Implementing the Interact
(Inpatient Transfer Avoidance program for SNF)

2bvii

March 19, 2021

CARE COMPASS NETWORK
33 Lewis Road, Binghamton, NY 13905

Introduction

Care Compass Network is a Performing Provider System formed for the purpose of administering the Delivery System Reform Incentive Payment (DSRIP) program in a nine-county area of New York, including Broome, Chemung, Chenango, Cortland, Delaware, Schuyler, Steuben, Tioga, and Tompkins. CCN is a 501(c)(6) organization with five area health systems as corporate members. In addition, CCN has approximately 175 total partners, which include providers of medical care, mental health care, substance use disorder services, as well as a wide range of community-based organizations, whose services support underserved populations in the areas of food/nutrition, transportation, substance use, mental health, material support, health literacy, care INTERACT and coordination, housing, parenting and young children, etc. Through the course of the DSRIP program, CCN implemented eleven different projects with the objective of transforming the health care system into a value-driven network capable of providing high quality care and services to Medicaid members. System transformation, from the perspective of CCN and its partners, encompasses a wide range of changes, including the following:

- Greater collaboration and coordination between clinical and social care service providers
- Shift of services from inpatient and institutional settings to community and home
- A focus on addressing determinants of health, both social and clinical in nature
- Integration of services across domains, including mental/behavioral, physical, and social
- Promotion of self-management skills for both physical and mental needs
- Partner readiness for value-based contracts and development of key competencies

Now, at the conclusion of the DSRIP program, CCN is in a position to consider the lasting impacts that eleven DSRIP projects have had on Medicaid members, community members, and the health care eco-system at large. CCN's Population Health department, with input from many sources, has produced eleven project evaluation reports and score cards in order to best compare across projects, despite the differences in project objectives and reach. The findings of these report will inform CCN's next phase, including the use of CCN funding after September 2020, when the final phase of CCN partner contracts concludes.

Each project report reflects the findings from a mixed-methods evaluation. Qualitative information gathered from CCN staff, partners, Medicaid members, and community members contribute to the findings. In addition, the reports consider quantitative findings. Included in the report are findings on the scale and reach that CCN was able to achieve – the number of organizations engaged in the project and the number of Medicaid members engaged. CCN also considered the statistical relationship between project activities or services delivered to patient/clients and key patient outcomes from the DSRIP program including preventable emergency department visits, inpatient hospitalizations, and primary care engagement. Further, CCN considered the impact of the projects on several different quality indicators associated with project-specific DSRIP performance measures. All results are explained in detail throughout.

Data Sources

Information supporting this project evaluation comes from four primary sources. Each source of information contributes to the project scorecards, which allows for comparison across disparate projects.

To gather input from organizations intimately knowledgeable about the projects and their impact, we partnered with Research & Marketing Strategies, Inc. (RMS) to conduct structured in-depth interviews with partners who participated in the projects. In total, 21 in-depth interviews were completed. CCN Project Managers identified candidates from partner agencies for interviews based on their involvement in project implementation and their role in the project. Candidates were invited to participate and their organizations were reimbursed a nominal payment to reflect the level of effort involved. Key themes assessed include

patient outcomes, cost of care, lasting partnerships with other organizations, workforce development, and system transformation. Many interview questions were open-ended and allowed the respondent to comment freely, positively or negatively, about the effectiveness of the project. The questionnaire also used scale-based questions, which can easily be compared across respondents and projects.

CCN also gathered input on the same themes from partners at large through open dialogue at the four May 2020 Regional Performing Unit meetings (all held remotely via video conference call). In addition, a follow up survey using SurveyMonkey collected broader partner feedback on workforce development and system transformation using scale-based questions.

To gather information from Medicaid and community members, CCN leveraged the on-going, periodic electronic survey administered by RMS of a panel of Medicaid Members (self-identified) and community members. A brief survey tool was developed to gather high-level input on the activities that CCN and the DSRIP program at large promoted. Overall, the response rate was 14% (consistent with industry standards); 46 Medicaid members and 72 community members responded.

To gather input on the total CCN achievements for each project, we incorporated material from structured reports written by CCN Project Managers who are responsible for managing the project implementation, maintenance, milestone reporting to NY Department of Health, and payment to partners. Project Managers summarized project progress, noting major accomplishments, barriers, and options for sustainability.

Finally, to understand the impact of each project from a statistical perspective, CCN conducted a quantitative analysis to establish, at a person level, the link between project activities and patient outcomes, such as primary care engagement, emergency department visits, and inpatient discharges. Additionally, CCN considered project specific quality indicators and their link to the project activities. In each case, a cross-sectional analysis using data from July 2016 to June 2019 and the population of Medicaid members who were DSRIP attributed to CCN during Measurement Year 5 (July 2018 to June 2019). The data sources for these analyses included CCN project data, submitted to CCN by partners contracted for each project, and Medicaid Confidential Data pulled from the Salient Interactive Miner, a proprietary data mining tool made available to Performing Provider Systems like CCN for use under the DSRIP program.

Project Summary

The focus of this project was to train at least 2 INTERACT Champions in each of the Skilled Nursing Facilities (SNF) so they could then internally implement INTERACT principles within their own facility. The primary objective for using the INTERACT principles was to lower the number of patients transferred to ED or to an Inpatient Facility. Another major objective was to help SNFs connect to a Health Information Exchange (HIE) to share information bi- directionally and to help them select and implement an Electronic Health Record (EHR) as many of the SNFs were still using paper records. CCN paid for a minimum of 2 people at each SNF to be trained as an INTERACT Champion. Once the SNF had 2 INTERACT Champions, they could report to CCN when INTERACT Care Paths were followed on patients. The SNFs could use one of the 11 INTERACT approved Care Paths. The SNFs were also reimbursed for having a minimum of 1 Advanced Care Planning discussion with a patient annually (on admission and every 12 months thereafter). Lastly, to promote the use of eMOLST, Skilled Nursing Facilities were given the option to be reimbursed for each eMOLST that was completed on Medicaid or Dual Eligible patients. Funding was also available to assist SNFs to connect to an HIE and to purchase an EHR system for their site, including implementation resource support to bring the system up.

Evaluation Results

This table summarizes the evaluation results. In order to readily compare across projects, a scoring matrix was created and reflects each study component. The detailed scorecard can be found in the appendix.

Table 1: Project Impact Scorecard

Evaluation Elements	Possible Points	Points Received
View from the Front Line: Partners		
In Depth Interviews with Partners	25	20.95
RPU Meeting input and Survey	10	9.56
Member Voice: CCN's Medicaid and Community Member Panels		
Panel Survey conducted by RMS	15	N/A
Community Accomplishments: CCN Project Managers		
Structured report by PMO, Follow up Interview	25	19.9
Performance Metric Impact: Population Health		
Project Impact on Performance Metric Results	15	0
Causal Effect	6	3
Cost Effectiveness Analysis	4	4
Overall (On 100)	**100**	**67.5**

Refer to the appendix for detailed scoring criteria[1]

Best Practices

A best practice learned from project 2bvii is the practice of identifying "Champions" and "Co-Champions" from each agency. This process identifies two individuals who will serve as primary liaison and subject matter experts within their organization. Furthermore, by having two champions, it mitigates the loss of critical knowledge in the event of staff turnover. An additional best-practice discovery derived from this project pertains to training modalities. Instead of requiring participants to attend the INTERACT in one location, CCN arranged INTERACT trainings across all 4 of the RPU regions. This approach reduced costs for partners, simplified participation in the training, and allowed more staff to easily attend. By doing this, it allowed agencies to send an INTERACT "champion" *and* "co-champion" to receive the training.

Table 2: Total Project Engagement and Total CCN Spending

CCN engaged 17 unique organizations, 2,514 unique members, provided 10,164 total services, and distributed $2.1 million DSRIP dollars for this project. The following tables display partner engagement, service provision, and CCN funds distributed from DSRIP Year 2 through Year 5, which ended March 31, 2020.

