CHT services. CHT staff need to communicate with the health plans to receive updated patient contact and other information. Business and data sharing agreements that allow data sharing between the CHTs and the health plans were not in place from the start of the pilot, and were established in early 2016 through meetings with CTC-RI, OHIC and the health plan attorneys. Ensure that these agreements are in place at start-up of new regional teams.

1.5 Conclusion
The CTC-RI pilot CHT program has achieved numerous successes and overcome a variety of obstacles as the program has developed since its inception. CTC-RI is now well-positioned to use their CHT pilot findings and published literature to inform decisions for scaling up to additional RI regions. Considering lessons learned from the pilot will allow CTC-RI to design an expanded program that enables CHT staff throughout the state to more effectively leverage their skills,

experience, and commitment to helping patients improve their health and quality of life while averting avoidable hospitalizations and ED visits. Now that the pilot is more than a year underway and insights can be gleaned from the CHTs' initial successes and challenges, there are opportunities to build on what is already working and put additional critical elements in place prior to initiating expansion.

NOTE: On October 27, 2015, the evaluation team delivered a preliminary interim evaluation report to CTC-RI. This final report expands upon the interim report by providing additional detail and adds some new or expanded recommendations. CTC-RI had been aware of a number of needed modifications that are noted in both evaluation reports, and has been working throughout the project to address them. We provide updates throughout the report that reflect the work CTC-RI has undertaken to address CHT program gaps or needed modifications.

1.6 References for executive summary

1.   Cohen, S., Differentials in the concentration of health expenditures across population subgroups in the U.S., 2013. Statistical Brief #480. September 2015, Agency for Healthcare Quality and Research: Rockville, MD.
2.   Cohen, S., Differentials in the concentration of health expenditures across population subgroups in the U.S., 2012. Statistical Brief #448, in Rockville, MD. September 2014: Agency for Healthcare Quality and Research.

2. Context and objectives of the CTC-RI pilot CHT evaluation project

2.1 Context—background on Care Transformation Collaborate of Rhode Island (CTC-RI)

In 2008, the Rhode Island Office of the Health Insurance Commissioner launched the Rhode Island Chronic Care Sustainability Initiative (CSI-RI) to support primary care practices in their transformation to the patient-centered medical home (PCMH) model. In 2014, CSI-RI became a formally incorporated non-profit organization, Care Transformation Collaborative of Rhode Island (CTC-RI).

CTC-RI's mission is "*to improve the quality, affordability and patient experience of care…and to bring together key health stakeholders to promote care for patients with chronic illnesses through the PCMH model.*" Going forward, we use CTC-RI to refer to both CSI-RI and CTC-RI activities. [3, 4]

CTC-RI's core function is to support primary care practices in their transition to NCQA recognized patient-centered medical homes. CTC-RI began with five pilot PCMH sites. By 2014, that number increased to 73 practice sites and 433 providers serving more than 300,000 Rhode Islanders. CTC-RI aims to have 500,000 of Rhode Island's roughly 1 million residents served by NCQA recognized PCMHs. [3, 4] CTC-RI recognized that many practices had patients with complex medical and social needs, as well as mental health and /or substance use disorders. Practices lacked the internal resources to meet these complex needs of their patients, and more specifically, to address the needs of patients identified by insurers as high risk/high cost. [3, 4]

2.1.1 Context—background on the development of the Community Health Team pilot program

To assist in addressing this situation, CTC-RI determined that creating community health teams (CHTs) could help PCMHs meet the needs of high risk, high cost patients. Using Vermont, Maine and other states as models, CTC-RI developed a pilot Community Health Team (CHT) outreach program in the fall of 2014 for two geographic regions in Rhode Island: Blackstone Valley (BV) and South County (SC).

The purpose of the CHT program is to coordinate with primary care practices to provide services outside of the medical offices for patients who have been identified by health plans to be high risk and/or high cost. The anticipated outcomes for these CHT outreach services are to improve patient health and quality of life, enhance appropriate use of health care services, decrease use of inappropriate medical services such as ambulatory sensitive emergency department visits, and, ultimately, decrease unnecessary costs of care. Additionally, by improving patient adherence to and engagement with medical and behavioral health treatment, PCMH practices are more likely to receive or maintain NCQA status, and RI demonstrates decreases in cost of patient care.

CTC-RI chose a decentralized approach to management and development of the program. In this way, each region could develop a program that was responsive to regional needs. Additionally, by contracting with regional entities, these entities would be responsible for the day-to-day management of the CHTs. CTC-RI contracted with a separate regional entity to develop and manage each CHT pilot. Contract deliverables and milestones, shown in Table 1, established expectations for each entity's CHT. CTC-RI provides each entity with a Memorandum of Understanding (MOU) template, shown in Table 2, to modify for use with participating practices.

Table 1: CHT Contract Deliverables

Deliverable/Milestone[1]
1. Hire/maintain staffing plan based on the needs of high risk patients and the community with Key Personnel; orient Key personnel to job responsibilities and evaluate performance.
2. Execute/maintain MOUs and BAAs with CTC-RI practice sites that are seeking to participate in the CHT pilot program in the South County/BVCHC geographic area.
3. Provide administrative support for CHT Pilot Project (i.e., space, telephone, computer, IT support, etc.)
4. Together with the CTC practices, identify high risk patients.
5. Together with the CTC practices, outreach to identified high risk patients appropriate for the CHT Pilot Project and arrange communications with patients including patient consent consistent with State and Federal guidelines.
6. Together with the CTC practice sites, outreach to health plans if unable to reach identified high risk patients.
7. Engage high risk patients based on patient needs (i.e., home visits, ER/IP, provider office.)
8. Work with participating CTC-RI practice sites to identify and deploy screening tools, care planning tools, including development and implementation of work flows and care plan templates to track current information on indicated care and patient utilization (such as inpatient admission and emergency room use.)
9. Manage an anticipated active caseload of 150 high risk patients (50 patients per staff member) with annual case load of approximately 150 patients. (NOTE: BH caseload may be lower than the 50 patients/FTE.)
10. CHT collaborators will have regular meetings (at least monthly) to review patient needs and care plan efforts for patients involved in the CHT Pilot Project, and to engage in effective problem solving to meet patient needs an program goals, including community based care coordination.
11. Provide CTC practice site with patient care documentation on screening results, care plan and level of patient engagement.
12. Develop dashboard for reporting CHT Pilot Project outcomes based on CTC criteria.
13. Analyze data and perform rapid cycle PDSA's to improve performance.
14. Develop and implement staff program development/training plan.
15. In conjunction with the CTC practice sites, develop, implement and maintain compacts to ensure high level care coordination with behavioral health providers, home care agencies, skilled nursing facilities, etc.
16. Arrange for allied health serves such as pharmacy, nutrition, based on the needs of the high risk patients.
17. Report to the CTC-RI Board of Directors on progress and outcomes of the CHT Pilot Project.
18. Update high risk registry.

[1]Timeframe for completion: Deliverable/milestone 1-16 is on-going; Deliverable/milestone 17, 18 is quarterly and as requested.

Table 2: MOU Goals and Objectives for the CHT Entity and Provider Practices

PRACTICE MOU Goals and Objectives
1. Identify high risk/high impact patients who might benefit from the intensive care management services provided by CHT staff.
2. Improve the overall health and functioning of the patients that are involved with this project.
3. Enhance service capacity by developing relationships with specialists who provide alcohol/drug treatment services.
4. Enhance service capacity by having compacts with Health Homes who can provide additional supports for particular patient populations (i.e., patients with SPMI, patients with opioid addictions.)
5. Enhance communication and collaboration between CTC practice team and the CHT staff and the patients by providing space for the CHT staff to operate at the practice site and provide CHT staff with access to practice electronic health record system, consistent with State and Federal regulations.
6. Enhance service capacity by participating in staff development programs.
7. Improve population health for the identified high risk/high cost/high impact patients through creating at the practice level a "real time" registry that incorporates identification of the CHT patients, and corresponding patients events such as hospitalizations and ED usage.
8. Improve population health by conducting weekly review at the practice site (inclusive of the CTC practice team and CHT staff) of high risk patients to monitor progress.
9. Improve identification of depression, alcohol and drug use by incorporating screening for these conditions and referral to treatment.
10. Monitor and report on effectiveness of interventions and strategies based on agreed upon measures of success.
11. Ensure appropriate practice leadership and CHT participation in CHT meetings.
Policies and Procedures
CTC practice agrees to follow the policies and procedures and reporting requirements that are agreed to as being part of the CHT pilot project. CHT ENTITY shall advise CTC PRACTICE of any applicable modifications that will need to be agreed by the CHT program.

In order to provide each CHT with highly trained community outreach staff, at the start of the pilot CTC-RI (at the time, CSI-RI) arranged for each CHT to contract with the Rhode Island Parent Information Network (RIPIN) that has a long history of training and supervising employees with peer navigator types of skills. For the CHT programs, these outreach workers are called Community Resource Specialists. However, CHTs do have the option of contracting with RIPIN for staff, or hiring the Community Resource Specialists themselves. RIPIN offers ongoing training to the Community Resource Specialists and to other CHT staff. This arrangement leverages the training expertise that RIPIN has developed, and relieves CTC-RI and the individual CHTs from having to develop their own training programs.

2.2 Objectives of the CHT pilot project evaluation

- To describe the structure and work processes of the two CTC-RI pilot CHTs.
- To consider the work of the CHTs within the broader context of CHT initiatives nation-wide, through conduct of a comprehensive literature review.
- To implement qualitative interviews with patients who have received CHT services, CHT administrators and staff, representatives of the health plans and the Rhode Island Parent Information Network (RIPIN), and NCMs at the participating PCMH practices.
- To implement an online survey with CHT patients, CHT administrators and staff, and clinicians at the enrolled practices to assess perceptions regarding the structure, processes, and outcomes of the CHT pilot.
- To collect service documentation from the CHTs.
- To review presentation of claims data and provide recommendations for using these data for future CHT evaluation purposes.
- To report findings from these multiple data collection efforts and develop insights leading to recommendations and lessons learned.

Notes on abbreviations used in this report:

- ➢ We refer to the **South County team as SC**, and the "North County" Pawtucket/Central Falls **Blackstone Valley team as BV**.

- ➢ Unless we are referring specifically to the social worker member of the team, or we are referring to the entire team as a unit, we use the label **CRS** – **Community Resource Specialist** – for the staff person who is interacting directly with the patient.

2.3 References for context and objectives

3.   CTC-RI, Annual Report 2013. 2013, Care Transformation Collaborative of Rhode Island: Providence, RI.
4.   CTC-RI, Annual Report 2014. 2014, Care Transformation Collaborative of Rhode Island: Providence, RI.

3. Evaluation methods

This evaluation design consists of both qualitative and quantitative methods in order to benefit from data available using multiple means of inquiry. After careful consideration by the authors, CTC directors, CTC steering committee members and the CTC Program Evaluation Committee members, a selection of methods and data sources were identified for inclusion. We do not report on patient claims data due to limitations further discussed in section 5.2 of Persisting data needs.

3.1 Systematic literature review

We conducted a review of the peer-reviewed and gray literature in the following areas: community health teams, super-utilizer programs, emergency department diversion programs, care

management, complex care management, high risk/high-cost patients, community health workers, and patient navigators. We searched by these terms and reviewed references in relevant documents. Gray literature sources include federal and state agency documents, state program annual and evaluation reports, and issue briefs and other reports from nationally recognized funders and policy makers. We conducted an additional review of the best practice community health team programs in Vermont and North Carolina.

We have focused this review on community health team and other super-utilizer program components and processes. We include information on complex care management because the literature includes community health team programs in its review of complex care management programs. For this review, we looked at CHTs as an intervention to address super-utilizers or high-risk, high-cost patients, to support the patient centered medical home, and as part of an overall care management approach. Reporting on funding mechanisms was not a focus of this review, although we do provide some high-level information.

A summary of the literature review is included in this document. The complete review is provided to CTC-RI in two additional separate documents.

3.2 Quantitative methods

3.**2.1 Service documentation**. Prior to commencement of evaluation efforts, CHT administrators and staff were instructed to document team outreach and service provision efforts. This data was provided to the evaluation team to better understand the structure, processes, and outcomes of the CHT intervention. Descriptive statistics of this service documentation through December, 2015 are included in this report.

3.2.2 Survey instruments. Drawing from existing surveys, the literature, and our knowledge of the CHT program goals, we created surveys for CHT patients, CHT administrators and staff, and practice staff. When possible, survey items were adapted from validated instruments. Additional items not previously validated were included in the surveys to address factors unique to the CHT service, and to reflect ACA recommendations for CHT interventions. Items were adapted and included in these surveys from the validated instruments described in greater detail below. When possible, subscale scores were created by averaging responses to survey items in a manner consistent with the Vermont 2013 Mental Health Consumer Satisfaction Survey.

Vermont 2013 Mental Health Consumer Satisfaction Survey.[1] The Vermont survey of consumer satisfaction is a 44-item measure with an overall satisfaction score that is constructed from responses to all survey items, and the following five additional subscales: 1) Access, 2) Service, 3) Respect, 4) Autonomy, and 5) Outcomes. Internal consistency of the total measure and the five subscales are good to excellent ($\alpha_{overall\ satisfaction}$ = 0.983, α_{access} = 0.907, $\alpha_{service}$ = 0.963, $\alpha_{respect}$ = 0.929, $\alpha_{autonomy}$ = 0.888, and $\alpha_{outcomes}$ = 0.959). Responses are scored on a 5-point Likert type scale ranging from "Strongly disagree" to "Strongly agree."

Lesselroth, Holahan, Adams et al survey to assess technology implementation effectiveness. [2] Lesselroth, Holahan, Adams et al developed a survey to measure Portland Veterans Affairs Medical Center primary care providers' perceptions of a technology implementation. The resulting scale is a 37-item measure with the following five subscales: 1) Attitude, 2) Technology Perceptions, 3) Climate for Implementation, 4) Consistency of Use, and 5) Quality of Use. Internal consistency of the subscales are moderate to good ($\alpha_{attitude}$ = 0.85, $\alpha_{perceptions}$ = 0.90, $\alpha_{climate}$ = 0.68; internal consistency not available for remaining subscales). Items from the attitude subscale were adapted for this study's survey. Responses for this subscale are scored on a 5-point Likert type scale ranging from "Strongly disagree" to "Strongly agree."

Medical provider attitudes about behavioral health consultants in integrated primary care.[3] This 6-item survey was developed to assess medical provider attitudes about behavioral health

consultants in integrated primary care. Items measured how medical provider's perceived the impact of behavioral health consultants on service efficiency, overall patient care, behavioral and physical health of patients, provider level of comfort discussing behavioral health issues, and importance of behavioral health consultants to the practice. Internal consistency of this scale was excellent ($\alpha = 0.90$). Responses are scored on a 5-point Likert type scale ranging from "Strongly agree" to "Strongly disagree."

3.2.3 Data management and analysis. Survey data were collected and managed using REDcap (Research Electronic Data Capture) electronic data capture tools hosted in the Department of Biostatistics Center for Statistical Sciences of Brown University. REDcap is a secure, web-based application designed to support data capture for research studies providing: 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources. All web-based information transmission is encrypted. The data is stored on a private, firewall protected network. REDcap was developed specifically around HIPAA-Security guidelines and is implemented and maintained according to Brown University guidelines. REDcap currently supports >500 academic and non-profit consortium partners on six continents and 38,800 research end-users. Data files are available only to authorized personnel and no identifying information will be stored in computer files containing survey data.

Descriptive statistics were analyzed on patient demographics, CHT outreach and service provision efforts, and survey responses. A repeated-measures Analysis of Variance (ANOVA) was conducted to assess differences in survey subscale scores between patients, CHT staff, and practices, while addressing within-**participant** variability.

3.2.4 References for quantitative methods.

1. Harrigan E, Leno S. M. (November 2014). Consumer evaluation of community rehabilitation and treatment programs in Vermont: FY2013, Technical Report. Vermont Agency of Human Services Department of Mental Health Research and Statistics
2. Lesselroth B.L., Holahan P.J., Adams, K., Sullivan, Z.Z., Church, V.L., Woods, S., Felder, R., Adams, S., Dorr, D.A. Primary care provider perceptions and use of a novel medication reconciliation technology, Informatics in Primary Care, 2011;19:105-118.
3. Torrence N.D., Mueller A.E., Ilem A.A. Renn B.N., DeSantis B. Medical provider attitudes about behavioral health consultants in integrated primary care: A preliminary study, Families, Systems, and Health, 2014;32(4):426-432.

3.3 Qualitative methods

3.3.1 Instrument development. We have designed separate qualitative, open-ended question guides for interviews with patients, CHT staff, health plan representatives, Rhode Island Parent Information Network (RIPIN) representatives, and NCMs at the participating practices. There are additional individuals who CTC would like to have included in interviews (e.g. RIPIN administrators), and these questions will be developed in the next phase of work. Informing our decisions about questions to include in the interview guides was the comprehensive literature review (particularly about processes that are included in CHT-like programs in other states), and discussions about goals of the CHT program with the CTC directors, CHT staff and in the CHT planning committee meetings.

3.3.2 Data collection. All participants in qualitative interviews and group discussions provided written informed consent. Interviews and group discussions were digitally audio recorded and transcribed verbatim. The entire evaluation team conducted group discussions with each team. One member (MC) of the evaluation team conducted each SC patient interview; another member (RG) conducted each BV interview. A contact referral form was offered to the patients by the CHT staff, and patients who were interested in participating in an interview provided their name, telephone number and address to be then given to the evaluation interviewers. Interviewers contacted patients by telephone to schedule an interview. Some patients who were referred were ultimately not reachable, however no patient who provided contact information subsequently refused to be interviewed. Patients were offered their location of choice for the interview, almost all patients invited the evaluator to come to their home.

3.3.3 Analysis of qualitative data. Qualitative data was analyzed using traditional qualitative analysis processes that have, in recent years, been labeled "immersion/ crystallization".[1] This process entails individually listening to the audio recordings, reading the transcripts, and taking analytic notes throughout the process. In addition, the data are discussed by the evaluation team to explore divergent interpretations and to arrive at the final presentation of the findings.

3.3.4. References for qualitative methods.

1. Borkan J. 1999. Immersion/Crystallization. In Crabtree B, Miller W (eds). Doing Qualitative Research, 2nd Edition, pp. 179-194. Thousand Oaks, CA: SAGE Publications.

3.4 Institutional Review Board approval
The Memorial Hospital of Rhode Island Institutional Review Board approved this study and all study materials on August 27, 2015.

4. Findings

**4.1 Systematic literature review summary**
Note: A full, comprehensive literature review is provided in two additional documents as supplements to this evaluation report.

4.1.1 Overview. A small group of health care utilizers uses a larger share of health care resources than do others. In some cases, this disproportionate use is appropriate. We expect people who are sicker and/or have more acute health episodes to use more health resources and to have higher health costs. To illustrate this point, Figure 1 shows that in 2013, across all payers, about one percent of the U.S. population accounted for about 21% of U.S. health expenses. Five percent of the U.S. population accounted for almost half of health care expenses. [1] Further, many patients who are chronically ill and who have multiple chronic conditions also are high health care utilizers. For instance, in 2012, of the top 1% of Medicaid health care utilizers, 83% had at least three chronic conditions and more than 60% had five or more conditions. [2]
Often, patients in that 1% or 5% bracket have multiple providers, have complicated health regimens, and may need to make lifestyle changes to improve their health. They may have mental health or behavioral health disorders, and psychosocial factors impact their health, such as lack of stable housing, food insecurity, or inability to pay for prescriptions. These conditions prevent them

from being able to address their health issues fully. Despite, or because of, having multiple providers, most receive care in fragmented physical and behavioral health delivery systems.

