

# REPORT

FINAL REPORT

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## **Evaluating the HCIA - Behavioral Health/Substance Abuse Awards: First Annual Report**

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December 11, 2014

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## EXECUTIVE SUMMARY

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The Affordable Care Act authorized the Center for Medicare & Medicaid Innovation (CMMI) in the Centers for Medicare & Medicaid Services (CMS) to test innovative health care payment and service delivery models with the potential to lower spending on Medicare, Medicaid, and Children’s Health Improvement Program (CHIP) services while maintaining or improving beneficiaries’ health and the quality of care they receive. The 107 awardees in the first round of the Health Care Innovations Award (HCIA) initiative included a broad range of service delivery models. Innovations that succeed in meeting their objectives may lend themselves to implementation on a broad scale. Consequently, rigorous evaluation of the interventions is critical to achieving HCIA goals.

As with most parts of the health care system, service systems for individuals with mental illness and substance abuse are evolving rapidly in response to the need for cost efficiencies, increased use of managed care plans for high-risk populations, and growing emphasis on quality measurement and public reporting. Ten awardees in the first round of the HCIA initiative are focusing on mental health and substance abuse services and implementing a wide array of interventions (Table ES.1). The awardees’ projects include certain cross-cutting themes (for example, innovative approaches to care coordination and new roles in the workforce) but focus on different subgroups within this broad priority population, such as individuals with schizophrenia or with serious mental illness coupled with chronic physical conditions. The awardees also are implementing their interventions in a range of clinical settings, including community sites, medical practices, and mental health clinics.

If implemented successfully, the projects will provide many insights into strategies for improving service systems and reducing costs of care for a group of individuals with complex service needs. Evidence for better service delivery, improved health and mental health outcomes, and cost reductions will emerge from thorough analysis of the quantitative, qualitative, and survey data we are collecting for this evaluation. We will focus specifically on analyzing available data to estimate changes in rates of emergency department visits, hospitalizations, and rehospitalizations as well as in overall costs of care for project participants. For some awardees, we will compare changes observed in participant groups to changes observed for individuals in comparison groups.

Analysis of the qualitative data that we collect through key informant interviews, focus groups, and document reviews will yield findings with important operational implications for policies and programs that affect individuals with behavioral and substance use disorders. For example, analysis of information from at least six awardees will shed light on effective methods for integrating physical and mental health services, especially for individuals living in underserved areas. Many awardees are incorporating health technologies into their innovations; analysis of these efforts is likely to show which applications are most promising. Several awardees are hiring peers who have “lived experience” to play key roles on their intervention teams. A cross-cutting examination of these workers’ roles may suggest strategies for engaging a hard-to-reach population.

**Table ES.1. Behavioral health and substance abuse awardees**

Awardee <sup>a</sup>	Overview of intervention (dollars awarded)	Intervention population	Enrollment as of June 30, 2014	Projected enrollment
Center for Health Care Services (CHCS)	Integrate health care into behavioral health clinic (\$4,557,969)	Homeless adults in Texas	231 <sup>b</sup>	260 <sup>b</sup>
The Felton Institute (Felton)	Implement a model to improve treatment for psychosis (\$4,703,817)	Patients with symptoms of schizophrenia, schizoaffective disorder, or schizophreniform disorder and schizophrenia in low-income, Latino counties	115 <sup>c</sup>	110
Feinstein Institute for Medical Research (Feinstein)	Improve treatment for schizophrenia through training, care management, and new technology (\$9,380,855)	Patients with schizophrenia recently discharged from hospital, receiving care at community treatment centers in several states	310	770
Fund for Public Health in New York (FPHNY)	Provide crisis intervention services to facilitate early engagement and continuity of care, combining community-based care with access to primary care (\$17,608,085)	Individuals with diagnoses of psychosis in Manhattan, Brooklyn, Bronx, and Queens	634 <sup>d</sup>	3,833
HealthLinkNow (HLN)	Provide behavioral care services via telehealth to individuals in rural areas lacking access to these services (\$7,718,636)	Patients with behavioral health needs in rural areas in Montana, Washington, and Wyoming with behavioral health clinician shortages	444 (May 2014) <sup>d</sup>	2,000
Institute for Clinical Systems Improvement (ICSI)	Implement collaborative care management model for patients with depression and diabetes or cardiovascular disease (\$17,999,635)	High-risk adult patients in several states with Medicare or Medicaid coverage who have depression and diabetes or cardiovascular disease	2,264	8,000
Kitsap Mental Health Services (KMHS)	Integrate primary health care and co-occurring disorder services with mental health services for individuals with severe mental illness (\$1,858,437)	Adults with severe mental illness and one comorbidity; children with severe emotional disturbance and one physical comorbidity; Kitsap County, Washington	775 <sup>e</sup>	Not applicable <sup>f</sup>
Maimonides Medical Center (MMC)	Coordinate mental and physical health care through advanced health information technology (\$14,842,826)	Adults with serious mental illness living in southwest Brooklyn	389 <sup>e</sup>	500 <sup>e</sup>

Table ES. 1 (continued)

Awardee <sup>a</sup>	Overview of intervention (dollars awarded)	Intervention population	Enrollment as of June 30, 2014	Projected enrollment
ValueOptions (ValueOptions)	Provide care coordination (\$2,760,737)	Plan members with two or more detoxification admissions in Massachusetts	2,195 <sup>b</sup>	2,300 <sup>b</sup>
Vinfen Corporation (Vinfen)	Integrate health care services into existing behavioral treatment teams (\$2,942,962)	Individuals with serious mental illness in Boston	181	470

Source: Unless otherwise noted, enrollment figures reflect data reported by the awardees to Lewin for quarter 8. Award amounts were obtained from <http://innovation.cms.gov/Files/x/HCIA-Project-Profiles.pdf>.

<sup>a</sup> In this report, we usually use the name abbreviations indicated in parentheses to designate the awardees. Tables list the awardees in alphabetical order based on their full names, as in this table.

<sup>b</sup> Intervention group participants only. CHCS aims to enroll a total of 560 participants, including 260 intervention group participants and 260 comparison group participants. ValueOptions aims to enroll 3,450 participants, including 2,300 in the intervention group and 1,150 in the comparison group.

<sup>c</sup> Number of referrals. Some individuals ultimately do not meet eligibility criteria.

<sup>d</sup> Figures based on quantitative information provided to Mathematica.

<sup>e</sup> Direct participants only. For KMHS, direct participants are (1) KMHS patients who receive services from medical assistants or the healthy families coordinator or (2) KMHS patients at four primary and specialty care practices in the community who receive services from the project's behavioral health professional.

<sup>f</sup> KMHS did not specify enrollment goals. Instead, they are identifying cohorts of individuals within their service population for whom they will provide quantitative outcome measure data.

## Evaluation methods

To conduct our evaluation, we are using a mixed-methods approach that involves collecting and analyzing quantitative, qualitative, and survey data. Specifically, we have designed our evaluation to achieve three interrelated goals:

1. Use quantitative and qualitative data to address evaluation questions developed by CMMI, with a focus on four quantitative measures of program impact (use of emergency department (ED) services, rates of hospitalization and rehospitalization, and total CMS expenditures)
2. “Tell the story” of each awardee through the development of narratives describing the proposed plan, implementation processes, and project outcomes
3. Derive cross-cutting lessons learned about successful projects based on a synthesis of findings across awardees

As we work toward these goals, we are addressing key questions focused specifically on this group of awardees. Examples of such questions include:

- How do the projects address concerns about access to mental/behavioral health care services in underserved areas (i.e., rural areas and low-income areas)?
- What components of care coordination are most important and effective?
- What role does organizational leadership play in the success of the interventions and why?
- To what degree did the projects affect the utilization of other health care services (i.e., emergency care/crisis stabilization, outpatient care, and inpatient care)?

- How does the staffing turnover rate for certain roles (such as patient navigators or peer support specialists) compare with that of other health care workers?

In this report, we focus on 22 questions selected in collaboration with our contracting officer representative (COR) as the most feasible and important to examine at this stage of the evaluation (Table ES.2). As the table indicates, we group the questions according to the research domains and subdomains originally presented in the appendix to the request for task order proposals (RfTOP). In addition, the introductory section of the RfTOP included several questions pertaining to the group of 10 awardees involved in mental/behavioral health, and we decided to include some of those questions as well. We also drew questions from the document titled “Domains for Frontline Evaluator (FLE) Annual Reports” that CMMI distributed during a conference call with evaluators in May 2014. (For simplicity, we refer to the document as the domains framework.)

Overall, the questions we selected to address in this report:

- Allow us to develop insights into early implementation challenges and solutions to those challenges
- Provide baseline information against which we will be able to assess awardees’ progress
- Represent a variety of domains and subdomains
- Address issues of importance to this group of 10 awardees

To address the selected questions, we (1) analyzed relevant extracts of information from our qualitative database generated through interviews conducted during our first round of site visits with the awardees (March through June 2014) and (2) developed descriptive data tables using available quantitative information from the awardees that we had analyzed as of July 30, 2014.



**Table ES.2. Selected research questions**

Domain	Subdomain	Research questions	Source of question
Implementation effectiveness	Program drivers	In light of the importance of coordinated care for individuals with serious behavioral health problems, how did the awardees address care coordination?	Domains framework
Implementation effectiveness	Program drivers	What specific components of care coordination do stakeholders believe are most important and effective?	A group-specific question from the RfTOP
Implementation effectiveness	Intervention components	What are the components of the interventions as implemented by the awardees?	RfTOP question 5
Implementation effectiveness	Intervention components	How much of each component was provided?	RfTOP question 6
Implementation effectiveness	Intervention components	What “dosage” of the innovation was delivered to participants?	RfTOP question 9
Implementation effectiveness	Intervention components	How well did providers and sites adhere to planned procedures (including procedures for customization when appropriate)?	RfTOP question 12
Implementation effectiveness	Intervention components	Overall, during implementation, how much did the project “drift” from the original model?	Domains framework
Implementation effectiveness	Intervention reach	What is the target population, and how many participants were reached?	RfTOP questions 15 and 16
Implementation effectiveness	Intervention reach	To what extent was implementation timely and responsive to site-level constraints?	RfTOP question 17
Program effectiveness	Access to care	Does incorporating patient navigators/peer support specialists increase access to health care services for patients in this group?	A group-specific question from the RfTOP
Program effectiveness	Access to care	How does this project address the concerns of access to mental/behavioral health care services in underserved areas?	A group-specific question from the RfTOP
Program effectiveness	Service use and cost	To what extent have levels of ED utilization changed?	RfTOP question 33
Program effectiveness	Service use and cost	To what extent have rates of hospitalization and rehospitalization changed?	RfTOP question 34
Program effectiveness	Service use and cost	To what extent did the program change charges and expenditures for all care in the target population?	RfTOP question 40
Program effectiveness	Service use and cost	To what degree did the projects affect the utilization of other health care services (emergency care/crisis stabilization, outpatient care, and inpatient care, for example)?	A group-specific question from the RfTOP
Workforce issues	Roles, training, and retention	What types of roles were required for the innovations?	Domains framework
Workforce issues	Roles, training, and retention	How have rates of staff retention and turnover changed over the course of the intervention?	RfTOP question 84
Workforce issues	Roles, training, and retention	How does the staffing turnover rate of these personnel (patient navigators, peer support specialists) compare to that of other health care workers?	A group-specific question from the RfTOP

Table ES.2 (continued)

Domain	Subdomain	Research questions	Source of question
Context	Leadership and organization	Was there a clearly designated champion or leader to oversee implementation?	RfTOP question 96
Context	Leadership and organization	To what extent did organizational features support or conflict with implementation?	RfTOP question 104
Context	Leadership and organization	To what extent did the program involve patients or patient representatives in planning and implementing the innovation? How has the need for innovation been communicated to them?	RfTOP question 97
Context	Leadership and organization	To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation?	RfTOP question 105

## Selected findings

We present findings for the awardees as a group in Chapter II by synthesizing the information presented for each awardee in Chapters III through XII. Given the extent of the qualitative data collected and analyzed to date, our cross-cutting synthesis yielded a wide range of findings. Summarizing all of them is beyond the scope of this executive summary. Instead, we highlight three findings that are particularly noteworthy.

### **1. Some quantitative data will be available for all awardees, but the extent of the data and the strength of the designs for awardees' specific program evaluations vary substantially across awardees.**

During the first year of the evaluation, we made substantial progress in obtaining quantitative data from the awardees and identifying the designs for evaluating each of their programs. At this point, we expect to obtain data that will allow us to present descriptive information on the participants in all 10 awardees' projects, including information about participants' use of program services. However, as of July 1, 2014, we had obtained sufficient data to conduct initial calculations of the core measures for only one awardee (KMHS).<sup>1</sup>

In addition, CHCS, FPHNY, and HLN provided quantitative information from their internal databases, including data from electronic record systems; we used the information to develop tables that present characteristics of their participants and descriptive information about the awardee-specific services used by participants during the projects' initial 12 to 18 months.

Even though we expect that most awardees will eventually provide us with access to substantial quantitative data, we may prioritize our analytic work, focusing on awardees with the strongest evaluation designs. To identify such a group, we placed each of the awardees into one of the cells in a three-by-two matrix (Table ES.3, see next page).

We expect to concentrate on awardees that we place in cell A. Use of comparison groups, substantial enrollment of direct participants, and availability of high quality data provide a sound basis for estimating program effects through difference-in-differences regressions with appropriate adjustments. For awardees in cell B, we may need to adjust the intensity of our regression analyses if enrollment levels are so low that they yield unreliable estimates or if awardee data have substantial quality problems.

We expect to estimate deviation from pre-intervention trends by using regression models for awardees in cell C and to plot data on statistical process control (SPC) charts, as appropriate. We may wish to be particularly cautious in these approaches for awardees placed in cell D, depending on the extent to which their enrollment lagged or their data reflect quality problems.

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<sup>1</sup> Sufficient data for calculating core measures include (1) participants' CMS identification numbers, which we have received or will receive directly from the awardees; (2) relevant claims and administrative information for Medicare-enrolled participants, which we download from the Medicare data files; (3) relevant claims and administrative information for Medicaid-enrolled participants, which we typically obtain from the MAX and Alpha-MAX files; and (4) data on start and end dates for all participants, which we typically obtain from the awardees' electronic medical records (EMR) or administrative files.

**Table ES.3. Applying the global analytic strategy to the behavioral health awardees**

Design	Quality of available data	
	Stronger	Weaker
Comparison group	A	B
Pre- and post-intervention data	C	D
Post-intervention data only	E	F

Source: Adapted from slide 6 of the presentation made for CMMI Evaluations, October 2013.

Notes: In consultation with CMMI, we will distinguish between stronger and weaker data by taking into account the total number of direct participants enrolled, the total number of direct participants enrolled in Medicare and Medicaid, the number of Medicaid beneficiaries in states that have submitted data of adequate quality to CMS, and the completeness, comprehensiveness, and accuracy of awardee data required to identify Medicare and Medicaid beneficiaries.

We expect to obtain Medicaid and Medicare patient identification numbers from most awardees. However, we will place in cell E or F the awardees that do not provide their patient identification numbers. For awardees in cell E, we will present descriptive data, generate SPC charts as appropriate, and, if warranted, develop regression models to estimate trends. We will limit our quantitative reports to simple descriptive information for awardees in cell F.

As of September 30, 2014, we have made the following **provisional** placements, which we may change as we work with the awardees, obtain data files, and review data quality:

- Group A: KMHS (Medicare beneficiaries), ICSI, ValueOptions
- Group B: CHCS, Feinstein, FPHNY
- Group C: KMHS (Medicaid beneficiaries), MMC
- Group D: Felton, HLN
- Groups E and F: No awardees at this time

We are still negotiating with Vinfen regarding data availability and will place it in an appropriate category when we receive further information.

## 2. Care coordination is a key intervention component for all awardees.

Given the substantial and complex service needs of individuals with serious behavioral health and substance use disorders, all awardees emphasize the importance of care coordination, but they have implemented this intervention component in different ways. They are using various combinations of four strategies to coordinate care for participants:

- Integrating behavioral and physical health care
- Using staff designated as care coordinators
- Using various forms of health information technology to support service coordination
- Creating care teams

Across the awardees, the staff designated as “care coordinators” have different titles, experiential backgrounds, and responsibilities. Many awardees, including CHCS, Feinstein, HLN, ICSI, MMC, ValueOptions, and Vinfen, underscore the importance of finding the right person with the appropriate experience to deliver care coordination. CHCS, Felton, KMHS, and MMC pointed to their EMR systems as a critically important tool to support the information sharing that is essential to effective care coordination. Felton, FPHNY, and MMC mentioned that their team-based approach is vital to facilitating care coordination.

### **3. Peer support specialists or peer navigators play an important role in many of the awardees’ projects.**

Across awardees, many staff reported that incorporating patient navigators and peer support specialists into the care team increases patients’ access to health care services by keeping patients engaged, addressing barriers to their care, and providing extended support beyond business hours. For example, peer support specialists at CHCS work closely with participants to maintain their engagement with medical and mental health services. The lived experience of peer support specialists is critical to meeting participants “where they are” in life—and without judgment. The primary care physician, psychiatrist, and consumer benefits specialist rely heavily on the unique relationship developed between peer support specialists and participants as a source of participant-specific knowledge and to keep participants engaged in their services.

In the ValueOptions program, recovery support navigators (RSN), most of whom have lived experience, work to ensure full access to all medically necessary services. RSNs work closely with participants to develop a recovery plan and ensure that participants schedule and attend medical, behavioral health, and social service appointments. Many RSNs make themselves available beyond regular working hours, taking participants to evening meetings and responding to text messages at night or on the weekend. Qualitative data gathered to date suggest that RSNs help high-risk participants stay engaged with needed physical and behavioral health services.

Future reports will use both qualitative and survey data to examine the characteristics and responsibilities of the individuals who serve as peer specialists, with particular attention to their rates of burnout and the challenges involved in integrating them into traditional health and mental health care teams.

### **Structure of report**

This report organizes our findings by the questions noted in Table ES.2; the questions are grouped according to the research domains and subdomains originally presented in the appendix to the RfTOP.

The report is structured to meet two overarching goals: (1) to present findings based on a review of information across all 10 awardees and (2) to “tell the story” of each awardee.

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## **I. INTRODUCTION**

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### **A. Introduction to the HCIA initiative**

The Affordable Care Act authorized the Center for Medicare & Medicaid Innovation (CMMI) in the Centers for Medicare & Medicaid Services (CMS) to test innovative health care payment and service delivery models with the potential to lower spending on Medicare, Medicaid, and Children’s Health Improvement Program (CHIP) services while maintaining or improving beneficiaries’ health and the quality of care they receive. The models are intended to address groups of beneficiaries with poor clinical outcomes or potentially inefficient care patterns. The 107 awardees in the first round of the Health Care Innovations Award (HCIA) initiative implemented a broad range of service delivery models. Innovations that succeed in meeting their objectives may lend themselves to implementation on a broad scale. Consequently, rigorous evaluation of the interventions is critical to achieving HCIA goals.

### **B. Overview of awardee group**

As with most parts of the health care system, service systems for individuals with mental illness and substance abuse are evolving rapidly in response to the need for cost efficiencies, increased use of managed care plans for high-risk populations, and the growing emphasis on quality measurement and public reporting. Ten awardees in the first round of the HCIA initiative are focusing on mental health and substance abuse services and implementing a wide array of interventions (Table I.1). The awardees’ projects include certain cross-cutting themes (for example, innovative approaches to care coordination and new roles in the workforce) but focus on different subgroups within this broad priority population, such as individuals with schizophrenia or with serious mental illness coupled with chronic physical conditions. The awardees also are implementing the interventions in a range of clinical settings, including community sites, medical practices, and mental health clinics.

If they implement their programs successfully, the awardees will provide numerous insights into strategies for improving the health and mental health service system and reducing costs of care for a group of individuals with complex service needs. One of the most important aspects of the HCIA initiative involves developing quantitative evidence about changes in service use and costs of care that may result from the awardees’ projects. Specifically, we will use available data to estimate changes in rates of emergency department (ED) visits, hospitalizations, and rehospitalizations as well as in overall costs of care for participants in the awardees’ projects. For some awardees, we will compare changes observed in participant groups to changes observed for individuals in comparison groups.

A comprehensive evaluation of the projects will yield findings with important implications for public policies and programs that affect individuals with behavioral and substance use disorders. For example, analysis of information from at least six awardees will shed light on effective methods for integrating physical and mental health services, especially for individuals living in underserved areas. Many awardees are incorporating health technologies into their innovations; analysis of these efforts is likely to show which applications are most promising. Several awardees are hiring peers who have “lived experience” to play key roles on their intervention teams. A cross-cutting examination of these workers’ roles and the processes for

integrating them into intervention teams could suggest strategies for engaging a hard-to-reach population and encouraging them to use physical and behavioral health services.

**Table I.1. Behavioral health and substance abuse awardees**

Awardee (name abbreviation used in report)	Overview of intervention (dollars awarded*)	Intervention population (expected number of participants**)
Center for Health Care Services (CHCS)	Integrate health care into behavioral health clinic (\$4,557,969)	Homeless adults in Texas (260)
The Felton Institute (Felton)	Implement a model to improve treatment for psychosis (\$4,703,817)	Patients with symptoms of schizophrenia, schizoaffective disorder, or schizophreniform disorder and schizophrenia in low-income, Latino counties (110)
Feinstein Institute for Medical Research (Feinstein)	Improve treatment for schizophrenia through training, care management, and new technology (\$9,380,855)	Patients with schizophrenia recently discharged from hospital, receiving care at community treatment centers in several states (770)
Fund for Public Health in New York (FPHNY)	Provide crisis intervention services to facilitate early engagement and continuity of care, combining community-based care with access to primary care (\$17,608,085)	Individuals with diagnoses of psychosis in Manhattan, Brooklyn, Bronx, and Queens (3,833)
HealthLinkNow (HLN)	Provide behavioral care services via telehealth to individuals in rural areas lacking access to these services (\$7,718,636)	Patients with behavioral health needs in rural areas in Montana, Washington, and Wyoming with behavioral health clinician shortages (2,000)
Institute for Clinical Systems Improvement (ICSI)	Implement collaborative care management model for patients who have uncontrolled depression with uncontrolled diabetes and/or cardiovascular disease (\$17,999,635)	High-risk adult patients in several states with Medicare or Medicaid coverage who have uncontrolled depression with uncontrolled diabetes and/or cardiovascular disease (8,000)
Kitsap Mental Health Services (KMHS)	Integrate primary health care for individuals with severe mental illness (\$1,858,437)	Adults with severe mental illness and one comorbidity; children with severe emotional disturbance and one physical comorbidity; Kitsap County, Washington (1,100)
Maimonides Medical Center (MMC)	Coordinate mental and physical health care through advanced health information technology (\$14,842,826)	Adults with serious mental illness living in southwest Brooklyn (7,500)
ValueOptions (ValueOptions)	Provide care coordination (\$2,760,737)	Plan members with two or more detoxification admissions in Massachusetts (3,450)
Vinfen Corporation (Vinfen)	Integrate health care services into existing behavioral treatment teams (\$2,942,962)	Individuals with serious mental illness in Boston (470)

Note: In this report, we usually use the name abbreviations indicated in parentheses to designate the awardees. However, tables list the awardees in alphabetical order based on their full names, as in this table.

\* Dollar amounts accessed from <http://innovation.cms.gov/Files/x/HCIA-Project-Profiles.pdf>.

\*\* Awardees' self-reported enrollment goals, as specified in their applications or quarterly reports.



### C. Evaluation goals, data, and methods

CMMI has asked Mathematica Policy Research to conduct an evaluation of the projects being implemented by the awardees listed in Table I.1. We have designed the evaluation, which began about one year ago (September 9, 2013), to achieve three interrelated goals:

1. Analyze quantitative and qualitative data to address approximately 100 evaluation questions developed by CMMI, with a focus on four quantitative measures of program impact (use of emergency department (ED) services, rates of hospitalization and rehospitalization, and total CMS expenditures)<sup>2</sup>
2. “Tell the story” of each awardee through the development of narratives describing the proposed plan, implementation processes, and project outcomes
3. Derive cross-cutting lessons learned about successful projects based on a synthesis of findings from several awardees, thereby providing a basis for replicating and spreading successful interventions

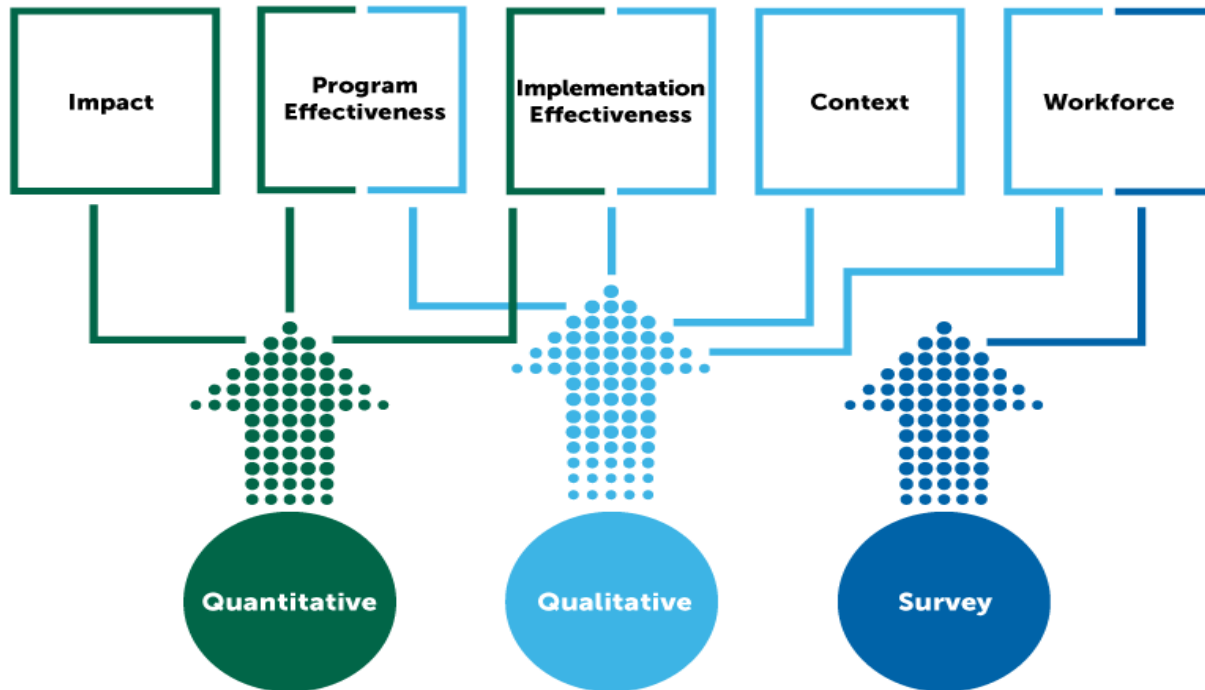
As we work toward these goals, we have addressed and will continue to address key questions focused on the group of 10 awardees. Examples of such questions include:

- How do the projects address concerns about access to mental/behavioral health care services in underserved areas (i.e., rural areas and low-income areas)?
- What specific components of care coordination are most important and effective?
- What role does organizational leadership play in the success of these interventions and why?
- To what degree did the projects affect the utilization of other health care services (i.e., emergency care/crisis stabilization, outpatient care, and inpatient care)?
- How does the staffing turnover rate for certain roles (such as patient navigators or peer support specialists) compare with that of other health care workers?

We are using a mixed-methods approach for the evaluation (Figure I.1) to collect and analyze quantitative, qualitative, and survey data. Below, we briefly describe the data collected to date. Additional details are available in our original design report, submitted to CMMI in November 2013; we will update the 2013 report and submit it to CMMI in November 2014. In addition, we have presented our findings to date in quarterly reports submitted in March, June, and August 2014. Additional quarterly reports will be submitted in December 2014 and March, June, and August 2015.

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<sup>2</sup> Appendix A lists the evaluation questions noted in the RfTOP, including the group-specific questions. Appendix B contains technical information about our quantitative data sources and the specifications for the four core measures.

**Figure I.1. Overview of evaluation design**

**Quantitative data.** During the first year of the evaluation, we worked with the awardees to (1) identify the quantitative data files that they would be able to provide and (2) develop the business associate agreements (BAA) and memoranda of understanding (MOU) that would allow them to transmit to Mathematica all relevant data, including data that will allow us to obtain the information from federal Medicaid and Medicare databases needed for calculating the four core measures. For two awardees with multisite programs, we needed to develop BAAs directly with most of their sites. Overall, we have developed or are still developing 23 separate BAAs across the 10 awardees in this group.

At this point, we believe that we will eventually obtain data that will allow us to calculate most of the four core measures for most of the awardees (Table I.2). However, as of July 1, 2014, we had received sufficient data to conduct initial calculations of the core measures for only one awardee (KMHS).<sup>3</sup> In addition, CHCS, FPHNY, and HLN provided quantitative information from their internal databases, including data from electronic record systems; we used the information to develop tables that array the characteristics of their participants and list descriptive information about the awardee-specific services used by participants in the initial 12 to 18 months of the three awardees' projects. A list of data sources and the measure specifications we are using for the data received to date appears in Appendix A.

<sup>3</sup> We report these measures for this awardee in Chapter IX.

**Table I.2. Availability of quantitative data to calculate core outcome measures for each awardee, as of August 2014**

	CHCS <sup>1</sup>	Felton <sup>2</sup>	Feinstein <sup>3,4</sup>	FPHNY	HLN <sup>3,4</sup>	ICSI	KMHS <sup>4</sup>	MMC	Value Options <sup>5</sup>	Vinfen <sup>6</sup>
Total Medicare fee-for-service payments	NA	NA	√	NA	√	√	√	√	NA	NA
Total Medicaid fee-for-service payments	DNA	DNA	√	DNA <sup>7</sup>	√	DNA	DNA <sup>7</sup>	DNA <sup>7</sup>	NA	√
All-cause inpatient hospital discharge rate	DNA	DNA	√	√	√	√	√ <sup>4</sup>	√	√	√
All-cause inpatient readmission rate	DNA	DNA	√	√	√	√	√ <sup>4</sup>	√	√	√
All-cause emergency department visit rate	DNA	DNA	√	√	√	√	√ <sup>4</sup>	√	√	√

Notes: The information in this table reflects our current understanding of the data available for each awardee. Data availability is likely to evolve in response to intervention enrollment, ongoing negotiations to obtain data access, and further information about awardees' data sources, data processing systems, and program implementation. CMMI has asked all HCIA evaluators to calculate core outcomes measures using the same standard specifications that require Medicare or Medicaid data obtained directly from CMS's data files.

NA = Not applicable. For Medicare and Medicaid payments, the designation means that the awardee is not enrolling Medicare or Medicaid beneficiaries.

DNA = Data not available for calculating core measures as specified by CMMI.

√ = We expect to be able to create this measure with the data sources for which BAAs are in place or currently under negotiation. In some instances, we may be unable to calculate the measure for Medicaid or Medicare beneficiaries who are enrolled in managed care plans because of limitations in the available encounter data. In other instances, we may be able to calculate these measures but not report them because CMS's reporting standards prevent us from showing results for fewer than 11 beneficiaries.

<sup>1</sup> CHCS does not have access to data that would allow us to calculate Medicaid FFS payments, rates of ED use, hospitalization rates, or rehospitalization rates. Project staff at the University of Texas at Austin are negotiating with Texas Medicaid and other local sources for hospital data, but agreements for accessing these data are not yet in place.

<sup>2</sup> Felton expects to provide data from mental health departments in five California counties. For at least some counties, the county mental health department data will include inpatient discharges and ED visits related only to behavioral health conditions (excluding substance abuse). Therefore, we will calculate ED visit rates, hospitalization rates, and readmission rates only for behavioral health care. We will assess whether a payment field indicating county payment to providers can be used to approximate Medicaid spending on behavioral health.

<sup>3</sup> The number of participants enrolled may be insufficient for substantial subgroup analyses.

<sup>4</sup> These awardees include intervention sites located in the state of Washington, which does not report encounter data to MSIS for its behavioral health managed care organizations. In addition, we expect limited usability of the encounter data from the state's comprehensive managed care organizations. As a result, we will be constrained in our ability to calculate core measures for Washington's Medicaid beneficiaries who are participants in these awardees' programs.

<sup>5</sup> ValueOptions is a managed care organization. Information on Medicaid payment for individual services will not be available.

<sup>6</sup> Although we eventually may obtain information from Vinfen to calculate the measures, we are still attempting to identify the data that will be available on Vinfen participants.

<sup>7</sup> Many of the participants are enrolled in Medicaid managed care plans. Encounter data may be used to address counts of services provided to these participants. However, information on Medicaid payments for individual services will not be available.

Although we expect that most awardees will eventually provide us with access to substantial quantitative data, we may prioritize our analytic work, focusing on awardees with the strongest evaluation designs. To identify this group, we have placed each of the 10 awardees into one of the cells in a three-by-two matrix (Table I.3).

**Table I.3. Applying the global analytic strategy to the behavioral health awardees**

Design	Quality of available data	
	Stronger	Weaker
Comparison group	A	B
Pre- and post-intervention data	C	D
Post-intervention data only	E	F

Source: Adapted from slide 6 of the presentation made for CMMI Evaluations, October 2013.

Notes: In consultation with CMMI, we will distinguish between stronger and weaker data by taking into account the total number of direct participants enrolled, the total number of direct participants enrolled in Medicare and Medicaid, the number of Medicaid beneficiaries in states that have submitted data of adequate quality to CMS, and the completeness, comprehensiveness, and accuracy of awardee data required to identify Medicare and Medicaid beneficiaries.

We expect to focus on awardees that we place in cell A. Use of comparison groups, substantial enrollment of direct participants, and availability of high quality data provide a sound basis for estimating program effects through difference-in-differences regressions with appropriate adjustments. For awardees in cell B, we may need to adjust the intensity of our regression analyses if enrollment levels are so low that they yield unreliable estimates or if awardee data are subject to substantial quality problems.

We plan to estimate deviation from pre-intervention trends by using regression models for awardees in cell C and to plot data on statistical process control (SPC) charts, as appropriate. We may wish to be particularly cautious in these approaches for awardees that we place in cell D, depending on the extent to which enrollment lagged or the degree to which the associated data reflect quality problems.

We expect to obtain Medicaid and Medicare patient identification numbers from most awardees. However, we will place in cell E or F the awardees that do not provide such information. For awardees in cell E, we will present descriptive data, generate SPC charts as appropriate, and, if warranted, develop regression models to estimate trends. We will limit our quantitative reports to simple descriptive information for awardees in cell F.

As of September 30, 2014, we have made the following **provisional** placements, noting that the placements may change as we continue to work with the awardees, obtain initial data files, and review data quality:

- Group A: KMHS (Medicare beneficiaries), ICSI, ValueOptions
- Group B: CHCS, Feinstein, FPHNY
- Group C: KMHS (Medicaid beneficiaries), MMC

- Group D: Felton, HLN
- Groups E and F: No awardees at this time

We are still negotiating with Vinfen regarding data availability and will place it in an appropriate category when we receive further information.

**Qualitative data.** We used three approaches to gather qualitative data during the first year of the evaluation. First, we worked with the awardees to expand their original driver diagrams to ensure that we had a framework for identifying, in a consistent manner across awardees, their programs' resources, strategies, outputs, outcomes, and impacts. Appendix C presents the results.

Second, we gathered information related to program goals and implementation processes by reviewing documents that awardees submitted to CMS for program monitoring purposes. Appendix D lists the information sources.

Third, we conducted site visits with awardees between January and May 2014. Across all site visits, we conducted 131 interviews with 254 interviewees. The timing of awardee interviews meant that we gathered data between the 16th and 22nd month of the awardees' projects, depending on the awardee's start date and date of the site visit. As a result, the interviews focused on issues related to planning and early implementation.

During the site visits, we interviewed representatives of the following four groups:

- Awardee/site key staff (project directors or assistant directors, site managers, and so forth)
- Providers/partner key staff (clinic directors, community partners, and so forth)
- Members of the workforce (clinicians, counselors, nurses, and so forth)
- Key community stakeholders (consumer representatives, technical advisors, and so forth)

We drew many of the findings in this report from the analysis of qualitative data gathered during our interviews.

**Workforce survey data.** We fielded our workforce survey between March and May 2014. Our third quarterly report provides initial findings from the analysis of the survey data. In subsequent reports, we will present findings on workforce issues that integrate our qualitative and survey data.

#### **D. Purpose and structure of report**

The goal of this annual report, the first in a series of such reports, is to describe and analyze the awardees' progress through June 2014. The qualitative data that we collected during the past year contain robust information about the awardees' early challenges and achievements. To date, we still have limited quantitative data from the awardees. As noted, we expect to collect and analyze substantially more quantitative data in the months ahead and will report findings from the analysis of these data in our upcoming quarterly reports as well as in next year's annual report.

This report organizes our findings by questions that we drew from (1) the research domains and subdomains originally presented in the appendix to the request for task order proposals (RfTOP), (2) the introductory section of the RfTOP that included several questions pertaining specifically to the group of 10 awardees, and (3) from the document titled “Domains for Frontline Evaluator (FLE) Annual Reports” that CMMI distributed during a conference call with evaluators in May 2014. For simplicity, we call the document the domains framework (Appendix E).

Many of the research questions included in the RfTOP and the domains framework refer to issues that we can best address when the awardees’ projects near completion. The present report is based on data about the awardees’ progress through June 2014, at which time most awardees had completed about two years of their three-year project. Consequently, we decided to focus on a selected set of questions that we could address effectively and efficiently, given the data we had in hand as of June 1, 2014.

In conjunction with our contracting officer representative (COR), we drew 22 questions from either the RfTOP or the domains framework and assigned them to key domains and subdomains (Table I.4). We selected questions that would:

- Allow us to develop insights into early implementation challenges and solutions to those challenges
- Provide baseline information against which we will be able to assess awardees’ progress
- Represent a variety of domains and subdomains
- Address issues of importance to the group of 10 awardees

To examine the selected questions, we (1) analyzed relevant extracts of information from our qualitative database generated from the interviews we conducted during our first round of site visits with the awardees (March through June 2014) and (2) developed descriptive data tables using quantitative information received as of July 30, 2014. We will address many of the remaining questions and return to some of these same questions in future quarterly or annual reports.

We have designed the report to meet two overarching goals: (1) present findings based on a review of information across all 10 awardees and (2) “tell the story” of each awardee. Consequently, in Chapter II, we address the questions noted in Table I.4 by using data from all 10 awardees and, in Chapters III through XII, address the same questions individually for each awardee.

**Table I.4. Selected research questions**

Domain	Subdomain	Research questions	Source of question
Implementation effectiveness	Program drivers	In light of the importance of coordinated care for individuals with serious behavioral health problems, how did the awardees address care coordination?	Domains framework
Implementation effectiveness	Program drivers	What specific components of care coordination do stakeholders believe are most important and effective?	A group-specific question from the RfTOP
Implementation effectiveness	Intervention components	What are the components of the interventions as implemented by the awardees?	RfTOP question 5
Implementation effectiveness	Intervention components	How much of each component was provided?	RfTOP question 6
Implementation effectiveness	Intervention components	What “dosage” of the innovation was delivered to participants?	RfTOP question 9
Implementation effectiveness	Intervention components	How well did providers and sites adhere to planned procedures (including procedures for customization when appropriate)?	RfTOP question 12
Implementation effectiveness	Intervention components	Overall, during implementation, how much did the project “drift” from the original model?	Domains framework
Implementation effectiveness	Intervention reach	What is the target population, and how many participants were reached?	RfTOP questions 15 and 16
Implementation effectiveness	Intervention reach	To what extent was implementation timely and responsive to site-level constraints?	RfTOP question 17
Program effectiveness	Access to care	Does incorporating patient navigators/peer support specialists increase access to health care services for patients in this group?	A group-specific question from the RfTOP
Program effectiveness	Access to care	How does this project address the concerns of access to mental/behavioral health care services in underserved areas?	A group-specific question from the RfTOP
Program effectiveness	Service use and cost	To what extent have levels of ED utilization changed?	RfTOP question 33
Program effectiveness	Service use and cost	To what extent have rates of hospitalization and rehospitalization changed?	RfTOP question 34
Program effectiveness	Service use and cost	To what extent did the program change charges and expenditures for all care in the target population?	RfTOP question 40
Program effectiveness	Service use and cost	To what degree did the projects affect the utilization of other health care services (emergency care/crisis stabilization, outpatient care, and inpatient care, for example)?	A group-specific question from the RfTOP
Workforce issues	Roles, training, and retention	What types of roles were required for the innovations?	Domains framework
Workforce issues	Roles, training, and retention	How have rates of staff retention and turnover changed over the course of the intervention?	RfTOP question 84
Workforce issues	Roles, training, and retention	How does the staffing turnover rate of these personnel (patient navigators, peer support specialists) compare to that of other health care workers?	A group-specific question from the RfTOP

Table 1.4 (continued)

Domain	Subdomain	Research questions	Source of question
Context	Leadership and organization	Was there a clearly designated champion or leader to oversee implementation?	RfTOP question 96
Context	Leadership and organization	To what extent did organizational features support or conflict with implementation?	RfTOP question 104
Context	Leadership and organization	To what extent did the program involve patients or patient representatives in planning and implementing the innovation? How has the need for innovation been communicated to them?	RfTOP question 97
Context	Leadership and organization	To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation?	RfTOP question 105



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## II. CROSS-AWARDEE FINDINGS, BY RESEARCH DOMAIN

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### A. Introduction

The 10 awardees focusing on behavioral health and substance abuse services are implementing diverse strategies to achieve similar goals. Although the strategies differ in their operational details, they share common themes and challenges. For example, most awardees are making sustained efforts to improve care coordination for individuals with serious behavioral health or substance abuse disorders, but their methods range from enhancing integration of behavioral and physical health services to including peer navigators as key components of a service delivery system.

In this chapter, we present findings from our cross-cutting review of information on the progress that the 10 awardees are making toward achieving their goals and the strategies they are using. We developed the cross-awardee findings from the qualitative and quantitative data presented for each awardee in Sections III-XII. To develop the awardees' reports, we analyzed coded data in our qualitative database, which we developed through interviews conducted with key staff and other stakeholders during site visits to each awardee in spring 2014. In addition, we have used quantitative data, including claims, administrative, or EMR data, if such data were available as of July 1, 2014 (the cut-off date for receipt of data files to allow us to conduct analyses that would yield findings for the first draft of the annual report, due on September 1).

This chapter organizes our findings by questions related to the key research domains originally presented in the appendix to the request for task order proposals (RfTOP). Specifically, in this chapter we address questions grouped in to the following domains:

- Implementation effectiveness (11 questions)
- Program effectiveness (4 questions)
- Workforce issues (3 questions)
- Context factors (4 questions)

### B. Implementation effectiveness

In this section, we address 11 questions that cover several subdomains within the overall domain of implementation effectiveness including key components of the intervention (such as care coordination), intervention dosage, issues of conceptual drift, the reach of the intervention, and effects on access to care (as perceived by staff and key stakeholders).

#### 1. In light of the importance of coordinated care for individuals with serious behavioral health problems, how did the awardees address care coordination? (Question from domains framework)

The awardees have used the following four strategies to address care coordination:

- Creating care teams
- Integrating behavioral and physical health care

- Using staff designated as care coordinators
- Using centralized electronic medical or health records (EMR/EHR)<sup>4</sup> or other forms of health information technology (HIT)

Many awardees are using several of these strategies in their programs (Table II.1); five awardees use all four strategies. We discuss each of these in turn.

### **Creating care teams**

Seven awardees have developed multidisciplinary care teams as part of their program. The teams generally consist of behavioral health specialists, primary care providers or physical health care specialists, and care coordinators or navigators. The typical goal of the care teams is to coordinate services with or on behalf of the patient, including behavioral and physical health services. Some awardees, including ICSI and Kitsap, also integrate consultants (both behavioral and physical health care consultants) into their teams to provide additional support and guidance on the course of treatment.

### **Integrating behavioral and physical health care**

Seven of the awardees are implementing interventions that aim to integrate behavioral health services with physical health services, but they are using different methods.

Two awardees have brought behavioral health services into existing primary care settings. For example, HLN uses primary care clinics to identify patients who need psychiatric services and then makes the services available through telepsychiatry. HLN also uses a care manager to ensure communication between the patient's therapist and his or her primary care physician. Another awardee, ICSI, incorporates a consultant psychiatrist into its systematic review team. The team monitors the patient's status for conditions such as depression, diabetes, and hypertension and, if warranted, discusses treatment intensification.

Three awardees have brought physical health services to existing behavioral health settings. FPHNY has linked staff from federally qualified health centers (FQHC) to behavioral health care teams (mobile crisis teams and crisis respite center staff) to ensure that patients with physical health care needs have easier access to medical care. Vinfen has embedded health outreach staff and nurse practitioners in existing community-based behavioral health rehabilitation and recovery teams to improve care coordination. CHCS incorporates a primary care physician and licensed vocational nurse into the patient's existing mental health care team.

KMHS, a mental health care provider, has taken both approaches. In its own clinics, it has restructured its staff into multidisciplinary teams that include physical health care providers; within the community, KMHS makes available—to primary and specialty care practices—a behavioral health professional who provides the practices' medical staff with mental health consultation on patient diagnosis, treatment, and referral.

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<sup>4</sup> Some health systems use the term electronic health records; others use the term electronic medical records. We understand the two terms to refer to the same concept—an electronically based system that uses a standard software program to record information relevant to patient care.

**Table II.1. Care coordination services provided by each awardee**

	Integrating behavioral and physical health services	Integrating strategies	Involving care navigators	Titles and roles for care coordinator	Using EMR/EHR or other HIT	Using EMR/EHR/HIT	Creating multidisciplinary care teams	Composition of care teams
CHCS	X	Integrating physical health within behavioral health	X	Peer specialist, community guest specialist, health navigator	X	EMR/EHR: Medical records and registry	X	Primary care physician, licensed vocational nurse, psychiatrist, health navigator, peer specialist, community guest specialist, consumer benefits specialist
Felton			X	Case advocate/vocational specialist	X	HIT: Algorithm-guided medication management EMR/EHR: Cloud-based charting and reporting	X	Psychiatrist, nurse practitioner, behavioral health specialist, intake specialist, case advocate, family partner
Feinstein			X	Mental health/health technology case manager	X	HIT: Prescriber decision assistant, smartphone applications for patients, web-based therapy, support website, ingestible sensor/monitor	X	Mental health/health technology case manager, prescriber (psychiatrist and/or nurse practitioner) and project director
FPHNY	X	Integrating physical health into behavioral health setting	X	Peer specialist			X	Behavioral health specialist, peer specialist, crisis respite center staff
HLN	X	Integrating behavioral health into physical health setting	X	Care manager	X	HIT: Online case management EMR/EHR: Athena	X	Primary care provider, behavioral health specialist, care manager
ICSI	X	Integrating behavioral health into physical health setting	X	Care manager	X	EMR/EHR: Computerized registry	X	Primary care provider, care manager, consultant physician, behavioral health consultant, other health professional consultants (i.e., pharmacist)
KMHS	X	Colocating behavioral and physical health services	X	Care coordinator	X	EMR/EHR: Integrated care management report	X	Care team supervisor, prescriber, psychiatric nurse, care coordinators, co-occurring disorder specialist, community integration specialist, medical assistant or healthy family coordinator, care team assistant

Table II.1 (continued)

	Integrating behavioral and physical health services	Integrating strategies	Involving care navigators	Titles and roles for care coordinator	Using EMR/EHR or other HIT	Using EMR/EHR/HIT	Creating multidisciplinary care teams	Composition of care teams
MMC	X	Virtual colocation of behavioral and physical health services	X	Care manager supervisor, care manager, care navigator, outreach specialist	X	HIT: Care coordination platform	X	Care management staff, behavioral health specialists, primary care providers, partnering medical/behavioral health and social services providers
Value Options			X	Recovery support navigator (some peers)				
Vinfn	X	Integrating physical health within behavioral health setting	X	Health outreach worker, nurse practitioner	X	HIT: Health Buddy, Telehealth System	X	Outreach team leader, nurse practitioner, health outreach worker, partnering behavioral health outreach workers

Another awardee is integrating care by using technology. MMC provides virtual co-location of services by relying on a health technology platform to help multidisciplinary care teams provide integrated medical, behavioral health, and social services.

### **Using staff designated as care coordinators**

All of the awardees have incorporated a care coordinator into their interventions. Although the titles of these staff members vary by organization, their responsibilities are generally similar and include:

- Communicating and interacting frequently with participants
- Assessing medical, mental health, and social needs
- Monitoring progress and adherence to treatment plan
- Troubleshooting barriers to compliance with the course of treatment and other needs
- Liaising with other staff or care team members implementing the intervention

Three awardees—CHCS, FPHNY, and ValueOptions—use as care coordinators peers or individuals who have “lived experience” with the mental health or physical health care system.

CHCS, MMC, and Vinfen rely on several types of care coordinators. For example, CHCS uses peer specialists, community guest specialists, and a health navigator to help coordinate care. The peer specialists work with the patient to enhance motivation and compliance with the treatment plan. The community guest specialists provide support to the peer specialists and provide routine assessments of needs and linkages to other services. The health navigators oversee both positions and ensure the seamless delivery of care.

### **Using EMR/EHR or HIT systems**

Six awardees have created or implemented a common EMR/EHR system to support care coordination. The centralized system not only standardizes the inputs into the EMR/EHR but also provides a single database for reviewing a patient’s health care history, coordinating care, and monitoring outcomes or progress. CHCS, Felton, HLN, Kitsap, MMC, and Vinfen have all implemented a centralized EMR/EHR system to help coordinate services across a range of providers.

Other sites have implemented various forms of HIT. In the case of Feinstein, its intervention has deployed several HIT platforms, including:

- A smartphone application that provides patients with alerts and updates related to their treatment (for example, cues to take medication in order to enhance adherence)
- An ingestible sensor that transmits patient-level data for tracking purposes
- A prescriber decision assistant to facilitate communication between prescribers and their patients and to support evidence-based medication decisions

Vinfen employs a telehealth system called the Health Buddy. The Health Buddy is designed to help individuals manage their physical and mental health needs on a daily basis, identify

potential risks and work as a team with providers. The data from each Health Buddy session is coded by algorithms based on level of urgency and sent to a dedicated nurse practitioner for review and action to ensure proper disease management.

Felton also employs an algorithm-guided medication management system that takes into account information from the treatment team and the patient to create an individualized medication plan.

Among the 18 medical groups that participate in ICSI's HCIA, some use the AIMS Care Management Tracking System patient registry while others use their own EHR/EMR to support care coordination.

## **2. What specific components of care coordination do stakeholders believe are most important and effective? (Group-specific question)**

As noted, awardees vary widely in how they implement care coordination in their programs, and individuals assigned to “do care coordination” assume different titles and responsibilities. Many awardees, including CHCS, Feinstein, HLN, ICSI, MMC, ValueOptions, and Vinfen, underscore the importance of finding the right person with the appropriate experience to deliver care coordination. CHCS, Felton, KMHS, MMC also pointed to their EHR system as a critically important tool to support the information sharing that is key to effective care coordination. FPHNY, Felton, MMC mentioned that their team-based approach is essential for facilitating care coordination.

## **3. What are the components of the interventions as implemented by the awardees (RfTOP question 5; Question from domains framework)**

The 10 HCIA behavioral health awardees are using a variety of evidence-based mental health interventions to achieve designated outcomes. Appendix C presents the awardees' expanded driver diagrams, and Appendix F identifies the components of each innovation and lays out an overarching framework illustrating the links between the components and program outcomes. For each awardee, at least one innovation component aligns with one of five key intervention domains listed in the domains framework (Table II.2).<sup>5</sup> Below, we discuss each domain and illustrate how the awardees' intervention components align with them.

- **Care coordination.** As discussed above, the 10 awardees are combining various strategies for care coordination to facilitate the delivery of services to their target population, including integration of physical and behavioral health care, use of care navigators, incorporation of centralized electronic medical or health records, and use of multidisciplinary care teams.
- **Health IT.** Eight awardees (CHCS, Felton, Feinstein, HLN, ICSI, KMHS, MMC, and Vinfen) are using some form of health information technology (IT) to facilitate information sharing among providers or patients (or both). Of these awardees, CHCS, Felton, ICSI, KMHS, and MMC use an EMR or patient registry to enable providers to share patients' medical records, visit notes, and consent information. Other awardees have incorporated technology that facilitates information exchange between clients and providers, including

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<sup>5</sup> None of the innovations implemented by the 10 HCIA behavioral health awardees involves the use of home care or home visits, which is one of the domains listed in the domains framework but not included in Table II.2.

Feinstein’s FOCUS smartphone application and prescriber decision assistant, Vinfen’s Health Buddy telehealth system, and HLN’s integrated telemedicine/health IT platform that supports its online case management model.

- **Workflow or process redesign.** Five awardees (Feinstein, FPHNY, ICSI, KMHS, and MMC) have made changes to processes, procedures, or workflows as part of their innovations. ICSI, Kitsap, and MMC have developed or are in the process of developing standardized protocols to ensure consistent and high quality service delivery. Feinstein’s sites have adapted their clinical workflows to incorporate a mental health/health technology case manager role.
- **Provider payment reform.** Two of the innovations (MMC and ValueOptions) involve the use of new payment models for client reimbursement services. ValueOptions is using a case-rate compensation model to reimburse its workforce; MMC plans to work with representatives of partner care management organizations, health care payers, and the New York Department of Health to develop an innovative payment model that takes into account the total cost of care for patients with serious mental illness.
- **Patient decision support and shared decision making.** Two awardees (Feinstein and Vinfen) are implementing innovations that involve the use of tools that provide clients with knowledge or information to help them make decisions about their health. Feinstein is using (1) a smartphone application that provides clients with daily alerts and reminders about their recovery process and (2), to guide providers’ prescribing decisions, a medication management system that includes a 38-question survey that asks about client preferences for medication usage as well as about symptoms, side effects, and medication adherence. Vinfen’s workforce uses the Integrated Illness Management and Recovery (IIMR) curriculum and the Health Buddy system to teach clients behavioral interventions for improving health and self-management of their medical illnesses. Several other awardees, including FPHNY, KMHS, and MMC, are seeking to help clients participate actively in health care decision-making.
- **Medical home.** One awardee (MMC) is implementing an innovation that offers clients a medical home certified by the National Committee for Quality Assurance (NCQA) as encompassing comprehensive care, coordinated care, accessible services, quality, and safety.

**Table II.2. CMMI intervention domains, by awardee**

Awardee	Domains (as specified in CMMI's domains framework)					
	Care coordination	Health IT	Workflow/ process redesign	Provider payment reform	Patient decision support	Medical home
CHCS	X	X				
Felton	X	X				
Feinstein	X	X	X		X	
FPHNY	X					
HLN	X	X				
ICSI	X	X	X			
KMHS	X	X	X			
MMC	X	X	X	X		X
ValueOptions	X			X		
Vinfen	X	X			X	

Sources: See individual descriptions for each awardee (Chapters III-XII).

#### 4. How much of each component was provided? (RfTOP question 6)

Seven awardees are recruiting their target population from and are implementing their innovation in a single state (Table II.3); the remaining three awardees are working in several states (HLN, ICSI, Feinstein).

All but two awardees are working with more than one site to deliver innovation services; we defined sites as community mental health providers, primary care clinics, detoxification facilities, respite centers, and mobile care teams. Although the majority of the eight multisite awardees work with between 2 and 12 sites each, two awardees implement services in a substantially larger number of sites. As of the seventh quarterly report submitted by awardees, HLN was working with 85 primary care providers and ICSI with 197 clinical sites.

Service use data were available for FPHNY, HLN, and KMHS only as of July 2014. As expected, the number of unique participants varied across awardees. For example, FPHNY served 634 clients, HLN served 444 clients, and KMHS provided at least one service to 775 clients. In future quarterly and annual reports, we will provide further information on the extent to which the awardees delivered specific services.



**Table II.3. Extent of service delivery, by awardee**

Awardee	Number of states	States	Number of sites
CHCS	1	Texas	<ul style="list-style-type: none"> <li>• 1 mental health care provider/homeless shelter</li> </ul>
Felton	1	California	<ul style="list-style-type: none"> <li>• 2 PREP offices</li> </ul>
Feinstein	8	Florida, Indiana, Michigan, Missouri, New Hampshire, New Mexico, New York, Oregon	<ul style="list-style-type: none"> <li>• 10 community mental health centers</li> </ul>
FPHNY	1	New York	<ul style="list-style-type: none"> <li>• 4 crisis respite centers</li> <li>• At least 4 need-adapted mobile crisis teams</li> <li>• 1 citywide support line</li> </ul>
HLN	3	Montana, Washington, Wyoming	<ul style="list-style-type: none"> <li>• 85 primary care sites</li> </ul>
ICSI	8	California, Colorado, Florida, Massachusetts, Michigan, Minnesota, Pennsylvania, Washington	<ul style="list-style-type: none"> <li>• 197 clinical sites</li> </ul>
KMHS	1	Washington	<ul style="list-style-type: none"> <li>• 1 community mental health center that includes 8 outpatient teams</li> </ul>
MMC	1	New York	<ul style="list-style-type: none"> <li>• 12 core care management partners</li> </ul>
ValueOptions	1	Massachusetts	<ul style="list-style-type: none"> <li>• 4 detoxification facilities</li> </ul>
Vinfen	1	Massachusetts	<ul style="list-style-type: none"> <li>• 4 community behavioral providers</li> </ul>

Sources: See individual descriptions for each awardee (Chapters III-XII).

### 5. What “dosage” of the innovation was delivered to participants? (RfTOP question 9)

Staff from most awardees noted that workforce members were not given concrete guidance on the number of contacts or services required as part of the innovation. Instead, innovation “dosage” was primarily a function of each client’s individual need and progress. Moreover, the different innovations included different components, and the plans for delivering the components varied widely across the awardees.

As a result of differences in the innovation strategies and patient needs, contacts per participant varied considerably. For example, the three awardees with available information on service use as of July 2014 (FPHNY, HLN, and KMHS) demonstrated varying dosage rates as follows:

- For FPHNY, over half of clients (58 percent) had crisis respite center stays; 42 percent of clients had meetings with the Needs-Adapted Mobile Crisis Team or NA-MCT (a multidisciplinary care team).
- For HLN, 42 percent of clients had between 2 and 5 appointments.
- For KMHS, dosage ranged from 2 to 13 or more visits; the most frequent dosage for all services provided to clients was 13 or more visits.

Future annual or quarterly reports will present additional information on innovation dosage.

## **6. How well did providers and sites adhere to planned procedures (including, as appropriate, procedures for customization)? (RfTOP question 12)**

Staff representing all awardees agreed that providers and sites generally adhered to innovation protocols and processes. For most awardees, planned procedures included customizing the program to some extent based on site-specific needs. For example, CHCS, FPHNY, Felton, and ICSI encouraged their providers and sites to adjust protocols to meet the unique needs of a site and its target population. Although MMC permits some flexibility in how providers and sites deliver the innovation, the awardee is currently developing uniform care standards to help ensure consistent guidance on innovation processes and roles. Only HLN limits sites' latitude in changing protocols and procedures, primarily through memoranda of understand (MOUs) developed between HLN and its partners.

Many of the modifications to innovation procedures described by staff were intended to improve the delivery of services based on provider or site successes and challenges in the first year of implementation. For example, members of the CHCS workforce modified the innovation's original procedures to improve low follow-up assessment rates. They reorganized their scheduled hours to ensure staff coverage during "off hours" and designated a community guest specialist "locator" to find hard-to-reach participants. Other modifications to innovation protocols or procedures represented a response to differences in site resources, populations served, or internal protocols or guidelines. For example, ICSI and MMC sites customized their care team structure and roles based on the availability of staff and patient needs.

Most respondents representing awardees perceived variations in implementation as producing either a positive or neutral effect on the success of the innovations. However, respondents from two awardees noted that lack of adherence to planned procedures adversely influenced the implementation of program activities. One of the Vinfen sites currently uses a modified outreach team structure that has led to both confusion about roles and problems with staff coordination. HLN noted that variation in how providers use the innovation's EMR system has resulted in inconsistent reporting of patient data.