Table 2a: Engagement by Organization Type					
Organization Type	**DY2**	**DY3**	**DY4**	**DY5**	**Grand Total**
Total Organizations Engaged	14	16	16	12	17

Table 2b: Volume of Services by Organization Type					
Organization Type	**DY2**	**DY3**	**DY4**	**DY5**	**Grand Total**
Hospital System					
A- INTERACT Care Path	58	213	234	195	700
B - Advanced Care Planning	6	27	328	210	571
C - eMOLST Completed				28	28
Non-Hospital System					
A- INTERACT Care Path	988	2,398	2,034	1,914	7,334
B - Advanced Care Planning	107	435	481	386	1,409
C - eMOLST Completed	25	59	33	5	122
Grand Total	**1,184**	**3,132**	**3,110**	**2,738**	**10,164**

Table 2c: Expenditure by Project Activity					
Project > Payment Item	**DY2**	**DY3**	**DY4**	**DY5**	**Grand Total**
2bvii INTERACT					
Champion Training		$4,160	$0	$0	$4,160
Disruptive Payment		$6,816			$6,816
eMOLST		$410	$180	$10	$600
eMolsts Completed	$250				$250
Interact Interventions	$213,400	$585,200	$521,400	$494,725	$1,814,725
Quarterly Report	$3,300	$29,120	$24,440	$18,720	$75,580
Retro Disruptive Payment		$4,225			$4,225
Sign-On Bonus		$168,300	$13,971	$0	$182,271
SNF Training (Hours)	$31,200				$31,200
Grand Total	**$248,150**	**$798,231**	**$559,991**	**$513,455**	**$2,119,827**

Quantitative Findings

Section 1: Cross Section and Trend Analysis

This section presents a quantitative regression analysis to establish a statistical relationship between the project activities and proxy measures for the DSRIP performance metrics. Performance metrics featured prominently in the DSRIP program, driving a significant portion of funding. The underlying question assessed in this section is: did the project make an impact on CCN's performance metric results? This is an important question as CCN considers areas of future investment and the overall return of participating in the DSRIP project.

For INTERACT services, we considered the impact of the services on the likelihood that individuals incurred potentially preventable ED services (total and among those with a behavioral health diagnosis), inpatient hospital care, and primary care. These measures are proxies for key DSRIP performance metrics, including Potentially Preventable ED Visits (total), Potentially Preventable ED Visits among members with previous Behavior Health diagnoses, Preventive or Ambulatory Care visits, and Prevention Quality Indicator (Composite), which captures potentially avoidable hospital care. These metrics were chosen for analysis based on a CCN Project Team analysis in 2016, which identified a probable impact of the project activities on the performance metrics.

The table below describes each Performance Metric and proxy measure as well as the study hypotheses. Through INTERACT services, it is possible to identify the social determinants of health and address associated needs in order to support an appropriate use of health services. By engaging a broad set of partners, both clinical and non-clinical partners, CCN sought to facilitate systematic changes and standardization of INTERACT, care coordination, and community health worker services. Thus, we hypothesize that the INTERACT program reduced the need for emergency services that may be better addressed elsewhere (i.e. potentially preventable) as well as the need for inpatient hospital care. Similarly, we hypothesize that INTERACT services are effective in connecting individuals to primary care services. Thus, we hypothesize that the INTERACT program increased use of primary care services among actively engaged Medicaid members.

Table 3: Performance Metrics and Proxy Measures

Metric Name / Proxy	Description	Study Hypothesis
Potentially Preventable ED Visits, per 100 Members **Proxy measure: Having one or more Potentially Preventable ED visits**	The number of potentially preventable ED visits (based on CPT codes reported on claims) among Medicaid Members, as defined by the NYU metric definition (reference), per 100 members.	INTERACT services provided to individuals can help address underlying needs and direct individuals to services, thereby alleviating urgent needs which drive them to seek care in the ED. We hypothesize a decline in the likelihood that an individual has any ED visits after receiving INTERACT services.
Potentially Preventable ED Visits – Behavioral Health, per 100 Members **Proxy measure: Having one or more Potentially Preventable ED visits,**	The number of potentially preventable ED visits (based on CPT codes reported on claims) among Medicaid Members, as defined by the NYU metric definition. The analysis population is limited to members with a behavioral	Same as above. We hypothesize that individuals with behavioral health diagnoses (mental health and substance use disorder) will be more likely to seek care and services in other settings following INTERACT services.

among members with a Behavioral Health diagnosis	health diagnosis, per 100 members.	
Prevention Quality Indicator – Overall Composite (#90) **Proxy measure: Having one or more inpatient hospitalizations**	The number of inpatient discharges, defined by revenue codes reported on claims.	INTERACT services provided to individuals can help address underlying needs and direct individuals to services, thereby alleviating urgent needs. We hypothesize that individuals will be less likely to require inpatient care following a INTERACT.
Adult Access to Preventive and Ambulatory Care **Proxy measure: Having one or more primary care visits**	The percentage of members with one or more ambulatory and preventive care visits (defined by E&M Codes reported on the claim).	INTERACT services provided to individuals can help address underlying needs and direct individuals to services, including primary care. We hypothesize that individuals will be more likely to use primary care services following INTERACT services.
Source: CCN Team Analysis based on input from CCN Project Teams and NY DOH DSRIP Project Toolkits.[1]		

To test these hypotheses, we pooled data from a few sources: 1) project data submitted by partners over the course of the project, 2) Medicaid claims data received by DOH and maintained by CCN, and 3) data pulled from Salient Interactive Miner data system, which reflects Medicaid claims and administrative information. Our quantitative analysis is limited to Medicaid members who were attributed to CCN in Measurement Year 5 and who elected to enable downstream data sharing through the NY DOH opt out process. Out of total 86849 CCN Attributed Medicaid Members, 375(0.004%) members received INTERACTs between July 2016 and May 2019. Out of these 375 members, 147(39%) members received INTERACTs that were followed at least one PPV, 89(23.7%) were followed by one or more hospitalizations, and 302(80.5%) were followed by at least one primary care encounter during the total analysis period (July 2016 through May 2019). Table 4 below describes the study population.

The regression analysis excludes a number of Medicaid members who received INTERACT services under the project due to unavailable outcomes data. Out of the total 2380 total members engaged, 2005 were not attributed to CCN in the final measurement year (MY5). Because this population is not attributed to CCN, CCN cannot access PHI level data on ED visits, hospitalizations, or primary care visits. Attribution changes month to month based on a number of factors including Medicaid program enrollment and patterns in utilization. Once a member becomes unattributed, access to detailed information ceases. For this reason, we focused on the population attributed to CCN in the final measurement year. In addition, it should be noted that data on medical encounters with a primary diagnosis related to substance use disorders are excluded from the data available to CCN due to privacy reasons.

[1]NY DOH DSRIP Toolkits available at here: https://www.health.ny.gov/health_care/medicaid/redesign/docs/dsrip_project_toolkit.pdf (Accessed October 15, 2020).

Table 4: Analysis Sample Size and Service Volume for Selected Health Care Services		
	No INTERACT	**Received INTERACT**
Total CCN Attributed Medicaid Members	86474	375
Medicaid Members with 1+PPV	41161(47.5%)	147(39%)
Medicaid Members with 1+ PPV (Behavioral Health)*	7446(52%)	12(8.3e-4%)
Medicaid Members 1+ Inpatient Admission	8435 (9.7%)	89(23.7%)
Medicaid Members 1+ Primary Care	82643(95.5%)	302(80.5%)
Source: CCN Team analysis using CCN project data, Salient Interactive Miner, and Medicaid Claims data from the MY5 Attributed population, July 2016 to June 2019. *PPVs (Behavioral Health) refers to PPVs among members with one or more behavioral health diagnosis.		

In the following sections, we consider the statistical relationship between 2bvii services and important health outcomes that the INTERACT project is designed in impact: Potentially Preventable ED Visits, hospitalizations, and care engagement (primary care and other measures). For 2bvii services to have a probable causal impact on PPVs and hospitalizations, we would expect to see a negative association: PPVs and hospitalizations should be less frequent following INTERACT services as patient needs are addressed in other settings, either by the INTERACT or by the appropriate medical care providers. Similarly, if 2BVII services improve care engagement, we would expect a positive association other forms of care engagement. To test these associations, we consider utilization before and after the provision of 2bvii services. A cross sectional analysis allows us to control for person-level characteristics that may also impact utilization. The cross-sectional analysis tests for an overall association between project engagement and our health outcomes.