Figure 1: Distribution of U.S. Health Expenditures, 2013[1]
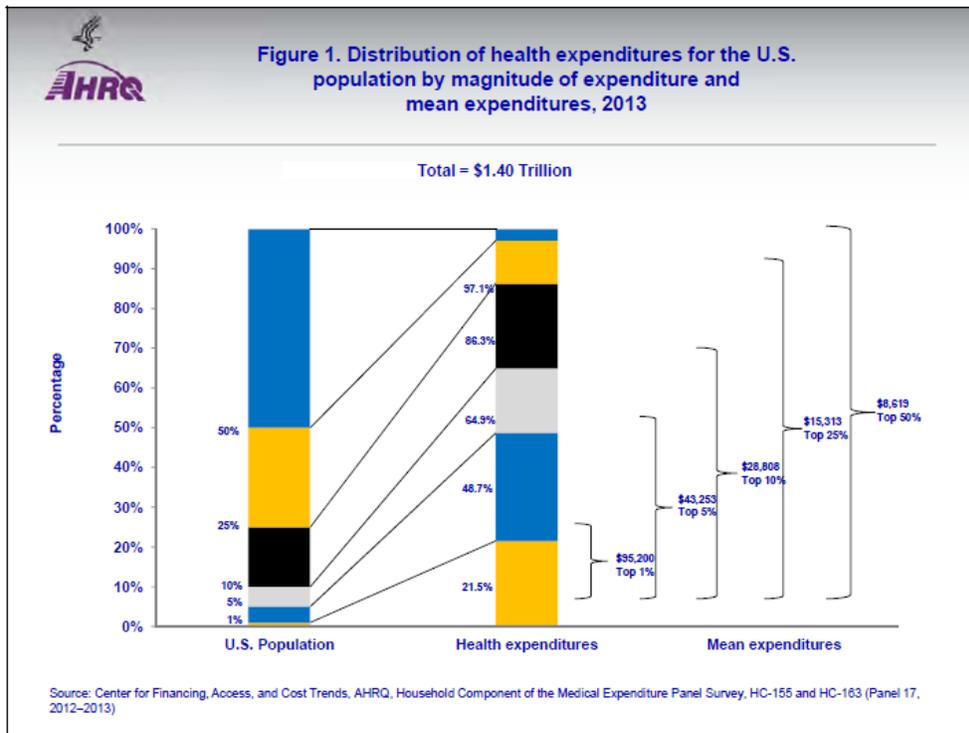
[1] Figure 1 includes expenditures across all age groups, including ages 0-17.
Source: http://meps.ahrq.gov/mepsweb/data_files/publications/st480/stat480.pdf

One way to categorize the two categories of high utilizers is to refer to people in the 5% utilization bracket as high risk/high cost patients and those in the top 1% as super utilizers. However, this categorization is not as simple as it seems. We found a number of programs labeled in the literature as super utilizer programs actually targeted the top 5%. Programs targeting the top 5% of utilizers, of course, include the super utilizing 1%.

Public, private and commercial payers have implemented a number of disease, case, and care management approaches and related programs to improve health outcomes and quality and reduce health expenditures for members overall, members with or at risk for chronic disease, and/or the top 1% and/or top 5% utilizers.

Programs that are focused on high cost, high risk patients target patients using case identification and predictive modeling that factors in, for example, patterns of high cost utilization, chronic conditions and/or mental health or behavioral health disorders; polypharmacy; the elderly at risk for nursing facility placement; patients at the end of life; and other disabled populations. Case identification for high or super utilizing patients may include other factors, such as evidence of fragmented care, poor treatment adherence, social and economic needs, and receptivity to care management. Programs also select patients based on qualitative methods such as provider referral, or a hybrid approach that uses both quantitative and qualitative methods. [5]

Complex care management (CCM) and complex care management teams currently are being widely used and tested as a care management approach to improve the quality of care and reduce costs for high risk high cost and super utilizer patients. [6-12] These are defined as follows:

- **Complex care management (CCM):** The systematic coordination and assessment of care and services provided to members who have experienced a critical event or diagnosis that requires the extensive use of resources and who need help navigating the system to facilitate appropriate delivery of care and services. (Diagnosis may mean diagnosis of multiple comorbidities or progression of a condition to a point of severity that would require the extensive use of resources. (NCQA) [13]
- **Complex care management for primary care teams:** Specially trained, multidisciplinary teams that meet the needs of patients with multiple chronic conditions or advanced illness, many of whom face social or economic barriers in accessing services. [9]

Additionally, for about the last 20 years, there has been a concerted effort to improve care coordination at the provider level through initiatives such as patient centered medical homes and accountable care organizations. These new models require additional support to meet patient needs. These supports include care coordination, behavioral health services, health education and coaching, and addressing patients' psychosocial needs. Recognizing this imperative, the Affordable Care Act specifically defines community health teams as a care management approach to support patient centered care. [14]

4.1.2 CHT programs overview. As described by the Commonwealth Fund, CHTs are "*locally based care coordination teams comprising multidisciplinary staff from varied disciplines such as nursing, behavioral health, pharmacy and social. In partnership with primary care practices, teams connect patients, caregivers, providers and systems through care coordination, collaborative work, and direct patient engagement.*" These teams vary in the population they target. Some states, for instance, Vermont and North Carolina, offer CHT services to any patient who is at risk for chronic conditions. They provide complex care management (CCM) programs to the targeted populations, such as high risk/high cost patients, patients with substance use disorders receiving Medication Assisted Therapy, or disabled populations. These CCM programs are organized in the same way as the more generally available CHT, and often work at the same locations as the CHT.

Others states have their CHTs or specific CCM programs target a specific subset of patients, for instance, the top 1% of utilizers; others the top 5%. Within that top 1% or 5%, states determine their targeting criteria using a data-driven approach that examines the overall population, subpopulations, and regional needs and resources. Thus, states may target patients based on specific pattern of care, high observed-to-expected costs, very high levels of utilization, and/or provider referral and review. States also develop inclusion/exclusion criteria, e.g., patients with cancer or receiving dialysis may be excluded.[8, 10, 15] See Appendix 2 for an overview of three community health team programs.

4.1.3 CHT composition and functions. The composition of community health team staff varies and depends on the program model and the program setting. Some CHTs are embedded in high volume primary care practices; others are community based and serve regional practices.

CHT and CCM programs have similar aims and staffing structures. They both focus on care coordination, address gaps in care and the health and psychosocial needs of patients, and provide health education and coaching. Both CHT and CCM programs emphasize in-person contact, warm hand-offs and timely patient follow-ups after hospitalization or ED visits. For instance, the CHT or CCM team may meet the patient bedside or within 24-48 hours of admission or ED visit. Because of data centralization, these patients may not be affiliated with a primary care practice. When that is the case, the patient is linked to primary care. [8, 15-17]

It can be confusing to tease out whether a care management program is a CHT or a CCM team. Both have similar aims, staffing structures and incorporate the same principles. The literature often reports on "team based care" without differentiating the type of care management approach. It can be useful to think about CHTs supporting patients within the overarching aims of the patient centered medical home with services aimed at preventing high cost, and CCMs focusing more on patient utilization after the patient has become high cost. And hybrid approaches exist such as the 2 regional CTC-RI pilot CHTs focused on providing many elements of complex care management (e.g., care coordination, behavioral health services and linkages), and patient support to address psychosocial and economic issues for high risk, high cost patients.

4.1.4 CHT and CCM programs go beyond psychosocial needs. The literature reveals that these teams address far more than patients' psychosocial needs. While some CHTs report "front-loading" helping patients with social determinants of health such as housing, entitlements, and food, this is within the context of addressing health needs. There is also emphasis on face-to-face contact, helping patients get to medical and behavioral health appointments, coordinating care between health care and service providers, and helping patients understand and manage their health conditions and medications.[8, 15-17]

Core staff typically includes nursing, social work and community outreach. CHTs vary in the types of staff who provide community outreach; however, community health workers and peer navigators appear to provide the majority of community outreach to patients. And depending on the model and setting, CHTs may also include behavioral health, pharmacy, and health educator staff. CCM teams are staffed similarly. [8, 15-17]

CHT programs often have community health workers or peer navigators conduct varying levels of medication management, disease management, pain management, health education and management of chronic conditions. Additionally, community health workers or patient navigators also work with patients around appointment preparation and provider engagement. These workers did not need to have advanced degrees to conduct these tasks, and often do not. Programs differ in the levels of training and certification staff are required to have to conduct these tasks.[8, 15-17]

Both CHT and CCM teams work with patients regarding attending their medical appointments and providing care coordination. This includes coordination with other state or local agencies that provide services. CHTs and CCM teams make sure patients know when they have appointments and help patients prepare for appointments. They may attend appointments with patients to provide support or to help them understand information delivered at the visit.

In the following sections, we provide information regarding key components of CHTs. We note if each component also applies to CCM teams and to super-utilizer programs.

4.1.5 CHT and behavioral health interventions. CHTs and CCM teams often include licensed staff to provide behavioral health support. Depending on the program model, this support may be offered in the provider setting or in the field. Behavioral health counseling is typically short-term, no more than eight visits. The counseling is directed to support the patient's health needs or goals, for instance, managing symptoms of anxiety or depression. CHT behavioral health staff make referrals and get the patient linked to appropriate behavioral health services and providers. They also may help coordinate care between behavioral and primary care providers.[15, 16]

4.1.6 CHTs support the patient centered medical home (PCMH). As noted earlier, a core function of CHTs is to support the patient centered medical home. A key feature of Vermont's and North Carolina's CHT programs is their emphasis that CHTs support the PCMH, Accountable Care Organization, or primary care practices. These states' CHTs appear to be seamlessly integrated into the patient centered medical home. All levels of PCMH staff know about and support the CHT

functions and aims. Providers report more efficiency when CHTs are involved with their practices.[17-20]

4.1.7 Organizational engagement is critical for success. We found that organization, provider and practice engagement are critical success factors. The need for this engagement is highlighted in a recent California Health Care Foundation Issue Brief that reported on lessons learned from organizations that are successful in managing cost of care, regardless of the program type: "...*any organization appears capable of addressing cost of care, as long as the foundation is strong….The common element appears to be the foundation from which an organization begins the work—whether leadership is committed, and the culture supports, a shift from volume to value.*" [21]

4.1.8 The importance of data. High performing health teams and other super-utilizer programs use data to develop, implement and evaluate their programs. The community health teams use the same case management information system software. It appears that states developed or began to develop these centralized functions, in at least a rudimentary way, before implementing their programs.[8, 19, 22, 23]

High performing programs have centralized data functions and data management, and a robust data repository or data warehouse. At a minimum, the data warehouse provides claims data, ideally, across payers—Medicaid, Medicare and private insurers. However, the data warehouse is most effective when it goes beyond claims data to include, for example, encounter data, pharmacy data, electronic health record data, birth and death certificate data, data from other state agencies, and case management data. Other data sources include real-time notification of inpatient admissions or ED visits, patient demographic files, patient assessments, data from EHRs, data from other state agencies, and information from families and from the care team. [8, 19, 22, 23] Creating such a repository and the requisite data sharing agreements can be daunting. North Carolina notes that current laws regarding technology and data sharing have not kept up with technological advances. [23]

High performing programs use this centralized data in real-time to support high quality primary care and CHT care management. Programs and providers access data using tools such as web-based portals, patient dashboards, case management reporting and care management dashboards, and specialized reports. Programs can receive alerts when patients are in the ED, have an in-patient admission and/or are about to be discharged. [15, 16] They can monitor care quality and gaps in care. For instance, in Vermont and in North Carolina, when a community health worker goes to meet with a patient, the worker can see if the patient has filled her or his prescriptions, has attended health appointments, and is up-to-date with preventive health care. [20, 23]

Case management systems also rely on and use centralized health record and case management data that can follow the patient from one area of the state to another, or across eligibility programs. A robust case management system includes standardized health assessments, care plans, screening tools, disease management tools, coaching modules and workflow management features. These features allow staff to maximize patient interactions and to use their time efficiently. Using data in real-time, whether it is through patient dashboards, utilization reports, disease management monitoring reports or other means help CHT staff and providers know if their patients are trending in the right direction.

4.1.9 Continuous quality improvement processes are in place. The review articles regarding CHTs, CCM teams and super-utilizer programs indicate that high-performing programs have clear and ongoing quality improvement processes in place—at the program level and at the state administrative level. Programs continually use data to assess their patient population and interventions. There are clear processes to gather information from staff at all levels, providers and community partners to identify problems, concerns and successes, and then to address those areas.

Of note, while CHTs may be regionally located, or located within provider practices, there are centralized reporting functions. States may develop and implement teams to address regional needs, but the state still retains oversight, and CHTs have centralized reporting and monitoring. As such, teams have clear expectations about roles and responsibilities and how they will be evaluated.

4.1.10 What is the evidence on outcomes? Overall, the evidence from North Carolina and Vermont indicates that CHTs are an effective approach to lowering cost, decreasing utilization, and improving patient outcomes within the context of their state's overall approach to health management. Other states and programs have reported success as well, but not in the peer-reviewed literature. The results regarding complex care management are mixed. [24] However, Vermont's Chronic Care Initiative has demonstrated cost savings. [7, 25] It is difficult to make comparisons because states configure teams based on state or regional need, address different populations, and use different outcome measures. The implementation literature tells us that even when programs are similar, program-to-program comparisons can be difficult due to differences in how programs are implemented and then managed. Intangibles such as leadership skills and buy-in also affect program success, and can make program replicability difficult. [26]

4.1.11 In sum, developing a CHT program: Given CTC-RI is considering expansion of its CHT program, we provide high-level information gleaned from the literature about steps to take when creating (or expanding) a CHT or complex care management team. In some cases, CTC-RI already has begun to address these needs, for instance creating a centralized data infrastructure. Best practice from the literature indicates that states should take specific steps when developing a CHT or complex care management program.

Preparing for the expansion of the CHT through planning is the first step. States should start by conducting an analysis of the problem—what populations and patterns are driving utilization. States should determine what data infrastructure they need, ideally a centralized data repository; a web-based provider portal with patient data; real-time utilization data across payers, including daily emergency department (ED) and inpatient admissions data; decision support tools to identify and intervene with patients based on gaps in care, and a centralized Case Management Information System.

Next, based on state and regional needs, states should determine the type(s) of CHTs they will have and determine a minimum set of services the teams will provide, typically addressing psychosocial needs, medication management, health education, and disease management. Additionally, states will need to use a data-based approach to determine where the CHTs will be housed, e.g., regionally based to serve multiple practices, or housed and embedded within large practices. States will need to determine the oversight entity, as well as establish clear performance measures and lines of responsibility.

States should determine their targeting strategy, e.g., targeting based on high observed-to-expected costs; targeting specific patterns of care; targeting very high levels of utilization; targeting based on referrals and follow-up investigation to assess impactability; exclusion of patients with medical conditions associated with high, but non-preventable costs (cancer, acute trauma); targeting by community to address inadequate primary care and behavioral health care. Finally, they determine how the program will be funded, e.g., Medicaid case management, multi-payer case management, per-episode case management, or Per-Member Per-Month payment to a managed care organization.

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4.2 Quantitative findings:

Following is a presentation of CHT service documentation data and survey data. Documentation protocols differ between the two CHTs, and so presentation of the data is not consistent for the two teams. When possible, and if appropriate, data is presented separately for each CHT as well as for both teams combined (total).

4.2.1. CHT Service Documentation collected and managed by the teams. CHTs document patient outreach efforts using the following categories and definitions:

ACTIVE	Patient agreed to CHT contact and is currently engaged with CHT.
DECLINED	Patient was contacted by CHT, but declined participation. CHT may or may not revisit these patients at a later date. Majority of declines are from the initial intervention group referrals whose health crisis was already resolved at time of CHT outreach.
DISCHARGED	Patient received as much help as possible from CHT. May have been lost to follow-up or completed services. Their issues may or may not be resolved, but more often than not, successful outcomes.
IN OUTREACH	CHT attempting to contact patient, not yet engaged (or not yet declined.)
INELIGIBLE	Patient not eligible for CHT services. Reasons include: most often not a patient at the CHT practice, early on not covered by a participating insurance company, deceased before engaged.
NOT APPROPRIATE	Patient has a condition that is either too severe, in skilled nursing or high costs secondary to necessary medication, not severe enough, resolved crisis, determined not high risk. Most often practice determined.
PRE-OUTREACH	Patient was referred to CHT program, but not yet contacted by CHT.
UNABLE TO CONTACT	CHT made more than three attempts to contact patient, without success. Spoke to practice regarding inability to reach in effort to identify new contact information.

Table 3: Patient Recruitment and Characteristics, by Team

		BV	SC	Total
Patient Recruitment	Total Patients	481	405	886
	Active	67	85	152
	Declined	150	75	225
	Discharged	93	89	182
	In outreach	13	29	42
	Ineligible	43	37	80
	Not appropriate	44	25	69
	Pre-outreach	5	20	25
	Unable to contact	61	45	106
Gender	Female	111	101	212
	Male	49	73	122
Age	< 30	18	16	34
	30-45	41	18	59
	45-64	81	65	146
	65-85	16	33	49
	86+	4	12	16

Data through 12/2015

Table 4: CHT Activity by Activity Category and Team

Activities (Counts)		BV	SC
Care Coordination	Total	1047	1195
	Mean	6.84	10.89
	Std. Dev.	12.14	8.26
	Minimum	1	3
	Maximum	103	70
Case Management	Total	2067	3600
	Mean	6.58	25.17
	Std. Dev.	13.18	26.07
	Minimum	1	2
	Maximum	163	153
Case Review	Total	59	566
	Mean	1.23	3.8
	Std. Dev.	0.47	2.64
	Minimum	1	1
	Maximum	3	18

Data through 12/2015; data reflect total counts, and descriptive statistics *per patient*

Table 5: CHT Activities in Minutes Spent, by Activity Category and Team

| Activities (Minutes)		BV	SC
Care Coordination	Total	7230.2	10459
	Mean	16.37	52.77
	Std. Dev.	17.97	38.18
	Minimum	1	26
	Maximum	260	285
Case Management	Total	37421.07	89719
	Mean	19.57	168.61
	Std. Dev.	32.25	134.12
	Minimum	1	26
	Maximum	300	1000
Case Review	Total	n/a	7089
	Mean	n/a	12.61
	Std. Dev.	n/a	14.93
	Minimum	n/a	3
	Maximum	n/a	155
Data through 12/2015; data reflect total minutes, and descriptive stats *per activity*			

4.2.2. Behavioral Health Documentation: Documented by South County CHT. In Table 6 and Figure 2 are data regarding the behavioral health screens *completed by SC CHT* Community Resource Specialists (CRS) and Behavioral Health Case Managers. Behavioral health assessments targeted anxiety with the GAD2 and GAD7, depression with the PHQ2 and PHQ9, and alcohol use with the CAGE. For some patients, behavioral health data were collected on numerous occasions. Data below represent all screen data (including the multiple assessments) unless otherwise specified. Data not including multiple assessments are noted as "Unique Assessments." Similar behavioral health data were not consistently collected at the BV CHT.

Table 6: Behavioral Health Screens Completed by the South County CHT

Community Resource Specialist	
Total Screens	81
GAD2	59
PHQ2	50
PHQ9 (Single Item)	17
Unique Positive Screens	45
Data through 12/2015;	

Behavioral Health Case Manager		
	TOTAL	POSITIVE
CAGE	25	3
GAD	39	35
PHQ	45	39
Data through 12/2015;		

Figure 2: Distribution of PHQ9 Scores: Unique Assessments
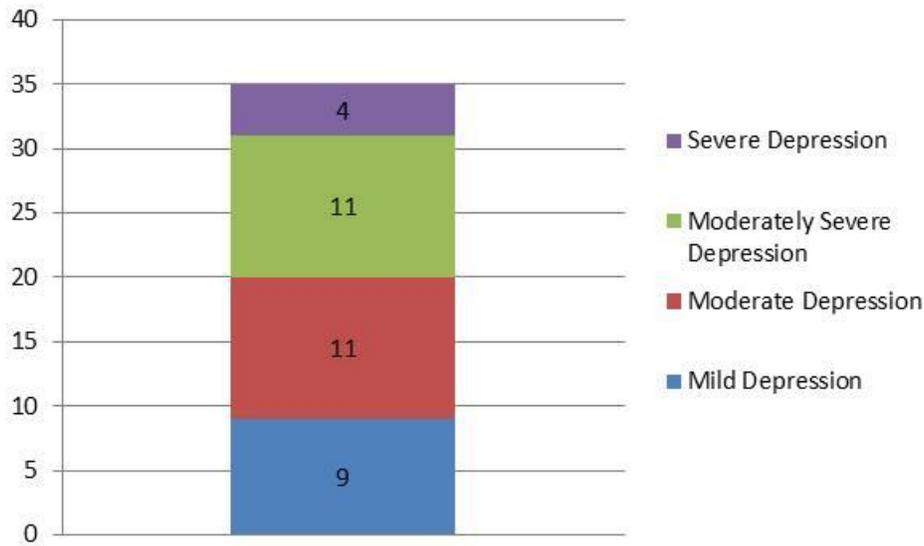
4.2.3 Patient and CHT staff survey data. Patients served by CHTs (n = 22), and CHT staff from the SC and BV CHTs (n = 8) completed surveys to assess their perceptions of the structure, processes, and outcomes of the CHT intervention. For a detailed display of additional CHT staff survey items and descriptive statistics on item responses, please see Appendix 3. Survey response options ranged from 0-4, with greater scores indicating stronger agreement. Response options were identical between participants. Four subscales were created by averaging responses to survey items to reflect **Access**, **Service**, **Respect**, and **Outcomes**. These subscales are consistent with the Vermont 2013 Mental Health Consumer Satisfaction Survey.
>**Access** refers to the ability of patients to access CHT services, and includes questions like:
CHT staff are willing to meet with patients/me as often as patients/I feel it is necessary.
CHT staff return patient/my calls within 24 hours.