In addition to altering program procedures to account for site-specific needs, some awardees modified recruitment procedures to address recruitment challenges. Both ICSI and ValueOptions, for example, expanded enrollment criteria in order to increase the number of participants enrolled during the program's first year.

## **7. Overall, during implementation, how much did projects "drift" from the original model? (Question from domains framework)**

We find it useful to distinguish between two types of changes. The first type involves changes at the operational level, such as those noted in the response to question 4. These changes are procedural alterations that do not alter the innovation's underlying theory of action or conceptual framework, as represented in the innovation's driver diagram. The second type of change involves alterations in the underlying theories or frameworks. It is possible that, based on early implementation experiences, an awardee determines that a core component of its conceptual framework is not tenable for implementation as planned.

A few awardees have acknowledged that they are not implementing key components of their underlying conceptual framework. For example, Feinstein experienced substantial delays in

distributing ingestible sensors and personal monitors—a critical component in its driver diagram—because of challenges in obtaining the technology. CHCS does not plan to implement the provider payment reform component of its original program model. Staff suggested that the decision not to implement the reform grew out of the recognition that payment reform is a broader organizational goal not to be pursued as part of the HCIA project. (We will gather additional information about the decision and its implications during our second site visit in spring 2015.) These changes suggest that the original models for these few awardees have “drifted” somewhat from their original conceptualization.

One of the key evaluation challenges is to determine whether operational changes (the first type of change) occur with sufficient frequency or generate sufficient consequences that they lead to changes in the underlying conceptual framework. For example, ValueOptions modified its workforce hiring criteria for its recovery support navigator positions (a role that it had originally referred to as “peer support navigators”) by dropping the requirement that such individuals must demonstrate “lived experience” with substance use and recovery. The staff made the change based on the fact that the existing CSP position did not require lived experience; because intervention provider sites drew from CSP staff when hiring RSNs, ValueOptions changed the RSN hiring requirement to avoid limiting the eligibility of existing staff for these new employment opportunities. To some observers, the change may be considered simply operational; to others, it may suggest a drift from the original model.

Other awardee respondents noted that some innovation components “evolved” (potentially another word for “drift”) based on lessons learned during the first year of implementation. For example, KMHS changed its “care team huddle” protocols, and Vinfen refined its original protocol for implementing a training curriculum. In future reports, we may examine in further depth the question of whether these decisions reflect operational alterations or more fundamental changes in underlying conceptual frameworks.

#### **8. What is the target population and how many participants were reached? (RfTOP questions 15 and 16)**

Across awardees, the target population ranged from individuals experiencing specific mental health conditions such as schizophrenia to individuals with any of several types of serious mental illness and individuals with both serious mental illness and chronic physical health conditions (Table II.4). Some awardees also focused on behavioral health services for specific subgroups such as homeless individuals or residents of rural areas. Two awardees have implemented interventions limited to patients residing in specific geographic areas within their state.

For many awardees, recruitment remains lower than expected as a consequence of, among other factors, low referral rates and unexpected difficulties in identifying eligible patients. Some awardees also have reported difficulties in contacting certain subgroups of the target population, including older adults, substance abusers, individuals who are homeless, and individuals with very severe or unstable symptoms.

**Table II.4. Program participants by awardee**

Program	Participants reached (as of quarter 8) <sup>a</sup>	Current total enrollment goal
CHCS	231*	260*
Felton	115**	110
Feinstein	310	770
FPHNY	634***	3,833
HLN	444 (May 2014)***	2,000
ICSI	2,264	8,000
KMHS	775****	Not applicable <sup>b</sup>
MMC	389****	500****
ValueOptions	2,195*	2,300*
Vinfen	181	470

Sources: See individual descriptions for each awardee (Chapters III-XII).

<sup>a</sup> Figures are based on data provided by awardees to Lewin in their Quarter 8 report unless otherwise specified.

<sup>b</sup> KMHS did not specify enrollment goals. Instead, they are identifying cohorts of individuals within their service population for whom they will provide quantitative outcome measure data.

\* Intervention group participants only. CHCS aims to enroll a total of 520 participants, including 260 intervention group participants and 260 comparison group participants. ValueOptions aims to enroll 3,450 participants, including 2,300 in the intervention group and 1,150 in the comparison group

\*\* Number of referrals. Some individuals ultimately do not meet eligibility criteria.

\*\*\* Figures based on quantitative information provided to Mathematica.

\*\*\*\* Direct participants only. For KMHS, direct participants are (1) KMHS patients who receive services from medical assistants or the healthy families coordinator or (2) KMHS patients at four primary and specialty care practices in the community who receive services from the project's behavioral health professional.

## 9. To what extent was implementation timely and responsive to site-level constraints? (RfTOP question 17)

Awardees varied in their level of implementation progress, but all have encountered challenges to timely implementation. Three awardees (Feinstein, Felton, and HLN) cited as a major challenge a lag in receiving CMS funds, resulting in early implementation delays such as deferred initiation of patient recruitment and staff hiring. Other sources of delay reported by the awardees included slow recruitment of provider sites, challenges in identifying staff members with needed qualifications and experience, high staff turnover, lengthy provider licensing and credentialing processes, difficulty in obtaining legal agreements related to cross-state licensure, and extreme weather events such as Hurricane Sandy. Three awardees (CHCS, FPHNY, and KMHS) reported that they found solutions to these challenges that allowed project implementation to proceed on or close to schedule.

Four awardees (CHCS, Feinstein, KMHS, and Vinfen) reported challenges related to implementing new health IT systems. CHCS has been facing challenges in extracting data from its EMR system, limiting its real-time assessment of program progress. In response, CHCS plans to shift to a system that is more appropriate for the integrated care it provides. Feinstein and Vinfen experienced difficulty with the timely implementation of technologies at all of their participating sites.

Slow growth in enrollment was a common issue. Six awardees (FPHNY, Felton, HLN, ICSI, MMC, ValueOptions) reported significant difficulties in enrolling the targeted number of participants because (1) it was difficult to find eligible participants in the community or (2) unexpected problems (for example, changes in the distribution of Medicaid beneficiaries across the state) narrowed the pool of potential participants.

Across many awardees, lower-than-expected enrollments have led to varying consequences. For two awardees, the slow pace of enrollment has affected program staffing, but both awardees have successfully addressed the challenge. For instance, one (Felton) temporarily contracted for positions such as psychiatrist and nurse practitioner and expects to hire full-time staff for these positions as enrollment increases.

To improve enrollment rates, awardees also have found it necessary to adapt their enrollment strategies and activities. One site (MMC) has used administrative data from its internal clinic system instead of relying on the state database. In response to consistently low enrollment rates, other awardees (FPHNY, HLN, ICSI) have expanded participant eligibility criteria, added clinical sites, increased marketing efforts, or instituted enrollment incentives for participating sites. To be responsive to differences across implementation sites, many awardees have accorded sites a certain level of flexibility to customize program components to fit the needs of each site. For example, Feinstein adapted the care manager role for each site such that care managers' responsibilities and their approach to interacting with patients are a function of several factors, including whether the site already employed case management staff. ValueOptions encourages sites to develop site-specific protocols for the distribution of incentive payments.

Awardees have worked with participating sites in various ways to address site-level constraints while ensuring consistency in the provision of program services. For example, Vinfen collaborated with participating sites to develop a standardized workflow for using data from its telehealth system. In addition, Vinfen reported that differences in site-specific workflows have stemmed from variations in the target populations served by each site. As a result, Vinfen has worked closely with workforce staff from one of its sites to ensure adherence to the innovation's protocols despite differences in the site's outreach team structure. Several awardees reported that they solicited the input of participating sites when making changes to program procedures and protocols. Involving the sites in decision making in this manner not only encourages sites' buy-in but also supports implementation consistency across sites.

#### **10. Does the incorporation of patient navigators/peer support specialists increase access to health care services for patients in this group? (Group-specific question)**

Across awardees, many staff reported that incorporating patient navigators and peer support specialists into the care team increases patients' access to health care services by keeping patients engaged, addressing barriers to their care, and providing extended support beyond business hours. For example, peer support specialists at CHCS work closely with participants to maintain their engagement with medical and mental health services. The lived experience of peer support specialists is critical to meeting participants "where they are" in life and to do so without judgment. The primary care physician, psychiatrist, and consumer benefits specialist rely heavily on the unique relationship developed between peer support specialists and participants for participant-specific knowledge and to keep participants engaged in their services.

One of the central features of ICSI's program model (known as COMPASS) is a care manager whose role is to facilitate patient recruitment; provide self-management support, medication reconciliation, and patient education; create a care and maintenance plan; conduct telephone and in-person patient visits; and identify and address patient-specific barriers to care. At ValueOptions, recovery support navigators (RSNs, most of whom have lived experience themselves, work to ensure full access to all medically necessary services. RSNs work closely with clients to develop a recovery plan and ensure that clients schedule and attend medical, behavioral health, and social service appointments. Many RSNs make themselves available beyond regular working hours, taking clients to evening meetings and responding to text messages at night or on the weekend.

**11. How do these projects address the concerns of access to mental/behavioral healthcare services in underserved areas such as rural and low income areas? (Group-specific question)**

Individuals with mental health and substance abuse disorders are more likely than the general population to reside in underserved areas. Many awardees' projects are located in communities where such individuals live; thus, awardees have brought to these communities many behavioral health services (such as enhanced care coordination or peer support) that were largely or entirely unavailable before the innovation.

Of course, the availability of a new service does not guarantee its use. As a result, awardees developed a variety of strategies to increase both access to and use of needed behavioral health care. Examples of some strategies follow:

- **Incorporating into the care team staff with deep knowledge of the target population and community resources.** CHCS links residents in a homeless shelter with peer support specialists who have experienced homelessness and their own mental health issues. These individuals help participants gain comfort in using mental health services and then work to maintain participants' engagement in such services. The Felton team has hired members of local communities who are both familiar with locally available resources and experienced in connecting clients with needed social services.
- **Reaching out to the target population.** Staff at MMC conduct community-based patient outreach by visiting selected individuals in their homes or shelters or making repeated telephone calls, with the goal of offering patients a medical and mental health home while preserving access to the providers whom they already know.
- **Partnering with agencies that serve the poor.** ICSI is partnering with a federally qualified health center that serves primarily low-income and uninsured populations.
- **Providing transportation.** Felton and KMHS are addressing access issues by providing transportation assistance in rural areas where patients experience difficulty in securing transportation to a facility.
- **Establishing telehealth and telepsychiatry systems in rural areas.** HLN targets rural populations because of the lack of mental health providers in the affected areas. It provides telepsychiatry services within primary care offices for populations living in rural areas of Montana, Wyoming, and Washington.

### **C. Program effectiveness**

We will report four standard outcome measures related to service use and cost for all awardees for which we obtain appropriate quantitative data. As a group, these 10 awardees are enrolling both Medicare and Medicaid beneficiaries, although the particular mix of such beneficiaries varies considerably across the awardees. For example, ValueOptions is enrolling only Medicaid beneficiaries. In contrast, MMC expects to enroll no Medicaid beneficiaries; about half of its participant group will be Medicare beneficiaries. Depending on composition of enrolled participants for each awardee, we will obtain data files from either or both of the CMS Medicare and Medicaid data systems.

Given the different characteristics of Medicare and Medicaid data systems, the specific mix of participants in each awardee, and the extent to which the awardees are implementing projects in multiple states, we will face different constraints on the specific data available to calculate the four core measures (Tables II.5 and II.6).

As of July 1, 2014, only KMHS had provided the quantitative information needed to calculate these measures using the specifications received from CMMI in mid-2014. For detailed tables and figures for KMHS, please refer to the KMHS narrative in Section IX of this report.

During our site visits in spring 2014, staff for some awardees offered their perceptions of program effects on some of these measures and potential underlying mechanisms or pathways. In addition to reporting quantitative results to date in this section, we summarize these perceptions based on an analysis of information in our qualitative data base. We also will report on the extent to which the awardees' projects affected the use of other services (a group-specific question).

In this section of the report, we address questions related to changes in:

- Medicaid or Medicare expenditures
- Rates of hospitalization
- Rates of rehospitalization
- Rates of ED use
- Rates of other service use

**Table II.5. Expected availability of data for calculating four core measures for Medicare participants, by enrollee, as of September 2014**

Awardee	Expenditures per patient	Hospitalizations per patient	Re-hospitalizations per index stay	ED visits per patient
CHCS	DU <sup>a</sup>	DU <sup>a</sup>	DU <sup>a</sup>	DU <sup>a</sup>
Feinstein	FA	FA	FA	FA
Felton	NA	NA	NA	NA
FPHNY	FA <sup>a</sup>	FA <sup>a</sup>	FA <sup>a</sup>	FA <sup>a</sup>
HLN	FA	FA	FA	FA
ICSI	FA	FA	FA	FA
KMHS	CA	CA	CA	CA
MMC	FA	FA	FA	FA
Vinfen	TBD	TBD	TBD	TBD
ValueOptions	NA	NA	NA	NA

Source: Mathematica analysis of Medicare administrative claims data.

CA = Data on this measure is currently available and included in this report.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

DU = Data will be unavailable to support analysis.

LD = Limitations in data availability will require adaptations to the CMMI specification for the core measures.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicare.

TBD = To be determined. Definitive information about data availability is not yet available.

<sup>a</sup> There are likely to be fewer than 100 individuals with Medicare ever participating at this awardee.

**Table II.6. Expected availability of data for calculating four core measures for Medicaid participants, by enrollee, as of September 2014**

Awardee	Expenditures per patient	Hospitalizations per patient	Re-hospitalizations per index stay	ED visits per patient
CHCS	DU <sup>a</sup>	DU <sup>a</sup>	DU <sup>a</sup>	DU <sup>a</sup>
Feinstein	FA	FA	FA	FA
Felton	LD	LD	LD	LD
FPHNY	FA	FA	FA	FA
HLN	FA	FA	FA	FA
ICSI	FA	FA	FA	FA
KMHS	FA	FA	FA	FA
MMC	NA	NA	NA	NA
Vinfen	TBD	TBD	TBD	TBD
ValueOptions	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid administrative claims data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

DU = Data will be unavailable to support analysis.

LD = Limitations in data availability will require adaptations to the CMMI specification for the core measures.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

TBD = To be determined. Definitive information about data availability is not yet available.

<sup>a</sup> There are likely to be fewer than 100 individuals with Medicaid ever participating at this awardee.



**1. To what extent did the program change charges and expenditures for all care in the target population? (RfTOP question 40)**

The quantitative data currently available to address this question involves KMHS Medicare patients. KMHS received its award in July 2012 and spent sixth months planning for the roll-out of its intervention. The intervention itself began on January 1, 2013. Preliminary analysis of available data indicates variation around a mean of about \$800 per patient per enrolled month between June 2010 and December 2013. Based on the analyses completed to date, which do not account for potential confounding factors and do not include comparison group data, we observed no differences in expenditure rate trends during the period after KMHS' project began compared with the period before it began. Section IX provides further details on these preliminary findings.

**2. To what extent have rates of hospitalization changed? (RfTOP question 34)**

The quantitative data currently available to address this question involves KMHS Medicare patients. KMHS received its award in July 2012 and spent sixth months planning for the roll-out of its intervention. The intervention itself began on January 1, 2013. Preliminary analysis of available data indicates that inpatient discharges were fairly consistent between June 2010 and December 2013, at approximately .03 discharges per enrolled month. Based on the analyses completed to date, which do not account for potential confounding factors and do not include comparison group data, we observed no differences in hospitalization rate trends during the period after KMHS' project began compared with the period before it began. Section IX provides further details on these preliminary findings.

During site visits, staff from CHCS, Feinstein, Felton, and Vinfen reported that they believe hospitalization rates have decreased among their patients. CHCS and Vinfen staff assumed that direct access to practitioners was responsible for the decrease in rates while Feinstein attributed the decrease to closer case management.

**3. To what extent have rates of rehospitalization changed? (RfTOP question 34)**

The quantitative data currently available to address this question involves KMHS Medicare patients. KMHS received its award in July 2012 and spent sixth months planning for the roll-out of its intervention. The intervention itself began on January 1, 2013. Preliminary analysis of available data indicates that monthly re-admission rates varied between 0 and about .35 readmissions per index stay between June 2010 and December 2013. Based on the analyses completed to date, which do not account for potential confounding factors and do not include comparison group data, we observed no differences in re-admission rate trends during the period after KMHS' project began compared with the period before it began. Section IX provides further details on these preliminary findings.

During site visits, staff from Feinstein and Felton reported that they believe rehospitalization rates have decreased among their patients and attributed this decrease to better case management.

**4. To what extent have levels of ED utilization changed? (RfTOP question 33)**

The quantitative data currently available to address this question involves KMHS Medicare patients. KMHS received its award in July 2012 and spent sixth months planning for the roll-out of its intervention. The intervention itself began on January 1, 2013. Preliminary analysis of available data indicates that that ED visit rates varied between about .13 and about .19 visits per

enrolled month. Based on the analyses completed to date, which do not account for potential confounding factors and do not include comparison group data, we observed no differences in re-admission rate trends during the period after KMHS' project began compared with the period before it began. Section IX provides further details on these preliminary findings.

During site visits, staff from CHCS, Feinstein, Felton, MMC, ValueOptions, and Vinfen reported that they believe key components of their programs are leading to decreased ED utilization. Staff at CHCS, ValueOptions, and Vinfen attributed the decrease to more frequent visits to both mental health and physical health providers in the programs. Staff at Feinstein and MMC attributed the reduction to closer case management. In addition, Feinstein staff reported that they believe their patients' use of new technology applications are contributing to the decrease.

**5. To what degree did these projects affect the utilization of other health care services (i.e., emergency care/crisis stabilization, outpatient care, and inpatient care)? (Group-specific question)**

At this time, no quantitative data relevant to this question are available. Staff from four awardees (Feinstein, KMHS, MMC, and Vinfen) reported that they believe that the project had contributed to changes in the use of health care services. KMHS, MMC, and Vinfen staff noted a decreased use of emergency and crisis care, possibly resulting from a reduction in inappropriate emergency services. Feinstein staff reported that the change may have resulted from an increase in the availability of intermediate-level care options and more effective care coordination. MMC staff reported higher use of case management services, which in turn may have led to a greater use of outpatient and specialty medical care. KMHS staff also perceived an increased use of primary care and preventive services among their participants.

**D. Workforce**

In this section, we address three questions related to roles, training, and retention.<sup>6</sup>

**1. What types of roles were required for the innovations? (Question from domains framework)**

Although HCIA awardees rely on a variety of workforce roles to implement their innovations, most workforce staff fall within nine general categories (Table II.7), as defined in the domains framework. As expected for the 10 awardees, all innovations used (1) behavioral health professionals as direct service providers or consultants and (2) patient navigators or some other type of care coordinator, as described above. While individual staff members are assigned these particular roles an important component of many of the intervention is a higher degree of team work and coordination across staff with different roles.

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<sup>6</sup> For readers interested in workforce issues, our second and third quarterly reports present substantially more information on this topic than we could include in this annual report. For example, our third quarterly report discusses job satisfaction and burnout for all 10 awardees based on our initial descriptive analyses of data from our workforce survey, which we fielded in spring 2014.

**Table II.7. Definitions of common workforce role titles used by behavioral health awardees**

Role title	Definition <sup>a</sup>
Behavioral health specialist	Includes behavioral health workers working in primary care settings; substance abuse service providers added to teams; behavioral health teams that are reconstituted, retrained, or central to the intervention; behavioral health specialists answering online requests for help or information; and psychiatrists, psychiatric nurses, psychotherapists, and other behavioral health specialists implementing the HCIA intervention.
Behavioral health consultant	Clinical directors, supervisors, trainers, and consultants who are central to providing guidance and feedback on the specific intervention to help direct-care workers provide better direct behavioral health care.
Primary care provider	Primary care physicians, nurses, and medical specialists in areas other than behavioral health.
Physical health consultant	Clinical directors, supervisors, trainers, and consultants who are central to providing guidance and feedback on the specific intervention to help direct-care workers provide better direct physical health care.
Patient navigator	Someone whose primary responsibility is to provide personalized guidance to patients as they move through the health care system; sometimes used to describe a "patient advocate." Refers to individuals with clinical, financial, legal, administrative, or personal experience with the health care system (RTI, pp. 4–5).  Patient navigators assist individuals and families with negotiating increasingly complex service systems and bolster clients' confidence when dealing with providers. They also improve access to and educate consumers as to the importance of timely use of primary care (RTI, p. 18).
Other care coordinator (used for care coordination providers who do not meet the definition of patient navigator)	Includes care coordinators, care managers, case managers, and disease management providers (RTI, pp. 3–4).  Workers in this role negotiate responsibilities among team members; communicate; facilitate transitions; assess needs and goals; create proactive care plans; monitor, follow up, and respond to change; support self-management goals; link to community resources; and align resources with patient needs (RTI, p. 3).  Case managers providing care coordination also oversee and coordinate care delivery (RTI, p. 4).
Outreach-enrolling-informing agent	Outreach-enrolling-informing agents reach individuals and families eligible for benefits or services and persuade them to apply for help or visit a provider location for care (RTI, p. 18).
Peer support specialist	For this project, we categorized peer support specialists as any users of behavioral health services (peers or consumers) who provide any type of service to other patients as peer support specialists, even if they do not specifically provide peer support services.
Other community health worker (CHW) (RTI, p. 18)	CHWs are lay members of communities who help individuals and communities adopt healthy behaviors; usually share ethnicity, language, socioeconomic status, and life experiences with community members they serve; usually selected by and answerable to community. Their training is recognized by professionals, but they are not necessarily professionals or paraprofessionals (HRSA Community Health Worker toolkit, updated April 2014, p. 3; <a href="http://www.raconline.org/communityhealth/chw/files/community-health-workers-toolkit.pdf">http://www.raconline.org/communityhealth/chw/files/community-health-workers-toolkit.pdf</a> ).  CHWs help individuals and communities adopt healthy behaviors; conduct outreach for medical personnel or health organizations to implement programs in the community that promote, maintain, and improve individual and community health; may provide information on available resources; provide social support and informal counseling; advocate for individuals and community health needs; and provide services such as first aid and blood pressure screening. CHWs may also collect data to help identify community health needs. Role excludes health educators (Bureau of Labor Statistics 2010 Standard Occupational Classification 21-1094; <a href="http://www.bls.gov/soc/2010/soc211094.htm">http://www.bls.gov/soc/2010/soc211094.htm</a> ).  We use this title only for community health workers who do not meet the definitions of patient navigators, outreach-enrolling-informing agents, and peer specialists.

<sup>a</sup> Definitions cited as "RTI" come from "Meta-Evaluation Domains for Qualitative Synthesis\_Draft 10.25.13," which we obtained through the HCIA evaluators' collaborative. RTI International, which is CMS's HCIA meta-evaluation contractor, produced the document. It is important to note that RTI's definitions are typically based on definitions developed by other organizations or specified in other documents, as cited by RTI. In cases where we derived our definitions from the RTI document without accessing the primary sources, we have cited only the RTI document rather than the primary sources. For a few roles, we followed links provided in the RTI document to obtain additional detail on role definitions; in such cases, we cite the primary source documents. Finally, in a few instances, we developed definitions specifically for our evaluation and therefore provide no citation.

Overall, awardees facilitate the delivery of their innovation services through the following workforce roles (Table II.8):

- **Mental health specialist.** Each awardee’s workforce includes at least one behavioral health specialist such as a psychiatrist, therapist, social worker, or other behavioral health clinician. Seven of the 10 awardees rely on behavioral health consultants to provide guidance and feedback to direct-care workers tasked with delivering behavioral health services. Titles for the role of behavioral health consultant include health navigators, clinical directors, project directors, care team managers, and management supervisors.
- **Physical health specialist.** Six of the 10 awardees include primary care providers (PCP), such as PCPs or nurse practitioners, as part of the workforce charged with providing services in areas other than behavioral health. Of these awardees, four also employ physical health consultants, such as clinical directors or supervisors, to provide guidance and feedback to direct-care workers who deliver physical health services to clients.
- **Care coordination specialist.** Each awardee uses patient navigators or other types of care coordinators to provide personalized guidance and/or coordination of mental and medical health services to clients as they move through the health care system. Care coordination specialists may also be termed case advocates or managers, care navigators or managers, recovery support navigators, or outreach workers.
- **Peer support specialist.** Two of the awardees employ workforce staff with a personal history of managing a mental illness. Depending on the awardee, such individuals may function in a role that would classify them as a behavioral health consultant or patient navigator in addition to a peer support specialist. Peer support specialists receive ongoing supervision and training to ensure adherence to the intervention model and provide support and guidance on difficult cases or situations.
- **Other specialists.** A variety of additional specialists further support awardee interventions. These workers include (1) outreach-enrolling-informing agents such as consumer benefits specialists and social service workers whose only or primary role is to help individuals and their families apply for benefits or other services and (2) other community health workers such as community guest specialists who link clients to community resources.

**Table II.8. Common workforce roles involved in implementing HCIA interventions, by awardee**

Common role title	CHCS	Felton	Feinstein	FPHNY	HLN	ICSI	KMHS	MMC	ValueOptions	Vinfn
Behavioral health specialist	✓	✓	✓	✓	✓		✓	✓		
Behavioral health consultant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Primary care provider	✓				✓	✓	✓	✓		✓
Physical health consultant					✓	✓	✓			✓
Patient navigator				✓	✓				✓	✓
Other care coordinator	✓	✓	✓			✓		✓		
Outreach-enrolling-informing agent	✓				✓			✓		
Peer support specialist	✓			✓						
Other community health worker	✓									

## 2. How have rates of staff retention and turnover changed over the course of the intervention? (RfTOP question 84)

According to the information presented in the awardees' quarter-five, -six,, and -seven reports, rates of awardee staff retention have been high, with an average program staff retention rate of 95.3 percent. As noted in our third quarterly report, this trend is generally consistent with findings from the workforce survey, which indicate generally high satisfaction and low rates of burnout for staff from most awardees.

Awardees with moderate rates of staff separation from the workforce—including staff who quit or retire; are transferred, laid off, or terminated; or otherwise cease involvement with the project—provided various explanations for staff turnover.

- Respondents representing Felton noted that they deliver highly specialized training to their workforce, which make their staff attractive to other employers.
- Although CHCS staff reported relatively high rates of staff retention, some peer support specialists have gone on temporary leaves of absence during selected quarters (presumably not counted as separations from the workforce) due to personal challenges such as illness, injury, and mental health relapse. Ensuring delivery of consistent, high quality services during such absences has been challenging, but, with modifications to workflow and the dedication of staff, the team has observed few major gaps in services.
- Respondents from both Vinfen and ValueOptions, whose staff usually provide services to clients outside an office setting, emphasized that, given the target population, these roles require dedication and passion to avoid job dissatisfaction and burnout. On average, staff from both of these awardees reported somewhat higher levels of dissatisfaction with their jobs compared with staff from other awardees, although differences were not statistically significant. (Our third quarterly report provides more detailed information on this topic.)

## 3. How does the staffing turnover rate for selected roles (patient navigators/peer support specialists) compare with those of other health care workers? (Group-specific question)

Data to address this question are not available at this time. In future annual or quarterly reports, we will provide information on staff turnover rates by type of position.

### E. Context

In this section, we address four questions related to leadership, organizational issues, and patient and stakeholder engagement.

#### 1. Was there a clearly designated champion or leader to oversee implementation? (RfTOP question 96)

When asked to identify program champions, most awardees (CHCS, Feinstein, Felton, HLN, KMHS, MMC, and Vinfen) pointed to leaders at the program level. Respondents noted that several of these program leaders brought to the programs significant experience—with the innovation model, the target population, or the policy environment (or some combination)—that facilitated program implementation. For example, HLN program staff highlighted the leadership of the program's project director, who was described as a thought leader in telemedicine and

telepsychiatry. Respondents from CHCS reported that the program's administrator was an effective leader who drew on experience in research, social work, and psychology.

Some awardees viewed program leadership as more dispersed, without a single champion or group of champions. Many respondents from FPHNY and ICSI viewed the program as a team effort; FPHNY's perspective reflects the organization's nonhierarchical structure. Even in programs where respondents identified specific leaders, some program staff noted that the program team shares leadership responsibility. For example, several KMHS respondents noted that it was difficult to select just one—or even a few—individuals as champions because of the commitment required at different levels across the agency. Similarly, ValueOptions respondents reported that different individuals arose as leaders at different points during program implementation.

Regardless of whether the respondents viewed leadership as resting within a single champion or throughout the team, respondents from most programs recognized specific site-level or frontline staff as important in moving the program forward or gaining buy-in within partnering organizations. For example, in the ICSI program, physician champions were key players in spreading the word about the innovation within the partner organizations and gaining the endorsement and support of other staff. CHCS program staff highlighted health navigators as critical leaders, providing support and guidance to other program staff. Frontline respondents from Feinstein often pointed to the on-site program directors as leaders, and program leaders noted that strong site leadership appears to play a major role in a program's success.

## **2. To what extent did organizational features support or conflict with implementation? (RfTOP question 104)**

Respondents across awardee programs identified several organizational features that either supported or impeded program implementation, including:

- An organization's experience with similar programs
- An organization's culture or readiness to change
- The characteristics of the county or state in which the program operates
- The availability of physical and human resources

Below, we outline these features and provide examples of how they facilitated or hindered program implementation.

**Experience.** Respondents from several programs noted that an organization's experience with similar programs or initiatives facilitated implementation. For example, Feinstein's experience in working with community mental health centers enabled the organization to identify strong candidate sites for the program. Similarly, even before the HCIA award, KMHS had pursued initiatives to coordinate physical and mental health care and integrate substance use treatment, vesting program leaders with the experience needed for the new program. ICSI program staff also highlighted their experience in implementing similar programs and viewed the new program as an extension of their earlier work.

**Culture and readiness for change.** CHCS, FPHNY, HLN, ValueOptions, and Vinfen identified an organization’s climate of “culture change” as an important determinant of success. CHCS and Vinfen respondents welcomed the programs to their respective organizations because they saw them as moving the organizations toward a larger goal. In contrast, FPHNY and HLN reported that organizational culture posed a challenge to program implementation. For FPHNY, several organizations faced difficulty in integrating peer specialists into their outreach teams because of staff uncertainty about the purpose and boundaries of the specialists’ new role. HLN respondents noted that several rural sites initially resisted the program because they were unfamiliar with telepsychiatry.

**County- or state-specific characteristics.** Feinstein, Felton, HLN, ICSI, KMHS, and MMC reported that the characteristics of the counties or states in which the program was located either supported or impeded implementation. For example, Felton and KMHS respondents reported that support from county governments facilitated program implementation. MMC program staff described several New York State programs and initiatives that supported or complemented the HCIA-funded program. In contrast, other programs noted that state or county characteristics posed a challenge to implementation. For example, HLN program staff noted that the program struggled with clinician credentialing in several states, leading to staff turnover.

**Physical and human resources.** Some awardees reported that the lack of physical space, supplies, staff, or other resources impeded program implementation. For example, some staff from ValueOptions reported that detoxification facilities suffer from insufficient office space and lack of privacy. Similarly, CHCS respondents noted that peer support and community guest specialists often lack the workspaces needed to conduct private conversations with patients. Some CHCS program staff noted that their organization’s IT department lacks the capacity to meet program needs.

### **3. To what extent did the program involve patients or patient representatives in planning and implementing the innovation? How has the need for innovation been communicated to them? (RfTOP question 97)**

Most awardees involved patients, peers, or consumer representatives in the planning and design of the HCIA-funded innovations:

- When planning the proposed innovation, Feinstein, HLN, and MMC sought input from representatives from the National Association on Mental Illness (NAMI).
- To provide insight into program development, FPHNY engaged local organizations composed of people with lived experience with mental illness.
- Through informal meetings conducted during program design, CHCS directly engaged members of the target population in program planning.
- KMHS and ValueOptions solicited feedback on program design through advisory boards composed partially or entirely of patients.

Nearly all awardees also engaged patients, peers, or consumer representatives in program implementation. FPHNY, ICSI, KMHS, and ValueOptions updated patients on progress or sought ongoing input through new or existing advisory councils. For example, FPHNY’s



consumer advisory board meets monthly to advise the assistant commissioner of New York City's Department of Health and Mental Hygiene on program activities. ICSI's patient advisory group reviewed and provided feedback on project materials targeting patients and was kept informed of innovation progress. CHCS and Feinstein sought feedback from patients through formative evaluation activities, and used the feedback to improve various aspects of their programs. MMC and Vinfen conducted outreach to patients through peer specialists; MMC also involves peer specialists in its outreach task force to help guide the development of patient outreach strategies.

#### **4. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation? (RfTOP question 105)**

Several awardees worked to engage stakeholders in program planning and ongoing implementation activities. Engagement took different forms:

- With its program launch meeting, HLN engaged key stakeholders in the program by bringing together HLN staff members, heads of Medicaid from both states involved in the innovation, representatives from National Alliance on Mental Illness (NAMI), and other local stakeholders.
- KMHS created a community innovation council to provide stakeholders with an opportunity to offer input into and influence the program's future direction.
- ValueOptions created a quality advisory committee that meets quarterly to oversee program implementation and provide insight into specific program components, such as training. The committee consists of a diverse group of stakeholders, including consumers, families, leaders from participating detoxification facilities, the director of the state substance abuse services agency, and the executive director of a statewide organization for addiction recovery.

Many awardees also engaged community stakeholders during implementation to increase patients' access to services and resources or generate referrals to the program. For example, frontline staff in the CHCS program engage with local community organizations that provide resources to meet the needs of patients enrolled in the program (such as Project Mend, an organization that provides wheelchairs and other resources to people with mobility impairments). Staff at several sites participating in Feinstein's program meet with local stakeholders to encourage referrals to the program. Such engagement is important for sites without formal connections to inpatient facilities because the program seeks to serve patients immediately after discharge from an inpatient psychiatric facility.

In addition to engaging stakeholders who help plan for, refer patients to, and serve the patient population, many awardees work directly with outside entities to implement key program components. Some awardees, such as Felton, engage external trainers to support program staff. Felton worked with a team from the University of California-San Francisco (UCSF) to develop clinical training on evidence-based practices central to that program.

Many awardees also work with local evaluators to support monitoring, evaluation, and data collection efforts. For example, FPHNY program staff named the local evaluators from the Nathan Kline Institute as important stakeholders; these evaluators are conducting both process

and outcome evaluations of the program. KMHS contracts with an epidemiologist from the local county public health department to oversee the collection and use of patient health data as part of the program's overall HIT enhancement efforts.

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### **III. CENTER FOR HEALTH CARE SERVICES**

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#### **A. Introduction**

The Center for Health Care Services (CHCS), a San Antonio-based mental health care provider, is implementing Project HEALTH (Homeless Engagement Addressing Limitations to Healthcare). Project HEALTH aims to integrate behavioral and physical health care for adults who are homeless, have a serious mental illness or substance use disorder, and have or are at risk of having a chronic physical disease.

The Project HEALTH model is intended to improve health care and health outcomes and lower the cost of care by reducing the need for high-cost emergency department (ED), psychiatric, and medical hospitalization services. CHCS staff aim to accomplish these goals by reversing the traditional order of care: behavioral health is stabilized first so that the participant can be actively engaged in primary care, prevention, and wellness services. The project's expanded driver diagram (see Appendix C) illustrates the context of the project, strategies it is using to implement its goals, and its anticipated outputs, outcomes, and impacts.

To prepare this annual report, we have drawn information from interviews conducted with key staff and other stakeholders during site visits in spring 2014. In addition, we have used quantitative data, including claims, administrative, or EMR data, if such data were available as of July 1, 2014 (the cut-off date for receipt of data files to allow us to conduct analyses that would yield findings for the first draft of the annual report, due on September 1). For CHCS the only data available to us by July 1 were program roster data including basic demographic information on participant and control group members. CHCS will submit additional data files to us in the coming months including service use and health status measures from their EMR system and survey data including measures of health outcomes.

#### **B. Implementation effectiveness**

In this section, we address 11 questions that cover several subdomains within the overall domain of implementation effectiveness including key components of the intervention (such as care coordination), intervention dosage, issues of conceptual drift, the reach of the intervention, and effects on access to care (as perceived by staff and key stakeholders).

##### **1. In light of the importance of coordinated care for individuals with serious behavioral health problems, how did these awardees address care coordination? (Question from domains framework)**

A primary component of the CHCS innovation is care coordination between the physical and mental health care services offered to Project HEALTH participants. Care coordination is facilitated in several ways:

- Close and frequent communication between the primary care provider (PCP) and the psychiatrist
- Peer support specialists who work closely with participants to maintain their engagement with medical and mental health services

- Use of the CHCS electronic medical records (EMR) system—Anasazi—by Project HEALTH staff to coordinate care and track health activities for project participants

## **2. What specific components of care coordination do stakeholders believe are most important and effective? (Group-specific question)**

Many participants in Project HEALTH have untreated serious mental illnesses and a history of trauma; they are often distrustful of others and disconnected from health and safety net systems. The peer support specialists are the most critical component of the Project HEALTH strategy for care coordination because they are given the time and flexibility to engage participants on a regular basis, establish trust, and develop a one-on-one relationship that becomes the basis for success in the program. The lived experiences of the peer support specialist is critical to meeting participants “where they are” in life and to do so without judgment.

The relationship that forms between the peer support specialists and participants provides the foundation for many project activities and often allows the peer to act as a liaison between participants and the PCP, psychiatrist, and consumer benefits specialist. All of these providers rely heavily on the peer support specialists for knowledge about each participant, and to keep participants engaged in their services.

Project staff also view the CHCS Anasazi EMR system, which is shared by the entire Project HEALTH team, as vital to effective care coordination. Staff use the Anasazi system to track participant activities and appointments, and to communicate with each other about participant care plans. The system is especially important to the psychiatrist and PCP, who can easily and effectively confirm cross diagnoses and prescriptions to ensure that their treatment plans are complimentary. Respondents believe that a new and forthcoming EMR system, Cerner Power Charts, will be even more useful to workforce staff.

## **3. What are the components of the intervention as implemented by the awardees? (RfTOP question 5)**

In this section, we note the key components of the intervention and then describe how these components fit into the framework that CMMI provided to the frontline evaluators.

Project HEALTH has five key components (see also Appendix F, which describes the innovation components in detail, associated workforce staffing for each component, and the training that this staff receive):

- A multidisciplinary care team consisting of a PCP, a licensed vocational nurse, and a psychiatrist
- Trained peer support specialists who work with participants to build and sustain readiness for change, motivation, and compliance
- “Community guest specialists” who support the peer support specialists by providing participants with linkages and referrals to additional services and resources, and who recruit participants and enroll them into Project HEALTH

- Trained health navigators who oversee the peer support and community guests specialists, and work with the care team to ensure seamless delivery of physical and behavioral health care
- A dedicated consumer benefits specialist who connects eligible participants to Social Security benefits, Medicaid, and other eligibility-based programs

Several components of the Project HEALTH initiative align with the Centers for Medicare & Medicaid Services (CMS) domains for frontline evaluators. They include:

- **Care coordination.** Peer support specialists have a central role in coordinating physical and mental health care services for Project HEALTH clients who are in intervention groups, and they also work to ensure that participants attend scheduled appointments. For example, peer support specialists may give participants appointment cards and calendars to help track their appointments. They may also follow up with participants before the scheduled appointment. The PCP and psychiatrist also work closely with the peer support specialists and community guest specialists to coordinate client care through frequent email, phone, and in-person communication.
- **Health information technology (IT).** Select members of the Project HEALTH team, including the PCP, psychiatrist, peer support specialists, and community guest specialists, use the Anasazi EMR system to coordinate care, communicate, and track health activities for project participants. Peer support staff receive group and individualized quality assurance feedback on EMR documentation.

#### 4. How much of each component was provided? (RfTOP question 6)

CHCS has implemented all components of the intervention at one site: all Project HEALTH participants are recruited from Prospects Courtyard, an outdoor safe sleeping area located at Haven for Hope, a community-based organization that provides residential services to San Antonio area individuals who are homeless. CHCS, which provides mental health services to homeless residents, also is located on the Haven for Hope campus.

#### 5. What “dosage” of the innovation was delivered to participants? (RfTOP question 9)

The dedicated Project HEALTH PCP, licensed vocational nurse (LVN), and psychiatrist meet with each participant for an initial assessment when he or she enters the program and for regularly scheduled appointments. On average, physical health staff members see 15 to 20 patients per week, and the psychiatrist sees each participant about once every two months. Peer support specialists are each assigned to about 20 participants at any given time. The first meeting is primarily a discussion about the program; they then meet about once per week with each participant through the duration of the program. Community guest specialists meet with each participant three times during the program—to conduct initial, 6-month, and 12-month assessments, which include a series of survey instruments including the Brief Symptom Index, PTSD Checklist, and Adult Hope Scale. The LVN also draws blood from each participant at the first meeting and at the 6-month, and 12-month assessments. Lab results are reviewed by the PCP and the LVN.

**6. How well did providers and sites adhere to planned procedures (including procedures for customization when appropriate)? (RfTOP question 12)**

Although the Project HEALTH workforce has generally adhered to the program's protocols and procedures, staff noted that they have flexibility to make minor modifications to better meet the target population's needs. For example, peer support specialists are encouraged to work closely with participants to find a level and method of communication that is comfortable for the participant. A peer support specialist noted, for instance, that when one of his participants asked that there be no contact for 32 days, he abided by the participant's wishes, but called him on day 33 to check in.

Because follow-up with participants has been challenging, some community guest specialists have adjusted their work hours to be available during times when they are more likely to catch a participant for an assessment. CHCS also selected one of the community guest specialists to serve as a "locator" for hard-to-reach participants in response to the difficulties of locating and following up with this highly transient population. Community guest specialists and peer support specialists also work closely with the primary care team and the psychiatrist to fill appointment slots on the frequent occasions when someone with an appointment is a no-show.

**7. Overall, during implementation, how much did the project "drift" from the original model? (Question from domains framework)**

CHCS has made few changes to the original program model, depicted in the program's expanded driver diagram (see Appendix C). However, the program has not focused on the proposed strategy to "pursue provider payment reform." Although payment reform remains a goal of CHCS as it works to serve a population that is generally not eligible for Medicaid and Medicare, CHCS staff decided not to work toward this goal as part of the implementation of Project HEALTH.

CHCS also made minor changes to the workforce roles it described in its original application. The two health navigators were originally intended to provide intervention and health education to participants, but the position was modified to be a supervisor and mentor to peer support specialist and community guest specialist staff. In part, this change was made to avoid duplication with existing services on campus.

**8. What is the target population and how many participants were reached? (RfTOP questions 15 and 16)**

CHCS aims to recruit 520 adults who are homeless and currently residing in Prospects Courtyard, including 260 individuals assigned to the intervention group that receives integrated physical and mental health services and peer support, and 260 individuals assigned to the comparison group who have access only to the community guest specialists. As of July 1, 2014, CHCS had enrolled 454 individuals into Project HEALTH, including 231 individuals assigned to the intervention group, and 223 individuals assigned to the comparison group.

Project HEALTH has been successful in reaching and engaging its target enrollment, but workforce staff noted that some subgroups of the population, including substance abusers and individuals with severe mental illness diagnoses (paranoid schizophrenia or psychosis, for example) have been extremely difficult to engage in the program.

Analyses of EMR data received from CHCS in early July 2014 indicate that participants in the treatment and comparison groups enrolled through June 19, 2014 are quite similar in most demographic characteristics (Table III.1). Of the characteristics that have been tracked, the groups differ statistically only on gender: the treatment group has more males than the control group. In each group, 70 percent of participants were identified as being homeless.

**Table III.1. Demographic characteristics, by CHCS treatment status, as of June 19, 2014**

	Treatment	Comparison
Number of clients	220	223
Age group		
Younger than 22	10.4	8.1
23–34	23.2	22.5
35–44	21.8	23.9
45–54	30.4	32.9
55–older	14.1	12.6
Male	66.4	56.3*
Not employed	52.7	55.9
Homeless at enrollment**	69.5	69.8
Education level		
Less than high school	10.1	10.5
Some high school	27.1	23.0
High school degree or GED	38.5	41.0
More than high school/GED	24.3	25.7

Source: Mathematica analysis of data provided by CHCS

Note: Percentages are displayed for each group, and may not sum to 100 percent due to rounding.

\*Significantly different from treatment at the .05 level, two-tailed test (t-tests for gender and homeless status and chi-square tests for all other variables).

\*\* The CHCS campus includes temporary supportive housing; several participants live in these residences and so are not technically considered homeless at enrollment. Also, some individuals who live on the street actually have homes, but do not live there for a variety of reasons (for example, poor family relationships or mental illness); these individuals are not technically considered homeless.

## 9. To what extent was implementation timely and responsive to site-level constraints? (RfTOP question 17)

CHCS has been largely successful in implementing the program in a timely manner. However, several challenges have delayed or hindered achieving program goals. Finding a physician candidate with expertise working with homeless individuals with complex physical and mental health needs and who also has an appreciation for the recovery-oriented model took more time than anticipated. However, in September 2013, a qualified full-time physician was hired to oversee delivery of primary care to Project HEALTH participants.

CHCS also has encountered difficulties extracting usable data from the Anasazi EMR system, hindering the staff's ability to assess program progress in real time. This EMR system was developed primarily for community mental health centers and has not been ideal for supporting the integrated care model that CHCS is now implementing. CHCS plans to have transitioned to Cerner Power Charts, a fully integrated EMR system, by mid-August 2014.

**10. Does incorporating patient navigators/peer support specialists increase access to health care services for patients in this group? (Group-specific question)**

The overarching goal of the care coordination team is to engage the target population and to ensure increased access to the health care services that participants need. Because of the transient nature of this population, project staff spend a great deal of time searching for individuals who miss appointments. The on-campus Wellness Center—where the psychiatrist is based—has hired additional staff to accommodate the increased use of services related to Project HEALTH participants.

Better access to primary care is a key goal of the program. Before Project HEALTH began, the only primary care service option for Prospects Courtyard residents, aside from the local ED, was CentroMed, a federally qualified health center (FQHC), located on the Haven for Hope campus. However, CentroMed does not offer integrated care with peer support services, and the high demand for its services reportedly causes lengthy waits that deter many residents—especially those suffering from mental illness—from seeking care. As a result, Project HEALTH participants have taken full advantage of the on-campus PCP and LVN.

The consumer benefits specialist, who is assigned only to Project HEALTH participants, provides help in finding insurance coverage to the extent possible, among other responsibilities. Previously, many participants had no access to such assistance. In addition, the psychiatrist, PCP, and the consumer benefits specialist all identify the peer support specialists as a critical factor in the increasing and continued use of their services.

**11. How does this project address the concerns of access to mental/behavioral health care services in underserved areas? (Group-specific question)**

The pre-existing PATH program and mental health Wellness Center on the Haven for Hope campus has ensured that residents have a mechanism for accessing mental health services. However, keeping individuals engaged in these services when they are often consumed with seeking such basics as food and shelter has been difficult. Moreover, homeless individuals are often in desperate need of physical health services because access to such services is otherwise limited.

Project HEALTH addresses barriers to participants engaging in mental health services as well as the lack of access to primary care services. Project HEALTH participants are required to see the psychiatrist before being granted access to the often more desirable primary care services. (Exceptions are made for serious health issues.) The peer support specialists help participants become comfortable with using mental health services and work to maintain participant engagement with needed services.

More broadly, the presence of the peer support specialist team on the Haven for Hope campus is creating synergies between other existing programs and resources. Peers maintain a presence throughout the campus, and they often operate as a bridge between service programs that may have previously operated in a silo. Using peers through the Project HEALTH program is part of CHCS's shift toward adopting a recovery-oriented approach. The long-term goal is to create stronger linkages between the various services and programs offered on campus to improve the capacity for treating the individualized needs of homeless residents.



One possible weakness of Project HEALTH is the lack of directly accessible services to treat substance use, which is an issue for many program participants. Currently, individuals who need detoxification services are referred to a CHCS facility across the street, but these services have not been fully integrated into the Project HEALTH model.

### **C. Program effectiveness**

To the extent possible in future reports, we will calculate four standard outcome measures related to service use and cost for each awardee. We also will report on the extent to which the awardees' projects affected the use of other services (a group-specific question, as noted below). As of July 1, 2014, no quantitative data were available for these calculations. Unfortunately, we do not expect to be able to obtain data to support creation of these measures for CHCS. The vast majority of CHCS participants (71 percent) are not enrolled in Medicare nor Medicaid. Thus, CMS administrative data is not a viable source for these estimates for CHCS. Our investigation of alternative sources has identified substantial limitations associated with other potential sources. We include below summaries of the perceptions of project staff and key stakeholders, based on the analysis of qualitative data gathered during our site visits in spring 2014.

#### **1. To what extent did the program change charges and expenditures for all care in the target population? (RfTOP question 40)**

Because of limitations in access to data for CHCS' participants, we are not likely to obtain the quantitative data that we need to address this question (Table III.2).

#### **2. To what extent have rates of hospitalization changed? (RfTOP question 34)**

Staff believe that hospitalization use among Project HEALTH participants has decreased as a result of direct access to the on-campus PCP. However, we do not yet have quantitative data to address this question (Table III.3).

**Table III.2. Total FFS payment trends, baseline through intervention period - CHCS**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Spending rate per patient	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
Spending rate per patient	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in spending rate per patient	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
<b>Medicaid population</b>																
Treatment group																
Spending rate per patient	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
Spending rate per patient	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in spending rate per patient	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU

Notes: A data source sufficient to analyze these outcomes has not been identified. CMS administrative data are not a viable source for this analysis because there is low enrollment of individuals with Medicare and/or Medicaid and there are significant limitations to available MAX data for Texas as a result of incomplete reporting of managed care data. Overall CHCS is expected to enroll fewer than 100 Medicaid or Medicare insured participants.

DU = Data will be unavailable to support analysis.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**Table III.3. Inpatient hospital discharge trends, baseline through intervention period - CHCS**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Discharge rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
Discharge rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in discharge rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
<b>Medicaid population</b>																
Treatment group																
Discharge rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
Discharge rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in discharge rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU

Notes: A data source sufficient to analyze these outcomes has not been identified. CMS administrative data are not a viable source for this analysis because there is low enrollment of individuals with Medicare and/or Medicaid and there are significant limitations to available MAX data for Texas as a result of incomplete reporting of managed care data. Overall CHCS is expected to enroll fewer than 100 Medicaid or Medicare insured participants.

DU = Data will be unavailable to support analysis.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**3. To what extent have rates re-hospitalization changed? (RfTOP question 34)**

Staff believe that hospitalization use among Project HEALTH participants has decreased as a result of direct access to the on-campus PCP. However, we do not yet have quantitative data to address this question (Table III.4).

**Table III.4. Readmission rate trends, baseline through intervention period - CHCS**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Readmission rate	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Index stays	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
Readmission rate	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Index stays	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in readmission rate	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
<b>Medicaid population</b>																
Treatment group																
Readmission rate	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Index stays	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
Readmission rate	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Index stays	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in readmission rate	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU

Notes: A data source sufficient to analyze these outcomes has not been identified. CMS administrative data are not a viable source for this analysis because there is low enrollment of individuals with Medicare and/or Medicaid and there are significant limitations to available MAX data for Texas as a result of incomplete reporting of managed care data. Overall CHCS is expected to enroll fewer than 100 Medicaid or Medicare insured participants.

DU = Data will be unavailable to support analysis.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**4. To what extent have levels of ED utilization changed? (RfTOP question 33)**

Staff believe that ED use among Project HEALTH participants has decreased as a result of their direct access to the on-campus PCP. However, because of limitations in access to data for CHCS’ participants, we are not likely to obtain the quantitative data that we need to address this question (Table III.5).

**Table III.5. Emergency department visit trends, baseline through intervention period - CHCS**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
ED visit rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
ED visit rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in ED visit rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
<b>Medicaid population</b>																
Treatment group																
ED visit rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
ED visit rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in ED visit rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU

Notes: A data source sufficient to analyze these outcomes has not been identified. CMS administrative data are not a viable source for this analysis because there is low enrollment of individuals with Medicare and/or Medicaid and there are significant limitations to available MAX data for Texas as a result of incomplete reporting of managed care data. Overall CHCS is expected to enroll fewer than 100 Medicaid or Medicare insured participants.

DU = Data will be unavailable to support analysis.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**5. To what degree did these projects affect the utilization of other health care services (emergency care/crisis stabilization, outpatient care and inpatient care, for example)? (Group-specific question)**

Data to address this question are not available at this time.

**D. Workforce**

In this section, we address three questions related to roles, training, and retention.

**1. What types of roles were required for these innovations? (Question from domains framework)**

This project requires the following personnel (see Appendix G for additional information on these roles):

- Peer support specialists, who have a central role in coordinating physical and mental health care services for participants
- Community guest specialists, who enroll clients, link intervention-group clients to resources, and conduct client assessments at regular intervals
- Health navigators, who oversee the peer support and community guest specialists
- A PCP, LVN, and psychiatrist, who work closely with the peer support specialists and community guest specialists to coordinate client care through frequent email, phone, and in-person communication
- A consumer benefits specialist, who works to link clients to Social Security, Medicaid, and other programs.

The CHCS training team also provides education and training to all Project HEALTH workforce staff.

**2. How have rates of staff retention and turnover changed over the course of the intervention? (RfTOP question 84)**

CHCS reports staff turnover among the peer support and community guest specialists. Although turnover has required CHCS to reassign some cases and to make minor adjustments in the project workflow, dedication among staff in these positions and the high level of collaboration among team members has helped ensure continuity of service for Project HEALTH participants. The reasons for staffing turnover reported by CHCS include illness, injury, and mental health relapses.

**3. How does the staffing turnover rate of these personnel (patient navigators, peer support specialists) compare to those of other health care workers? (Group-specific question)**

Data to address this question are not available at this time.

**E. Context**

In this section, we address four questions related to leadership, organizational issues, and patient and stakeholder engagement.

**1. Was there a clearly designated champion or leader to oversee implementation? (RfTOP question 96)**

Most workforce respondents mentioned Teshina Hibler, the program administrator for Project HEALTH, as the primary leader of the innovation. They noted that her background, which includes experience in research, social work, and psychology, is well suited for managing a complex, innovative project. Staff feel that she demonstrates a great deal of confidence and trust in them, and that she supports them in their roles. As one respondent member of the workforce noted during a site visit interview, “We have the flexibility to do what works. If something isn’t working, we find flexible ways to address the problem. Teshina has the confidence in us and trust to make those decisions.” In July 2014 Teshina transitioned into a

more senior role at CHCS. Although she maintains general oversight of Project HEALTH, the new program administrator is April Biasioli.

Respondents also indicated that many members of the Project HEALTH team have made significant contributions to the project's implementation. For example, the health navigators have been instrumental in providing guidance to peer support specialists and community guest specialists, many of whom have had limited work experience, and in helping to establish a procedure for maintaining contact with the target population. Inasmuch as peer support specialists and community guest specialists are new positions, it has been important, staff noted, for them to have the flexibility to define and refine their responsibilities and approaches. In addition, some respondents noted that Alan Cross, the CHCS vice president, has played an important role in advocating for the project and helping integrate new staff into the existing Wellness Center.

**2. To what extent did organizational features support or conflict with implementation? (RfTOP question 104)**

Respondents generally viewed CHCS as supportive of the program and its goals. Some noted that CHCS views Project HEALTH as an important first step toward the ultimate goal of integrating physical health care as well as the peer support role into existing programs and services at CHCS. Both Project HEALTH leadership and CHCS have provided a great deal of training to support staff in their roles. However, lack of physical space has created difficulties, particularly for the peer support and community guest specialists, who share small work spaces with a limited number of computers and little privacy to make phone calls or meet with participants.

Members of the primary care team, who work in a converted clinic space, also noted that they have had to advocate for medical supplies in a facility where integration of physical health care is a new concept. In addition, CHCS's IT department is "understaffed and stretched," limiting its ability to integrate the new EMR system.

**3. To what extent did the program involve patients or patient representatives in planning and implementing the innovation? How has the need for innovation been communicated to them? (RfTOP question 97)**

CHCS staff indicated that they conducted meetings with members of the target population and used information from these meetings to shape the design of the model program. Input on the program is also solicited from participants and used to tailor procedures and protocols when necessary.

**4. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation? (RfTOP question 105)**

Steering committee members from diverse professional backgrounds were identified in the first quarter and invited to meet on a quarterly basis. In the second quarter, the Steering Committee met and reviewed the project methods, finalized the timeline, and approval and buy-in was obtained. The Committee met one last time in the third quarter where project updates and troubleshooting to barriers was discussed. Once the project launched, participation from Committee members gradually decreased.

Project HEALTH is operated in a single location—the Haven for Hope campus—and the only two currently active external stakeholders are Haven for Hope and CentroMed, an FQHC that operates several clinics (including the Sarah E. Davidson clinic on the Haven for Hope campus) throughout San Antonio that are intended to serve the city’s homeless population.

Members of the CHCS workforce have been instrumental in developing connections with community stakeholders to enhance the services provided to Project HEALTH participants. For example, one community guest specialist has worked with Project Mend, a local group that provides wheelchairs to people with medical impairments, to obtain wheelchairs, canes, and walkers for Project HEALTH participants with mobility impairments.



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## IV. THE FELTON INSTITUTE

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### A. Introduction

Staff at the Felton Institute (formerly the Family Service Agency of San Francisco) are using HCIA funding to expand a program known as Prevention and Recovery in Early Psychosis (PREP). PREP is an integrated outpatient treatment program that uses both medication and psychosocial interventions to stabilize and promote the remission of schizophrenia among individuals between the ages of 14 and 29. PREP services are delivered through an integrated health care workforce team that includes therapists, psychiatrists, psychiatric nurses, case aides, and employment and education specialists. The project's expanded driver diagram (see Appendix C) illustrates the context of the project, the strategies the staff are using to achieve its goals, and anticipated outputs, outcomes, and impacts.

PREP has been successfully implemented in three northern California counties—San Francisco, Alameda, and San Mateo—and the Felton-led team hopes to demonstrate the capacity to replicate and expand the model in two new counties—San Joaquin and Monterey—using HCIA funding. The PREP team aims to recruit about 110 participants in these two counties who have or are showing early symptoms of schizophrenia.

To prepare this annual report, we have drawn information from interviews conducted with key staff and other stakeholders during site visits in spring 2014. In addition, we have used quantitative data, including claims, administrative, or EMR data, if such data were available as of July 1, 2014 (the cut-off date for receipt of data files to allow us to conduct analyses that would yield findings for the first draft of the annual report, due on September 1). No data were available for Felton as of July 1, 2014. In the coming months, we anticipate receipt of intervention administrative data including information on participant demographics, intervention service receipt and health outcomes. We also expect to receive county mental health system claims data.

### B. Implementation effectiveness

In this section, we address 11 questions that cover several subdomains within the overall domain of implementation effectiveness including key components of the intervention (such as care coordination), intervention dosage, issues of conceptual drift, the reach of the intervention, and effects on access to care (as perceived by staff and key stakeholders).

#### 1. In light of the importance of coordinated care for individuals with serious behavioral health problems, how did these awardees address care coordination? (Question from domains framework)

The PREP program brings together a multidisciplinary team to address the broad range of health and social needs of each individual client. Each member of the PREP team represents a different specialty, and combined, the team itself operates as a mechanism for care coordination. To the extent possible, the PREP teams include individuals who live in the community, are knowledgeable about available resources and supports, and can link clients to services that are beyond the scope of PREP.

As a group, the program staff address service needs commonly associated with schizophrenia, such as medication management, behavioral health care, and family support and education. In addition, the team helps clients address other health and social needs, such as access to primary care, housing support, and mentoring. Staff meet to discuss each individual case, share notes and experiences, and identify the needs of each client.

**2. What specific components of care coordination do stakeholders believe are most important and effective? (Group-specific question)**

PREP is a team approach that aims to give the client and family a sense of “togetherness” in coping with the diagnosis and direct access to a range of resources. The PREP team provides a level of care coordination that for many clients and their families did not previously exist. In addition, the team believes that participating in PREP reduces the isolation that families of individuals with schizophrenia often report.

According to one PREP team member, “The feedback we get from families is, ‘Nobody else gave us any info.’ They are very appreciative of that. They walk out of here with a lot of information. Sort of like a survival guide. Often times they’ve had a bad experience with the preexisting system.”