For the cross-sectional analysis, we used logistic regression models to statistically relate the performance metric proxy variables to the 2bvii services. We tested whether Medicaid members who received INTERACT services were less likely to also have one or more PPVs than their counterparts and less likely to have any type of hospital admission. The logistic model yields an Odds Ratio, which is a measure of association between an "exposure" and an "outcome". In this analysis, 2bvii services are the "exposure." The "outcomes" include having a PPV, hospital admission, and other care engagement metrics.[2] In this example, the Odds Ratio[3] represents the odds that a Medicaid member will experience a PPV given the member also received a 2bvii service, compared to the odds of experiencing a PPV in the absence of any project services. Person-level variables including age, gender, and county were used as control variables.

Potentially Preventable ED Visits

Pre/Post Analysis among Attributed Members who Received 2bvii Services

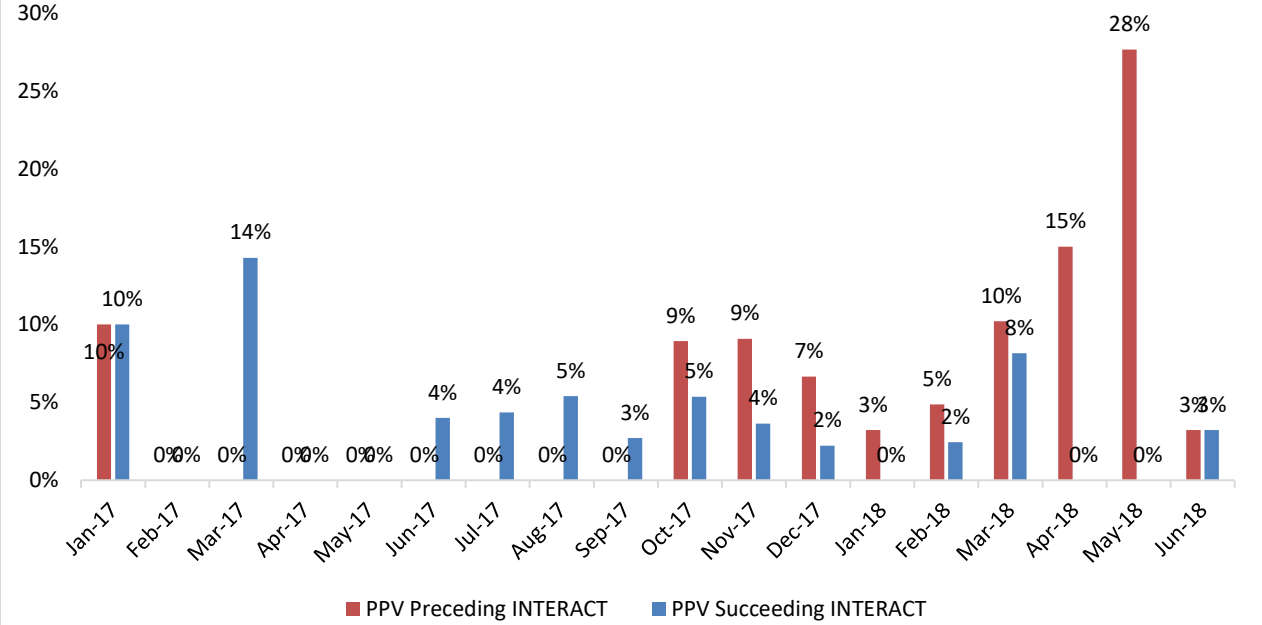
In this section, we look at the trends in PPVs occurring after INTERACT services to discern any utilization patterns that suggest an ability of INTERACT services to reduce reliance on these types of care settings. For INTERACT services to have a probable causal impact on PPVs, we would expect the proportion of those who received INTERACT services and had PPVs in the year after INTERACT to fall over time.

[2] Szumilas, M. (2010). Explaining odds ratios. Journal of the Canadian Academy of Child and Adolescent, 19(3), 227–229

[3] Refer to appendix for details on interpretation of odds ratio, regression analysis and model used.

In Figure 1, we present monthly proportions of INTERACT services offered to CCN attributed Medicaid Members that had a PPV in the year following their INTERACT services. In total, there were 618 CCN attributed INTERACT services offered between January 2017 and June 2018. Cumulatively, 44(7.1%) INTERACT services were preceded by PPV, in the year before INTERACT services were offered and 23 (3.7%) INTERACT services were succeeded by a PPV in the year following INTERACT services; PPVs had to occur within 365 days of the INTERACT. The proportion varies month to month, with some outliers. The trend is downwards. The declining trend indicates that the PPVs were less likely following an INTERACT over time.
The rate differentials in most months and differing trend lines suggest that 2bvii services can impact potentially unnecessary or avoidable use of the Emergency Room. While these differences are not regression adjusted to control for factors which may affect the PPV rate other than the project services; the rates and trends are also not statistically significant.

Figure 1: PPV Before and After INTERACT Services



Note: Figure 1 depicts the percentages of CCN Attributed INTERACT services that were preceded and succeeded by one or more PPVs within a year of the INTERACT, by month of INTERACT. For example, 10% of INTERACT services offered to Medicaid Members in January 2017 had a PPV in the following year.

Cross Sectional Analysis

A cross-sectional analysis was conducted to statistically test whether attributed Medicaid members who received 2bvii services were less likely to have a PPV (and similarly, hospitalization (discussed below)) than other attributed members. The comparison is made to the larger attributed population and is not limited to a subgroup. Statistically significance is noted with *(10% significance (modest)), ** (5% (medium)), or *** (1% significance (high)). The cross-sectional results indicate that PPVs are more common among those engaged in the project, which is not the desirable effect. In the context of no significant association in the cross-sectional analysis from the below table, members who received INTERACT services may not have a correlation with reduction of PPVs at any time. The cross-sectional analysis does not account for the timing of INTERACTs relative to PPVs or other outcomes.

Table 5a: Cross Sectional Analysis - Potentially Preventable ED Visits			
HEDIS Measures	**Odds Ratio**	**Interpretation**	Score (15)
Potentially Preventable ED Visits (NYU)	No Significance	Completing an INTERACT service has no significant association with potentially preventable ED visits.	**0**
Potentially Preventable Emergency Room Visits (for persons with BH diagnosis)	5.57***	Completing an INTERACT service is associated with a 5.57 times greater likelihood of potentially preventable ED visits with Behavioral Health diagnosis.	**0**

Source: CCN Team analysis using CCN project data, Salient Interactive Miner, and Medicaid Claims data from the MY5 Attributed population, July 2016 to June 2019. PPVs (Behavioral Health) refers to PPVs among members with one or more behavioral health diagnosis. Refer to the appendix for detailed scoring criteria.

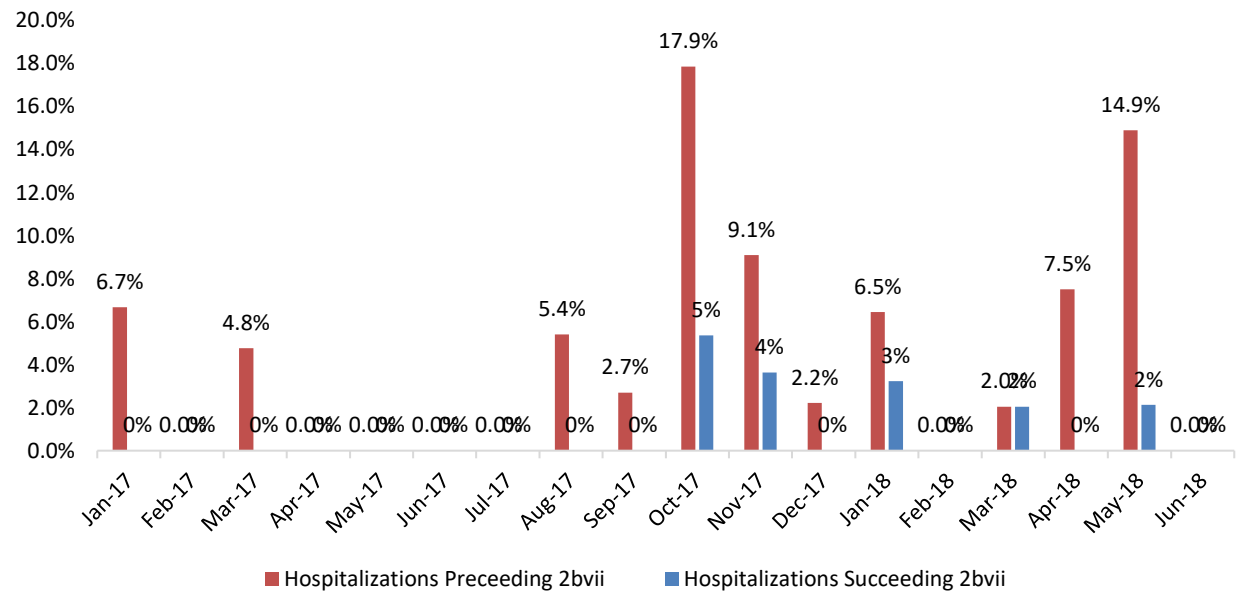
Thus, based on the cross-sectional analysis, it appears that INTERACT may not be sufficient to reduce potentially avoidable utilization of emergency rooms or overall need for hospital care. However, ***one limitation of the study is that data for dual eligibles is not available in Salient.***