>**Service** refers to the ability of the CHT intervention to serve patients, and includes questions like:
I would recommend CHT services to a friend or family member.
CHT staff are helpful to patients.
CHT staff and services are responsive to the changing needs of patients/my changing needs.

>**Respect** refers to the extent to which patients are treated with respect, including questions like:
CHT staff respect patient/my rights.
CHT staff treat patients/me with respect.
CHT staff are sensitive to the patient's/my cultural background (race, religion, language, etc.)

>**Outcomes** refers to resulting improvements in physical and mental health, symptom distress, and functioning attributed to participation in the CHT intervention, and includes questions like:
As a result of the services patients/I received from the Community Health Team (CHT)...
    patients/I deal more effectively with daily problems.
    Symptoms are not bothering patients/me as much.
    Patients/I do better at work and/or school.

A repeated-measures ANOVA was conducted to assess differences in survey subscale scores between patients and CHT staff, while addressing within-participant variability. Subscale means are presented in the results that follow and are displayed in the graph below. These means are an indication of how participants rate subscale items on average. Combined with measures of variability per subscale, these means facilitate completion of the analyses assessing differences between subscale scores and differences in subscale scores between patients and staff. Results suggest average ratings of agreement were **significantly greater** on the **Access** ($\bar{x}$=3.53, $F(1,27)$ = 48.75, $p < .001$), **Service** ($\bar{x}$=3.51, $F(1,27)$ = 49.63, $p < .001$), and **Respect** ($\bar{x}$=3.46, $F(1,27)$ = 39.50, $p < .001$) subscales when compared to the **Outcomes** ($\bar{x}$=2.80) subscale. Ratings **did not differ** between patients and CHT staff ($F(3,81)$, 1.150, $p = .334$).

These results suggest that patients and CHT staff feel similarly regarding the CHT intervention. Specifically, they felt patients have access to CHT services, that the CHT intervention is helpful, and that patients are treated with respect. While ratings on the **Outcomes** subscale were generally strong, patients and CHT staff did not feel as strongly that the CHT intervention resulted in improvements in physical and mental health, symptom distress, or functioning.

Figure 3: Subscale Scores for Patients and CHT Staff
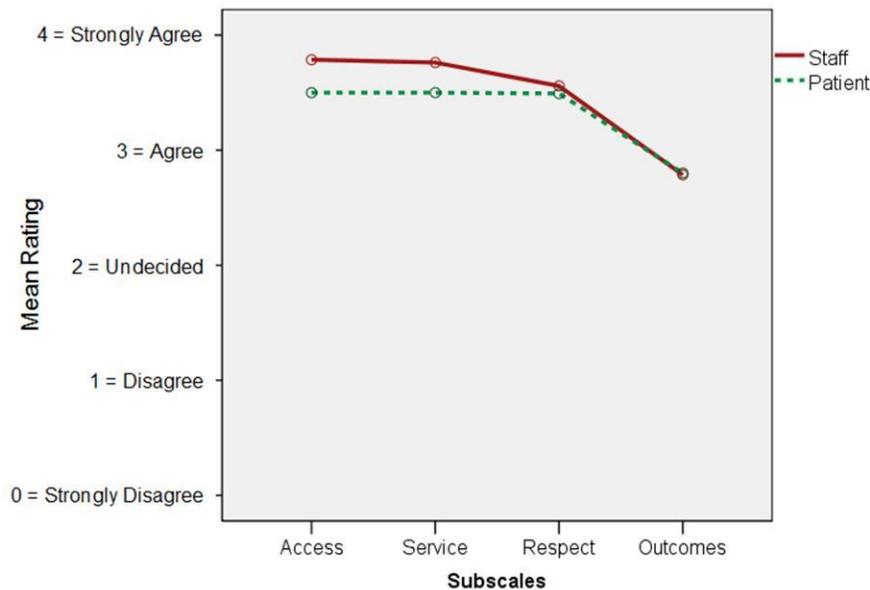
4.2.4 Practice survey data. Twenty-one individuals from 9 practices completed the survey to assess their perception of the structure, processes, and outcomes of the CHT intervention. For a detailed display of additional practice survey items and descriptive statistics on item responses, please see Appendix 3. Survey response options ranged from 0-4, with greater scores indicating stronger agreement. Response options were identical to those used on the patient and CHT staff survey. The same **Outcomes** subscale that was used for patients and CHT staff surveys was included in the practice survey.

Figure 4 displays the distribution of job titles for practice survey participants. The overwhelming majority of practice survey participants were nurse care managers.

Figure 4: Job Titles for Practice Staff Survey Participants
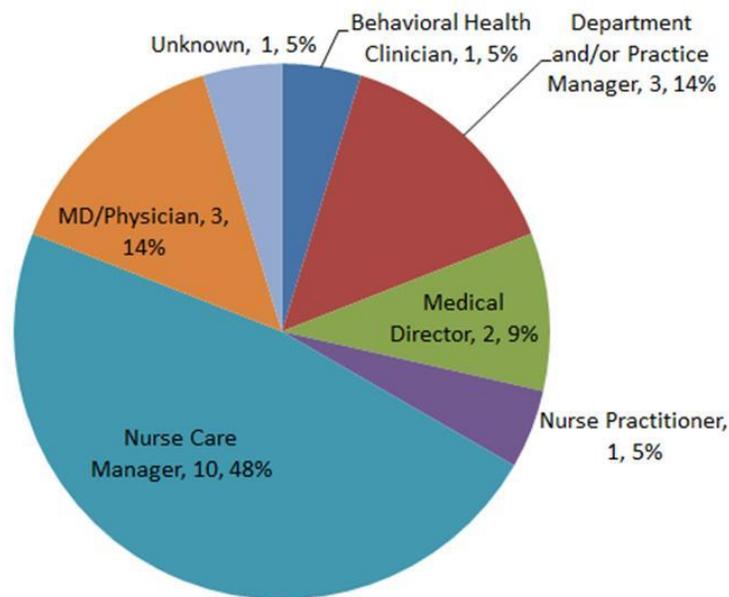
Results from a repeated-measures ANOVA indicate **significant differences** in survey item scores ($F(49,539)$, 3.487, $p < .001$). Generally speaking, practice survey participants "agreed" with survey items ($\bar{x}=2.94$ on 0-4 scale). However, there were 14 survey items for which the practice survey participants rated significantly greater, and/or significantly less than average. Similar to what was found with patients and CHT staff survey results, the **Outcomes** subscale score was less than other items, though not a statistically significant difference.

The bar chart in Figure 5 displays the items that practice survey participants rated **significantly greater** than, or **significantly less** than average. For the most part, practices rated the items greater than average. The items representing outcomes resulting from the intervention (items 47, 44, 43, 41, 31) are the items that were rated **significantly less** than average.

Figure 5: Practice Survey Items Rated Significantly Greater than Average or Significantly Less than Average
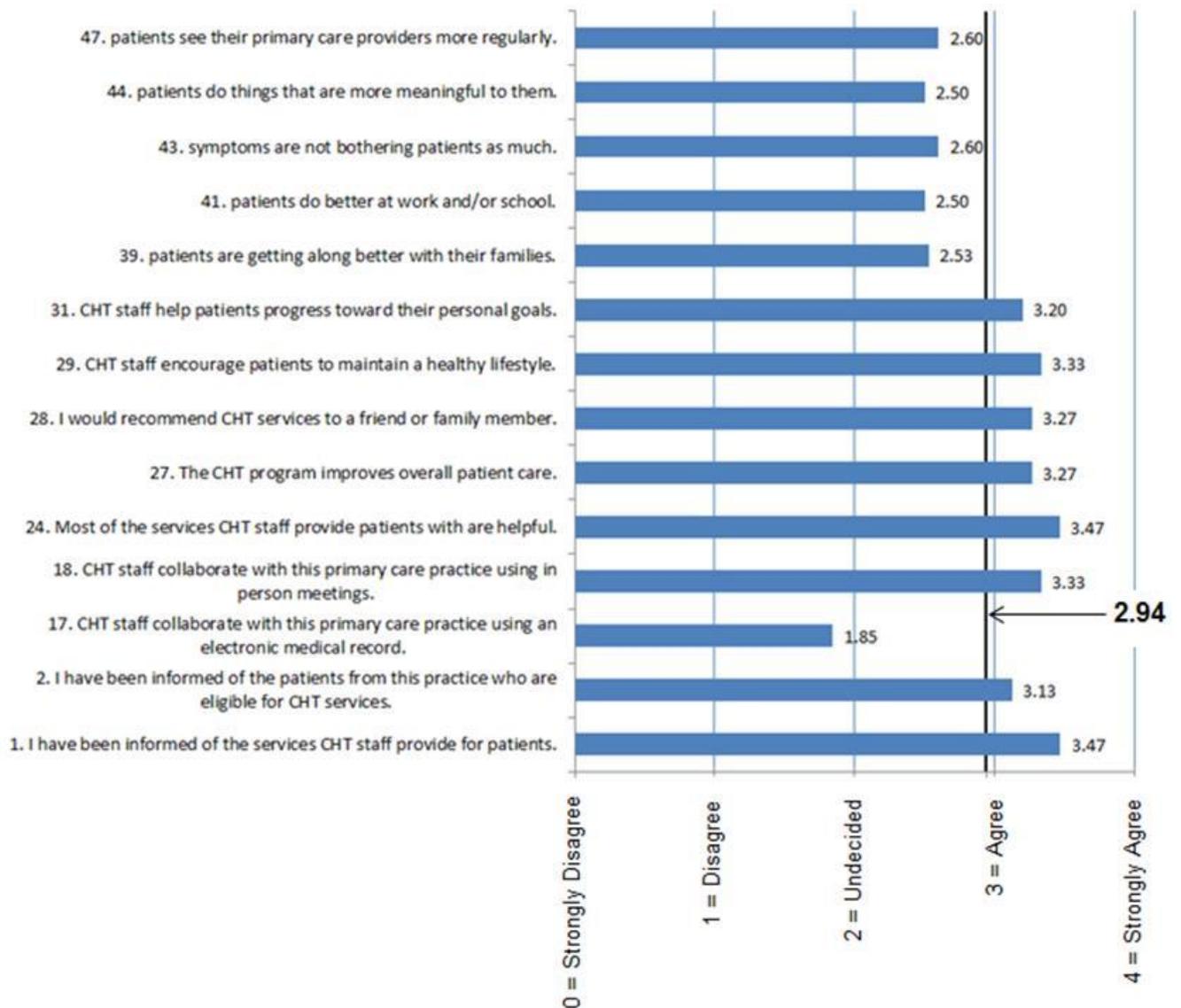
4.3 Qualitative findings

4.3.1 Focus groups and individual interviews with RI-CTC CHT staff, and interviews with representatives of the three health plans, RIPIN, and practice NCMs

4.3.1.1 Participants. From the two CHTs combined, we collected qualitative data from 8 non-manager staff, 1 data analyst, 1 CHT manager, and 1 CHT consultant manager. For findings that relate to at least 5 out of 8 non-manager staff, we report for the staff as a whole, e.g., non-manager staff. Findings that relate to 3-4 of the staff and when those staff represent staff from both teams, we report as "many staff." Findings reported by 1 or 2 staff are reported by number, but not by team. When both the Blackstone Valley consultant-manager and the South County manager responses are in agreement, we say manager staff; otherwise, we report by team manager. We provide representative quotes that reflect the opinions of the majority of staff, both managers, or that illustrate key points.

We also conducted individual qualitative interviews with 1 representative each from United Health Care, Blue Cross/Blue Shield of RI, Neighborhood Health Plan of RI, the Rhode Island Parent Information Network (RIPIN), as well as with 4 NCMs working at medical practices participating in the RI CHT pilot.

4.3.1.2 CHT structure, staff responsibilities, and work processes. In this section, we report on the Blackstone Valley (BV) and South County (SC) CHT structures, staff responsibilities, and work processes that emerged as consistent themes across the staff interviews and focus groups, and feedback from the interviews we conducted with practice nurse care managers (NCMs) and representatives from the health plans.

Oversight. CTC-RI is the oversight organization for the state's all-payer PCMH initiative. CTC-RI contracted with Blackstone Valley Community Health Care and South County Hospital to each host and manage a regional community health team. Under this contractual arrangement, each host organization directly hires or contracts for staff, and has responsibility for the oversight for all staff and program functions. The SC manager and the BV consultant manager are responsible for CHT program development and management.

Each CHT entity is responsible for ensuring that practices are complying with the MOUs. However, it is unclear what recourse the CHT has when practices are not optimally engaged. Of note, South County Hospital works with its affiliate practices to support practice participation; however, it is unclear to what extent they work with nonaffiliated practices.

CTC-RI monitors CHT performance through bi-monthly meetings that are attended by the CHT program managers, health plan representatives, CTC-RI directors, the Rhode Island Parent Information Network, representatives from Rhode Island Medicaid, and other key CTC-RI or CHT stakeholders. CHT operational and other issues are brought to the group for problem solving. Of note, a leader of the host entity for each CHT typically does not attend these meetings.

CTC-RI receives monthly invoices from each entity that provides a list of activities, but does not specifically monitor contract performance. The list of activities does not include reports indicated in the contract that each entity should provide. The extent to which practices are complying with their MOUs is not a regular agenda item. Thus, both the entity contracts and the practice MOUs lack direct authoritative oversight, resulting in unclear lines of accountability. There are no repercussions or rewards in place for failing to meet or for meeting contract requirements or MOU goals and objectives.

Program Development. BV and SC managers reported that they developed their teams based on 1) CTC-RI (formerly CSI-RI) contractual requirements; 2) national best practices, including CHTs in Vermont and Maine, and other information and presentations provided by CTC-RI; 3) each manager's professional and academic knowledge and experience; and 4) input as applicable from their managing organization. Both team managers work to align their programs as much as possible, for example to use the same assessment form and to have an aligned case management tracking system.

CTC-RI rolled out the CHT program through kick off meetings at each participating practice. Each CHT entity, represented by the program managers, is largely responsible for following up with the practices. When the CHTs have concerns with a practice, e.g., the practice fails to hold monthly patient review meetings or does not make referrals, then the program manager works with the practice to identify and address the issues.

Staffing. The staffing for both the Blackstone Valley and South County teams allows each team to meet its overarching aim—to provide psychosocial interventions to patients on the high-risk lists. We found both teams to be hard working and committed to the population and the individual patients.

Blackstone Valley staff includes a managing consultant (.5 FTE), a program manager (1 FTE) who serves primarily as a community resource specialist, a team coordinator who currently serves primarily as a community resource specialist (1 FTE), a behavioral health nurse (.5 FTE), and a community resource specialist (1 FTE). Due to staffing needs, the consultant manager at the BV team currently is the sole manager. The program manager and the team coordinator no longer have administrative responsibilities. The consultant manager attends CTC-RI meetings on behalf of the team and manages the administrative functions of the team.

South County staff includes a program manager (1 FTE), a data analyst (.5 FTE), two community resource specialists (each 1 FTE), and a licensed social worker (1 FTE). The SC manager reports the data analyst is an essential team member. As with the BV team, the program manager represents the SC CHT at the CTC-RI meetings. Staff in both teams are uniformly interested in the work that they do to help patients, as one commented:

> *"Well, it's extremely rewarding. I mean, it's wonderful to work, you know, with the members [patients] and to be able to provide the resources that they need…you can see that it impacts and makes a difference in the families and the members." CHT staff*

Staff responsibilities - Community Resource Specialists (CRSs). The CRSs conduct patient assessments, work with the patient to identify goals, and create a patient care plan. An important component of their work is to link patients to the services and supports patients need to address their medical issues (e.g., medication assistance, durable medical equipment, medical bills, and transportation), social determinants of health (e.g., safe, low-cost housing, food security, and linkages to community services and resources.) Additionally, they work with patients to meet their health goals through ad hoc or situational health education opportunities, as well as helping patients meet the health goals identified by the patients and the NCM or provider. As a NCM explained, patients often need to address their psychosocial issues before they can work on their health issues.

> *"And so a lot of things that we were dealing with is the medical component of things and dealing with the medical care management, but we also found that in trying to do that there were the underlying social factors, housing, food, utilities that needed to be address before we can even move forward with managing health problems." NCM*

When patients have behavioral health needs, the CRS refers the patient to the CHT behavioral health staff for further assessment and services. The CRS communicates regularly with the nurse care manager to provide email, fax, or phone updates, and attends at least monthly clinical team meetings where patient cases are reviewed. Thus, the CRSs spend a considerable amount of time helping patients with the paperwork and applications patients need to acquire the recommended services and stabilize their lives. Completion of this paperwork is highly appreciated by the patients and the NCMs.

> *"So they help with applications for assistance and applications for, even pharmacy programs. So they help them a lot with disability, those types of things. And they communicate back to the physician so that if forms or things need to be signed they actually walk them in sometimes for signature to help these people who can't navigate the system." NCM*

As part of the care plan, the CRS may provide informal patient health education. The CRS will do medication list reconciliation, but does not provide formal medication management such as ensuring pill boxes are set up correctly. CRS staff use motivational interviewing to help patients meet their health needs. As necessary, they also go with patients to medical, legal and other appointments to provide support. They provide ad hoc coaching as to how to talk about their problems and ask questions with providers. Both teams are fortunate to have highly skilled and experienced staff who appear to have the training and skills to provide certain health-related services on a more systematic basis.

Staff responsibilities - behavioral health staff. Each CHT has a behavioral health practitioner who sees CHT patients with unmet behavioral health needs. For the BV team, the behavioral health nurse primarily provides linkages to behavioral health services and helps coordinate care. For the SC team, the licensed social worker does the same, but as necessary also provides direct counseling services to patients, and at times to patients with their family members. Both practitioners support their patients in times of crisis. Whether patients had been previously referred to psychological counseling and refused, or they were newly referred by the CHT, in most cases intervention by the CHT in obtaining the actual appointment has been critical.

> *"I would say that certainly that some of our users [patients] have behavioral health issues. And the direct interaction with the Community Health Team has been the impact. Some of those patients have gotten--have received the behavioral health interventions that they needed, counseling, hospitalization, medications. So without the Community Health Team we were, I personally was, failing at addressing the needs of these patients. I could not do it." NCM*

Patient assessment tools. The CRS and the behavioral health staff each have an assessment tool they administer to patients at the first or second meeting. Both CHTs use the same assessment tools. The assessment results, the referral form from the NCM, and patient input provide the basis for the CHT patient care plan. The assessment tool is administered at intake and is not re-administered over the course of the intervention, or when closing cases.

Using the same assessment tools across all entities would allow for consistency in approach and for comparing patients and their needs at baseline. One health plan representative asserted that what would be most useful is if all the health plans and providers used the same patient assessment tool, and if the CHT staff also used this same tool or relevant portions of the tool. In that way, a core group of harmonized measures would support apples-to-apples outcomes measurement. Using the same tool or measures would not preclude CHTs, practice groups or others

from adding additional assessment items or tools to their own electronic health records or case management information systems.