**3. What are the components of the interventions as implemented by the awardees? (Question from Domains framework, RfTOP question 5)**

The PREP program involves eight critical components (see also Appendix F, which describes in detail the innovation components, associated workforce staffing for each, and the training this staff receive):

- Cognitive behavioral therapy (CBT) for early psychosis
- Multifamily psycho-education groups
- Algorithm-guided medication management for early psychosis
- Individual placement and support
- Motivational interviewing
- Structured interviewing using Structured Clinical Interview for DSM-IV(SCID) or Structured Interview for Prodromal Symptoms (SIPS)
- Cloud-based integrated reporting and charting environment (CIRCE)
- Cross-component staffing and training (including training in brief family-focused therapy and outreach strategies)

The first six components are evidence-based interventions that are not typically combined into a single overarching program, as PREP does. The intervention team selects and integrates these various components into a comprehensive treatment plan based on the needs of each client. The project relies on an electronic case management system (CIRCE) to support this work. In addition, all team members receive training in brief family-focused therapy.

The eight-member PREP team includes a psychiatrist, a nurse practitioner, three behavioral health therapists, an intake specialist, a case advocate/education/vocational specialist, and a family partner. A program manager supervises the workflow and aims to ensure seamless service delivery. There is one PREP team in each of the five counties, all of which receive remote support from a San Francisco-based clinical director, therapist trainer, and SCID trainer. Because enrollment in the two HCIA-funded counties is still relatively low, contracted county staff rather than full-time Felton employees provide the psychiatrist and nurse practitioner services.

Several components of the PREP initiative align with key concepts in the domains framework. These include the following:

- **Care coordination.** The members of PREP’s multidisciplinary team work together closely to develop and maintain an individualized care plan for each PREP participant. The care plan often covers needs beyond mental and behavioral health services to include primary care and social services.
- **Health information technology (IT).** PREP relies on its HIT system, CIRCE, to facilitate coordination of care and data collection for quality improvement. Felton has successfully coordinated with San Joaquin and Monterey Counties to allow for the exchange of information between CIRCE and the county health systems (Avatar in Monterey and Clinicians Gateway in San Joaquin). Clinical information can now be shared both ways for all clients enrolled in PREP.
- **Patient decision support or shared decision making.** The PREP team works closely with patients and their families throughout the treatment process by, for example, holding frequent meetings with them. According to one PREP therapist, “We do a lot of psycho-education about schizophrenia from the feedback sessions. We’re informing the client and the family about the SCID itself. We tell them how we arrived at the diagnosis.” The staff psychiatrist provides education on medications (even if the participant decides not to use the PREP psychiatrist as a prescriber).

#### 4. How much of each component was provided? (RfTOP question 6)

Felton supports a PREP team in each of the two HCIA-funded counties. The PREP teams are recognized by each county’s department of mental health, which operates a referral system that connects potential PREP participants with the local PREP team.

#### 5. What “dosage” of the innovation was delivered to participants? (RfTOP question 9)

Upon referral to PREP, a client goes through an initial assessment with the office intake specialist. One of the staff therapists then conducts a structured clinical interview to determine whether the individual meets the diagnostic eligibility criteria for PREP services.

The SCID is a lengthy process that allows the PREP therapist to engage with and learn about the client. A client who meets the eligibility criteria is eventually connected to all other members of the PREP team, including the case advocate, who provides education- and vocation-related services, the family partner, who provides support services to the individual and his or

her guardian and family members, and the staff psychiatrist or nurse practitioner, who provide medication management.

The PREP program includes an extensive process for confirming the diagnosis that includes coming to consensus with the San Francisco-based training team. Once the diagnosis is established, the program engages the client and the family in understanding the disease and being active participants in establishing a long-term plan for independence.

Medication management is an important component of the PREP program because it relies on a specific algorithm designed to identify an individualized approach to which the individual can adhere over the long term. Even those few clients who do not wish to transfer their medication management to the PREP program will continue to meet with the psychiatrist, in the hope that over time such a transfer will take place. According to one PREP psychiatrist, “We do a lot of education about medication, side effects, and support their process in PREP. I try to empower my patients to be in charge of their health care. And that they’re more than just schizophrenia.”

**6. Overall, during implementation, how much did projects “drift” from the original model? (Question from domains framework)**

The model being implemented in San Joaquin and Monterey counties has benefited from Felton’s successful operation of PREP programs in three other northern California counties. Experience in implementing and operating these other programs has allowed the Felton team to refine the model ahead of the HCIA-funded expansion. As a result, there have been few deviations from the model proposed in the HCIA application. Geographic and demographic differences between the two HCIA-supported counties and the three counties with previously existing PREP programs have, however, introduced some challenges for the team.

Because the two HCIA-supported counties are a significant distance from San Francisco, where the Felton leadership and the critical training and support teams are based, county PREP staff rely heavily on telehealth systems to communicate with the training team. Interaction between the two teams is essential because the lengthy diagnostic process includes agreement among staff and the SCID supervisors based in San Francisco. Staff use an advanced visual communication system for weekly case review meetings. Although respondents in the field would prefer more direct access to training staff, the distance does not seem to be a major challenge or barrier to implementation.

The unique landscape of the two HCIA-funded counties—both are far more rural and geographically diverse than the three original urban counties—has also presented new implementation challenges for Felton. Both HCIA-supported counties cover large areas, and the population is more spread out, particularly in Monterey. A lack of transportation options in large rural areas in both San Joaquin and Monterey counties has become a major barrier, preventing clients from getting to PREP offices easily. While Felton has contracted with a vendor to provide van service in San Joaquin County, it has not been able to secure funding for that purpose in Monterey County. The Felton team is continuing to explore funding options and methods for providing care using telehealth technology. In the meantime, staff in the HCIA-funded counties are spending a larger proportion of time in the field, driving to clients’ homes and other meeting areas, than staff in the original three counties.

Finally, the demographics of the populations in the two HCIA-funded counties differ from those in the first three counties, with a larger proportion of people with low incomes in the former. PREP leadership explains, “More people than we expected are dealing with issues of poverty. It took us by surprise that we needed to do more services outside of schizophrenia. Now we’re getting more people who need more social services than we’re used to.” The Felton team has been responsive to these needs by staffing the PREP teams with members of the local communities who know what resources are available and how to connect clients with social services.

**7. How well did providers and sites adhere to planned procedures (including, as appropriate, procedures for customization)? (RfTOP question 12)**

As noted, the PREP program being implemented in the HCIA-funded counties is designed to model those existing in the original three counties. The local PREP teams have had to make adjustments based on the unique landscape of each county. The PREP model embraces the notion of bringing services to the individual, as opposed to the treatment-as-usual approach that requires a client to come to an office for all treatment. PREP leadership explains, “We’re not trying to make all of the sites the same. There are certain lessons we’re learning from each. There is a model. There might be one that works for city, one for rural, and one for those who want to be trained and then to do their own work. There’s a lot of different ways.”

**8. What is the target population and how many participants were reached? (RfTOP questions 15 and 16)**

The qualitative component of the HCIA evaluation will be limited to the two HCIA-funded counties where the PREP team aimed to start the SCID assessment process with approximately 110 individuals, most of whom will be deemed eligible for PREP services. By the end of the eighth quarter, the total number of clients served by the San Joaquin or Monterey PREP teams was 115 (57 in Monterey and 58 in San Joaquin), thus surpassing the target. However, the SCID assessment process can take several months to complete; at the end of this process, some individuals will be deemed ineligible for PREP services (that is, they will not be found to have the necessary diagnosis). Felton has estimated that at least three-quarters of those who begin the assessment will ultimately be eligible for services. The quantitative component of this evaluation will focus only on those eligible for PREP services.

Recruitment was initially slow in both counties, but picked up significantly in the sixth quarter. The initially slow uptake in referrals is a reflection of the time needed to establish the necessary county referral systems. In the seventh quarter, San Joaquin County began receiving referrals through the county crisis mobile response team, which works with patients entering and exiting county hospitals. This is expected to further increase referrals. In addition, Monterey County has successfully established a satellite office in its more rural southern part, broadening the program’s reach.

**9. To what extent was implementation timely and responsive to site-level constraints? (RfTOP question 17)**

Felton staff were unable to draw down CMS funds until December 2012, resulting in early implementation delays. In addition, because of slow growth in enrollment—which Felton attributes to the time necessary to establish referral systems—staff hiring has been gradual. Both

PREP programs are still contracting with the counties for psychiatrists and nurse practitioners. As enrollment continues to increase, however, these will become full-time positions.

**10. Does the incorporation of PREP increase access to health care services for patients in this group? (A group-specific question)**

PREP engages individuals in early stages of schizophrenia, many of whom would not otherwise be receiving any treatment. According to project staff, the program appears to increase access to a range of health care services by bringing these individuals into the health and mental health system on a consistent basis. Quantitative data related to the extent of this increase are unavailable at this time.

**11. How does this project address the concerns of access to mental/behavioral health care services in underserved areas? (A group-specific question)**

The evidence-based treatments provided to PREP clients are not consistently practiced in the larger field of mental health. Felton leadership noted during a site visit interview, “The system is still stuck in the family doctor model where you have one therapist to treat all illnesses. There is a standard feeling in the world that if these folks just take their meds, they’ll be fine. There’s a consensus among researchers in the field that this isn’t true. The problem is that these folks are overmedicated. We’ve developed a regimen that keeps schizophrenia in remission so that folks can actually live a quality life.”

**C. Program effectiveness**

We eventually will report four standard outcome measures related to service use and cost if we are able to obtain appropriate quantitative data. We also will report on the extent to which the awardees’ projects affected the use of other services (a group-specific question, as noted below). As of July 1, 2014, no quantitative data were available for these calculations. We anticipate that county mental health system data will be available in the future to address these evaluation questions for Medicaid enrolled participants. Felton has not enrolled Medicare covered individuals. Felton will not provide participant identifiers and no comparison group will be developed. Individuals meeting the eligibility criteria for the intervention will be tracked prior to and following the intervention in the intervention counties. We include below summaries of the perceptions of project staff and key stakeholders, based on the analysis of qualitative data gathered during our site visits in spring 2014.

**1. To what extent did the program change charges and expenditures for all care in the target population? (RfTOP question 40)**

Data to address this question are unavailable at this time (Table IV.1).

**2. To what extent have rates of hospitalization changed? (RfTOP question 34)**

Although staff believe rates of hospitalization and rehospitalization will decrease, this question can be better addressed when quantitative data become available (Table IV.2).

**Table IV.1. Total FFS payment trends, baseline through intervention period - Felton**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Spending rate per patient	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
Spending rate per patient	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in spending rate per patient	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Medicaid population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in spending rate per patient	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU

Source: Mathematica analysis of county mental health system data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

DU = Data will be unavailable to support analysis.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**Table IV.2. Inpatient hospital discharge trends, baseline through intervention period - Felton**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Discharge rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
Discharge rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in discharge rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Medicaid population</b>																
Treatment group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Discharge rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in discharge rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU

Source: Mathematica analysis of county mental health system data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

DU = Data will be unavailable to support analysis.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.



### 3. To what extent have rates of rehospitalization changed? (RfTOP question 34)

Although staff believe rates of hospitalization and rehospitalization will decrease, this question can be better addressed when quantitative data become available (Table IV.3).

**Table IV.3. Readmission rate trends, baseline through intervention period - Felton**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Readmission rate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Index stays	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
Readmission rate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Index stays	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in readmission rate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Medicaid population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Index stays	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in readmission rate	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU

Source: Mathematica analysis of county mental health system data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

DU = Data will be unavailable to support analysis.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

#### 4. To what extent have levels of ED utilization changed? (RfTOP question 33)

Although staff believe emergency department (ED) utilization will decrease, this question can be better addressed when quantitative data become available (Table IV.4).

**Table IV.4. Emergency department visit trends, baseline through intervention period - Felton**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
ED visit rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
ED visit rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in ED visit rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Medicaid population</b>																
Treatment group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in ED visit rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU

Source: Mathematica analysis of county mental health system data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

DU = Data will be unavailable to support analysis.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**5. To what degree did these projects affect the utilization of other health care services (that is, emergency care/crisis stabilization, outpatient care and inpatient care)? (A group-specific question)**

Data to address this question are unavailable at this time.

**D. Workforce**

In this section, we address three questions related to roles, training, and retention.

**1. What types of roles were required for these innovations? (Domains framework)**

Each county PREP team consists of eight members (see also Appendix G for additional information on these roles):

- A psychiatrist and a nurse practitioner, who address medical and prescription needs
- Three behavioral health therapists
- An intake specialist
- A case advocate/education/vocational specialist
- A family partner

Together, the PREP team members address the full range of health and social needs of their clients. Each team also has a program manager who supervises the workflow and aims to ensure seamless service delivery. All five county PREP teams receive remote support from the UCSF-affiliated clinical director, her team of therapist trainers, and SCID trainers.

Training is a significant component of PREP implementation. According to a senior staff member at Felton, “Merely training staff does not have an impact on the nature of practice. Everything we do, we do to fidelity. That means after you train, you submit tapes. You have to be able to demonstrate to an experienced practitioner that you are able to do it to fidelity in a stable, ongoing way. The hardest part is CBT for psychosis. There are people who never make it to fidelity and we ask them to leave.”

**2. How have rates of staff retention and turnover changed over the course of the intervention? (RfTOP question 84)**

Turnover is an ongoing challenge for the PREP program, in part because the advanced and specialized training provided to staff is an attractive asset to larger employers who can lure trained PREP employees away with offers of higher salaries. In addition, original plans to hire a SCID supervisor for each site both to provide supervision and conduct SCIDs had to be abandoned because of difficulty in hiring clinicians trained in SCID. Felton has instead had to hire consultants to provide supervision remotely, with members of the local PREP teams conducting SCIDs.

**3. How does the staffing turnover rate of selected occupations (patient navigators, peer support specialists) compare with those of other health care workers? (A group-specific question)**

Data to address this question are unavailable at this time.

**E. Context**

In this section, we address four questions related to leadership, organizational issues, and patient and stakeholder engagement.

**1. Was there a clearly designated champion or leader to oversee implementation? (RfTOP question 96)**

Workforce respondents in the San Joaquin office feel the associate director who oversees the HCIA-funded site operations has been an effective leader, providing steady guidance and support as the teams began to implement the new programs. Respondents also note the devotion of the senior management team at Felton, underscoring their passionate commitment to the population being served. Finally, staff express high regard for the clinical director who oversees the extensive training program they must go through.

**2. To what extent did organizational features support or conflict with implementation? (RfTOP question 104)**

Felton operates the PREP program in collaboration with the local county mental health department. Prior to its implementation, the county had few resources and options for effectively treating the target population. Individuals who develop full-blown schizophrenia often rely on a range of costly health and social services. The PREP model is appealing to counties because it targets individuals who have yet to develop full-blown schizophrenia and works with them to control symptoms and develop long-term plans for independence and well-being. If it can continue to prove the effectiveness and cost-effectiveness of the PREP model, Felton believes other counties will adopt similar programs.

**3. To what extent did the program involve patients or patient representatives in planning and implementing the innovation? How was the need for innovation communicated to them? (RfTOP question 97)**

The information gathered to date provides no indication that patients or patient representatives were involved in the plan for implementing PREP in the two HCIA counties. Community outreach is a core component of PREP implementation, however. Staff spend significant time developing and conveying a culturally targeted message of hope to families, medical and mental health practitioners, and community-based social service organizations. PREP staff continually engage with the local community of schools, advocacy groups, and other nonprofit entities to spread the word that schizophrenia is an illness that can be treated effectively.

**4. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation? (RfTOP question 105)**

Success of the PREP program has relied heavily on collaboration with two key stakeholders: the UCSF-affiliated training team and the local county mental health departments. Felton has relied heavily on the UCSF-affiliated clinical training director to develop the evidence-based practice trainings that comprise the PREP program. In anticipation of further PREP expansion, and with the expectation that the UCSF-affiliated staff will not be available indefinitely, Felton has begun to invest in developing a sustainable training mechanism.

Additionally, the PREP program depends on support from the five county mental health departments. Senior management at Felton has devoted substantial resources to extensive outreach efforts designed to obtain “buy-in” from these departments. Felton hopes that, after the HCIA funding is over, the counties will absorb the program into their departments, as has been the case in the original three counties. The Felton team recognizes this step will require sufficient evidence of the cost-effectiveness of the PREP program.

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## V. FEINSTEIN INSTITUTE FOR MEDICAL RESEARCH

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### A. Introduction

Staff at the Feinstein Institute for Medical Research are using HCIA funding to implement the Improving Care–Reducing Costs (ICRC) project, which aims to improve disease management and care for individuals with schizophrenia, schizoaffective disorder, or psychotic disorder not otherwise specified who are at risk for rehospitalization. The project’s health technology program uses innovative technologies for patients and providers, such as an interactive smartphone application and web-based psychotherapy and psycho-education, to improve patient care. The Feinstein Institute is implementing its program in 10 community mental health centers in eight states.

To facilitate patients’ use of these technologies, the ICRC project trains and deploys a new cadre of health care workers—mental health/health technology case managers—who in turn provide training and ongoing support to patients during the six-month treatment period. Ultimately, the Feinstein Institute hopes to improve the use of health information technology, provide better health care to and improve the mental health status of participating patients, and decrease the cost of health care. The project’s expanded driver diagram (see Appendix C) illustrates its context, strategies for achieving its goals, and its anticipated outputs, outcomes, and impacts.

To prepare this annual report, we have drawn information from interviews conducted with key staff and other stakeholders during site visits in spring 2014. In addition, we have used quantitative data, including claims, administrative, or EMR data, if such data were available as of July 1, 2014 (the cut-off date for receipt of data files to allow us to conduct analyses that would yield findings for the first draft of the annual report, due on September 1). No data were available from Feinstein as of July 1, 2014. In the coming months, we anticipate receipt of intervention administrative data including information on participant demographics, intervention service receipt and health outcomes. We also expect to receive participant identifiers that can be used to extract CMS program enrollment and claims data for participants.

### B. Implementation effectiveness

In this section, we address 11 questions that cover several subdomains within the overall domain of implementation effectiveness including key components of the intervention (such as care coordination), intervention dosage, issues of conceptual drift, the reach of the intervention, and effects on access to care (as perceived by staff and key stakeholders).

#### 1. In light of the importance of coordinated care for individuals with serious behavioral health problems, how did these awardees address care coordination? (Question from domains framework)

The ICRC project coordinates care through the mental health/health technology (MH/HT) case manager role. The MH/HT case managers meet with patients throughout the program to develop and implement a relapse prevention plan, train patients on the use of program technologies, and help them troubleshoot their use of technologies.

At some sites, MH/HT case managers also carry out traditional case management activities. One program leader describes the role as entailing “a combination of case management and light therapy” (for example, motivational interviewing). At many sites, MH/HT case managers are involved in the initial meetings with patients prior to enrollment in the program. One on-site project director notes that part of the role calls for “helping patients to make the transition [out of the hospital] and help[ing] them get into the clinic.”

## **2. What specific components of care coordination do stakeholders believe are most important and effective? (Group-specific question)**

Program leaders, on-site project directors, and frontline staff at participating sites highlight the MH/HT case manager role as key to program implementation. According to one program leader, MH/HT case managers not only help the patient develop a relapse prevention plan, they “really try to get [the patients] to use it, learn from it, take from it what they like, and use it to stay out of the [emergency department].” Staff at participating sites describe MH/HT case managers as the individuals responsible for engaging patients by helping them identify personal goals to work toward through the program. One on-site project director notes that, after the initial sessions with the MH/HT case manager, “patients come out with a relapse prevention plan that they really own.” Another describes how the MH/HT case manager works with other ICRC program staff at the site to discuss patients’ relapse prevention plans and brainstorm ideas for how individual patients might benefit from the program’s technologies. The project director notes that while the program team develops ideas for patient relapse prevention plans, the MH/HT case manager is the person who “broaches the idea with [the patient]” and works with the patient to “make it happen.”

## **3. What are the components of the intervention as implemented by the awardees? (RfTOP question 5)**

The ICRC project has seven key components (see Appendix F, which describes the components in detail, the associated workforce staffing for each, and the training these staff receive):

- MH/MT case managers to provide patients with case management and training on the use of the technologies
- Brief, in-person relapse prevention counseling to support the patient’s development and implementation of a relapse prevention plan and provide a framework for the use of the technologies
- An electronic prescriber decision assistant to facilitate communication between prescribers and their patients and support evidence-based medication decisions
- The FOCUS smartphone application to support patient progress toward goals related to medication adherence, sleep, coping skills, socializing, and improvements in daily functioning
- Web-based cognitive behavioral therapy programs to target auditory hallucinations and paranoia



- The Daily Support Website to provide online psycho-education and web- and phone-based resources to patients and their families
- A Proteus ingestible sensor and personal monitor to track and transmit information about patient medication levels, rest, and physical activity

Several components of the Feinstein Institute’s initiative align with the CMS domains framework:

- **Workflow redesign.** The participating sites are adapting their clinical workflow to include the MH/HT case manager role. This workflow happens differently across sites. At some sites that did not have staff case managers previously, the MH/HT case managers are responsible for providing patients with traditional case management services (for example, helping them secure housing). In others, the MH/HT case managers work with existing case management staff to coordinate patient care; in these settings, the MH/HT case manager primarily focuses on providing relapse prevention counseling and training patients on the use of the program’s technologies. Site staff report that these MH/HT case managers coordinate frequently with patients’ existing case managers. For example, if a patient needs housing assistance, the MH/HT case manager might contact the existing case manager to let him or her know the patient raised this issue during the session, and also let the patient know that the existing case manager will follow up on this need. MH/HT case managers obtain patient consent to reach out to existing case managers at the beginning of the program to enable this care coordination.
- **Patient decision support.** As indicated above, several of the ICRC program components provide decision support to patients. During relapse prevention counseling sessions, patients work with MH/HT case managers to develop a personalized relapse prevention plan to prevent rehospitalization. Through the FOCUS smartphone application, patients receive daily alerts prompting them to engage in an exercise to improve at least one of five domains related to recovery (symptom management, mood regulation, medication adherence, social functioning, or sleep) that they have selected to target. Once in the application, the patient responds to questions about the targeted domains and receives concrete behavioral suggestions related to their responses. Patients also access decision support tools through the Daily Support Website, such as online support groups for patients and their family members and “ask an expert” forums monitored by two therapists.
- **Shared decision making.** The prescriber decision assistant promotes shared decision making in the management of psychiatric medication by enhancing patient-prescriber communication regarding symptoms and medication preferences. Prior to each session with the prescriber, the patient completes an online survey of 38 questions on symptoms, side effects, medication adherence, and preferences for continuing the medication. The patient’s responses are then integrated into the prescriber’s online assessment tool, which prompts the prescriber to follow up with the patient on the responses. After the prescriber completes the assessment, the prescriber decision assistant offers medication recommendations and suggestions for the patient’s use of program technologies.

#### **4. How much of each component was provided? (RfTOP question 6)**

The Feinstein Institute is implementing its ICRC program at 10 community mental health centers in eight states (Florida, Indiana, Michigan, Missouri, New Hampshire, New Mexico, New York, and Oregon)<sup>7</sup>. Patients are enrolled in the program for six months. In addition to the components of the health technology program, Zucker Hillside Hospital plans to provide the Proteus ingestible sensor and personal monitor to 100 patients.

#### **5. What “dosage” of the innovation was delivered to participants? (RfTOP question 9)**

Prescribers report meeting at least monthly with patients enrolled in the program to manage psychiatric medication; these sessions take approximately one hour (45 minutes with the prescriber, and 15 minutes to do the vital signs and patient portion of the PDA) and are longer and more thorough than traditional medication management visits.

MH/HT case managers report they initially meet with patients weekly or bi-weekly for two to three months to conduct relapse prevention counseling. After they have developed relapse prevention plans together (incorporating the program technologies as appropriate), patients meet with their care managers less frequently for maintenance and follow-up. As the patients near the end of the program, case managers work with them to develop transition plans in preparation for leaving it. According to MH/HT case managers, appointment length varies based on the content of the session, ranging from 30 to 90 minutes.

#### **6. How well did providers and sites adhere to planned procedures (including, as appropriate, procedures for customization)? (RfTOP question 12)**

As part of the implementation, Feinstein Institute staff and the researchers who developed the program’s technologies are working to improve the program continuously through “rapid-cycle learning.” For example, they have made several improvements to the relapse prevention counseling process as a result of an initial pilot program (including interviews with patients) and early implementation feedback. Specifically, the team has:

- Changed the terminology used in relapse prevention counseling handouts
- Split the first session into two sessions and given case managers more flexibility in structuring relapse prevention planning activities
- Provided training and guidance on how to help patients tie the relapse prevention plan (and associated use of technologies) to personal goals
- Added prompts to relapse prevention counseling handouts to encourage side-by-side learning (demos) with patients
- Developed guidance on how to work with patients to plan for transitioning out of the program

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<sup>7</sup> The health technology program refers to the interventions available as appropriate to patients at all participating sites: the prescriber decision assistant, web-based cognitive behavioral therapy, FOCUS smartphone application, daily support website, and relapse prevention counseling. (See Appendix F for additional information.)

Case managers welcome these revisions to the relapse prevention counseling process, noting that they have helped improve patients' use of some of the technology components (FOCUS smartphone application, Daily Support Website). One researcher indicated that relapse prevention counseling has evolved from a single, contained component of the program to become "the glue around patient engagement, tying and linking all of the [other Health Technology Program] components together."

Based on early implementation experiences, Feinstein Institute staff and researchers also have made changes to workforce training activities. For example, researchers suggested splitting each bi-weekly telephone conference (which provides training for MH/HT case managers) into two smaller-group conferences to allow increased interaction among participants. In the smaller groups, trainers are able to emphasize role plays and other interactive activities.

**7. Overall, during implementation, how much did projects "drift" from the original model? (RTI framework)**

Staff at the Feinstein Institute and participating sites report that, with the exception of the Proteus ingestible sensors and personal monitors, the program's components are being implemented as planned. The program has not yet started implementing the ingestible sensors and personal monitors as planned at Zucker Hillside Hospital, but expects to begin implementation in the next quarter of the program (July – September 2014); the reasons for this delay are discussed below (Question D.2).

In addition to the adaptations made through the rapid-cycle learning process, the Feinstein Institute has modified criteria for program participation, extending the age range to 60 (from 50) years and adding an additional psychiatric diagnosis (psychotic disorder not otherwise specified).

**8. What is the target population, and how many participants were reached? (RfTOP questions 15 and 16)**

Through the ICRC project, the Feinstein Institute plans to enroll 770 Medicaid-eligible or uninsured individuals ages 18 to 60 who have a recent history of hospitalization and have been diagnosed with schizophrenia, schizoaffective disorder, or psychotic disorder not otherwise specified. As of June 2014, the ICRC project had served 310 unique patients across the 10 participating sites.

**9. To what extent was implementation timely and responsive to site-level constraints? (RfTOP question 17)**

Feinstein Institute staff received notification of the award later than anticipated, resulting in delayed initiation of patient recruitment. Once notified, ICRC program staff worked quickly with each site to develop recruitment plans and outreach materials. The project team is now implementing the health technology program components at all 10 participating sites.

Feinstein Institute staff report that implementation of the Proteus ingestible event monitor and personal monitor—intended to be delivered to 100 patients at one site, Zucker Hillside Hospital—has been delayed by challenges to obtaining the technology central to this component. Staff report that Proteus is developing a new generation of the technology, and it doesn't want the Institute to use the older generation (although the Institute is willing). Also, the company has

signed an exclusive agreement with another company, so the Feinstein Institute must now work through that company. Program staff have received training on the use of the ingestible sensors and personal monitors; the program plans to begin implementing these technologies in the next quarter of the program (July – September 2014).

The MH/HT case manager role is customized to fit the needs of the sites where the program is being implemented. For example, in New York, where case management is not reimbursable, clinics have not previously had case managers. HCIA-funded MH/HT case managers therefore carry out more traditional case management activities in these settings, in addition to providing relapse prevention counseling and patient education on health technologies. At other sites that use existing case management staff to provide the more traditional activities, MH/HT case managers focus specifically on relapse prevention counseling and health technologies. Case managers at different sites report meeting with patients in different settings; some conduct most of their work in the patients' homes or in the community, others primarily meet with the patients in the office, and others do both, based on the type of activity (relapse prevention counseling in the office, activities involving technology in the home). Some sites try to introduce the case manager to the patient during the initial contact (prior to enrollment), while others wait until the patient is enrolled.

**10. Does the incorporation of patient navigators/peer support specialists increase access to health care services for patients in this group? (A group-specific question)**

Data to address this question are not available at this time.

**11. How do these projects address the concerns of access to mental/behavioral health care services in underserved areas, that is, rural areas and low-income areas? (A group-specific question)**

The ICRC program does not focus specifically on improving access to services in underserved areas, although its participants may live in areas that include a large proportion of low-income residents. The program does not enroll people who are unable to travel to the participating clinics.

**C. Program effectiveness**

To the extent possible in future reports, we will calculate four standard outcome measures related to service use and cost. We also will report on the extent to which the awardees' projects affected the use of other services (a group-specific question, as noted below). As of July 1, 2014, no quantitative data were available for these calculations. In the future, we expect to receive participant identifiers that can be used to develop these measures in the CMS administrative data files. We also expect that a matched comparison group can be developed in the CMS administrative data. We include below summaries of the perceptions of project staff and key stakeholders, based on the analysis of qualitative data gathered during our site visits in spring 2014.

**1. To what extent did the program change charges and expenditures for all care in the target population? (RfTOP question 40)**

Currently available data do not allow us to address this question at this time (Table V.1).

**Table V.1. Total FFS payment trends, baseline through intervention period - Feinstein**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**2. To what extent have rates of hospitalization changed? (RfTOP question 34)**

Staff report hearing about or perceiving a reduction in hospitalization among ICRC participants compared with those not receiving ICRC services. Some respondents attribute this perceived reduction to closer case management that helps prevent decompensation (Table V.2).

**Table V.2. Inpatient hospital discharge trends, baseline through intervention period - Feinstein**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**3. To what extent have rates of rehospitalization changed? (RfTOP question 34)**

Staff report hearing about or perceiving a reduction in rehospitalization among ICRC participants compared with those not receiving ICRC services. Some respondents attribute this perceived reduction to closer case management that helps prevent rapid decompensation and permits early intervention after a hospital discharge (Table V.3).

**Table V.3. Readmission rate trends, baseline through intervention period - Feinstein**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**4. To what extent have levels of ED utilization changed? (RfTOP question 33)**

Based on their observations and discussions with participants, staff report reductions in emergency department use among ICRC participants compared with those not receiving ICRC services. Some respondents attribute this perceived reduction to closer case management that helps prevent symptoms from worsening. ICRC participants also appear to be utilizing the smartphone and other technology applications in lieu of calling emergency services (Table V.4).

**Table V.4. Emergency department visit trends, baseline through intervention period - Feinstein**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.



**5. To what degree did these projects affect the utilization of other health care services (that is, emergency care/crisis stabilization, outpatient care, and inpatient care)? (A group-specific question)**

The ICRC program has increased intermediate-level care options available to eligible participants. In the past, one respondent notes, individuals well enough to be discharged from an inpatient facility but still too sick to be in the community might be referred to a day or partial hospitalization program. Hospital discharge planners now are referring these patients to the ICRC program because of the enhanced level of contact and monitoring the program provides.

Based on observations and conversations with participants, staff report a reduction in emergency department use and hospitalization or rehospitalization among ICRC participants compared with those not receiving ICRC services. As indicated above, some attribute this to closer case management that helps participants obtain services before symptoms deteriorate significantly. ICRC participants also appear to be using the health technology program tools in lieu of calling emergency services.

At some participating ICRC sites, a participant may have both a program case manager (MH/HT case manager) and an existing case manager who provides more traditional case management services. Several respondents mention that ICRC participants are connecting more readily with their existing case managers as a result of the ICRC program.

**D. Workforce**

In this section, we address three questions related to roles, training, and retention.

**1. What types of roles were required for these innovations? (Question from domains framework)**

The ICRC program is implemented at each participating mental health site by the following individuals (see also Appendix G for additional information on these roles):

- A site project director, who is responsible for the oversight of the ICRC program and supervision of case managers at a given participating site, as well as patient recruitment and enrollment
- One or two prescribers, who prescribe and monitor psychiatric medications using the PDA application
- One or two MH/HT case managers, who provide case management and care coordination, relapse prevention counseling, and education to support patients' use of the program's health technology components and coordinate with prescribers on patient care

Researchers who developed the health technology components of the program train and support the teams at each site, and online therapists oversee and monitor patient and family support groups on the daily support website and conduct introductory phone calls with patients to orient them to the website.

**2. How have rates of staff retention and turnover changed over the course of the intervention? (RfTOP question 84)**

The Feinstein Institute maintained 100 percent staff retention in the fifth and sixth quarters—the first two quarters in which retention was reported. The rate dropped to 92.9 percent after the loss of a staff member in the seventh quarter, but returned to 100 percent in the eighth quarter.

**3. How does the staffing turnover rate of selected personnel (patient navigators/peer support specialists) compare with those of other health care workers? (A group-specific question)**

Data to address this question are unavailable at this time.

**E. Context**

In this section, we address four questions related to leadership, organizational issues, and patient and stakeholder engagement.

**1. Was there a clearly designated champion or leader to oversee implementation? (RfTOP question 96)**

Staff identify champions at various leadership levels throughout the program. At the site level, many mention their site's project director as champion of the program, a sentiment reflected by ICRC program leadership. Leadership also mention that a site's success with the program partly depends upon the strength of project leadership there. According to program leadership, sites that appear to have good leadership and accountability structures seem to do better.

At the program leadership level, many staff indicated that having John Kane as the project's principal investigator is an asset. One respondent noted that "if there's a program that [John Kane is] doing, people are going to want to be involved and make every accommodation to make it happen." Similarly, respondents perceive the developers of the specific components of the ICRC program as experts or leaders in their respective fields, which many note as a particular strength of the program. In addition, staff underscore the ability of this cadre of program developers both to create new technologies or therapeutic components and be skilled at providing training to the clinicians implementing them as unique and valuable.

A number of respondents feel particularly well supported by the leadership team implementing the ICRC program as compared with other research projects with which they have been involved. Most staff indicate that leadership accepts feedback and promptly and readily answers questions when they arise, thus reinforcing a sense of support. Program staff describe project leadership as positive and encouraging, which helps them navigate the challenges they encounter.

**2. To what extent did organizational features support or conflict with implementation? (RfTOP question 104)**

The Feinstein Institute is the research division of North Shore LIJ Health System, the second largest health system in the country. Program leadership at the Institute brings to bear significant

experience conducting schizophrenia and relapse prevention research as it implements the ICRC program. Leadership drew on professional and research networks, for example, to learn about innovative technologies that might be a good fit for the program. The program also integrates an array of standalone technologies and practices that often have not previously been used in conjunction with other technologies.

Program leadership mentioned that collaboration among the various technology developers required a “learning process” and working through “ownership tension,” as the developers were not accustomed to working collectively to provide a package of complementary services. Feinstein staff also must contend with technology delays, such as the Proteus delays mentioned above, when multiple developers are involved.

The Feinstein Institute selected the 10 participating mental health sites from among the top performers in a large schizophrenia research project the organization implemented several years ago. Staff therefore had the benefit of leveraging preexisting relationships with sites already familiar with the organization and its research practices. This history of partnering provided a “leg up” on the initial program implementation. Past work with the sites involved also gave project leadership a sense of the sites’ characteristics and capacity to engage successfully in the ICRC program.

The participating community mental health centers vary widely in terms of characteristics and affiliations. For example, Zucker Hillside Hospital, North Shore’s behavioral health center, prioritizes research and teaching in addition to clinical practice, whereas other sites primarily provide clinical services. Staff at Zucker Hillside Hospital suggest participation in a program like the ICRC program may be more difficult for community mental health centers that do not traditionally engage in research because of associated constraints on budgets and staff time. This concern is not often reflected, however, in comments by staff from participating sites.

Site characteristics also play a role in the success of patient recruitment and enrollment. For example, sites have varying levels of integration with inpatient facilities. Clinics affiliated with inpatient units appear to have more access to potential enrollees than those that do not. One site, for instance, is part of the main psychiatric hospital in the area, so information regarding patients on its inpatient unit who may meet program criteria is readily available. Other sites must conduct more extensive outreach to receive referrals and recruit participants from local hospitals and other external providers.

Variation in billing practices, funding mechanisms, and the culture of mental health systems across states also can present implementation challenges. Staff note, for example, that Medicaid reimbursement for certain services in one state and not another forces the program’s structure to be flexible. Local and agency support for the program and flexibility and willingness among site leadership to absorb program costs also appear to be important facilitators of implementation. One local mental health authority, for instance, is providing funding to support half of the time of the MH/HT case managers at a participating community mental health center. Another site required support from practice leadership to allocate additional resources to the project when initial allocations were not adequate.

Program leadership mentioned that taking on major new activities, such as participating in a program like ICRC, is not feasible for organizations that have major financial challenges. Staff noted that some systems and organizations, such as the sites participating in the ICRC project, have the desire and resources to implement innovative programs; may other organizations would be unable to accommodate such a program.

**3. To what extent did the program involve patients or patient representatives in planning and implementing the innovation? How was the need for innovation communicated to them? (RfTOP question 97)**

Program leadership invited feedback and input from consumer representatives, such as leadership at the National Alliance on Mental Illness (NAMI). Leadership also conducted “feedback interviews” with patients as part of the pilot program at Zucker Hillside Hospital. Patients provided input on the technologies and clinical components of the program, as well as various terminologies used in the program. Program leadership incorporated this feedback as they adjusted the program implementation procedures.

**4. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation? (RfTOP question 105)**

In the process of developing the program, leadership engaged a group of stakeholders with which they had interacted in other capacities in the past. Engagement with existing professional networks proved critical to the discovery of some of the technologies included in the innovation. Similarly, feedback on program plans was solicited from close colleagues, including, for instance, individuals who represent state medical directors. Representatives from potential participating sites were included on the program planning team and have remained engaged through opportunities to provide feedback as the program is implemented. Respondents also noted often that previous collaborations with participating sites helped smooth the early implementation process.

Participating sites primarily seek buy-in from local stakeholders to obtain referrals and boost enrollment. Some sites meet regularly with local organizations and providers to ensure a consistent flow of referrals from inpatient units. One site staff member noted, “It’s all about trust—they [inpatient staff] need to know that you are going to be reliable, that the patient is going to be engaged in the program, and that it is going to work. Building that trust helps establish this program as an option for treatment after discharge from inpatient.”

Site staff mentioned that outreach to local stakeholders is particularly important for sites unaffiliated with inpatient facilities; these staff present the project to other case management teams and programs at their agencies, as well as local hospitals, to encourage nonparticipating staff to refer their patients to the program. The Feinstein Institute took this outreach one step further at its affiliated clinic and provided training to physicians, social workers, and other unit staff who are not involved with the program to expose larger groups of people to the program and “set the stage” for introduction of the approach on a broader scale.

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## VI. FUND FOR PUBLIC HEALTH IN NEW YORK

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### A. Introduction

Staff at the Fund for Public Health in New York (FPHNY) are using the Health Care Innovation Awards (HCIA) funding to implement the Parachute NYC Project, which will provide an entry point into the mental health system for individuals ages 16 to 65 in New York City who have a diagnosis of psychosis. This project is the first large-scale implementation of the Need-Adapted Treatment Model (NATM) in the United States. (The NATM is similar to the Open Dialogue model, which has had positive outcomes when used with people experiencing psychosis in Finland.) This program aims to shift the current model of care from crisis intervention to one that emphasizes patient-centered care and provides long-term, community-integrated treatment and increased access to primary care services.

In addition to using the NATM, the Parachute NYC Project involves intentional peer support (IPS),<sup>8</sup> a mobile crisis team, and a crisis respite center (CRC) in each of four boroughs (Brooklyn, the Bronx, Manhattan, and Queens), as well as a citywide support line. The project's expanded driver diagram (see Appendix C) illustrates its context, the strategies it is using to implement its goals, and its anticipated outputs, outcomes, and impacts.

To prepare this annual report, we have drawn information from interviews conducted with key staff and other stakeholders during site visits in spring 2014. In addition, we have used quantitative data, including claims, administrative, or EMR data, if such data were available as of July 1, 2014 (the cut-off date for receipt of data files to allow us to conduct analyses that would yield findings for the first draft of the annual report, due on September 1). No data were available from FPHNY as of July 1, 2014. However, we were able to include in this report analysis of intervention administrative data including information on participant demographics and intervention service receipt that was received later in July. In July 2014, we also received participant identifiers that are being used to extract CMS program enrollment and claims data for participants.

### B. Implementation effectiveness

In this section, we address 11 questions that cover several subdomains within the overall domain of implementation effectiveness including key components of the intervention (such as care coordination), intervention dosage, issues of conceptual drift, the reach of the intervention, and effects on access to care (as perceived by staff and key stakeholders).

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<sup>8</sup> As defined by the National Coalition for Mental Health Recovery, IPS is “a way of thinking about purposeful relationships. It is a process where both people (or a group of people) use the relationship to look at things from new angles, develop greater awareness of personal and relational patterns, and to support and challenge each other as we try new things. IPS has been used in crisis respite (alternatives to psychiatric hospitalization), by peers, mental health professionals, families, friends and community-based organizations.” Source: <http://www.ncmhr.org/intentional-peer-support.htm>

**1. In light of the importance of coordinated care for individuals with serious behavioral health problems, how did these awardees address care coordination? (Question from domains framework)**

The Parachute NYC Project addresses care coordination through the Needs-Adapted Mobile Crisis Team (NA-MCT). Members of the team conduct in-person “network meetings” at the participant’s residence. The meetings include the person in crisis and individuals in his or her social network (including family, friends, and treatment providers) with the goal of ensuring that these individuals work together to move the person toward recovery. Generally, under the NATM, the topic of medication is discussed during the first several network meetings with the goal of optimizing its use within the context of power sharing and other clinical and non-clinical interventions.

Crisis teams consisting of clinicians and peers follow clients and provide treatment for up to one year. The crisis teams are fully integrated, with clinicians and peers providing both treatment and health navigation. These peers also identify physical health needs and barriers to accessing health care, and they help educate family members about psychosis, treatment, and recovery. If a client needs out-of-home care, he or she is referred to one of Parachute’s CRCs. The CRCs work with the NA-MCT and serve as short-term alternatives to hospitalization.

Staff interviewed at the Manhattan borough reported improvements in care coordination for program participants. Some reported hearing from their referral sources that the CRCs are different from anything else being offered in the area and are an integral part of care coordination. Other staff said there had been improvements in coordinating medications with other providers. The NA-MCT reported that collaboration with the CRC in its borough was “bumpy” at first, inasmuch as this was the first borough to launch and there were no sites to serve as models for successful collaboration. However, the same staff members reported that collaboration improved during the course of implementation. In the seventh quarter, Parachute established links to a citywide network of Federally Qualified Health Centers (FQHCs) to increase primary care integration.

**2. What specific components of care coordination do stakeholders believe are most important and effective? (Group-specific question)**

The staff we interviewed did not single out one intervention component as the most important or most effective. Many interviewees commended the implementation of the Parachute model as a whole and its capacity to transform the treatment of serious mental illness. Participants observed that Parachute is a completely new model in terms of mental health services. Moreover, the emphasis on integrating peer specialists into the service system is unusual. Some felt that Parachute has the potential to usher in lasting change in mental health treatment if it proves successful over the long haul.

**3. What are the components of the interventions as implemented by the awardees? (RfTOP question 5; Question from domains framework)**

The Parachute model has three primary components (see Appendix F, which describes the innovation components in detail, associated workforce staffing for each component, and the training that this staff receive):

- The NA-MCT is an interdisciplinary team of clinicians (psychologists, social workers, psychiatrists, and family therapist) and peer specialists that conducts in-person network meetings to individuals in crisis. Information about mental illness is provided to both the client and his or her support network (family and friends). The peer specialist also acts as a peer health navigator to guide the client through the health care system.
- CRCs serve as alternatives to hospitalization. Clients who require out-of-home care can stay at a center for up to two weeks. The centers allow the client to maintain daily activity, expedite access to primary care services (health education and screenings are done on-site, other primary care services are provided off-site), and connect with community-based services and supports with the help of peer health navigators.
- The citywide support line, which is staffed by peers, is a confidential support line for city residents to call and connect with people who have experienced mental illness and have been trained to support people through a crisis.

Several components of Parachute NYC Project align with the domains framework:

- **Care coordination.** The Parachute NYC Program Peer places substantial emphasis on coordinating services. Peer specialists, who are incorporated into every program component, serve as care managers and help participants navigate the mental health system and ensure that their physical health, mental health, and social needs are met. The NA-MCT is also a primary venue through which services and medications are coordinated.
- **Workflow or process redesign.** Mobile crisis teams were already in place prior to the start of the intervention. These teams were trained on the new treatment modalities and asked to incorporate peers into their teams and treatment process.

#### 4. How much of each component was provided? (RfTOP question 6)

Each of the four boroughs of NYC has a CRC and a NA-MCT. The support line operates from Manhattan but supports all other locations. Core services are generally delivered in accordance with the scope of service as defined by the NATM and IPS.

#### 5. What “dosage” of the innovation was delivered to participants? (RfTOP question 9)

The model specifies that the treatment approach be client-centered and flexible. Thus, client needs will largely determine the number and type of services that the program providers. Overall, the NA-MCT provides services for up to one year, the CRC can be utilized for up to two weeks during a single episode, and anyone may call the support line at any time throughout the course of the intervention. As illustrated in the tables below, our analysis of data from Parachute’s EMR system provides a descriptive snapshot of participants’ service use from January 2013 (when the project began enrolling participants) through June 2014.

Slightly more than six percent of participants had utilized both the NA-MCT and the CRC as of late June 2014 (Table VI.1). More than half (nearly 60 percent) have used only the NA-MCT; 35 percent have used only the CRC.

**Table VI.1. Types of services used by FPHNY participants, January 2013–June 2014**

Type of service used	Number of participants	Percentage of participants
NA-MCT meetings and CRC visits	42	6.6
NA-MCT meetings only	370	58.4
CRC visits only	222	35.0

Source: Electronic medical records (EMR) data provided by FPHNY.

Note: Percentages may not sum to 100 percent due to rounding.

The total number of NA-MCT meetings with participants increased steadily each month from January 2013 to June 2014 (Table VI.2). These increases generally correspond to the rollout of services in additional boroughs during the second and third quarters of 2013 and the first quarter of 2014. As the table shows, after one year of implementation, the number of episodes of care per month consistently exceeded 35 and total numbers of face-to-face meetings continued to increase steadily. All types of meetings (that is, meetings with the participant alone, meetings with the participant and key members of his or her social network, and meetings with members of the social network without the participant) contributed to the increase (Table VI.2).

Of those who have used the NA-MCT between January 2013 and June 2014, most have had from one to five face-to-face meetings. Sixty-one individuals (10.5 percent of all participants), who might be termed “heavy users,” have had 11 or more of these meetings (Table VI.3). The most common type of face-to-face meeting involves both the participant and his or her social network—about 75 percent of participants using the NA-MCT have had at least one of these types of meetings, and more than 20 percent have had 6 or more of these meetings. Participants can also have meetings without their social networks (23 percent have at least one such meeting), and they can have meetings that involve their social networks but which they do not attend (17 percent with at least one of these types).



**Table VI.2. Number of NA-MCT enrollees and face-to-face meetings for FPHNY participants, per month, January 2013–June 2014**

Month	Number of enrollment spans beginning in the month	Number of face-to-face meetings			
		Total	With participant, with network	With participant, Without network	Without participant, with network
January 2013	2	6	0	6	0
February 2013	1	7	0	7	0
March 2013	7	8	1	7	0
April 2013	15	36	9	24	3
May 2013	23	67	43	13	11
June 2013	24	72	48	12	12
July 2013	22	126	98	12	16
August 2013	26	116	80	19	17
September 2013	21	119	64	31	24
October 2013	26	124	72	36	16
November 2013	38	127	75	34	18
December 2013	24	136	82	39	15
January 2014	36	154	113	30	11
February 2014	37	164	99	49	16
March 2014	37	219	149	50	20
April 2014	37	247	149	75	23
May 2014	43	284	171	81	32
June 2014 <sup>a</sup>	25	103	48	46	9

Source: EMR data provided by FPHNY.

Note: “Network” refers to the participant’s social network that may (“with”) or may not (“without”) participate in a face-to-face meeting. An enrollment spans is defined as a single episode of care with unique, non-overlapping start and end dates for NA-MCT services.

<sup>a</sup> Due to the date of submission, data for June 2014 is incomplete and does not reflect a full month of services provided.

As expected, use of Parachute’s primary service components has increased in response to increased enrollment and length of program duration. As of June, 2014, of those who had used the NA-MCT at all, more than two-thirds had used it for one month or less and about 5 percent had been enrolled for longer than four months (Table VI.3). The distribution of enrollment spans will change as the program matures and more participants have opportunities to use the service for longer periods of time.

Participants’ use of the CRC also increased between January 2013 and June 2014, corresponding to the rollout of additional centers. The total number of CRC visits averaged less than 5 per month in the first six months of enrollment (January through June 2013), 18 per month during the second six months (July through December 2013), and slightly more than 30 per month during third (January through June 2014). About 34 percent of participants used the CRC once and about 7 percent more than once (Table VI.4). Average lengths of CRC stays are less than two weeks; half of those stays were a week or less in length.

**Table VI.3. Number of NA-MCT meetings and average length of enrollment span, per FPHNY participant, as of June 2014**

		Number of participants	Percentage of participants
Total NA-MCT meetings	0	222	38.0
	1–5	247	42.3
	6–10	54	9.3
	11 or more	61	10.5
Meetings with participant, with network	0	321	55.0
	1–2	142	24.3
	3–5	42	7.2
	6 or more	79	13.5
Meetings with participant, without network	0	416	71.2
	1	83	14.2
	2 or more	85	14.6
Meetings without participant, with network	0	462	79.1
	1	59	10.1
	2 or more	63	10.8
Average length of enrollment span (days)	0	222	38.0
	1–30	251	43.0
	31–60	50	8.6
	61–120	43	7.4
	121 or more	18	3.1

Source: EMR data provided by FPHNY.

Notes: Percentages may not sum to 100 percent due to rounding. Current enrollment spans were treated as having an end date as of the last observed date in the data file.

**Table VI.4. Number of CRC stays and average length of stays, per FPHNY participant, as of June 2014**

		Number of Participants	Percentage of Participants
Number of CRC stays	0	370	58.4
	1	218	34.4
	2 or more	46	7.3
Average length of CRC stays (days)	0	371	58.5
	1–7	131	20.7
	8 or more	133	21.0

Source: EMR data provided by FPHNY.

Notes: Percentages may not sum to 100 percent due to rounding. Current stays were treated as having an end date as of the last observed date in the data file.

## 6. How well did providers and sites adhere to planned procedures, including, when appropriate, procedures for customization)? (RfTOP question 12)

Staff reported that they are implementing the model as planned and have maintained fidelity to the original NATM paradigm. The major goals of the program have not changed.

**7. Overall, during implementation, how much did projects “drift” from the original model? (Question from domains framework)**

The Parachute model is based on concepts that are applied in a flexible manner to meet participants’ individual needs. Consequently, it does not have a set of operational manuals. Project leaders have not created many protocols or guidelines and have provided minimal guidance to providers. They instructed providers to use their previous experience and apply it within the model’s broad conceptual framework. One form of guidance was the implementation of weekly and/or monthly supervision provided by the NATM and IPS trainers to the Parachute program staff.

Parachute leadership also seeks feedback from providers on how the program is being implemented, and it works to solve impediments to implementation. The feedback and solutions to challenges are shared with other Parachute providers. This approach to problem solving fosters a natural evolution of the model in each borough based upon the unique challenges of each area and the observations of the staff who are implementing it.

**8. What is the target population and how many participants were reached? (RfTOP questions 15 and 16)**

The target population includes individuals ages 16 to 65 years in New York City who are experiencing a psychosis related crisis, with services in Brooklyn targeting the first episode of psychosis. In Brooklyn, the eligibility criteria was modified to include young adults (ages 16 to 30) experiencing first episodes of any serious mental illness. As of quarter 8, the program had served 634 participants. Almost 70 percent of participants who provided demographic information were 44 years old or younger at enrollment (Table VI.5).

**Table VI.5. Age and insurance status of FPHNY participants at time of enrollment**

Characteristic	Number of participants	Percentage of participants
<b>Age</b>		
Younger than 18 years old	26	4.1
18–22	116	18.3
23–34	166	26.2
35–44	80	12.6
45–54	116	18.3
55 and over	80	12.6
Unknown	50	7.9
<b>Insurance status</b>		
Medicaid only	255	40.2
Medicare only	*	*
Commercial insurance only	27	4.3
Medicaid and Medicare	12	1.9
Medicaid and commercial	*	*
Medicare and commercial	*	*
Other or unknown	330	52.3

Source: EMR data provided by FPHNY, June 2014.

Note: Percentages may not sum to 100 percent due to rounding.

\*Estimate suppressed to protect individual privacy because fewer than 11 people are in the cell.

Also, of participants who provided information about insurance status, a large majority are Medicaid-only recipients (more than 80 percent of participants for whom insurance information is known are Medicaid-only). Some participants have commercial insurance only (about 4 percent), and a small percentage are dual eligibles (about 2 percent).

### **9. To what extent was implementation timely and responsive to site-level constraints (RfTOP question 17)?**

By the end of the sixth quarter, FPHNY had implemented all components of Parachute in all four boroughs—fairly close to the planned schedule of implementation. Unforeseeable events did cause delays in training schedules and implementation time lines. For example, Hurricane Sandy in October 2012 caused disruptions in training schedules and resulted in a six-week delay in opening the citywide support line.

The project has been responsive to site-level constraints. For example, in Brooklyn, consistently low enrollment prompted an expansion of the participant-eligibility criteria. Based on feedback from staff, Parachute also developed a formal protocol to use with hospital emergency departments (EDs) that describes details of the referral process (for example, who pays for the taxi from the ED to the CRC) to make it easier for ED staff to refer a person to Parachute NYC services.

### **10. Does the incorporation of patient navigators/peer support specialists increase access to health care services for patients in this group? (Group-specific question)**

Data to address this question are not available at this time.

**11. How do these projects address the concerns of access to mental/behavioral health care services in underserved areas—rural areas and low-income areas, for example? (Group-specific question)**

Parachute leadership believes that the target population is an underserved, hard-to-reach group. Although the majority of participants consist of racial and ethnic minorities, staff noted that nearly all of their services are provided in English. The program has some capacity to serve individuals who speak Spanish because some staff members are Spanish speakers, but this capacity is limited. For example, the program cannot accommodate non-English speakers in the CRCs; the NA-MCTs can provide services in certain languages only when a staff member on the team who speaks that language is on duty. One respondent noted that it seemed hard to engage Hispanic, Latino, and French individuals. They attributed this difficulty to not only language but also cultural and religious aspects of these individuals' experiences.

**C. Program effectiveness**

To the extent possible in future reports, we will calculate four standard outcome measures related to service use and cost. We also will report on the extent to which the awardees' projects affected the use of other services (a group-specific question, as noted below). As of July 1, 2014, no quantitative data were available for these calculations. In July 2014, we received participant identifiers that are being used to extract CMS program enrollment and claims data that can be used to address the questions below in future reports. We include below summaries of the perceptions of project staff and key stakeholders, based on the analysis of qualitative data gathered during our site visits in spring 2014.

**1. To what extent did the program change charges and expenditures for all care in the target population? (RfTOP question 40)**

Data to address this question are not available at this time (Table VI.6).

**2. To what extent have rates of hospitalization changed? (RfTOP question 34)**

Data to address this question are not available at this time (Table VI.7).

**Table VI.6. Total FFS payment trends, baseline through intervention period - FPHNY**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Note: Comparison group will not be created for Medicare enrollees if enrollment remains low.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**Table VI.7. Inpatient hospital discharge trends, baseline through intervention period - FPHNY**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Note: Comparison group will not be created for Medicare enrollees if enrollment remains low.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

### 3. To what extent have rates of re-hospitalization changed? (RfTOP question 34)

Data to address this question are not available at this time (Table VI.8).

**Table VI.8. Readmission rate trends, baseline through intervention period - FPHNY**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Note: Comparison group will not be created for Medicare enrollees if enrollment remains low.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.



#### 4. To what extent have levels of ED utilization changed? (RfTOP question 33)

Data to address this question are not available at this time (Table VI.9).

**Table VI.9. Emergency department visit trends, baseline through intervention period - FPHNY**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Note: Comparison group will not be created for Medicare enrollees if enrollment remains low.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

#### 5. To what degree did these projects affect utilization of other health care services (emergency care/crisis stabilization, outpatient care, and inpatient care)? (Group-specific question)

Based on interviews with staff members, FPHNY is in the early stages of examining their own data related to this question. FPHNY's external evaluator, the Nathan Klein Institute (NKI), noted anecdotal findings suggesting improvements in functioning or treatment compliance, but quantitative data collection and analysis on this issue are in early stages. Other staff members also reported decreases in the number of emergency room visits.

## **D. Workforce**

In this section, we address three questions related to roles, training, and retention.

### **1. What types of roles were required for these innovations? (Question from domains framework)**

The Parachute project places individuals into three primary roles (see Appendix G for additional information):

- Clinicians, including therapists, psychiatrists, and social workers, who work as part of the NA-MCT to help participants develop and implement an individualized action plan and to consult with caregivers and family members
- Peer specialists, who work at the NA-MCT and the CRCs and staff the support line, help participants develop and implement an individualized action plan, consult with caregivers and family members, and provide advocacy and guidance
- Management supervisors who work to oversee implementation of each component at their provider site and to provide regular supervision to the staff

All staff also receive training in IPS, NATM, and peer health navigation.

### **2. How have rates of staff retention and turnover changed over the course of the intervention? (RfTOP question 84)**

Based on the review of FPHNY quarterly reports to CMS, staff retention has remained high (greater than 90 percent) for the last several quarters. Not only has leadership at FPHNY reported no issues with turnover, a large number of peer specialists, whom FPHNY supposed might struggle to work full time because of their own symptom-management issues, expressed the desire to work full-time and have shown they are capable of doing so. FPHNY now has half of the peer positions anticipated, but the same number of FTE hours, because peers were able to be employed full-time.

### **3. How does the staffing turnover rate of these personnel (patient navigators/peer support specialists) compare to those of other health care workers? (Group-specific question)**

Data to address this question are not available at this time.

## **E. Context**

In this section, we address four questions related to leadership, organizational issues, and patient and stakeholder engagement.

### **1. Was there a clearly designated champion or leader to oversee implementation? (RfTOP question 96)**

Parachute employs a nonhierarchical organizational structure. The staff we interviewed often stated that “everyone” is a leader or champion of the program and underscored the project’s supportive organizational structure. Some providers noted that supervisors or directors

at their individual organizations had assumed the champion role; others perceived the overall project director and manager as leaders or champions of the Parachute project.

## **2. To what extent did organizational features support or conflict with implementation? (RfTOP question 104)**

Although FPHNY is the fiscal agent of the HCIA, the NYC Department of Health and Mental Hygiene oversees the project. FPHNY, the NYC Department of Health and Mental Hygiene, and the state all work together to implement the project. Staff noted that the peer movement is strong in New York and quite supportive of the project.

Because FPHNY is the fiscal agent of the Parachute project, subcontracted providers deliver the components of the intervention. This administrative arrangement results in a large and complex organizational structure that has posed some challenges. Leadership reported that some larger provider organizations are often hard to work with because of their administrative bureaucracies. For example, there are variations in the amount of time and number of requirements related to hiring. Various subcontractors also have budget constraints; some initiated hiring freezes.

Additionally, staff reported that partnering with hospitals has been harder than expected. It was anticipated that hospitals would provide more referrals and emergency room diversions; however, staff perceive that most hospitals believe they are best places to serve this group of individuals and that CRCs offer a lower level of care. Leadership also reported that some of the subcontractors were unfamiliar with deliverable-based contracting. As a result, contract negotiations were longer and more difficult.