Hospitalizations

Pre/Post Analysis among Attributed Members who received 2bvii Services

In Figure 2, we present a similar graph, now considering inpatient admissions which occurred within a year of an INTERACT service. In total, there were 618 CCN Attributed INTERACT services offered between January 2017 and June 2018. Cumulatively, there were 35 INTERACT services preceded by Hospitalizations, in the year before 2bvii services were offered and 8 (1.3%) INTERACT services that were succeeded by Hospitalizations, in the year following their INTERACT service. Again, month to month, the proportion of people admitted varies between 0% and 5%. The were no hospitalizations following an INTERACT service until September 2017. The rate differentials before and after project engagement are not regression adjusted to control for factors which may affect the admission rate other than the project services and are not statistically significant.

Figure 2: Hospitalizations Before and After 2bvii Services



Note: Figure 2 depicts the percentages of CCN Attributed INTERACT services that were preceded and succeeded by one or more hospitalizations within a year of the INTERACT, by month of INTERACT. For example, 5% of those who received INTERACT services in October 2017 had a hospitalization in the following year.

In the context of the positive association in the cross-sectional analysis as shown in the table below, members who received INTERACT services may be more likely than others to experience hospitalizations at any time. However, the cross-sectional analysis does not account for the timing of INTERACTs relative to the hospitalizations.

Table 5b: Cross Sectional Analysis – Inpatient Admissions

HEDIS Measures	**Odds Ratio**	**Interpretation**	Score (15)
Inpatient Discharges	1.50***	Completing an INTERACT service is associated with 50% greater likelihood of an Inpatient Discharge.	**0**
PQI 90 – Composite of all measures ±	14.58***	Completing an INTERACT service is associated with a 14.58 times greater likelihood having a potentially avoidable hospital admission (specific diagnoses).	**0**
Average			**0**

Source: CCN Team analysis using CCN project data, Salient Interactive Miner, and Medicaid Claims data from the MY5 Attributed population, July 2016 to June 2019. (Refer to the appendix for detailed scoring criteria)

Summarizing the relationship between INTERACT and the two outcomes of interest, this analysis suggests that the effect of INTERACT is not strong enough to see in a cross-sectional analysis of PPVs or Hospitalizations (which is understandable); the trend analysis suggests the desired impact for periods of time but not necessarily across the board. We assigned two out of four possible points to the causal effect item on the Project Score Card to reflect these results. However, on cross sectional analysis, we assigned no points due to positive association between project activities and PPV/hospitalizations.

Table 6: Cross Section and Causal Effect Score Card

	Cross Section (15)	**Causal Effect (6)**
Potentially Preventable ED Visits	0	1
Inpatient Hospitalizations	0	1
Primary Care Engagement	N/A	N/A
Total Points Assigned to Score Card	**0**	**3 (Pro-rated)**

Section 2: Cost-Effectiveness Analysis

Cost effectiveness is a measure of the value of an initiative, project, or program stated in terms of its anticipated benefits. For the DSRIP projects in general, CCN sought to improve patient outcomes among those engaged in the project. Patient outcomes are measured in terms of the reduction in unnecessary use of the emergency room, a reduction in hospitalizations, and increases in primary care engagement. Therefore, cost effectiveness of the projects is defined in these terms. Since project 2bvii services are offered at skilled nursing facilities wherein primary care visits happen on a regular basis, we don't measure the impact of project services for this particular project on primary care engagement to avoid any bias in our study.

The cost-effectiveness analysis builds off the pre/post analysis presented above. Total Savings reflects the value of avoided utilization of emergency room care and inpatient hospital care due to the project. This measure is an estimate of the value of the project, comparing utilization before and after project engagement.

Total Savings is calculated by comparing utilization before and after project engagement. Total Savings is a one-year estimate of savings accruing to the health care system at large, attributed to the project activities. The estimates presented in Table 7 are on figures from DSRIP Year 4, including pre- and post-utilization among MY5 attributed Medicaid members engaged in the project between July 2017 and June 2018 and published cost estimates for ED visits and inpatient care (which reflect charges).[4,5,6]. For each utilization type, savings is estimated based on the change in utilization and the cost factor. Total Estimated Savings is a summation across the two measures. Total Estimated Net Savings is calculated by subtracting the variable costs associated with operating the 2bvii project in DSRIP Year 4. Net Estimated Savings per Project $ is a measure of the cost effectiveness or return on investment per dollar spent on the project. There is $0.43 savings associated with every $ spent on providing INTERACT Services. Impact is seen in reduction of ED visits, with statistically different PPV rate before and after INTERACT services, contributing to $747,044 in savings. Reduction in hospitalization rate before and after project engagement is not statistically significant and hence is not accounted for calculation in net savings.

Table 7: Avoided Utilization and Net Savings Associated with 2bvii Services (July 2017-June 2018)

	Avoided ED Visits	Avoided Hospital Admissions	Increased Primary Care Visits	Total Estimated Savings due to Avoided Utilization	Project Variable Costs	Total Estimated Net Savings	Net Estimated Savings, per Project $
INTERACT Services	53	56	N/A	$ 747,044	$ 521,580	$ 225,464	$ 0.43

Source: CCN Team analysis

This cost effectiveness analysis focuses on the fully-implemented value of the project services. We exclude fixed costs from this analysis. While each DSRIP project required infrastructure investment by CCN and its partners, these investments were largely completed by DSRIP Year 4. Excluding fixed costs from the analysis is appropriate in order to make a more direct comparison of service-related variable costs between the project and their health impact. Including fixed costs may unduly weight the analysis against the projects

[4] Health Care Cost Institute (2019). The average emergency room visit cost $1389 in 2017. Available from: Average Cost of ER Visit (2017)

[5]2018 Hospital Adjusted Expenses per Inpatient day: Kaiser Family Foundation / State Health Facts Available from: Hospital Adjusted Expenses per Inpatient Day(2018). Data from 1999 - 2018 AHA Annual Survey, Copyright 2019 by Health Forum, LLC, an affiliate of the American Hospital Association. Note: Average length of stay in NY (2016) was 4.6 days. https://www.aha.org/system/files/2018-07/2018-aha-chartbook.pdf

[6]Health Care Cost Institute (2016-2017); Binghamton, NY Average (Office Visit – Primary Doctor – Established Patient – Moderate Complexity. Range is $69-$87. We used $78 as a point estimate. Available from: Average Cost of PC Visit in Binghamton

since the fixed cost savings related to ED visits and hospitalizations are not directly reflected in the service charges. We analyzed each project independently and assume the results are independent. While there was overlap in patient engagement across the projects, it was relatively minor. We do not anticipate that overlap in project engagement causes cross-contamination of results.

Table 8: Cost Effectiveness Score Card Points	
	Score Card (4)
Potentially Preventable ED Visits	1.33
Inpatient Hospitalizations	1.33
Primary Care Engagement	NA
Total Points Assigned to Score Card	**4**
Source: CCN Team analysis	

To conclude the quantitative analysis, evidence suggests reduced emergency room visits and hospitalizations. While the cross-sectional analysis did not yield the desired results, the trend analysis suggests that over time it became less common to experience a PPV after receiving INTERACT services.