   Pro-Change: A recent innovation in how the CRS and the behavioral health staff work with patients is use of the Pro-Change system provided by Pro-Change Behavioral Systems, Inc. Pro-Change is an internet based program that uses health risk assessments to identify patient health needs (e.g., tobacco use, depression or anxiety symptom management, or substance use) and then helps patients learn self-management skills. Pro-Change is based on the transtheoretical model of behavior change, and is designed to decrease the need for in-person health education.
   The CHTs were just beginning the rollout of incorporating Pro-Change into their work in the fall of 2015. They received their first training opportunity on August 14, 2015, and had to wait for delivery of the tablets for CRSs to use with the patients to introduce the program. CHT staff felt that they were seeing some positive results at the time of our December 2015 focus groups. However, BV staff noted that many patients do not have internet access in their home. For those who do not, and therefore cannot login to the program on their own time, Pro-Change does not have clear guidelines regarding how often the patient must use the program to have benefit. This has implications for frequency and number of CHT in-home visits when they can bring a WIFI connected tablet for patients' use during the visit.

   Policies and procedures. According to the literature, a best practice of high performing Community Health Teams and Complex Care Management Programs is to have written policies and procedures at the program level and also for practices and providers in participating medical sites. Some states have created a range of materials (e.g., toolkits, program guides, program descriptions) about their state-run CHT and/or complex care management programs.
   The CTC-RI pilot CHT program was initiated without the luxury of time at the outset for creating many of these kinds of detailed materials, although contracting mechanisms were put in place with Blackstone Valley Community Health Care and with South County Hospital to manage each team. The contracts set out basic expectations for CHT responsibilities and performance. Similarly, CTC-RI created a template Memorandum of Understandings (MOUs) which each team executed with each practice.
   Given the guiding principle in effect for development of this pilot CHT program where the CHTs would be designed to address their particular regional circumstances, each CHT was responsible for creating its own system of functioning. Because of this goal, there are no overall policies, guidelines or procedures for CHT functioning detailed in a single CTC-RI document, and no summary overview documents that are uniformly shared with providers, practices, community organizations, and other entities regarding the purpose of the CTC-RI CHTs, and overall CHT roles and responsibilities in this program. For instance, CTC-RI's website does not provide information about its CHT program, providing only a link (virtually hidden within the PCMH resources tab) to published articles about other CHT programs.   While this approach served a specific purpose for a pilot with just two teams, CTC-RI may consider modifying this approach prior to scaling up to additional teams to achieve more concordance throughout the regions in the program.
   Nurse care managers at two practices stated that they would like to have written procedures for working with the CHT. Although all 4 of the NCMs who agreed to be interviewed reported that they work well with the CHTs, we found differences in how NCMs viewed the roles and responsibilities of the CHT staff. We also found there were some discrepancies in how NCMs understood the use of the high-risk lists and referral processes.

   "Well one thing that might be helpful is now that we've done it for a while...the specific roles...to outline those specifically because when we first started it was kind of a generalized concept. But to have the specific role of outline such as the social worker

can do this, this and this; the community outreach worker can do this, this and this. These are their resources. These are services that they can offer your patients at no cost to the--you know, those kinds of things. It was generalized for us, but it wasn't in detail." NCM

At the time of the June 2015 interviews of CHT staff, neither CHT had a program operations manual that provided procedures to guide daily operations. This reflects CTC-RI's urgency to put the CHTs into the field quickly, as well as recognition that each CHT program was evolving and changing as it rolled out. However, staff claim they would have benefited from having written procedures that covered job responsibilities, program procedures and personnel policies available to them and updated in real-time.

For instance, in June, some CRSs that were employed by RIPIN were concerned that personnel policies and procedures differed from the team's host organization's policies and procedures. This discrepancy created some confusion regarding which set of policies and procedures applied to the CRS in particular situations. Of note, after the June interviews, SC worked to revise their contract with RIPIN to be consistent with South County Hospital inclement weather policies and holidays. However, SC and RIPIN did not address all personnel related differences, such as benefits.

In November 2015, SC developed a program guide that provides detailed clarification regarding key program components such as how data are collected, communication mechanisms, program criteria, conducting outreach, patient engagement, care planning, supervision, case review and criteria for discharge. With some modest modifications, it could be helpful for SC to share this guide with the practices receiving their CHT services. In addition, the BV team could use this as a template to create its own operations manual or program guide. As the program guide continues to be developed, it could be useful for SC to engage relevant practice staff and even the health plans as the team continues to formalize its procedures. In this way, practices can provide input regarding opportunities to streamline existing practices or create new practices, and the health plans will have a better sense of, and input into, how the teams operate.

Team oversight—day-to-day operations. The team managers meet with their host organization supervisors. It is not clear to what extent the host supervisors are involved in the oversight of day-to-day CHT operations. It appears that South County Hospital is more engaged regarding program oversight and development, with Blackstone Valley Community Health Center engagement geared primarily toward problem solving. SC uses regular staff meetings, staff "huddles", and one-to-one supervision to provide program oversight and learn about patient and program needs and issues. BV relies primarily on staff meetings and communication that is less scheduled.

The CHT managers attend the CTC-RI CHT planning committee meetings. These meetings provide some high level guidance regarding team expectations and team direction and CHT staff have expressed the desire for even further centralized guidance.

"…but in terms of efficiency nobody is really saying, 'Well, what is the most efficient way to do our jobs and what really makes sense?'" CHT staff

Both teams' managers report back to their staff about the CTC-RI meetings. However, staff would like to know more about what happens at the CTC-RI meetings. They would like to have a more systematic way to confirm that managers are sharing their concerns and suggestions with the CTC-RI planning group, and they would like to offer their own observations. Managers are open to staff attending these meetings.

CHT staff supervision. Each team uses either staff meetings or individual meetings to discuss issues and cases. In South County, the program manager oversees the program and staff. In Blackstone Valley, the program manager supervises staff, not the consultant manager. Staff noted peer-to-peer consultation and support to be very important to them. As RIPIN employees, the CRSs primarily receive supervision from their CHT managers, but also have monthly supervision meetings with RIPIN supervisors. RIPIN conducts the CRS evaluations with input from the CHT managers.

Team functions—quality improvement processes. The teams may benefit from clearer metrics to assess or measure their performance that are provided from the host organization or CTC-RI. While data are collected, it is unclear what are monthly, quarterly or yearly expectations regarding patient outcomes. For instance, the teams do not know if their patients' cost of care is trending in the right direction, if emergency department utilization is decreasing. As noted earlier, due to the pilot nature of the initial program, data systems were developed quickly, and there does not seem to be a concrete mechanism at the CTC-RI level to gather information about what is or is not working at the program level. While key metrics have always been in place, such as the number of high risk patients contacted and engaged, staff would like clearer indications of how they are being evaluated individually and as a team, whether they are doing what is expected of them, and whether they are doing a good job.

Data and data management. There is no centralized data warehouse or repository that collects and manages data for the CTC-RI CHT program. Therefore, each team relies on the health plans to provide each practice with the high-risk patient lists, and each team must rely on their sponsoring organization's electronic health record (if available to them) and/or communication with the NCM to gather patient health information. Data in the health record does not include whether the patient is receiving behavioral health services, or services from other state agencies.

The BV and SC teams have developed unique data collection and management tools for service documentation and outcomes. Both teams relied on their own knowledge and experience to develop their tracking systems and the teams tried to align their systems with each other. Neither team reviewed the case management systems used in other states. The SC team's data analyst was able to create a user-friendly ACCESS case management and patient-tracking database. BV uses Excel to collect and manage case management data. Because of its database, the SC team is able to collect more nuanced data than can the BV team. However, they each collect and report on care management differently, making team-to-team comparisons difficult.

At the time of the June 2015 interviews, the SC team was not able to share their database with BV because of ownership issues and issues around who would be responsible for updating the databases. SC is now able to share the database, however they cannot provide database support or any updates or revisions. Therefore, BV would have to acquire database support in order to use and manage the database effectively.

Data use agreements. At the start of the pilot project, CTC-RI did not have data use agreements in place. When developing the pilot program, it was assumed that because the CHTs were working on behalf of the health plans and the practices, the CHTs would be able to access patient information. During the development process, neither the practices nor the health plans indicated there would be data sharing problems. However, once the realities of data sharing became apparent, practice and plan lawyers would not allow the CHTs access to patient information unless there were data use agreements in place. Getting those agreements in place proved to be a challenge.

At the time of interim report and up to the writing of the final report, the CHTs did not have data use agreements with the health plans to receive patient information directly from the health

plans, or to contact the health plans about individual patients. Therefore, the CHTs had difficulty getting patient information from the health plans, and communication systems were felt to need improvement. Data use agreements are in development as of January 2016, but at the time that this report was drafted they had not yet been officially implemented.

Additionally, practices did not have data sharing agreements with the CHTs, again limiting the exchange of patient information and impeding communication. At the time of the evaluation, the SC team, as employees of the host organization, could view the South County affiliate practices' patient information, but not patient information from other practices that they serve. BV CHT staff who are BVCHC employees could view patient records for BVCHC patients, but not the other practices that they serve. As of January 2016, data agreements were in the process of being executed. To avoid similar difficulties in an expanded program, it is critical to have data use agreements in place prior to implementing new regional CHTs.

High-risk lists and referral processes. High performing community health teams in other programs in the U.S. use data strategically to identify real-time high-risk patients for intervention. States identify patients from a central data repository. In the CTC-RI CHT program, each health plan provides the practices with a list of high-risk patients, gleaned by using algorithms that are similar but not uniform. Plans provide their high-risk lists on different schedules. For example, Blue Cross provides an updated list monthly and United provides an updated list quarterly.

Not all of the lists stratify patients into categories regarding the likelihood of being impacted by CHT services, e.g., lists do not exclude patients who had had past high expenses (patients whose expenses where due to trauma/accidents, difficult pregnancies), patients in nursing homes, patients receiving dialysis, etc. The current practice is for NCMs to review the lists and then refer appropriate patients to the CHT. The success of this process depends on the NCMs' time availability and willingness to do this review, which appears to vary among the practices. Two NCMs who we interviewed felt that it is burdensome to deal with several different lists.

While the high-risk lists are a primary source of referral, the practice providers and NCMs also make patient referrals directly to each CHT. Ideally, the NCM contacts the CHT manager to make the referral and then the NCM and the CHT manager determine whether the patient is appropriate for CHT services. Sometimes these patients are considered "problem patients" and it is helpful to the NCMs when the CHT staff address these patients' complex psychosocial issues. SC may use the clinical team meetings as a way to preview NCM generated referrals, and also has a referral review process. Because referral procedures are not always clear to NCMs, some NCMs may refer "problem patients" rather than ones on the high-risk lists, or refer patients who they assess to be at risk for becoming high-cost going forward.

Some interviewees wondered if it would be better to let the practices make referrals and do away with the health plan generated high-risk lists. In that way, they would be able to intervene with patients early on, before these patients became high-cost, and thus in fact prevent them from becoming high-risk/high cost. This conundrum was introduced at a CHT planning committee meeting wherein the challenges of documenting and proving that a CHT prevents any particular patient from becoming high-risk or high cost was discussed.

Working with practices and providers. Ideally, providers and practices would consider the CHT to be an extension of their practice, reaching directly out to the patients' homes. They would acknowledge, understand and appreciate the functions of the CHT. They would know that the CHT helps them meet their certification as a patient centered medical home, and helps their patients meet their health and psychosocial needs. However, CHT managers and staff reported that not all practices with which there is an MOU actively and sufficiently engage with the CHT. Even when working with practices where there is high engagement, the CHTs interact primarily with the NCMs, and less often or not at all with the primary care providers. NCMs told us that practice and

provider engagement is contingent upon the concrete results they see with their patients, and that the CHTs need to be sure to communicate these patient outcome successes to the providers.

> *"I think again as we've seen success the providers have more buy in…I have heard providers really encouraging patients to get involved with CHT when they recommend it…So again over time as they see success, they see value, and they roll it forward to the patients." NCM*

For providers to see the value of the CHTs, there has to be engagement and support across the provider organization. A success story is the engagement of the South County Hospital affiliated practices. South County regularly promotes CHT achievements with patients in staff meetings and newsletters. Importantly, South County Hospital had the NCMs involved in hiring the SC manager; consequently, the NCMs felt they were part of the CHT program from the very beginning.

Working with nurse care managers (NCMs). NCMs are the primary contact for CHT staff at the practices. Ideally, it is with the NCMs that the plan for action is created and maintained for the CHTs' initiation and ongoing work with the practices' patients. CHT staff communicate regularly with the NCM by phone, email, monthly meetings, and notes in the patient record (where permitted) to understand the patient's needs, to provide updates, and to address crises that arise. Staff reported that many NCMs recognize the value of the CHT services and work well with the CHT staff and managers, though this appeared to be more strongly the case for the SC CHT than the BV CHT. Staff reported that the buy-in of the NCM predicts how effectively they work with the practice, and that when the NCM does not have a clear understanding of CHT roles and responsibilities, the collaboration is suboptimal. One NCM described a successful, collaborative effort to help a patient avoid an ED visit, which is an ideal example of how CHT/NCM collaboration can work:

> *"That CHT person was checking in. And [the patient] had multiple clinical issues that she thinks she should go to the ER for. And [the CHT] communicated with us again. They said, 'Well, this is what's happening now.' And so we were able to bring her in [to the clinic]. So kind of like a back and forth -- we're working here to advocate for [patients] with the clinic, but they're out there in the field, and they can see what's going on in the home.* **And that communication piece is pretty crucial with keeping [patients] out of the hospital.** *" NCM*

Warm hand-offs and care coordination. All CHT staff agree it is optimal for them to first meet the patient at the practice. Depending on the team and/or the practice, staff find out about the patient appointment from the NCM or from the patient record. Staff report that patients are less likely to accept services when the patient's first contact is from a CHT phone call rather than directly from the practice. Some NCMs let the CHT staff know when one of their patients is in the hospital or ED. When that happens, the staff will meet the patient at the hospital or follow-up later. The staff will help the patient as needed with follow-up from that visit. However, notification is largely ad hoc. Staff would like a system in place to receive appointment alerts and real-time alerts when their patients have an ED visit or are hospitalized.

Two NCMs expressed that it would be helpful to have the CHT staff embedded in their practice, if only for one or two days a week. This would increase the opportunity for warm handoffs, and further increase communication. A NCM explained how helpful to patient care the CHT has been for her patients:

> *"I recently sent a quick synopsis of at least three patients that the team has dealt with over the course of this past year that we have seen systematic decrease in utilization.*

And [patients] seem more content with their healthcare. . . . The health team helped
him identify what the problems were, identify a plan and act on it. And he seemed to
really kind of settle down after that. We didn't get as many phone calls."
Why?
"Somebody in healthcare taking the time to listen, to hear and to help that patient set
their own agenda as opposed to agenda that the physician or even myself might have."
NCM

Care planning. NCMs provide staff with information about patient needs and issues they want addressed. These issues form the basis of the patient's care plan. However, other issues will be included and addressed in the care plan depending on the patient assessment and patient requests for services. The CHT staff update the NCM regarding additional needs.

At the initial meeting with the patient, the CHT staff review with the patient what they can be helping the patient with, conducts an assessment, and also asks the patient for input. These comprise the elements of the care plan that the CHT staff work from, although the patient does not receive a copy of the plan. The CHT updates the patient's progress in the CHT tracking system, and discusses the patient's progress with the NCM at the monthly clinical review meetings and more often by phone or email, as needed.

Patient review meetings. Each CHT plans to have monthly clinical review meetings with each practice to review their mutual cases. These meetings always include the NCM and occasionally include a provider. There are occasions when other clinical staff attend. The purpose of these meetings is to share patient information and update patient needs and goals. The CHT and NCM determine if patients have met their goals and can receive a lower level of CHT involvement. They also may discuss whether the CHT should continue to try to engage patients who are not engaging with the CHT, for instance, continued no shows for CHT meetings. CHT staff report that at a few practices the clinical review meetings are sporadic. In those cases, the CHT manager works to reestablish a regular meeting schedule.

Centralized oversight. Currently, no guidelines exist for monitoring practice engagement with the CHTs in the CTC-RI pilot. While each practice signs an MOU, CTC-RI does not monitor whether the practices fulfill the terms of the MOU. That responsibility lies with the CHT which works to engage the practices and facilitate the practices in recognizing the value the CHT brings to care of the practices' patients. This creates a conundrum as to how to engage reluctant or disinterested practices that have "signed up" to collaborate with CHT services and have signed MOUs.

Coordinating with other agencies. As CHT staff work with their patients, they often find their patients are involved with other outreach services such as the health plan's care coordination team; Communities of Care, a state program for high utilizers of the emergency department; other state agencies; and/or community service agencies. Particularly for state agencies, coordinating roles and responsibilities can be difficult for both the patient and the CHT staff, and may result in a burden on patients as well as unnecessary costs due to redundancy of services.

Providing emergency department diversion training, and actual ED diversion. CHT staff reported they provide their patients with training and information about when to use the emergency department. However, most of their patients use the ED appropriately, e.g., for chest pain and other actual emergencies. CHTs provide coaching, phone support, and other interventions to help their patients avoid the ED. One CHT staff person reported that providing the patient with

training to manage anxiety has helped the patient defer going to the ED, and another, quoted in a section above, told of how the CHT stepped in in real-time to keep the patient from using the ED.

Outcomes. A representative of one of the health plans clearly stated: *"Well, as an insurer…if we as the insurer are going to invest in an intervention. We need to have, we need to demonstrate, return on investment."* CHT programs in other states use centralized data infrastructure (data warehouse, registries, care management information systems) and other tracking systems to track quality and other patient outcomes, and have developed evaluation measures. For the CTC-RI pilot project, early attempts at monitoring total cost of care data by the health plans was discontinued, and further efforts were delayed due to not having data use agreements in place. Therefore, a systematic approach to outcomes and evaluation measures is still in development, and a program evaluator from Brown University has been retained to look into the use of the All Payer Claims Database for evaluation and development of a comparison group.

CHTs can use care planning as one measure of patient success—did patients meet their goals? Because the CHTs do not re-administer the assessment tool to patients after the initial encounter, they are unable to track changes in assessment measures.

NCMs can see that patients are more engaged in treatment, or are less likely to miss appointments. They related stories of patients they felt had deferred ED use and who appear more engaged in their own care. However, these results are largely anecdotal. Both CHT staff and two NCMs expressed the desire to know if their patients are benefiting from the intervention, or if the practice overall is benefiting from participating in the CHT program. Further, because there have been no data sharing agreements in place, health plans know which patients they have referred via the high risk lists, but have not been able to find out which patients have in fact received CHT services. CTC-RI reports that it has worked with the Rhode Island Office of the Health Insurance Commissioner's legal counsel to resolve this issue. The process for each practice to sign a BAA with the CHT and a signed notification sent to the health plans is being implemented as of this report.

Lack of essential or sufficient community resources. While a goal of CHT staff is to link patients with needed resources, all staff identified lack of available resources as one of their biggest challenges. For both teams, CHT patients typically are very poor and affected by social determinants of health barriers such as lack of decent, affordable housing, inability to access healthy food, or poor neighborhood conditions. Both north and south regions have limited public or affordable housing options.

At a service level, for both CHT regions there are not enough detox beds or sober housing placements. South County has a limited supply of mental or behavioral health providers. Additionally, some staff reported patient dissatisfaction with South County mental health services. Further, South County does not have access to in-home behavioral health counseling; there is some in-home availability for Blackstone Valley patients.

In-home mental health counseling availability is a significant issue because all CHT staff reported that transportation is a barrier for patients. Patients can only access rides through LogistiCare, the state's Medicaid transportation provider, if they have medical conditions that prevent them from taking public transportation. For those who qualify, LogistiCare is an irksome option, frequently late, making patients arrive late to their appointments. Many patients do not know how to take the bus. Rhode Island public transportation is commonly cited as being inadequate, and bus routes throughout RI are time-consuming. In South County there is very limited public transportation altogether.

Finally, One NCM noted it would be helpful if all the Medicaid health plans had the same suite of benefits, with Neighborhood Health Plan being the example.

Comparing CHT performance with national best practices for CHTs. In Table 7, we compare RI CHTs with features and best practices described in the 2013 Commonwealth Fund Brief, Care Management for Medicaid Enrollees through Community Health Teams. It is not known if these features or best practices will persist once there is more study of CHTs. However, these features are consistent with the care management literature. This comparison serves as a way to look at what other state CHTs are doing to better understand elements that the RI CHT program might consider.

