

## Findings at a Glance

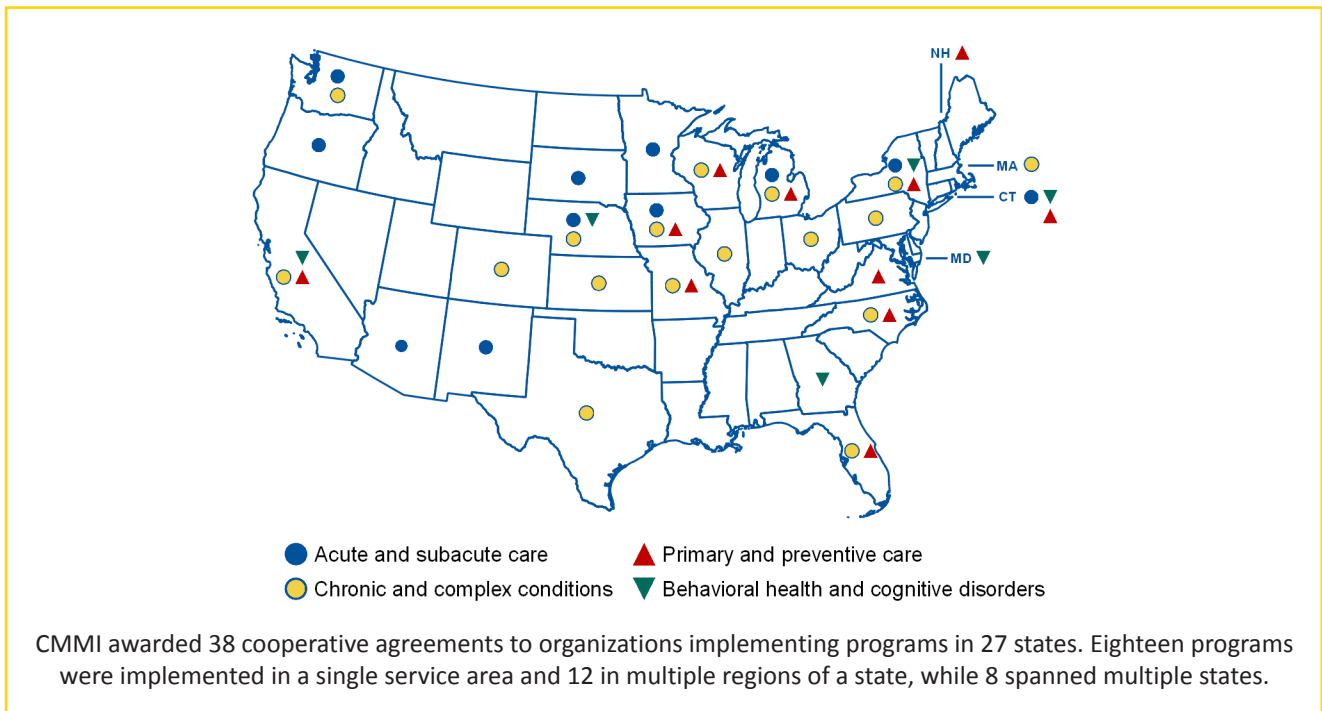
### PROGRAM OVERVIEW

Under the Center for Medicare & Medicaid Innovation (CMMI)’s Round 2 of the Health Care Innovation Awards (HCIA R2), 39 organizations received a three-year cooperative agreement, beginning in September 2014, to implement their proposed models for improving the quality of care and health, and for lowering the cost of care for Medicare, Medicaid, and Children’s Health Insurance Program beneficiaries. HCIA R2 built on the first round of HCIA funding with a focus on (1) reducing costs in outpatient or post-acute care settings; (2) improving care for patients with special needs; (3) improving health by enhancing patient engagement, disease prevention, and wellness efforts; and (4) fostering new payment models to support service delivery innovations.

This fourth and final evaluation report provides estimates of program impacts on health care service use and expenditures, identifies factors associated with evidence of favorable impacts, and describes awardees’ experiences sustaining programs and implementing payment models. One organization withdrew from HCIA R2 in the second program year; the evaluation includes the 38 awardees that completed the funding cycle.

### PROGRAMS

The 38 programs varied widely in the interventions provided, the populations served, the types of organizations involved, the number of individuals enrolled, and the models proposed to pay for intervention services. One-half (19) focused primarily on Medicare beneficiaries, 14 focused primarily on Medicaid enrollees, and 5 included both. One-half (19) targeted individuals with chronic or complex conditions, 5 targeted people with behavioral health or cognitive disorders, 6 targeted adults in acute or subacute care settings, and 8 targeted individuals with primary or preventive care needs.



## Findings at a Glance

### FINDINGS

Of the 38 awardees, 19 met the criteria required for producing valid estimates of program impacts. For the other 19 awardees, the evaluation produced descriptive information.

#### PROGRAM IMPACTS ON SERVICE USE AND COSTS

Four of the 19 programs with impact evaluations produced evidence of favorable effects. Six other programs had mixed results with either favorable but non-statistically significant results or a mix of favorable and unfavorable results. Nine programs had mainly unfavorable results.



Avera Health provided telehealth services to short- and long-term residents of rural nursing facilities. The program reduced Medicare spending (-3.9%) and ED service use (-9.3%).



Montefiore Medical Center provided integrated behavioral health services in the primary care setting for adults and children. The program reduced ED service use (-14%) and hospitalizations (-18%); expenditure data were not available.