Qualitative Findings

I. Project Specific Feedback from Partners

In-depth interviews were conducted with select partners who were involved in project 2bvii.

Setup and History: One of our partner organizations stated the INTERACT model was used to provide different care paths to take care of their residents. That partner has a 300-bed long-term care facility and a 39-bed rehab unit. They utilized the care path to identify changes in condition, for example if a resident has a fall, they used the care paths to determine what steps they need to take, when they need to notify the physician or the nurse practitioner. This is also documented in the electronic medical record and the progress notes. There are 11 different care paths. They report to Care Compass Network in a monthly spreadsheet as to which resident and which care path was used and what the outcome was. For example, partner will report whether the patient stayed in the facility, had to go to the emergency room or was admitted to the hospital, etc. The other component was census tracking, a quarterly report that the partner sends to CCN. The census tracking tracks all of the Medicaid residents during the quarter so determine if they went to the emergency room, if they were discharged home, if they passed away, etc.

a) Patient Outcomes

Table 1: Patient Outcomes

Interview Question	Rating	Feedback	Score
Extent project has made a positive impact on patients/clients	★★★☆☆	It benefits the residents and the nurses that utilize the care paths; however, most nurses are familiar with the steps they would need to take. Whether the care path is helpful to them or not is up for debate. It is more helpful to newer nurses than more experienced nurses.	3
Extent project activities make a positive long-term impact on patients/clients	★★★★☆	Provides resources for younger nurses to utilize care paths and identify any change in condition of patients.	5
Average			4

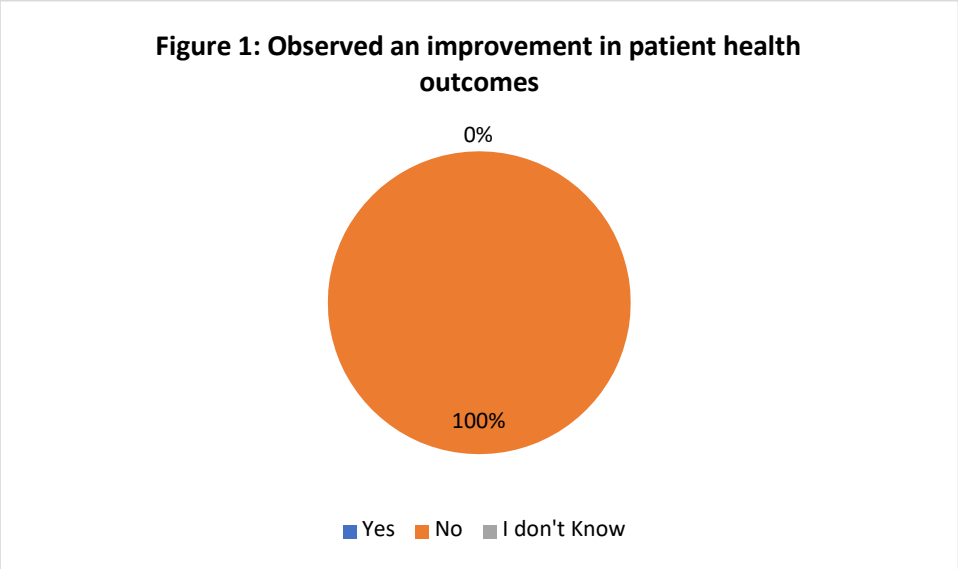


Figure 1: Observed an improvement in patient health Outcomes

100% of respondents said they did not observe an improvement in patient outcomes. When asked if they faced any barriers, they stated that reporting was a cumbersome process in the beginning wherein the spreadsheets they were using had duplication involved. However, later in the process they streamlined their processes and removed any barriers.

b) Cost of Care

Table 2: Cost of Care

Interview Question	Rating	Feedback	Score
Extent project activities contributed to a reduction in cost of care long term	★★★★☆	The goal of the INTERACT Program is to reduce rehospitalizations and ER transfers and it has the potential to impact those numbers leading to a reduction in cost of care	5

c) Lasting Partnerships

Figure 2: Lasting Partnerships

100% of the respondents said that project 2bvii provided them with opportunities to partner with others. However, 100% of the respondents said that these partnerships weren't successful and they wouldn't continue these partnerships after the project concludes. They stated that although the project created opportunities for them to partner, they couldn't take advantage of it as they had limited time to prioritize that.

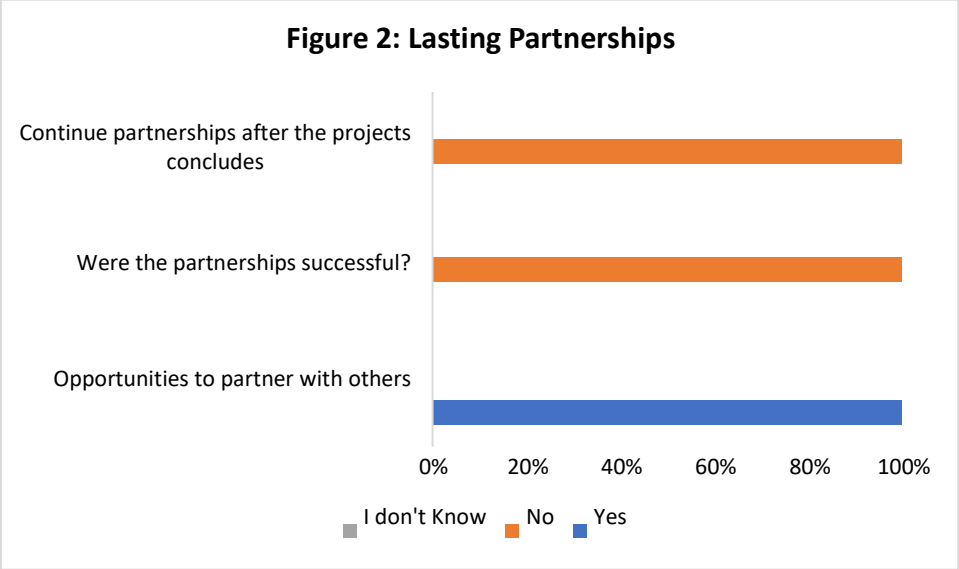


Table 3: Lasting Partnerships			
Interview Question	**Rating**	**Feedback**	**Score**
Extent the project activities have improved coordination of patient care	★★★☆☆	No Impact noted	3

d) Workforce Development

When asked about how many positions were involved in this project, one partner said 3 positions. They stated that project activities consume less than half of their time. The graph below highlights the rating that respondents gave on a scale of 1 to 5 with 1 being “Not at all” and 5 being “Completely”

Figure 3: Workforce Development

When asked about the extent to which project activities align with the organizations mission, respondents gave it a rating of 5 (completely). 100% of the respondents said that they have the capacity to continue activities after the project concludes and gave it a rating of 5. One of the partners noted that care paths and INTERACT principles are really important and they would continue to follow them after the project concludes. When asked about the extent to which the organization depends on the project to maintain staff and/or revenue stream, the partners gave it a rating of 3. This is a good indication that partners have the funding and the capacity to continue after DSRIP concludes.

When asked about whether the project benefitted their organization, 100% of the respondents indicated that the contribution is significant and gave it a rating of 4. Additionally, when asked whether participation helped their organization achieve its objectives, they gave it a rating of 4 as well.

The partner interviewed specifically stated they didn't have bandwidth and time commitment to participate in this project's bi-weekly meetings (process improvement meetings within the organization for INTERACT Champion and staff), which last an hour and half long. Additionally, the information that is given out at these meetings has to do with other agencies, like the health department, home care agencies, etc. and it has no association with long term care and hence their organization.