Some staff noted that a few organizations were ready for the kind of paradigm shift engendered by Parachute, but other organizations were more traditional in their orientation with policies that sometimes conflict with the Parachute model. One example was the hiring of peer specialists. Many organizations were hesitant or anxious about the integration of peers into existing mobile crisis teams. Parachute staff reported that some clinicians expressed concerns that the peer specialists were “out to get them”—holding them accountable for any negative turns of events—and that some peer specialists believe clinicians do not give sufficient credence to their traumatic experiences within the mental health system.

Staff also reported that cultural change relating to treatment for psychosis has come slowly. Some made specific mention of the clinicians on the mobile crisis team. These clinicians, accustomed to more traditional approaches to treating mental health issues, were now being asked to do what they regarded as the opposite of what they previously did. For example, providers at traditional in-patient or outpatient facilities, in weekly appointments with clients, monitor and insist upon compliance with medications. In contrast, the Parachute model is built upon the client’s preferences. The client sets the meeting schedule and decides what, if any, medication, he or she wishes to take. The project found that increased supervision from the trainers and others staff—and providing a forum for clinicians to express their personal difficulties with the Parachute model—helps them deal with the dissonance between past practice patterns and the NATM approach.

**3. To what extent did the program involve patients or patient representatives in planning and implementing the innovation, and how was the need for innovation communicated to them? (RfTOP question 97)**

FPHNY involved consumers in several ways. It worked with the Office of Consumer Affairs within the NYC Department of Hygiene and Mental Health (DOHMH), which consists of individuals who identify themselves as having “lived” the experience of mental illness and/or with the mental health system. This group was involved in the preliminary planning conversations and in the planning and implementation phases of the project. Another organization consisting of consumers with life experience in the arena of mental illness—Community Access—was also involved in the early planning. Additionally, another consumer advisory board meets monthly and advises the assistant commissioner of DOHMH on Parachute activities.

**4. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation? (RfTOP question 105)**

Stakeholders and partners were involved during the grant-writing stage of the project. FPHNY named every partner on the application form. This step allowed FPHNY to work with those partners from the beginning rather than go through a lengthy procurement process that the city requires after funds were awarded. It also increased partner buy-in for the project.

Additionally, evaluators from the Nathan Klein Institute are conducting both process and outcome evaluations. As part of the process study, the evaluators attend all meetings and training sessions, and they conduct qualitative interviews with provider staff. They turn their observations and findings into issue briefs for leadership. The briefs are used to identify model slippage, challenges, and misunderstandings as they occur.

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## VII. HEALTHLINKNOW, INC.

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### A. Introduction

HealthLinkNow, Inc. (HLN) is using Health Care Innovation Awards (HCIA) funding to integrate telemedicine technology into the patient-centered medical home model. The goal of the project—to more closely link mental health specialists with the care provided by primary care providers (PCPs)—advances HLN’s overall mission: using a health information technology (health HIT) platform to improve access to mental health services for rural Medicaid, Medicare, and Children’s Health Insurance Program (CHIP) beneficiaries.

The project is aimed at beneficiaries who receive services in 85 primary care clinics and hospitals in Montana, Wyoming, and Washington. The integrated health IT platform supports patient and provider communication, telemedicine, e-prescribing, practice management, scheduling, billing, and electronic health records within a single web-based system. The expanded driver diagram (see Appendix C) illustrates the context of the project, the strategies the staff are using to implement its goals, and its anticipated outputs, outcomes, and impacts.

To prepare this annual report, we have drawn information from interviews conducted with key staff and other stakeholders during site visits in spring 2014. In addition, we have used quantitative data, including claims, administrative, or EMR data, if such data were available as of July 1, 2014 (the cut-off date for receipt of data files to allow us to conduct analyses that would yield findings for the first draft of the annual report, due on September 1). Data on participant demographics and intervention service receipt were provided by HLN and used to support the analyses included in this report. Participant identifiers were also provided by HLN and are being used to extract CMS program enrollment and claims data for participants.

### B. Implementation effectiveness

In this section, we address 11 questions that cover several subdomains within the overall domain of implementation effectiveness including key components of the intervention (such as care coordination), intervention dosage, issues of conceptual drift, the reach of the intervention, and effects on access to care (as perceived by staff and key stakeholders).

#### 1. In light of the importance of coordinated care for individuals with serious behavioral health problems, how did these awardees address care coordination? (Question from domains framework)

An essential component of the HLN intervention is the care navigator. Care navigators interact with the participant, the clinicians, and the primary care staff. They focus primarily on helping patients overcome barriers and ensuring that all who are involved with patients’ care (including PCP and therapist) are connected and communicating.

One clinical staff member voiced concern over care coordination and electronic medical records (EMR), noting that HLN’s EMR system is separate from the PCP’s EMR system. This separation creates some barriers to sharing information. The staff member observed that being able to access the PCP’s EMR data would increase care coordination.

## 2. What specific components of care coordination do stakeholders believe are most important and effective? (Group-specific question)

Staff felt that technology is the most important aspect of the intervention. They noted that it allowed for the provision of timely and accessible care to the rural areas that have never had it before. Staff also highlighted the culture-change component inherent to the intervention, observing that educating providers, hospitals, and health plans about telepsychiatry was itself a step forward.

## 3. What are the components of the interventions as implemented by the awardees? (RfTOP question 5; question from domains framework)

The central component of HLN's project is an integrated telemedicine and health IT platform that supports three types of services (Appendix F describes the innovation components in detail, workforce staffing for each component, and training the staff receive):

- Telepsychiatry services, which include online psychiatric assessments, treatment planning, medication management, counseling and supportive therapy, cognitive behavioral therapy, and crisis and sub-acute assessments (especially in emergency departments and in isolated regions)
- Secure web-based patient and provider communication, e-prescribing, practice management, scheduling, billing, and electronic health records
- Case management

In addition, each participant is assigned a care navigator who is responsible for improving care coordination and ensuring that the lines of communication remain open to the clinical staff and PCPs. HLN care navigators are available for crisis support and intervention by phone, email, and videoconferencing. They are responsible for ensuring that their patients have timely and convenient access to services and are receiving medications, attending follow-up visits, receiving appropriate therapy and support, and accessing HLN's online health educational materials as needed.

Several components of the HLN initiative align with key concepts in the domain framework. These include:

- **Care coordination.** HLN addresses care coordination through the care navigator role. These navigators liaises with the primary care provide and the therapists providing the telepsychiatry. Additionally, they meet regularly with the patient to help overcome barriers to care and ensure treatment compliance and progress.
- **Health IT:** This awardee has developed and implemented an IT platform, which allows for the delivery of telepsychiatry in primary care offices. Additionally, they employ a common electronic medical records (EMR) system for their staff to use.

## 4. How much of each component was provided? (RfTOP question 6)

As of the eighth quarter, 55 primary care sites had implemented all of HLN's intended components; by May 31, 2014, the project had provided 2,578 appointments to Medicaid and

Medicare beneficiaries enrolled in their program. Most appointments were for psychiatry (53 percent) or care navigation (35 percent). Relatively few appointments—296 (11 percent)—were for therapy. More than half of all appointments (1,740 out of 2,578) took place in Montana (Table VII.1).

**Table VII.1. Number of appointments provided to HLN's Medicaid and Medicare participants**

Type of appointment	All		MT	WA	WY
	Sum	Percent	N	N	N
Care navigation	904	35	526	92	286
Psychiatry	1,378	53	996	120	262
Therapy	296	11	218	-	78
Total	2,578	100	1,740	212	626

Source: Mathematica analysis of HealthLink Now Athena EMR data.

Staff aim to schedule the first appointment within one week of enrollment for most Medicaid and Medicare participants—an indication of the importance that HLN places on quickly connecting newly referred participants to services. Sixty-one percent of participants had their first appointment for care navigation within one week of referral (Table VII.2). However, 17 percent of participants waited two weeks or longer for the first care-navigation appointment. This initial appointment is used to enroll referred participants into HLN's services.

**Table VII.2. Appointment timeliness and frequency for HLN's Medicaid and Medicare participants**

	All		Care navigator		Psychiatry		Therapy	
	N	%	N	%	N	%	N	%
<b>Referral to first appointment</b>								
Within a week	149	61	85	62	50	28	*	*
Within 2 weeks	53	22	29	21	57	32	*	*
More than a 2 weeks	41	17	23	17	71	40	23	79
<b>Total</b>	243	100	137	100	178	100	29	100
<b>Time from first appointment to first follow-up<sup>a</sup></b>								
Within a week	166	68	64	47	73	41	19	66
Within 2 weeks	55	23	31	23	46	26	*	*
More than a 2 weeks	22	9	42	31	59	33	*	*
<b>Total</b>	243	100	137	100	178	100	29	100

Source: Mathematica analysis of HealthLink Now Athena EMR data.

<sup>a</sup> Participants must have at least two appointments of the relevant type (care navigator, psychiatry, and so on) to appear in these counts.

\* Estimate suppressed to protect individuals' privacy because fewer than 11 people make up the cell.

Scheduling the initial appointments with psychiatrists and for therapy typically took longer, probably participants usually have a first appointment with a care navigator to enroll in the program before being scheduled for psychiatry or therapy appointments. Forty percent of participants who had appointments with a psychiatrist, and 79 percent of participants who had appointments with a therapist, had their first appointment for those services more than two weeks after referral (Table VII.2).

### 5. What “dosage” of the innovation was delivered to participants? (RfTOP question 9)

The dosage of the intervention delivered to Medicaid and Medicare participants varied across states and service components. Across all appointment types, slightly more than half of the participants (54 percent) had six or more appointments. The majority of patients who received care navigation and psychiatry services had one to five appointments (76 percent and 87 percent respectively). Of patients who received therapy, the majority (61 percent) had six or more appointments (Table VII.3).

**Table VII.3. HLN dosage: number of Medicaid and Medicare participants with appointments, by type and count**

Type of appointment	Count of appointments	All states		MT		WA		WY	
		N	%	N	%	N	%	N	%
<b>Total</b>	1–5	120	46	64	41	32	100	24	40
	6+	141	54	95	60	*	*	36	60
	<b>Total</b>	251	100	159	100	32 <sup>+</sup>	100	60	100
<b>Care navigation</b>	1–5	174	76	100	77	36	100	38	66
	6+	55	24	30	23	*	*	20	34
	<b>Total</b>	224	100	130	100	36 <sup>+</sup>	100	58	100
<b>Psychiatry</b>	1–5	147	87	76	55	31	100	40	70
	6+	91	38	68	47	*	*	17	30
	<b>Total</b>	232	100	144	100	31 <sup>+</sup>	100	57	100
<b>Therapy</b>	1–5	14	39	11	39	0	-	*	*
	6+	22	61	17	61	0	-	*	*
	<b>Total</b>	28 <sup>+</sup>	100	28	100	0	-	*	*

Source: Mathematica analysis of HealthLink Now Athena EMR data.

\* Estimate suppressed to protect individual privacy because there are fewer than 11 people in the cell.

<sup>+</sup> Total reflects only numbers displayed.

The frequency of dosage—measured by how often participants had appointments—also varied by component (Table VII.4). Across all appointment types, participants had an appointment with HLN on average every 12 days. Their appointments for care navigation or psychiatry were approximately once every three weeks (every 22 and 19 days, respectively); their appointments for therapy took place about 13 days or about every two weeks.



**Table VII.4. HLN average time between appointments for Medicaid and Medicare participants**

	All		MT		WA		WY	
	Mean	Std	Mean	Std	Mean	Std	Mean	Std
All	12	8	12	9	12	6	11	6
Care navigator	22	23	23	27	18	16	21	17
Psychiatrist	19	14	19	15	18	11	19	12
Therapy	13	7	12	7	-	-	16	7

Source: Mathematica analysis of HealthLink Now Athena EMR data.

#### **6. How well did providers and sites adhere to planned procedures, including procedures for customization when appropriate? (RfTOP question 12)**

HLN reported that staff members and project sites are adhering to the standard protocol and procedures fairly well. Adherence is high partly because staff have no latitude to make significant modifications. Memoranda of understanding (MOUs) with each site clearly specify implementation procedures.

The care navigators are housed within the HLN administration and are, therefore, quite familiar with standard policies and procedures. The behavioral health clinicians who provide the treatment are employed to provide a specific therapeutic approach (cognitive behavioral), and they have agreed to comply with the HLN planned protocols and procedures. PCPs address participants' physical health care services based on participants' needs.

#### **7. Overall, during implementation, how much did projects “drift” from the original model? (Question from domains framework)**

Project managers from the various states reported some variation in implementation, but they cannot be certain about the degree to which that occurred because they have no measures for assessing program fidelity. Most variation appears to be related to the use of HLN's EMR system. Some providers—generally those from private practices with limited experience of EMRs—were unfamiliar with EMR procedures.

#### **8. What is the target population and how many participants were reached? (RfTOP questions 15 and 16)**

The target population includes rural Medicaid, Medicare, and CHIP beneficiaries who receive services in primary care clinics and hospitals in Montana, Wyoming, and Washington. As of May 31, 2014, HLN had served 444 participants across all insurance types (Table VII.5), including Medicaid, Medicare, or CHIP beneficiaries and participants with commercial and other types of insurance. Of all participants served, 32 percent (141 patients) were enrolled in Medicaid; 27 percent (120 patients) were enrolled in Medicare (Table VII.5). Of the three participating states, Montana had the largest number of participants: 227.

Most participants (84 percent) have been enrolled for nine months or less; a substantial proportion (38 percent) have been enrolled for three months or less (Table VII.5). More women than men are participating (62 percent versus 38 percent). Although most participants are

between 18 and 64 years old (64 percent), individuals under age 18 (22 percent) and the aged (14 percent) also participate.

**Table VII.5. Length of enrollment, insurance status, and demographic characteristics of all HLN participants, as of May 2014**

	Total		State					
			MT		WA		WY	
	N	%	N	%	N	%	N	%
<b>Total participants</b>	<b>444</b>	<b>100</b>	<b>227</b>	<b>100</b>	<b>125</b>	<b>100</b>	<b>92</b>	<b>100</b>
Age								
<18	99	22	57	25	14	11	28	30
18–64 (18+ in Wyoming)	282	64	121	53	100	80	64 <sup>b</sup>	69
65 and over	63	14	49	22	11	9	*	*
Gender								
Female	276	62	154	68	72	58	50	54
Male	168	38	73	32	53	42	42	46
Insurance Coverage								
Medicaid	141	32	83	37	20	16	38	41
Medicare	120	27	76	33	22	18	22	24
Commercial or other <sup>c</sup>	183	41	68	30	83	67	32	35
Length of enrollment <sup>a</sup>								
Less than 3 months	168	38	72	32	72	58	24	26
3–6 months	87	20	46	20	22	18	19	21
6–9 months	119	27	63	28	19	15	37	40
9+ months	70	16	46	20	12	10	12	13

Source: Mathematica analysis of HealthLinkNow Athena EMR data.

<sup>a</sup> Length of enrollment is calculated as the time from first appointment to the end date of the available data file (May 31, 2014).

<sup>b</sup> 18–64 and 65+ was combined in Wyoming due to small sample sizes.

<sup>c</sup> “Other” includes association, CHIP, Federal Employees Health Benefits Plan, Montana State Fund, Self-Pay, and Workers Compensation.

\* Estimate suppressed to protect individual privacy because fewer than 11 people are in the cell.

The length of enrollment and gender distributions of Medicaid and Medicare participants are roughly similar to participants with commercial insurance. However, HLN’s participants who are enrolled in Medicaid or Medicare, on average, are slightly older than commercially insured participants (data not shown).

## 9. To what extent was implementation timely and responsive to site-level constraints? (RfTOP question 17)

Obtaining approval for participation from PCP clinics has been time-consuming. Many of the clinics required board approval to work with HLN, and the infrequency of board meetings has caused delays. Some clinics have been hesitant or have taken wait-and-see approach before

committing resources, forcing the HLN team to make several recruiting visits. Additionally, hospitals and clinics that are hospital-owned and -operated require that HLN providers be credentialed according to bylaws unique to each hospital. Licensing, credentialing, and enrolling HLN providers in Medicare and Medicaid programs in remote states has been lengthy, complicated, and expensive, causing delays in site recruitment and enrollment.

**10. Does the incorporation of patient navigators/peer support specialists increase access to health care services for patients in this group? (Group-specific question)**

Data to address this question are not available at this time.

**11. How do these projects address the concerns of access to mental/behavioral health care services in underserved areas—rural areas and low-income areas? (Group-specific question)**

All participants live in rural areas. HLN reported that this is the first time many participants in Wyoming, Montana and Washington have had access to behavioral health services. Staff noted that many of their participants, prior to their involvement with the HLN intervention, had to travel 100 to 300 miles to consult a psychiatrist and often waited months for an appointment.

**C. Program effectiveness**

To the extent possible in future reports, we will calculate four standard outcome measures related to service use and cost. We also will report on the extent to which the awardees' projects affected the use of other services (a group-specific question, as noted below). As of July 1, 2014, no quantitative data were available for these calculations. During our site visit in spring 2014, we asked key staff about their perception of change in these measures, but they declined to speculate, noting that it was too early to assess program effects on these measures. Participant identifiers were provided by HLN and are being used to extract CMS program enrollment and claims data for participants.

**1. To what extent did the program change charges and expenditures for all care in the target population? (RfTOP question 40)**

Data to address this question are not available at this time (Table VII.6).

**2. To what extent have rates of hospitalization changed? (RfTOP question 34)**

Quantitative data to address this question are not available at this time (Table VII.7).

**Table VII.6. Total FFS payment trends, baseline through intervention period - HLN**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Note: Comparison group will not be created for Medicare and Medicaid enrollees if enrollment remains low in these subgroups.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**Table VII.7. Inpatient hospital discharge trends, baseline through intervention period - HLN**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Note: Comparison group will not be created for Medicare and Medicaid enrollees if enrollment remains low in these subgroups.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**3. To what extent have rates of re-hospitalization changed? (RfTOP question 34)**

Quantitative data to address this question are not available at this time (Table VII.8).

**Table VII.8. Readmission rate trends, baseline through intervention period - HLN**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Note: Comparison group will not be created for Medicare and Medicaid enrollees if enrollment remains low in these subgroups.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

#### 4. To what extent have levels of emergency department (ED) utilization changed? (RfTOP question 33)

Quantitative data to address this question are not available at this time (Table VII.9).

**Table VII.9. Emergency department visit trends, baseline through intervention period - HLN**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Note: Comparison group will not be created for Medicare and Medicaid enrollees if enrollment remains low in these subgroups.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

#### 5. To what degree did these projects affect the utilization of other health care services (emergency care/crisis stabilization, outpatient care, and inpatient care)? (Group-specific question)

Data to address this question are not available at this time.

## **D. Workforce**

In this section, we address three questions related to roles, training, and retention.

### **1. What types of roles were required for these innovations? (Question from domains framework)**

This project requires the following personnel (see Appendix G for additional information on these roles):

- Behavioral health clinicians who deliver teletherapy to participants and, in the case of psychiatrists, e-prescriptions
- Care navigators who help clients maneuver through the health care system, monitor their adherence to their treatment plans, and interact with other services and providers
- Primary care providers who refer patients to HLN and provide ongoing primary care to project participants
- State-specific project staff who are responsible for recruiting and working with potential sites and monitoring the progress of recruited sites

All of these staff received training in the IT telepsychiatric platform.

### **2. How have rates of staff retention and turnover changed over the course of the intervention? (RfTOP question 84)**

HLN reported no significant issues with turnover. Some staff did report that they have lost clinicians due to credentialing wait times and reimbursement issues. Quarterly reports indicate retention rates have been 90 to 100 percent for the last three quarters.

### **3. How does the staffing turnover rate of selected personnel (patient navigators/peer support specialists) compare with those of other health care workers? (Group-specific question)**

Data to address this question are not available at this time.

## **E. Context**

In this section, we address four questions related to leadership, organizational issues, and patient and stakeholder engagement.

### **1. Was there a clearly designated champion or leader to oversee implementation? (RfTOP question 96)**

Most staff named the project director and CEO as the primary champion of the intervention. Staff appreciated her previous experience with mental health policy in California. She is seen as a thought leader in telemedicine/telepsychiatry and has deep connections to the American Telemedicine Association.



**2. To what extent did organizational features support or conflict with implementation? (RfTOP question 104)**

Some staff members attribute the perceived success of the program's implementation to the state and cost of technology. They believe that technology has improved to the point that telepsychiatry can be delivered in a reliable, user-friendly way and that the costs for this technology have decreased substantially over the years. Some staff also point to more legislation at the state and federal levels that have supported telemedicine during the last few years, suggesting further that this success can be attributed to the Veteran's Administration's substantial work on telemedicine.

One challenge HLN has encountered is a resistance to change in the provider communities in the three states. Providers in many rural areas are unfamiliar with the concept of telepsychiatry. As a result, HLN staff have had to schedule multiple in-person meetings to develop trust in the intervention and recruit potential sites. This effort, coupled with the size and topography of the states (especially in Montana and Wyoming), has produced delays in site recruitment.

An additional challenge has been clinician credentialing and payment. Staff reported long wait times to obtain a clinician credential for one state. In some cases, the wait times have resulted in HLN losing the clinician. Some hospitals and clinics have been unaware of CMS' proxy credentialing procedure (which can shorten wait times) and believe they must still go through their own credentialing process. HLN payment rates also have prompted some clinicians to find other jobs with higher pay and greater client demand.

Staff also mentioned challenges with the HLN EMR system. Because the HLN EMR system is separate from the PCPs' system, HLN clinicians do not have access to information they believe would be helpful. Additionally, some clinical staff are unfamiliar with EMRs and find the HLN system hard to use.

**3. To what extent did the program involve patients or patient representatives in planning and implementing the innovation? How was the need for innovation communicated to them? (RfTOP question 97)**

Delegates from the National Alliance on Mental Illness (NAMI) from Montana and Wyoming were invited to the first stakeholders meeting when the program was launched. HLN has remained in contact with NAMI representatives in both states.

**4. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation? (RfTOP question 105)**

A stakeholder meeting held in Montana at the beginning of the project included key HLN staff members, the heads of Medicaid from both states, representatives from NAMI, and other stakeholders identified by HLN's local experts. Attendees discussed implementation issues and the potential challenges HLN faced.

Additionally, HLN employed two marketing specialists who helped HLN re-design program descriptions and create a website for marketing purposes. HLN hoped this effort would increase referrals and serve as an education and marketing tool for providers and potential participants.

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## **VIII. INSTITUTE FOR CLINICAL SYSTEMS IMPROVEMENT**

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### **A. Introduction**

The Institute for Clinical Systems Improvement (ICSI) is implementing a collaborative care management model called Care of Mental, Physical and Substance-Use Syndrome (COMPASS) with nine partners in California, Colorado, Florida, Massachusetts, Michigan, Minnesota, Pennsylvania, and Washington. ICSI and its partners, known collectively as the COMPASS Consortium, are testing the national dissemination of the collaborative care management model (CCMM). This project aims to improve care and lower costs for 8,000 adults with Medicare or Medicaid coverage who have uncontrolled depression with uncontrolled diabetes and/or cardiovascular disease.

ICSI's partners include health plans, independent practice groups, large integrated health systems, and a regional health care collaborative, as well as an evaluation team. These partners vary substantially with respect to location, size and characteristics of their patient population, and level of experience with the CCMM. Most clinical partners are implementing the program at multiple sites within their systems; as a result, a total of 197 distinct clinical sites are involved with this project. The project's expanded driver diagram (see Appendix C) illustrates the context of the project, the strategies being used to achieve its goals, and its anticipated outputs, outcomes, and impacts.

To prepare this annual report, we have drawn information from interviews conducted with key staff and other stakeholders during site visits in spring 2014. In addition, we have used quantitative data, including claims, administrative, or EMR data, if such data were available as of July 1, 2014 (the cut-off date for receipt of data files to allow us to conduct analyses that would yield findings for the first draft of the annual report, due on September 1). No data were available from ICSI as of July 1, 2014. We are in the process of negotiating data use agreements with each ICSI site. From each site we expect to obtain intervention administrative data including information on participant demographics, intervention service receipt, and health outcomes. We also expect to receive participant identifiers that can be used to extract CMS program enrollment and claims data for participants.

### **B. Implementation effectiveness**

In this section, we address 11 questions that cover several subdomains within the overall domain of implementation effectiveness including key components of the intervention (such as care coordination), intervention dosage, issues of conceptual drift, the reach of the intervention, and effects on access to care (as perceived by staff and key stakeholders).

#### **1. In light of the importance of coordinated care for individuals with serious behavioral health problems, how did these awardees address care coordination? (Question from domains framework)**

A central feature of COMPASS is care managers. Each patient has a care manager who meets with the patient regularly and coordinates care between the patient's physical and behavioral health providers. Care managers' responsibilities include facilitating patient recruitment into COMPASS; providing self-management support, medication reconciliation, and

patient education; creating a care and maintenance plan; conducting phone and in-person patient visits; and identifying and addressing the barriers to each patient's care.

Additionally, COMPASS staff members at each site meet weekly to perform systematic case reviews (SCRs) of current patients. Participants in the case reviews are physical and behavioral health care providers, care managers, and, in some locations, appropriate consultants (pharmacists and nurse practitioners, for example). The reviews cover current treatment plans, patient compliance, and treatment intensification (if applicable). Staff members at participating sites view the SCR as an important asset to coordinating care for COMPASS patients.

Several sites also are considering ways to incorporate and align ongoing COMPASS activities with other care-coordination initiatives, such as the patient-centered medical home. These sites have had experiences with COMPASS and have learned lessons that have helped support implementation of broader care coordination programs in their systems.

## **2. What specific components of care coordination do stakeholders believe are most important and effective? (Group-specific question)**

Staff reported two essential components to the care coordination aspects of the model:

- The care manager is responsible for several key care-coordination tasks, including conducting patient follow-up, working directly with the patient to set and achieve treatment goals, and coordinating care with the primary care physician and other medical and psychiatric consultants on the care team.
- The weekly SCR team meeting aims primarily to recommend individualized treatment approaches for patients in COMPASS, guided by treat-to-target principles. As part of this process, the SCR team also recommends treatment intensification for patients who have not achieved key goals. These recommendations account for the possibility of relapse while stressing exacerbation prevention.

## **3. What are the components of the interventions as implemented by the awardee? (RfTOP question 5; Question from domains framework)**

There are five key components of the CCMM (see Appendix F for detailed descriptions of the innovation components, staffing for each component, and staff training):

- Screening for comorbidities and condition severity
- Care manager to monitor condition status and coordinate care
- Computerized registry for care monitoring
- Weekly systematic reviews—by a team that includes expert medical and psychiatric consultants as well as the care manager—of cases that are responding inadequately
- Treatment-intensification plans for those who do not improve

Several components of the CCMM align with key concepts in the domains framework:

- **Care coordination.** A central part of COMPASS is the care manager role. These care managers ensure communication among the various health providers caring for the patient and participate in weekly reviews of patient progress with the multidisciplinary care team. Additionally, the care manager works with the patient to ensure treatment compliance and address other barriers to improvement (for example, social service or housing needs).
- **Health IT.** ICSI and its partners developed the AIMS Care Management Tracking System patient registry, a computerized registry and monitoring tool designed to improve care and outcomes for patients with the set of chronic conditions targeted by the intervention. The system allows its users to: 1) track patients and prompt contact as needed; 2) monitor health outcomes such as depression severity, blood pressure, hemoglobin, or lipids, and prompt changes in treatment if the condition is not adequately improved; 3) monitor treatment adherence; 4) facilitate and monitor referrals to social and other health services; 5) facilitate communication between primary care providers and specialists; and 6) provide reports that summarize information at the patient, provider, clinic, and system levels to monitor program effectiveness in real time and to target training and technical assistance where needed. Among the 18 medical groups implementing COMPASS, some use the AIMS Care Management Tracking System, while others use their own EHR/EMR.
- **Workflow or process redesign.** COMPASS requires the creation of a multidisciplinary care team and inclusion of a care manager. These teams also meet with various consultants to perform regular case reviews to monitor patient progress.

**4. How much of each component was provided? (RfTOP question 6)**

ICSI has implemented all components of the intervention in all 197 sites.

**5. What “dosage” of the innovation was delivered to participants? (RfTOP question 9)**

The dosage of care is determined by the participant’s individual health care needs and improvements in his or her health over the course of treatment.

**6. How well did providers and sites adhere to planned procedures (including procedures for customization when appropriate)? (RfTOP question 12)**

Staff reported that sites have agreed to adhere to core procedures and follow the basic COMPASS model. However, COMPASS allows for some level of variation, and ICSI—in consultation with the executive committee for the project—has been flexible in allowing some local adaptation while still maintaining fidelity to the COMPASS model. One of the sources areas of variation is the composition of the SCR. Although all sites are required to have the core team—consultant psychiatrist, physician, and care manager—attend the SCR, some practices also engage other caregivers. Additional participants in the SCR at various sites include diabetes educators, pharmacists, and social workers. Furthermore, some partners conduct SCRs at the practice level; others conduct them at the system level.

The credentials for the position of care coordinator also differ from site to site. Many care coordinators are registered nurses (RNs). However, one site, a federally qualified health center (FQHC), uses social workers as care coordinators to better meet the needs of patients who have significant socioeconomic difficulties. Other sites have successfully placed medical assistants in this role.

**7. Overall, during implementation, how much did the project “drift” from the original model? (Question from domains framework)**

To address enrollment shortfalls, ICSI made several changes to broaden the study original enrollment criteria (Medicare or Medicaid beneficiaries, or dual-eligible individuals, with depression and diabetes or cardiovascular disease, or both). These changes included loosening the biomedical requirements relating to diabetes control and expanding diagnostic criteria to include patients with uncontrolled hypertension. Eligibility also was expanded to include patients with commercial insurance (although Medicare or Medicaid beneficiaries remain the primary focus). In addition to supporting enrollment, this latter change made it easier for sites to institute COMPASS as a standard routine and addressed the concern that several partners expressed about treating patients differently based on insurance coverage.

In addition, the ICSI team established financial incentives that were linked to each site’s enrollment levels and completeness of data. The incentives, implemented in early 2014, were instituted to encourage sites to achieve enrollment goals.

The team also considered extending enrollment to patients with anxiety disorders and bipolar disorder but ultimately decided against this change because of the significant difference in treatment approach for these conditions (compared with depression) and, in the case of bipolar disorder, the increased complexity of managing the condition.

**8. What is the target population and how many participants were reached? (RfTOP questions 15 and 16)**

The intervention is serving participants with various types of insurance coverage who have uncontrolled depression with uncontrolled diabetes and/or cardiovascular disease. High-risk adult patients who have these conditions will continue to be recruited at clinical sites in the previously mentioned eight states. Overall, 3,467 participants had been served as of early October 2014. The number served and the insurance coverage of these participants varied across sites (Table VIII.1).

**9. To what extent was implementation timely and responsive to site-level constraints? (RfTOP question 17)**

The main barriers to implementation have been the complexity of the legal agreements (partner and medical group subcontracts, business associates agreements for common use of the COMPASS registry for patient information, and licensing of the registry at the participating sites) and the time required to obtain Institutional Review Board (IRB) approvals from multiple organizations. Fifty-five separate legal agreements and 12 IRB applications were required. In some cases, the team needed four months to obtain IRB approvals.

Slow enrollment also has been an issue for many sites. Delays in implementation as well as inefficiencies in sites’ outreach and recruitment strategies contributed to slow enrollment rates. To deal with this issue, the COMPASS Consortium developed various strategies and initiated new activities designed to improve enrollment rates. Strategies included asking partners to add additional clinical sites, increasing marketing efforts, awarding grants for innovation in patient enrollment, extending enrollment incentives, and broadening eligibility criteria to include patients without Medicaid or Medicare coverage as well as patients over 65 years of age with uncontrolled hypertension.

**Table VIII.1. Numbers of participants and insurance coverage across ICSI's sites, as of October 2014.**

	Dual		Medicare FFS		Medicare advantage		Medicaid FFS		Medicaid managed care		Other insurance types		Total	
	Number of enrollees	% of site enrollees	Number of enrollees	% of site enrollees	Number of enrollees	% of site enrollees	Number of enrollees	% of site enrollees	Number of enrollees	% of site enrollees	Number of enrollees	% of site enrollees	Number of enrollees	% of site enrollees
CHPW-Neighborcare	3	1.7	0	0.0	36	20.6	0	0.0	131	74.9	5	2.9	175	100.0
ICSI-ENTIRA	5	2.2	41	18.4	68	30.5	19	8.5	46	20.6	44	19.7	223	100.0
ICSI-Essentia	3	3.6	45	54.2	0	0.0	13	15.7	3	3.6	19	22.9	83	100.0
ICSI-Lakeview	10	15.9	12	19.0	10	15.9	3	4.8	7	11.1	21	33.3	63	100.0
ICSI-North Memorial	17	9.2	38	20.7	11	6.0	40	21.7	10	5.4	68	37.0	184	100.0
KPCO-KPCO	0	0.0	187	61.1	0	0.0	23	7.5	0	0.0	96	31.4	306	100.0
KPSC-Fontana	2	0.9	0	0.0	116	54.7	0	0.0	16	7.5	78	36.8	212	100.0
KPSC-Los Angeles	6	5.2	0	0.0	55	47.4	0	0.0	7	6.0	48	41.4	116	100.0
KPSC-San Diego	12	3.4	0	0.0	161	45.4	0	0.0	22	6.2	160	45.1	355	100.0
KPSC-South Bay	0	0.0	0	0.0	34	50.7	0	0.0	4	6.0	29	43.3	67	100.0
MACIPA-MACIPA	6	5.0	12	10.1	34	28.6	2	1.7	12	10.1	53	44.5	119	100.0
MAYO-Mayo	35	6.4	206	37.8	21	3.9	120	22.0	15	2.8	148	27.2	545	100.0
MICCSI-Lakeshore	0	0.0	50	100.0	0	0.0	0	0.0	0	0.0	0	0.0	50	100.0
MICCSI-Mercy Health	0	0.0	86	45.0	31	16.2	29	15.2	0	0.0	45	23.6	191	100.0
MICCSI-Spectrum	0	0.0	0	0.0	38	27.3	4	2.9	41	29.5	56	40.3	139	100.0
PRHI-Excelsa	0	0.0	94	75.2	23	18.4	1	0.8	0	0.0	7	5.6	125	100.0
PRHI-Premier	3	3.8	25	31.6	18	22.8	6	7.6	8	10.1	19	24.1	79	100.0
PRHI-Saint Vincent	12	2.8	137	31.5	128	29.4	49	11.3	37	8.5	72	16.6	435	100.0
Grand Total	114	3.3	933	26.9	784	22.6	309	8.9	359	10.4	968	27.9	3,467	100.0

**10. Does the incorporation of patient navigators/peer support specialists increase access to health care services for patients in this group? (Group-specific question)**

This project does not use patient navigators or peer support specialists.

**11. How do these projects address the concerns of access to mental/behavioral health care services in underserved areas—rural areas and low-income areas, for example? (Group-specific question)**

The COMPASS consortium includes an FQHC whose patient population is primarily low-income and uninsured/underinsured. Some other COMPASS partner sites are also implementing the intervention in clinics located in primarily low-income areas.

**C. Program effectiveness**

To the extent possible in future reports, we will calculate four standard outcome measures related to service use and cost. We also will report on the extent to which the awardees' projects affected the use of other services (a group-specific question, as noted below). As of July 1, 2014, no quantitative data were available for these calculations and, during our site visit in spring 2014, staff declined to speculate on most of these questions. We are in the process of negotiating data use agreements with each ICSI site. From each site, we expect to receive participant identifiers that can be used to extract CMS program enrollment and claims data for participants.

**1. To what extent did the program change charges and expenditures for all care in the target population? (RfTOP question 40)**

Data to address this question are not available at this time (Table VIII.2).

**2. To what extent have rates of hospitalization changed? (RfTOP question 34)**

Quantitative data to address this question are not available at this time. Some staff reported that they had noticed changes in some of their patients' rates of hospitalization. One staff gave an example of a patient who had approximately four to five hospitalizations for diabetic ketoacidosis and another one or two for suicidality in the months prior to enrolling in COMPASS. The patient had no hospitalizations in the months following his enrollment (Table VIII.3).



**Table VIII.2. Total FFS payment trends, baseline through intervention period - ICSI**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Notes: Many participants are enrolled with managed care providers through Medicare Advantage or Medicaid managed care. Limited data will be available for managed care enrolled participants.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**Table VIII.3. Inpatient hospital discharge trends, baseline through intervention period - ICSI**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Notes: Many participants are enrolled with managed care providers through Medicare Advantage or Medicaid managed care. Limited data will be available for managed care enrolled participants.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

### 3. To what extent have rates of re-hospitalization changed? (RfTOP question 34)

Data to address this question are not available at this time (Table VIII.4).

**Table VIII.4. Readmission rate trends, baseline through intervention period - ICSI**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Notes: Many participants are enrolled with managed care providers through Medicare Advantage or Medicaid managed care. Limited data will be available for managed care enrolled participants.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

#### 4. To what extent have levels of ED utilization changed? (RfTOP question 33)

Data to address this question are not available at this time (Table VIII.5).

**Table VIII.5. Emergency department visit trends, baseline through intervention period - ICSI**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid and Medicare administrative claims and enrollment data.

Notes: Many participants are enrolled with managed care providers through Medicare Advantage or Medicaid managed care. Limited data will be available for managed care enrolled participants.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

#### 5. To what degree did these projects affect the utilization of other health care services, such as emergency care/crisis stabilization, outpatient care, and inpatient care? (Group-specific question)

Some staff members reported that, as a result of their enrollment in COMPASS, patients were more likely to participate in diabetic education or use nutrition or fitness services to manage their weight.

## **D. Workforce**

In this section, we address three questions related to roles, training, and retention.

### **1. What types of personnel were required for these innovations? (Question from domains framework)**

The COMPASS project relies on the following individuals (see Appendix G for additional information on these roles):

- Care managers. They are responsible for making connections with enrolled patients, obtaining depression measures of severity at regular intervals, providing self-management support, coordinating care, using behavioral activation and problem-solving therapy, and keeping in close contact with patients. Some care managers with advanced training can also make assessments and changes in care in accordance with established protocols. These staff members also maintain the electronic registry and attend the systematic review.
- Consultant psychiatrists. These professionals participate in the systematic review and consult with care managers weekly about patients' care and treatment goals.
- Primary care providers. They work with the care managers to implement recommendations of the SCR.

In addition, all staff receive training in the CCMM.

### **2. How have rates of staff retention and turnover changed over the course of the intervention? (RfTOP question 84)**

ICSI reported no significant issues with turnover. The retention rates reported in their quarterly reports have been 90 to 100 percent during the last three quarters.

### **3. How does the rate staffing turnover rate for selected personnel (patient navigators/peer support specialists) compare with those of other health care workers? (Group-specific question)**

This project does not use these types of personnel.

## **E. Context**

In this section, we address four questions related to leadership, organizational issues, and patient and stakeholder engagement.

### **1. Was there a clearly designated champion or leader to oversee implementation? (RfTOP question 96)**

There was general consensus that COMPASS implementation has been a team process without a specific individual taking full responsibility for championing the program. At individual sites, however, some physicians were identified as active communicators who worked to effectively spread the word about the innovation. For example, these individuals have made presentations to introduce the COMPASS intervention to their practice, and they have subsequently stepped in when necessary to encourage physician buy-in and engagement in the intervention.

Some care managers and providers also noted that primary care providers and psychiatrist consultants at their organizations played important leadership roles. Others perceived the COMPASS project director and medical director at ICSI as the primary leaders and champions of the COMPASS project.

**2. To what extent did organizational features support or conflict with implementation? (RfTOP question 104)**

Clinical staff at many sites have had experience with other mental health integration, primary care redesign, and care coordination programs. In many cases, they view COMPASS as a natural extension of other ongoing activities and, therefore, easily incorporated into normal processes of care. In addition, some sites are leveraging existing partnerships—including relationships with local YMCAs, community colleges, and fire departments—to better implement COMPASS in their communities.

The structure of the project—a lead coordinating organization (ICSI) and several implementation sites—has posed administrative and legal challenges. However, ICSI has worked to ensure that partner sites view COMPASS as a collaborative rather than merely the work of one organization. This perspective is especially important when so many diverse organizations are involved, and it fosters partner buy-in, accountability, and the sharing of lessons learned and experiences across the consortium.

Staffed reported that having support from both administrative and clinical leadership in the organization is important to facilitating successful COMPASS implementation, as is identifying an enthusiastic and influential physician champion. In addition, sites emphasized the importance of having the right mix of individuals on the SCR team. Finally, organizations that developed effective ways of communicating SCR recommendations to other members of the clinical practice were more successful at obtaining physician acceptance of the intervention. Sites report varying levels of success with communicating recommendations using care managers versus a physician champion or pharmacist; the existing culture in the practice is a determinant of whether care managers are able to influence the group.

COMPASS is being implemented in practices and health systems of varying sizes and organizational arrangements. To date, our analyses suggest that practice size, type of governance, and provider payment model all affect the types of implementation challenges that arise when attempting to disseminate widely a care management model such as CCMM. Further data collection and analysis will allow us to examine in detail the variation in the challenges that arise for different types of settings and the various solutions that these settings develop.

**3. To what extent did the program involve patients or patient representatives in planning and implementing the innovation, and how is the need for innovation communicated to them? (RfTOP question 97)**

Patients and patient representatives have had only limited involvement in planning and implementing COMPASS. ICSI's patient advisory group was informed of the progress of the innovation and has been involved in reviewing and providing feedback on some project materials targeting patients (such as recruitment materials).

**4. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation? (RfTOP question 105)**

Stakeholders and partners were involved during the grant-writing stage of the project. In addition, each partner was named in the grant application. Both approaches served to increase partner buy-in and ownership of the project. ICSI keeps participating sites actively engaged by providing regular updates of the project budget, executive committee decisions, and CMMI expectations. ICSI aims to keep open the lines of communication between ICSI and the participating sites as well as among the sites. This transparency also promotes accountability for all involved.

Additionally, Health Partners Institute for Education and Research is monitoring and evaluating the project. As part of this effort, participating organizations have access to real-time data for their own sites and also can view enrollment data from other sites. This, too, contributes to transparency across the consortium.

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## IX. KITSAP MENTAL HEALTH SERVICES

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### A. Introduction

Staff at Kitsap Mental Health Services (KMHS) are using Health Care Innovation Awards (HCIA) funding to implement *Race to Health!*, a project that aims to improve behavioral and physical health care and outcomes for 1,100 adults and children in Kitsap County, Washington, and reduce the costs associated with their care. This program intends to (1) provide integrated mental health, substance use disorder treatment and physical health monitoring, prevention, and intervention; (2) improve connections between individuals with serious mental illness or severe emotional disturbance and their primary care providers (PCPs); and (3) support the provision of appropriate mental health and substance use disorder services in physical health settings.

KMHS staff aim to accomplish these goals through the program's bi-directional model, which involves implementing elements of the program at KMHS and in community medical practices. The project's expanded driver diagram (see Appendix C) illustrates the context of the project, strategies for achieving its goals, and anticipated outputs, outcomes, and impacts.

To prepare this annual report, we have drawn information from interviews conducted with key staff and other stakeholders during site visits in spring 2014. In addition, we have used quantitative data, including claims, administrative, or EMR data, if such data were available as of July 1, 2014 (the cut-off date for receipt of data files to allow us to conduct analyses that would yield findings for the first draft of the annual report, due on September 1). To support this analysis, KMHS provided an extract from their EMR system (Profiler) and patient identifiers that could be used to extract CMS program enrollment and claims data. KMHS will update these data once a quarter for the remainder of the intervention award period.<sup>9</sup>

### B. Implementation effectiveness

In this section, we address 11 questions that cover several subdomains within the overall domain of implementation effectiveness including key components of the intervention (such as care coordination), intervention dosage, issues of conceptual drift, the reach of the intervention, and effects on access to care (as perceived by staff and key stakeholders).

#### 1. In light of the importance of coordinated care for individuals with serious behavioral health problems, how did these awardees address care coordination? (Question from domains framework)

As part of *Race to Health!*, KMHS works within its own organization and with community stakeholders to address patients' mental health, substance use, and physical health care needs. To facilitate a more coordinated approach to care within the organization, KMHS restructured its staff into multidisciplinary care teams, each of which typically consists of a team supervisor, a psychiatric prescriber, a psychiatric nurse, master's-level and bachelor's-level care coordinators

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<sup>9</sup> Many of the quantitative analyses presented in this section focus on KMHS's participants who are Medicare beneficiaries. We recognize that Medicare beneficiaries represent less than five percent of KMHS's patients; as a result, the findings in this report should not be interpreted as representative of the individuals participating in KMHS's program.

(behavioral health specialists), a co-occurring disorder specialist, a community integration specialist, a medical assistant or healthy family coordinator, and a care team assistant.

*Race to Health!* also promotes the use of health information technology (IT) to coordinate patient care. The medical assistants and healthy families coordinator are responsible for managing incoming alerts on emergency department (ED) admissions and updating physical health information in each patient's electronic health record (EHR), including obtaining and recording information from patients' PCPs.

Outside of KMHS, *Race to Health!* helps community PCPs better coordinate care for their patients. By giving external medical providers consultations on psychiatric medication management, the program hopes to improve providers' ability to manage patients' behavioral health symptoms and refer them to appropriate services.

*Race to Health!* also provides on-site behavioral health assessments and brief interventions at four primary and specialty care practices through a behavioral health professional who rotates among office locations. In addition to meeting with patients when providers ask them to do so, the behavioral health professional facilitates information sharing and serves as a bridge between KMHS and the PCPs. KMHS's psychiatric consultant and behavioral health professional address both mental and substance use issues.

## **2. What specific components of care coordination do stakeholders believe are most important and effective? (Group-specific question)**

KMHS staff reported that the *Race to Health!* health IT component has raised staff awareness of patients' use of services and helped engage patients and other stakeholders in discussions to reduce inappropriate service use. For example, several staff reported that data and alerts on patients' use of the ED help the care teams identify patients who might benefit from a collaborative care conference—a meeting of care team members and external stakeholders (for example, local ED staff, emergency medical services, and a representative from the patient's health plan). Care team members review ED utilization data during these conferences to help identify solutions to participants' problems in accessing or using services that would reduce ED visits.

Staff also mentioned using ED alerts to inform their conversations with patients. For example, one care coordinator noted that when she knows a patient has visited the ED frequently, she presents alternatives to the patient, focusing on “where to go and when.”

KMHS staff also discussed how the new care team structure—including the addition of medical assistant and healthy families coordinator roles—facilitates care coordination. During daily huddles, care team members share information and discuss treatment plans for patients who are in crisis or who have frequent ED visits. One staff member described the huddles as “holistic” and called them “an opportunity for us to respond to questions and issues about clients in an informal setting.”

Staff in all care team roles reported that having the medical assistants and healthy families coordinator bring patient data to the huddles is helpful to care coordination. One care team member commented, “As a clinician, you get so much information and it becomes a challenge to

figure out how to store it and retrieve it. [The medical assistant] helps so much with that.” The huddles also give care teams an opportunity to learn from the care team nurse about helping patients self-manage chronic diseases, and receive guidance from the care team’s co-occurring disorder specialist about patients’ substance abuse screening, assessment, or treatment needs.

### 3. What are the components of the interventions as implemented by the awardee? (Question from domains framework; RfTOP question 5)

*Race to Health!* has six key components (Appendix F describes in detail the components, the workforce staffing for each component, and the training provided):

- Multidisciplinary care teams consist of a care team supervisor, a prescriber, a psychiatric nurse, master’s-level and bachelor’s-level care coordinators (behavioral health specialists), a specialist in co-occurring disorders, a medical assistant or healthy families coordinator, and a care team assistant
- Care team and agency-wide training and consultation on co-occurring substance use disorders
- New positions for the care team (medical assistant on the care teams for adults; healthy families coordinator for care teams for children) to collect, monitor, and facilitate use of physical health data
- Training and education for staff and patients on chronic disease self-management and wellness
- On-site behavioral health services at four primary and specialty care sites
- Psychiatric consultations to providers at the four sites and other PCPs in the community

Several components of KMHS’s initiative align with the CMS domains framework:

- **Workflow redesign.** As part of the reorganization of their care teams, KMHS added new staff positions, as noted above, and redefined the responsibilities of some existing staff (for example, psychiatric nurses and co-occurring disorder specialists). To manage these new and redefined positions, KMHS leadership developed protocols to provide guidance on workflow and processes: how often and for how long care team discussion huddles should occur; how care teams should prioritize follow-ups on ED visit alerts; how often medical assistants should collect patient information from primary care physicians; how to structure collaborative care conferences (whom to include, what information to pull, the format, and what the clinician should bring); how medical assistants should prioritize their responsibilities as well as the procedures that accompany those responsibilities (when to do blood draws, and when to request and enter patient medical information); and which team member should be contacted first when patients arrive.
- **Health IT.** *Race to Health!* involves efforts to enhance KMHS’s ability to collect, track, and use patient data through health IT. The care team medical assistants and the healthy families coordinator gather patient medical data and enter them into Profiler, the agency’s EHR system, to inform patient care. As part of this work, KMHS analysts worked with an epidemiologist from the county public health department to adapt the existing EHR to

incorporate information fields for physical health data, and they developed patient registries and reporting functions to allow for the use of this data. For example, the analysts worked with care team staff to develop and roll out an integrated care management report that summarizes a patient's physical and mental health information, including mental, physical, and substance abuse diagnostic information; dates of recent and upcoming appointments; and alerts about ED visits and hospitalizations obtained through the statewide emergency department information exchange.

#### **4. How much of each component was provided? (RfTOP question 6)**

KMHS changed its model to provide care through multidisciplinary teams intended to integrate substance use disorder and physical health care into mental health treatment settings. By December 31, 2012, *Race to Health!* was established, and the expectations, policies, and procedures had been communicated to staff. All patients who received care at KMHS after this date were affected by the changes in care delivery. Between January 2013 and March 2014, KMHS' integrated care teams provided one or more services to 4,747 individuals enrolled in Medicare or Medicaid.

In addition to ushering in multidisciplinary care teams, *Race to Health!* has supported health IT improvements intended to give the teams information on patients' physical health needs as well as to facilitate coordination of care with the patients' PCPs. These efforts entail collecting information about patient diagnosis and health status from patients' PCPs and, to a limited extent, from health screenings.

A component of *Race to Health!* involves periodically identifying and selecting groups of patients, known as cohorts, based on their high health needs. KMHS has adult cohorts and child cohorts. They chose the adult cohorts using information from the state provided PRISM system and their EHR, Profiler. PRISM includes risk scores based on the Chronic Disability Illness System, which assigns risk scores to Medicaid beneficiaries based on the severity of their health care needs. The system then produces individual beneficiary webpages, which list the diagnoses and risk factors upon which the PRISM score was based. Using the beneficiary webpages and data in their EHR, KMHS identified patients with co-morbidities, defined as both a mental health and substance abuse condition or a mental health and co-morbid physical health condition, and exclusion factors. Exclusion factors are conditions that make it difficult for a patient to participate in the intervention, such as being on dialysis. The patients remaining at the conclusion of this process became the adult cohorts. For the child cohorts, KMHS asks their providers for recommendations, and then analyzes EMR data to search for comorbidities. These methods identified the majority of the cohort. To fill the few remaining slots, KMHS identified children who scored high on the child SUD and trauma screens.

Although KMHS staff are entering into their EHR system updated medical and health service use information for all patients, they are focusing efforts on these cohorts to ensure that their records contain key data about their health status and health service use. These efforts include reaching out to patients' primary care providers and tapping into the State's ED data system. Cohort 1, identified in January 2013, consists of 100 adults; cohort 2, identified in mid-2013, consists of 300 adults and 83 children.

Because these patients are the primary focus of health IT activities, substantially higher rates of data were collected about them than about their counterparts who were not selected for

cohorts. Across the three cohort subgroups (that is the two adult and one child cohort), 82 to 96 percent of patients had one or more physical health diagnoses recorded, 83 to 85 percent had BMI measured, and 65 to 74 percent had blood pressure measured. Measurements of cholesterol levels, hemoglobin a1c levels, and metabolic screens were 34 to 52 percent, 30 to 41 percent, and 19 to 56 percent, respectively (Table IX.1).

Patient activation measure (PAM) scores are intended to give caregivers information on a patient's ability to self-manage health care needs. As part of the effort to improve patient care, KMHS began collecting PAM scores for all patients. A priority was placed on recording these scores for cohort members, and they will be used by KMHS staff to more appropriately target patient care, educational services, and support activities. During the 13 months after implementation, PAM scores were recorded for approximately three-fourths (72 percent) of cohort 1 members and approximately two-thirds of cohort 2 adults (59 percent). PAM scores were collected for 20 percent of the total patient base (Table IX.1).

Several intervention activities take place in the community. The behavioral health provider conducts consultation, referral, and brief intervention at four partner primary and specialty care practices; the psychiatric consultant provides consultation on psychiatric co-morbidities and medication management to 54 community PCPs to date, inclusive of some from the four partner practices. Data were not available to assess how much of each of these intervention components was provided.

**Table IX.1. Services received by KMHS' patients, January 1, 2013–March 31, 2014**

	Patients receiving any service (n = 4,747)		Adult patients who are members of cohort 1a (n = 100)		Adult patients who are members of cohort 2 (n = 300)		Child patients who are members of cohort 2 (n = 83)		Patients who are Medicare enrollees (n = 77)		Patients who are Medicaid enrollees (n = 3,779)		Patients who are duals (n = 716)	
	n	Percent of total	n	Percent of total	n	Percent of total	n	Percent of total	n	Percent of total	n	Percent of total	n	Percent of total
Mental health and substance abuse treatment coordination														
Provided mental health or substance use disorder service by care team	4,747	100	100	100	300	100	83	100	77	100	3,779	100	716	100
Physical and mental health care coordination														
Physical health diagnoses recorded <sup>b</sup>	1,742	37	96	96	245	82	70	84	36	47	1,283	34	392	55
BMI measured	1,796	38	83	83	255	85	70	84	49	64	1,271	34	455	64
Blood pressure measured	1,756	37	74	74	214	71	54	65	53	69	1,207	32	461	64
Cholesterol measured	411	9	52	52	136	45	28	34	12	16	258	7	139	19
Hba1C measured	260	5	41	41	89	30	26	31	*	*	171	5	82	11
Metabolic screening assessment	212	4	56	56	88	29	16	19	*	*	146	4	64	9
Tobacco and chew use status	3,103	65	95	95	278	93	63	76	58	75	2,398	63	572	80
Patient Activation Measure (PAM) score measured and recorded	940	20	72	72	177	59	-	-	22	29	683	18	230	32
Chronic disease management and health promotion														
Dental class	12	0	-	-	-	-	-	-	-	-	-	-	-	-
Diabetes class	14	0	-	-	-	-	-	-	-	-	-	-	-	-

Source: Mathematica analysis of KMHS EMR data.

Note: Percentages displayed are column percents; stars indicate estimate suppressed to protect individual privacy because the cell represents fewer than 11 people. Columns are not mutually exclusive.

<sup>a</sup> There were no children in cohort 1.

<sup>b</sup> Physical health diagnoses are recorded primarily by the medical assistants. KMHS medical staff also occasionally record physical health diagnoses.

### 5. What “dosage” of the innovation was delivered to participants? (RfTOP question 9)

Dosage of the intervention delivered to patients was measured as the number of services provided to each patient (Table IX.2.). Across all types of services, the most frequent dosage was 13 or more services (3,083 patients). For in-person services, the most frequent dosage was also 13 or more services (1,489 patients). The most commonly used service was individual counseling (used by 63 percent of all patients), followed by medication management (used by 33 percent of all patients). Other services used at least once by at least 10 percent of all patients include crisis intervention (17 percent), nursing assessment (16 percent), family therapy (14 percent), rehab case management (12 percent), case coordination with other outpatient programs (10 percent), and psychiatric evaluation (10 percent).

**Table IX.2. KMHS dosage: number of KMHS patients who have received designated services, January 1, 2013 – March 2014**

	Total	1	2–5	6–12	13+
<b>All services</b>	<b>4,747</b>	<b>0</b>	<b>768</b>	<b>896</b>	<b>3,083</b>
<b>Most frequently used services</b>					
Individual counseling	2,980	460	874	909	737
Medication management	1,567	195	836	524	12
Crisis intervention	816	361	351	86	18
Nursing assessment	769	168	207	198	196
Family therapy	666	122	234	214	96
Rehab case management/client in hospital/inpatient case coordination	589	170	232	131	56
Case coordination with other outpatient programs	485 <sup>+</sup>	284	168	33	*
Psychiatric evaluation	478 <sup>+</sup>	478	*	0	0
Intake/assessment	438 <sup>+</sup>	438	*	0	0
Special population consult received	364	321	43	0	0
Individual psychotherapy	321	160	93	53	15
Substance abuse group therapy	315	106	93	50	66
Involuntary treatment action investigation/not detained	292 <sup>+</sup>	203	89	*	0
Substance abuse case consultation	250 <sup>+</sup>	163	87	*	0
Involuntary treatment action investigation/detained or revoked	233 <sup>+</sup>	157	76	*	0

Source: Mathematica analysis of KMHS EMR data.

\* Estimate suppressed to protect individual privacy because cell consists of fewer than 11 people.

<sup>+</sup> Total reflects only numbers displayed.

### 6. How well did providers and sites adhere to planned procedures (including, when appropriate, procedures for customization)? (RfTOP question 12)

Overall, KMHS has adhered to its broad plans for implementing *Race to Health!* as presented in its operational plan. Because most *Race to Health!* components are implemented only within KMHS, the project did not require customization across multiple sites.

### 7. Overall, during implementation, how much did project “drift” from the original model? (Question from domains framework)

By design, *Race to Health!* involves continuously altering or improving the program components based on program leaders’ observations and staff feedback. Consequently, the

model could be said to have “evolved” rather than “drifted.” One KMHS program leader described the program’s approach as “getting the behavior to happen first and then trying to shape the behavior.” For example, rather than prescribe initial protocols for care team huddles, KMHS leadership said they “let the huddle development happen organically to see how things looked.”

After staff grew accustomed to huddling as a team, KMHS leadership developed protocols for huddles, including guidance on how frequently huddles should occur and what content teams should cover (for example, each care team should hold a huddle every day for at least 30 minutes and weekly for at least one hour, and huddles must include time to discuss any ED alerts or clients in crisis). In the words of one program leader interviewed during the first round of site visits, ongoing development of program protocols is indicative of the program’s attempt to “refine the processes that we have in place to make sure that we’re working toward higher levels of efficacy.”

#### **8. What is the target population and how many participants were reached? (RfTOP questions 15 and 16)**

KMHS’s intervention is intended to improve care integration and coordination for all its patients. However, as noted, the intervention includes periodic identification of cohorts of patients with severe mental illness and physical health comorbidities, or severe mental illness and substance abuse comorbidities, who receive additional intervention services. Between January 2013 and March 2014, KMHS provided one or more services to 4,747 Medicaid or Medicare patients, and of them, 100 patients were adult members of cohort 1, 300 were adult members of cohort 2, and 83 were child members of cohort 2 (Table IX.3).<sup>10</sup>

Of patients with a Medicaid or Medicare ID, the large majority were Medicaid-only enrollees. Eighty percent of all patients were enrolled in Medicaid only, as were 62 percent of cohort 1 members, 77 percent of adult cohort 2 members, and 100 percent of child cohort 2 members. An additional 15 percent of all patients were dually enrolled in Medicaid and Medicare, as were 38 percent of cohort 1 members and 23 percent of cohort 2 adult members. Only 2 percent of all patients were enrolled only in Medicare, and no member of any of the cohorts was enrolled solely in Medicare (Table IX.3).

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<sup>10</sup> Findings presented in this section are based on Mathematica’s analysis of KMHS EMR data. These data do not include many of the patients who are considered direct *Race to Health!* participants in KMHS’s quarterly reports to the Lewin Group (for example, patients who received assessment or intervention at partner primary and specialty care practices but who do not receive services onsite at Kitsap).