New York City Health + Hospitals provided care management in the ED and transitional care coordination after discharge. The program reduced ED service use (-8.2%) and hospitalizations (-6.3%); expenditure data were not available.



University of Illinois, Chicago coordinated health services for children with complex medical conditions. The program reduced Medicaid spending (-21%) in medium- and high-risk children.

#### FACTORS ASSOCIATED WITH FAVORABLE IMPACTS



All four programs with evidence of favorable effects (and none of the other programs) targeted a socially fragile population, had prior experience, and met the needs of their participants by either having a behavioral health component or using nonclinical staff. Other characteristics associated with higher median impacts included using telehealth, relying on health IT, and being a patient-level intervention.

#### PROGRAM SUSTAINABILITY AND PAYMENT MODELS



A majority of the 38 awardees continued their programs in whole or in part after the end of the award. Of the 36 programs that proposed a payment model, 12 implemented their payment models at least in part, 12 were still in negotiations with payers, and 12 had ceased negotiations. Challenges producing evidence of effectiveness was a major barrier to securing payment contracts.

### KEY TAKEAWAYS

Building off HCIA R1, in which 107 awardees received more than \$826 million, HCIA R2 awarded nearly \$339 million in cooperative agreements to 39 new awardees. Similar to the findings of the HCIA R1 evaluation<sup>1</sup>, the findings for HCIA R2 were mixed: only two programs generated statistically significant estimates of savings (although the other two programs with favorable effects on hospitalizations and ED visits likely had favorable effects on expenditures), and the impact of 19 programs could not be evaluated due to selection bias and small samples. Despite considerable investment, there is little evidence showing potential for savings to offset such an outlay of resources. Although the purpose of the cooperative agreement was to support and facilitate investigators' own initiatives, the cooperative agreement approach does not lend itself to evaluating the impact of changes in payment policy.

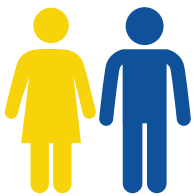
<sup>1</sup> <https://downloads.cms.gov/files/cmimi/hcia-metaanalysisthirdannualrpt.pdf>.

This document summarizes the evaluation report prepared by an independent contractor. To learn more about the HCIA R2 programs and to download the final evaluation report, visit <https://innovation.cms.gov/data-and-reports>.

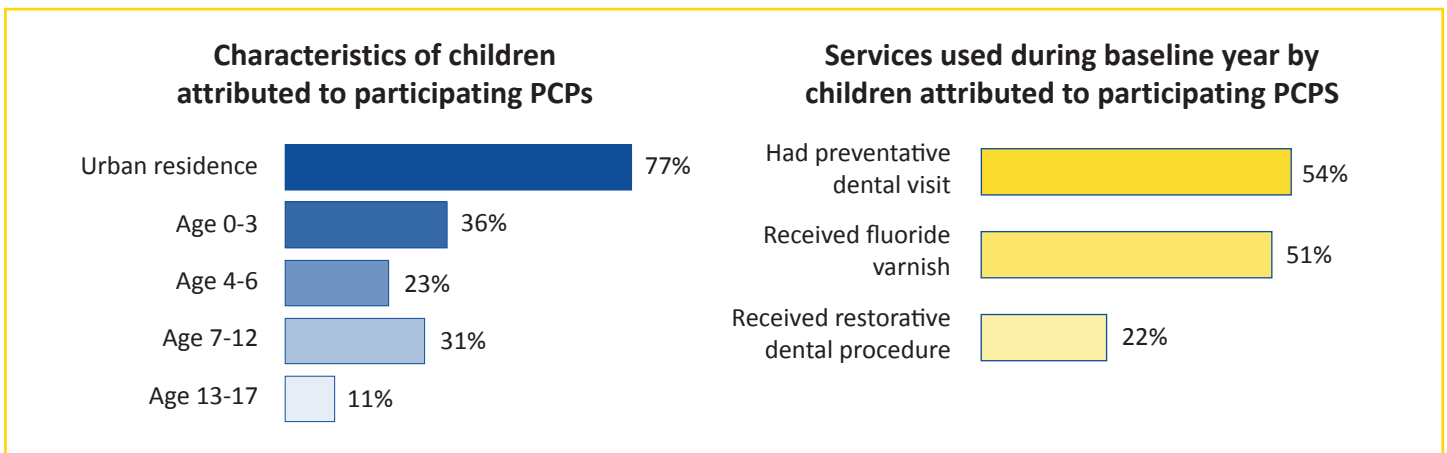
### MODEL OVERVIEW

Altarum Institute (Altarum) used its Round 2 Health Care Innovation Award (HCIA R2) to create the Michigan Caries Prevention Program (MCP). The MCP was designed to address a critical care gap in preventive early childhood dental care and to encourage the establishment of dental homes earlier in childhood than has historically occurred for Medicaid and Children’s Health Insurance Program (CHIP) beneficiaries in the state, thereby reducing the incidence of dental disease and related costs. MCP included three components: (1) training and technical assistance (TA) provided to primary care providers (PCPs) to build capacity to deliver evidence-based preventive oral health services in the primary care setting and refer patients to dental homes, (2) a health information technology (health IT) system to coordinate referrals and information sharing between medical and dental providers, and (3) participant and family engagement. Altarum expected that by improving the capacity of PCPs to deliver preventive oral health services in the primary care setting and improving referrals and coordination between medical and dental providers, the program would improve the receipt of preventive dental and oral health services in early childhood, increase the establishment of dental homes, and reduce the incidence of dental caries and disease. The awardee also developed a payment model under which PCPs and dentists would be eligible for enhanced fee-for-service (FFS) payments for providing preventive oral health services and dental services, respectively, to children under the age of the three. Both types of providers could also earn bonus payments if they met targets for increasing preventive services for children.