Table 7 shows that the Rhode Island pilot CHTs share many features with recognized CHT programs -- particularly, providing patients with service and support linkages, and in-person support. However, data infrastructure is a limitation. Table 8 provides a comparison of best practices and shows there are opportunities to increase provider engagement in program development and oversight, strengthen provider MOU compliance, and to establish program outcome measures.

Table 7: Typical CHT Program Features from 8 States -- Commonwealth Fund Review

*Feature	*Description	Status of CTC-RI CHTs
Multidisciplinary teams	• Coordinate services • Promote self-management • Help manage medications	• Teams have community resource specialists and behavioral health staff. Many CHTs nationally include a broader range of staff, e.g., health educators, dieticians, pharmacists. • CRSs promote self-management as indicated by care plan goals. • Teams coordinate services to the extent they are able. CHT staff may not know if other care managers or other agencies are working with patients. There are no or only ad hoc processes to determine who takes the lead or for sharing responsibilities. • CHTs do medication reconciliation, e.g., review medications on hand with medication lists. They help patients obtain prescriptions.
Sustained continuous relationships with patients	• Team staff establish and cultivate relationships through regular face-to-face contact	• Both CHTs focus on face-to-face contact. However, if the primary service is linking patients to resources, contact is more likely to be telephonic. • Many patients are unsure exactly when they will be contacted by the CHT, and whether contact will be in person or telephonic.
Communication mechanisms	• Mechanisms are in place to routinely send and receive information about patients	• Mechanisms are in place (inconsistent access to the patient record, phone, email, in person), but they do not represent best practices. In part, this is due to lack of data sharing agreements, and largely due to lack of a centralized data infrastructure. The CHTs do the best they can with the resources they have. UPDATE: BAA and data sharing agreements are underway.
Whole-person care	• When patients are identified as	• CHTs focus on high risk, high cost patients, but practices may want to refer just high need. Payer

*Feature	*Description	Status of CTC-RI CHTs
	high-risk, high-need, or high-cost	algorithms are not consistent. • The CHT assessment process identifies patient needs in order to provide whole-person care. Providing whole-person care is a CHT strength and best practice.
Transitions in care	• Focus on transitions in care, especially between hospital and home	• At the time of our first round of interviews, CHTs did not have an alert system for notification when a patient is in the hospital or ED. As of this report, SC has an alert system and BV's alert system is underway.
Connection to community resources	• Team members routinely connect patients with relevant community-based resources	• This is an area of strength and high performance. • However, there is no process in place to coordinate responsibilities when other provider organizations or care management programs are involved with patients. • Community partners and state or other agencies may not be aware of CHTs. • Each region requires its own list of community resources and relationships with these community entities. A system must be in place to ensure that these are in place at the time of start-up of new regional CHTs.
Enhanced reimbursement	• Enhanced reimbursement for primary care teams that collaborate with CHTs	• Not addressed
Team functions and composition	• Care coordination and management services	• Every practice that participates in the CHT is required to have a NCM (although at times there may be transitions between NCMs or periods where the NCM position is vacant). The practices aim to meet patients' nursing and medical needs. • The CHTs provide care management services. They are less likely to provide care coordination services between health care providers. • CHTs help patients make appointments, and attend appointments with patients as needed. However, this is a supportive role rather than a coordination role.

*Source: Takach, M., & Buxbaum, J. (2013). Care management for Medicaid enrollees through community health teams. Washington, DC: The Commonwealth Fund.

Table 8: CHT Best Practices_-- Commonwealth Fund Review

*Practice	*Description	Status of CTC-RI CHTs
Stakeholder engagement	• PCP engagement throughout program development and implementation • Location of teams depend on community needs • Ongoing collaboration (through payment or enhanced payments, standards for expanded community partnerships • Operations oversight	• It is unclear to what extent PCPs (or NCMs) were engaged in program development. However, a South County Hospital NCM reported being involved in hiring the SC CHT program manager. • Each CHT hosted a "kick off" meeting and invited the providers and NCMs to attend to discuss the MOU, goals and services of the CHT. • PCPs have limited involvement in CHT activities, and are not involved in any implementation oversight activities. NCMs provide feedback to the teams. There is no systematic quality improvement process at the CHT-practice level. • **CHTs are located in the community to meet the needs of multiple practices.** • This evaluation did not address collaboration incentives or other engagement standards • Stakeholders such as patients, community or state service providers, NCMs and other medical providers are not formally involved in ongoing CHT program oversight. • CTC-RI provides oversight through bi-monthly CHT meetings that include the CHT leadership from both teams, RIPIN leadership and other community stakeholders. • CTC-RI executed contracts and receives a monthly invoice with CHT activities. Health plans are asked to provide quarterly utilization data. • There are no formal processes in place to ensure that all of the responsibilities and requirements outlined in the MOUs are followed.
CHT expectations are contractually stated	• Contracts explicitly outline expectations	• MOUs are in place. It has been unclear if the MOUs fully cover needed areas, and enforcement guidelines. • UPDATE: In 2016, CTC-RI has strengthened MOU language.
Financing	• Not addressed	• Not addressed.
Effectiveness/ Evaluation strategy	• Monitor program effectiveness using quality, cost and patient experience data	• Not yet in place.

*Source: Takach, M., & Buxbaum, J. (2013). Care management for Medicaid enrollees through community health teams. Washington, DC: The Commonwealth Fund.

Comparing the CHT practices and components with effective complex care management programs. In Table 9, we compare CTC-RI CHTs with features and components of effective complex care management programs, taken in whole from Freund and colleagues. These components are consistent with other best practice literature and in some cases are redundant with the previous CHT best practice components and practices.

Table 9 shows that the CTC-RI pilot CHTs are configured to meet the regional needs of many small practices, and that CHTs are configured to address psychosocial needs rather than to address gaps in care or care quality. A strength of the CTC-RI CHTs is building trusting relationships with patients. Again, data infrastructure limits effective communication, warm handoffs, measurement, and patient alerts for ED visits or hospitalizations.

Table 9: Effective Complex Care Management (CCM) Program Components

*Component	*Description	Status of CTC-RI CHTs
Programs are tailored to their particular context	• CHTs are regional or embedded, depending on regional needs	• CHTs are regional
Case selection	• Use risk prediction software, chronic disease criteria, or utilization thresholds with patient/provider referrals or assessments • In hybrid approach, providers must understand program goals and available care management interventions • Focusing enrollment around acute care events (ED visits and hospitalizations) helps facilitate patient engagement	• Risk prediction is in place • Providers/NCMs have at least general knowledge of program goals • CHTs do not receive alerts around ED visits or hospitalizations
Team composition	• Tailored to the target population and constructed to effectively deliver the desired outcomes • Multidisciplinary teams: PCP Care manager (typically nurse or social worker); community resource specialist, behavioral health provider, pharmacist, health coach/community health worker, other clinical specialists, administrative and analytic support • Sharing some team members across CCM teams • Teamwork is enhanced through face-to-face meetings and use of a shared information technology platform for secure communication	• At present, teams are configured primarily to address psychosocial needs rather than to address gaps in medical care, care quality or preventive care • There is no centralized analytic support, or centralized care management information system.
Appropriate caseload	• Determined by patient needs and CCM team composition; program protocols and clinical judgment dictate frequency of scheduled interactions	• Not specifically addressed in this evaluation

*Component	*Description	Status of CTC-RI CHTs
	• Most interactions by phone; in-person visits often at PCP, but also in hospitals, ED, patient homes • To carry higher caseloads, managers optimize team function, prioritize patients by level of risk, selective use of remote monitoring	
Key tasks—Build trusting relationships with patients, families, PCPs and their staff	Build trusting relationships with patients, families, PCPs and their staff • Warm hand-off from PCP; accompany patient to PCP visits • Approach patients during time of high need, e.g., hospitalization; address language, cultural barriers • Approachable staff • Patient assessments take into account gaps in care as well as functional status, patient activation, behavioral health/ social service needs, barriers to care. • Care plan: reflects priorities and preferences of patient and family • Use motivational interviewing to encourage patient activation and self-management • Frequent interactions between CCM and primary care teams	• **CHT strives for warm hand-offs** • **CHTs work with patients during times of high need** • **CHT staff are very approachable** • **Patient assessments are comprehensive** • **Care plan reflects patient priorities** • **CHT staff use motivational interviewing** • **CHTs have frequent communication with NCMs and have monthly clinical review meetings**
Key tasks—coordination of patient care	• Share patient info across providers • Ensure safe care transitions: medication reconciliation, developing action plans when trigger events occur • CCM receive timely notifications of patient ED visits • Develop protocols for end of life services, such as completion of advanced directives • Help patients find services; assess existing services and develop strategies to fill in the gaps • Develop working relationships with hospitals, SNFs, clinical providers, and community service providers	• The CHTs receive info but do not necessarily share patient info across providers • No formal approach yet to ensuring safe care transitions • CHTs may serve some patients at end of life if referred, but do not have protocols for end of life services • **Area of CHT strength is helping patients find/access services, addressing service gaps** • **CHTs have developed working relationships as appropriate to their program design**
CCM team training	Receive customized training including both didactic experiences, mentoring, and	• **RIPIN provides intensive and**

*Component	*Description	Status of CTC-RI CHTs
	shadowing	**comprehensive training**
CCM team members	Hire the team members who can work well with patients	• **Area of strength**
HIT	• Access real time data on hospital discharges • Facilitate documentation, communication, decision support and automated reminders • Remote monitoring allows CCM team to track stable patients and alert team to declines in health	• Not yet in place
Utilization measures	• Utilization: Hospital admissions and readmissions; Emergency department utilization; Cost of care • Quality of care: e.g., annual office visit, increased proportion of patients with LDL <100; decreased smoking rate; increased medication adherence rate; mortality; smoking rates, medication adherence, HbA1c testing; HEDIS measures; increased healthy behaviors/patient reported outcomes; patients take initiative in health management • Provider satisfaction with program • Quality measures: Quality of life, patient experience	• CTC gets these data from practices, but to date have not been able to get PHI for the intervention group.

*Source: Freund, T., et al., Development of a primary care-based complex care management intervention for chronically ill patients at high risk for hospitalization: a study protocol. Implementation Science, 2010;5(1):70.

      4.3.1.4 Interviewee recommendations to improve existing operations or to support team expansion. During the course of the interviews with CHT staff, managers, NCMs, and representatives from health plans and RIPIN, many recommendations spontaneously arose for helping the CHT program to successfully expand in RI. We also explicitly asked interviewees for recommendations. Appendix 1 provides a list of these recommendations.

      4.3.1.5 Summary of CHT staff focus groups and individual interviews. From interviewing the CHT staff, it is clear that CTC-RI is fortunate to have CHT staff so committed to their program and to their patients. We found many areas of excellence. These include the quality of their CHT staff, staff/NCM relationships and communication, staff ability to work effectively with patients who face multiple challenges, and the case review process. In preparation for considering expansion of the CTC-RI CHT program, we also found areas for improvement upon the pilot program. These areas are largely structural and procedural -- the need for clear policies and protocols, data agreements, a data warehouse or repository, and a centralized case management system. There also appears to be opportunities to consider leveraging the motivation, skills and enthusiasm of the staff and expand Community Resource Specialists' responsibilities.

4.3.2 Patient interviews. We conducted 27 interviews with patients, having reached saturation in themes that arose from the data.

4.3.2.1 Blackstone Valley CHT patients: N = 12. Patients interviewed who received services from the BV team live in Pawtucket, Central Falls, and Providence. Many live in public housing and the quality of these buildings varies, with some quite dirty and odorous, a situation that the patients are unhappy with. Some of the patients have spotless apartments within these buildings; others live in less hygienic circumstances. A number of the patients are hoping that the CHT can help them move to better housing. Those BV patients who live in Providence do so because that is where they were able to secure public or VA housing. All BV patients interviewed appear to be of low or very low socioeconomic status, with most living in tiny subsidized apartments that are either sparsely furnished or extremely crowded. One patient lives in a private home that is overflowing with belongings, another lives in an apartment building that is better maintained than the others, and another lives in a small, well-kept single family home owned by her adult children.

Patient characteristics:
- Gender: 6 female, 6 male.
- Ages: 46, 50, 51, 52, 53, 54, 55, 60, 65, 76, 83, 99.
- Race/ethnicity: 5 non-Hispanic White; 5 Hispanic (1 Dominican, 1 Cuban, 1 Guatemalan, 1 Puerto Rican, 1 Colombian); 1 Asian Indian; 1 Cape Verdean.
- Place of birth: 6 born outside of the U.S. mainland
- Education: 8 <12th grade; 1 GED only; 1 high school diploma; 2 some technical school or college.
- Length of time receiving CHT services, according to the patients: (all times are patients' own estimates):
  - 2 for 2 months; 2 for 3.5 months; 1 for 5 months; 1 for 6 months; 1 for 8 months; 1 for 1 year; 4 said for more than 2 years, though they must be confused with other services.

4.3.2.2 South County CHT patients: N = 15. Patients interviewed in South County live in a range of rural or suburban towns across the county, and have more of a mix of socioeconomic status than do the patients served by the BV team. A few of the SC patients appear to be extremely low income. All but one patient had a stable housing situation, including home ownership, trailers, shared living in a home or apartment (roommates), and elder, subsidized, and/or disabled housing. Elder/disabled housing is located in middle class neighborhoods. All are receiving some form of public assistance (e.g. at least fuel assistance or food stamps). Two homes are in seemingly affluent neighborhoods, but the patients had retired or are on SSDI, so their housing does not reflect their actual economic status. Most of the SC patients live in homes that are tidy and well-kept, except for one patient who lives in deplorable circumstances. Patients noted the lack of public transportation as a significant obstacle in their daily lives.

Patient characteristics:
- Gender: 6 female, 9 male.
- Ages: 25, 27, 45, 45, 50, 52, 53, 55, 55, 56, 63, 66, 70, 76, 85
- Race/ethnicity: 15 non-Hispanic White; 1 Cape Verdean/Amerindian
- Place of birth: all US
- Education: 2<12th grade; 2 GED; 7 high school diploma; 4 some college
- Length of time receiving CHT services, according to the patients (all times are patients' own estimates):

- 1 for 3 weeks; 1 for 1 month; 1 for 5 weeks; 3 for 3.5 months; 1 for 7 months; 1 for 8 months; 5 for about 1 year; 2 unknown

4.3.2.3 Patient interview findings by topic. Findings are reported below with illustrative quotes included. We have not separated the findings by team because the themes that arose in the data are common to patients from both teams.

Referral for CHT services: Most of the patients did not recall how they came to be referred for CHT services, although a few knew that the referral came from the NCM or their provider at the practice. As one patient noted, *"[The NCM] was trying to get me help that I needed."* However, another asserted, *"I don't know. It certainly wasn't my doctor. My doctor is too overwhelmed to. . ."* And another explained,

> *"[The CRS] might have called me out of the blue. . . .Well she just called me, and I said, 'Yeah sure, I can use some help with a lot of different things. I'll meet you any day, time, anywhere.'"*

Differentiating among the various sources for help that some patients receive in addition to the CTC-CHT. A related subject to whether patients understand that the CRS is connected to their primary care office, is understanding how the patients differentiate their CHT staff worker from other individuals who are helping them with psychosocial needs. Some of the patients were uncertain who the interviewer was speaking about when describing contact from the CHT. In all cases where the patient was not certain who their CHT worker is, the patients outlined a variety of sources of assistance that they are receiving, including case management from their health insurance company. In addition, even when patients recognized who their CTC-CRS is, they frequently spoke about helpful services that they were receiving from other sources, or that were already in place when the CHT initiated contact with them. A few patients commented about how helpful it is when the insurance case manager and/or the VNA are in contact with the CHT.

> *"So I have to make sure the information they have is right, especially my med list. Especially if they're going to give me more meds they need to know the current meds I have. So a lot of problems I've have, with [the CRS] being, not in constant touch but in touch with some of the other people who work at the hospital as well as my visiting nurses they're able to--I don't want to say streamline the process, but it really helps if they talk all the time and then advise me the next step or whatever I have to do."*

However, others assumed that there is no communication or coordination among the people who are providing them with help and services. Even when the patient felt that all of the people providing assistance were in contact, she felt like she did not understand who does what:

> Interviewer: *"Do you feel like they're coordinating care with [agency]?"*
> Patient: *"No. Everybody that I talk to--I'm not going to lie. Like I go through [agencies]. They all don't understand what [SC CHT social worker and community resource specialist] are supposed to do, and I don't know how to explain it. So it is confusing."*

Two CHT staff went with this patient to this other agency: *"And they asked her what she did, and she explained it to them. I guess I--I couldn't follow it."*

Patients reported <u>receiving help</u> from CHT staff to acquire:

- Whatever it is the patient was in need of, e.g. from a patient suffering from cancer:

  "It gave me some optimism, you know, being able to handle this whole process. . . .She can put me in the right directions in the things that I need."

- Affordable medication

  "I had just become too allergic to Warfarin. And the doctor was trying to get me on Xarelto. And the insurance or Medicaid wouldn't pay for it. And Marie started immediately getting on the internet and getting forms for this, and in the meantime since I wasn't getting anything, I had the first stroke. . . . [The CRS is] making sure that I'm actually getting my prescriptions."

- Safer, cleaner low-cost or subsidized housing or VA housing that has implications for many areas of health status

  "If it wasn't for [the CRS] I'd still be in a one room apartment on the third floor trying to crawl up three flights of stairs. And the building was not a good environment. . . . Everything in my situation has improved because for ten years I've taken insulin, and I know what to do. It's only here that I can prepare my own foods [in] kitchen. I can prepare healthy low carbohydrate meals, and I've gone from 20 units of insulin to 5."

- Home health aide/CNA

  "And my right knee still buckled up from under me a lot. So she said, 'I don't like that; you need a CNA in here. Do you have one?' I says 'No, I don't. I'm trying to do everything myself.'"

- Nutrition information
- Food (referrals to food banks or help acquiring food assistance benefits)
- Clothing
- Furniture
- Medical equipment (e.g. a larger sized motorized wheel chair; ostomy supplies)
- Utilities payment assistance

  "I pleaded with the electric company. I'm like, 'My mom will die without her oxygen. Like what am I supposed to do?' And they're like, 'Not our problem.' So I called [CHT staff]. And I was like, 'I don't know what to do.' I was basically panicking. And she was like, 'Nope, just let me handle it.' And she just called them, and twenty minutes later the guy was right back -- turn it right back on. They [CHT staff] got right on the phone and took care of it. I give them girls credit."

- Intervening by telephone for acquisition of varied resources and services when patient has been unable to make head-way on the problem

  "Talking to people on the phone - She knows how to get good things done like on the phone. Somehow she works around the bureaucratic red tape and gets things done. It seems like whereas I was having trouble for months doing certain things she does with no problem at all."

  "Without someone like [CRS], I don't know what I would do, really. There's so many things that--unanswered questions I had, things that--to myself to try to get on the phone talk to different agencies or whatever was. . .just overwhelming."

- Health insurance for spouse
- Transportation

- Psychological counseling

    "[CRS] just called all kinds of therapists until she could find one that had an opening that would take me because they're all, 'Oh we're not taking new clients.' You know, she just called and called and called. She helped me to be able to use the cab to get to appointments because I didn't really know how to do that. . . . So I can use the cab for free through my insurance. That was a little upsetting but she also called and complained at them on my behalf because they picked me up late, and I missed my first ever appointment that they were supposed to take me to."

- Substance abuse treatment
- Specialist appointments
- Legal representation
- Resources needed by family members
- Parenting classes

Patients reported <u>directly receiving</u> the following from CHT staff:
- Information about ED avoidance strategies
- Coaching to deal with the medical system
- Coaching to more effectively speak with providers

    "Without [the CRS], I just--I wouldn't have been as extroverted in being able to just speak out and say, 'Hey listen, I'm having a problem with not knowing this information.'"

- CHT staff calling doctor on patient's behalf to sort out confusing elements of care

    "[CRS] calls me back and says the doctor is going to call me--that she straightened it out and they'll call me."

- Explanation of benefits and completion of paperwork (e.g. housing, transportation, financial benefits, food assistance benefits, long-term disability benefits, health insurance, dental benefits) – much of what the CRSs must do in order to help patients acquire what they need is to fill out multitudes of paperwork that is far too overwhelming for most of the patients to achieve themselves.