**Table IX.3. Demographic characteristics and insurance status of KMHS patients, percentages**

	Patients receiving any service (n = 4,747)	Adult patients who are members of cohort 1 (n = 100) <sup>a</sup>	Adult patients who are members of cohort 2 (n = 300)	Child patients who are members of cohort 2 (n = 83)
<b>Age group</b>				
<18	25	0	0	100
18-64	71	87	95	0
65 and over	4	13	5	0
<b>Gender</b>				
Female	55	68	65	46
Male	45	32	35	54
<b>Insurance status</b>				
Medicaid-enrolled	80	62	77	100
Medicare-enrolled	2	0	0	0
Dual enrolled	15	38	23	0
Unknown <sup>b</sup>	4	0	0	0
<b>Education status</b>				
Full-time education	25	1	3	82
Part-time education	4	3	2	10
Not in education program	69	92	95	7
Unknown	2	4	1	1
<b>Employment status</b>				
Full-time (35+ hours)	1	1	2	0
Part-time (35 hrs or less)	4	3	2	2
Volunteer, supported	1	3	2	0
Not employed	92	93	93	98
Unknown/missing	2	0	1	0
<b>Living situation</b>				
Private residence	83	87	87	92
Foster home	3	1	1	6
Homeless/no stable arrangement	5	3	3	1
Jail/juvenile corrections	2	2	1	1
Mental health and substance use disorder residential treatment	3	4	4	0
Other	1	3	3	0
Unknown	2	0	1	0

Source: Mathematica analysis of KMHS EMR data.

<sup>a</sup> Children were not included in cohort 1.

<sup>b</sup> Insurance status is based on having a Medicare or Medicaid identification number in data provided by KMHS. Some individuals included in KMHS data were identified as being enrolled in Medicaid or Medicare, but did not provide an identification number. We are confirming the insurance status of these individuals with KMHS.

Although most KMHS patients are between 18 and 64 years old (71 percent), one-quarter of all patients are younger than 18 (25 percent). The aged (age 65 or older) are a small minority of KMHS patients, making up only 4 percent overall, 13 percent of cohort 1, and 5 percent of cohort 2 adults. The two adult cohort groups are predominantly female (68 percent of cohort 1 and 65 percent of cohort 2); the child cohort has more males (54 percent) (Table IX.3).

As Table IX.3 indicates, the large majority of adult KMHS patients are not currently employed; as expected, almost all child patients are not employed. (The exceptions are a few teenagers.) Twenty-nine percent of all patients are in full- or part-time education; 92 percent of child cohort members are in full- or part-time education. The most common living situation for all patients is a private residence (83 percent); a small percentage live in foster homes (6 percent of all child cohort members) or in mental health and substance abuse residential treatment settings (4 percent for both adult cohort groups). Five percent of all patients are homeless or have no stable living arrangement: 3 percent of adult cohort members, and 1 percent of child cohort members fall into this category (Table IX.3).

The most common primary mental health diagnoses among KMHS patients are episodic mood disorders. Forty-four percent of all KMHS patients, 47 percent of cohort 1 patients, and 56 percent of adult cohort 2 patients are in this category. Child cohort members are an exception: adjustment reaction is the most common diagnosis (46 percent). Dissociative anxiety (15 percent) and schizophrenia (12 percent) are also common primary mental health diagnoses for the overall KMHS patient population (Table IX.3).

*Race to Health!* targets individuals with certain physical health conditions, including hypertension, lipid disorders, and diabetes. Forty-eight percent of cohort 1 adults, 27 percent of cohort 2 adults, and 6 percent of cohort 2 children have a diagnosis of hypertension recorded in their records. Lipid disorders are also common among the adult cohort members: 41 percent of cohort 1 patients and 31 percent of cohort 2 adult patients have this diagnosis recorded. Diabetes was recorded for 36 percent of cohort 1 and 16 percent of adult cohort 2 members. For child cohort members, the most common diagnosis is asthma (35 percent) (Table IX.4).

*Race to Health!* aimed to provide psychiatric consultations for 10 percent of the county's PCPs. As of June 2014, the program exceeded that goal, having provided psychiatric consultations to 32 percent of the county's PCPs.

**9. To what extent was implementation timely and responsive to site-level constraints? (RfTOP question 17)**

KMHS implemented most of the *Race to Health!* program components according to schedule. However, there were some implementation delays. For example, some aspects of the project's plans to enhance the use of health IT were delayed as a result of a local hospital's recent affiliation with a regional hospital system. Prior to the affiliation, KMHS planned to join the local hospital's health information exchange (HIE), which would facilitate electronic access to health data for more than half of the agency's patients. The HIE will not exist after the local hospital transitions to a different EHR system as part of this affiliation; as a result, KMHS will not be able to receive electronic notifications of ED visits and non-psychiatric inpatient hospitalizations, and it will not have electronic access to physical health data for patients shared with this hospital and many affiliated local providers.

**Table IX.4. Percentage of KMHS patients with selected diagnoses**

	Patients receiving any service (n = 4,747)	Adult patients who are members of cohort 1 (n = 100) <sup>a</sup>	Adult patients who are members of cohort 2 (n = 300)	Child patients who are members of cohort 2 (n = 83)
Primary mental health diagnosis <sup>a</sup>				
Episodic mood disorder	44	47	56	35
Adjustment reaction	34	35	34	46
Anxiety, dissociative	15	18	16	16
Schizophrenia	12	34	30	0
Pervasive developmental disorder	1	0	1	4
Other	26	36	26	46
Undiagnosed	7	0	0	0
Targeted physical health diagnoses <sup>b</sup>				
Hypertension	6	48	27	6
Lipid disorders	6	41	31	8
Diabetes	4	36	16	5
Obesity	3	21	16	14
Asthma	4	24	15	35

Source: Mathematica analysis of KMHS EMR data.

<sup>a</sup> Most recent active primary diagnosis as of March 2014.

<sup>b</sup> Physical health diagnoses are collected by the medical assistants for cohort members and other high-risk members. Because data collection is not targeted toward all patients, numbers presented for non-cohort patients may be an undercount of the actual number of patients with these conditions. KMHS did not routinely capture physical health information in its EHR prior to the HCIA; therefore, these numbers likely underrepresent the percentage of KMHS patients with physical health diagnoses.

KMHS staff also reported some delays in implementing the PAM in adult care teams. Care teams use the tool to identify patients who are appropriate for the diabetes education group, but respondents note that KMHS staff are “still figuring out whether it will be useful” for other activities. *Race to Health!* is giving more training to care teams on how to use coaching materials associated with the PAM.

As planned, KMHS restructured its staff into multidisciplinary care teams, but is still working to define the scope of work for the medical assistant and psychiatric nurse roles. KMHS staff reported that they are working to redefine the role of the existing psychiatric RNs to move beyond a traditional psychiatric nurse role to one that more routinely addresses the whole health needs of team patients. The agency also is working to find additional ways for medical assistants to become involved in patient medical issues, but noted that they have to “be careful” to avoid overlapping with the psychiatric nurse role.

#### **10. Does the incorporation of patient navigators/peer support specialists increase access to health care services for patients in this group? (Group-specific question)**

Data to address this question are not available at this time.

**11. How does this project address the concerns of access to mental/behavioral health care services in underserved areas, such as rural and low-income areas? (Group-specific question)**

Many KMHS patients live in rural areas of Kitsap County and do not have easy access to public transportation. KMHS staff help patients access transportation, and the agency has pursued strategies to make access easier (such as developing an open-access policy to allow patients to drop in), but transportation remains a major barrier. KMHS is the primary provider of mental health and substance use treatment for low-income individuals in Kitsap County. A PCP at a local federally qualified health center commented that KMHS is the only mental health center in the area that serves his patients.

**C. Program effectiveness**

In this section, we provide preliminary results for CMMI's four core measures. Because of reporting lags for Medicaid-enrolled patients and the lack of managed care encounter data, we focused our analysis on patients enrolled in Medicare Parts A and B who are not enrolled in Medicare Advantage. To the extent possible in future reports, we plan to calculate these measures for Medicaid-enrolled participants. In the future, we also will report on the extent to which the awardees' projects affected the use of other services (a group-specific question, as noted below).

We examined descriptive characteristics for the KMHS Medicare patient population in six-month intervals throughout this time period and found the following (Table IX.5):

- The number of KMHS Medicare patients declined from 1,040 in the first six-month period (July to December 2010) to 722 in the last six-month period (July to December 2013).
- Percentages of the patient groups in designated age, gender, and disability groups were generally stable through this period; the percent of high-risk patients rose from 6 to 15 percent.
- The percentage of clients with the listed diagnoses in the 12-month period prior to the analysis period is generally consistent across this time period.

**Table IX.5. KMHS Medicare enrolled patient characteristics, July 2010–December 2013**

Measure	July-Dec 2010	Jan-June 2011	July-Dec 2011	Jan-June 2012	July-Dec 2012	Jan-June 2013	July-Dec 2013
Number of unique clients <sup>a</sup>	1040	947	881	835	766	735	722
Age group (percent of clients) <sup>b</sup>							
18-34	15	16	18	19	20	20	20
35-44	20	20	21	19	19	20	20
45-54	29	28	28	27	26	23	24
55-64	17	17	17	18	18	20	19
65 or older	19	18	17	17	16	17	17
Disabled (percent of clients) <sup>c</sup>	87	89	90	91	90	90	89
Male (percent of clients)	46	49	46	44	43	46	45
Targeted as high-risk in 2013 (percent of clients)	6	7	8	10	12	14	15
Claim with listed diagnosis in 6- month period (percent of clients) <sup>d</sup>							
Schizophrenia	28	30	32	32	32	31	33
Bipolar disorder	18	19	23	23	23	20	21
Depression	31	30	33	32	34	34	33
Alcohol abuse	6	7	5	5	5	6	6
Drug abuse	8	8	7	8	9	11	12

Source: Mathematica analysis of Medicare administrative data.

<sup>a</sup> Number of patients in care at KMHS who were also enrolled in Medicare Part A and B and not Enrolled in Medicare Advantage for at least one month during the indicated period.

<sup>b</sup> Age on the first day of the analysis period.

<sup>c</sup> Percentage of clients whose original reason for Medicare entitlement is disability.

<sup>d</sup> Percentage of clients for whom at least one institutional claim or two outpatient claims were identified with the listed diagnosis in the 6 month period indicated.

### **1. To what extent have rates of hospitalization changed? (RfTOP question 34)**

The average quarterly inpatient hospital admission rate per patient for KMHS Medicare patients ranged from 0.07 to 0.12 between June-Aug 2010 (B3) and October-December 2013 (I4) (Table IX.6). Data for a comparison population is under development and will be available in future reports.

Since a comparison group has not yet been developed, we used statistical process control methods to assess whether there are any shifts or trends associated with implementation of the intervention. Figure IX.1 plots monthly inpatient admissions during the 31- month baseline period and the 12 months following full implementation of the intervention. Full implementation of the intervention in January 2013 is marked by the dotted vertical line. From the month prior to full implementation (December 2012) through the next four months following full implementation (January-April 2013), the admission rate remained below the control line, however, this series of low admission rate might be observed as a result of expected variance and is not sufficiently long to represent a shift in the admission rate. In May through November 2013 the admission rate was at or above the control line. We conclude that although the statistical process control chart has a sufficient number of runs to detect changes, no shifts or trends are present either pre or post-demonstration.

More analysis is needed to assess the extent to which patient characteristics and environmental factors may have affected the inpatient admission rate. In addition we will assess whether admission rates for subgroups such as the cohorts targeted for services may have been affected.

**Table IX.6. Average quarterly inpatient hospital admissions per patient trends, baseline through intervention period - KMHS**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Admissions rate per patient	NA	NA	0.09	0.09	0.09	0.12	0.08	0.07	0.09	0.09	0.08	0.1	0.08	0.08	0.11	0.1
Standard deviation	NA	NA	0.38	0.36	0.36	0.47	0.31	0.31	0.34	0.37	0.3	0.41	0.31	0.34	0.4	0.39
Unique patients	NA	NA	972	925	890	861	825	825	780	713	728	691	677	679	662	681
Comparison group																
Admission rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in admission rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Admissions rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Admission rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in admission rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

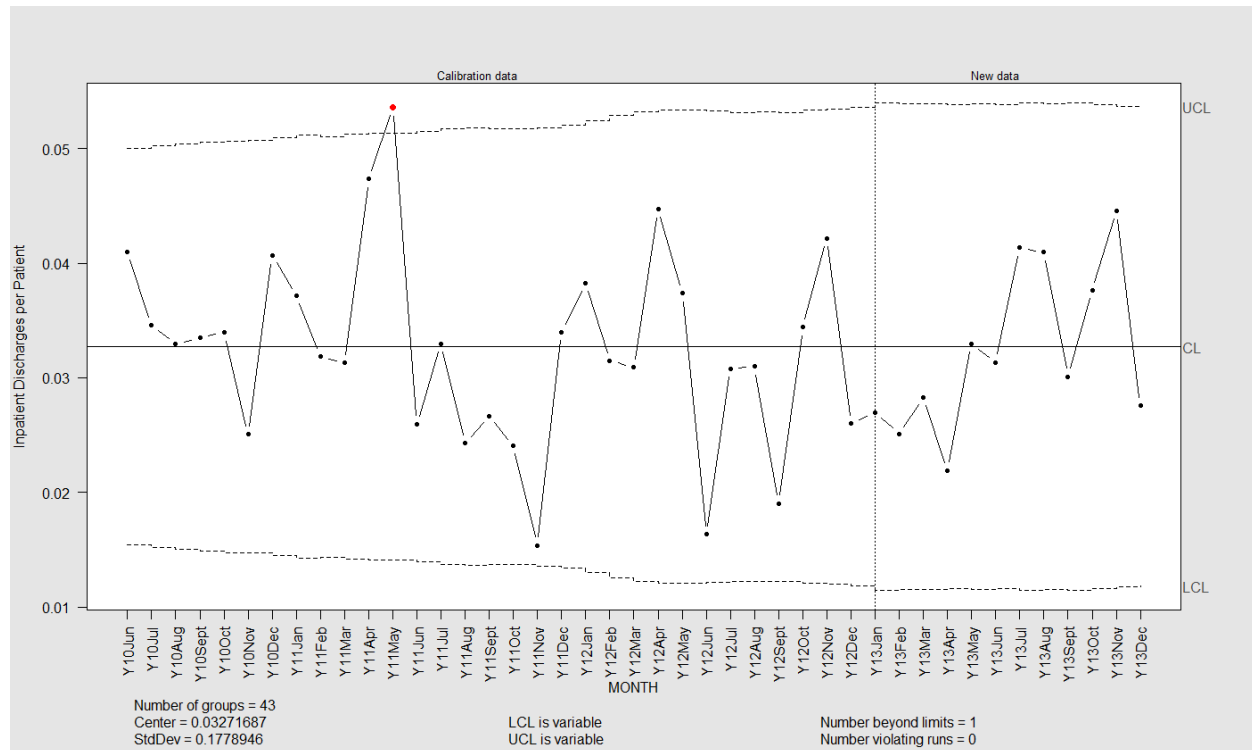
Source: Mathematica analysis of Medicare and Medicaid administrative claims and enrollment data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4. (Figure IX.1).

**Figure IX.1 Monthly inpatient admissions per patient, Medicare-enrolled patients, KMHS, July 2010 – December 2013**



Source: Mathematica analysis of Medicare administrative claims and enrollment data

## 2. To what extent have rates of re-hospitalization changed? (RfTOP question 34)

The average quarterly re-admission rates for KMHS Medicare patients ranged from 11 to 28 percent between June-Aug 2010 (B3) and October-December 2013 (I4) (Table IX.7). Data for a comparison population is under development and will be available in future reports.



**Table IX.7. Average quarterly re-admission rate trends, baseline through intervention period – KMHS**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Readmission rate	NA	NA	0.18	0.19	0.21	0.28	0.11	0.16	0.14	0.16	0.12	0.18	0.1	0.09	0.12	0.17
Standard deviation	NA	NA	0.31	0.31	0.36	0.37	0.28	0.23	0.25	0.29	0.29	0.31	0.27	0.23	0.27	0.34
Index stays	NA	NA	84	81	76	94	61	50	66	58	51	62	46	54	68	66
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicare and Medicaid administrative claims and enrollment data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

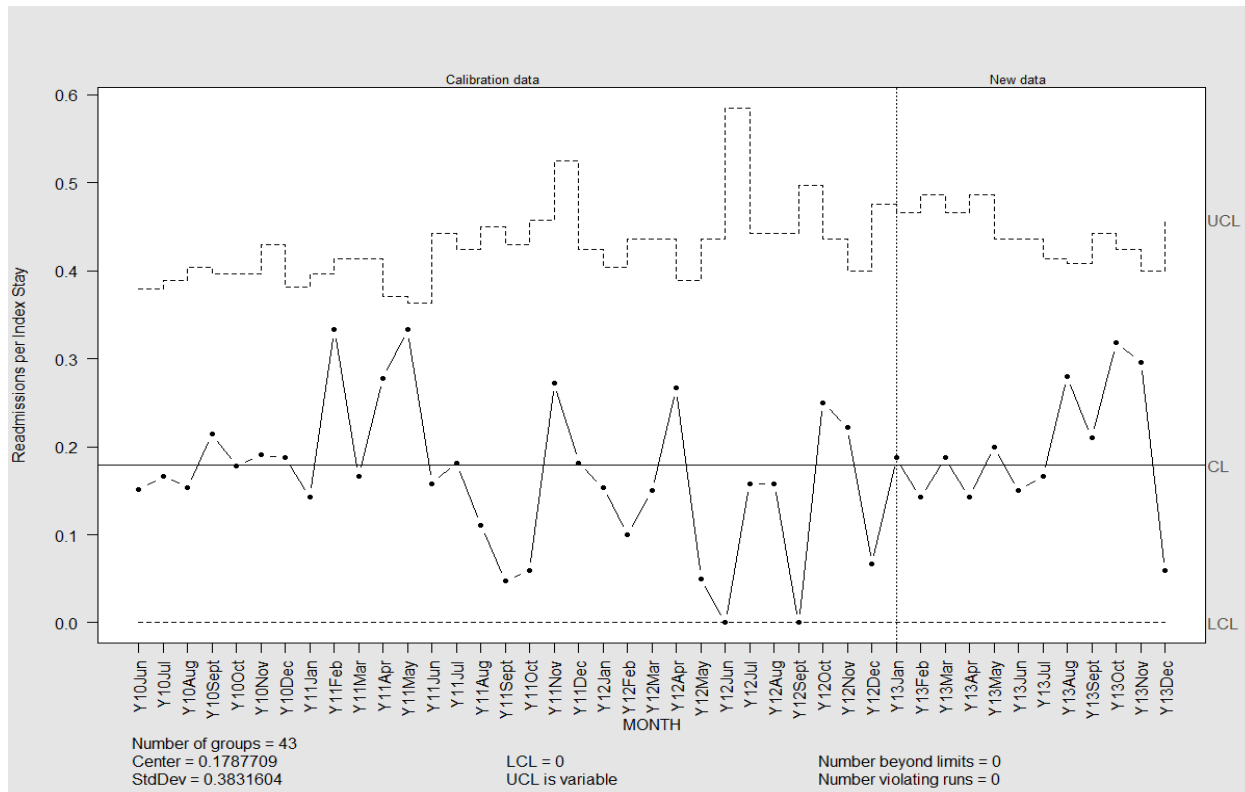
\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

Since a comparison group has not yet been developed, we used statistical process control methods to assess whether there are any shifts or trends in re-admissions associated with implementation of the intervention. Figure IX.2 plots monthly re-admission rates during the 31-month baseline period and the 12 months following full implementation of the intervention. Full implementation of the intervention in January 2013 is marked by the dotted vertical line. Although the statistical process control chart has a sufficient number of runs to detect changes, no shifts or trends are present either pre or post-demonstration. The observed fluctuations may be due to expected variance.

More analysis is needed to assess the extent to which patient characteristics and environmental factors may have affected the re-admission rate. In addition we will assess

whether re-admission rates for subgroups such as the cohorts targeted for services may have been affected.

**Figure IX.2. Re-admissions per index discharge, Medicare-enrolled patients, KMHS, July 2010 – December 2013**



Source: Mathematica analysis of Medicare administrative claims and enrollment data

### 3. To what extent have levels of ED utilization changed? (RfTOP question 33)

Between June 2010 and December 2012, the quarterly ED visit rate per KMHS Medicare patient ranged from 0.37 to 0.55 (Table IX.8). In the intervention period, ED visit rates were observed in a tighter range from 0.46 to 0.53 ED visits per patient.

**Table IX.8. Quarterly emergency department visit per patient trends, baseline through intervention period - KMHS**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
ED visit rate per patient	NA	NA	0.47	0.49	0.41	0.43	0.48	0.37	0.48	0.55	0.55	0.48	0.46	0.48	0.53	0.48
Standard deviation	NA	NA	1.41	1.33	1.09	1.23	1.19	1.1	1.29	1.68	1.42	1.48	1.23	1.48	1.45	1.13
Unique patients			972	925	890	861	825	825	780	713	728	691	677	679	662	681
Comparison group																
ED visit rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
ED visit rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicare and Medicaid administrative claims and enrollment data.

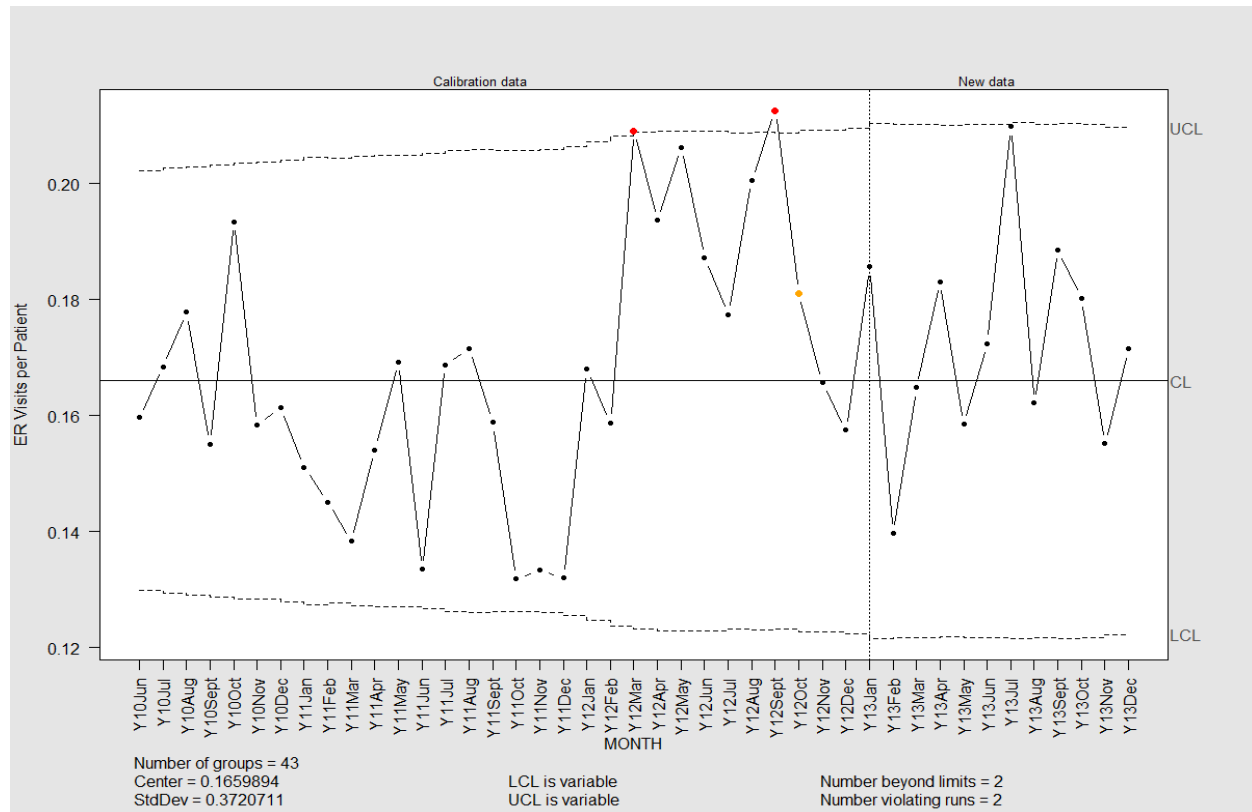
FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

Since a comparison group has not yet been developed, we used statistical process control methods to assess whether there are any shifts or trends in re-admissions associated with implementation of the intervention. The statistical process control chart (Figure IX.3) shows an upward shift in the ED visit rate (defined as 8 or more consecutive data points above control the line) from the 2nd – 4th quarter 2012 just prior to full implementation of the intervention. In 2013, after the intervention began, the observed monthly ED visit rate appears to resume a similar level to that observed prior to the upward shift in the latter part of 2012. Although these preliminary estimates suggest there may have been a decline in ED use during the first year of the intervention, additional analysis is needed to interpret these trends and assess the degree to which they were influenced by intervention activities.

**Figure IX.3. Monthly emergency department visits per patient, Medicare-enrolled patients, KMHS, July 2010 – December 2013**



Source: Mathematica analysis of Medicare administrative claims and enrollment data

**4. To what extent did the program change charges and expenditures for all care in the target population? (RfTOP question 40)**

The average quarterly FFS payment rate per patient for KMHS Medicare patients ranged from \$1,843 to \$3,266 between June-Aug 2010 (B3) and October-December 2013 (Table IX.9). Data for a comparison population is under development and will be available in future reports.

**Table IX.9. Total quarterly FFS payment per patient trends, baseline through intervention period – KMHS**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Spending rate per patient	NA	NA	2,497	2,506	2,502	2,791	2,609	2,084	2,401	2,264	1,843	2,381	1,996	2,261	2,434	3,266
Standard deviation	NA	NA	7,508	7,941	8,783	8,742	7,722	6,216	7,486	5,824	4,918	6,848	6,121	6,840	6,523	11,301
Unique patients	NA	NA	972	925	890	861	825	825	780	713	728	691	677	679	662	681
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in pending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicare and Medicaid administrative claims and enrollment data.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

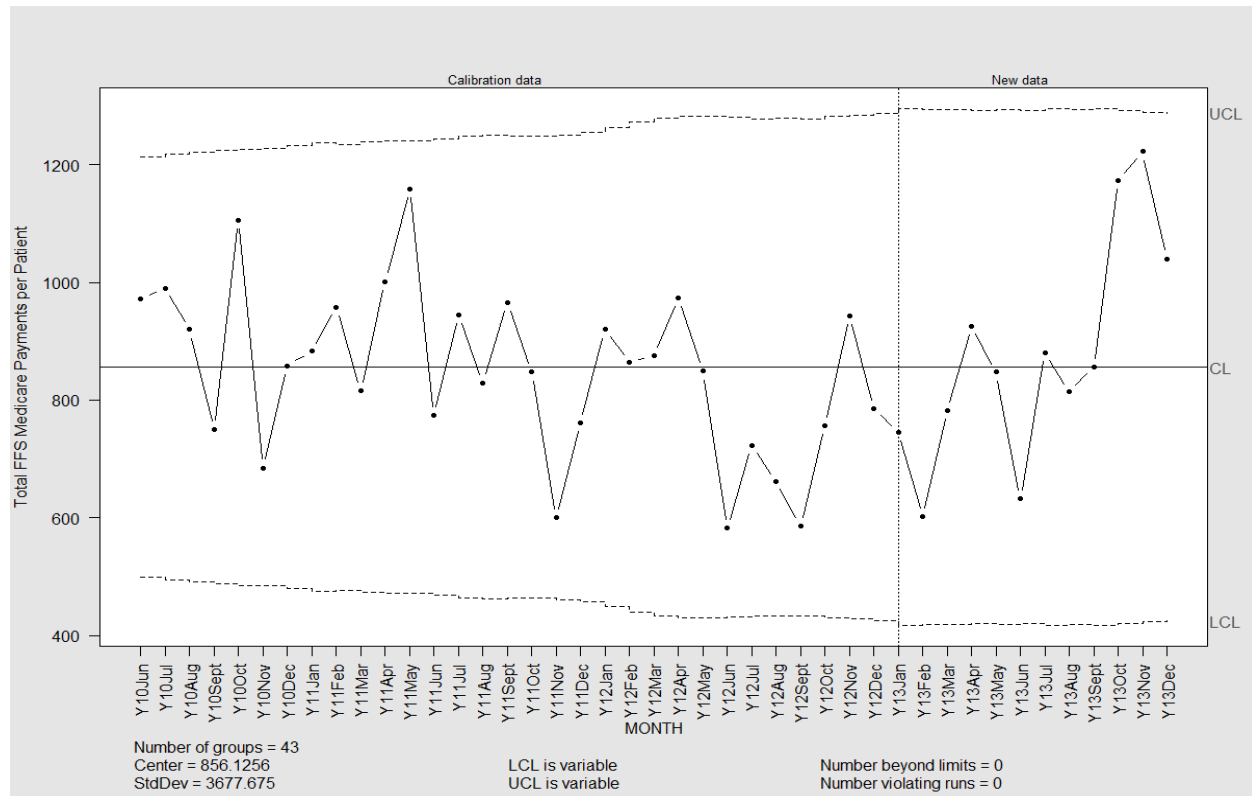
\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

Since a comparison group has not yet been developed, we used statistical process control methods to assess whether there are any shifts or trends associated with implementation of the intervention. Figure IX.4 plots monthly Medicare FFS expenditures per patient during the 31-month baseline period and the 12 months following full implementation of the intervention. Full implementation of the intervention in January 2013 is marked by the dotted vertical line. Although the statistical process control chart has a sufficient number of runs to detect changes, no shifts or trends are present either pre or post-demonstration. The observed fluctuations may be due to expected variance.

More analysis is needed to assess the extent to which patient characteristics and environmental factors may have affected the observed expenditure levels. In addition we will

assess whether expenditure levels for subgroups such as the cohorts targeted for services may have been affected.

**Figure IX.4. Total monthly Medicare expenditures per patient, Medicare-enrolled patients, KMHS, July 2010 – December 2013**



Source: Mathematica analysis of Medicare administrative claims and enrollment data.

**5. To what degree did these projects affect the utilization of other health care services (emergency care/crisis stabilization, outpatient care and inpatient care)? (Group-specific question)**

Both KMHS and primary care clinic staff believe that their clients make inappropriate use of the ED less frequently than they did before *Race to Health!* began. Staff indicated that the ED alerts they now receive when a client is seen at an ED not only allow them to become much more aware of overall utilization of the ED by their clients, but they also prompt staff to provide more patient education about appropriate use of emergency services. The innovation also encourages information exchange through health IT that permits ED staff and other providers to develop a shared plan of action to address a patient's care and to collaborate on it. The agency is able to access and contribute to ED treatment plans, and EDs can now help KMHS determine client status and need for medications.

When patients are especially high users of ED services, staff at KMHS convene collaborative care conferences with external providers to discuss actions that can appropriately address the matter. These conferences typically involve a wide range of stakeholders including, for example, ED staff, emergency medical service (EMS) personnel, or representatives of the

patient's insurance company in addition to relevant KMHS care team staff. KMHS leadership noted that different types of providers know about and can contribute different kinds of information about the patient, thereby giving a fuller picture of the client's circumstances and needs. Developing creative solutions for addressing inappropriate ED use is common. Staff mentioned, for example, cases in which patients were using EMS for a ride to the ED for attention and care, or because they had run out of cell phone minutes and were lonely. In these cases, conference participants explored options for supplying minutes on the phone or paying for other forms of transportation.

*Race to Health!* involves a concerted effort to link clients with PCPs, which also may contribute to the perceived reduction in ED use and an increase in use of primary care and preventive services. Staff report that most of their clients are now connected with a PCP, and this connection may reduce the inclination for clients to seek primary care services in the ED. Moreover, many providers mentioned that clients are increasing use of preventive care or medical services for conditions for which they otherwise might not have sought treatment. Some staff members attribute this change to a culture shift: prior to *Race to Health!*, KMHS staff did not often discuss medical issues with patients. Now that the project is focusing on the patient's whole health, these conversations have become the norm.

#### **D. Workforce**

In this section, we address three questions related to roles, training, and retention.

##### **1. What types of roles were required for these innovations? (Question from domains framework)**

*Race to Health!* relies on the following staff (Appendix G offers more information on these roles):

- Psychiatric medical providers, who prescribe and manage patient psychiatric medication
- Care team supervisors, who lead multidisciplinary care teams
- Care coordinators, who provide mental health therapy and case management to patients
- Psychiatric nurses, who monitor and support the patient's management of psychiatric medication, and provide education and training on physical health issues to the care team
- Co-occurring disorder specialists, who provide care team members with training and consultation on the treatment of co-occurring substance use and mental disorders and provide co-occurring substance use and mental health treatment to patients
- Behavioral health professional, who provides brief behavioral health intervention to patients at primary and specialty care practices in the community and also offers behavioral health consultation to providers at these practices
- A psychiatric consultant, who consults with primary and specialty care providers in the community by phone and email
- Medical assistants, who perform blood draws; take and record blood pressure, heart rate and other vitals; and work to improve the connection of KMHS's mental health services to the

patient's primary care by communication alerts to the care team and by tracking patient information from ED, PCP, and hospitalization

- Community PCPs, who provide primary and specialty care in the community with phone and email support from the psychiatric consultant, and also manage patient medication or refer patients to external behavioral health services when appropriate
- Harrison Health Partners (HHP) primary and specialty care providers, who provide primary and specialty care in the community with phone and email support from the psychiatric consultant and support from behavioral health professionals, and also manage patient medication or refer patients to external behavioral health services
- Healthy living program developer, who develops and provides chronic disease self-management and wellness training and programming for KMHS staff and patients
- Healthy families coordinator, who provides child and family care teams and their patients with consultation and coaching on healthy behaviors, wellness, nutrition, and chronic health management, and also serves in a medical assistant role for child and family care teams

Each adult care team has an embedded medical assistant to coordinate patient physical health information and obtain data from PCPs. Child and family teams receive similar support from the healthy families coordinator, who also provides health education to children and families on physical health topics such as hygiene and nutrition with guidance from and collaboration with the healthy living program director (HLPD). In addition, the HLPD develops programming and curricula for broader patient education and works with nurses on adult care teams to deliver training sessions on physical health topics to care team staff.

Primary care physicians at four HHP primary and specialty care clinics and 54 PCPs in the community thus far have received real-time support and consultations from the psychiatric consultant. The behavioral health professional is embedded at the four HHP clinics to provide direct mental health services to patients and additional consultation and mental health support to providers.

## **2. How have rates of staff retention and turnover changed over the course of the intervention (RfTOP question 84)**

The retention rate of *Race to Health!* staff has improved from 92.9 percent in the fifth quarter of the award to 100 percent in the sixth, seventh, and eighth quarters.

## **3. How does the staffing turnover rate of selected personnel (patient navigators/peer support specialists) compare with those of other health care workers? (Group-specific question)**

This awardee does not use these roles.

## **E. Context**

In this section, we address four questions related to leadership, organizational issues, and patient and stakeholder engagement.



**1. Was there a clearly designated champion or leader to oversee implementation?  
(RfTOP question 96)**

Staff routinely mentioned the leadership team at KMHS as the primary champions of *Race to Health!* Elena Argomaniz, the organization's administrative services director, was often singled out and referred to as a thought leader and "administrator with the vision." However, several staff said that deciding upon just one or a few champions was tough, and mentioned that everyone involved with the innovation has contributed to its implementation. Program staff also stressed that leaders at the participating PCPs and officials in county health and administrative agencies have made important contributions.

Staff noted that the success of the innovation relied on leaders who are willing to take risks, enjoy doing things differently, and relish learning as they go. In addition, they underscored the value of prior experience with agency-wide change and subject matter expertise among KMHS leadership, which allowed for more efficient implementation of the various components of the program. For example, the individual leading the efforts to integrate substance use disorder services into care teams is recognized statewide for her expertise in the area, and she was already a leader of substance use disorder services in the organization.

**2. To what extent did organizational features support or conflict with implementation?  
(RfTOP question 104)**

Leadership of KMHS credited the agency's long-standing intention to move toward integrated care as a driving force behind *Race to Health!* implementation. Prior to applying for the award, the agency had decided to restructure care teams to include co-occurring disorder specialists, and already had arranged to have a primary care physician on-site one day each week. The HCIA funding came at the right time to further the agency's vision. Other staff emphasized the value of KMHS's experience with the type of organizational change required by *Race to Health!* and said a growing emphasis on service integration throughout the state was vital to implementation.

Several financing mechanisms within the agency also proved important to being able to restructure and integrate substance use disorder services into care teams. The agency maintains an existing waiver of selected substance use disorder treatment regulations from the state legislature, which allows KMHS to operate its integrated substance use and mental health treatment model under the state's mental health licensure requirements rather than having to meet additional substance use treatment regulations. KMHS also worked with the county substance abuse treatment coordinator (with whom the agency has long collaborated) to obtain flexible state funding for activities not otherwise covered by Medicaid, such as co-occurring disorder training, drop-in groups, and consultation for mental health clinicians. These arrangements, in addition to its sub-capitated, at-risk financing arrangement for mental health services, bolstered the agency's ability to pursue an integration strategy as part the new program.

Several staff regarded the agency's central location as helpful to their work. KMHS serves as the county's primary community mental health provider, and few private psychiatrists in the county accept the population that the agency typically serves. The limited availability of mental health providers helped PCPs understand the need for and embrace consultation services offered

by the behavioral health professional and psychiatric consultant to enhance the availability of mental health services in Kitsap County.

Geography also can present a barrier to accessing care for KMHS patients who live far from the main center. For examples, some patients do not have access to affordable and reliable transportation, or have trouble navigating public transportation. The agency's ability to meet clients at other locations in the community was cited as valuable in addressing this barrier.

**3. To what extent did the program involve patients or patient representatives in planning and implementing the innovation and how has the need for innovation been communicated to them? (RfTOP question 97)**

KMHS solicited input on *Race to Health!* program development and implementation from a wide range of stakeholders by developing the *Race to Health!* community innovation council. The 10-member advisory group includes a KMHS client among its participants to represent a client perspective.

Staff also mentioned that the restructuring of care teams proved disruptive to some clients as separate providers coalesced into a team. Program leaders tried to make this transition easier on clients by involving them in the process of care team restructuring and prioritizing their preferences. Because all of a client's previous providers might not have been assigned to the same care teams, clients decided which provider they wished to follow and to which team they wanted to be assigned.

**4. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation? (RfTOP question 105)**

The agency's primary method of stakeholder engagement throughout implementation of the program is the community innovation council. The council's stakeholders include state and local officials, payers, consumers, and PCPs. The council gives stakeholders an opportunity not only to offer input on *Race to Health!*, but also to share what work is happening or should happen in the broader community. For example, the council might discuss how the program-funded medical assistants have benefited staff and clients at KMHS, as well as talk about what sort of education or training to add to the curriculum at local colleges to help health care workers develop appropriate skills for this position.

Agency leadership noted that strategic partners and relationships within the community are essential, given the community context in which the program operates. Past support for the agency and its endeavors from community partners has helped forge a solid foundation for the new program. The relationship between HHP and KMHS, for example, pre-dates this project; it first solidified when KMHS approached HHP about the possibility of establishing an HHP provider at KMHS. The *Race to Health!* bi-directional model of integration is an outgrowth of this early partnership. Locating the new behavioral health professional in the HHP practices is a logical extension of the already-existing partnership.

This foundational relationship allowed KMHS/HHP to obtain buy-in and feedback from providers at the four practices where the behavioral health professional would work, and ensures that her services are relevant and useful to patients. In addition, the partnership fosters additional

information integration and sharing between the two organizations. For example, the behavioral health professional is permitted to access the health records of both the HHP practices and KMHS, and serves as a bridge for patient information between the two.

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## **X. MAIMONIDES MEDICAL CENTER**

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### **A. Introduction**

Staff at the Brooklyn Care Coordination Consortium, which comprises more than 20 stakeholder organizations led by Maimonides Medical Center (MMC), are using Health Care Innovation Award (HCIA) funding to implement a program designed to improve the care of 7,500 adults with serious mental illness in southwest Brooklyn, New York. The program creates a medical and mental health home for enrolled patients by involving the patients' existing medical, mental health, and community service providers in the creation of virtually co-located, coordinated services.

The award allows the consortium to enhance an existing health information technology (IT), referred to as the care coordination platform (CCP), to support the coordination and exchange of information across participating organizations. The consortium hopes to sustain the effort through the development of a new payment model. The project's expanded driver diagram (Appendix A) illustrates the context of the project, strategies for achieving its goals, and the expected outputs, outcomes, and impacts.

To prepare this annual report, we have drawn information from interviews conducted with key staff and other stakeholders during site visits in spring 2014. In addition, we have used quantitative data, including claims, administrative, or EMR data, if such data were available as of July 1, 2014 (the cut-off date for receipt of data files to allow us to conduct analyses that would yield findings for the first draft of the annual report, due on September 1). No data were available from MMC as of July 1, 2014. In the coming months, we expect to receive intervention administrative data including information on participant demographics and intervention service use. We also expect to receive participant identifiers that can be used to extract CMS program enrollment and claims data for participants.

### **B. Implementation effectiveness**

In this section, we address 11 questions that cover several subdomains within the overall domain of implementation effectiveness including key components of the intervention (such as care coordination), intervention dosage, issues of conceptual drift, the reach of the intervention, and effects on access to care (as perceived by staff and key stakeholders).

#### **1. In light of the importance of coordinated care for individuals with serious behavioral health problems, how did the awardees address care coordination? (Question from domains framework)**

All components of the Brooklyn Care Coordination Consortium's program (noted below and described further in Appendix F) are intended to improve the coordination and integration of patients' behavioral and medical health care, and wrap-around social services. The program aims to enhance characteristics of the medical home for participating medical and mental health providers (which includes improving care coordination through a care management workforce), use health IT to promote the coordination of services across providers, and redesign workflows to support the overall process of ensuring that services are linked and coordinated.

## 2. What specific components of care coordination do stakeholders believe are most important and effective? (Group-specific question)

Program leaders and frontline staff reported that the CCP allows care managers to provide more effective care coordination for participants than would otherwise be possible. One program leader explained that the CCP is necessary—but not sufficient—to promote efficient care coordination in southwest Brooklyn, where physical co-location of services is impractical because of the large number of providers, systems, and health IT systems.

The CCP provides the foundation for shared care planning among members of patient care teams; the care managers and navigators carry out care coordination activities (for example, accompanying patients to appointments in the community), ensure that all of a patient's providers are included within the CCP (for example, entering information on patient services from external providers who do not yet have access to the CCP), and help care team members begin to function as a team (for example, notifying care team members of a patient's admission to the emergency department and scheduling follow-up appointments). Although most providers value the CCP's ability to identify their patients' other providers and track important information about patient care (for example, the medication prescribed to patients across organizations), they reported that they often rely on the care manager for updates on patient care and for communication with other providers.

## 3. What are the components of the interventions as implemented by the awardees? (RfTOP question 5; question from domains framework)

The Brooklyn Care Consortium's program includes the following three key components (see Appendix F for detailed descriptions of the innovation components, staffing for each component, and staff training):

- Multidisciplinary care teams individually formed for each patient, comprising the patient's existing medical, behavioral health, social, and other service providers from local health and community organizations as well as care management staff from the consortium
- Enhancements to the CCP to improve the ability of care team members to share patient care plans
- Uniform standards of care that provide guidelines for patient outreach and care management across participating care management organizations

Several components of the Brooklyn Care Coordination Consortium program align with CMMI's key domains:

- **Medical home.** Program leaders report that the foundation for program design was the National Committee for Quality Assurance patient-centered medical home standards. Leaders adapted the standards for the needs of individuals with serious mental illnesses, with a focus on offering patients a personalized, virtual medical and mental health home. The patient-centered care teams are central to the development of this medical and behavioral health home.
- **Health IT.** The program is working to enhance its existing health IT platform to improve communication and shared care planning among care team members, who are often located

at different organizations. For example, the program created a consent management tool within its CCP to allow partner organizations to manage patient consent forms electronically for information sharing across organizations. The program also plans to introduce a new messaging application to allow for secure communication with external providers (that is, those not yet using the CCP).

- **Workflow/process redesign.** The program is developing uniform standards of care across the 12 core partner organizations providing care management and coordination to patients. For example, the program has developed guidance on the frequency with which care team members should meet as a team for case conferences to review patient care. Program leaders worked with partner organization leaders to determine which activities should be standardized and which should be left to the discretion of the organization or care team members.
- **Provider payment reform.** The Brooklyn Care Coordination Consortium plans to develop a new payment model focused on total cost of care for patients with serious mental illness. To that end, the consortium and its contracted consultants convene a sustainability and reimbursement committee to engage representatives from partner care management organizations, health care payers, and the state department of health.

#### **4. How much of each component was provided? (RfTOP question 6)**

The Brooklyn Care Coordination Consortium engages 12 core partner care management organizations to deliver care management services through virtual care teams. The teams center on individual patients and include all of the patient's existing medical, behavioral health, and other community service providers located throughout southwest Brooklyn.

#### **5. What “dosage” of the innovation was delivered to participants? (RfTOP question 9)**

The program connects all enrolled patients to medical, behavioral health, and care management services through personalized care teams. At minimum, each care team consists of a psychiatrist, primary care provider, care manager, care navigator, and therapists, social service providers, and other specialists as needed. Services offered to patients vary with patient needs.

#### **6. How well did providers and sites adhere to planned procedures (including, as appropriate, procedures for customization)? (RfTOP question 12)**

The Brooklyn Care Coordination Consortium implemented the core elements of its program components as planned while encouraging significant customization. For example, the program requires all care teams to include certain core roles—a care manager, a care navigator, a psychiatrist, and a primary care provider—but intends that these teams also incorporate the patient's existing providers, regardless of their location or previous involvement in the program.

Similarly, the program intends its care management partners to implement some core elements but also to customize many aspects of the program. For example, partner organizations have employed a variety of staffing configurations. Some organizations charge their care managers with conducting initial outreach to patients by telephone, letter, and in person in the community; other organizations engage outreach specialists (often peers) to conduct initial patient engagement activities. The titles of care management positions at partner organizations vary with the preferences and existing staff titles of the individual organization.

One program leader noted that partner organizations did not exhibit “great consistency across position names and processes” because leaders felt that it was important to allow partner organizations to “bring their own experience” to the program. Despite variation in titles and staffing structures, all partner care management organizations must staff two distinct roles to participate in the care team—a more experienced care manager who goes out into the community to engage the patient and a more junior care navigator who usually supports the patient and the care team by telephone. Program leaders plan to review partner organizations’ staffing models used to identify lessons learned, and use these lessons to inform program guidance on care manager responsibilities.

**7. Overall, during implementation, how much did the program “drift” from the original model? (Question from domains framework)**

The Brooklyn Care Coordination Consortium implemented the components of its program model as planned but looked for ways to adapt and improve on its original operational plans. For example, the program is working to develop uniform care standards to provide consistent guidance on certain processes and roles that program leaders and partners have agreed to prioritize. Program leaders report that the development and refinement of the standards is an ongoing process that involves feedback from staff. Staff reported that they were aware of and have adopted or followed several of the recently developed standards (for example, protocol and scripts for patient outreach) but that the standards are constantly evolving as the program determines best practices.

**8. What is the target population and how many participants were reached? (RfTOP questions 15 and 16)**

The HCIA-funded program works with the Brooklyn Health Home, a program funded by the state of New York’s Health Homes Program and housed at Maimonides Medical Center. The two programs benefit from HCIA-funded technology and training and provide identical care management services to a target population of 7,500 adults with serious mental illnesses who live or receive care in southwest Brooklyn. Funding from the Health Homes Program supports care management services for the targeted 7,000 Medicaid patients who meet New York State’s eligibility criteria for participation in the Brooklyn Health Home; the HCIA funds the same services for the remaining 500 patients in the target population who are not eligible for participation in the health home. Staff reduced the original target population to 500 from 2,000 in response to enrollment challenges discussed below. As of June 30, the program had served 389 direct participants since its inception (defined as individuals who are not Medicaid beneficiaries or Medicaid beneficiaries or dually eligible for Medicaid and Medicare and, therefore, are not eligible for health home / care management services funded by New York State). An additional 2717 indirect participants received the identical intervention model, which differed only in the fact that the care management component was not funded by the HCIA.

**9. To what extent was implementation timely and responsive to site-level constraints? (RfTOP question 17)**

The Brooklyn Care Coordination Consortium’s program had to change recruitment procedures in response to slow rates of enrollment. It recruited patients more slowly than expected because of problems with state databases and patient assignment to the appropriate program. Unforeseen Health Homes Program eligibility criteria also narrowed the expected pool



of direct participants in the HCIA component of the program. The program adapted its recruitment strategy to mitigate these challenges; in addition to using lists of patients assigned by the state to the Health Homes Program, the program identifies and enrolls patients through internal MMC administrative data and partnerships forged with Medicare Managed Care and commercial payers.

The slow pace of patient enrollment resulted in delays to program staffing. Program leaders initially struggled to ensure an adequate but not excessive number of staff to recruit and serve participants. One program leader stated, “There was a time when our capacity wasn’t sufficient,” but noted that the program is “okay now” with staffing. Program leaders also report that plans to develop a new payment model are behind schedule as a result of challenges associated with obtaining Medicaid claims data from New York State.

**10. Does the incorporation of patient navigators/peer support specialists increase access to health care services for patients in this group? (Group-specific question)**

Each virtual care team has a care manager and care navigator who work together to help patients navigate the service system. The care manager works directly with patients and care team providers to coordinate patient care planning and the care navigator implements administrative aspects of care coordination, such as arranging patients’ transportation to medical appointments.

In addition to these roles, some care teams use peer outreach specialists to conduct initial patient outreach and engage patients in the program; on other care teams, care managers conduct outreach. During the site visit with MMC, one care team provider noted that, as a result of the program’s care management staff, patients who “have no hope of navigating the system by themselves now are able to get that done with the care manager’s assistance. The care manager sticks with them no matter how complicated it gets.” Another care team member reported that “the program has provided patients with education and access to services, but also with care managers who attend appointments and speak to primary care providers when needed to help patients move along their health needs.”

Overall, staff suggested that support from care management staff has increased participants’ access to and use of outpatient and other specialty care services. Quantitative data to address this question are not available at this time.

**11. How do these programs address concerns about access to mental/behavioral health care services in underserved areas such as rural and low-income areas? (Group-specific question)**

Southwest Brooklyn contains many pockets of poverty, and many of eligible participants live in areas where medical or behavioral health services are difficult to access and existing care coordination services are ineffective. The Consortium’s program aims to offer patients the benefits of a medical and behavioral health home while preserving each patient’s access to his or her existing providers. In addition to relying on telephone and mail, care managers and outreach specialists conduct patient outreach in the community in an attempt to engage patients in the program. Program leaders report that the program’s outreach standards allow flexibility in outreach strategies to help staff “meet [patients] where they are.” For example, staff involved in

outreach reported the use of a variety of strategies based on their own experience with what works as well as on each patient's response to particular types of outreach.

At the outset, some staff prefer to conduct in-person outreach and then follow up by telephone or mail only if the patient is unavailable; others start with telephone calls or combine strategies based on the available information. After they make contact with potential patients, staff rely on a variety of strategies to engage patients in initial conversations about how the program could benefit them. For example, one outreach specialist noted that he often shares his personal experience with substance abuse and recovery when reaching out to new patients. Frontline staff also reported that "getting the details" from patients on their current care and challenges helps facilitate outreach. Several frontline staff also reported that many patients experience homelessness or move frequently, posing a challenge to initial outreach and follow-up. To begin to address this challenge, the program convened a housing committee to develop housing resources for use by staff during outreach.

### **C. Program effectiveness**

To the extent possible in future reports, we will calculate four standard outcome measures related to service use and cost. We also will report on the extent to which the awardees' projects affected the use of other services (a group-specific question, as noted below). As of June 2014, no quantitative data were available for these calculations and, during our site visit in spring 2014, staff declined to speculate on most of these questions.

#### **1. To what extent did the program change charges and expenditures for all care in the target population? (RfTOP question 40)**

Data to address this question are not available at this time (Table X.1).

#### **2. To what extent have rates of hospitalization changed? (RfTOP question 34)**

Data to address this question are not available at this time (Table X.2).

**Table X.1. Total FFS payment trends, baseline through intervention period - MMC**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Spending rate per patient	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
Spending rate per patient	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in spending rate per patient	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: Mathematica analysis of Medicare administrative claims and enrollment data.

Notes: Individuals on Medicaid are considered indirect participants in the intervention because they receive services through the Medicaid Health Home program. They will not be included in our evaluation of intervention outcomes.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**Table X.2. Inpatient hospital discharge trends, baseline through intervention period - MMC**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Discharge rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
Discharge rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in discharge rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: Mathematica analysis of Medicare administrative claims and enrollment data.

Notes: Individuals on Medicaid are considered indirect participants in the intervention because they receive services through the Medicaid Health Home program. They will not be included in our evaluation of intervention outcomes.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**3. To what extent have rates of rehospitalization changed? (RfTOP question 34)**

Data to address this question are not available at this time (Table X.3).

**Table X.3. Readmission rate trends, baseline through intervention period – MMC**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
Readmission rate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Index stays	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
Readmission rate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Index stays	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in readmission rate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: Mathematica analysis of Medicare administrative claims and enrollment data.

Notes: Individuals on Medicaid are considered indirect participants in the intervention because they receive services through the Medicaid Health Home program. They will not be included in our evaluation of intervention outcomes.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**4. To what extent have levels of ED utilization changed? (RfTOP question 33)**

Data to address this question are not available at this time (Table X.4).

**Table X.4. Emergency department visit trends, baseline through intervention period - MMC**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
<b>Medicaid population</b>																
Treatment group																
ED visit rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
ED visit rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in ED visit rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: Mathematica analysis of Medicare administrative claims and enrollment data.

Notes: Individuals on Medicaid are considered indirect participants in the intervention because they receive services through the Medicaid Health Home program. They will not be included in our evaluation of intervention outcomes.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**5. To what degree did these projects affect the utilization of other health care services, such as emergency care/crisis stabilization, outpatient care, and inpatient care? (Group-specific question)**

Patients involved with the Brooklyn Care Coordination Consortium initiative are assigned a care manager and care navigator. Staff suggested that the care managers’ attention to the full

range of medical and social services needed by patients likely has increased the use of outpatient and other specialty care services and potentially has affected ED use. Although program leaders expected an initial increase in the use of preventive and pharmacy services because of patients' increased engagement in their health care, the program aims to help patients understand how to use services appropriately. Leaders therefore expect reductions in inappropriate service use as a long-term effect of the innovation.

Patient education regarding service use is an important activity. As a result of the award, patients receive education from care managers on appropriate use of emergency services and on managing chronic medical conditions. In addition, other respondents noted increased engagement with housing services, probably as a result of care managers' involvement in the housing application process.

Staff also cited the health IT components of the innovation as a possible reason for changes in service use. The shared care plan allows a patient's providers to identify the patient's other providers and reach out or direct the patient to a particular provider when necessary. According to one respondent, providers now "are more likely to take action on a patient's medical issues because they know who to turn to." Leaders also noted that, as a result of knowing a patient's primary care physician, care managers appear less likely to send a patient to the ED for conditions that could be treated in an outpatient setting.

#### **D. Workforce**

In this section, we address three questions related to roles, training, and retention.

##### **1. What types of roles were required for the innovations? (Question from domains framework)**

The core of the program's workforce is made up of care management and outreach staff in partner organizations that provide care coordination for patients and support individual care teams. A variety of providers at partner organizations and elsewhere in the community are members of the teams. The CCP facilitates communication among care team members. Program leaders train the workforce in program components such as the CCP while care management staff undergo training in care management under the auspices of the 1199 SEIU Training and Upgrading Fund.

Specifically, the Brooklyn Care Coordination Consortium's program relies on staff in the following roles (see Appendix G for additional information on these roles):

- Psychiatrists, who prescribe and manage patients' psychiatric medication as part of patients' care teams and use the CCP to access patient information and communicate with patients' care team members
- Other therapists, who, as part of the care team, provide various types of therapies to patients and use the CCP to access patient information and communicate with patients' care team members
- Trainers from the SEIU 1199 Training and Upgrading Fund, who develop and conduct care coordination training for care management staff

- Primary care providers, who are part of patients' care teams and who use the CCP to access patient information and communicate with patients' care team members across organizations.
  - Care team supervisors, who provide direct oversight of care managers, care navigators, and outreach specialists and consult on complex cases
  - Care managers, who coordinate patient care teams and care plans and who may conduct initial outreach to potential participants
  - Care navigators, who assist care managers with administrative tasks relating to patient enrollment, care team documentation, and telephone outreach
  - Peer specialists, who work with care management staff to engage particularly challenging potential and enrolled participants, using their own experiences with SMI and other chronic conditions to create a connection and activate patients in the recovery process
  - Outreach specialists, who conduct outreach to potential patients and initiate the enrollment process
  - Social service workers, who provide support such as housing and food assistance to participating patients as part of the patient care team
- 2. How have rates of staff retention and turnover changed over the course of the intervention? (RfTOP question 84)**

The Brooklyn Care Coordination Consortium had a retention rate that exceeded 90 percent across all quarters for which retention was reported.

- 3. How does the staffing turnover rate of selected occupations (patient navigators/peer support specialists) compare to those of other health care workers? (Group-specific question)**

Data to address this question are not available at this time.

## **E. Context**

In this section, we address four questions related to leadership, organizational issues, and patient and stakeholder engagement.

- 1. Was there a clearly designated champion or leader to oversee implementation? (RfTOP question 96)**

Program staff frequently cited the leadership team at MMC as the innovation's champions and leaders. Staff at partner care management organizations also often mentioned that leaders within their organization champion the program. Program staff reported that the leadership team is uncommonly receptive to input and feedback from partners and program staff, helping to maintain the buy-in from partner organizations that is necessary for the program's success. Leaders also noted that a number of young and innovative clinical leaders emerged to guide the program through its early implementation.



## **2. To what extent did organizational features support conflict with implementation? (RfTOP question 104)**

Respondents noted that the leaders of the Brooklyn Care Coordination Consortium program creatively leveraged existing partnerships and resources to facilitate program development and implementation. For example, many leader and staff respondents indicated that the scope and complexity of the innovation requires substantial support and buy-in from a wide range of stakeholders and partners in the community. Program leaders enlisted such support by drawing on existing relationships and earlier collaborations with several of the organizations now partnering to develop and implement the program.

By ensuring inclusivity and transparency with partner organizations, program leaders maintain the collaborative relationships critical to supporting program implementation. Staff from MMC and partner organizations noted program leaders' ability to motivate diverse organizations to work together toward shared goals as a particular strength of the Brooklyn Care Coordination Consortium program. Program leaders attributed some of their success in engaging a broad range of stakeholders to MMC's designation as a health home, stating that "when we were designated a health home, people just came out from everywhere to say they want to be a part of it."

Similarly, the Brooklyn Care Coordination Consortium developed the program components in a way that built on the work of previous and current MMC initiatives. For example, the technology that underpins the innovation was initially developed through a grant (HEAL NY) that the organization received before applying for HCIA funding. MMC and other partners also started and have access to data from the Brooklyn Health Information Exchange (BHIX), which is regional health information organization that houses data from a wide range of providers and insurers on about 2 million patients. BHIX data populate much of participating patients' care plans. In addition, the program adapted some of its uniform care standards and protocols from procedures developed through HEAL and the Health Homes Program. The Brooklyn Care Coordination Consortium integrated the programs seamlessly; staff respondents often were unable to distinguish among the HEAL, Health Homes, and HCIA programs.

Recognizing that each partner organization brings unique experience and perspective to the program, program leaders sought to allow flexibility in the program to align program processes and procedures with an organization's existing structure. The diversity of partner organizations also permits better tailoring of services to particular populations. For example, several partner organizations focus specifically on providing services to meet the needs of individuals living with HIV or to those whose primary concern is housing instability.

## **3. To what extent did the program involve patients or patient representatives in planning and implementing the innovation? How was the need for innovation communicated to them? (RfTOP question 97)**

As part of its efforts to refine patient outreach strategies, the Brooklyn Care Coordination Consortium developed an outreach task force focused on identifying best practices for engaging the patient population. Peers play an important role on the outreach task force, helping to guide the development of outreach strategies and define the role of peers in the patient outreach process.