### PARTICIPANTS



The program targeted providers serving Medicaid- and CHIP-enrolled children age birth to 17. Across all three of its components, the MCP did not provide services directly to patients. Rather, the program considered all children served by trained providers as indirect participants. The program’s training and TA component enrolled 1,565 PCPs, exceeding its original enrollment goal. Over 75% of treatment beneficiaries resided in urban areas; the average age at enrollment was 6 years. Slightly more than half had a preventive dental visit, and more than one-fifth had a restorative dental procedure, during the baseline year.



## FINDINGS

The impact evaluation included 94,944 Michigan Medicaid beneficiaries attributed to 812 treatment PCPs who participated in the training and treated Medicaid or CHIP-enrolled children in the baseline year, and 124,696 beneficiaries attributed to 2,281 comparison PCPs who did not participate in the training and TA.

### SERVICE USE



Children who received care from a participating PCP had an estimated 15 percent higher receipt of fluoride varnish during a two-year follow-up period, 2.6 percent higher receipt of oral health evaluations, and 2.8 percent higher receipt of preventive dental visits than beneficiaries who received care from a nonparticipating PCP.



The MCPP's training and TA component did not have a discernable impact on other dental outcomes, including the receipt of dental sealants, the rate of restorative procedures, and ambulatory-sensitive emergency department visits for dental caries.



The impact of the program on Medicaid expenditures could not be examined because most children in the study were enrolled in Medicaid managed care plans that do not submit cost data on service use to the state. Nor could the impact of the program on hospital admissions be examined due to incomplete hospital claims data.

### PAYMENT MODEL



Altarum proposed a FFS payment model that would cover the cost of the program for children under the age of three. PCPs would be eligible for enhanced FFS payments for providing preventive oral health services and dentists would be eligible for enhanced payments for preventive dental services. Both types of providers could earn bonus payments if they met targets for increasing preventive services for children. However, the awardee was unable to engage payers after finding insufficient evidence of cost savings.

## KEY TAKEAWAYS

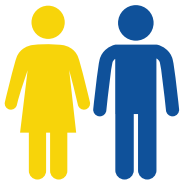
The MCPP demonstrated relatively small, favorable estimated impacts on receipt of preventive oral health services and preventive dental visits among Medicaid- and CHIP-enrolled children. These favorable estimated impacts were facilitated by the high quality of the MCPP's training and TA program, as well as the awardee's multi-faceted provider engagement strategy. However, the program demonstrated no discernable impacts on two services typically administered by dental providers: dental sealants and dental treatments. Although the primary target of the MCPP's training and TA was PCPs, these findings underscore the need to engage and incentivize dentists as active partners in improving children's dental and oral health.

### Findings at a Glance

## MODEL OVERVIEW

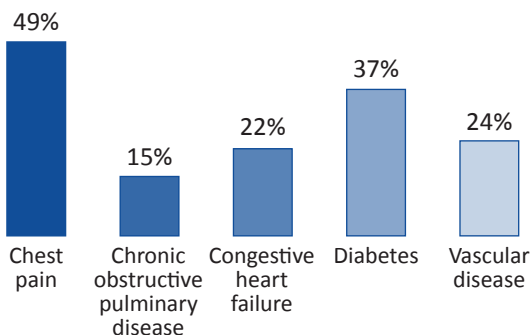
The American College of Cardiology Foundation (ACCF) used funding from Round 2 of the Health Care Innovation Awards (HCIA R2) to create the SMARTCare program. The goal of the program was to improve the appropriateness of care and quality of life for patients with stable ischemic heart disease (SIHD)—also known as coronary artery disease (CAD)—and to increase adherence to CAD treatment guidelines. The program targeted patients with SIHD who had indications for functional stress testing. The key innovations within the SMARTCare’s design were the bundling of four related decision-support tools that used evidence-based medicine and a bundled approach to paying for these services. The program relied on health information technology (health IT) to (1) provide clinical decision support for managing SIHD patients to cardiologists and other clinical specialists, (2) support patient–clinician shared decision making, and (3) enable the use of clinical registries to track and improve care. The awardee intended that the tools would guide clinicians’ decisions—from ordering tests to performing procedures—to reduce inappropriate use of cardiac screening tests and procedures and to reduce rates of complications. The tools also provided customized, patient-specific estimates of the risks and benefits of specific procedures, as well as educational materials to support shared decision making.

## PARTICIPANTS

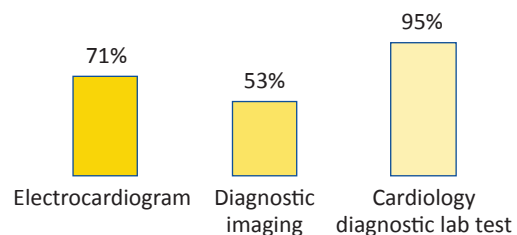


Among SmartCare’s 29,053 enrollees, only 5,620 (19 percent) were Medicare beneficiaries. The descriptive analysis in this report included 2,455 participants enrolled in Medicare fee-for-service (FFS) and who met the study’s other inclusion criteria. Medicare FFS participants were sicker than Medicare FFS beneficiaries nationally. The average hierarchical condition category risk score at enrollment for Medicare FFS participants was 1.4, indicating that their predicted total Medicare expenditures were 40 percent higher than the average for all Medicare beneficiaries. Nearly one-half (49 percent) had a history of chest pain and nearly one-quarter (22 percent) had congestive heart failure during the year before they enrolled in SmartCare. They also had higher rates of emergency department and acute inpatient service use and higher expenditures during the year before enrolling in SmartCare than Medicare FFS beneficiaries nationally. Nearly all of the Medicare FFS participants also had a cardiac testing procedure in the 12 months before enrollment, but PCI and stent placements were rare, indicating stable disease.