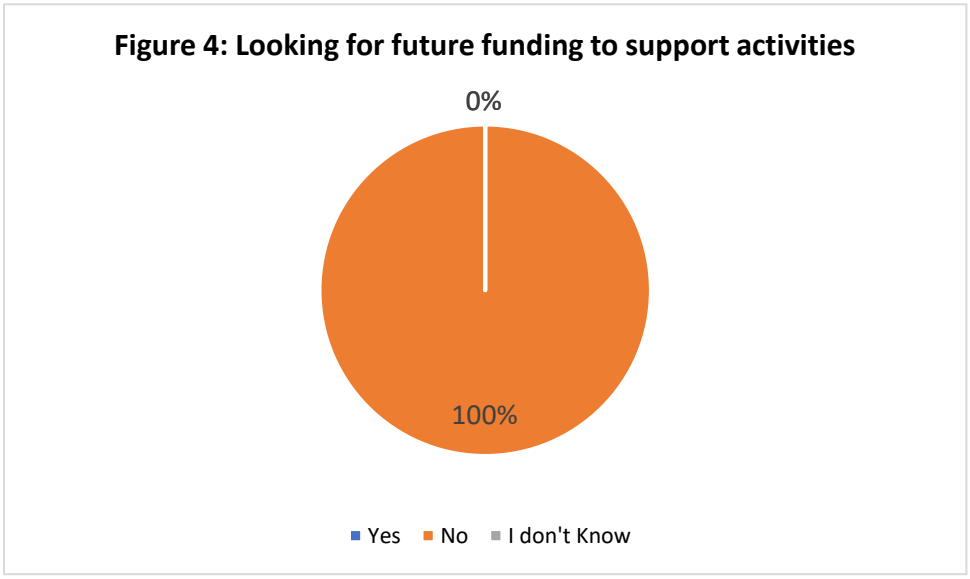


Figure 4: Organization is Looking for Future Source of Funding

When asked about whether the partners engaged with 2bvii are looking for future sources of funding, 100% of the respondents said no. As a follow up question, when asked if their staff will be downsized or redeployed if the project is discontinued, 100% respondents said they don't know.

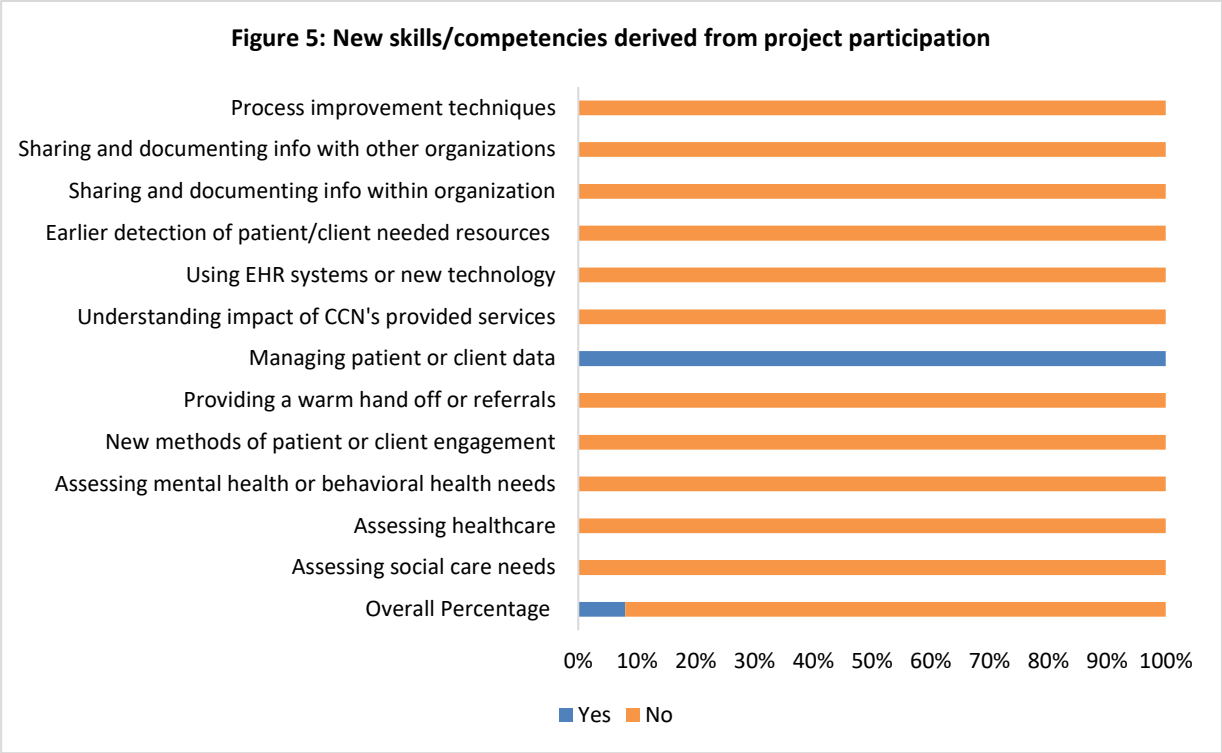


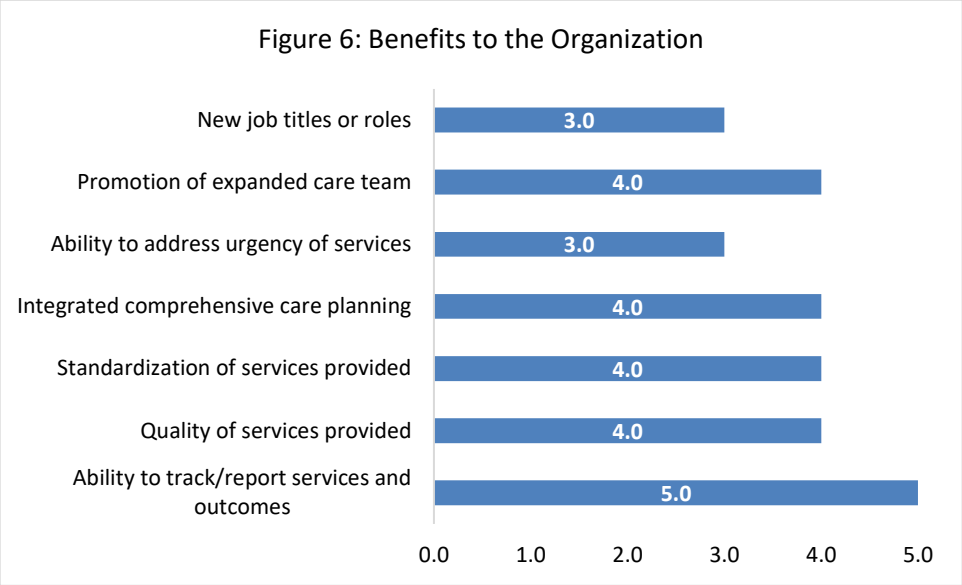
Figure 5: New skills/competencies derived from project participation

Partner were asked if they developed any of following new skills:

a. Assessing social care needs
b. Assessing healthcare
c. Assessing mental health or behavioral health needs
d. new methods of patient or client engagement
e. Providing a warm hand off or referrals
f. Managing patient or client data
g. Assessing and understanding impact of our organization's provided services
h. Earlier detection of patient/client needed resources
i. Sharing and documenting info within organization
j. Sharing and documenting info with other organizations
k. Process improvement techniques

92% of partners report that they did not gain any new competencies and skills as a result of this DSRIP Project. However, 8% said they did benefit, in particular, the new skill they gained out of this project was Managing Patient and Client Data.

Figure 6: Extent to which participation benefited our partner organizations



When asked to what extent participation in the project benefitted our partner organizations, the overall ranking ranged between 3 and 5 on a scale of 1 to 5 where 1 being "Not at all" and 5 being "Significant". In terms of ability to track and report on services/outcomes, 100% of the respondents rated it a 5 out of 5. Regarding the quality and standardization of services provided, partners ranked it at4. Integrated comprehensive care planning is rated 4. Ability to address urgency of services is ranked at 3. In terms of promotion of expanded care team and creating new job titles/roles, it is ranked 3 by our partners.

Table 4: Scoring of Workforce Development Questions

Questions	Rating	Score
Project activities align with the organization's mission	★★★★★	5
Capacity to continue the activities after project concludes	★★★★★	5
Project participation benefited your organization	★★★★☆	5
Participation helped your organization achieve its objectives	★★★★☆	5
Ability to track/report services and outcomes	★★★★★	5
Quality of services provided	★★★★☆	5
Standardization of services provided	★★★★☆	5
Integrated comprehensive care planning	★★★★☆	5
Ability to address urgency of services	★★★☆☆	3
Promotion of expanded care team	★★★★☆	5
New job titles or roles	★★★☆☆	3
Average		4.63

Finally, to conclude feedback on Workforce Development, we asked a few general questions and received a rating as highlighted in the table below. Rating of 1 is "Minimal" and 5 is "Significant".