**4. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation? (RfTOP question 105)**

The Brooklyn Care Coordination Consortium sought the perspective of a broad range of stakeholders as the application for HCIA funding was under development, and many of the initial stakeholders became formal innovation partners after MMC received the award. Instead of an external advisory committee, the program has developed a robust internal committee structure that allows partner organizations and participating staff to shape and guide the program and its components. Many staff respondents mentioned committee participation as an essential way to provide feedback to program leaders. The consortium has convened committees to address various program components, including the Health IT Committee and the Outreach Committee. In addition, MMC and its technology partner, GSI Health, engaged a group of primary care providers and psychiatrists as the care coordination platform was undergoing development to ensure that the product included functions useful to participating providers.

In addition to its 12 core partner care management organizations, the Brooklyn Care Coordination Consortium seeks to engage a much broader range of community providers who serve patients participating in the program. Obtaining buy-in from providers only peripherally involved with the program proved critical to enhancing the utility of the program's health IT and facilitating care management because such providers both use information from and contribute information to patients' plans of care in the CCP.

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## **XI. VALUEOPTIONS**

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### **A. Introduction**

Staff with the Massachusetts Behavioral Health Partnership (MBHP), a ValueOptions company that manages behavioral health benefits for some Medicaid recipients through a contract with the state, are using Health Care Innovation Award (HCIA) funding to test the effectiveness of recovery support navigators (RSNs) and patient incentives to reduce costs associated with repeated use of detoxification services. The project team hopes that the patients' connections with RSNs will lead to heightened engagement, sustained treatment, fewer re-admissions, and better health outcomes. The innovation aims to work with 3,450 individuals between the ages of 21 and 64 who receive Medicaid and who have had been admitted two or more times to detoxification facilities. The project's expanded driver diagram (see Appendix C) illustrates the context of the project, strategies for achieving its goals, and anticipated outputs, outcomes, and impacts.

Chief partners for the innovation include Brandeis University's Institute for Behavioral Health, which played a significant role in the development of the innovation, and four Massachusetts detoxification facilities that employ and supervise the RSNs: (1) Lahey Health Behavioral Services, (2) Stanley Street Treatment and Resources, (3) High Point Treatment Center, and (4) Spectrum Health Systems. The Brief Negotiated Interview Active Referral to Treatment Institute (BNI ART) at the Boston University School of Public Health/Boston Medical Center and the Massachusetts Organization for Addiction Recovery (MOAR) train the RSNs on evidence-based treatment for substance use disorders, readiness-to-change assessments, and motivational interviewing.

RSN services are viewed as an enhanced version of the community support programs (CSPs) that already exist at each detoxification facility. CSPs provide a level of service similar to RSNs but without the standardized training provided by BNI ART and MOAR. Also, CSPs use a fee-for-service payment model rather than the per-case payment model utilized for the MBHP RSNs. MBHP has recruited seven providers to be treatment-as-usual (TAU) sites, which will support longitudinal comparisons between outcomes for participants in the ValueOptions program and individuals with similar conditions who are not participants.

To prepare this annual report, we have drawn information from interviews conducted with key staff and other stakeholders during site visits in spring 2014. In addition, we have used quantitative data, including claims, administrative, or EMR data, if such data were available as of July 1, 2014 (the cut-off date for receipt of data files to allow us to conduct analyses that would yield findings for the first draft of the annual report, due on September 1). No data were available from Value Options as of July 1, 2014. In the coming months, we expect to receive intervention administrative data including information on participant demographics and intervention service use. We also expect to receive MassHealth claims data files and survey data including measures of health outcomes.

### **B. Implementation effectiveness**

In this section, we address 11 questions that cover several subdomains within the overall domain of implementation effectiveness including key components of the intervention (such as

care coordination), intervention dosage, issues of conceptual drift, the reach of the intervention, and effects on access to care (as perceived by staff and key stakeholders).

**1. In light of the importance of coordinated care for individuals with serious behavioral health problems, how did these awardees address care coordination? (Question from domains framework)**

Care coordination for clients enrolled in the program is provided by RSNs, who work to ensure full access to all medically necessary services and encourage community engagement and integration. RSNs use motivational interviewing techniques to help clients develop a recovery plan with both short- and long-term goals, and they refer clients to community resources, such as Alcoholics Anonymous, Dual Recovery Anonymous, or other 12-step programs. RSNs bill for services using a case rate. MBHP believes that as a result of this payment model, RSNs will have increased time to work closely with clients to ensure that they attend scheduled appointments and utilize appropriate community resources, relative to the fee-for-service payment model. Although many of the RSNs are also peers who have struggled with substance abuse, that shared experience is not a requirement for the RSN position.

**2. What specific components of care coordination do stakeholders believe are most important and effective? (Group-specific question)**

To improve care coordination, ValueOptions is testing the effectiveness of combining three innovation components: (1) RSN services, (2) client incentives, and (3) a per-case billing rate. The RSN is considered the most important component of care coordination for individuals who are leaving a detoxification facility. RSNs, many of whom have lived through a similar experience, connect clients with medically necessary services, help them achieve and maintain sobriety, and help them engage with and integrate into the community. One RSN put it this way: “I’m the ultimate sponsor for my clients.” Many RSNs make themselves available beyond regular working hours, taking clients to evening meetings and responding to text messages at night or on the weekends. “The phone rings all night long sometimes. That’s part of this job. That’s the level of care we give to all clients.”

Although respondents universally view the RSN as vital to the process of coordinating care for this population, there are few distinctions between the services provided by RSNs and those provided by TAU CSPs. In fact, because the four provider sites also see non-MBHP clients, all RSNs operate as CSPs as well. The characteristics that distinguish the RSN role from the CSP role are the standardized intensive training and ongoing coaching sessions the RSN workforce received and the case-rate billing approach.

The intensive training provided to staff is generally viewed as valuable, although several respondents noted that they were already familiar—through their own organizations’ training curriculum—with much of the material that was covered. An understanding of local resources and systems is regarded as essential to providing high quality care coordination, and information on those resources is not covered through a state-level training program. Although several respondents indicated they struggle to understand the advantage of the case rate, especially for time-consuming cases, most seemed to accept that, over time, the approach may be superior to a fee-for-service arrangement. RSNs, however, generally did not regard the change as having an impact on their daily work.

The program includes client incentives to improve client engagement in care coordination. Although the effectiveness of this component cannot yet be confirmed by quantitative data, many respondents believe that incentives are not what motivate an individual to achieve his or her goals, even though incentives are greatly appreciated by those who are struggling financially. More in-depth analysis will be necessary to understand the impact of client incentives.

### **3. What are the components of the intervention as implemented by the awardees (RfTOP question 5; Question from domains framework)**

There are three key components of the program (Appendix F describes the components in detail, workforce staffing for each component, and the training this staff receive):

- Trained RSNs who work with participants to ensure full access to medically necessary services and to encourage community engagement and integration
- Client incentives (gift cards) that serve as positive reinforcement
- A more flexible payment model, through which RSN services are reimbursed on a basis of the expected time required to provide the necessary services to individuals from the time they enter the program until they leave rather than on a fee-for-service basis

Several components of the ValueOptions initiative align with the Centers for Medicare & Medicaid Services (CMS) domains for frontline evaluators. They include:

- **Care coordination.** RSNs work closely with clients to develop a recovery plan and to help ensure that clients schedule and attend medical, behavioral health, and social service appointments.
- **Provider payment reform.** RSNs are compensated by each case, which encourages providing necessary and appropriate services to clients without the limitations of the fee-for-service, 15-minute increment payment structure that is the norm among TAU CSP workers.

### **4. How much of each component was provided? (RfTOP question 6)**

MBHP has implemented the innovation at four Massachusetts detoxification facilities: (1) Lahey Health Behavioral Services, (2) Stanley Street Treatment and Resources, (3) High Point Treatment Center, and (4) Spectrum Health Systems. RSN services are offered at each site to any individual who meets the study eligibility criteria and is managed by the MBHP plan. MBHP reported that as of June 30, 2014, 57 RSNs had been hired and trained.

Each of the four provider teams includes an RSN supervisor and 3 to 23 RSNs. RSNs work with clients to ensure full access to all medically necessary services, and they encourage community engagement and integration. RSN supervisors oversee the RSNs on their team.

### **5. What “dosage” of the innovation was delivered to participants? (RfTOP question 9)**

Each client is assigned an RSN when enrolling in the program. In its eighth quarter report, MBHP reported that the mean number of clients per full-time RSN was 16.5 in April, 10.6 in May, and 7.2 in June. The mean number of RSN encounters per active case eligible for RSN

services was 1.4 in April, 1.3 in May, and 0.8 in June for the RSN group, and 1.6 in April, 1.7 in May, and 1.4 in June for the RSN plus incentives group.

RSNs meet with clients throughout the program, but must conduct a baseline interview and obtain an informed consent from the patient seven days after he or she is discharged from a detoxification facility and must conduct a follow-up interview six months after discharge. The baseline and follow-up interviews consist of a series of survey instruments that assess each client's substance use during the past 30 days, satisfaction with care, and perceptions about the status of his or her recovery.

#### **6. How well did providers and sites adhere to planned procedures (including procedures for customization when appropriate)? (RfTOP question 12)**

Providers and sites have generally adhered to planned procedures. However, some sites have made adjustments to innovation protocols to account for internal guidelines or policies. For example, one site that typically discourages clinical staff from touching clients decided not to abide by the training guidelines that encourage RSNs to touch clients to show support and compassion.

Some sites also have developed mechanisms for improving follow-up rates. For example, one site created an internal tracking form for the contact information gathered from clients when they enroll (places that clients frequent and where their doctor is located, for example) to help RSNs maintain contact throughout the program. Another site developed and disseminated a form letter reminding clients they would receive \$30 for completing the six-month follow-up assessment.

#### **7. Overall, during implementation, how much did projects “drift” from the original model? (Question from domains framework)**

MBHP has made few changes to the original program model depicted in the expanded driver diagram (Appendix C). However, in the first quarter, the requirements for the RSN role—which originally was to have been a peer support position that required personal experience with substance use and recovery—was modified. Most RSNs were hired from the pool of CSPs at detoxification facilities. As the CSP position does not require personal experience with substance use and recovery, MBHP decided not to require this experience for RSNs either.

MBHP also made several changes to program protocols based on experiences during the early phases of implementation:

- **Revisions to the consent form for study participants.** In the fourth quarter, ValueOptions determined that the original consent document did not include the necessary language for data sharing. Project staff began using a revised version, and sought consent from 395 individuals. Although the project team had collected data from all 395, only those who have signed the new form will be included in the analysis. By the end of the eighth quarter, about 28 percent had given consent using the new form.
- **Modifications to follow-up assessment procedures.** In the eighth quarter, MBHP reported that the client follow-up interview rate was 19 percent. The goal was 60 percent. To address this shortfall, MBHP increased client compensation for follow-up interviews from

\$15 to \$30, will conduct interviews by phone when in-person interviews are not possible, will reimburse clients for travel to the interview location, and will give \$5 gift cards to clients for updating locator information. MBHP also hired a part-time research assistant to support follow-up activities.

- **Changes to enrollment criteria.** After struggling to enroll the targeted number of clients into the program, MBHP modified the program-enrollment criteria to allow individuals who initially declined to enter the program to be approached again. MBHP also reversed its earlier decision to exclude from the target population individuals who were civilly committed to the detoxification program. There was initially concern about the involuntary commitment status for these individuals, but MBHP eventually decided they could be enrolled and counted toward the program's target number of direct clients (although baseline and follow-up interview data are not collected for these individuals).
- **Adjustments to MassHealth change in MBHP membership.** Effective January 1, 2014, MassHealth implemented a change in the distribution of MassHealth members among the state's managed care organizations. The re-distribution resulted in a decrease in the number of individuals for which MBHP is the responsible payer. Staff reported that 50 to 60 percent of its HCIA participants are no longer MBHP members, and have thus lost access to RSN services. MBHP has hired a research assistant who will collect follow-up assessment data from these former participants.

#### **8. What is the target population and how many participants were reached? (RfTOP questions 15 and 16)**

MBHP staff had aimed to enroll 3,450 participants (1,150 in each of three groups<sup>11</sup>) during the project period. Staff started enrolling participants in the project on March 29, 2013, and as of June 30, 2014, had enrolled 2,195 direct participants and 793 indirect participants in the project. The large and recent increase in direct and indirect participants reflects the recently approved revised definition for these two groups. Effective June 30, 2014 ValueOptions expanded the definition of direct participants to include individuals who will receive the intervention (RSN or RSN + I) and who consent to and participate in study related interviews. The definition of indirect participant will now include those individuals receiving CSP service (TAU) and who consent to and participate in study related interviews. This change in definition should allow ValueOptions to meet the target enrollment for both groups.

The target population has been difficult to reach and engage because of high levels of homelessness, mental illness, and experience with trauma. Homeless individuals and individuals with unstable housing situations have been especially difficult to engage because of unreliable contact information.

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<sup>11</sup> This project will include a treatment-as-usual group, whose members receive services from community support providers compensated at the usual fee-for-service rate, and two treatment groups—(1) those assigned to an RSN and (2) those assigned to an RSN and also receiving client incentives.

**9. To what extent was implementation timely and responsive to site-level constraints? (RfTOP question 17)**

As explained previously, MBHP experienced significant delays in enrolling its targeted number of participants. The delays were due in part to the changes in the distribution of MassHealth members. In its eighth quarter report, MBHP reported changes to the direct participant definition to include members who consent to study interviews, members who do not consent to study interviews but agree to receive RSN or RSN plus incentive services, and members who do not consent to study interviews but agree to receive CSP services from a trained RSN. MBHP staff are working closely with detoxification facilities to bolster enrollment and improve recruitment, and they have begun to consider recruiting additional detoxification facilities. With these efforts, as well as the revised direct participant definition, MBHP believes they are on track to meet their enrollment goals.

Although MBHP has provided guidance, training, and technical assistance to each detoxification facility, it has also attempted to give sites “room to breathe” when it comes to operational details regarding service delivery. For example, sites were encouraged to develop their own protocols for distributing incentive payments to clients. Workforce respondents noted that MBHP has solicited their input when making changes to program procedures and protocols, which has fostered buy-in from staff.

**10. Does the incorporation of RSNs increase access to health care services for patients in this group? (Group-specific question)**

RSNs link clients to necessary medical and social services, and they are essential for keeping clients engaged in these services in an effort to avoid a costly relapse. RSNs often accompany clients to medical appointments, AA meetings, and other components of the care plan that individuals might otherwise neglect. Respondents noted that any client who has an established relationship with an RSN is more likely to check in and respond to follow-ups. As previously noted, this level of service is not perceived as different from the level of service provided to a CSP client. Forthcoming quantitative data analysis will be needed to understand the impact of the conversion from CSP to RSN.

**11. How does this project address the concerns of access to mental/behavioral health care services in underserved areas such as rural or own-income areas? (Group-specific question)**

RSNs are critical for linking clients to necessary health care services, particularly mental health and behavioral health services. Future analyses of quantitative data will help determine whether the RSN program is contributing to changes in service access, as compared with TAU.

**C. Program effectiveness**

To the extent possible in future reports, we will calculate four standard outcome measures related to service use and cost. We also will report on the extent to which the awardees’ projects affected the use of other services (a group-specific question, as noted below). As of July 1, 2014, no quantitative data were available for these calculations and, during our site visit in spring 2014, staff declined to speculate on most of these questions. In the coming months, we expect to receive intervention administrative data including information on participant demographics and



intervention service use. We also expect to receive MassHealth claims data files and baseline and follow-up survey data including measures of health outcomes.

**1. To what extent did the program change charges and expenditures for all care in the target population? (RfTOP question 40)**

Data to address this question are not available at this time (Table XI.1).

**Table XI.1. Total FFS payment trends, baseline through intervention period – ValueOptions**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Spending rate per patient	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
Spending rate per patient	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in spending rate per patient	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Medicaid population</b>																
Treatment group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in spending rate per patient	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid administrative claims and enrollment data provided by MassHealth.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**2. To what extent have rates of hospitalization changed? (RfTOP question 34)**

Data to address this question are not available at this time (Table XI.2).

**Table XI.2. Inpatient hospital discharge trends, baseline through intervention period - ValueOptions**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Discharge rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
Discharge rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in discharge rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Medicaid population</b>																
Treatment group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in discharge rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid administrative claims and enrollment data provided by MassHealth.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**3. To what extent have rates of re-hospitalization changed? (RfTOP question 34)**

Data to address this question are not available at this time (Table XI.3).

**Table XI.3. Readmission rate trends, baseline through intervention period - ValueOptions**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Readmission rate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Index stays	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
Readmission rate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Index stays	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in readmission rate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Medicaid population</b>																
Treatment group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
Readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Index stays	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in readmission rate	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid administrative claims and enrollment data provided by MassHealth.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**4. To what extent have levels of emergency department (ED) utilization changed? (RfTOP question 33)**

Respondents believe that a strong relationship between the RSN and client can deter ED use. We will address this question in future reports using quantitative data (Table XI.4).

**Table XI.4. Emergency department visit trends, baseline through intervention period - ValueOptions**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
ED visit rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Comparison group																
ED visit rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Standard deviation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unique patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Change in ED visit rate per 100 patients	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Medicaid population</b>																
Treatment group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Comparison group																
ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Standard deviation	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Unique patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
Change in ED visit rate per 100 patients	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA

Source: Mathematica analysis of Medicaid administrative claims and enrollment data provided by MassHealth.

FA = Future analysis is anticipated; however the Medicaid administrative data available for most states will have significant limitations as a result of incomplete reporting of data for managed care enrollees.

NA = Estimation of this measure is not applicable to this awardee because this awardee has no direct participants enrolled in Medicaid.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**5. To what degree did these projects affect the utilization of other health care services (emergency care/crisis stabilization, outpatient care and inpatient care)? (Group-specific question)**

Data to address this question are not available at this time.

**D. Workforce**

In this section, we address three questions related to roles, training, and retention.

**1. What types of positions were required for these innovations? (Question from domains framework)**

Each of the four provider sites employs an RSN supervisor and 3 to 23 RSNs (see Appendix G for additional information on these roles). All four provider sites trained their existing CSP staff to become RSNs. Each RSN supervisor oversees and supervises the RSNs on his or her respective team. The training team provides education and training to each RSN.

**2. How have rates of staff retention and turnover changed over the course of the intervention? (RfTOP question 104)**

MBHP views the RSN program as a workforce initiative. Intense training and technical assistance is given to CSPs to enhance their skills and to improve the overall value of the workforce. RSNs encounter clients with serious and significant life issues. The work is intense, and turnover and burnout rates vary across sites and over time. Staff at one provider site reported a high level of burnout; those at another suggested turnover was minimal. Most agree, however, that only individuals who are passionate about helping others will succeed in this role.

MBHP has had limited ability to affect the number of RSNs employed by the provider organizations, although they encouraged the providers to hire additional workers early on, believing that the increased supply of such workers would lead to increased demand. The January 1, 2014 MassHealth re-distribution of clients however, has caused all of the providers to reduce staff or to consider reducing staff.

**3. How does the staffing turnover rate of selected personnel (patient navigators and peer support specialists) compare with those of other health care workers? (RfTOP question 97)**

Data to address this question are not available at this time.

**E. Context**

In this section, we address four questions related to leadership, organizational issues, and patient and stakeholder engagement.

**1. Was there a clearly designated champion or leader to oversee implementation? (RfTOP question 96)**

Most staff involved with implementing the ValueOptions innovation view various members of the combined MBHP/Brandeis team as leaders of the program, but in different ways. The MBHP project director explained that “for different scenarios there are different people.”

Specifically, the MBHP administrative assistant and reporting analyst have offered a great deal of support during all phases of the program. Respondents noted they can contact MBHP staff at any time with questions or concerns and receive a prompt response that demonstrates an understanding of the intricacies of the project. The MBHP project director's knowledge of the social service system and her ability to work with the providers has also been a great asset to the program. Nancy Lane, the MBHP CEO, has acted as a champion for the program, working with MassHealth throughout the design and implementation phases. Several workforce respondents also mentioned specific members of the RSN workforce as champions of the program and leaders among their peers.

**2. To what extent did organizational features support or conflict with implementation? (RfTOP question 104)**

Respondents generally agreed that ValueOptions has provided sufficient funding, staffing, and support for implementing the innovation. Workforce respondents took care to note that staff from MBHP, Brandeis, and BNI ART have been accessible for questions and support during training and implementation. However, sites have struggled to regulate the appropriate level of workforce support, and that has largely been the result of changes in the distribution of MassHealth members. Before the transition, many RSNs had a large number of caseloads due to the enrollment of new RSN clients, so sites were encouraged to hire additional staff. After the redistribution and reduction of MassHealth members, caseloads for RSNs dwindled significantly.

Some RSNs also reported lack of physical space or resources provided by their respective facilities. Two respondents said they have insufficient office space and privacy to meet with clients to conduct the informed consent and baseline and follow-up assessments. One said lack of email or internet access in the field makes adequate communication and follow-up with clients difficult.

**3. To what extent did the program involve patients or patient representatives in planning and implementing the innovation, and how was the need for innovation communicated to them? (RfTOP question 97)**

MBHP respondents reported that the consumer perspective was incorporated into the design and implementation of the innovation. MBHP's internal consumer and family advisory committees meet regularly to give input to MBHP management. MBHP sought input from the consumer advisory committee when selecting incentives, for example.

**4. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation? (RfTOP question 105)**

MBHP meets quarterly with the project's quality advisory committee. The committee consists of a diverse group of stakeholders, such as consumers and families, leadership from each of the intervention detoxification facilities, the director of the Massachusetts Bureau of Substance Abuse Services, and the executive director of the Massachusetts Organization for Addiction Recovery, to develop and implement the program. The innovation's quality advisory committee and the MBHP consumer advisory committee have provided helpful insights on the target population, particularly during development of the training curriculum.

MBHP also worked closely with several researchers on the quality advisory committee when designing the program. For example, Dr. Stephen Higgins, an expert on contingency management, provided input on the incentive design. Dr. Gary Rose, an expert on motivational interviewing, provided input on development of the training curriculum, and Dr. Edward Bernstein, the co-director of the BNI ART Institute, provided input on use of the screening, brief intervention, and referral-to-treatment approach in the training curriculum.

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## **XII. VINFEN**

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### **A. Introduction**

Staff at Vinfen, a community-based organization that provides behavioral health services, are using HCIA funding to implement a community behavioral health home intervention that integrates primary health care with behavioral health care for 470 adults with serious mental illness in the metropolitan Boston area. Vinfen staff work with three other community-based behavioral health providers: Bay Cove, North Suffolk, and Brookline. In addition, Vinfen has established partnerships with three other organizations—Dartmouth University, the Commonwealth Care Alliance (a nonprofit managed care entity), and Bosch Healthcare—to help implement specific components of its program. Vinfen also contracts with JEN Associates to obtain claims and administrative data from the state Medicaid agency (MassHealth).

This innovation involves embedding nurse practitioners in psychiatric rehabilitation outreach teams to provide care coordination, clinical care management, and primary care services to clients. Each team includes a health outreach worker (HOW), who partners with a nurse practitioner to provide clients with outreach, training, and health interventions. The project’s expanded driver diagram (see Appendix C) illustrates the context for the project, strategies for achieving its goals, and anticipated outputs, outcomes, and impacts.

To prepare this annual report, we have drawn information from interviews conducted with key staff and other stakeholders during site visits in spring 2014. In addition, we have used quantitative data, including claims, administrative, or EMR data, if such data were available as of July 1, 2014 (the cut-off date for receipt of data files to allow us to conduct analyses that would yield findings for the first draft of the annual report, due on September 1). No data were available from Vinfen as of July 1, 2014. JEN Associates is currently negotiating access to State Medicaid claims data on behalf of Vinfen. We are continuing to work with Vinfen to identify the specific data that we will use for the evaluation, including de-identified patient-level assessment data for consented participants and aggregate Medicaid claims data for participants and comparison group members.

### **B. Implementation effectiveness**

In this section, we address 11 questions that cover several subdomains within the overall domain of implementation effectiveness including key components of the intervention (such as care coordination), intervention dosage, issues of conceptual drift, the reach of the intervention, and effects on access to care (as perceived by staff and key stakeholders).

#### **1. In light of the importance of coordinated care for individuals with serious behavioral health problems, how did these awardees address care coordination? (Question from domains framework)**

Care coordination is central to the Vinfen innovation. Both the HOW and the nurse practitioner on each outreach team work closely with clients and their medical and behavioral health providers to ensure clients receive appropriate services. The HOW provides general case management to make sure “all bases are covered” related to clients’ health needs, while the nurse

practitioner relies on his or her medical expertise and experience working in the health care system to ensure providers are attentive to those needs. As one team leader noted, “It’s good to have a nurse practitioner in your pocket.” Vinfen program staff have recently focused their efforts on defining workforce roles more clearly and ensuring continuity of care among the nurse practitioners, HOWs, and community-based rehabilitation and recovery teams who serve clients enrolled in the program.

## **2. What specific components of care coordination do stakeholders believe are most important and effective? (Group-specific question)**

Vinfen’s intervention has three main components: a community-based health home model, which includes the HOW and the nurse practitioner, the Health Buddy system, and the Integrated Illness Management and Recovery (IIMR) curriculum. Interviews with staff suggest that the nurse practitioner services are the most critical for care coordination. Because nurse practitioners are able to connect with other health care professionals more effectively than other members of Vinfen’s team, clients benefit from increased coordination of and access to health care services. According to one HOW, “Joan [the nurse practitioner] has built relationships with a network of providers that we work with. I can’t speak to the nature of those relationships, but I can tell you that she can call them and say, ‘I’m concerned about so-and-so. What do you think about prescribing this med?’ and then the med is prescribed.”

Some respondents note the difficulty in working with nurse practitioners who are not employees of their organizations and who operate in different physical spaces. One nurse practitioner respondent also suggests that some clients use their services inappropriately, contacting them for services outside their scope of work, such as taking the client shopping or driving them to appointments – “I’m not a case manager for these people, I’m a life manager. And that’s hard to do for 40 people.”

Although staff note the positive experiences reported by clients who use the Health Buddy system, they also mention several challenges. The Health Buddy system has allowed the team to intervene based on alerts and trends identified through the information entered daily into the system by clients. However, clients who are highly symptomatic often have trouble adhering to the daily entry requirements. Furthermore, some older clients and those with anxiety issues have been reluctant to enter personal information into a computer. As a result, only a small proportion of clients are using the Health Buddy system.

Staff reviews of the IIMR curriculum have been similarly mixed. Although several note that the curriculum has identified important client needs and has been a useful tool for getting to know clients, it has taken longer to use than originally designed. Clients’ cognitive limitations, competing priorities, and inability to concentrate have limited the HOW’s ability to administer the curriculum during one session. Because effective use of the IIMR requires significant training and experience, HOWs continue to receive technical assistance from trainers at Dartmouth, Dartmouth, the project manager, and the project trainer.

### 3. What are the components of the interventions as implemented by the awardees (RfTOP question 5; Question from domains framework)

Vinfen's program has three key components (see also Appendix F, which describes in detail the innovation components, the associated workforce staffing for each, and the training this staff receive):

- A community-based health home model, which includes the HOW and nurse practitioner
- The Integrated Illness Management and Recovery (IIMR) curriculum, which is used to train clients on behavioral interventions for improving health and self-management of medical illnesses
- The Health Buddy telehealth system, which is used to monitor consenting clients' health status and medication adherence

The nurse practitioners and HOWs use the Health Buddy telehealth technology system to monitor clients who require medical attention, and HOWs use the IIMR curriculum directly with clients. Each of the four providers (Vinfen and its three clinical partners) employs and supervises the HOW assigned to its outreach team. Researchers from Dartmouth University trained the HOWs and support them on the use of the IIMR curriculum. The Commonwealth Care Alliance, a nonprofit managed care entity, hires and supports the four nurse practitioners embedded within the four outreach teams. Bosch Healthcare provides the Health Buddy telehealth system and ongoing technical assistance and support.

Several components of the Vinfen innovation align with key concepts in CMMI's domains framework:

- **Care coordination.** Both nurse practitioners and HOWs work closely with clients to coordinate the services provided through the innovation with the care from external physical and behavioral health providers.
- **Health information technology (IT).** Outreach teams use the Bosch Health Buddy telehealth system to monitor client health and provide additional interventions for individuals with serious health conditions.
- **Decision support.** HOWs use the IIMR curriculum to teach individuals with serious mental illness behavioral interventions for improving health and self-management of medical illnesses.

### 4. How much of each component was provided? (RfTOP question 6)

The innovation is being implemented at four community behavioral health provider sites: Vinfen, Bay Cove, North Suffolk, and Brookline. Each site's outreach team, which existed prior to the award and consists of various community rehabilitation specialists, includes a team leader, one HOW (except for the Brookline team, which has two half-time HOWs), and one nurse practitioner.

**5. What “dosage” of the innovation was delivered to participants? (RfTOP question 9)**

While the Vinfen innovation includes three key components (IIMR curriculum, Health Buddy system, and HOW or nurse practitioner services), many clients do not utilize all of them, based on their own preferences or the staff’s assessment of whether each component is beneficial and appropriate for the client. In their eighth quarterly report, Vinfen reported a total of 683 in-person sessions with the 108 clients served during the quarter. Thirty-five clients utilized the Health Buddy system, with 71 percent completing at least 12 daily sessions in at least one month.

Clients using the IIMR curriculum typically meet weekly with the HOW to review portions of the curriculum and discuss their associated goals. Those using the Health Buddy telehealth system receive an initial orientation to the system and are then encouraged to use it once a day to answer questions about their physical and mental health. The HOW monitors client responses and contacts the nurse practitioner with questions or concerns as needed. Frequency of client contact with nurse practitioners varies widely, depending on the clients’ current physical health and needs; some check in with the nurse practitioner several times a week, while others do so once a month.

**6. How well did providers and sites adhere to planned procedures (including, as appropriate, procedures for customization)? (RfTOP question 12)**

Most providers and sites have generally adhered to the project’s standard procedures. The Brookline site has used a modified outreach team structure, however, which includes two half-time HOWs, rather than one full-time HOW. This structure has created some confusion about outreach worker roles, as well as problems with coordination between the nurse practitioner and the two outreach workers. The Vinfen project manager noted that “the ideal set-up is a pair—the nurse practitioner and HOW have clear roles and responsibilities.”

In addition, the Brookline site administers the IIMR curriculum in a group setting, rather than using the standard one-on-one format. Adapting the curriculum for groups has proved challenging, primarily because the Brookline staff use it in the context of an existing therapy group that has historically applied an open-ended format without specifying concrete objectives as the IIMR curriculum requires.

**7. Overall, during implementation, how much did projects “drift” from the original model? (Question from domains framework)**

Vinfen has made few changes to the original model as depicted in the program’s expanded driver diagram (Appendix C). However, the staff have made small changes to program protocols or processes, based on challenges identified during early implementation. The following list highlights key changes to date:

- **Modified service delivery strategy.** In January 2013, with the hope of increasing client engagement, the innovation team relaxed the service delivery strategy so clients only need to use one of the three innovation components (IIMR curriculum, Health Buddy system, or HOW or nurse practitioner services).

- **Updated IIMR protocol.** Vinfen made changes to the protocol for administering the IIMR curriculum based on input from clients; the curriculum's modules can now be reviewed in a nonlinear fashion as long as the basic outline is covered.
- **Clarified workforce roles.** Initially, both the HOW and nurse practitioner were tasked with monitoring Health Buddy data, which created confusion about roles and duplication of efforts. Vinfen staff worked with Bosch to review sample cases to streamline the Health Buddy workflow; the HOW is now responsible for reviewing Health Buddy responses daily and notifying the nurse practitioner to all alert values.

**8. What is the target population and how many participants were reached? (RfTOP questions 15 and 16)**

Vinfen staff began enrolling direct participants in the project's second quarter and expects to enroll 470 adults with serious mental illnesses during the full project period. As of June 30, 2014, Vinfen had enrolled 181 direct participants in the innovation.

Staff note that older individuals and those who are highly symptomatic have been difficult to engage in the Health Buddy system or the IIMR curriculum because of difficulties with concentration, concerns about privacy, or discomfort using technology. Substance users or homeless individuals or those who have had limited success using health services in the past tend to be especially difficult to engage in the innovation.

**9. To what extent was implementation timely and responsive to site-level constraints? (RfTOP question 17)**

Although Vinfen successfully hired and trained all HOWs and nurse practitioners on the use of the IIMR curriculum and the Health Buddy system during the first two quarters of the innovation, turnover in the sixth quarter required Vinfen staff to recruit replacements for these positions; this process continued into the eighth quarter. Vinfen also experienced challenges in getting the Health Buddy system and IIMR curriculum up and running in a timely manner. Staff believe these challenges resulted primarily from the novelty of using these tools with the target population.

Vinfen has worked closely with each of its provider sites to ensure consistent provision of program services. For example, in the initial stages of the project, some sites used Health Buddy data in different ways, depending on their internal workflows and protocols. Vinfen and Bosch worked with these sites to develop a more seamless, standardized workflow. Differences in site-specific workflows also have stemmed from variations in the target population served by each site. For example, staff note that clients served by the Bay Cove site tend to be more severely impaired and have fewer resources than clients served by the Brookline site. As noted previously, Vinfen also has worked closely with workforce staff from the Brookline site to ensure adherence to the program's protocols, despite differences in the site's outreach team structure.

**10. Does the incorporation of the care coordination components increase access to health care services for patients in this group? (Group-specific question)**

Prior to embedding nurse practitioners into the outreach teams, few clients regularly used health care services. The new program allows needed services to be provided in the field and teams to be flexible and creative in addressing client needs. Although getting clients to use services has required significant time on the part of workforce staff, staff note that the increase in clients' use of health and mental health services appears widespread and beneficial.

**11. How does this project address the concerns of access to mental/behavioral health care services in underserved areas such as rural and low-income areas? (Group-specific question)**

As noted above, this intervention connects clients who have serious behavioral health issues with a broad range of needed health services. The clients, including many homeless individuals, who are served by Vinfen and its partners belong to a population that is largely disconnected from medical providers. Addressing the physical health needs of these individuals improves their capacity to address their behavioral health issues.

**C. Program effectiveness**

To the extent possible in future reports, we will calculate four standard outcome measures related to service use and cost. We also will report on the extent to which the awardees' projects affected the use of other services (a group-specific question, as noted below). As of July 1, 2014, no quantitative data were available for these calculations. We are still in the process of negotiating access to data from Vinfen. In the future, Vinfen may be able to provide aggregate estimates to address the questions below based on Medicaid claims data for participants and comparison group members. We include below summaries of the perceptions of project staff and key stakeholders, based on the analysis of qualitative data gathered during our site visits in spring 2014.

**1. To what extent did the program change charges and expenditures for all care in the target population? (RfTOP question 40)**

Data to address this question are not available at this time (Table XII.1).

**2. To what extent have rates of hospitalization changed? (RfTOP question 34)**

Although respondents believe access to the nurse practitioner has reduced hospitalizations among clients, quantitative evidence is not yet available (Table XII.2).

**Table XII.1. Total FFS payment trends, baseline through intervention period - Vinfen**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Spending rate per patient	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
Spending rate per patient	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in spending rate per patient	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
<b>Medicaid population</b>																
Treatment group																
Spending rate per patient	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Standard deviation	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Unique patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Comparison group																
Spending rate per patient	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Standard deviation	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Unique patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Change in spending rate per patient	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Source: JEN Associates is a potential source for analysis of Medicaid administrative claims and enrollment data from Massachusetts for Vinfen participants and comparison group. Estimates would be provided in aggregate to Mathematica.

DU = Data will be unavailable to support analysis.

TBD = To be determined. Definitive information about data availability is not yet available.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**Table XII.2. Inpatient hospital discharge trends, baseline through intervention period - Vinfen**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Discharge rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
Discharge rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in discharge rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
<b>Medicaid population</b>																
Treatment group																
Discharge rate per 100 patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Standard deviation	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Unique patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Comparison group																
Discharge rate per 100 patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Standard deviation	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Unique patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Change in discharge rate per 100 patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Source: JEN Associates is a potential source for analysis of Medicaid administrative claims and enrollment data from Massachusetts for Vinfen participants and comparison group. Estimates would be provided in aggregate to Mathematica.

DU = Data will be unavailable to support analysis.

TBD = To be determined. Definitive information about data availability is not yet available.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.



**3. To what extent have rates of rehospitalization changed? (RfTOP question 34)**

Data to address this question are not available at this time (Table XII.3).

**Table XII.3. Readmission rate trends, baseline through intervention period - Vinfen**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
Readmission rate	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Index stays	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
Readmission rate	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Index stays	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in readmission rate	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
<b>Medicaid population</b>																
Treatment group																
Readmission rate	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Standard deviation	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Index stays	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Comparison group																
Readmission rate	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Standard deviation	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Index stays	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Change in readmission rate	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Source: JEN Associates is a potential source for analysis of Medicaid administrative claims and enrollment data from Massachusetts for Vinfen participants and comparison group. Estimates would be provided in aggregate to Mathematica.

DU = Data will be unavailable to support analysis.

TBD = To be determined. Definitive information about data availability is not yet available.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**4. To what extent have levels of ED utilization changed? (RfTOP question 33)**

Although respondents believe access to the nurse practitioner has reduced emergency department (ED) utilization among clients, quantitative evidence is not yet available (Table XII.4).

**Table XII.4. Emergency department visit trends, baseline through intervention period - Vinfen**

Measure	Baseline period*												Intervention period*			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	I1	I2	I3	I4
<b>Medicare population</b>																
Treatment group																
ED visit rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Comparison group																
ED visit rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Standard deviation	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Unique patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
Change in ED visit rate per 100 patients	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU	DU
<b>Medicaid population</b>																
Treatment group																
ED visit rate per 100 patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Standard deviation	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Unique patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Comparison group																
ED visit rate per 100 patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Standard deviation	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Unique patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Change in ED visit rate per 100 patients	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Source: JEN Associates is a potential source for analysis of Medicaid administrative claims and enrollment data from Massachusetts for Vinfen participants and comparison group. Estimates would be provided in aggregate to Mathematica.

DU = Data will be unavailable to support analysis.

TBD = To be determined. Definitive information about data availability is not yet available.

\* The baseline period represents the three year period prior to the intervention start. The baseline period has been divided into three month periods represented by B1 through B12. Similarly, the intervention period represents the first year post-intervention. The intervention period has been divided into three month periods indicated by I1 through I4.

**5. To what degree did these projects affect the utilization of other health care services (that is, emergency care/crisis stabilization, outpatient care, and inpatient care)? (Group-specific question)**

Staff suggest that access to the nurse practitioner has increased use of some services, such as specialty care, while reducing use of other services, such as emergency and crisis care. Quantitative data are not yet available to address this question.

**D. Workforce**

In this section, we address three questions related to roles, training, and retention.

**1. What types of roles were required for these innovations? (Question from domains framework)**

Each of the four outreach teams includes a team leader, one HOW (except for the Brookline site, which has two half-time HOWs), and one nurse practitioner. (Appendix G includes additional information on these roles.)

The outreach teams, which may also include community rehabilitation specialists, outreach workers, and registered nurses, existed before the HCIA award. The HOW and nurse practitioner have been newly embedded. Within each outreach team, the HOW and nurse practitioner work closely to deliver and coordinate client care.

Team leaders also serve as supervisors to the HOWs on their outreach teams, and the nurse practitioner supervisor provides feedback and support to all the nurse practitioners. Staff from Vinfen, Dartmouth, and Bosch provide education and training to all outreach team staff, including HOWs, nurse practitioners, and outreach team leaders.

**2. How have rates of staff retention and turnover changed over the course of the intervention? (RAND question 84)**

The Vinfen team reports turnover in both the HOW and nurse practitioner positions. Securing qualified candidates for these positions has been challenging, as both roles require dedication, creativity, and flexibility on the job. Several staff noted that they are occasionally uncertain about the responsibilities for these two roles. The Vinfen management team is aware of these concerns and has been working to clarify the scope of work for these relatively new positions.

**3. How does the staffing turnover rate of selected personnel (patient navigators, peer support specialists) compare with those of other health care workers? (Group-specific question)**

Data to address this question are unavailable at this time.

**E. Context**

In this section, we address four questions related to leadership, organizational issues, and patient and stakeholder engagement.

**1. Was there a clearly designated champion or leader to oversee implementation? (RfTOP question 96)**

Most staff cite Elizabeth Cella, the Vinfen project manager, as the primary leader of the innovation. Her experience as a community-based flexible supports (CBFS) team leader and her familiarity with the target population have been critical to her success in this role. One team leader noted the project manager “knows what’s possible and not possible. She is able to look at the study and the grant and what we are supposed to be doing and how it’s supposed to be done and then translate that into what we can provide as a CBFS team.” Staff also underscore the project manager’s flexibility in coordinating four provider organizations that had not previously collaborated, her responsiveness to questions from the workforce, and her ability to avoid “micromanaging” the provider sites.

Other staff who have played important roles in the success of the innovation include Vinfen’s project director and the assistant to the project director, who have been champions of the innovation and other telehealth projects at Vinfen, and of the project team as a whole. One staff member explained: “I don’t see a champion but a whole group of people who work together to help the clients. I see all of us as champions.”

**2. To what extent did organizational features support or conflict with implementation? (RfTOP question 104)**

Respondents generally view Vinfen as supportive of the program and its goals. Initially, Vinfen saw the HCIA innovation as a useful “run-up” to the One Care Health Care program for individuals dually funded by Medicare and Medicaid, which was rolled out during the sixth quarter of the innovation. Vinfen hopes to sustain at least some of the innovation activities through the One Care program after the HCIA grant concludes.

Implementation of the One Care program has influenced aspects of the service delivery model for Commonwealth Care Alliance, however, including staffing, procedures for providing care, and training requirements. In turn, these changes have limited the capacity of HCIA-funded nurse practitioners, who are employed by Commonwealth Care Alliance, and have influenced perceptions of service flow among some HCIA clients. In the sixth quarter, Vinfen offered training for HCIA-funded and non-HCIA-funded staff at each of the provider sites to explain One Care provider options and new services introduced under the program, as well as the role of integrated care and care coordination.

Variations in the structure of the existing CBFS outreach teams at Vinfen, Bay Cove, and North Suffolk also have affected each site’s success in implementing the innovation. In addition to HCIA-funded HOWs, nurse practitioners, and outreach team leaders, each outreach team may include non-HCIA-funded staff, such as outreach workers and registered nurses. In some cases, integration of HCIA staff into the existing CBFS team has proved challenging. For example, a member from an outreach team that includes both a CBFS registered nurse and an HCIA nurse practitioner explained that the registered nurse serves as a “consultant” for outreach team members, while the nurse practitioner prescribes medications and provides more “hands-on” services for a smaller group of clients. However, their shared goal of providing seamless support to clients through coordination with outpatient providers can result in confusion around tasks such as contacting a client’s primary care provider or attending a discharge meeting. Other

teams have struggled to redistribute innovation tasks based on turnover in nurse practitioners or HOWs.

**3. To what extent did the program involve patients or patient representatives in planning and implementing the innovation? How was the need for innovation communicated to them? (RfTOP question 97)**

Vinfen had originally proposed to develop a dedicated advisory committee of clients and their family members or guardians to provide input during planning and implementation of the innovation. It has encountered several challenges, however, in the process of developing the committee, including lack of family member involvement in clients' lives, difficulty obtaining client consent to contact family members, and problems engaging family members in committee meetings and activities due to busy work schedules or lack of interest by court-appointed guardians. To address these challenges, Vinfen plans to conduct structured interviews with family members to elicit feedback on service delivery and design.

Each provider site has internal advisory committees and focus groups that encourage input from clients and their families on all aspects of the site's services. In addition, outreach teams may employ peer outreach workers who can represent the target population.

**4. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation? (RfTOP question 105)**

Vinfen has worked with a number of external stakeholders throughout the design and implementation of the innovation. Two that have been heavily involved during all stages of the project are Bosch Healthcare, which provides the Health Buddy telehealth system, and Dartmouth University, which has provided evaluation support and training to workforce staff on use of the IIMR curriculum. Although Vinfen had strong existing relationships with all of its provider partners, it worked to ensure that each organization has been closely involved in the design of the implementation, and that non-HCIA staff at each organization, such as program directors, received an orientation to the innovation. Staff from Bosch, Dartmouth, and each of the provider partners currently sit on the project governance committee, which meets quarterly to monitor the project and recommend future actions.

Vinfen also views staff at group homes where its target population may reside, client guardians, and non-HCIA-funded members of the outreach teams as important stakeholders in the adoption of the innovation. For this reason, Vinfen has provided training on the innovation to all such outreach team members and to staff at group homes where clients may reside, as well as to staff at the Massachusetts Department of Mental Health, which funds the CBFS teams. In particular, Vinfen perceives that training on the Health Buddy system is an important opportunity to talk with stakeholders about the system and address any concerns about its use with the target population. Vinfen has had difficulty engaging client guardians in the innovation, however, and continues to develop mechanisms to obtain consumer involvement and support.

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## **APPENDIX A**

### **DATA SOURCES FOR EACH RESEARCH QUESTION, BY DOMAIN**

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**Table A.1. Implementation effectiveness research questions by potential data sources**

Dimension	Research questions <sup>1</sup>	Primary data								
		Literature/ benchmarks	Qualitative data					Secondary data		
			Survey <sup>2</sup>	Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>	Admin. data from awardees <sup>6</sup>	Claims/ encounter	Client records/ EHR
<b>A. Program drivers</b>										
1. Theory of change	1. What are the central processes or drivers in the innovation by which change in behavior and/or systems is supposed to come about?	✓		✓	✓					
	2. What implementation activities are designed to activate the innovation's theory of change?	✓		✓	✓					
2. Theory of action	3. What are the central processes or drivers in the innovation by which patient or system-level action is meant to come about?	✓		✓	✓					
	4. What implementation activities are designed to activate the innovation's theory of action?	✓		✓	✓					
<b>B. Intervention</b>										
1. Components of intervention	5. What intervention components (e.g., training and technical assistance) were provided in support of implementation?			✓	✓					
	6. How much of each component was provided?			✓	✓			✓		
	7. To what extent were the components available on an ongoing basis?			✓	✓					
	8. How did unexpected events support or conflict with successful implementation of the innovation?			✓	✓					
2. Dosage	9. What "dosage" of the innovation was <i>delivered</i> to patients, providers, and other target populations?			✓	✓			✓	✓	✓
3. Fidelity	10. In what ways is the innovation intended to be customized to specific use contexts?	✓		✓	✓					
	11. To what extent were systems in place to monitor implementation on an ongoing basis?			✓	✓		✓			

Table A.1 (continued)

Dimension	Research questions <sup>1</sup>	Literature/ benchmarks	Primary data							
			Survey <sup>2</sup>	Qualitative data				Secondary data		
				Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>	Admin. data from awardees <sup>6</sup>	Claims/ encounter	Client records/ EHR
	12. How well did providers and sites adhere to planned procedures (including, as appropriate, procedures for customization)?			✓	✓					
	13. To what extent were the innovation and its components properly understood and used by target populations?			✓	✓					
4. Self-monitoring	14. What changes were made in response to self-monitoring?			✓	✓					
<b>C. Reach</b>										
1. Coverage	15. What was the target population (e.g., patients, providers) after implementation?			✓	✓		✓			
	16. How many patients, providers were reached?			✓	✓		✓	✓	✓	
2. Timeliness of implementation	17. To what extent was implementation timely, conducted as planned, and responsive to site-level constraints?			✓	✓					
3. Secondary use of tools	18. What secondary uses, if any, were discovered for IT, decision support and other intervention tools?			✓	✓					
	19. How could secondary uses be exploited to enhance benefits of the intervention(s) in other settings?			✓	✓					

<sup>1</sup> Includes research questions from Appendix 2 and page 8 of the RfTOP.

<sup>2</sup> Workforce survey planned for project months 5 and 17.

<sup>3</sup> Focus groups with clients.

<sup>4</sup> Project staff, experts, and stakeholder (S/E/S) interviews conducted by telephone or in person during site visits.

<sup>5</sup> Site visits are planned for project months 6–8 and 20-22.

<sup>6</sup> Includes aggregate data provided in self-monitoring reports, including metrics on health, health care, and costs; and other secondary individual-level or clinical site-level data.

**Table A.2. Program effectiveness research questions by potential data sources**

Dimension	Research questions <sup>1</sup>	Primary data						Secondary data		
		Literature/ benchmarks	Survey <sup>2</sup>	Qualitative data				Admin. data from awardees	Claims/ encounter	Client records/ EHR
				Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>			
<b>A. Health</b>										
Access to care	<b>20. (Added in RfTOP, p.8) How do these projects address the concerns of access to mental/behavioral healthcare services in underserved areas (i.e. rural areas and low income areas)?</b>	✓		✓	✓					
	<b>21. (Added in RfTOP, p.8) Does the incorporation of patient navigators/peer support specialists increase access to healthcare services for patients in this group?</b>							✓	✓	✓
	<b>22. (Added in RfTOP, p.8) What specific components of care coordination are most important and effective?</b>	✓		✓				✓	✓	✓
Health outcomes	23. To what extent does the intervention improve desired health outcomes?							✓	✓	✓
	24. Does the intervention result in any unanticipated negative health outcomes?			✓	✓			✓	✓	✓
	25. Does the intervention affect health outcomes that are most important to the target population?				✓	✓				
	26. Can we learn anything about causal pathways? In particular, for interventions with multiple components, which aspects of the intervention are primarily responsible for observed effects?	✓						✓	✓	✓
	<b>27. (Added in RfTOP, p.8) Does the co-location of mental/behavioral healthcare and primary care produce improvements in patients' mental and physical health?</b>							✓	✓	✓

Table A.2 (continued)

Dimension	Research questions <sup>1</sup>	Literature/ benchmarks	Primary data					Secondary data		
			Survey <sup>2</sup>	Qualitative data				Admin. data from awardees	Claims/ encounter	Client records/ EHR
				Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>			
	<b>28. (Added in RfTOP, p.8) Do awards that have integrated primary care into existing mental healthcare have better outcomes compared with those that have integrated mental healthcare into existing primary care settings?</b>							✓	✓	✓
HRQoL	29. To what extent does the intervention improve quality of life?				✓	✓				
	30. Can we learn anything about causal pathways? In particular, for interventions with multiple components, which aspects of the intervention are primarily responsible for observed effects?	✓			✓	✓				
<b>B. Cost</b>										
Utilization	31. To what extent have levels of appropriate and inappropriate utilization changed?			✓	✓			✓	✓	✓
	32. To what extent were there any unintended consequences for utilization?			✓	✓					
	33. To what extent have levels of ED utilization changed?							✓	✓	✓
	34. To what extent have rates of hospitalization and re-hospitalization changed?							✓	✓	✓
	35. To what extent has intensity of inpatient utilization changed?							✓	✓	✓
Program costs	36. What were the fixed costs associated with program start-up?			✓	✓					
	37. What are the variable costs associated with program operation?			✓	✓					
	38. What are the anticipated new fixed costs associated with program sustainability?			✓	✓					

Table A.2 (continued)

Dimension	Research questions <sup>1</sup>	Primary data						Secondary data		
		Literature/ benchmarks	Survey <sup>2</sup>	Qualitative data				Admin. data from awardees	Claims/ encounter	Client records/ EHR
				Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>			
Expenditures	39. How are the models designed to reduce expenditures (e.g., changing the service the population utilizes, reducing the volume or utilization of services, changing the cost of services, etc.)?	✓		✓	✓					
	40. To what extent did the program change charges and expenditures for all care in the target population?			✓	✓			✓	✓	✓
	41. To what extent did the program result in unintended charges and expenditures in the target population?			✓	✓					
	42. To what extent do the models reduce or eliminate variations in charges or expenditures that are not attributable to differences in health status?			✓	✓			✓	✓	✓
	43. What is the expected cost of sustaining these changes?			✓	✓					
<b>C. Quality</b>										
Safety	44. To what extent do the models improve patient safety?							✓	✓	✓
Clinical effectiveness	45. To what extent do the models improve the effectiveness of patient care?			✓	✓			✓	✓	✓
	46. To what extent have clinical condition indicators changed?			✓	✓			✓	✓	✓
	47. To what extent does the intervention affect key performance goals, such as compliance with treatment guidelines?			✓	✓			✓		
Patient experience	48. In what ways are aspects of patient experience (e.g., access, perceived care coordination, provider-patient communication, etc.) enhanced by the intervention(s)?			✓	✓	✓				
	49. In what ways are aspects of patient experience worsened by the intervention?			✓	✓	✓				

Table A.2 (continued)

Dimension	Research questions <sup>1</sup>	Literature/ benchmarks	Primary data					Secondary data		
			Survey <sup>2</sup>	Qualitative data				Admin. data from awardees	Claims/ encounter	Client records/ EHR
				Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>			
	50. To what extent does the intervention affect measures of patient activation?			✓	✓	✓				
Timeliness	51. To what extent do the models improve the timeliness of care?			✓	✓	✓				
Efficiency	52. To what extent do the models improve the efficiency of care?			✓	✓					
Care coordination	53. To what extent did the models improve care coordination?							✓	✓	✓
<b>D. Cross Cutting Considerations</b>										
Equity and disparities	54. What contribution did the program make in reducing disparities in patient access to care?			✓	✓			✓	✓	✓
	55. What contribution did the program make in reducing disparities in enrollment of targeted patients in intervention?			✓	✓					
Equity and disparities	56. To what degree do the model(s) result in reductions in or elimination of disparities in quality of care?			✓	✓			✓	✓	✓
	57. To what degree does the program result in reductions in or elimination of disparities in patient outcomes?			✓	✓			✓	✓	✓
	58. What program characteristics influenced reductions of disparities in access, quality or outcomes?			✓	✓			✓	✓	✓
Subgroup effects	59. In outcomes of interest (health, costs, quality) for which a main effect was not detected, was there a subgroup in whom an effect was detected?							✓	✓	✓
	60. In outcomes of interest (health, costs, quality) for which a main effect was detected, was there a subgroup of patients for whom the effect was stronger, weaker or not detected?							✓	✓	✓

Table A.2 (continued)

Dimension	Research questions <sup>1</sup>	Literature/ benchmarks	Primary data					Secondary data		
			Survey <sup>2</sup>	Qualitative data			Admin. data from awardees	Claims/ encounter	Client records/ EHR	
				Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>				Site visit observ <sup>5</sup>
	61. What were the characteristics of patients, providers and settings in which subgroup effects were detected?							✓	✓	✓
	62. What characteristics of patients and settings influencing subgroup effects could be used to target the intervention(s) in other settings?			✓	✓					
Spillover effects	63a. What, if any, were the positive and negative spillover effects of the intervention(s)?			✓	✓	✓				
	63b. At site(s)									
	63c. Among providers									
	63d. Among non-targeted patients (through unintended effects on all services)									
	63e. Among targeted patients (through unintended utilization of other beneficial services)									
	64. What program characteristics and factors influenced these effects?			✓	✓	✓				
	65. To what extent did workflow redesign, HIT, telemedicine and other structural aspects of the intervention result in spillover effects at the site(s) or among providers?			✓	✓	✓				
	66. To what extent did care coordination, patient navigators, shared decision making and other aspects of the intervention(s) result in spillover effects among non-targeted patients?			✓	✓	✓				
	67. How can spillover effects be exploited in future implementation efforts using similar models of care?				✓					

Table A.2 (continued)

Dimension	Research questions <sup>1</sup>	Literature/ benchmarks	Primary data					Secondary data		
			Survey <sup>2</sup>	Awardee documents	Qualitative data			Admin. data from awardees	Claims/ encounter	Client records/ EHR
					S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>			
	<b>68. (Added in RfTOP, p.8) To what degree did these projects affect the utilization of other healthcare services (i.e. emergency care/crisis stabilization, outpatient care and inpatient care)?</b>							✓	✓	✓

<sup>1</sup> Includes research questions from Appendix 2 and page 8 of the RfTOP.

<sup>2</sup> Workforce survey planned for project months 5 and 17.

<sup>3</sup> Focus groups with clients.

<sup>4</sup> Project staff, experts, and stakeholder (S/E/S) interviews conducted by telephone or in person during site visits.

<sup>5</sup> Site visits are planned for project months 6–8 and 20-22.

<sup>6</sup> Includes aggregate data provided in self-monitoring reports, including metrics on health, health care, and costs; and other secondary individual-level or clinical site-level data.



**Table A.3. Workforce research questions by potential data sources**

Dimension	Research questions <sup>1</sup>	Primary data								
		Literature/ benchmarks	Survey <sup>2</sup>	Qualitative data				Secondary data		
				Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>	Admin. data from awardees <sup>6</sup>	Claims/ encounter	Client records/ EHR
<b>A. Development and training</b>										
	69. To what extent do programs provide training to use existing staff versus incorporate new kinds of staff effectively?			✓	✓					
	70. Are specialized providers required with training relevant to any of the diseases/systems being targeted?			✓	✓					
	71. What level of investment in training is required to fill these workforce gaps?	✓		✓	✓			✓		
	72. How effective and efficient are the various training models?			✓	✓			✓		
	73. Are providers given feedback on their own performance and relative to others?			✓	✓	✓				
<b>B. Deployment</b>										
	74. To what extent do programs succeed in developing effective work teams that address care needs of the served populations? Are provider-to-provider interactions/discussions more frequent and effective?			✓	✓	✓				
	75. What is the most effective way to carry out the intervention with patients: to work with patients one-on-one (and in what settings) versus in groups?			✓	✓	✓				
	76. What are the best ways to contact patients? (both from the patient and the provider point of view)			✓	✓	✓				

Table A.3 (continued)

Dimension	Research questions <sup>1</sup>	Literature/ benchmarks	Primary data							
			Survey <sup>2</sup>	Qualitative data				Secondary data		
				Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>	Admin. data from awardees <sup>6</sup>	Claims/ encounter	Client records/ EHR
	77a. Are patients, themselves, trained on new behavior or interactions with information technology?			✓	✓	✓				
	77b. How do the workers follow up to ensure that the trainings stick with the patients (long-term adherence)?									
	78. Is it more effective to hire new workers or contract for a portion of the time of existing workers in other organizations (or freelance)?			✓	✓	✓		✓		
	79. Are providers able to work at the 'top of their license'?			✓	✓	✓				
<b>C. Satisfaction</b>										
	80. How has the innovation changed the incidence of burnout among staff?		✓	✓	✓	✓				
	81. How has the innovation changed incidence of stress among staff?		✓	✓	✓	✓				
	<b>82. (Added in RfTOP, p.8) How does the staffing turnover rate of these occupations (patient navigators/peer support specialists) compare to those of other healthcare workers?</b>			✓	✓	✓				
	83. What are current rates of staff intent-to-leave current practice?			✓	✓					
	84. How have rates of staff retention and turnover changed over the course of the innovation?			✓	✓					
	85. To what extent are different kinds and levels of staff satisfied or dissatisfied with the care they are able to provide?		✓	✓	✓	✓				

Table A.3 (continued)

Dimension	Research questions <sup>1</sup>	Literature/ benchmarks	Primary data							
			Qualitative data				Secondary data			
			Survey <sup>2</sup>	Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>	Admin. data from awardees <sup>6</sup>	Claims/ encounter	Client records/ EHR
	86. To what extent are different kinds and levels of staff satisfied with their working conditions? This would include factors such as satisfaction with colleagues, other staff, income, organizational policies, etc.		✓	✓	✓	✓				
	87. To what extent do different kinds and levels of staff report satisfaction or dissatisfaction with specific components of the intervention? This would include components introduced as part of the intervention (e.g. a mobile computing platform; a new workflow process; support from community health workers).		✓	✓	✓	✓				
	88. How has staff satisfaction or dissatisfaction changed as a result of the intervention?		✓	✓	✓	✓				
	89. If the innovation is limited to a subgroup of staff/providers within an organization, what are the unintended consequences/spillover effects on the satisfaction of staff/providers not involved in the intervention?			✓	✓	✓				

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<sup>1</sup> Includes research questions from Appendix 2 and page 8 of the RfTOP.

<sup>2</sup> Workforce survey planned for project months 5 and 17.