**Percent of Medicare FFS participants with select chronic conditions**



**Percent of Medicare FFS participants with diagnostic imaging or tests**



## Findings at a Glance

### FINDINGS

#### PROGRAM IMPLEMENTATION



ACCF was partly successful in implementing its program by the end of the initial three-year cooperative agreement. Enrollment was successful, with 29,053 participants—representing over 100 percent of the awardee’s original enrollment target—by the end of the initial agreement. However, due to lack of widespread clinician buy-in, a small number of clinicians were responsible for most of the enrollment.

The lack of clinician buy-in resulted from (1) difficulty using the tools due to interoperability issues within sites’ electronic medical record (EMR) systems, and (2) concerns that the tools would not have an impact on patients’ care. Other operational issues, such as adverse payment incentives to reduce imaging and testing for clinicians operating in a FFS environment, also prevented the program from being fully successful.

Although the awardee was unable to deliver services as originally designed, participating clinicians and other program staff reported that they felt the program had a positive effect on care delivery. They also had generally positive feedback about the benefit of some of the SMARTCare tools.

#### CHALLENGES OF MEASURING PROGRAM IMPACTS



It was not possible to conduct a rigorous impact evaluation of the SMARTCare program. The program selected and enrolled patients based on clinical judgment and criteria not available in medical claims, making it impossible to construct a comparison group of patients who matched those enrolled in the intervention. An alternative approach—measuring impacts over all treatment-eligible beneficiaries identifiable in claims data—was not feasible because only 3 percent of all beneficiaries who met the claims-based program eligibility criteria participated in the SMARTCare program.

#### PAYMENT MODEL



ACCF proposed a bundled payment to support diagnosing and treating patients with SIHD. The payment would cover (1) all evaluation and monitoring services by cardiologists for one month following an initial patient visit to a physician for new or significantly changed angina symptoms; and (2) stress tests, angiograms, and angioplasties during the six months before treatment began for current symptoms.

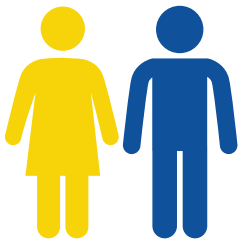
### KEY TAKEAWAYS

ACCF enrolled a large number of patients in its SMARTCare program, and participating clinicians and staff felt that the program had a positive effect on care delivery. They also reported finding some of the SMARTCare tools to be beneficial. However, implementation challenges likely limited the effectiveness of the SMARTCare program. In particular, any future iterations of the program would have to address providers’ burden and EMR interoperability difficulties with the decision support-related IT tools. It will also be important to reconcile the incentives that providers face in a FFS environment with the goal of reducing overuse of cardiac testing and PCI. It was not possible to estimate program impacts on any outcomes due to the very low overlap between patients enrolled in the SmartCare program and patients of participating clinicians who met the claims-based program eligibility criteria.

## MODEL OVERVIEW

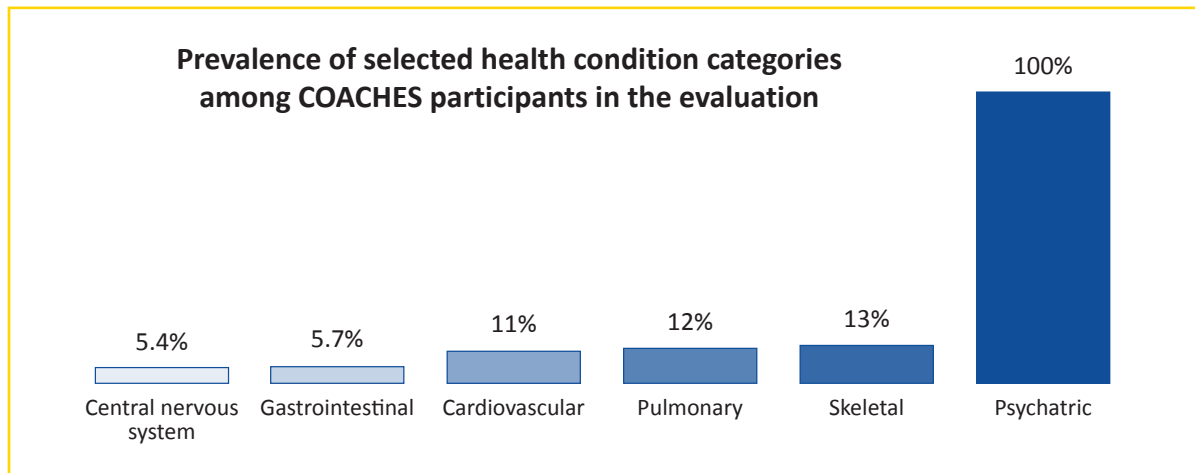
Amerigroup, the sole Medicaid managed care provider for Georgia’s foster care program, used its Round 2 Health Care Innovation Award to create the Coaching and Comprehensive Health Supports (COACHES) program. The program paired youth who were about to transition out of foster care with trained coaches to teach them about the health care and social services systems, help them build life skills, and support them as they advocated for their own needs. Families First, the awardee’s partner, trained coaches to use evidence-based practices such as motivational interviewing to encourage participants to manage their own needs. The main innovation was that participation in COACHES was voluntary and participant driven. For example, participants determined how often they met with their coach and the focus of their work in the program. Amerigroup hypothesized that youth who worked with coaches would better understand what services they needed and how to access them. Participants would then increase use of primary care, pregnancy prevention services, and educational and employment programs which, in turn, would result in better health and social outcomes and lower health and social service costs.