Table 5: Workforce Development

Questions	Rating	Score
a. This DSRIP project has helped your organization prepare in performance-based contracts with payers.	★★★★☆	5
b. This DSRIP project has helped your organization promote or develop our services.	★★★★☆	5
c. This DSRIP project provided funding for activities that were otherwise unfunded.	★★★★☆	5
d. This DSRIP project provided funding to train and/or expand your personnel in ways you would have not done ourselves.	★★★★☆	5
e. This DSRIP project supported your organization to undertake activities that we see value in.	★★★★★	5
f. Your organization will continue the activities of this project after the DSRIP project completes.	★★★★★	5
g. This DSRIP project has given your organization a platform to share best practices.	★★★★★	5
Average		5

e) System Transformation

To assess system transformation, we asked the partners a series of questions which are captured as ratings, highlighted in the table below. Rating of 1 is "Not at all" and rating of 5 is "Completely". The respondents could reply "Don't know".

Table 6: System Transformation

Questions	Rating	Feedback	Score
a. Better integration of services across settings or organizations	★★★★☆	Have seen a decline in rehospitalizations and ER transfers.	5
b. Ability to share data in real time to improve patient or client care	★★★☆☆	No Feedback	3
c. Promotion of community-based services (over institutional care)	★★★☆☆	No Feedback	3
d. Promotion of team-based care (more coordinated care; cross-organizational teams)	★★★★☆	There are collaboration opportunities offered by CCN with home care agencies local health and mental health department. However, they couldn't take advantage of it due to limited bandwidth.	5
e. More efficient services that reduce waste in the system	★★★☆☆	No Feedback	3
f. Implementation of self-management goals	★★★★☆	Could utilize care paths effectively.	5
g. Shift in staff mindset in addressing patient needs	★★★★☆	Training provided to nurses and CNAs on the INTERACT principles.	5
h. New billable service development	Don't Know	No Feedback	
Average			4.14

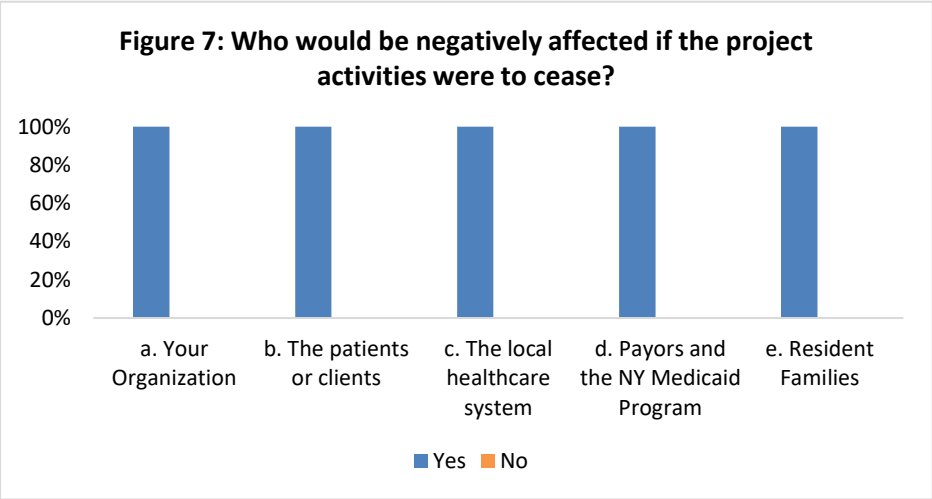


Figure 7: Negative Affect if the Project Activities were to cease

When asked who would be negatively affected if the DSRIP project was to cease – the partner stated that everyone would be impacted, including their organization, the patients/clients, the local healthcare system, payors and NY Medicaid program, and the resident families of patients in skilled nursing facilities.

II. Project Specific Feedback from Project Managers

a) Milestone Rating and Feedback

Success on key milestones of this project have been evaluated by Project Manager at CCN in an in-depth interview:

Table 7: Milestone Rating and Feedback

Milestone	Rating (10)	Success Factors (1.5)	Gaps	Score (10)
Implement INTERACT at each participating SNF	★★★☆☆	1. Flexibility regarding requirements of which INTERACT toolkits to implement 2. Arranged for INTERACT training for all four RPU regions via a champion and co-champion.	1. Failed to show a decrease from SNF to hospital transfers for all patients 2. Not all SNFs started at the same time so they didn't have the same time to implement.	7
Identify a facility champion who will engage other staff and serve as a coach/leader	★★★★★	Provided training for more than just one champion because of high turnover in SNF, a co-champion was also trained.	The goal was to have 21 champions/co-champions in the project. However, couldn't engage all of them.	10

Implement care pathways for monitoring chronically ill patients, with the goal of early identification of potential instability and intervention to avoid hospital transfer.	★★★★★	1. Incorporated care path as primary reimbursement. 2. Flexibility regarding care path additions and logs. 3. Training sessions.	1. Some SNFs were located in or next door to a hospital that made it difficult to implement. 2. Over half of the facilities did not have an electronic health record at the beginning.	10
Educate all staff on care pathways and INTERACT principles.	★★★★★	1. Trained champions and co-champions. 2. Reimbursement tied to training.	Lack of standardization and protocols – training needs differed by the staff level.	10
Implement Advance Care Planning tools to assist residents and families in expressing/documenting their wishes for near or end of life care.	★★★★☆	1. Created a family educational packet on advanced care planning. 2. Introduced Stop and Watch tool for family/caregivers to monitor patient's health	Was not standard and uniform across all the SNFs.	10
Create coaching program to facilitate and support implementation.	★★★★★	Project management support to help with implementation	Turnover caused the need for more training across the PPS	10
Educate patient and family/caretakers, to facilitate participation in planning of care.	★★★★☆	Did bare minimum for this and offered resources/tools to patients/caregivers	1. Non-standardized - a gap in implementation but did not affect overall success. 2. SNFs already had many of these tools in place.	10

Establish enhanced communication with acute care hospitals, preferably with EHR and HIE connectivity.		1. The state removed the requirements regarding meaningful use EHR certification. 2. Enhanced communication with the RHIO and EHR - Provided the resources and money using IT funding. 3. Developed nursing homes capability list and sent it to the local hospitals to encourage bidirectional communication	Almost failed this milestone because not all the SNFs were connected to the RHIOs. Finished this milestone just in time.	10
Measure outcomes (including quality assessment/root cause analysis of transfer) in order to identify additional interventions.		Passed at creating a quality committee and analyzed why people were being transferred to acute care facilities from a SNF. However, those who were on the committee were not from SNFSs except for one.	1. Wanted more of an analysis. 2. Needed time to gather data and come up with solutions.	2
Use EHRs and other technical platforms to track all patients engaged in the project.		1. Quarterly reporting was reimbursed at $520 for every report.	1. Some partners had a hard time reporting and needed a lot of assistance. It was difficult completing the reporting on time and correctly.	10
Average				**8.9**

b) Overall DSRIP Gaps in Care going forward

Limited bandwidth among SNFs has been the major challenge during this project. Not all of the SNFs have time to pull care paths and use interact principles even though they have been proven, because they are handling multiple patients.

c) Improvement in SDoH outcomes

Many of the SDOH needs are addressed in the SNF. INTERACT helped support patient-centeredness thus reducing hospital admissions. Cultural competency and health literacy are essential due to the high elderly population in SNFs.

d) Qualitative Measures

Table 8: Qualitative Measures

Measure	Rating	Feedback	Score (6)
Contribution to increase in primary care visits	★★★☆☆	Some patients are not in a position to be taken to a primary care provider. The lead physician at SNF sometimes is the primary care provider. The patients are seen regularly by physicians.	4

e) Opportunities for Improvement

Table 9: Opportunities for Improvement

Measure	Rating	Scope for Improvement	Score (6)
How important is staff attitude at SNFs to reduce readmissions? Is there scope for improvement?	★★★☆☆	Staff attitude is mostly motivated by the leadership. If staff feels empowered and supported to utilize best practices daily, they will use it. if they are not supported, they do not seem to use it.	4

III. Regional Performing Unit Feedback

During the month of May we collected survey responses from all participants at RPU Meetings on two topics: Workforce development and System Transformation. The survey used a rating based from 1 to 5 with 1 being “Minimal” and 5 being “Significant”. We received 38 responses in total. The table below highlights the distribution of responses across the RPUs. Approximately 13.16% (5 responses out of 38) of the responses was for project 2bvii.