<sup>3</sup> Focus groups with members of workforce.

<sup>4</sup> Project staff, experts, and stakeholder (S/E/S) interviews conducted by telephone or in person during site visits.

<sup>5</sup> Site visits are planned for project months 6–8 and 20–22.

<sup>6</sup> Includes aggregate data provided in self-monitoring reports, including metrics on health, health care, and costs; and other secondary individual-level or clinical site-level data.

**Table A.4. Impact questions by potential data sources**

Dimension	Research questions <sup>1</sup>	Literature/ benchmarks	Primary data							Admin. data from awardees <sup>6</sup>	Claims/ encounter	Client records/ EHR
			Survey <sup>2</sup>	Qualitative data				Site visit observ <sup>5</sup>				
				Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>						
<b>A. Cost reduction and savings</b>												
	90. What are the estimated cost savings, if any, for the priority group (individuals with mental health and substance abuse disorders) in this set of awardees?									✓	✓	✓
<b>B. Clinical outcomes</b>												
	91. What are estimated impacts of these projects on access?									✓	✓	✓
	92. What are estimated impacts of these projects on measures of clinical health?									✓	✓	✓
	93. What are estimated impacts of these projects on health related quality of life?									✓	✓	✓
	94. What are estimated impacts of these projects on quality of care (as indicated by safety, clinical effectiveness, patient experience, timeliness, and efficiency)?									✓	✓	✓
	95. What are estimated impacts of these projects on care coordination?									✓	✓	✓

<sup>1</sup> Includes research questions from Appendix 2 and page 8 of the RfTOP.

<sup>2</sup> Workforce survey planned for project months 5 and 17.

<sup>3</sup> Focus groups with clients.

<sup>4</sup> Project staff, experts, and stakeholder (S/E/S) interviews conducted by telephone or in person during site visits.

<sup>5</sup> Site visits are planned for project months 6–8 and 20-22.

<sup>6</sup> Includes aggregate data provided in self-monitoring reports, including metrics on health, health care, and costs; and other secondary individual-level or clinical site-level data.

**Table A.5. Context questions by potential data sources**

Dimension	Research questions <sup>1</sup>	Primary data						Secondary data		
		Literature/ benchmarks	Survey <sup>2</sup>	Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>	Admin. data from awardees <sup>6</sup>	Claims/ encounter	Client records/ HER
<b>A. Endogenous factors</b>										
Leadership	96. Was there a clearly designated champion/leader/point person(s) to oversee implementation?			✓	✓		✓			
	97. To what extent were “point-of-service” providers and/or patients involved in planning and implementing the innovation? How was the need for the innovation communicated to them?			✓	✓		✓			
	98. To what extent did senior management in the organization provide resources (e.g., staffing, time, funding) needed to implement the innovation?			✓	✓		✓			
	99. To what extent did implementation of the innovation involve coordination with outside stakeholders (e.g., units and/or organizations)?			✓	✓		✓			
	<b>100. (Added in RfTOP, p.8) What roles does organizational leadership play in the success of co-located interventions and why?</b>			✓	✓		✓			
Team science	101. What were the key characteristics of the awardee team that would affect implementation of the innovation?			✓	✓		✓			
Organizational features	102. What were the unique characteristics of the awardee that affected the implementation and success of the innovation?			✓	✓		✓			
	103. What key assumptions are required concerning the host organizations’ capacities?			✓	✓		✓			

Table A.5 (continued)

		Primary data								
		Qualitative data						Secondary data		
Dimension	Research questions <sup>1</sup>	Literature/ benchmarks	Survey <sup>2</sup>	Awardee documents	S/E/SI <sup>3</sup>	Focus Gps <sup>4</sup>	Site visit observ <sup>5</sup>	Admin. data from awardees <sup>6</sup>	Claims/ encounter	Client records/ HER
	104. To what extent did organizational features support or conflict with implementation?			✓	✓		✓			
Stakeholder engagement	105. To what extent did stakeholder engagement affect the relevance, transparency, or adoption of the innovation?			✓	✓		✓			
<b>B. Exogenous factors</b>										
Policy and political environment	106. To what extent did the policy and political environment support or conflict with implementation?			✓	✓		✓			

<sup>1</sup> Includes research questions from Appendix 2 and page 8 of the RfTOP.

<sup>2</sup> Workforce survey planned for project months 5 and 17.

<sup>3</sup> Focus groups with clients.

<sup>4</sup> Project staff, experts, and stakeholder (S/E/S) interviews conducted by telephone or in person during site visits.

<sup>5</sup> Site visits are planned for project months 6–8 and 20-22.

<sup>6</sup> Includes aggregate data provided in self-monitoring reports, including metrics on health, health care, and costs; and other secondary individual-level or clinical site-level data.

## **APPENDIX B**

### **TECHNICAL APPENDIX AND CORE MEASURE SPECIFICATIONS**

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## **TECHNICAL APPENDIX AND CORE MEASURE SPECIFICATIONS**

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### **I. CHCS**

CHCS provided Mathematica with an enumeration file including a record for all treatment and control group members. This file included the person's date of enrollment in the intervention. It also included Medicaid and Medicare program IDs, if applicable. However, many CHCS program participants are uninsured. The file also includes Social Security Number (SSN), date of birth, and gender. Lastly, the file included an indicator of employment status, highest level of education completed, and living situation. All this information was report as of the enrollment date. CHCS has agreed to provide electronic medical records and survey data as well as this enumeration file, however these data were not received in time to be included in the annual report. For this report, participant age was calculated as of the enrollment date. The remaining measures were distributions of the reported values in the CHCS enumeration file.

### **II. FPHNY**

In the next several sections, we describe the data sources and analytic methods we used to develop descriptive statistics related to implementation of the FPHNY intervention.

#### **A. Description of data source**

New York's Department of Health and Mental Hygiene provided Mathematica with an extract from its Parachute Data Portal System. This extract included personal information for each program participant. Variables included were Social Security Number (SSN), date of birth, and gender. Also indicators for insurance coverage through Medicaid, Medicare, a private insurer, or other insurance type were provided. Medicaid and Medicare IDs were provided for individuals enrolled in these programs. In addition to this personal data, information on use of Parachute program services was provided for each participant. Service use covered the period from January 2013 through June 2014, however reporting for June 2014 was incomplete. For crisis respite services, begin and end dates were provided for each crisis respite stay. Similarly, for Need Adjusted Mobil Crisis Team Services (NA-MCT), a begin and end date was provided for each span of treatment. In addition, for each month, a count of NA-MCT services delivered was provided by type of services. NA-MCT services were divided into three types: face-to-face network meetings with the participant, face-to-face non-network meetings with the participant, and face-to-face network meetings without the participant.

#### **B. Data processing, analysis notes and measure description**

Participant age was calculated as of the enrollment date. The number of participants using crisis respite or NA-MCT services or both was calculated based on the variables indicating the counts of services received for each participant by type of service. Similarly the number of services provided in each month was calculated by aggregating the number of services provided within each month across all participants.

We also report average length of crisis respite and NA-MCT use. We defined spans of enrollment as end minus start date of service. We then ran average span length for each person

and reported the percent of participants in each span length category for crisis respite use (0, 1-7, 8-14, >14 days) and for NA-MCT use (0, 1-30, 31-60, 61-120, 121-180, >180 days).

### **III. HealthLink Now**

In the next several sections, we describe the data sources and analytic methods we used to develop descriptive statistics related to implementation of the HealthLink Now intervention.

#### **A. Description of data source**

HealthLink Now provided Mathematica with a data extract for September 2013- May 31, 2014 from their Athena EMR system. This extract included data on all patients who participated in the innovation, including non- Medicaid and Medicare patients. The extract included patient identifiers (internal patient ID, HIC number, SSA), information on insurance type (Medicaid, Medicare, commercial, etc.), demographic information (DOB and Gender), and information on innovation participation (patient registration date, appointment dates and types).

#### **B. Data processing and analyses notes**

Across all our analyses, we excluded several individuals included in the data file who did not live in Montana, Washington, or Wyoming. HealthLink Now informed us that these individuals, residing in states including North Dakota and South Dakota, received care from providers in a participating state. As we were not able to verify this information (HealthLink Now's data did not include the place of service or servicing provider), we excluded these individuals. References to 'all participants' below do not include these individuals.

Insurance type was provided by HealthLink as insurance plan name, for example 'Medicaid-Washington: Apple Health.' We categorized these plans, using internet research and our expertise on health insurance plans, into the categories of Medicaid FFS, Medicaid Managed Care, Medicare FFS, Medicare Managed Care, Private/Commercial, FEHBP, CHIP, Other, and Self-Pay.

Data quality and validation checks of the EMR data uncovered suspected data anomalies. We provided information to HealthLink Now on these anomalies. In response, HealthLink Now informed us that some patients (N=52) were erroneously included in the initial file. These cases included test patients, patients not enrolled in the intervention, and patients who were referred to HealthLink Now but who never received services. We deleted these patients from the dataset, and also deleted any appointments included in the data for these patients (N=89). In addition, HealthLink Now provided dates for some appointments missing from the dataset for patients appropriately included. We created 15 appointments. All analysis tables were run on the data after these steps were completed.

#### **C. Measure description**

- Table 1. Healthlink Number of Appointments Provided to Medicaid and Medicare Participants
  - This table is at the appointment level and includes appointments for participants with Medicaid or Medicare.

- Table 2. Healthlink Appointment Timeliness and Frequency for Medicaid and Medicare Participants
  - This table is at the participant level and includes all participants with Medicaid or Medicare.
  - Referral to first appointment counts the length of time from the participant's date of referral from their PCP to their first appointment based on appointment dates.
  - Time from first appointment to first follow-up is calculated for those participants with at least two appointments in the relevant category.
- Table 3. Healthlink Dosage: Number of Medicaid and Medicare Participants with Appointments, by Type and County
  - This table is at the participant level and includes all participants with Medicaid or Medicare.
  - Count of appointments for care navigation, psychiatry, and therapy, is the total number of appointments for that service type. For 'total' this is the number of appointments each participant had when care navigation, psychiatry, and therapy are all combined.
  - Percents presented are column percents within each sub-category.
- Table 4. Healthlink Average Time Between Appointments for Medicaid and Medicare Participants
  - This table is at the participant level and includes all participants with Medicaid or Medicare.
  - It is calculated based on those participants with at least two appointments in the relevant category.
- Table 5. Length of Enrollment, Insurance Status, and Demographic Characteristics of All HealthLink Participants.
  - Length of enrollment is the time from first appointment until May 31, 2014 (the end date of the data file).
  - This table is at the participant level and includes all participants regardless of insurance type.
  - Age is based on age as of May 31, 2014, the end date of the provided data file.
  - Insurance type is based on the categories described above, with FEHBP, CHIP, and Self-Pay folded into 'Other'.
- Table 6. Length of Enrollment, Insurance Status, and Demographic Characteristics of Medicaid and Medicare HealthLink Participants.
  - This table is at the participant level and includes participants with Medicaid or Medicare. This table is otherwise the same as Table 5.

## IV. KMHS

For KMHS our analysis includes both descriptive statistics associated with program implementation and trends in core outcome measures. We provide technical detail on these analyses in the sections below.

### A. Implementation analysis

In the next several sections, we describe the data sources and analytic methods we used to develop descriptive statistics related to implementation of the KMHS intervention.

#### 1. Description of data source

KMHS provided Mathematica with a data extract for July 1, 2009 – March 31, 2014 from their Profiler electronic medical record (EMR) system. This extract included data on all patients who were enrolled in Medicaid or Medicare at any point during this time period.

The extract included patient identifiers (HIC number, Medicaid ID, SSA, internal patient ID), demographic information (DOB, Gender, living situation, education level, employment status), utilization information for services provided by Kitsap (appointment date, appointment type, and NPI of servicing provider where applicable), health status measures and information (diagnoses, blood pressure, BMI, cholesterol, Hba1C, and metabolic screening), information on innovation participation (patient registration date and cohort status), a patient activation measures, information on tobacco use, and a state calculated risk score called the PRISM score. Kitsap also provided information on which participants attended health classes on diabetes and attended a dental week workshop.

#### 2. Data processing, analysis notes, and measure descriptions

- Table 1. Kitsap Components- Number of Patients Receiving Services Since Innovation Start
  - This table is at the patient level and numbers displayed are the number of patients. It includes the following categories of patients:
    - Those who have received any service since the innovation start date.
    - Cohort members (Cohort One, Adult Cohort Two, Child Cohort Two)
    - Medicaid patients- Those patients with a Medicaid ID
    - Medicare Patients- Those patients with a HIC number
    - Duals Patients- Those patients with both a Medicaid ID and a HIC Number
- Provided Service by MH/SUD team is the number of patients with any services since innovation start.
- Medical assistants recorded information on physical health, vitals and labs to patient EMR record. The counts for these categories are based on having a valid measurement for the patients in the EMR record. For physical health diagnoses recorded, occasionally this information was entered by medical providers, including before the intervention. If data was entered for a category, but was incomplete or clearly anomalous, for example, a BMI of

2000, it is not counted. This information collection is targeted at the cohort and other high-risk patients.

- PAM Score- PAM stands for patient activation measure. If a patient had one or more PAM score recorded in the EMR they are counted.
- Dental Class and Diabetes class are counts of the number of individuals who participated in these activities.
- Table 2. Kitsap Dosage- Number of Patients Receiving Services Since Innovation Start
  - This table is at the patient level and includes all Kitsap patients who have received any service from Kitsap from January 1, 2013-March 31, 2014.
  - The most frequently used services are displayed for the top fifteen services based on a count for all patients.
- Table 3. Demographic Characteristics and Insurance Status of Kitsap Patients, Percents
  - This table is at the patient level and numbers displayed are percents.
  - Age is based on age as of March 31, 2014, the end date of the provided data file
  - Insurance status is based on the presence of a HIC or Medicaid ID in the data provided by Kitsap.
- Table 4. Recorded Diagnoses of Kitsap Patients, Percents
  - This table is at the patient level and numbers displayed are percents.
  - Primary mental health diagnosis includes the most common diagnoses for all patients, as well as undiagnosed, a category likely reflecting new patients whose diagnoses is currently uncertain. The count of undiagnosed is based on a category of undiagnosed in the Kitsap data. Patients with no diagnoses recorded, who do not specifically have an entry of undiagnosed, are not included.
  - Targeted Physical Health Diagnoses includes the physical health diagnoses that Kitsap is targeting their coordinated care efforts towards. This data collection is targeted at the cohort and other high risk members. Data is collected for other patients when possible given resources. Therefore, the percent of patients overall with these diagnoses reflects data collection efforts and may not reflect actual acuity.

## **B. Analysis of core outcome measures**

In this section, we provide detail on the data and analytic methods used to develop the core outcome measures for KMHS' Medicare enrolled population.

### **1. Description of data sources**

The analysis of core outcome measures was based on three data sources. The first source was a finder file that KMHS provided to Mathematica listing all Medicare or Medicaid enrolled individuals who received a KMHS service from July 1, 2009 – March 31, 2014. The finder file included information on gender, date of birth, Social Security Number (SSN) and Medicare HIC. The second data source was data from KMHS' EMR system. These data are described in section

A.1 above. The third data source is Medicare administrative claims data. Specifically we used the \_\_\_ files for the claims analysis and the \_\_\_ file for the eligibility analysis. Medicare administrative data include dates of service from January 2009 through December 2014 were included in the analysis.

## 2. Data processing and analysis notes

Developing the core measures took several steps. These steps are listed below.

**Step 1: Identify Medicare enrollees.** All records in the finder file provided by KMHS were matched to the VRDC BENE\_ID crosswalk. Matching was first conducted by HIC number. Individuals who did not match to the crosswalk by HIC number were then matched by SSN. Matches by HIC and SSN were verified by comparing the date birth, gender, SSN, and HIC to the data from the matched record. Records that matched on all of these variables or that had only a discrepancy in one components of one of these variables were retained in the analysis. For example, if HIC, SSN, gender, year of birth, and month of birth matched but day of birth was discrepant the record was retained in the analysis. Where discrepant information was identified the information from the Medicare record was used for the remainder of the analysis because this information was deemed more reliable than the information included in the KMHS patient record.

**Step 2: Identify KMHS patient spans.** The finder file included all Medicare and Medicaid enrolled individuals who received a service at KMHS from July 1, 2009 – March 31, 2014. In this step we identify the portion of this time period during which a person was considered a KMHS patient. We reviewed the list of services reported by KMHS in their EMR data and excluded those services that were outreach or care coordination leaving treatment oriented services.<sup>12</sup> Then for each month from July 1, 2009 – March 31, 2014, we created a variable indicate the portion of the month during which an individual was a KMHS patients. Individuals were considered to be KMHS patients beginning on the first date that they received a treatment service. They continued to be KMHS until 11 months following the month of the last treatment service they received. Since the KMHS intervention began in January 2013 and we analyze Medicare data through December 2013. Anyone who received a treatment services following intervention implementation was followed until the end of the analysis period.

**Step 3: Selection of the analysis population.** In order to be considered for inclusion in the analysis a person had to be Medicare Part A and B enrolled and identified as a KMHS patient in a particular month (based on step 2). In the particular analysis month the person could not: a) be enrolled in Medicare Advantage, b) have a primary insurer that was not Medicare, c) be a Railroad retiree, or d) have a date of death prior to the enrollment month. Also, to be included in the analysis in any month the person had to reside in Kitsap, Pierce, King, Mason, Clallam, Thurston, Snohomish or Jefferson county in the state of Washington.

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<sup>12</sup> We are working with KMHS to understand their type of service definitions and how various providers use the type of service categories available in the EMR system to record services. We anticipate that as we gain an understanding of the KMHS services and how providers use the EMR type of service categories, we may refine this selection criteria.

**Step 4: Partial months of enrollment.** Individuals were not considered KMHS patients until the day after their first visit. Thus Medicare utilization and payments were not counted in the core measures unless they were incurred later than the first KMHS service date. For example, if a person was discharged from the hospital in the beginning of January and then had their first KMHS visit a week after discharge, the inpatient discharge would not be counted in the core measure analysis because it occurred prior to the KMHS visit.

### **3. Measure description**

Once the patients and their enrollment period were selected for the analysis as described above, the core measures were developed for each month in which the person was enrolled. In this section, we define the specifications for identifying emergency room visits, inpatient discharges, readmission, and total Medicare payments. Each of these measures is summarized monthly for each individual in the analysis population. Then, totals for calendar quarters are aggregated for quarterly analysis. For variables that measure utilization or cost during a specific period, services that extend beyond a single day (for example, an inpatient or long-term care stay) are assigned to a time period based on the last day of service. Table B.1 below shows detailed specifications for identifying ER visits, inpatient discharges, readmissions and total costs in Medicare data.

**Table B.1. Specifications for core measures**

ER visit (based on PMME 62)	Inpatient discharges	Readmissions (based on NQF 1768 <sup>a</sup> )	Total costs
<p>We include ER visits and observation stays that do not lead to admission. We identify ER claims in the Outpatient file as those claims that have any revenue center code on any line item with the value:</p> <p>0450 = Emergency room-general classification</p> <p>0451 = Emergency room-emtala emergency medical screening services (eff 10/96)</p> <p>0452 = Emergency room-ER beyond emtala screening (eff 10/96)</p> <p>0456 = Emergency room-urgent care (eff 10/96)</p> <p>0459 = Emergency room-other</p> <p>0981 = Professional fees-emergency room</p> <p>Then we exclude line items that have a procedure code on that line item equal to 70000-79999 or 80000-89999, which identify lab/imaging services.</p> <p>As long as one line item meets the above criteria without being excluded as lab/imaging we count the entire claim as an ER visit. If two or more ER visits or observation stay has the same HICNO and date of service, we count them as one visit.</p> <p>Observation stays are identified in the Outpatient file. If any line item on a claim has (Revenue Center = 0760 OR 0762) AND (CPT = G0378) AND the unit count is greater than or equal to 8 then the entire claim is identified as an observation stay.</p>	<p>Using the inpatient file we combine claims that represent the same discharge:</p> <p>We eliminate duplicate claims</p> <p>We identify and combine initial and interim claims into one discharge. Interim claims have 1) the same admission date (ADMSN_DT) as the initial claim or 2) an admission date (ADMSN_DT) that is equal to the discharge date (DSCHRGDT) from the initial or another interim claim and the status on the other (previous) claim is "still a patient" (STUS_CD = 30) or 3) a claim with an admission date (ADMSN_DT) that is equal to one day after the discharge date (DSCHRGDT) of the initial or another interim claim and the status on the other previous claim is "still a patient" (STUS_CD = 30).</p> <p>Identify and combine transfer claims. Patients were transferred from stays with a STUS_CD equal to 02 (transferred to another short-term hospital), 66 (transferred to a CAH), 05 (another type institution for inpatient care), 43 (federal hospital), OR 65 (psychiatric hospital or unit)]. These claims were combined with associated transfer claims with the same BENE_IDs, AND PROVIDER is NOT the same, AND the admission date (ADMSN_DT) that is equal to the transfer out stay's discharge date (DSCHRGDT) or discharge date plus one (DSCHRGDT + 1).</p> <p>Once claims representing a single discharge have been combined, sum the number of unique discharges for each enrollee for each month</p>	<p>We begin with the identified inpatient discharges and then limit the stays to those from acute inpatient hospitals based on the last 4 digits of the provider number being among the following: 0001-0879, 0880-0899, 1300-1399, or 3300-3399.</p> <p>Then we exclude the following stays:</p> <p>Stays that ended in death – STUS_CD=20 (expired) or 41 (expired-hospice).</p> <p>Discharges with a principal diagnosis of pregnancy or condition originating in the perinatal period (ICD-9 code 630-679, V22, V23, V28, 760-779, V21, V29-39).</p> <p>Stays for which the patient is not continuously enrolled in Medicaid for the 30 days following the discharge date.</p> <p>The remaining discharges are designated as index discharges. We identify readmissions for the same patients in the 30-day window following the discharge date.</p>	<p>Sum the pay_amt across all service types for analysis group members for each month.</p>

<sup>a</sup> In contrast to the NQF specifications, we do no risk-adjust this measure nor do we require 365 days of continuous enrollment prior to the discharge date.



Once we identify the services and expenditures to include in the components of the core measure as described in the previous section, we sum the services, expenditures and unique patients to calculate the following descriptive statistics.

- ER Visits per 100 Unique Patients – For the specified quarter, this is the ratio of the sum of ER visits relative to the sum of unique patients times 100.
- Inpatient Hospital Discharges per 100 Unique Patients – For the specified quarter, this is the ratio of the sum of inpatient hospital discharges for the quarter relative to the sum of unique patients times 100.
- Readmission Rate – For the specified quarter this is the ratio of the sum of identified readmissions relative to the sum of index discharges times 100.
- Total Medicare Expenditures per Quarter per Unique Patient – For the specified calendar quarter, this is the sum of the total Medicare payments divided by the sum of unique patients.

Individuals who are enrolled in Medicare for less than the full period analysis are included in the numerator and denominator only for those quarters in which they are enrolled.

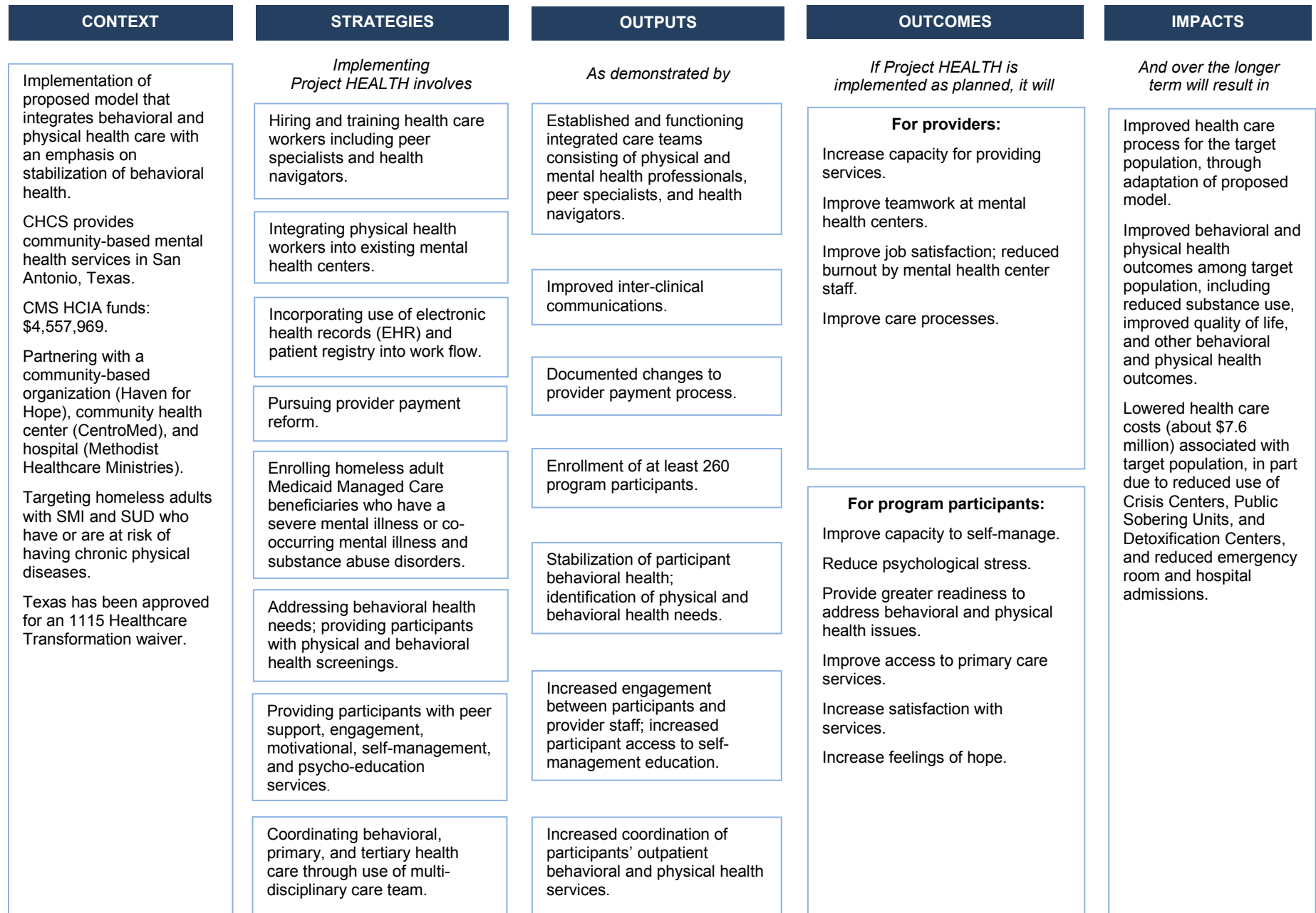
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**APPENDIX C**

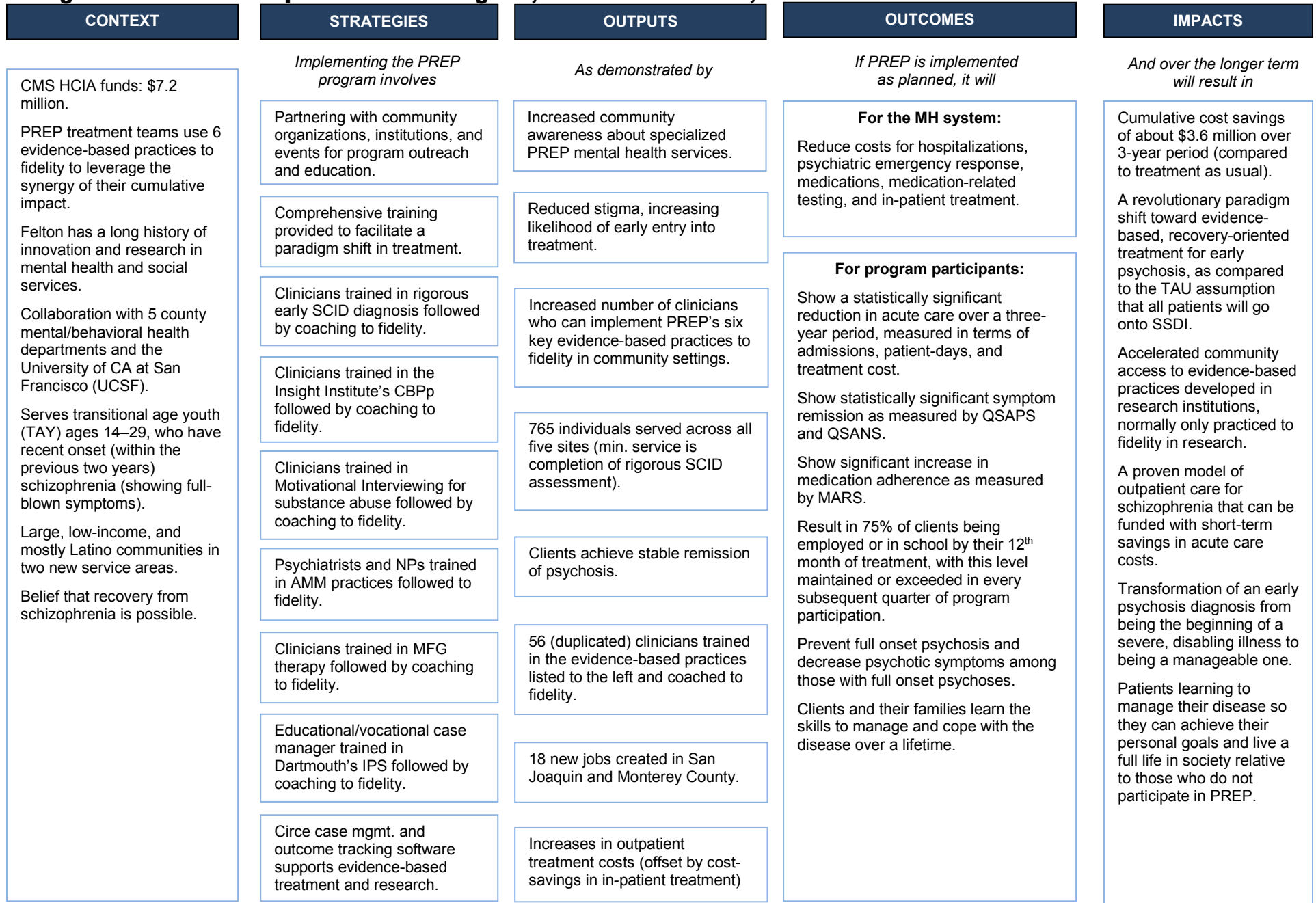
**EXPANDED DRIVER DIAGRAMS FOR EACH AWARDEE**

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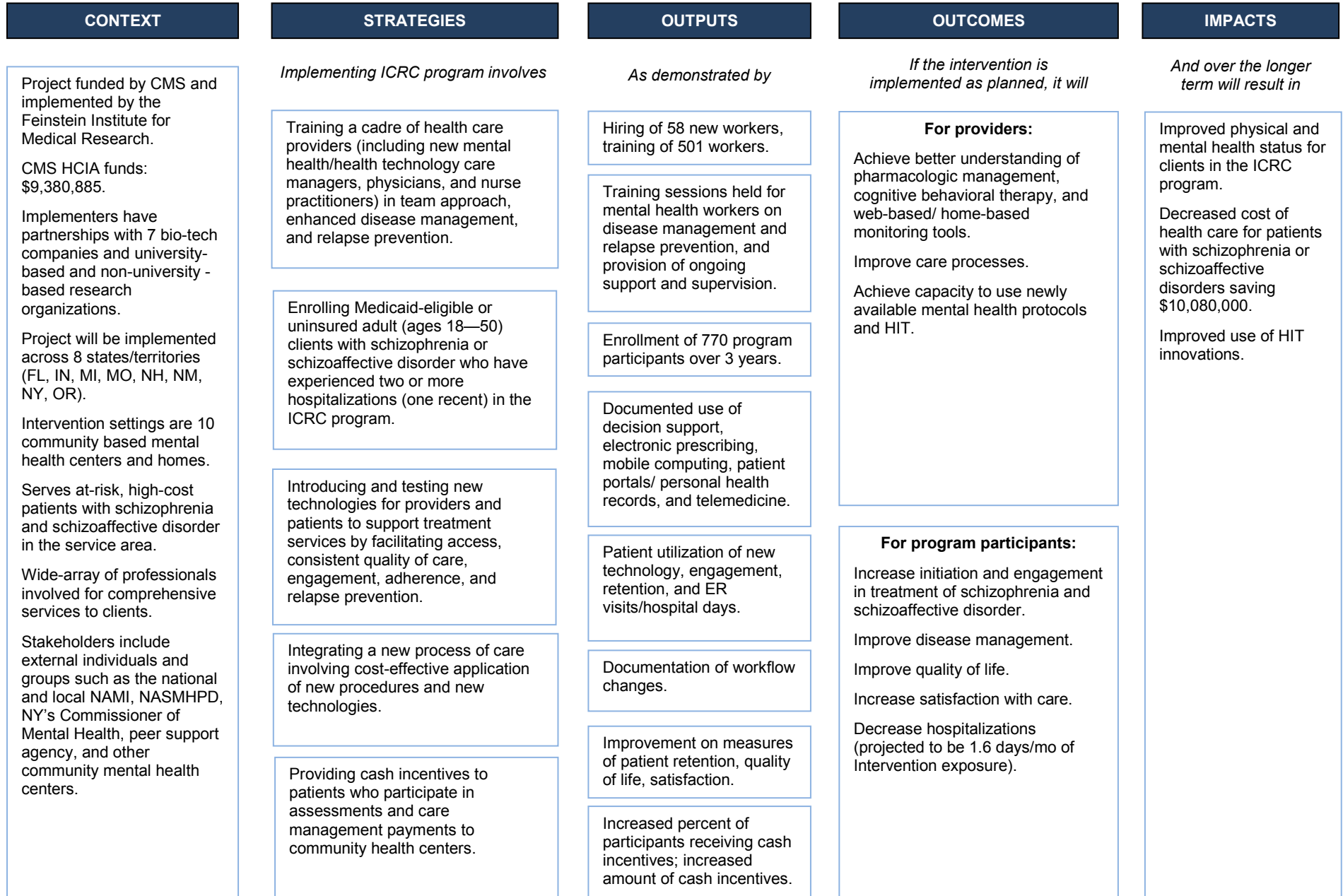
**Figure C.1. CHCS' expanded driver diagram, as of November 18, 2013**



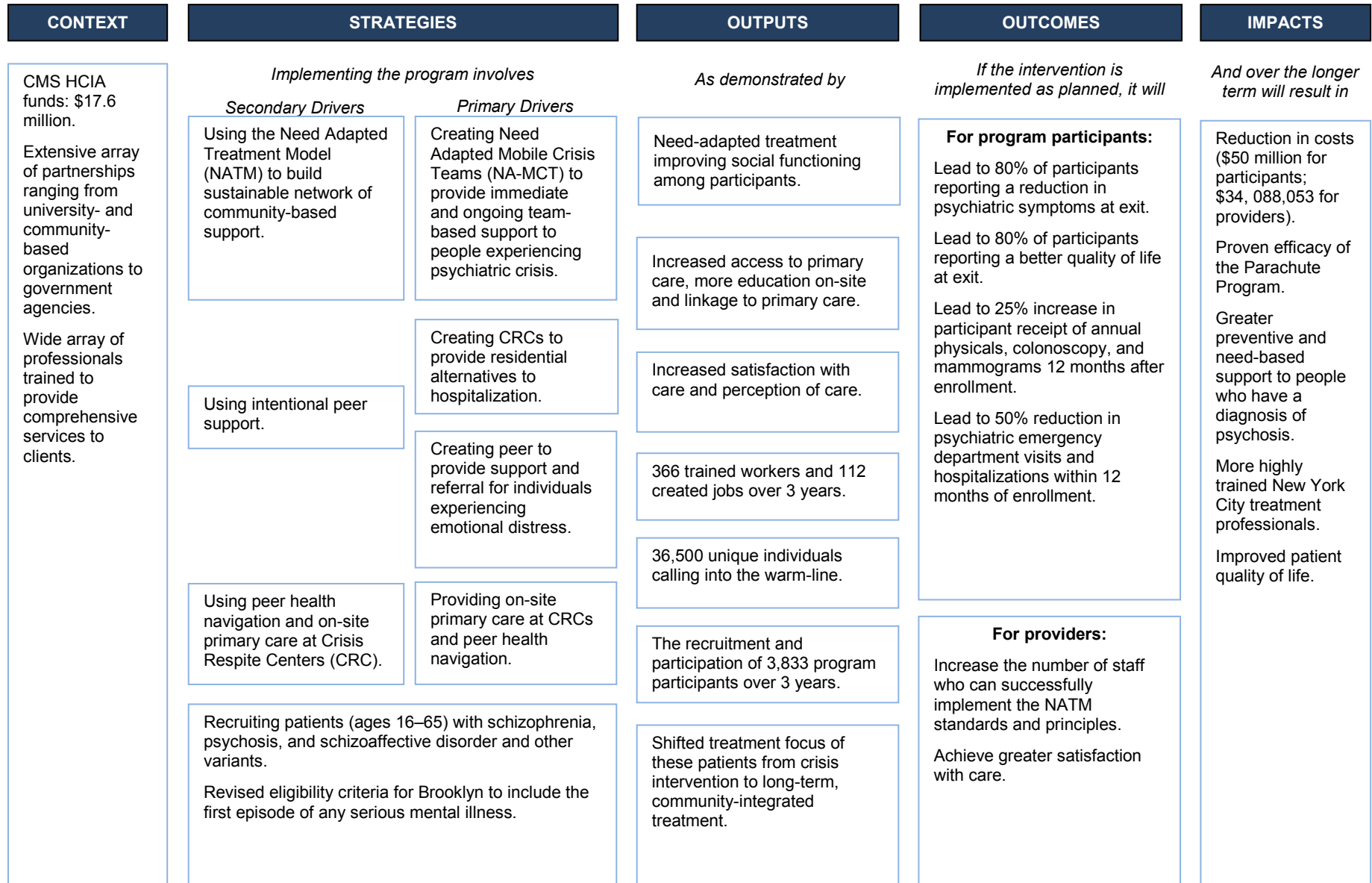
**Figure C.2. Felton's expanded driver diagram, as of December 15, 2013**



**Figure C.3. Feinstein’s expanded driver diagram, as of October 21, 2013**

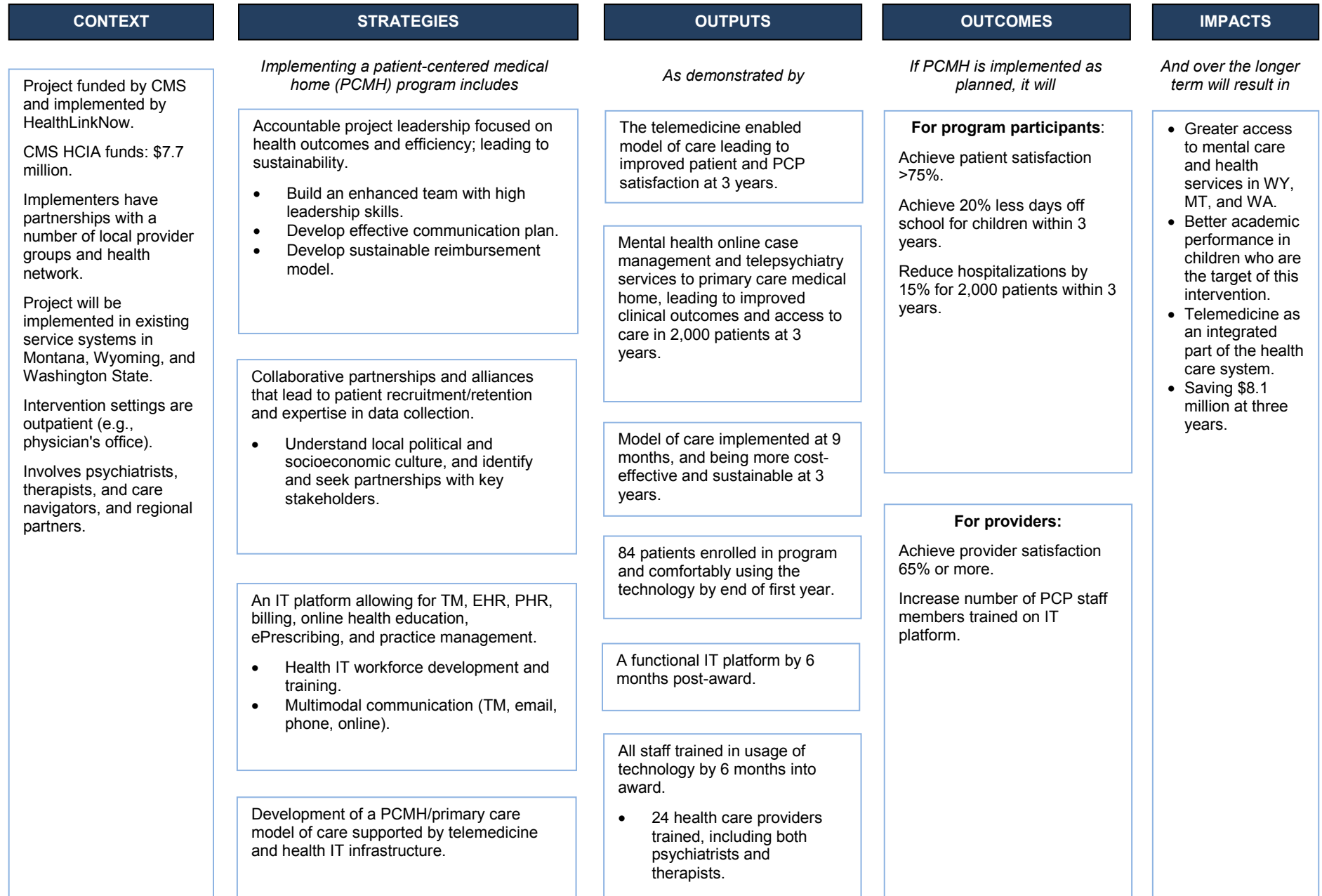


**Figure C.4. FPHNY’s expanded driver diagram, as of November 15, 2013**





**Figure C.5. HLN's expanded driver diagram, as of October 9, 2013**



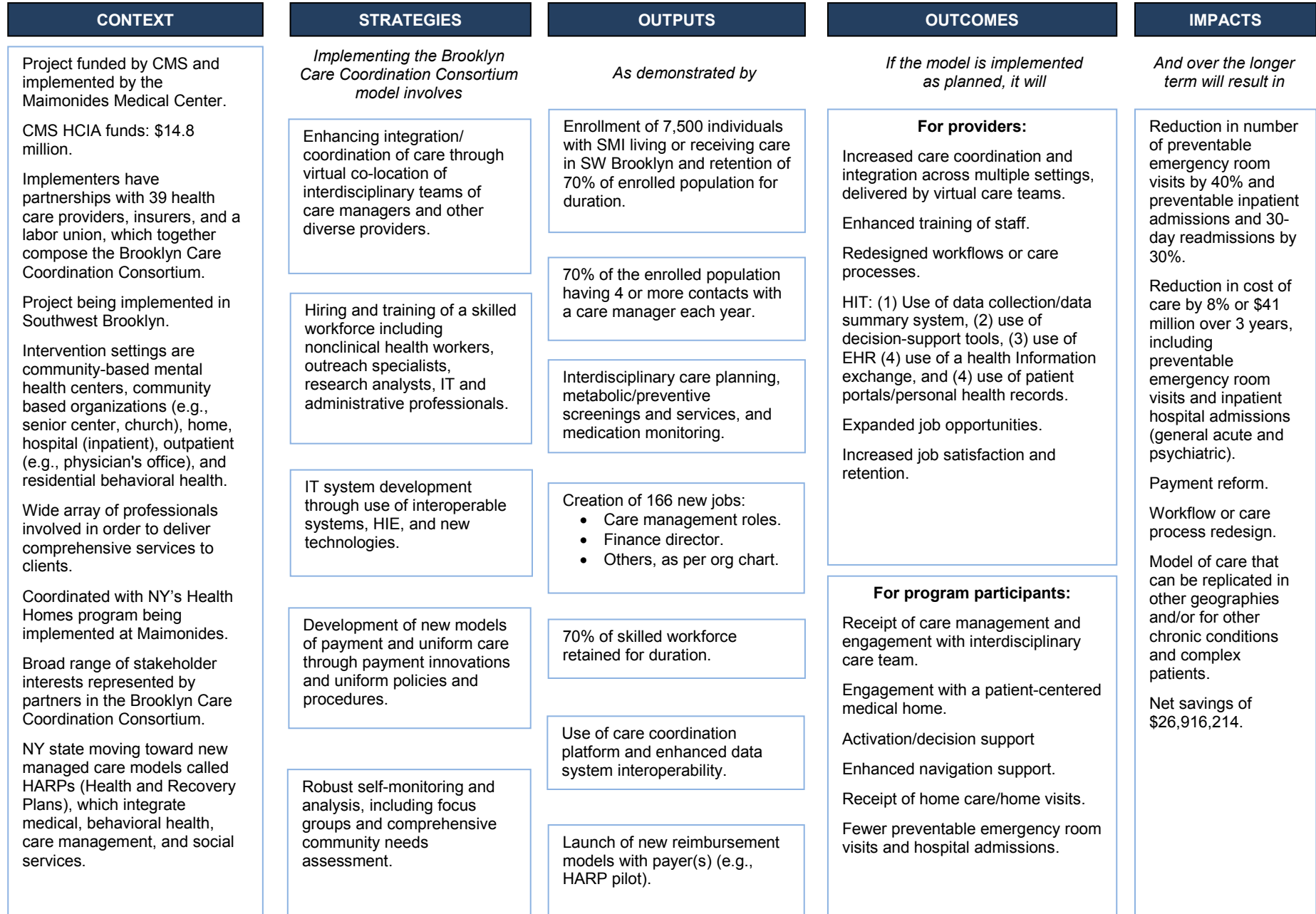
**Figure C.6. ICSI's expanded driver diagram, as of October 4, 2013**



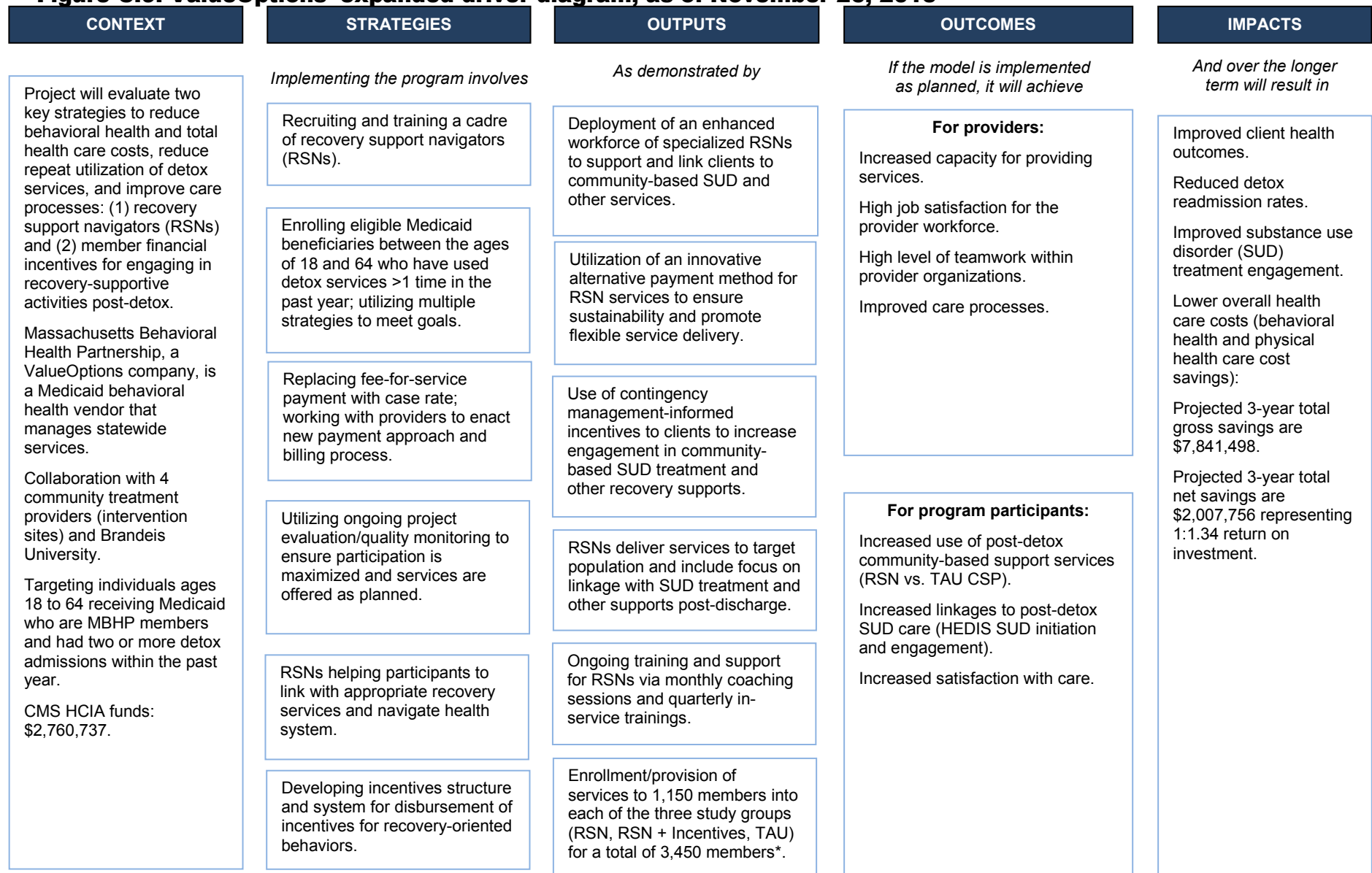
**Figure C.7. KMHS' expanded driver diagram, as of November 17, 2013**

CONTEXT	STRATEGIES	OUTPUTS	OUTCOMES	IMPACTS
<p>CMS HCIA funds: \$1,858,437.</p> <p>Targets adults with severe mental illness (SMI) and children with severe emotional disturbance (SED) plus one co-morbidity and primary care providers (PCP) in Kitsap County, Washington.</p> <p>Resources at community-based mental health center and outpatient physician offices in Kitsap County.</p> <p>Wide array of professionals involved in order to deliver comprehensive services to clients.</p> <p>Stakeholders include local consumers and consumer organizations, legislature, housing organizations, colleges, medical centers, public health officials; stakeholders represented by Care Innovation Council.</p>	<p><i>Implementing the Race to Health! Program includes</i></p> <p>Providing multidisciplinary, integrated care and care coordination to adults with SMI and children with SED with a physical co-morbidity.</p> <p>Training PCPs to use evidence-based screening, medication management, and behavioral health treatment, and providing practices with an on-call psychiatric consultant.</p> <p>Restructuring and expanding existing mental health care teams to coordinate care and use population-based, person-centered, evidence-based approaches.</p> <p>Creating and coordinating strong relationships and communication between patients and PCPs.</p> <p>Co-locating behavioral health and primary care at 4 PCP sites.</p> <p>Implementing or optimizing internal health IT and care processes including interoperability and information exchange.</p> <p>Accountable leadership/management focused on health and cost outcomes</p> <p>Measuring performance for sharing, continuous quality improvements, and outcomes</p> <p>Engaging external stakeholders through Care Innovation Council</p>	<p><i>As demonstrated by</i></p> <p>1,000 adults with SMI and 100 children with SED plus one co-occurring disorder enrolled.</p> <p>50 PCPs trained through 15 PCP/allied health trainings, and 450 PCP consultations.</p> <p>Existing staff trained and new staff hired (project goal: train 130 workers; fill 11.5 new positions).</p> <p>Addition of three new service lines: integrated SUD treatment, chronic disease and wellness, and coordination of care with PCPs.</p> <p>Participation in co-morbidities interventions (85% of adults) and affiliation with primary care providers/health homes (90% of enrollees).</p> <p>Documented changes to care processes and record of continuous quality improvements.</p> <p>Improved client satisfaction and health outcome data.</p> <p>Higher education adopts curriculum expanding integrated care workforce capacity.</p>	<p><i>If Race to Health! is implemented as planned, it will</i></p> <p><b>For providers:</b></p> <p>Increase capacity for providing chronic disease services.</p> <p>Improve behavioral health competency for community primary care providers.</p> <p>Increase mental health providers' knowledge about chronic disease and wellness care coordination, as well as substance use disorder treatment.</p> <p>Improve care coordination through multidisciplinary care team approach.</p> <p><b>For program participants:</b></p> <p>Increase engagement in care.</p> <p>Increase in participants receiving necessary physical health screens.</p> <p>Increase in receipt of integrated substance use disorder services.</p> <p>Increase in primary care visits.</p> <p>Increase in participants receiving co-morbidities interventions.</p> <p>Increase patient satisfaction.</p>	<p><i>And over the longer term will result in</i></p> <p>Improved functional and health status.</p> <p>Increased appropriate use of health care.</p> <p>Reduction in avoidable emergency room visits and hospitalizations.</p> <p>Increased receipt of preventive care.</p> <p>Decreased overall health care costs by \$1.7 million, reflecting a 24.5% PBPY cost reduction among adult participants.</p>

**Figure C.8. MMC's expanded driver diagram, as of November 6, 2013**



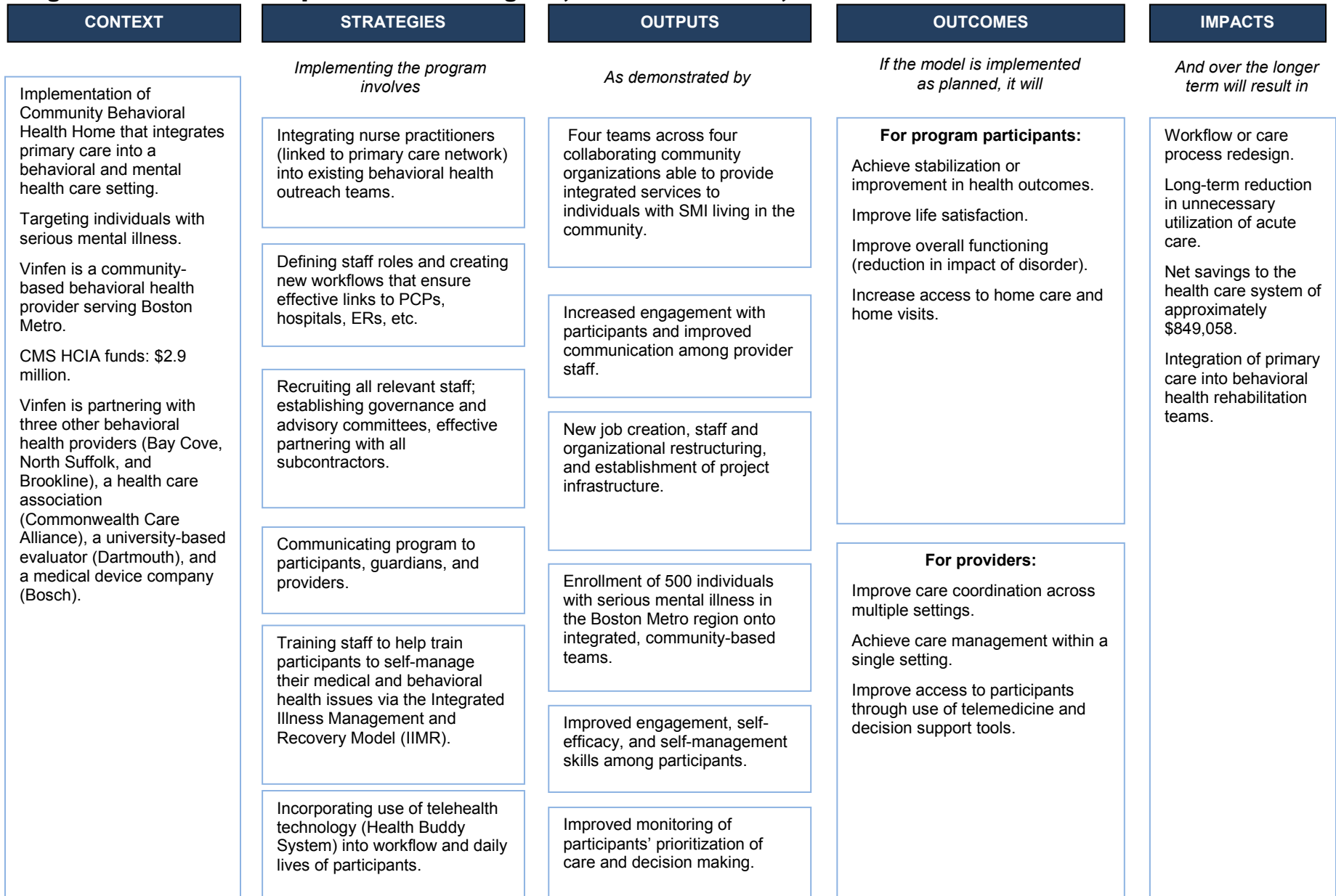
**Figure C.9. ValueOptions' expanded driver diagram, as of November 26, 2013**



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\* Current target is larger than originally proposed and committed to, reflecting adjusted ideal target and enhanced design.

**Figure C.10. Vinfen's expanded driver diagram, as of November 8, 2013**



## **APPENDIX D**

### **PRIMARY DATA SOURCES**

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## Primary data sources

We developed the qualitative information included in this report using documents that awardees submitted to the Centers for Medicare & Medicaid Services (CMS) for program monitoring purposes, supplemented by information obtained during email communications with awardees and calls held to plan site visits. The report also includes information obtained through site visits conducted between January and May 2014.

## Document review

Table G.1 specifies the types of information extracted from each of the documents that awardees submitted to CMS for program monitoring purposes.