## PARTICIPANTS



The COACHES program focused on youth ages 17 to 20 transitioning out of foster care who had a documented history of behavioral health needs and residing in one of 34 target counties in Georgia. The program enrolled 860 youth, exceeding its goal of 720 participants. Although all 860 youth received coaching, only 562 consented to participate in the research study and just 299 participants met all the conditions necessary to be included the impact analysis. Those excluded from the analysis either lacked Medicaid identifiers, did not have enough Medicaid data, or did not meet eligibility criteria that could be observed in Medicaid claims.

The program enrolled similar numbers of female and male youth. Because the program sought to engage those with behavioral health needs, all sample members had a psychiatric condition. They often had other health needs, as evidenced by risk scores that averaged four times higher than the average for all Medicaid beneficiaries, the high rate of hospitalizations, and the frequency of other conditions reported in their Medicaid claims before enrollment.



## FINDINGS

### PARTICIPANT ENGAGEMENT



The program was youth directed, which was intended to help engage participants. The median length of time that participants were active in the program was 3 months, considerably less than the 12 to 18 months the awardee anticipated. Youth frequently focused on education and employment goals, which likely limited the program's ability to affect health outcomes.

### SERVICE USE



The study estimated program impacts using a model that compared changes over time among participants with those of a matched comparison group. The comparison group consisted of 572 youth in foster care with similar characteristics to participants who resided in Georgia counties outside the program catchment area.



Specialty care and primary care visits increased by 53 and 30 percent, respectively, during the first six months after enrollment for participants relative to the comparison group, possibly due to the program connecting participants to health services. Also, consistent with the awardee's theory of action, descriptive analyses showed that, among female participants not using long-acting birth control at baseline, the percentage of treatment group members using birth control at follow-up was about 10 percentage points higher than their comparison group counterparts.



Treatment–control group differences in emergency department visits and hospitalizations were not statistically different over the first year after enrollment. Expenditure data were not available because most sample members were in comprehensive managed care plans.

### PAYMENT MODEL



Amerigroup initially planned to develop a value-based payment model tied to performance. The awardee did not pursue this model after Families First received a state contract to operate the COACHES program early in the award period. After the cooperative agreement, Amerigroup transitioned COACHES to Families First, which secured a contract from the Georgia Department of Social Services to sustain the program.

### LIMITATIONS



Results should be interpreted the results with caution due to the small sample size and possible bias created by participants self-referring to the program (and the possibility that they chose to enroll at a time of increased need for health care). Also, many outcomes in Amerigroup's theory of action could not be measured with claims data, such as participants' employment and health knowledge. Because most beneficiaries were in comprehensive managed care, no expenditure data were available.

## KEY TAKEAWAYS

The COACHES program served more than 800 youth in foster care. Although specialist and primary care visits increased during participants' time in the program, most changes in other measures of service use were not statistically significant. Youth spent considerably less time than anticipated in the program and often focused on nonhealth goals, such as education and employment. As a result, it is not surprising that the COACHES program did not appear to be associated with statistically significant changes in most measures of Medicaid service use; however, it is possible that the program affected employment and education related outcomes that this evaluation could not capture.

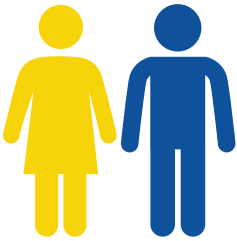


### Findings at a Glance

## MODEL OVERVIEW

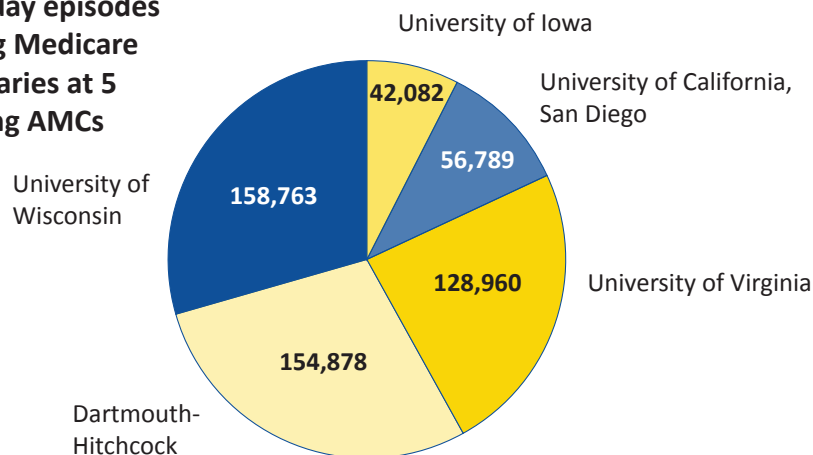
The Association of American Medical Colleges received a cooperative agreement under Round 2 of the Health Care Innovation Awards to implement the Coordinating Optimal Referral Experience (CORE) program. The goal of the CORE program was to reduce wait times for specialty care appointments and increase the effectiveness of referral processes by improving communication and care coordination between primary care physicians (PCPs) and specialists. The awardee expected improved care coordination to reduce preventable hospitalizations, emergency department (ED) visits, and costs. The CORE program used two templates—the eConsult template and the eReferral template—to support the program goals. Both templates were embedded in the electronic medical record systems at all primary care practices and community-based clinics affiliated with five academic medical centers (AMCs). Staff customized the templates to 18 medical specialties and aimed to bring guidance or clarification from specialists to help PCPs manage a patient’s care (eConsult) or facilitate and streamline the specialty referral process (eReferral).