    "Oh a multitude of things related to my visits to doctors, transportation there. She's helped me with housing by helping me get copies of my social security card as well as my birth certificate which I needed for applications for housing as well as trying to get into an assisted living facility, and she's helped me with the Medicare application that I have to fill out to apply for a long-term Medicaid I guess which is actually Medicare. I'm not really sure how it works to be honest with you."

    "She helps me with just about any aspect of my life as well as other questions about like other benefits that I needed that I mentioned to her, and she's found ways--for instance dental coverage under the Medicaid--I've needed dentures for many years. And doctors have mentioned to me that they say two problems associated with heart problems--and so she's helped me with that. . . . And then she was going to give [paperwork] to another person who was going to give it to another person at the hospital who is going to send it to the Medicaid people. And so I just had to give that to her really. She'll probably make copies of it. It's my birth certificate as well as my social security card I just got in the mail. So she'll probably make copies of it, send it to the appropriate

> *authorities if you will and as well as make copies of it for some housing applications. So that helped me a couple of different ways there."*

- Informational materials – few patients reported having received written materials explaining the program and services, or any other types of informational materials. Most claimed that written materials are unnecessary because they receive all the information they need verbally from the CHT.
- Moral support through home visits, phone calls, recognition by the patient that the CRS can be reached by cell phone when needed, and the CRS accompanying patients to court, DCYF, medical appointments and the ED. This is important for patients who do not have family support, but was clearly important for even those patients with involved family members.

  > *"We talked a long talk yesterday about what I'm facing for the future and everything else and about my family's lack of participation in my healthcare. . . .So I told [the CRS], you know, it's just her being there for me is very important because I don't have other people. So she knows my family is not there for me."*

  > *"And in many different ways sometimes she has to just listen to what I'm saying, you know?"*

- Individual and marital counseling
- Anxiety management
- In-home counseling (e.g. anxiety; depression; marital relationships; learning how to recognize need for help, and becoming willing to accept help)

  > *"I thought it was great that we had that opportunity to be able to do that rather than paying incredible fees to a private mental health organization. And they come to your home. I thought it was just wonderful that they still do. It's wonderful that they do this."*

  > *"You sort of get old, and you don't realize you're there already and all these things are available to you. I've never in my life asked for help from anybody."*

- Sorting out medication confusion – few patients mentioned that the CRS speaks to them about medications, however it was deemed helpful when this occurred.

  > *"Sometimes she helps me with medicine. . . .I get mixed up maybe sometimes or I just have maybe questions, and she's helped me with stuff like that."*

- Food (actual delivery of food by the CHT staff in the rare occasions when the patients had no other way to acquire food)
- Clothing (delivery of clothing from a second hand store that would fit a large-sized patient)
- Warm blankets
- Medication pick-up from pharmacy (when the patient could not get it on her own)

Even when not referring to any particular instance of help, patients are effusive about the overall help they receive from the CHT:

> *"Pointing me in the right direction for just everything, everything. I mean supplies and just food and financial and just whatever I would need was amazing to me. Like if they*

didn't know somebody, they knew somebody that knew somebody. She did. She was on the phone to several different people when I was talking to her that day."

"If I need housing, she'll help me find housing, the apartment. If I need help with just to talk to somebody she can talk to me. She helps me out with everything, a lot of stuff."

"Whenever I need anything, any kind of advice or whenever I have a doctor's appointment if she can make it, if she's not tied up that day, or I have other appointments, she'd be there. She's been helping me with the apartments. You know, I used to give her copies of certain things. And she filled most of it out. And then I'd sign it, and she mailed it out."

Patients' attitudes towards interacting with the CHT staff. All interviewed patients served by both teams are universally pleased with their interactions with the CHT staff. They find the staff to be pleasant, friendly, helpful, motivated, energetic, and to go out of their way to find the resources that the patients need. Many described the CHT staff to be informative, providing guidance without being too "directive" or "pushy". Along with the logistical help with critical problems that patients receive from the CHT staff, patients placed extremely high value on the moral support that they receive from interacting with the CHT staff. They all felt that they could call upon the staff (literally, by calling the staff person's cell phone) whenever they felt it to be necessary. Along with the concrete provision of services and referrals for resources, the CHT staff appear to fill a gap in many of the patients' lives in terms of having someone who will listen to them and who cares about them. This appeared to be true even for patients who have good relationships with family members who help them.

"She [CRS] cares about me."

"It helps me. I mean it helps me feel a little secure and stuff like that I mean because I know [CRS] is right there to help me if I need help."

"I have somebody to talk to, or I know that I can in a week or so. And they give me some new point of view too. That's important. When--oh I didn't think of that. My problems are not unique which we all think they are."

"I call her just to talk to her and let her know how I'm doing and stuff. And she asks me how am I feeling. I tell her okay. She'll come here. She comes here because she's booked with appointments. Do you know what I mean? So she comes here when she can. She'll call me up, and she'll ask me is it okay if she comes out on this certain date. I say, yeah sure. She'll come out. She'll sit here. She'll talk to me. We laugh together and everything. I mean she's a wonderful person. I can't say nothing much about her. She's just wonderful."

"The best thing is to still know that somebody would listen to you, and that you're not alone, that even though you're staying here in this house in [name of town], Rhode Island, and no one cares about you, and no one cares about what you're going through--but then all of a sudden two girls [CHT staff] walk in the door that are asking you how you are, asking you 'What can we do to help you because you're not happy?' And that's a nice thing because you're not left alone in the dark. And to have them appear at your doorstep is just something to show that there's somebody out there

that still cares, that's willing to help you, and that's to ease in itself as far as stress and everything to know that there's somebody that if you need to call somebody, pick up that phone, and they're there. And if they can't help you they're going to find somebody that will. You know what I mean? I know that that button is there with [CHT social worker's] name on it. If something goes wrong and I'm up to my head, I'm going to push it."

Patients do not seem to know how decisions are made regarding discharge from the CHT service panel. Some patients who were interviewed are still interacting with the CHT frequently, while others have had their initial crises addressed and have less frequent contact with the team. Those in the latter category offered explanations for why this is so, along the lines of the following:

"They never said that [I would be discharged] though. I never heard that we're pretty much done. They know that their numbers are actually in my phone, programmed in. And if I need to call them for anything I can, and I'm sure that they told me that. So none of them ever told me that they were done. But I think that they're holding on and contributing their time to somebody now that probably is a little more needy at this point because they do feel as though they've done something for me, and I couldn't blame them for thinking that, because they have."

Frequency and type of communication between CHT staff and patients. Early contacts with patients, after first calling them on the telephone to initiate contact, are in person, usually visits to the patients' homes. For most of the patients interviewed, after a period of in-person visits, these have dropped off and visits are less frequent and/or more of the communication happens on the telephone. Patients sounded satisfied with communicating with their CHT community resource specialist by phone, and appreciated being able to do so on a regular basis. After patients' most critical problems were addressed by the CHT staff, patients described different frequencies of being in touch with their CHT contact, predominantly visits or phone calls weekly or every two weeks.

"I mean like I said, she's done a wonderful job at, you know, just keeping in touch with me, touching base, seeing if I need anything, if I want anything, if--anything. And I feel comfortable enough to give her a ring or a text message even, and she always gets back to me promptly."

"We really touched base on everything, and also what I love is that anytime if I want to call her and say, 'Hey [CRS], la-la-la-la-la-la-la'--anything, she will listen, and she will give ideas on how I can cope with that or, you know, places I can find that information or the help that I would need."

Patients' attitudes toward their PCP, primary care office and the emergency department. None of the patients interviewed stated that they preferred to go to the ED over their primary care provider's office. They spoke about reasons why they would go to the ED, and all of the situations they described were concordant with medical emergencies. Some of the patients spoke very highly of their PCPs, others seemed to feel that the care was fine but nothing special, and one felt that PCPs are worthless because they don't listen to the patient and always need to refer to specialists. Some complained of having difficulty getting appointments when they wanted them or the answers that they wanted about their medical conditions. Some patients asserted that with the introduction of the computer in the exam room, patient-physician relationships have deteriorated. One explained how the computer completely dissolved the warm, caring relationship she felt she

had had with her PCP for over 30 years: *"I've lost personal contact with him."* And another recounted:

> *"[The CRS] does make sure that I got the next appointment. A lot of doctors wouldn't take me, and [the health center], I got to tell you, nice people [however] my doctor after ten years couldn't identify me out of a police lineup. He looks at his work, and he's typing the Great American Novel because almost all these healthcare people--even the therapist--are required to type up a lengthy report and sometimes it's 50% of the appointment. And my [doctor] is a good guy, and I think he's a good doctor, but I've noticed in the last couple of years everything in healthcare is--they're way overworked and overstressed and overextended at the hospital, and [the health center] is like going to the free clinic in India."*

Despite certain frustrations in dealing with their primary care office, patients did not state that they would choose the ED over their PCP in non-emergency situations. However, for patients with chronic diseases such as asthma and COPD, the emergency department is seen as a periodic necessity.

> *"I have had to call the ambulance many times because I can't breathe. I wear oxygen 24/7. Yeah, so a lot of times I have that panic attack if I can't breathe. . . . If I feel I can't breathe then I'll go into a--if I start [wheezing], then I say, 'Yup, time to get the ambulance.' And they have all the equipment where, you know, I have the oxygen, and my husband could drive me. But I feel it's necessary to have an ambulance. . . . That's a scary feeling when you can't breathe."*

  4.3.2.3 Summary of patient interview findings. Patients are universally satisfied with their interactions with the CHT staff, and with the services that staff provide for them. The scope of services and resources that staff help patients with is broad, addressing housing, food, utilities payment, transportation, mental health and substance abuse counseling, communicating with medical providers, accessing medical and social service appointments and benefits, accompaniment to appointments, emergency department avoidance, paperwork completion, listening to problems, sorting through problems and coming up with action steps and solutions, and a myriad of other issues that directly impact patients' health, emotional stability and quality of life.

5. Persisting data needs

5.1 Data sharing

Discussions with health plan representatives and CHT staff and administrators, highlighted the need for the sharing of patient Protected Health Information (PHI) between CHTs, practice providers, and health plans. Limitations regarding sharing of PHI served as a barrier to the CHTs ability to inform health plans of patients who ultimately received the CHT intervention. A data sharing agreement has been recently formulated and will address this barrier and facilitate the sharing of patient PHI.

5.2 Health plan data/All-payer claims database

To assess whether the CHT intervention is effective in reaching the goal of reduced emergency department visits, reduced hospitalizations, and reduced costs, an evaluation of individual, patient-level claims data, is needed. An analysis of changes over time in emergency department visits, hospitalizations, and costs for **all covered patients** is not sufficient to determine an impact of the CHT intervention. Under this approach, wherein aggregated data for all covered patients is assessed over time, any changes over time that are found may be a result of any number of interventions, national trends, or other influential experiences happening concurrently. This approach lacks the ability to attribute any change over time to the CHT intervention.

In order to assess the impact of the CHT intervention on reduced emergency department visits, reduced hospitalizations, and reduced costs, analyses must compare data for patients who received the CHT intervention and patients who did not receive the CHT intervention. Because patients who ultimately receive the CHT intervention are likely different than patients who are eligible for, though do not receive, the CHT intervention, a primary concern in comparing data from these two groups is their non-equivalence. The differing characteristics between groups prior to engagement in the CHT intervention can cause misleading inferences regarding post-intervention differences. As a result, any determination regarding the causal impact of the CHT intervention will remain questionable unless statistical precautions are taken to address non-equivalence.

In the absence of a randomized controlled trial, wherein covariates are accounted for by the process of randomization, propensity score analysis [1] provides a promising mechanism by which one can assess causality while reducing confounding variables. Propensity score analysis is a rigorous method for assessing causality in the absence of random assignment. Introduced almost 30 years ago, propensity score analysis is gaining increased empirical support and attention as a promising technique for behavioral research. The number of yearly published applications of propensity score analyses has doubled from 15 in 2005 to 30 in 2009. [2] Additionally, the journal of Multivariate Behavioral Research recently published a special issue on propensity score analyses with the intent of broadening the awareness of the rigor and utility of propensity score analysis methods for behavioral research. [2] Although there are four methods of using estimated propensity scores to assess treatment effects (stratification, matching, inverse probability of treatment weighting using the propensity score, and covariate adjustment using the propensity score), all methods attempt to balance covariates representing participant individual differences, reducing and/or eliminating the effects of confounding variables. There are advantages and disadvantages of each of the four methods. For a more detailed description of the four methods and their advantages and disadvantages, readers are referred to Austin, [3] Luellen et al., [4] Rosenbaum and Rubin, [5] and West et al. [6]

To utilize propensity score analysis to assess the impact of the CHT intervention on reduced emergency department visits, reduced hospitalizations, and reduced costs patient level data is needed. All patients from risk lists may be included in propensity score analyses. An indicator may be added to the data identifying the patients from the risk list who engaged in the CHT intervention.

Although all patients on risk lists are eligible for receiving CHT services, it is possible that not all patients received CHT services. This may be due to CHT staff being unable to reach certain patients, patients refusing to participate in the pilot, etc. This indicator would identify the patients who engaged in the CHT intervention, and the patients who did not engage in the CHT intervention. For the purpose of these analyses, patients who engaged in the CHT intervention will be the "intervention" group, while patients who did not engage will be the "control" group. Because there may be qualitative differences between patients who engaged and patients who did not engage in the CHT pilot, propensity score analysis will be used to balance the intervention and control group based on pre-treatment characteristics such as gender, racial/ethnic identification, physical and mental health diagnoses, history of service utilization, etc. Of note, patients would not be prevented from participating in CHT intervention services based upon assignment in the control condition. Should patients previously assigned to the control condition engage in CHT services, an adjustment can be made to the data to better reflect a change in CHT intervention engagement

5.3 Barriers to collecting evaluation data

5.3.1 Patient surveys. Staff and administrators from the South County and Blackstone Valley/Central Falls CHTs were asked to administer surveys to CHT patients during typically scheduled face-to-face visits. Some barriers may have been present for CHT staff and administrators' successful collection of patient survey data via tablet administration. These barriers include, though are not limited to, the following:

Language. Throughout the evaluation, patients only had access to surveys developed in English. CHTs were instructed not to attempt translating survey items from English to the patient's native language for threats to the validity of the resulting survey data, as well as threats to patient anonymity when providing survey data. In December 2015, patient surveys were translated into Spanish by an experienced, volunteer translator, reviewed by a second translator, and any disagreements regarding item translation were discussed until an agreed upon translation was identified. While a Spanish survey is now developed, the survey did not become available for administration through the REDcap program, and therefore was not used for this evaluation.

Education level. Surveys were assessed for their readability and obtained a Flesch-Kincaid grade level of 6.9. Although the readability grade level of surveys is well below the established recommendation of 8.0, any patient who has an education level below that of 6.9 may have difficulty reading, interpreting and responding to survey items.

Tablet administration. CHTs staff and administrators were instructed to offer each patient who agreed to receive services from a CHT the opportunity to complete a survey approximately 2 weeks after patient enrollment in the CHT program. The CHT staff person with whom the patient has been working was instructed to offer the patient a tablet that will serve as the means for capturing the patients' consent and for capturing the substantive survey responses of those patients who agree to participate. Although surveys were developed to be administered online via the secure REDcap program, CHTs were instructed to ask patients to complete the survey via tablet administration during regularly scheduled face-to-face visits. Because CHTs have limited face-to-face contact with patients, there are substantially fewer opportunities for patients to complete the survey.

5.3.2 Practice provider and NCM surveys. Brief surveys were developed to assess practice providers' perceptions of the structure, processes, and outcomes of the CHT intervention. After repeat email requests soliciting practice providers' participation, 21 individuals completed the survey, representing 9 of the 15 practices. As such, practice survey results lack representation from several practices served by the CHT. Additionally, there are likely many other providers from the practices that have patients served by the CHT who did not complete the practice survey.

5.4 References for persisting data needs.

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6. West, S. G., Biesanz, J. C., & Pitts, S. C. 2000. Causal inference and generalization in field settings experimental and quasi-experimental designs. In H. T. Reis & C. M. Judd (Eds.), Handbook of Research Methods in Social and Personality Psychology, pp. 40–88. New York: Cambridge University Press.

6. Recommendations from lessons learned in the pilot

The challenge to all patient outreach programs is to *provide the right services to the right patients at the right time.* The CTC-RI CHTs have had numerous patient successes, and many of the struggles that the program has experienced are related to this goal that in reality can be quite difficult to achieve, especially in the pilot phase.

The following recommendations are gleaned from the literature review and multiple methods of data collection and the analyses we conducted. Overall, we recommend that before expanding the CTC-RI pilot to additional geographic regions and teams, it would be worthwhile to consider lessons learned from the pilot. These include recognizing useful program elements to maintain, reinforce, and/or institute more universally; and, recognizing new program elements that need to be created and established prior to start-up.

6.1 CHT structure

Identify the essential components of a successful CHT program prior to expansion. Define and describe these components fully in terms of how they will be implemented in the CTC-RI CHT program. Adequately provide for the review of necessary resources, structures and staffing. Refer to the planning documents in the literature review describing successful planning practices to guide CHT program development.

Enhance CTC-RI's role in overall program oversight. Best practices from successful care management programs call for establishment of a central program office to coordinate activities, monitor progress, and help stakeholders (including care teams and practices) reach their goals. The CTC-RI pilot rolled out with a conscious plan for regional development of teams to meet regional needs. Before scaling up to a larger program in multiple regions throughout the state, it is recommended that the central, coordinating role of CTC-RI be reinforced. Lack of centralization and clear lines of accountability can result in problems not being identified and addressed quickly, lack of consistency in core policies and procedures across sites, and can lead to inconsistent approaches to data collection and reporting. This heterogeneity of processes impedes evaluation and comparison across sites. As part of a more centralized approach, CTC-RI can establish clear reporting metrics for CHTs to document how they are meeting contract requirements and how practices are meeting MOU goals and objectives. CHTs could provide periodic progress reports for CTC-RI to review.

Given the multiple layers of supervision, and the multiple dispersed teams that will be in effect with program expansion, increasing CTC-RI's role in overall program oversight will reduce confusion and heterogeneity among teams, and ensure more uniformity in work role expectations, team functioning and data collection across all sites. There are opportunities for CTC-RI to facilitate having the elements of the MOUs recognized accepted by practice staff beyond the upper management involved in arranging and signing off on the MOUs, and to provide the authority necessary to ensure that each element of the MOUs is being satisfactorily implemented. Further, there are opportunities to strengthen quality improvement processes to identify problems quickly and have CHTs develop, test and report to CTC-RI on solutions. This would require CTC-RI to invest in a staff person with responsibilities dedicated to CHT oversight.

Prior to expansion of the program, establish and communicate universal, detailed, transparent policies and procedures for all aspects of CHT workflow and functioning. These would include, just as examples, aspects such as number of outreach attempts, frequency and number of in-person contacts per patient, frequency and number of telephone contacts, types of

services staff can provide, types of services staff are discouraged from providing, and so on. This process has been started in the pilot; build upon previous work to create a systematic approach to be used by all sites. Create these for application throughout the state-wide program so that staff of all CHTs are 'on the same page' and role descriptions and expectations for service delivery and documentation are clear. These policies and procedures can come from CTC-RI in the form of a manual or standardized contractual requirements, with capabilities built in for sanctioned mechanisms of review for modifications needed to accommodate circumstances special to certain regions of the state or certain patients.

While, as we have noted, too much variability between teams is not optimal, excessively rigid adherence to universal protocols would not be optimal either. Structured mechanisms for building in flexibility are essential to tailoring each CHT for the most effective operations within its service area, but the basis of operations should begin from uniform expectations, policies and operations.

Create CHT services and outreach documentation procedures and categories for use across all CHT regions. This will foster outcomes evaluation across CHTs in the entire state, facilitate expedited training of new staff, clarify expectations and reduce overall confusion and frustration stemming from lack of clarity or crossed signals. When designing these procedures, *seek input from the CHT field staff* on convenient and useful ways to categorize and document their work tasks and outreach activities.

Establish a centralized data warehouse or data repository and a centralized case management information system. These elements of high performing CHT programs greatly facilitate using uniformly collected data to understand performance across sites. CTC-RI, in conjunction with the health plans and Rhode Island Medicaid (and potentially other CHT programs operating in the state) will need to determine who will create and manage this system.