Table 10: RPU Responses			2bvii
South	47.37%	18	3
North	34.21%	13	2
West	10.53%	4	0
East	7.89%	3	0
Total	100.00%	38	5

Table 11: Scoring of Workforce Development Questions

Questions	Rating	Score(5)
Ability to track/report services and outcomes	★★★★½	5
Quality of services provided	★★★★☆	5
Standardization of services provided	★★★★½	5
Integrated comprehensive care planning	★★★★☆	5
Ability to address urgency of services	★★★★☆	5
Promotion of expanded care team	★★★★½	5
New job titles or roles	★★★☆☆	3
Average		**4.71**

Table 12: Workforce Development

Questions	Rating	Score (5)
a. This DSRIP project has helped your organization prepare in performance-based contracts with payers.		5
b. This DSRIP project has helped your organization promote or develop our services.		5
c. This DSRIP project provided funding for activities that were otherwise unfunded.		5
d. This DSRIP project provided funding to train and/or expand your personnel in ways you would have not done ourselves.		5
e. This DSRIP project supported your organization to undertake activities that we see value in.		5
f. This DSRIP project has given your organization a platform to share best practices.		5
Average		**5**

Table 13: System Transformation

To assess system transformation, we asked the partners a number of questions and got a rating as highlighted in the table below. Rating of 1 is “Not at all” and rating of 5 is “Completely”. The respondents could reply “Don’t know”.

Questions	Rating	Score (5)
a. Better integration of services across settings or organizations		5
b. Ability to share data in real time to improve patient or client care		5
c. Promotion of community-based services (over institutional care)		3
d. Promotion of team-based care (more coordinated care; cross-organizational teams)		5
e. More efficient services that reduce waste in the system		5
f. Shift in staff mindset in addressing patient needs		5
g. New billable service development		5
Average		**4.71**

Appendix

Detailed Scoring Matrix

Scoring Matrix		
Key Elements	**Description**	**Points**
Quantitative Analysis	**Data from Projects and Salient**	**25 points**
1. Regression Analysis	**Statistical Association between Key activities undertaken during specific projects and HEDIS measures**	**15 points**
a) Key HEDIS Measures	Statistical Association between 0 and 50%	8 points
b) Key HEDIS Measures	Statistical Association between 51% and 75%	12 points
c) Key HEDIS Measures	Statistical Association between 76% and 100%	15 points
d) Causal Effect	"Negative association of project activity with ER Visits (2 pts) Negative association of project activity with Hospitalizations (2 pts) Positive association between project activity and Primary Care (2pts)"	**6 Points**
e) Cost Effectiveness Analysis	Costs averted due to reduction in ED visits (1.3 pts) Costs averted due to reduction in Hospitalizations (1.3pts) Costs spent due to increase in PC Visits (1.3pts)	4 Points
Qualitative Analysis	**Assessments conducted with various stakeholders involved in Speed and Scale Projects**	**75 Points**
2. Project Specific Feedback from Partners	**Interviews conducted by RMS with select partners for speed and scale projects**	**25 points**
a) Patient Outcomes	Scale of 1 to 5 - 4 and above	**5 points**
	Scale of 1 to 5 - score of 3	3 points
	Scale of 1 to 5 - score of 2 or 1	1 point
b) Cost of Care	Scale of 1 to 5 - 4 and above	**5 points**
	Scale of 1 to 5 - score of 3	3 points
	Scale of 1 to 5 - score of 2 or 1	1 point
c) Lasting Partnerships	Scale of 1 to 5 - 4 and above	**5 points**
	Scale of 1 to 5 - score of 3	3 points
	Scale of 1 to 5 - score of 2 or 1	1 point
d) Workforce Development	Scale of 1 to 5 - 4 and above	**5 points**
	Scale of 1 to 5 - score of 3	3 points
	Scale of 1 to 5 - score of 2 or 1	1 point
e) System Transformation	Scale of 1 to 5 - 4 and above	**5 points**
	Scale of 1 to 5 - score of 3	3 points
	Scale of 1 to 5 - score of 2 or 1	1 point
3. Project Specific Feedback from Project Managers	**Interviews conducted by Population Health Team with project managers for speed and scale projects**	**25 points**
a) Milestones Ratings	Scale of 1 to 5 - 4 and above	**10 points**
	Scale of 1 to 5 - score of 3	7 points
	Scale of 1 to 5 - score of 2 or 1	2 point
b) Successes specific to Milestones	Qualitative statements	**1.5 points**
c) Gaps specific to Milestones	Qualitative statements	**None**

d) Overall DSRIP Gaps in care going forward	Qualitative statements	**None**
e) Importance in improving SDoH outcomes	Qualitative statements	**1.5 points**
f) Qualitative Questions	Scale of 1 to 5 - 4 and above	**6 points**
	Scale of 1 to 5 - score of 3	4 points
	Scale of 1 to 5 - score of 2 or 1	2 point
g) Opportunities for Improvement	Scale of 1 to 5 - 4 and above	**6 points**
	Scale of 1 to 5 - score of 3	4 points
	Scale of 1 to 5 - score of 2 or 1	2 point
4. Member Panel Feedback from Patients	**Survey conducted by RMS with Member Panel regarding Speed and Scale Project**	**15 points**
a) Were asked about their health during visit	> 90% responded yes	**5 points**
	Between 75 to 89%	3 points
	Between 60 to 74%	1 point
b) Positive Experience	> 90% responded yes	**5 points**
	Between 75 to 89%	3 points
	Between 60 to 74%	1 point
c) Patient believes services provided were crucial for their well-being	> 90% responded yes	**5 points**
	Between 75 to 89%	3 points
	Between 60 to 74%	1 point
5. Regional Performing Units Feedback overall DSRIP activities	**Survey conducted by Population Health Team during RPU Meetings in May**	**10 points**
a) Workforce Development	Scale of 1 to 5 - 4 and above	**5 points**
	Scale of 1 to 5 - score of 3	3 points
	Scale of 1 to 5 - score of 2 or 1	1 point
b) System Transformation	Scale of 1 to 5 - 4 and above	**5 points**
	Scale of 1 to 5 - score of 3	3 points
	Scale of 1 to 5 - score of 2 or 1	1 point

Definitions – Statistical Associations

Direct NT: Direct Near Term - Project has a specific component (paid activity specifically) that affects the numerator of the measure in the near term (immediate impact; activity is incentivized).

Direct LT: Direct Long Term - Project has a component which encourages activities which affect the numerator of the measure. Activities may not have an immediate impact, but could encourage different future choices by members.

Mixed Direct: Project has a component which encourages activities which affect the numerator of the measure in general. Activity may not be paid; thus, although the project supports those activities, they are not specifically incentivized.

Quantitative Findings – Model Used

Regression Analysis Basics:

- The regression equation describes the relationship between the dependent variable (y) and the independent variable (x).

$$y=bx+a$$

Example: Anti-Dep Rx Fill = b_1(3ai INTERACT) +b_i(Control $vars_i$)+ a

- The intercept, or "a," is the value of y (dependent variable) if the value of x (independent variable) is zero, and is referred to as the 'constant.'
- The regression results report the coefficient b that represents how a unit increase in x affect the likelihood of y, holding all other factors constant
- P value is also reported in the regression results. It shows whether the coefficient has statistically significant impact on the dependent variable or not. If the p value is 0.05, we are 95% confident that the independent variable has some effect on the dependent variable.

Model Used

Logistic regression

- Assumption: dependent variable is dichotomous and binary; in other words, coded as 0 and +1.
- We use the logit model that displays the odds ratio obtained by running the regression.
- The odds ratio is a way of comparing whether the probability of a certain event is the same for two groups.
- An odds ratio of 1 implies that the event is equally likely in both groups. An odds ratio greater than one implies that the event is more likely in the first group. An odds ratio less than one implies that the event is less likely in the first group.