## PARTICIPANTS



Because the CORE program did not provide services directly to patients, participant enrollment reflects indirect participants who enrolled passively in the CORE program. The program trained clinicians who treated the target population and considered all patients served by PCPs at participating AMCs as indirect participants. The difference-in-differences impact analysis was limited to a treatment group of 541,472 Medicare fee-for-service (FFS) observations (defined as non-unique beneficiary episodes) identified following a primary care visit to a participating AMC clinic. An episode was defined as a 91-day period triggered by a beneficiary’s primary care visit. The average age of treatment group beneficiaries was 71 years (nearly 40 percent were 75 or older). Forty-two percent were male and 89 percent were White. About 19 percent were dually eligible for Medicare and Medicaid. The mean hierarchical condition category score for the treatment group was 21 percent higher than the national average for Medicare beneficiaries. Two participating sites accounted for 58 percent of all treatment group episodes.

**Number of 91-day episodes of care among Medicare FFS beneficiaries at 5 participating AMCs**



## Findings at a Glance

### FINDINGS

The impact analysis compared outcomes among 541,472 treatment-eligible episodes to those of 979,532 comparison group episodes reflecting beneficiaries with similar characteristics who received services at 14 comparison AMCs.

#### SERVICE USE AND COSTS



The estimated impact of the CORE program on Medicare FFS expenditures indicated statistically significant reductions in total and inpatient spending of 2 percent during a three-month follow-up period. However, sensitivity analyses demonstrated that one AMC drove the expenditure impact results. After excluding the high-cost AMC from the analysis, the estimated 90-day impact disappeared.



Estimated effects of the program on hospitalizations and ED visits were small and not statistically significant.



The number of primary care visits in the treatment group during the three-month follow-up decreased by nearly **2 percent** relative to the comparison group. At the same time, the analysis estimated that treatment beneficiaries were nearly **2 percent** more likely to have a specialist visit for one of the five most common specialties for which eConsults and eReferrals were available.

#### PROGRAM SUSTAINABILITY



By the end of its award, the Association of American Medical Colleges planned to sustain the CORE program in its entirety. Each of the five AMCs participating in the program worked with its leadership to embed the program into regular operations of an existing department and adjusted staffing to maintain quality oversight. Most of the sites used internal funding to reimburse PCPs and specialists for the program. Many of these health systems also continued to add to the types of specialties that could participate in the program, and several AMCs extended the program to PCPs outside their systems. The awardee also spread the program to six additional AMCs and six children's hospitals after the award.

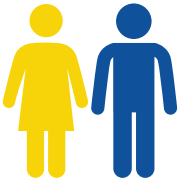
### KEY TAKEAWAYS

The findings from the study are consistent with the program's theory of action. Greater efficiency in specialist referrals and increased access to specialists could explain both the reduction in primary care visits and the higher likelihood of visiting a specialist after introducing the intervention. If the use of the templates increased the efficiency with which PCPs could identify and refer beneficiaries to specialists, then the awardee expected the program to induce fewer repeat visits to PCPs and a greater likelihood of making appropriate specialist referrals within 91 days. Two program components in particular might have contributed to an increase in referral efficiency. First, increased decision support for PCPs might enhance their knowledge of specialty care and reduce the need for repeat primary care visits. In fact, 86 percent of respondents to a clinician survey reported that the program increased PCPs' knowledge about issues that often require specialists' input or referral. Second, by updating the referral process, eReferrals could have increased access to and reduced wait times for specialty appointments. However, there was no evidence that the program had its intended effect on ED visits or total Medicare expenditures.

## MODEL OVERVIEW

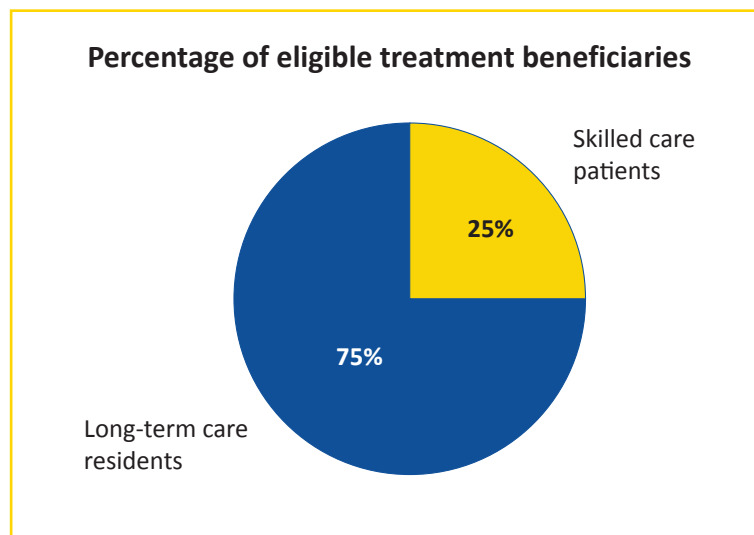
Avera Health used its Round 2 Health Care Innovation Award to implement the eLongTermCare (eLTC) program. The program offered a set of geriatric care and tele-health services to staff and residents in nursing facilities (NFs) across the Midwest. Services included staff training and empowerment, tele-health transitional care coordination with risk-stratification of residents, and tele-health consults for urgent and specialty care. Avera provided eLTC services out of a centrally staffed tele-health hub in Sioux Falls, South Dakota. Staff at the hub included clinicians, such as nursing staff and physicians, as well as support and administrative staff. Avera expected that by training NF staff to use tele-health consults and providing such services to its residents, the program would better meet residents' medical needs and in turn reduce unnecessary transfers to emergency departments (EDs) and hospitals, both of which would lower the total cost of care. The program was available to all residents at 45 participating NFs. The awardee also implemented a retail subscription payment model under which NFs would pay a monthly lump-sum fee for all residents in the NF to access to its eLTC services.