**Table D.1. Information extracted from document review**

Document	Document date	Information extracted
Initial grant applications	January 2012	<ul style="list-style-type: none"> <li>• Project context</li> <li>• Innovation components, goals, and operational objectives</li> <li>• Prior experience with the model</li> <li>• Partners</li> <li>• Planned workforce development</li> <li>• Alignment with other ACA implementation initiatives</li> </ul>
Operational plans	August 2012	<ul style="list-style-type: none"> <li>• Staffing or services not supported directly by grant funds</li> <li>• Innovation components, goals, and operational objectives</li> <li>• Planned enrollment</li> <li>• Partners</li> <li>• Planned workforce development</li> <li>• Staffing or services not supported directly by grant funds</li> <li>• Alignment with other ACA implementation initiatives</li> </ul>
Operational plan updates Driver diagrams	Various September 2012	<ul style="list-style-type: none"> <li>• Implementation time line and progress</li> <li>• Innovation components, goals, and operational objectives</li> <li>• Planned workforce development</li> </ul>
Quarterly narrative reports	Quarters 1–8, covering June 2012–June 2014	<ul style="list-style-type: none"> <li>• Implementation time line, progress, and challenges</li> </ul>

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## **APPENDIX E**

### **DOMAINS FOR FRONTLINE EVALUATOR ANNUAL REPORTS**

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**Table E.1. Domains for frontline evaluator reports (domains framework)**

Domain	Definition	Topics/ questions to address
Innovation components	<ul style="list-style-type: none"> <li>• <b>Care Coordination:</b> Care coordination is the deliberate organization of patient care activities between two or more participants (including the patient) involved in a patient’s care to facilitate the appropriate delivery of health care services. Organizing care involves the marshalling of personnel and other resources needed to carry out all required patient care activities, and is often managed by the exchange of information among participants responsible for different aspects of care. (Source: McDonald, 2007) Include case management as part of care coordination.</li> <li>• <b>Medical Home:</b> A model or organization of primary care that delivers the core functions of primary health care and encompasses five functions and attributes: comprehensive care, patient-centered care, coordinated care, accessible services, quality and safety.</li> <li>• <b>Home care:</b> Home care refers to innovations that involve professional and/or community health worker outreach, evaluation, and care provided to patients within their home (or caregiver’s home). For example, home visits for the purpose of delivering medical, nursing, or other ancillary health care, environmental assessment and remediation as needed to further treatment goals.</li> <li>• <b>Workflow or process redesign:</b> Revisions of process, procedure, process redesign, workflow, clinical workflow.</li> <li>• <b>Health IT:</b> The development, deployment, and enhancement of health information technology, specifically: electronic health records, personal health records, health and information exchange capabilities. Also includes Innovations related to the further development or infrastructure of health information and regional health information organizations.</li> <li>• <b>Provider payment reform:</b> The use of new payment models as a lever for change in health care delivery infrastructure or processes. May include participation in an Accountable Care Organization, Bundled Care/Episodic Payment, per member per month payments for care coordination or case management, or other innovations in the way providers are reimbursed for health care.</li> <li>• <b>Patient decision support or shared decision making:</b> Decision support for patients provides knowledge and person-specific information, intelligently filtered or presented at appropriate times, to enhance health care decision making by patients. These tools include paper or electronic ‘decision aids’, computerized alerts and reminders through personal health records, and contextually relevant reference information. Shared decision making (SDM) is a collaborative process that allows patients and their providers to make health care decisions together, taking into account the best scientific evidence available, as well as the patient’s values and preferences.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify the components of the innovation</li> <li>• Description of innovation activities</li> <li>• Process for implementing innovation activities</li> <li>• Barriers, facilitators, and lessons learned care coordination</li> <li>• For <b>care coordination only</b>, please specify whether the innovation involves 1) care coordination within a health care system vs. linkages with community resources, 2) care coordination focusing on care transitions vs. care coordination around chronic diseases</li> </ul>

Table E.1 (continued)

Domain	Definition	Topics/ questions to address
Targets	Whether individually targeted or not	<ul style="list-style-type: none"> <li>• Please indicate whether the innovation focuses on individuals (i.e., patients, staff) versus organizations (i.e., practices, hospital systems)</li> <li>• For innovations involving persons with chronic diseases, please indicate whether the persons have a single (e.g., asthma only) or multiple chronic conditions (e.g., diabetes and CVD)</li> <li>• NOTE: This needs to be indicated once in the Annual Report</li> <li>• Describe the extent to which the innovation is:               <ul style="list-style-type: none"> <li>▪ Implemented as designed (e.g., fidelity), or as intentionally adapted. This includes the intended components, intended dosage (intensity and/or frequency), quality of delivery (if applicable).</li> <li>▪ Reaching the intended innovation targets (e.g., patients, staff, other).</li> </ul> </li> <li>• For non-individually directed innovations (e.g., primary care redesign, fidelity may need to be defined in other ways that are applicable to the context of the innovation. For example, to what extent are innovation related process redesign, care team realignment, health IT components functioning in practice as planned.</li> </ul>
Implementation effectiveness	<p>Effective implementation (also known as “implementation success”) is the presence of the innovation as intended in the delivery context. This is an “organization-level construct that refers to the aggregated consistency, quality, and appropriateness of innovation (e.g., new idea, program, process, practice, or technology) use within an organization” (Source: Weiner et al., 2009)</p>	<ul style="list-style-type: none"> <li>• Describe the extent to which the innovation is:               <ul style="list-style-type: none"> <li>▪ Implemented as designed (e.g., fidelity), or as intentionally adapted. This includes the intended components, intended dosage (intensity and/or frequency), quality of delivery (if applicable).</li> <li>▪ Reaching the intended innovation targets (e.g., patients, staff, other).</li> </ul> </li> <li>• For non-individually directed innovations (e.g., primary care redesign, fidelity may need to be defined in other ways that are applicable to the context of the innovation. For example, to what extent are innovation related process redesign, care team realignment, health IT components functioning in practice as planned.</li> </ul>

Table E.1 (continued)

Domain	Definition	Topics/ questions to address
Workforce development	Efforts to identify the right roles and staff and train or build skills among staff for an innovation	<ul style="list-style-type: none"> <li>• Types of roles required for each innovation component (and explain why the role is important for the innovation)               <ul style="list-style-type: none"> <li>▪ Education and training required for each</li> <li>▪ Recruitment</li> <li>▪ Turnover</li> <li>▪ Changes to roles (e.g., planned to use lay health worker, but recognized professional clinical staff were essential)</li> <li>▪ Barriers, facilitators, and lessons learned related to training, recruitment, and turnover</li> <li>▪ Please indicate the following about the staff mix. The innovation:                   <ul style="list-style-type: none"> <li>○ Uses staff with clinical degrees and credentials</li> <li>○ Uses staff without clinical degrees or credentials (e.g., CHWs)</li> <li>○ Uses a combination of clinical staff and CHWs</li> </ul> </li> </ul> </li> </ul>
Context	<p><b>Exogenous:</b> Secular Trends and changes in the external policy or practice environment that impact implementation or effectiveness of innovation.</p> <p><b>Endogenous:</b> Changes or features of the implementing organization’s culture, capacity, implementation climate, or leadership that impact implementation or effectiveness of the innovation.</p>	<ul style="list-style-type: none"> <li>• Barriers, facilitators, and lessons learned related to exogenous or endogenous contextual features or changes.</li> </ul>

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**APPENDIX F**

**INNOVATION COMPONENTS TABLE, BY AWARDEE**

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**Table F.1. Innovation components of CHCS' HCIA project**

Innovation component	Description	Associated workforce staffing	Associated workforce training
Integration of physical and behavioral health care	Participants receive collaborative, seamless care and treatment through the Project HEALTH multidisciplinary care team, which includes a primary care physician (PCP), a licensed vocational nurse (LVN), and a psychiatrist. The PCP and psychiatrist coordinate client care through weekly meetings, with the assistance of health navigators. The innovation also expands the use of a CHCS electronic medical record (EMR) and registry system to facilitate inter-clinician communication, monitor health outcomes and compliance with disease management protocols, and track follow-up for primary and behavioral health care.	1 FTE PCP, 1 FTE LVN, and one psychiatrist (not HCIA-funded)	<b>PCP Training:</b> Prescribing Procedures/Policies for Physicians (4 hours), clinical documentation training
Peer support specialists	Peer support specialists work with participants to build and sustain readiness for change, motivation, and compliance. They also help participants maintain engagement with medical and mental health services. Each participant is assigned to a peer support specialist upon entry into the program.	7 FTE Peer Support Specialists	<b>Training:</b> Recovery-Oriented Practice: Peer Specialist Integration (PSI) Initiative training and certification (40 hours), Motivational Interviewing training (4 hours), wellness self-management training (1 hour), and training on topics including the transformational training matrix, chronic care models and shared decision making, crisis intervention, and workplace relationships, ethics, and self-care. Peer staff also receive one-on-one training on delivery of recovery-oriented services and trauma-informed care, and quality customer service.
Community guest specialists	Community guest specialists support the peer support specialists and provide routine care, monitor consumer needs, and provide linkages and referrals to additional services and resources. The community guest specialists are also primarily responsible for recruitment of new participants.	8 FTE Community Guest Specialists	<b>Training:</b> Wellness self-management training (1 hour), Motivational Interviewing training (4 hours), and training on the chronic care models and shared decision making, crisis intervention, and workplace relationships, ethics, and self-care.

Table F.1 (continued)

Innovation component	Description	Associated workforce staffing	Associated workforce training
Health navigators	Health navigators coordinate care teams to ensure seamless delivery of care and treatment and provide solution-focused brief interventions and health education. One of the two health navigators oversees the peer support specialists; the other oversees the community guest specialists.	2 FTE Health Navigators	Training: Motivational Interviewing training (4 hours), wellness self-management training (1 hour), and training on the transformational training matrix, chronic care models and shared decision making, and person-centered recovery-based care.
Consumer benefits specialist	A Project HEALTH-dedicated consumer benefits specialist connects eligible participants to Social Security, Medicaid, and other eligibility-based programs.	One FTE Consumer Benefits Specialist	Consumer Benefits Specialist Training: Texas MHMR Consumer Benefits Training (16 hours).

**Table F.2. Innovation components of Felton’s HCIA project**

Innovation component	Description	Associated workforce staffing <sup>a</sup>	Associated workforce training <sup>a</sup>
Cognitive Behavioral Therapy for Early Psychosis (CBTp)	<p>Developed in England specifically for individuals with schizophrenia, CBTp equips patients with skills to recognize, manage, and minimize symptoms long after the therapy has ended.</p> <p>In the PREP model, CBTp works synergistically with AMM to provide a comprehensive approach to remit both positive and negative schizophrenia symptoms. Typically clients participate in CBTp weekly for six months.</p>	Minimum of 12 therapists over the project period	Staff receive 20 hours of didactic + 8 hours of group supervision for 2 months and weekly individual supervision for 12 months. Each clinician must submit six taped sessions to ensure fidelity with the model.
Multifamily Psychoeducation Groups (MFG)	Groups are designed to increase social support, teach families problem-solving, and provide ongoing education about symptoms, medication, community life, work, etc.	20 therapists, peer case aides, and family partners over the project period	PREP staff are trained in this approach by the PIER Program, the researchers who developed this model. Training includes 3 days didactic and 1 year of co-facilitating with an experienced facilitator.
Algorithm-Guided Medication Management (AMM) for Early Psychosis	AMM is based on the Texas Medication Algorithm but is specific to early schizophrenia and includes protocols that make medication decisions collaborative with the consumer, family, and treatment team. The PREP AMM is designed to identify an individualized medication approach to which the individual can adhere over the long term.	8 psychiatrists and psychiatric nurse practitioners over the project	4 hours of training + 4 hours of reading; monthly supervision—1 hour a month on the phone and 1 hour bimonthly face to face.
Individual Placement and Support (IPS)	Model of education and employment support. Developed at Dartmouth, this model emphasizes a swift return to the competitive workforce or education rather than volunteer work or extensive training. The intent is to normalize the client’s life experience as quickly as possible.	All PREP employment staff	Online by IPS Dartmouth developers and supervised to fidelity using the IPS SE Fidelity instrument.
Motivational Interviewing-Based Substance Abuse <sup>b</sup>	PREP therapists use a harm-reduction model employing Motivational Interviewing and CBT in a nonjudgmental and collaborative fashion to educate, support change, and understand and avoid triggers to use.	PREP therapists	

Table F.2 (continued)

Innovation component	Description	Associated workforce staffing <sup>a</sup>	Associated workforce training <sup>a</sup>
SCID (Structured Clinical Interview for DSM-IV); SIPS (Structured Interview for Prodromal Symptoms)	Training is geared toward diagnosing early psychosis while beginning the therapeutic engagement process.	All clinicians	30 hours of didactic + 5 assessments for 3 hours observed for 2 people.
CIRCE (Cloud-Based Integrated Reporting and Charting Environment) <sup>c</sup>	HIPAA-compliant, cloud-based electronic case management and outcome tracking system facilitates care coordination, team-based service delivery, management, and evaluation of PREP.		
Cross-component staffing and training	Brief Family-Focused Therapy. <sup>d</sup> This training enables clinicians to provide psycho-education tailored to the family’s needs and communication skills and to ensure engagement with the young person and his or her family early in the provision of PREP services.	All clinicians	10 hours didactic and 40 hours group supervision over 10 months.
	Outreach education: All team members learn how to give outreach talks and set up systems for achieving outreach goals to all potential stakeholders.	All PREP team members	Two 4-hour trainings and 16 hours of supervision

<sup>a</sup> Workforce development described is that which was originally planned or has been completed, according to project documents reviewed.

<sup>b</sup> Training for Motivational Interviewing was not detailed in the application. The extent to which this is being implemented is unclear. We will explore this during the site visit.

<sup>c</sup> CIRCE (Cloud-Based Integrated Reporting and Charting Environment) is as described in the application. The extent to which this is a critical component of the innovation is unclear. We will explore this during the site visit.

<sup>d</sup> During the site visit, we will further examine which clinicians receive training in Brief Family-Focused Therapy, as well as how this relates to the multifamily group and other components of the innovation.

**Table F.3. Innovation components of Feinstein’s HCIA project**

Innovation component	Description	Associated workforce staffing	Associated workforce training
Mental Health/Health Technology (MH/HT) case manager role	HCIA funding supports the new role of MH/HT case managers at each mental health site. MH/HT case managers provide patients with relapse-prevention counseling, furnish case management, train patients and family members on use of health technology tools, and support patients’ use of these tools throughout the program.	MH/HT case managers recruited from existing staff at each site	MH/HT case managers attended 2-day in-person training on health technologies and participate in ongoing teleconferences with trainers to troubleshoot challenges that arise during project implementation.
Relapse-Prevention Counseling (RPC) <sup>a</sup>	MH/HT case managers provide patients with in-person relapse-prevention counseling to prevent rehospitalization through weekly or biweekly sessions during the first two months of the program. Relapse-prevention plans are centered around personal goals identified by the patient. The relapse-prevention counseling sessions serve as the framework through which the MH/HT case manager identifies which of the program technologies are appropriate for the patient, introduces these technologies to the patient, and trains and supports the patient in the use of these technologies.	MH/HT case managers at each mental health site provide RPC	Support: The program provides the MH/HT case managers with a decision tree to guide the development of the patient’s relapse-prevention plan, as well as detailed handouts to assist the MH/HT providers in structuring each session.
Prescriber Decision Assistant (PDA) <sup>a</sup>	Prescribers participating in the program at each site use the PDA to guide and inform their sessions with each patient. When patients arrive for their session, they are asked to complete an online assessment of 38 questions on their symptoms, medication adherence, side effects, and other relevant information since their last visit. In this assessment, patients are also asked to identify their main concerns and whether they want to change their current medication. When the patient meets with prescriber, this information is integrated into the prescriber’s web-based assessment tool. This tool provides a structure for the session and prompts the prescriber to ask questions about patient symptoms and uncommon side effects, or probe for more information. After the prescriber completes the assessment, the PDA uses the information provided by the prescriber to provide evidence-based recommendation on medication decisions. The program also provides suggestions on patient use of the other technologies.	Prescribers at each mental health site use the PDA to inform and monitor medication management	Prescribers attend 2-day training that includes PDA training, and receive one-on-one training from the developer of this technology

Table F.3 (continued)

Innovation component	Description	Associated workforce staffing	Associated workforce training
FOCUS <sup>a</sup>	<p>Patients use the FOCUS smartphone application to target improvement across at least one of five domains: symptom management, mood regulation, medication adherence, social functioning, and improved sleep. The ICRC program provides patients with a smartphone that is pre-programmed with this application. Patients work with MH/HT case managers to identify which domains to target. The application sends patients up to three alerts daily, during a time frame selected by the patient, to target the chosen domain. If the patient indicates that he or she is available to engage with FOCUS, the application asks the patient questions about the selected domain and provides reminders to use coping skills and CBT techniques. MH/HT case managers can access a patient-utilization report to monitor patient use of the application. MH/HT case managers work with patients to add additional target domains to their application use as relapse-prevention counseling progresses.</p>	<p>MH/HT case managers train and support patient use</p>	
<p>Web-Based Cognitive Behavioral Therapy (CBT) for voices or paranoia<sup>b</sup></p>	<p>The web-based cognitive-behavioral therapy programs each offer 10 interactive, self-administered modules to help patients manage auditory hallucinations and paranoia. MH/HT case managers work with patients during relapse-prevention counseling to identify whether they would benefit from using this technology. MH/HT case managers then come to the patient's home to set up the program on his or her computer and assist the patient in getting started. The programs require that patients move through the sessions in order, and provide homework to reinforce learning. MH/HT case managers monitor patient use of the programs through the website. Patients and case managers are also provided with a manual that offers homework and additional guidance on the use of CBT techniques.</p>	<p>MH/HT case managers train and support patient use</p>	



Table F.3 (continued)

Innovation component	Description	Associated workforce staffing	Associated workforce training
Daily support website <sup>a</sup>	The Daily Support website provides web-based resources to support patients and family members. These resources include (1) patient and family support groups monitored by two therapists that allow for patient-to-patient interaction, family member-to-family member interaction, and patient and family member interaction; (2) an “ask an expert” forum in which patients and family members can ask questions of the two therapists and view previously asked questions and responses; and (3) a library of psycho-education articles to provide information on schizophrenia and relapse prevention. The website and education materials are designed specifically for the target population, with an appropriate reading level and easy-to-use web features.	MH/HT case managers work with two psychologists to train and support patient and family use of these resources. The two psychologists moderate the online forums and resources.	
Proteus ingestible sensor and personal monitor <sup>c</sup>	The ICRC program is implementing medication sensor technology to monitor patient medication adherence in 100 patients at one site. This technology includes the Ingestible Event Marker (IEM), an ingestible sensor embedded in a pill, and the Proteus Personal Monitor (PPM), an adhesive patch that patients wear on their torso for up to one week. When patients swallow medication in which the IEM is embedded, the IEM is activated and communicates within the body to PPM. Providers receive information from the PPM on patients’ medication adherence, as well as on their rest and activity. Patients can also view information from the PPM using their smartphone.	MH/HT case managers train and support patient use	Staff at Zucker Hillside Hospital trained on the use of the Proteus technologies during pilot program. The ICRC program plans to work with Proteus to provide additional training when technology is rolled out.

<sup>a</sup> Used with or available to all patients enrolled in the innovation (that is, the Health Technology Program).

<sup>b</sup> Provided to patients when needed, as determined through a shared decision-making approach.

<sup>c</sup> Provided only to 100 patients enrolled at Zucker Hillside Hospital. Training for patients and providers on this component was not included in documents reviewed. We will explore further during site visits.

**Table F.4. Innovation components of FPHNY’s HCIA Project**

Innovation component	Description	Associated workforce staffing	Associated workforce training
Citywide support line	HCIA funding allowed the development of a new support line. The Citywide Support Line is a confidential support line for NYC residents to call and connect with people who have had their own experience of mental illness and have been trained to support people through a crisis. Intentional Peer Support (IPS) is the primary intervention for the Citywide Support Line. The Citywide Support Line is co-located with the Manhattan Crisis Respite Center to leverage staffing resources and allow peer specialists to serve in dual roles.	Peer specialists staffing the support line are hired under the grant.	Peer specialists staffing the support line are trained in IPS.
Crisis respite centers	HCIA funding allowed the creation of four borough-based Crisis Respite Centers (CRCs). The CRCs are the first respites in the country with a mixed model of peer and professional staff and continuity of care with a mobile crisis team. Intentional Peer Support (IPS) is the primary intervention for the CRCs.	Peer specialists and behavioral health professionals who staff the CRCs are hired under the grant.	Peer specialists and behavioral health professionals who staff the CRCs are trained in IPS.
Intentional peer support	Intentional peer support (IPS) is the primary intervention used at the Crisis Respite Centers and the Citywide Support Line. It is a nonclinical approach that challenges prevailing beliefs about mental health, safety, and risk that may lead to cycles of dependency on emergency rooms and hospitals. It also assumes that those receiving and providing services have been impacted and shaped by the current system of care and by prevailing attitudes and beliefs about emotional distress.	All peers hired under the grant.	All peers hired under the grant are trained in IPS.  In addition, IPS training is provided to peers from behavioral health organizations and referral sources (e.g., LIFENET support line) throughout NYC. Non-peer staff attended training as well, including psychiatrists, social workers, family therapists, other behavioral health professionals and administrators.  IPS training is considered general advanced training, covering peer support issues and crisis training.

Table F.4 (continued)

Innovation component	Description	Associated workforce staffing	Associated workforce training
Adaptation of mobile crisis teams to incorporate the Needs-Adapted Treatment Model (NATM), peer specialists, and additional behavioral health professionals, and to utilize the IPS model	<p>HCIA funding allowed the adaptation of existing mobile crisis teams to incorporate a new innovative model of care, the Need-Adapted Treatment Model, which is now the primary intervention used by Parachute NYC mobile teams. The teams continue to do the old work of short-term assessment and referral; the NATM model added new work (ongoing treatment and support). The grant also allowed the addition of staff, including peer specialists and behavioral health professionals, to four of these teams and redesigned their services to provide long-term care (one year).</p> <p>Four Need-Adapted Mobile Crisis Teams (NA-MCTs), one each based in the boroughs of Manhattan, Brooklyn, the Bronx, and Queens, will provide immediate services to individuals experiencing acute psychotic episodes, as well as providing post-crisis support.</p> <p>Each NA-MCT is linked to a CRC (offering respite care for those in need) that provides continuity of care through the services of a shared psychiatrist.</p>	Includes existing staff of each of the four NA-MCTs as well as new peers and clinical staff hired under the grant.	<p>Existing staff of each of the four NA-MCTs, as well as new peers and clinical staff hired under the grant, receive basic and advanced training in NATM.</p> <p>In addition, basic training in NATM is provided to existing staff of mobile crisis teams and other individuals employed by or seeking employment from behavioral health organizations and referral sources throughout NYC.</p> <p>Train-the-trainer training is provided to 3 to 4 select NYC-based behavioral health professionals who will assume responsibility for conducting the NATM trainings and providing follow-up and refresher trainings.</p>
Peer Health Navigation (PHN)	Peer Health Navigation (PHN) is used by all peer specialists at both the NA-MCTs and CRCs to help participants overcome barriers to care and self-care, access health resources, and improve their overall health and wellness. PHN is not a stand-alone model of care like NATM and IPS; peer staff at all Parachute services use their PHN skills in addition to NATM and IPS in order to promote better physical health care access and outcomes.	Peer specialists hired under the grant.	Training curriculum was developed specially for Parachute NYC and did not include peers from other behavioral health organizations or referral sources in NYC.
Increased access to primary care services	There is an agreement with a federally qualified health center (FQHC) to provide access to expedited appointments for patients receiving services from Parachute NYC. Primary care services are provided at multiple FQHC locations and a mobile van.	Contract with partner FQHC to provide primary care services through 0.2 FTE nurse practitioners	

**Table F.5. Innovation components of HLN’s HCIA project**

Innovation component	Description	Associated workforce staffing	Associated workforce training
Online case management model	The HLN integrated telemedicine/HIT platform supports the online case management model. HLN case managers are available for phone, email, and videoconferencing crisis support and intervention. They are responsible for ensuring that their patients have timely and convenient access to continuity services and are receiving medications, attending follow-up visits, receiving appropriate therapy and support, and can access HLN’s online health educational materials.	6 care navigators, at least bachelor’s-level mental health providers, over the course of the project, located in California or remote states.	All case managers receive significant internal training on HLN integrated telemedicine/HIT platform and model of care.
Online therapy service-delivery model	The HLN integrated telemedicine/HIT platform supports telepsychiatry services including online psychiatric assessments, treatment planning, medication management, case management, counseling and supportive therapy, cognitive behavioral therapy, and crisis and subacute assessments (especially in emergency departments and isolated regions). The IT platform allows secure web-based patient and provider communication, e-prescribing, practice management, scheduling, billing, and electronic health record.	4 FTE psychiatrists. 4 therapists are licensed clinical social workers, psychologists, or nurse practitioners of at least master’s level and licensed to practice in Montana, Wyoming, and/or Washington.	All clinical staff receive significant internal training on HLN integrated telemedicine/HIT platform and model of care.
Regional partnerships and referrals	The HLN team develops collaborative partnerships and alliances with provider groups and health networks for patient recruitment departments in Montana, Wyoming, and Washington. The project will be implemented in existing service systems including primary care clinics and emergency departments.		Significant online training programs in telemedicine and the HLN model of care have been developed and delivered to referring providers in Montana, Wyoming, and Washington.
Cross-component staffing and training	All leadership and core administrative staff are trained on the HLN integrated telemedicine/HIT platform. Project managers in Wyoming and Washington demonstrate mental health online case management and telepsychiatry services to primary care clinics in remote states. The technology trainer implements the system in clinic sites.	3 project managers, 23 staff total	All core administrative staff receive significant internal training on HLN integrated telemedicine/HIT platform and model of care.

**Table F.6. Innovation components of ICSI's HCIA project**

Innovation component	Description	Associated workforce staffing <sup>a</sup>	Associated workforce training <sup>a</sup>
Screening and assessment	A thorough initial evaluation, including screening for relevant co-morbidities, measuring condition severity, and assessing patient readiness for self-management support	See cross-component staffing and training below	
Computerized registry	A computerized registry for care monitoring of both individual patients and overall panel management	See cross-component staffing and training below	
Care management	Use of care manager to monitor condition status, provide self-management support, refer to community resources, coordinate care, and provide follow-up	See cross-component staffing and training below	
Systematic case review and treatment intensification	Local expert medical and psychiatric consultants provide review of inadequately responding cases with the care manager on a weekly basis and suggest treatment changes or further evaluation  Systematic treatment intensification when there is a lack of improvement, in order to prevent avoidable hospital and emergency department admissions and readmissions	See cross-component staffing and training below	
Cross-component staffing and training	The innovation being implemented, the COMPASS Collaborative Care Management Model (CCMM), comprises the above components. Medical groups affiliated with the intervention partners employ the care managers, supervisors of care managers, medical and psychiatric consultants (some of which are independent contractors), and physician champions; ICSI provides them with training on the full CCMM. PCPs receive "education and awareness training" on the model.	80 care managers identified and trained, along with their supervisors and local medical and psychiatric expert consultants and the physician champions at the medical groups	ICSI provides the following training to above staff of each intervention partner (sequence is provided separately for Cohort 1 and 2 clinics) 1.5 days of initial on-site training Webinar one month post 2 days of second on-site training one month after webinar

<sup>a</sup> Workforce development described is that which was originally planned or has been completed, according to project documents reviewed.

**Table F.7. Innovation components of KMHS' HCIA project**

Innovation component	Description	Associated workforce staffing	Associated workforce training
Substance use and mental health treatment integration	Mental health services and substance use disorder treatment were previously separate, siloed functions within KMHS. These two functions are now integrated within multidisciplinary care teams. In year two, the child and family care teams also began integrating substance use services into care teams. The child and family care teams are using the CRAFFT screening tool to identify incoming patients in need of additional substance use assessment or treatment.	Each care team has a co-occurring disorder (COD) specialist to (1) provide consultation on substance use disorder treatment to care team members and (2) provide direct services to their own caseload of patients requiring higher intensity services. All care teams members are trained to assess substance use and respond to identified needs.	All care team members receive training on co-occurring substance use disorders and can seek consultation from the team's co-occurring disorder specialist on individual patient needs.  The COD trainer provides agency staff with ongoing training and consultation on topics such as motivational interviewing and substance use trends. This role is not funded by the HCIA award but supports this key component.
Medical and mental health care coordination	<p>Multidisciplinary care teams work together to coordinate patient care through daily team huddles. New workforce roles (medical assistants and healthy families coordinator) improve connection of KMHS mental health services to primary care by (1) helping patients connect to PCPs, (2) securing patient information and diagnoses from patient PCP and ED visits, (3) tracking and triaging emergency department alerts and communicating alerts to care teams</p> <p>Medical assistants also perform patient labs (e.g., blood draws and vitals) and administer the Patient Activation Measure® (PAM) to identify patient activation level for care self-management. Care coordinators then use PAM data to inform patient care and promote self-management of health conditions.</p>	Primary care coordination efforts are facilitated by medical assistants for the five adult care teams. The healthy families coordinator facilitates primary care coordination activities for the two child and family care teams.	Medical assistants receive training on motivational interviewing and PAM® administration. Medical assistants also are trained in the use of multiple health information systems, including the agency's EHR, prescribing record, laboratory report system, local hospital inpatient database, WA state Medicaid claims database, statewide emergency department information exchange, and statewide prescription monitoring system.
Chronic disease self-management and health promotion	<p>Training staff on chronic diseases to promote patient self-management and facilitate referrals to additional providers as needed.</p> <p>Providing adult patient education groups with focus on health coaching and goal setting to support chronic disease management and wellness.</p> <p>Working directly with families to provide information and coaching on healthy behaviors, wellness, nutrition, and other health factors specific to overall family health and management of their child's medical condition</p>	The healthy living program developer creates and implements programs for adult patients and provides training to care management staff. The psychiatric nurse on each team serves as a health educator. The healthy families coordinator provides consultation to child and family care teams and provides direct coaching to families.	The healthy living program developer works with psychiatric nurses on each care team to provide monthly co-morbidity trainings to care team staff to build basic knowledge of targeted co-morbidities, increase staff comfort level in discussing health issues with patients, and providing resources on patient coaching.

Table F.7 (continued)

Innovation component	Description	Associated workforce staffing	Associated workforce training
Implementing and optimizing HIT processes	Integrating primary care information into behavioral health EHR. Connecting EHR to external data sources to improve monitoring of patient needs. Improving reporting capabilities to inform services provided by care team	The health analyst and project analyst lead efforts to expand access to additional data sources and enhance EHR capabilities	All care team staff trained on the use of the new primary care-specific EHR fields.
Co-location of behavioral health at Harrison Health Partners' (HHP) primary care practices	Integrating behavioral health into four HHP primary and specialty care practices by (1) providing on-site behavioral health services (e.g., screening, assessment, brief intervention), (2) providing access to phone and email psychiatric consultation, and (3) identifying patients whose behavioral health needs are best served in community behavioral health settings and helping these patients transition to KMHS.	The behavioral health professional delivers direct behavioral health services to patients at four HHP primary and specialty care sites. The part-time psychiatric consultant (housed at KMHS) provides phone and email support on medication management.	The part-time psychiatric consultant provides training to groups of physicians in the community on topics such as prescribing antipsychotics, identifying the appropriate level of mental health care, and addressing mental health issues in elderly patients.
Community PCP training and consultation	Training PCPs to use evidence-based screening, medication management, and behavioral health treatment. Providing on-call psychiatric consultation to 50 providers based in community primary care practices.	The part-time psychiatric consultant (housed at KMHS) provides phone and email support to non-HHP PCPs in the community	The part-time psychiatric consultant provides training to groups of physicians in the community on topics such as prescribing antipsychotics, identifying the appropriate level of mental health care, and addressing mental health issues in elderly patients.
Cross-component staffing and training	<p>Restructured and expanded care teams:</p> <ul style="list-style-type: none"> <li>-Prescribers and psychiatric nurses, previously part of a separate Psychiatric Medical Department, are now assigned to specific care teams and more available for consultations</li> <li>-New "care coordinator" role created using two types of existing staff: (1) MA-level therapists and (2) BA-level case managers. Patients are assigned to care coordinators based on their individual needs.</li> <li>-Adult care teams integrated a new medical assistant role to support the integration of physical health care into KMHS care teams (described above)</li> </ul>	<p>Each of the 8 care teams includes:</p> <ul style="list-style-type: none"> <li>-Care team supervisor</li> <li>-Psychiatric medical provider</li> <li>-Psychiatric nurse</li> <li>-Multiple care coordinators</li> <li>-COD specialist</li> <li>-Care team assistant</li> </ul> <p>Five adult care teams also include:</p> <ul style="list-style-type: none"> <li>-Medical assistant (new role funded by HCIA)</li> </ul>	The part-time psychiatric consultant provides training to groups of physicians in the community on topics such as prescribing antipsychotics, identifying the appropriate level of mental health care, and addressing mental health issues in elderly patients.

**Table F.8. Innovation components of MMC's HCIA project**

Innovation component	Description	Associated workforce staffing	Associated workforce training
Virtual integration, co-location, and coordination of care	<p>Providing a virtual medical and mental health home for enrolled patients through individualized care teams delivering medical, behavioral health, and other social services. Care teams often consist of providers from different organizations across southwest Brooklyn, connected by the Care Coordination Platform (CCP) discussed below.</p> <p>Coordinating patient care through partnership with care management organizations that house new care team roles:</p> <p>Care manager supervisors provide direct oversight to care management staff and consult on complex patient cases as needed.</p> <p>Care managers work with patients in person and by phone to develop and track progress on an integrated care plan in collaboration with behavioral, medical, and social service providers. Care navigators support this work by enrolling patients, monitoring patient progress, identifying those in need of support, and helping patients arrange and obtain follow-up care.</p> <p>Outreach specialists locate patients in the target population and initiate engagement.</p> <p>Peers support provide outreach to patients and continue to engage with patients once enrolled.</p>	<p>Care management staff at partner organizations include care manager supervisors, care managers, care navigators, and outreach specialists.</p> <p>The chief of clinical network development director supports the development of care teams by recruiting and training clinical providers (e.g., PCPs, psychiatrists).</p> <p>The business operations manager manages the program's interaction with partner organizations and handles the assignment of patients across the organizations providing care management.</p>	<p>Care management staff participate in care coordination training developed and implemented by SEIU 1199. Sixteen care management staff also trained in Critical Time Intervention for use in Maimonides emergency department.</p> <p>Care managers participate in biweekly case review with clinical leadership (internist and psychiatrist) to present complex cases to the group and troubleshoot challenges.</p>



Table F.8 (continued)

Innovation component	Description	Associated workforce staffing	Associated workforce training
Care Coordination Platform (CCP)	<p>Existing CCP provides the foundation for the patient-centered medical and mental health home by providing access to a dynamic, multidisciplinary care plan for all members of a patient care team. Patients’ medical, behavioral, and social service providers can access these shared care plans and receive alerts.</p> <p>HCIA-funded enhancements to the CCP include:</p> <p>Clinical decision support application to provide evidence-based guidelines and best practices to providers, as well as patient-specific alerts and recommendations</p> <p>Referral management application to match specific patient needs to clinical and community resources in real time</p> <p>Consent management application to enable care navigators/managers to record patient consents electronically and provide consent management capability across all providers and partner organizations</p> <p>Electronic patient health management tools to promote patient engagement through health risk assessments, medication management functions, and ability to manage personal/family history.</p>	<p>Assistant vice president of health information exchange leads the development of the CCP/dashboard and data warehouse, electronic health information exchange, and other technology-enabled tools.</p> <p>IT operations manager supports the enhancement of and training for the CCP/dashboard.</p>	<p>All care team members are trained on use of CCP. Training will continue as new capabilities are added to the existing platform.</p>
Uniform Care Standards	<p>Uniform care standards, developed in collaboration with partner organizations, provide guidance to care teams on outreach and care management activities. The uniform care standards continue to evolve based on care team identification of patient and staffing needs.</p> <p>Existing standards include:</p> <p>Types of roles required to form a patient care team</p> <p>Scripts to guide initial conversations with patients</p> <p>Protocol for the number, frequency, and method of outreach (letter, phone, in person) to patients</p> <p>Common assessment tools for initial meeting with patient</p> <p>Standard for referring patients to PCPs in level 3 patient-centered medical home</p> <p>Protocol for how frequently care team members meet as a team for case conferences to review patient care</p>	<p>Staff from participating organizations work with program leadership to develop standards through subcommittees.</p> <p>Care team members use standards to guide outreach and care management.</p>	<p>Standards are incorporated into training as appropriate.</p>

**Table F.9. Innovation components of ValueOptions' HCIA project**

Innovation component	Description	Associated workforce staffing <sup>a</sup>	Associated workforce training <sup>a</sup>
Recovery Support Navigators (RSNs)	RSNs at each of the four intervention sites work with clients to ensure full access to all medically necessary services and encourage community engagement and integration. RSNs are trained through the BNI-ART Institute at the Boston University School of Public Health/Boston Medical Center and the Massachusetts Organization for Addiction Recovery (MOAR) on evidence-based substance use disorder care, including assessment of readiness to change and a two-day Motivational Interviewing training	54 FTE RSNs	Recovery Support Navigation Training (24 hours); ongoing monthly and quarterly on-site coaching
Case-rate payment	RSNs are compensated on a case rate, as compared to treatment as usual (TAU) community support program (CSP) workers, who are paid using a fee-for-service (FFS) compensation model. The intent of the case rate is to give RSNs flexibility to provide necessary and appropriate services to clients without the limitations of the FFS 15-minute increment payment structure	54 FTE RSNs	
Client incentives	Using a cross-over design, each of the four intervention sites will offer a client incentive (gift card) in conjunction with RSN support during one phase of the innovation. The client incentive program is based on the evidence-based practice of contingency management. Client incentives are intended to provide reinforcement for target behaviors including (1) meetings with RSN before detox discharge and within 7 days of discharge, (2) monthly meetings with RSNs, (3) substance use disorder treatment initiation visit within 14 days of discharge, (4) two additional SUD visits post-initiation, and (5) visits with primary care provider within 30 days post-discharge	54 FTE RSNs	

<sup>a</sup> Workforce development described is that which was originally planned or has been completed, according to project documents reviewed.

**Table F.10. Innovation components of Vinfen's HCIA project**

Innovation component	Description	Associated workforce staffing	Associated workforce training
Community Behavioral Health Home (CBHH) model	The CBHH model integrates primary and behavioral health care for adults with serious mental illness. For this innovation, primary care nurse practitioners (NPs) are embedded in existing community psychiatric rehabilitation outreach teams to provide care coordination, clinical care management, and primary care services to clients. Within each team, a Health Outreach Worker (HOW) works alongside the NP to provide outreach and training to clients, as well as interventions when necessary.	4 FTE HOWs; 4 FTE NPs; 4 FTE Outreach Team Leaders	Introductory session to the CMMI project; NIH Protecting Human Research Participants online training (3 hours) and innovation-specific follow-up training (1 hour); administration of the CMMI survey (0.5 hours); One Care Health training on assisting dually eligible participants. NPs received additional training on the recovery and rehabilitation models of person-centered care (3 hours).
Integrated Illness Management and Recovery (IIMR)	IIMR is a 10-module intervention curriculum developed by Dartmouth University that is designed to teach individuals with serious mental illness behavioral interventions for improving health and self-management of medical illnesses. Goals developed in the IIMR program will be incorporated into the client's Individual Action Plan.	4 HOWs; 4 NPs; 4 Outreach Team Leaders	<p><b>Outreach team training:</b> Comprehensive three-day training on use of IIMR curriculum (Dartmouth—59 hours). HOWs received additional training on digital recording of IIMR sessions (Project Trainer—0.5 hours) and weekly meetings to review recorded clinical sessions (Dartmouth—1 hour); HOWs at the Brookline site receive additional ongoing training on using the IIMR curriculum in a group setting.</p> <p><b>Non-HCIA outreach team training:</b> One-hour training to non-HCIA outreach team staff on use of IIMR data (Project Trainer—1 hour)</p>
Health buddy telehealth system	The Bosch Health Buddy telehealth system is used by outreach teams to monitor client health and provide additional intervention for individuals with serious health conditions.	4 HOWs; 4 NPs; 4 Outreach Team Leaders	Bosch orientation to the Health Buddy system (all outreach team staff—3 hours); telehealth engagement training (HOWs, Project Manager, Project Training—1 hour); Health Buddy Advanced Application Training (4 hours); ongoing training and support provided by Bosch through structured opportunities for clinical consultation and technical support.

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**APPENDIX G**

**CHARACTERISTICS OF CRITICAL WORKFORCE ROLES, BY AWARDEE**

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**Table G.1. Characteristics of critical workforce roles used in CHCS' HCIA project**

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Behavioral health specialists	Psychiatrist	1/100%	Provides psychiatric services to Project Health clients.	MD	None	Existing staff	Other
Behavioral health consultants	Health Navigator	2/100%	Coordinates care teams to ensure seamless delivery of care and treatment and provide solution-focused brief interventions and health education. One of the two health navigators oversees the peer support specialists; the other oversees the community guest specialists.	Unknown	Motivational Interviewing training (4 hours), wellness self-management training (1 hour), and training on the transformational training matrix, chronic care models and shared decision making, and person-centered recovery-based care	New role	HCIA
Behavioral health consultants	Clinical Training Coordinator, Clinic Trainer	2/full-time employees, unknown percentage spent on HCIA	The clinical training coordinator ensures that all CHCS employees have their basic and clinical trainings and that their training is current; reviews training curriculums; and designs some training curriculums. The clinic trainer trains employees with the Community and Transformational Services division on recovery and trauma-informed care.	Unknown	None	Existing staff	Other (CHCS)

Table G.1 (continued)

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Primary care provider	Primary Care Provider (PCP),  Licensed Vocational Nurse (LVN)	1 PCP at 100%; 1 LVN at 100%	PCP: Provides primary care to a high-acuity patient population with multiple chronic diseases. Closely monitors progress, arranges for tertiary care as needed, prescribes and titrates medications, monitors compliance. Works as part of the multidisciplinary treatment team. Coordinates mind-body connections with behavioral health staff. Trains behavioral health staff in chronic disease identification, treatment, and management.  LVN: Monitors patient physical condition, specifically chronic diseases, under supervision of the PCP. Administers medication.	PCP: MD LVN: RN	Prescribing Procedures/Policies for Physicians (4 hours), clinical documentation training	New roles	HCIA



Table G.1 (continued)

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Peer support specialists	Peer Support Specialist	7/100%	Works with participants to build and sustain readiness for change, motivation, and compliance. Also helps participants maintain engagement with medical and mental health services.	Completed Via Hope Peer Support Certification	Recovery-Oriented Practice: Peer Specialist Integration (PSI) Initiative training and certification (40 hours), Motivational Interviewing training (4 hours), wellness self-management training (1 hour), and training on topics including the transformational training matrix, chronic care models and shared decision making, crisis intervention, and person-centered recovery-based care, workplace relationships, ethics, and self-care. Peer staff also receive one-on-one training on delivery of recovery-oriented services and trauma-informed care, and on quality customer service.	New role	HCIA
Outreach-enrolling-informing agent	Consumer Benefits Specialist	1/100%	Connects eligible participants to Social Security, Medicaid, and other eligibility-based programs.	Completed TX MHMR Consumer Benefits Training	Texas MHMR Consumer Benefits Training (16 hours)	Existing staff	Other (CHCS)
Other community health workers	Community Guest Specialist	8/100%	Support the health navigators and peer support specialists and provide routine care, monitor consumer needs, and provide linkages and referrals to additional services and resources. Primarily responsible for recruitment of new participants.	None	Wellness self-management training (1 hour), Motivational Interviewing training (4 hours), and training on the chronic care models and shared decision making, crisis intervention, and workplace relationships, ethics, and self-care.	New role	HCIA

**Table G.2. Characteristics of critical workforce roles used in Felton's HCIA project**

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Behavioral health specialists	Psychiatrist	1 per site/ as needed	Provides psychiatric services to PREP clients	MD	Algorithm-Guided Medication Management (AMM) for Early Psychosis, SCID (Structured Clinical Interview for DSM-IV); SIPS (Structured Interview for Prodromal Symptoms)	Contract	HCIA
	Nurse Practitioner	1 per site/ as needed	Provides medication management and other health services to PREP clients	RN	AMM, SCID, SIPS	Contract	HCIA
	Therapist	3 per site/ 100%	Provides therapy to PREP clients and monitors overall progress	Masters level social worker	Cognitive Behavioral Therapy for Early Psychosis (CBTp), Multifamily Psychoeducation Groups (MFG), Motivational Interviewing-based Substance Abuse, SCID, SIPS	New role	HCIA
Behavioral health consultants	Program Manager	1 per site/ 100%	Oversees PREP team workflow and ensures seamless delivery of service for clients.	Unknown	SCID, SIPS	New role	HCIA
	Clinical Director	1/unknown	Provides clinical supervision to PREP team.	Unknown	SCID, SIPS	Existing staff	Not sure
	Therapist Trainer	1/unknown	Clinical supervision specifically for CBT psychosis. Reviews taped session for evaluation.	Unknown	SCID, SIPS	Existing staff	Not sure
	SCID Trainer	1/unknown	Provides SCID training and also weekly consensus supervision meeting where clinicians bring their findings and reach the diagnosis by consensus. Also reviews the videos for clinician certifications.	Unknown	SCID, SIPS	Existing staff	Not sure

Table G.2 (continued)

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Other care coordination	Case Advocate/ Education and Vocational Specialist	1 per site/ 100%	<p>The case advocate will work individually and in socialization groups with clients, introducing information about life skills and supporting ongoing treatment engagement.</p> <p>The specialist conducts workforce/educational assessments, outreach into the community to identify employment positions, works one on one to help each client develop a personal employment or educational plan, and facilitates groups with clients to discuss employment, career, and education</p>	Bachelor's degree plus 3 years' experience providing vocational services	Dartmouth's Individual Placement and Support (IPS) approach to workforce development	New role	HCIA
	Family Partner	1 per site/ 100%	Supports the primary caregivers, assisting them to access community resources, educational materials, and other supports. The Family Partner also conducts some care management functions and supports other clinical staff, as needed	Unknown	MFG	New role	HCIA
Other	Intake Specialist	1 per site/ 100%	Receives the referral, does a phone screen, and brings the person in for a longer screening.	Unknown	SCID, SIPS	New role	HCIA

**Table G.3. Characteristics of critical workforce roles used in Feinstein’s HCIA project**

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Behavioral health specialists	Prescriber	1-2 per site/uncertain	Prescribe and monitor psychiatric medication. Use the prescriber decision assistant to support medication decisions and facilitate communication with patients.	MD	Two-day training on program technology. One-on-one training on the prescriber decision assistant technology.	Existing staff	Other (services funded as usual)
Behavioral health consultants	Site directors	1 per site/100%	Develop plan for patient recruitment and engagement. Responsible for oversight of the program and supervision of mental health/health technology (MH/HT) case managers at participating sites.	Unclear	Two-day training on program technology.	Existing staff	HCIA
	Online therapists	2/uncertain	Oversee and monitor patient and family support groups on the Daily Support website. Conduct introductory phone call with patients to orient them to the website.	Unclear	Unclear	Contract	HCIA
	Developers/trainers	8/0.1–0.5 (varies by role and by year)	Develop or adapt program interventions. Train staff at participating sites on interventions and associated technology. Provide ongoing consultation and support to staff through monthly phone conferences.	PhDs, MSW	None	Contract	HCIA
Other care coordination	MH/HT case manager	1–2 per site/100%	Provide patients with case management, relapse-prevention counseling, and education to support patients' use of program technology.	Bachelor's or Master's in social work or mental health counseling (varies by state)	Two-day training on program technology and relapse-prevention counseling. Ongoing support from trainers through monthly phone conferences.	New role; many sites hired from existing staff	HCIA

**Table G.4. Characteristics of critical workforce roles used in Fund for PH's HCIA project**

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Behavioral health specialists	Mobile Crisis Team Clinical Staff	6 (full time and half time)	This group includes clinicians, therapists, and social workers. Their main responsibilities are to work with participants to develop and implement an individualized action plan, consult with caregivers and family members, and provide advocacy and guidance as they navigate the health care system.	Multiple (MS, PsyD, PhD, MSW, MA)	Intentional Peer Support and Needs Adapted Treatment Model	New role (contract)	HCIA
Behavioral health consultants	NKI	2/ unknown FTE	These are the external evaluators for the project. They collection data, conduct interviews, and observe interactions and provide feedback to the project administrators.	PhD	Intentional Peer Support and Needs Adapted Treatment Model	New role	Other
	Consultant	1	These consultants provide feedback on crisis respite center development and peer integration	Unknown	Intentional Peer Support and Needs Adapted Treatment Model	New role	HCIA
	Crisis Respite Center Supervisor	4	These staff members oversee and supervise the day-to-day operation of the crisis respite centers in each borough. Additionally, the Manhattan staff also supervise the warm-line operated out of that center.	Unknown	Intentional Peer Support and Needs Adapted Treatment Model	New role (contract)	HCIA
	Mobile Crisis Team Supervisor	4	These staff members oversee and supervise the day to day operation of the mobile crisis teams in each borough.	Unknown	Intentional Peer Support and Needs Adapted Treatment Model	New role (contract)	HCIA

Table G.4 (continued)

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
	Trainer	5 trainers	5 trainers provide all of trainings and regular supervision for all staff.	Unknown (some PhD)	Intentional Peer Support and Needs Adapted Treatment Model	New role	HCIA
Patient navigators/peer support specialists	Peer Specialist	69 (full time and part-time)	Work with participants to develop and implement an individualized action plan, consult with caregivers and family members, and provide advocacy and guidance as they navigate the health care system. Peers are used in the crisis respite centers, the mobile crisis teams, and operate the warm-line.	Unknown	Intentional Peer Support and Needs Adapted Treatment Model	New role (contract)	HCIA

**Table G.5. Characteristics of critical workforce roles used in HLN's HCIA project**

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Behavioral health specialists	Clinical Staff	8/ percentage time unknown	This group includes psychiatrists, therapists, and social workers. Their main duties are to deliver teletherapy to participants. Psychiatrists are able to e-prescribe.	Multiple (MD, PhD, PsyD, MS, MSW)	IT training	New role	HCIA
Behavioral health consultants	IT Trainer/ Administrator	1 full time, 1 unknown	These staff members provide IT and training to the project staff and clients using the IT platform	Unknown	IT training	New role	HCIA
	Project Manager	3 full time	These staff members are responsible for recruiting and liaising with potential sites in order to provide teletherapy	Unknown	IT training	New role	HCIA
Primary care providers	Primary Care Provider	84 sites (unknown number of providers)	These sites represent the primary care provider organizations to whose patients HLN provides telemedicine. They provide primary care for the clients.	Unknown	IT Training	Existing role	Other
Physical health consultants	Chief Medical Officer	1/unknown	This person operates as chief medical officer and ensures that the project is meeting its physical health goals, and that the telemedicine and e-prescribing are being done properly	MD	IT training	New role	HCIA
	IT Trainer/ Administrator	1 full time, 1 unknown (narrative)	These staff members provide IT and training to the project staff and clients using the IT platform	Unknown	IT training	New role	HCIA
Patient navigators	Care Navigator	6 full time (narrative)	These staff members engage with clients and not only help them navigate the health care system, but also ensure they are adhering to their treatment plans. They also liaise with sites and providers once a patient is enrolled in the program.	Unknown	IT training	New role	HCIA
Outreach enrolling-informing agents	Project Manager	3 full time	These staff members are responsible for recruiting and liaising with potential sites in order to provide teletherapy	Unknown	IT training	New role	HCIA

**Table G.6. Characteristics of critical workforce roles used in ICSI’s HCIA project**

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Behavioral health consultants	Consultant Psychiatrist	Unknown	Consult with care managers weekly about the patients’ care and treatment goals	MD	COMPASS	New role	HCIA
	Site Supervisor	Unknown	Provide oversight and supervision of site staff trained in COMPASS	Unknown	COMPASS	Existing	Other
	Trainer	4/unknown	Provide training on COMPASS to staff involved in the intervention	Unknown	COMPASS	New role	HCIA
Primary care providers	Primary Care Team	Unknown	Implements the treatment	Multiple (MD, RN, BSN, etc.)	COMPASS	Existing	Other
Physical health consultants	Consultant Physician	Unknown	Consult with care managers weekly about the patients’ care and treatment goals	MD	COMPASS	New role	HCIA
Patient navigators	Care Manager	67 full time	These staff members are responsible for making connections with enrolled patients, obtaining PHQ-9 measures of severity at regular intervals, providing self-management support, coordinating care, using behavioral activation and problem-solving therapy, and following patients very closely. Some care managers with advanced training can also make assessments and care changes in accordance with established protocols. These staff members also maintain the electronic registry.	Unknown	COMPASS	New role	HCIA
Other	External Evaluator	1/unknown		Unknown	COMPASS	New Role	HCIA



**Table G.7. Characteristics of critical workforce roles used in KMHS' HCIA project**

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Behavioral health specialists	Psychiatric Medical Provider	1 per care team/unknown	Prescribe and manage patient psychiatric medication.	MD, Advanced Registered Nurse Practitioner (ARNP)	Training and consultation on treatment of co-occurring substance use and mental disorders, management of physical co-morbidities, prevention, and wellness.	Existing staff	Other (services funded through usual funding streams)
	Care Team Supervisor	1 per care team/unknown	Lead multidisciplinary care team.	Master's	Training and consultation on treatment of co-occurring substance use and mental disorders, management of physical co-morbidities, prevention, and wellness.	Existing staff	Other (services funded through usual funding streams)
	Care Coordinator	Approximately 6 per care team/unknown	Provide mental health therapy and case management to patients. Patients assigned to BA- or MA-level care coordinator depending on individual needs.	Bachelor's or master's	Training and consultation on treatment of co-occurring substance use and mental disorders, management of physical co-morbidities, prevention, and wellness.	Existing staff	Other (services funded through usual funding streams)

Table G.7 (continued)

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
	Psychiatric Nurse	Approximately 1 per care team/unknown	Monitor and support patient management of psychiatric medication. Provide care team with education and training on physical health issues.	RNs	Training and consultation on treatment of co-occurring substance use and mental disorders, management of physical co-morbidities, prevention, and wellness.	Existing staff	Other (services funded through usual funding streams)
	Co-occurring Disorder Specialist	Approximately 1 per care team/unknown	Provide care team members with training and consultation on the treatment of co-occurring substance use and mental disorders. Provide co-occurring substance use/mental health treatment to patients.	Chemical dependency certification	Training and consultation on management of physical co-morbidities, prevention, and wellness.	Existing staff	Other (services funded through usual funding streams)
	Behavioral Health Professional	1/100%	Provide brief behavioral health intervention to patients at primary and specialty care practices in the community. Provide consultation to providers at these practices.	Master's level mental health professional	None	New role, but hired from existing staff	HCIA
Behavioral health consultant	Psychiatric Consultant	1/50%	Provide phone, email, and curbside consultation to primary and specialty care providers in the community.	ARNP	None	New role, but hired from existing staff	HCIA
Primary care providers	Medical Assistant	5/100%	Improve connection of KMHS mental health services to primary care by tracking patient information from ED, PCP, and hospitalization, and communicating alerts to care teams. Perform blood draws and vitals.	Community college certificate program (Certified Medical Assistants)	Training on motivational interviewing, PAM® administration, and the use of multiple health information systems.	New role	HCIA

Table G.7 (continued)

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
	Community Primary Care Provider	At least 50/unknown	Provide primary and specialty care in the community with phone and email support from the psychiatric consultant. Manage patient medication or refer patients to external behavioral health services as appropriate.	MD, ARNP, Physician Assistant-Certified (PA-C)	Receive behavioral health and psychiatric consultations from staff funded by the program.	Existing staff at external community practices	Other (PCP services funded through usual funding streams)
	Harrison HealthPartners Primary and Specialty Care Provider	Approximately 20/ unknown	Provide primary and specialty care in the community with phone and email support from the psychiatric consultant and support from shared, co-located behavioral health professional. Manage patient medication or refer patients to external behavioral health services as appropriate.	MD, ARNP, PA-C	Receive psychiatric consultations from staff funded by the program.	Existing staff at external partner organization	Other (PCP and specialty services funded through usual funding streams)
Physical health care consultant	Healthy Living Program Developer	1/100%	Develop and provide chronic disease self-management and wellness training and programming for KMHS staff and patients.	Unknown	None	New role	HCIA
	Healthy Families Coordinator	1/100%	Provides child and family care teams and their patients with consultation and coaching on healthy behaviors, wellness, nutrition, and chronic health management. Also serves in medical assistant role for child and family care teams.	Unknown	Training and consultation on the use of multiple health information systems, treatment of co-occurring substance use and mental disorders, management of physical comorbidities, prevention, and wellness.	New role, but hired from existing staff	HCIA

**Table G.8. Characteristics of critical workforce roles used in MMC’s HCIA project**

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Behavioral health specialists	Psychiatrist	Unknown	Located at partner organizations and elsewhere in the community. Prescribes and manages patients' psychiatric medication as part of patients' care teams. Uses care coordination platform to access patient information and communicate with patients' care team members.	MD	Training on use of the CCP.	Existing staff at partner and other community organizations	Other (services funded through usual funding streams)
	Therapist	Unknown	Located at partner organizations and elsewhere in the community. Provides therapy to patients as part of care team. Uses care coordination platform to access patient information and communicate with patients' care team members.	Unknown	Training on use of the CCP.	Existing staff at partner and other community organizations	Other (services funded through usual funding streams)
Behavioral health consultants	SEIU 1199 Training and Upgrading Fund Care Management Trainer	Unknown	Develop and conduct care coordination training for care management staff	Unknown	None	Contract	HCIA funds training activities provided by SEIU 1199
Primary care providers	Primary Care Provider	Approximately 20/uncertain	Located at partner organizations and elsewhere in the community. Part of patients' care teams. Uses care coordination platform to access patient information and communicate with patients' care team members across organizations.	MD	Training on use of the CCP.	Existing staff at partner and other community organizations	Other (services funded as usual)

Table G.8 (continued)

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Other care coordination	Care Team Supervisor	14/100%	Provide direct oversight of care managers, care navigators, and outreach specialists; consultant on complex cases.	MSW or RN	Training on the use of the CCP.	New role	HCIA and NY State Health Homes funding
	Care Manager	71/100%	Coordinate patient care teams and care plan. May conduct initial outreach to patient.	Bachelor's in social work, nursing, or related area	Two phases of care coordination training. Biweekly case review with clinical leadership.	New role; some hired from existing staff at care management agencies	HCIA and NY State Health Homes funding
	Care Navigator	64/100%	Assist care managers with administrative tasks relating to patient enrollment, care team documentation, and phone outreach.	High school diploma	Training on use of the CCP. Training on the use of the care coordination platform. May attend care coordination training.	New role	HCIA and NY State Health Homes funding
Outreach enrolling-informing agent	Outreach Specialist	Unknown	Conduct outreach to potential patients and initiate enrollment process. The program is incorporating peers into this role.	High school diploma. May have specialized outreach training. May be a peer.	Training on the use of the CCP. Some attend care coordination training.	New role	HCIA and NY State Health Homes funding
Other	Social Service Providers	Unknown	Provide social service support such as housing and food assistance to participating patients as part of patient care team.	Unknown	None	Existing staff at partner and other community organizations	Other (services funded through usual funding streams)

**Table G.9. Characteristics of critical workforce roles used in ValueOptions' HCIA project**

Common role title	Job title	Number/ Percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Behavioral health consultants	Recovery Support Navigator Supervisor	4/100%	Provide supervision to RSNs at respective provider site.	Unknown	Unknown	New role, but all were existing staff (community support navigator supervisors) at the provider site prior to the innovation.	Other (Unknown)
Behavioral health consultants	BNI-ART Trainer	3/unknown	Provide training to RSNs on evidence-based treatment for substance use disorders, readiness-to-change assessments, and motivational interviewing.	Unknown	Unknown	Contract	HCIA (contract)
	Massachusetts Organization for Addiction Recovery Trainer	3/unknown	Provide topic-specific trainings (e.g., self-care, Hepatitis C) to RSNs on a quarterly basis.	Unknown	Unknown	Contract	HCIA (contract)
Patient navigators	Recovery Support Navigator (RSN)	54/100%	Work with clients to ensure full access to all medically necessary services and encourage community engagement and integration.	Unknown	Recovery Support Navigation Training (24 hours) on evidence-based substance use disorder care, including assessment of readiness to change and motivational interviewing; ongoing monthly and quarterly on-site coaching	New role, but some were existing staff (community support navigators) at the provider site prior to the innovation.	Other (Medicaid)

**Table G.10. Characteristics of critical workforce roles used in Vinfen’s HCIA project**

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Behavioral health consultant	Team Leader	4/100%	Oversees outreach teams, including new Health Outreach Worker staff.	Unknown	Introductory session to the CMMI project; NIH Protecting Human Research Participants online training; administration of the CMMI survey; Bosch orientation to the Health Buddy system; One Care Health training on assisting dually eligible participants	Existing staff	Other (provider site)
	Vinfen Project Trainer	1/50%	Coordinates training provided by Dartmouth (IMMR curriculum) and Bosch (HealthBuddy) and trains workforce staff (team leaders, nurse practitioners, HOWs) on strategies to help implement the intervention. Integrates changes to training curriculum as needed.	Unknown	Unknown	New role	HCIA
	Dartmouth University Project Trainer	1/20%	Trains HOWs to provide disease management and IIMR to clients and provides ongoing support on use of the IIMR curriculum	Unknown	Unknown	Contract	HCIA (contract)
	Bosch Project Manager	1/Unknown	Provides training and technical support on use of the Health Buddy telehealth software.	Unknown	Unknown	Contract	HCIA (contract)

Table G.10 (continued)

Common role title	Job title	Number/ percent time	Job functions	Credentials	Training provided	New role/ existing staff/ contract	Funded by HCIA vs. Other
Primary care provider	Nurse Practitioner	4/100%	Provides care coordination, clinical care management, and primary care services to clients.	RN/MSN	Introductory session to the CMMI project; NIH Protecting Human Research Participants online training (3 hours) and innovation-specific follow-up training (1 hour); administration of the CMMI survey (0.5 hours); One Care Health training on assisting dually eligible participates; training on the recovery and rehabilitation models of person-centered care (3 hours)	New role	HCIA
Physical health consultant	Nurse Practitioner Supervisor	1/20%	Supervises nurse practitioner staff	Unknown	Unknown	Existing staff	Other



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