CHT staff hiring, training, responsibilities - Community Resource Specialists (CRS): Consider expanding the staffing of each CHT to allow teams to reach more patients. Explore hiring and employing CRS staff by the team site host where they are situated rather than by RIPIN. RIPIN, with its long experience in training outreach workers, could still be responsible for the CRS training. We suggest this because from what was discussed in the interviews, there are multiple layers of accountability and bureaucracy that create confusion among staff over at times conflicting policies. In addition, before scaling up the CTC-RI CHT program, it may be worthwhile to acknowledge that the CRS role frequently goes beyond being a patient navigator, even if that is not how the role was initially conceived.   There is a lost opportunity in limiting the CRS role to social/emotional resource referrals and ad hoc care coordination and ad hoc health education. Most similar programs have their navigators or community health workers provide health education, coaching and medication management as well. Consider increasing pay scale to reflect care manager skills and responsibilities.

Streamline supervision of CHT staff and to whom staff are responsible. There are multiple layers of supervision and different bureaucratic systems that govern the staff members' jobs and working relationships. At times, from the CHT staff perspective, the requirements of these different systems (e.g. CTC-RI; RIPIN and BVCHC; RIPIN and SC Hospital; the team-specific supervision) collide. These conditions create feelings of frustration, confusion, and even insecurity among staff.

CHT staff - Behavioral Health staff availability: Consider whether additional behavioral health capacity on the teams would be beneficial to workflow and outcomes. Most of the patients interviewed have some level of behavioral health needs that are impacting their overall health and

quality of life. In South County, for example, the wide geographic region makes it difficult for patients to reach psychological counseling locations on their own. Typically the behavioral health intervention is short-term with the focus on referrals to appropriate services, including counseling to manage depression and/or anxiety. The inclusion of behavioral health professionals on the teams is not intended to make up for shortfalls in local behavioral health systems, although it could if the teams are intentionally staffed in that way. Patients appear to particularly appreciate the immediate, in-home counseling that they receive from the behavioral health specialist on the team.

Strive for economy of scale. In the case of a CHT program, this means that each region would be bounded in a smaller rather than larger way. Even in a state as small as RI, larger regions create a tremendous amount of driving for the CHT field staff. South County staff, for example, cover a broad swath of the south of the state and spend many hours a week in their cars. Driving times are then additionally prolonged in summer when staff encounter beach traffic. Other fairly rural regions of the state may present similar extended driving requirements, and urban areas, while smaller, can mire staff in traffic. Failure to pay attention to driving distances for staff field coverage when designing a state-wide CHT model may result in reduced in-person contacts and reduced numbers of patients served per staff person, overall. In addition, patients occasionally move to different parts of the state. With more CHTs situated throughout RI, when patients move to an area covered by a different team, it might be beneficial for strategies to already be in place to transfer their care to that team (although we recognize that this may be inappropriate because it will entail reformulation of new trusting relationships with these patients).

Identify sustainable funding sources. As with any service program, lack of funding stability impacts workers' abilities to engage in long-term planning and continuous quality improvement efforts.

6.2 Patient identification and selection for CHT services

Standardize identification of eligible, impactable patients for CHT services. The teams in this pilot program began their identification of high risk/high cost patients at slightly different times, and in different ways. At times during the pilot, the teams have worked from health plan provided lists, and at times they have taken referrals directly from the NCMs at the practice. Providers and NCMs in the practices have noted that not all of the patients on the health plans' lists are appropriate for CHT services, and many patients who are not on the lists could nevertheless benefit from CHT services, particularly in preventing patients from ever becoming high cost. These circumstances have created some frustration within the practices and the CHTs. Further, CHT staff have noted that when the NCMs directly provide patient referrals to the team, a more collaborative relationship is formed regarding the patients' care. A firm protocol at the outset of the expansion program for identification of eligible patients would be beneficial to workflow, development of collaborative relationships between the CHTs and providers, and evaluation of outcomes.

Reduce time lag between identification of 'high risk/high cost' patients by the health plans and onset of enrollment in the CHT program. Using data from the previous year to identify patients for CHT services did not result in the most effective means of ensuring that the list contains impactable patients. Our qualitative interviews revealed, even in this small sample, a number of patients who had been high cost in the previous year due to unavoidable circumstances (e.g. needing surgery in both knees) but who have not been in need of ED or inpatient services since the hospitalization event of the year before. As the New England Quality Innovation Network-Quality Improvement Organization propounded on a January 28, 2016 webinar, it is essential to

effectively use analytics to identify "real-time eligible patients" for enhanced services to prevent high utilization.

6.3 CHT functioning

Initial intake of patients is thorough and effective. To ensure ongoing recognition of patients' impactable conditions over time, institute a protocol for reviewing patients' problems on a periodic basis after initial critical issues are addressed. Many patients described to interviewers problems they are encountering, and when queried whether the CRS is helping them with these problems, they responded that they had never talked to the CHT staff about these particular issues. Examples include benefits paperwork difficulties, hearing loss, and inadequate housing. Often patients considered these issues to be less important than the problems the CHT staff initially helped them address, or they did not recognize that these current problems are within the purview of CHT services.

Increase patients' understanding of the role of the CHT and care planning. Patients need a better understanding of the purpose of the CHT program, how the program is related to their PCP office, what the CHT staff can and cannot do, and how the CHT services coordinate with care plan goals.

Periodically re-educate patients about available and appropriate CHT services. Patient education in this regard should be periodically updated as patients interviewed appeared to have forgotten over time any orientation to the program that they had initially received, and were unaware that some of the new problems that have arisen are also appropriate for the CHT to help them address.

Communicate to patients how contact will be maintained with the CHT at each stage of service. Many were unaware of when, how often, and by what means to expect contact from the CHT (although they did not complain about this).

Enhance CRS role in patient education. While the CTC-RI CHT CRSs do engage in some forms of patient education, it appears that their roles in this regard for the pilot are more limited than are the patient education roles of CRSs in high performing CHT programs reviewed in the literature. In addition, CTC-RI CRSs have a strong interest in expanding integration of patient education into their work with patients.

Enhance coordination between the CHTs and the multiple other sources of case management provided to patients by different stakeholder organizations. Consideration of how to install mechanisms of care coordination reaching to the various forms of case management and outreach that patients receive would be beneficial to patient care, and reduce costs by reducing redundancy. This issue arose for a number of important services that the patients mentioned receiving. When patients were probed about how those resources had been accessed, they noted that the resources had actually been provided by other outreach workers prior to being contacted by the CHT. A few patients were unsure from whom they received which services; others were highly familiar with and appreciated the help of the CTC-RI CHT, yet they were also receiving help from case managers from other sources (e.g. health plan case manager). As one patient explained, "*But luckily [CRS] knows how [benefits paperwork] works as well as another woman at the [South County] hospital, as well as others at the hospital as well.*" In a couple of cases the CRSs and other case managers appeared to be working in collaboration; in most cases, at least from the patients'

perspectives, they were working completely independently and had little to no information about what each other was doing for the patient.

Enhance communication and collaboration between all teams. Staff throughout the teams have unique skills and experience. It would benefit the work of all teams if there were strategies to regularly engage all staff members and share knowledge and ideas among all of the CHT staff (beyond just the leadership of the teams).

At the outset of new team implementation, establish business and data use agreements and information sharing protocols between the CHTs and the health plans. Inability for CHT staff to communicate directly with the health plans about patients served by the teams has caused frustration on both sides. There have been comments in planning committee meetings from health plan representatives, and comments from CHT staff in interviews, that having clearance to provide information to each other directly would greatly facilitate work with the patients. Further, it would allow health plans to know which patients are being served and thus enhance their ability to determine whether the CHT intervention improved patient outcomes. Agreements are underway, and assuring their existence prior to starting work of new CHTs is critical.

Establish real time alerts to CHTs when patients they are serving have an ED visit or are hospitalized. This will enhance the CHTs' abilities to participate in care transitions in a timely manner, improve patients' understanding of discharge instructions, and avert re-hospitalization or repeat ED visits.

Standardize generation and delivery of patient high risk/high cost lists. Resolving inconsistencies with the algorithms used among health plans to generate the high risk/high cost lists, and how, whether and when the high risk/high cost patient lists are delivered to the practice NCM or to the CHT staff, would streamline workflow and efficiency.

Compile geographic-specific community resource lists before start-up of new CHTs in additional RI regions. Having resource lists already researched and compiled before CHT start-up will enable CHTs to serve more patients, more efficiently and with better information, as the program expands.

6.4 Enhanced collaboration between the CHTs and the practices

Establish explicit mechanisms to ensure optimal communication between CHTs and providers in participating practices. A goal of the teams has been to have a high level of communication with the NCMs regarding inception of work with a patient, and progress of work with the patient over time. Between the teams and differing among practices, there is a variable amount and quality of communication between the CHTs and the NCMs, and little communication directly between the CHTs and the physicians in most practices. *Establishing clear expectations and protocols for this communication at the outset of an expanded program can be beneficial to all stakeholders.* Involve CTC-RI in thoroughly educating practices at the outset and at periodic intervals about available CHT services. Obtain practice input and commitment to the program from the outset (beyond a single NCM or practice "champion"), and establish implementable and enforceable agreements regarding ongoing communication and collaboration between the practices and the CHTs. Update: CTC-RI reports that there is a need for greater clarity around primary care practice responsibilities, and is currently working on a revised MOU.

Institute protocols such that the 'warm handoff' from the practice (usually the NCM) to the CHT is the standard. Most patients could not recall how they became involved with the CHT other than that a team member called them, while some recall being introduced to the CHT staff person at the practice. Given the high rate of patients who choose to decline services, providing a warm handoff can serve several important purposes: enhance patients' trust of the CHT; enhance patients' understanding of the purpose of the CHT, how the team can help them, and the scope of CHT services; ensure that the patients chosen are currently impactable by CHT services; enhance collaborative patient care from the CHT and the practice; and reduce redundancy.

Encourage CHTs to communicate patient successes to the practices. While NCMs have a closer view of how the CHT operates than do the physicians, so NCMs may be more aware, on an ongoing basis, of how the CHT has benefited patient care and patient outcomes. Establishing mechanisms to report patient successes that will reach practice physicians can enhance physician engagement with the CHT program (e.g. emails, newsletters). As a NCM commented: *"Over time as [PCPs] see success, they see value, and they roll it forward to the patients."*

6.5 Evaluation of CHT program

Design the evaluation plan at the outset of program implementation. Evaluation should be planned from the beginning of the intervention rather than as an ad hoc activity. Identify necessary data sources to provide quantitative evaluation of outcomes, and ensure that these data will be collected and available for evaluators' use. With uniform protocols for data collection, evaluation and comparison across teams and regions becomes possible. Supplement quantitative data with qualitative data that can provide insights into how the program is experienced by all stakeholders, and how and why particular elements of the program are working well while other components are less effective.

7. Conclusion

CTC-RI is well-positioned to use their CHT pilot program findings and published literature about high performing programs in other states to inform decisions for scaling up to additional RI regions. This will allow CTC-RI to design the expanded program to enable the CHTs throughout the state to, as the old adage goes, *work smarter, not harder*, and to enhance efficiency and effectiveness of all teams. Now that the pilot is more than a year underway and lessons learned can be gleaned from the CHTs' initial successes and challenges, there are opportunities to make critical decisions prior to expanding and during expansion implementation with some of the primary lessons learned in mind:

Fully engage all necessary stakeholders early and periodically going forward;
Plan policies and procedures carefully, considering optimal implementation and
sustainability; Communicate effectively, frequently and consistently.

Appendix 1:
Table of Recommendations by Category of Source
(health plan representatives, NCMs, CHT staff, patients, literature)

Recommendations provided by health plan representatives, CHT staff and NCMs
This table provides a summary list of recommendations provided to us by health plan representatives, CHT staff, and nurse care managers (NCMs). We did not ask exactly the same questions to all three groups, so there were opportunities for different types of recommendations to arise. This list provides key themes gleaned from the thoughtful answers interviewees provided.

Legend: Health plan representatives = 1; NCM = 2; CHT staff = 3
Prior to expansion of the program, establish and communicate universal, detailed, transparent policies and procedures
• Increase communication regarding processes and procedures with payers 1
• Increase communication with practices re: benefits, outcomes of CHTs. Practices need better engagement, need to know benefits, need to know roles and responsibilities; shared patient responsibility vs. patient handoff 1
• Need roles and responsibilities for NCM and CHT clearly defined and communicated 1, 2
• Need for clear, respectful communication. 2 Pushback may be due to unclear understanding of patient population, roles and responsibilities 2
• Have policies and procedures in place before hiring new staff 1
• Need for structure, clarity about program goals 1
Create CHT services and outreach documentation procedures and categories for use across all CHT regions—Centralized, robust Care Management Information System
• Based on literature, best practice
• Improve the case management database; create or purchase a modifiable case management information system for use across both/all CHTs 1
Establish a centralized data warehouse or data repository
• Based on literature, best practice
• Create a centralized HIE, health registry, health reporting structure 3
• Obtain scheduling and patient update software 3
CHT staff hiring, training, responsibilities - Community Resource Specialists (CRS) Streamline supervision of CHT staff and to whom staff are responsible
• Expand CRS hours to 40 to reflect the hours worked; CRSs should have the same benefits as other CHT staff; have pay reflect that CRS staff provide case management 3
• Staff evaluation process for RIPIN staff could be improved 3
• Difference in benefits 3
• Have clarity about staff roles and responsibilities 3
• Have opportunities for advancement 3
• Have CHT staff attend CHT meetings 3
Enhance CTC-RI's role in overall program oversight
• Use CHTs to identify and address policy issues at the CTC-RI and state level 1
• CTC-RI should be more involved in organizing the structure and operation of the CHTs 1

Legend: Health plan representatives = 1; NCM = 2; CHT staff = 3
• Burden is currently on the CHT to improve practice relations, inform practices of CHT procedures; CTC-RI should be more involved in oversight 3
• Need to be "teeth in the MOUs", enforced by CTC-RI 3
• Practices "have no skin in the game" to support their involvement 3
• Program needs an overall, dedicated program manager. "But to bring it up to scale, you need more management paying attention to it." 1
• Have the health plans manage the CHTs 1
• When practices do not host clinical team meetings on a regular basis, whose responsibility is it to enforce compliance with the MOU? 3
• Institute systematic reporting of CHT activities, barriers and successes - not just anecdotal reporting at the CHT planning committee meetings 1
Behavioral Health staff availability
• NCMs appreciate BH availability, see BH staff as a huge asset 2
• Teams need more behavioral health support 1, 2
Strive for economy of scale
• Embed CRS in the practices at least 1 day a week to meet patients, improve communication flow, minimize driving long distances between patients 3
Identify sustainable funding sources
• Need to know there is funding stability 3
Standardize identification of eligible, appropriate, impactable patients   **Reduce time lag between identification of 'high risk/high cost' patients by the health plans and onset of enrollment in the CHT program**   **Standardize generation and delivery of patient high risk/high cost lists**
• Patient identification process, algorithm for generating lists needs to be improved 1
• NCMs do not all fully understand the high risk lists and whom to refer to the CHT 3
• The lists do not always include the patients whom the NCMs think need the intervention 2
• Must clarify if the referrals must be high cost patients only, or if NCMs can refer patients who are at risk for high cost due to high social needs? 2
• Burdensome to review multiple lists from the three health plans 2
• Need to develop clear standards regarding referring "off the list" 2
Institute a protocol for reviewing patients' problems on a periodic basis after initial critical issues are addressed   **Increase patients' understanding of the role of the CHT and care planning**   **Periodically re-educate patients about available and appropriate CHT services**   **Communicate to patients how contact will be maintained with CHT at each stage of service**
• Literature, patient interviews
Enhance CRS role in patient education
• CRSs have skills, interest in providing health coaching, patient education 3

Legend: Health plan representatives = 1; NCM = 2; CHT staff = 3

- NCMs thought there were enough provider, payer resources and this was not needed 2
- CRSs are in the home and can provide the right intervention at the right time 3
- Provide CRSs more training re: medication reconciliation 2
- Consider whether health education, health coaching is a role for CRSs. 2

Enhance coordination between the CHTs and the multiple other sources of case management provided to patients by different stakeholder organizations

- Literature, patient interviews
- Can be hard to know who is involved, what they say they will do vs. actually do 3
- It is alright to have multiple care management sources, but roles and responsibilities need to be clarified and redundancy of services avoided 1

Enhance communication and collaboration between all teams

- Hold periodic meetings to share best practices among CHT staff on different teams 3

Establish data use agreements and information sharing protocols between the CHTs and the health plans and the practices

- Agreements need to be in place for data sharing 1, 2, 3
- Health plan personnel cannot see which patients are receiving CHT services; they only know who they included on the lists 1
- EHRs are not connected so staff cannot see when patients are coming in for appointments 2, 3
- Inability to access health record, talk about patients with the health plans is a major barrier 3
- Strengthen sharing patient clinical info with the CHTs. They need to know why there are patient goals, not just that the goals have been set 3
- If CHTs were affiliated with specific practices, they could see access the patient information 3
- Develop a patient dashboard; provide CHT staff, provider staff with reports about patient progress and utilization 3

Establish real time alerts to CHTs when patients they are serving have an ED visit or are hospitalized

- With alerts CHT staff can connect with patients in the ED or hospitalized, assist with transitions, and provide services to help them avoid re-hospitalization or repeat ED visits 2, 3

Compile geographic-specific community resource lists before start-up of new CHTs in additional RI regions

- "We learn so much from the CHTs about the resources in our area; good to know so we can share." 2
- Important to have resource lists ready for use at start-up of teams in new regions 3

Establish explicit mechanisms to ensure optimal communication between CHTs and NCMs, providers in participating practices

- Need better communication mechanisms 2
- Establish means to better engage physicians in the CHT program 2, 3

Legend: Health plan representatives = 1;   NCM = 2;   CHT staff = 3

- Establish process to communicate problems with CHT functioning 2

- Establish feedback loops for quality improvement 2

- Establish communication mechanisms about patient outcomes 2

- Develop a patient dashboard; provide CHT staff, provider staff with reports about patient progress and utilization 3

Encourage CHTs to communicate patient successes to the practices

- Clinical team meetings are effective but PCPs do not/rarely attend so need other means to communicate successes

Increase practice engagement with CHTS

- Encourage NCMs to view the CHT staff as partners, not as someone to hand off difficult patients to 1, 3
- Need feedback loops for quality improvement 2
- Only bring on new practices if/when there has been sufficient education and processes established. There should be enough awareness in the practices about how the CHT can be a partner in patient care rather viewed as "one more thing to do" by practices. The practices should be fully engaged in developing the model so that the CHT is organized to help the practice meet NCQA PCMH standards. 3

Maximize RIPIN resources

- Strengthen the ability to provide support, advice to CRSs as part of supervision model, or as needed 1

- Strengthen relationship with RIPIN to take advantage of community ties and ability to bring community groups together 1

Evaluation

- Create evaluation framework upfront: "It's a great program, but it's very, very difficult to measure…because of all the moving pieces." 1

- Standardize case identification; outcomes; barriers; whole population comparison 1

- Focus more on outcomes rather than process evaluation: What are key outcomes? How do we get there? 1

- Establish systems for consistent data collection to understand barriers to social determinants of health 1

- Use same health risk assessment across health plans and practices 1

- Use same CHT model across the state to facilitate comparison across regions 1

Designing the next set of CHTs—planning

- Engage practice leadership, staff in planning 2, 3
- Have the health plans employ the CHT staff 1

Designing the next set of CHTs—staffing

- Employ a social worker on the CHT whose responsibility it is to help patients with paperwork and application forms 2

- Hire the right staff: knowledgeable, caring and dedicated with a good work ethic 3

Legend: Health plan representatives = 1; NCM = 2; CHT staff = 3
• Increase staffing of Community Resource Specialists 2, 3
• Expand CRS responsibilities to include health education, coaching and other related tasks, or add health educators to the CHT model 3
Roll out and training
• Have new team staff shadow existing teams 3 • Plan in advance for training 1
Administrative simplicity
• Across existing and new CHTs, use the same assessments, the same care management database, the same tracking systems 1

Appendix 2:
Brief overview of three CHT programs

Brief overview of three CHT programs

This table demonstrates the variety among community team models, target population, data sources, population identification and outcomes reporting, when available.