## PARTICIPANTS



All residents at the participating NFs were eligible to receive eLTC program services. The program thus automatically enrolled 11,192 residents, reaching 158 percent of its original enrollment goal. The evaluation was based on the 9,608 Medicare fee-for-service beneficiaries who stayed in participating NFs during the program period and could be linked to claims data.

About one-quarter of the treatment beneficiaries were skilled care patients at enrollment who needed short-term skilled nursing services to recover from an acute medical condition. The remaining treatment beneficiaries were long-term care residents with chronic conditions who needed assistance with daily activities.



## FINDINGS

### PARTICIPANT ENGAGEMENT



The awardee designed the eLTC program to be a facility-level intervention. Thus, the awardee automatically enrolled all residents at the participating NFs and did not focus on engaging them as program participants. Although residents could refuse tele-health consults if they did not want them, the awardee reported that residents infrequently declined the services.

### SERVICE USE AND COSTS

The impact analysis compared outcomes among residents at participating nursing facilities to those of 24,620 comparison beneficiaries. The program selected the comparison group from beneficiaries with similar demographic and health characteristics who stayed in nonparticipating NFs in the same market locations as the participating facilities, and thus were ineligible to participate in the program.



Over the two-year follow-up period, the program led to statistically significant reductions in ED visits of an estimated 9 percent for long-term care residents and an estimated 10 percent for skilled care patients.



The program lowered the likelihood of hospital admission among long-term care residents by a statistically significant estimated 3 percent.



The lower inpatient and ED service use helped reduce total Medicaid expenditures by an estimated 4 percent for long-term care residents. However, the program had no discernable effect on expenditures for skilled care patients. The lack of program effect for skilled care patients could be due to less exposure to the intervention, given that they were discharged sooner than long-term care residents. It could also be due to their health care needs being more rehabilitative, and less likely to require acute care services.

### PAYMENT MODEL



The awardee implemented a retail subscription payment model in which NFs made two types of payments to Avera for every resident in the NF's monthly census, regardless of payer or length of stay. The first was an initial fee at the resident's time of admission. The second was a monthly fee until the resident was discharged. Avera also proposed a Medicare payment model that was performance-based with two-sided risk. Payments could be reduced by up to 50 percent for failing to meet benchmarks on certain utilization and quality measures, such as short-stay rehospitalization rate, ED transfer rate, or 24/7 access to geriatric care.

## KEY TAKEAWAYS

The awardee was mostly successfully in implementing the eLTC program to provide tele-health services to staff and residents at participating NFs. The evaluation found that the program achieved the goal of reducing ED visits among NF residents within the first two years. For long-term care residents, the program also led to a reduced likelihood of hospital admission and Medicare expenditures. This finding suggests that providing rapid access to clinical expertise through tele-health services to long-term residents of nursing facilities in rural areas reduces their need for expensive emergency care and hospitalizations. Thus, even though Medicare does not cover long-term care, implementing a tele-health program in long-term care facilities could generate savings for Medicare through reduced hospital and ED use among Medicare beneficiaries residing in nursing facilities.

## MODEL OVERVIEW

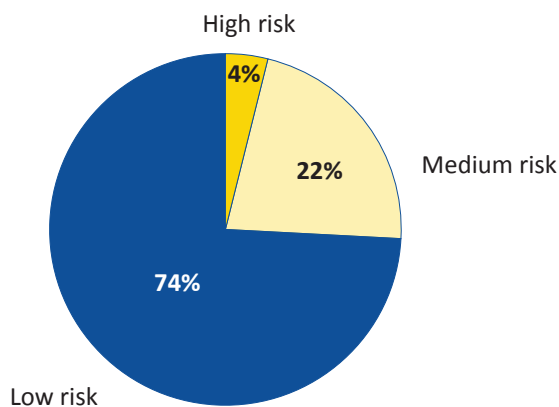
The Board of Trustees at the University of Illinois, Chicago (UIC) used its Round 2 Health Care Innovation Award to create the Coordination of Health Care for Complex Kids (CHECK) program. The program addressed social determinants of health among children and young adults with chronic medical conditions through improved coordination of medical, nonmedical, and mental health services. Community health workers coordinated these services. UIC expected better coordination would reduce avoidable hospitalizations and emergency department (ED) visits and lower the total cost of care for participants. The program sought to engage Medicaid-enrolled recipients from birth to age 25 who were residents of Cook County, Illinois, and had one of four conditions: asthma, diabetes, prematurity, or sickle cell disease. The awardee also developed a payment model under which Medicaid managed care organizations would pay a per beneficiary per month (PBPM) care coordination fee for each enrolled beneficiary after the end of the award.