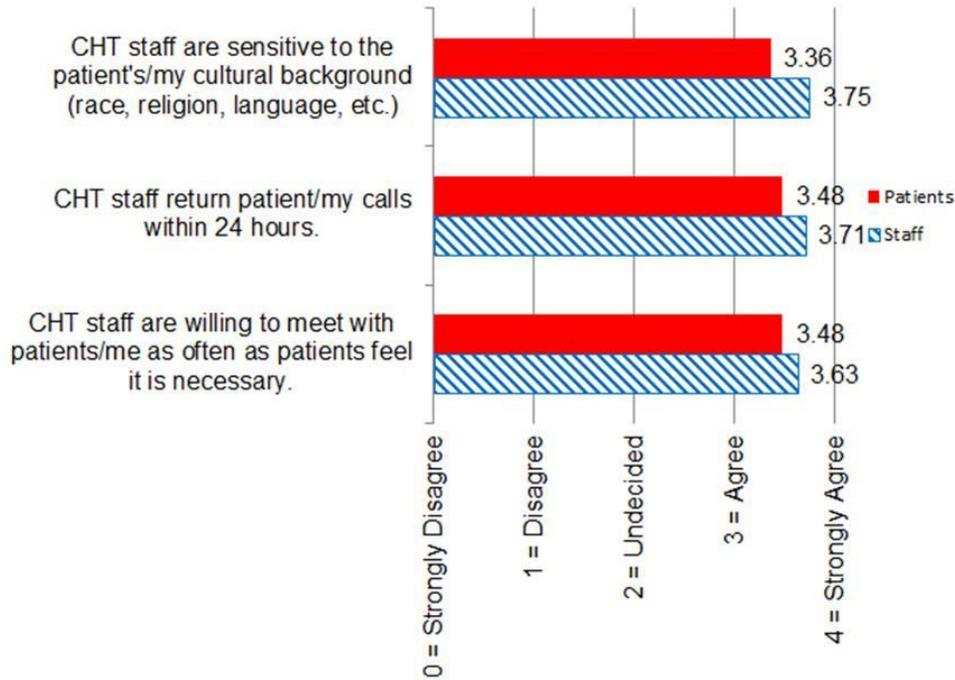| CareOregon: Domain	Description
Program type	• **Community outreach workers embedded in primary care and specialty practices** • Non-profit health services organization, one of 11 partner members of Health Share of Oregon, a Coordinated Care Organization that receives a global budget from Oregon to provide integrated physical, medical and dental care to 160,00 Medicaid beneficiaries across the 3 counties around Portland, OR
Serves	• Low income Medicaid recipients • 21% adult population diagnosed with at least one chronic medical condition and a substance use disorder or complex mental illness (schizophrenia, schizoaffective disorder, bipolar depression)
Data	• Real-time encounter data regarding ED and hospital admissions, historical claims data, web-based registry
Type of identification	• Real time identification using hospital census and ED census data for case finding, but cases are triaged first by a clinically trained triage coordinator to prioritize patients with potentially avoidable admissions and consistent patterns of utilization. • MD referral goes through the same triage process, as well as patient and other interviews.
Performance monitoring and improvement	• Aims to use dashboards to allow for continuous feedback, using the CMS quarterly reports as a template. Domains: utilization, engagement, caseload capacity, turnover, quality metrics performance
Community Care of NC: Domain	**Description**
Program type	• **CHT model; statewide program**
Serves	• CCNC serves 1.3 million of NC's approximately 1.8 million Medicaid beneficiaries; 80% are children with relatively few medical needs • Adult population includes many with complex clinical and behavioral health needs, including approximately 300,000 aged, blind or disabled (ABD) beneficiaries. 41% of ABD beneficiaries have at least one type of mental illness, developmental disability, substance use disorder. • **CCNC Priority Patients Program** focuses exclusively on super-utilizers. About 5% of the CCNC population receives care through this program. • **CCNC Transitional Care program** focuses on patients (identified as at risk for readmission) at the time of discharge with an aim to prevent

	readmissions.
Data	The Informatics Center receives/accesses/analyzes: • Statewide Medicaid claims data updated weekly; real-time hospital admission/discharge/transfer data from 57 NC hospitals; lab results from three 3 large lab service providers; state immunization registry and birth certificate data, and additional clinical data abstracted from the primary care record or documented by care managers in the course of patient care.
Type of identification	**CCNC Priority Patients Program** • Claims data analysis to estimate expected spending for each beneficiary given his/her clinical history. • Uses 3M ™ Health Information System's Clinical Risk Groups to risk-adjust performance measure and identify high-opportunity patients. **CCNC Transitional Care program:** uses CRGs to flag likely beneficiaries
Results	**CCNC Priority Patients Program**: Approximately 6% reduction in total cost of care (10% among patients with the highest above-expected spending) relative to the expected spending that would have happened if no intervention occurred. **CCNC Transitional Care program:** 20% reduction in readmission rates. This effect is still evident one year post discharge, with reduced likelihood of a second and third readmission in the following year.
Maine: Domain	**Description**
Program type	• **Community Health Teams.** Maine's Patient-Centered Medical Home Pilot and Community Care Teams (CCT) provide additional care management to some of the state's highest need residents.
Serves	• Patients of all payers including Medicaid, Medicare, dual-eligibles, commercially insured, state employees and the uninsured
Patient criteria	• Targeting criteria are standardized across the state • 3 or more ED visits in the last six months; five or more inpatient admissions in the last year; or a referral made by the candidate's provider or health plan identifying the client as high risk or high cost.
Data	• MAPCP/RTI portal provides access to Medicare data • While the state maintains a centralized, all-claims database, data from that database are de-identified by law. ME is working towards a web-based portal with the same capacity as the MAPCP/RTI portal that will allow providers and CCTs access to real-time patient information across settings of care, patient alerts. • Maine's PCMH have fully implemented EMRs, which can help case management and care coordination for the highest risk patients.
Type of identification	• Individual CCTs must identify their clients within their regional catchment areas using their own means, e.g., developing strong connections with regional hospitals and other provider organizations.

Performance monitoring and improvement	• Not provided in source report
Results	• Not provided in source report. CCT tracking demonstrates reductions in ED utilization and hospital admissions; patients report high levels of satisfaction.

Source: Mann, C. (2013). *CMCS Informational Bulletin. Targeting Medicaid Super-Utilizers to decrease costs and improve quality*. Centers for Medicare and Medicaid Services. Baltimore, MD. Retrieved from http://www.medicaid.gov/federal-policy-guidance/downloads/CIB-07-24-2013.pdf

Appendix 3:
Patient, CHT Staff, and Practice survey item responses

Access subscale: Completed by Patients and CHT Staff

CHT staff are sensitive to the patient's/my cultural background (race, religion, language, etc.)
- Patients: 3.36
- Staff: 3.75

CHT staff return patient/my calls within 24 hours.
- Patients: 3.48
- Staff: 3.71

CHT staff are willing to meet with patients/me as often as patients feel it is necessary.
- Patients: 3.48
- Staff: 3.63

(Scale: 0 = Strongly Disagree, 1 = Disagree, 2 = Undecided, 3 = Agree, 4 = Strongly Agree)

Service subscale: Completed by Patients and CHT Staff

CHT staff encourage patients/me to maintain a healthy lifestyle.
- Patients: 3.45
- Staff: 3.75

CHT staff treat patients/me with respect.
- Patients: 3.59
- Staff: 3.75

I would recommend CHT services to a friend or family member.
- Patients: 3.43
- Staff: 3.63

CHT staff and services are responsive to the changing needs of patients/my changing needs.
- Patients: 3.3
- Staff: 3.25

CHT staff are helpful.
- Patients: 3.65
- Staff: 3.68

(Scale: 0 = Strongly Disagree, 1 = Disagree, 2 = Undecided, 3 = Agree, 4 = Strongly Agree)

Respect subscale: Completed by Patients and CHT Staff
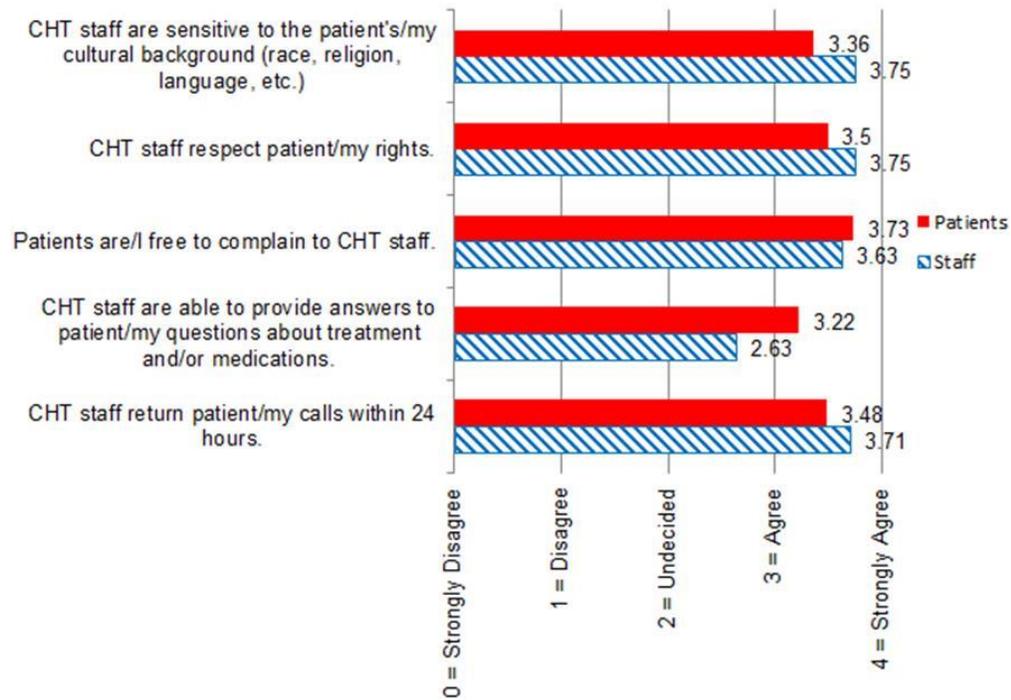
Outcomes subscale: Completed by Patients, CHT Staff, and Practices.
As a result of the services patients/I received from the Community Health Team (CHT)...

CHT Staff Survey Descriptive Statistics

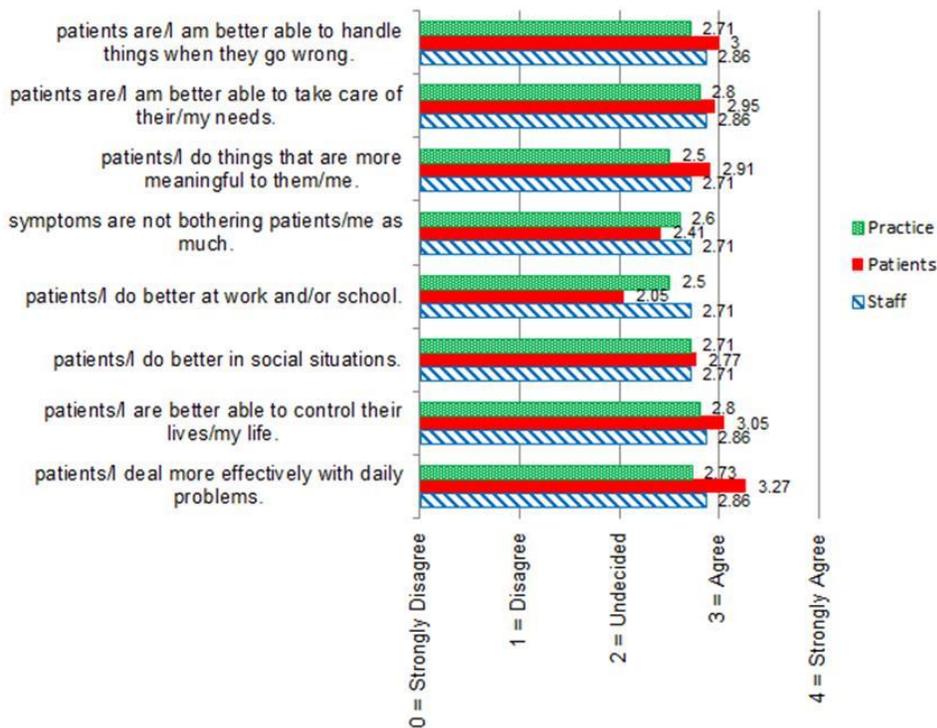|	N	Min	Max	Mean	Std. Dev.
1. CHT staff are willing to meet with patients as often as patients feel it is necessary.	8	3	4	3.63	.518
2. CHT staff return patient calls within 24 hours.	7	3	4	3.71	.488
3. CHT staff are available when needed.	8	3	4	3.63	.518
4. I am satisfied with the amount of time CHT staff spend with patients.	8	3	4	3.50	.535
5. CHT staff help patients understand where to go for health care.	8	3	4	3.75	.463
6. CHT staff tell patients how to get care for themselves during evenings, weekends, and holidays.	8	3	4	3.75	.463
7. CHT staff help patients understand when to go to the emergency room for health care.	8	2	4	3.63	.744
8. CHT staff help patients understand when to go to their primary care clinic for health care.	8	3	4	3.75	.463
9. CHT staff help patients coordinate the care they receive from their medical and/or mental health providers.	8	2	4	3.63	.744
10. The resources CHT staff provide patients with are in their home community.	8	2	4	3.38	.744
11. CHT staff are helpful to patients.	8	2	4	3.63	.744
12. CHT staff and services are responsive to the changing needs of patients.	8	2	4	3.25	.886
13. I would recommend CHT services to a friend or family member.	8	2	4	3.63	.744
14. CHT staff are able to provide answers to patient questions about treatment and/or medications.	8	1	4	2.63	1.061
15. CHT staff know where patients should go if in need of medical attention.	8	2	4	3.25	.707
16. CHT staff provide patients with emotional support.	8	2	4	3.50	.756
17. Help patients manage their medications.	8	0	4	1.88	1.642
18. Help patients get help for their mental or emotional health.	8	2	4	3.25	.707
19. Help patients get help for drug and/or alcohol use.	7	2	4	3.43	.787
20. Help patients with transportation assistance.	8	3	4	3.88	.354
21. Help patients get child care.	7	1	4	2.43	.976
22. Help patients with disability services.	8	2	4	3.50	.756
23. Help patients with senior services/elder care.	8	2	4	3.50	.926
24. Help patients with housing/shelter assistance.	7	2	4	3.43	.976
25. Help patients with legal assistance.	8	1	4	3.25	1.165

	N	Min	Max	Mean	Std. Dev.
26. Help patients with food assistance, food pantries, or soup kitchens.	7	2	4	3.71	.756
27. Help patients with job assistance.	7	2	4	3.14	.900
28. Help patients get complementary and alternative (CAM) services (such as yoga, tai chi, physical therapy, acupuncture, etc.).	6	1	4	2.17	1.169
29. CHT staff know resources available to patients.	8	3	4	3.75	.463
30. CHT staff are effective in providing resources to patients.	8	3	4	3.50	.535
31. CHT staff are able to provide resources and/or referrals to the services patients need.	8	3	4	3.63	.518
32. Patients are free to complain to CHT staff.	8	3	4	3.63	.518
33. CHT staff respect patient rights.	8	3	4	3.75	.463
34. CHT staff provide patients with information about their rights.	8	2	4	3.25	.886
35. CHT staff treat patients with respect.	8	3	4	3.75	.463
36. CHT staff are sensitive to the patient's cultural background (race, religion, language, etc.)	8	3	4	3.75	.463
37. CHT staff explain things to patients in a way that is easy to understand.	8	3	4	3.63	.518
38. CHT staff listen carefully to patients	8	3	4	3.75	.463
39. CHT staff answer patient questions.	8	3	4	3.75	.463
40. CHT staff encourage patients to maintain a healthy lifestyle.	8	3	4	3.75	.463
41. CHT staff help patients manage their illness.	8	3	4	3.50	.535
42. CHT staff help patients progress toward their personal goals.	8	2	4	3.38	.744
43. The CHT program is important to patient safety.	8	3	4	3.63	.518
44. The CHT program improves patient adherence.	8	3	4	3.50	.535
45. The CHT program improves overall patient care.	7	3	4	3.57	.535
46. The CHT program effectively helps patients address emotional/mental health problems.	7	2	4	3.14	.690
47. The CHT program effectively helps patients address physical health problems.	7	3	4	3.29	.488
48. CHT staff have informed primary care practices of CHT services.	7	2	4	3.57	.787
49. CHT staff have informed primary care practices of the patients who are eligible to receive CHT services.	7	1	4	3.00	1.414
50. CHT staff support primary care practices in implementing the patient-centered medical home model.	7	2	4	3.29	.756
51. CHT staff collaborate with primary care practices to coordinate and provide access to preventive and health promotion services.	7	3	4	3.57	.535

	N	Min	Max	Mean	Std. Dev.
52. CHT staff collaborate with primary care practices to coordinate disease prevention.	7	2	4	3.14	.690
53. CHT staff collaborate with primary care practices to promote disease management.	7	1	4	3.00	1.000
54. CHT staff collaborate with primary care practices to provide patients with medication management services.	7	1	4	2.57	1.272
55. CHT staff collaborate with primary care practices to avoid duplication of services.	7	3	4	3.29	.488
56. CHT staff collaborate with primary care practices to integrate care across providers.	7	3	4	3.29	.488
57. CHT staff collaborate with primary care practices over the telephone.	7	3	4	3.43	.535
58. CHT staff collaborate with primary care practices using an electronic medical record.	7	3	4	3.14	.378
59. CHT staff collaborate with primary care practices using in person meetings.	7	3	4	3.57	.535
60. CHT staff collaborate with primary care practices using email.	7	3	4	3.57	.535
61. CHT staff inform primary care practices of patient progress.	7	3	4	3.57	.535
62. CHT staff communicate effectively with each other.	7	1	4	3.29	1.113
63. CHT staff are clear regarding their roles and responsibilities.	7	1	4	3.14	1.069
64. CHT staff are willing to discuss mistakes.	7	3	4	3.29	.488
65. CHT staff make efforts to improve team functions.	7	2	4	3.29	.756
66. Processes and protocols that CHT staff need to follow are clearly outlined.	7	1	4	3.00	1.000
67. CHT staff receive training to do their job well.	7	1	4	2.71	1.254
68. CHT staff receive appropriate mentoring and/or supervision.	7	2	4	3.00	.816
69. CHT staff work to establish and achieve shared program goals.	7	3	4	3.14	.378
70. CHT staff trust each other to work well.	7	2	4	3.14	.690
71. I feel I have opportunities to provide input to shape program development.	7	1	4	2.86	.900
72. There are processes for assessing my performance.	7	2	4	2.86	.690
73. There are processes for assessing team performance.	7	2	4	2.86	.690
74. The roles of CHT staff are structured to maximize efficiency.	7	1	4	2.43	.976
75. The roles of CHT staff are structured to maximize patient outcomes.	7	1	4	2.57	.976
76. Our CHT staff receive patient level data from primary care practices.	7	1	3	2.43	.787
77. Our CHT staff uses patient level data to assess patient performance.	7	1	3	2.43	.787

	N	Min	Max	Mean	Std. Dev.
As a result of the services patients received from the Community Health Team (CHT)...					
78. patients deal more effectively with daily problems.	7	2	3	2.86	.378
79. patients are better able to control their lives.	7	2	3	2.86	.378
80. patients are getting along better with their families.	7	2	3	2.57	.535
81. patients do better in social situations.	7	2	3	2.71	.488
82. patients do better at work and/or school.	7	2	3	2.71	.488
83. patients' housing situations have improved.	7	2	4	3.00	.577
84. symptoms are not bothering patients as much.	7	2	3	2.71	.488
85. patients do things that are more meaningful to them.	7	2	3	2.71	.488
86. patients are better able to take care of their needs.	7	2	3	2.86	.378
87. patients are better able to handle things when they go wrong.	7	2	3	2.86	.378
88. patients' physical health is improved.	7	3	3	3.00	.000
89. patients' emotional/mental health is improved.	7	3	3	3.00	.000