## PARTICIPANTS

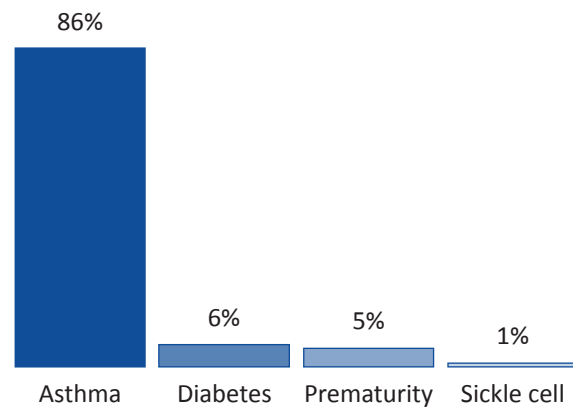


The program enrolled 8,455 participants, reaching 141 percent of its original enrollment goal. The evaluation, however, was based on 6,259 Medicaid recipients in one managed care plan who were enrolled in a randomized controlled trial (RCT) of the intervention—half (3,131) were assigned to the intervention group and half (3,128) to the control group. The assignment process produced intervention and control groups that were similar at baseline on health status and service use. One-quarter of participants were assessed at enrollment as being at high or medium risk of unnecessary use of health care services.

Percentage of RCT participants in each risk tier



Percentage of RCT participants with each of the targeted conditions



## FINDINGS

### PARTICIPANT ENGAGEMENT



Only 25 percent of enrollees in the intervention group received a needs assessment and had a care plan in place. The proportion of participants who received a care plan was the same for the low-risk and higher-risk groups. The low level of participant engagement limited program effectiveness and made it more difficult to detect impacts.

### SERVICE USE AND COSTS



The CHECK program's impacts were concentrated in the higher risk subgroups. For the full sample, estimated effects on Medicaid expenditures, hospitalizations, and ED visits were not statistically significant.



Treatment group members in the combined higher-risk subgroups had statistically significant reductions in hospitalizations and ED use, with an estimated 28 percent lower probability of hospitalization and an estimated 10 percent lower probability of ED use than the rates for the control group in Year 1 of the RCT period.

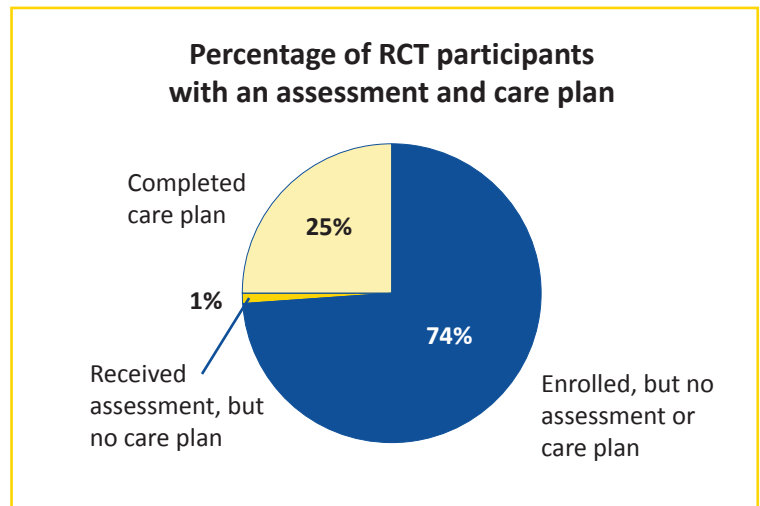


CHECK also showed a statistically significant reduction in total Medicaid spending of 21 percent for the higher-risk subgroups over the two-year period, with similar percentage reductions in each year separately. The size of the estimated impacts on spending are much smaller (about 7 percent) and not statistically significant if adjusted for high-cost outliers.

### PAYMENT MODEL



With support from an actuarial consultant, the awardee estimated that the PBPM payment amount to cover the cost intervention services would range from \$23 to \$55, depending on the number of children enrolled. This amount is more than triple the estimated savings in total Medicaid expenditures over the full sample, but less than the estimated savings of \$44 PBPM among higher-risk participants.



## KEY TAKEAWAYS

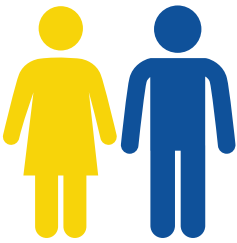
This study found that CHECK had sizeable favorable impacts on service use and Medicaid spending among the higher-risk subgroups in Year 1 of the RCT. This coincides with the period when the community health workers had most of their contact with treatment group members with an assessment or care plan. The findings suggest that programs that improve the coordination of medical, nonmedical, and mental health services can reduce the need for hospitalizations and ED visits as well as spending for at-risk children. The results also suggest that the program should be limited to children assessed as being at medium or high risk to generate sufficient savings to cover the monthly fee that CHECK proposes. Finally, impacts might have been larger if the low engagement rate were improved and the higher first-year contact rates with patients had been sustained.

## Findings at a Glance

### MODEL OVERVIEW

Boston Medical Center (BMC), along with its implementing partner, Baystate Medical Center, used its Round 2 Health Care Innovation Award to create the Collaborative Consultative Care Coordination (4C) program. The program sought to improve care coordination for children and youth with complex medical conditions. BMC hypothesized that having multidisciplinary teams develop care plans and provide comprehensive care coordination to participants under the direction of complex care pediatricians would reduce caregivers' stress, improve families' access to social supports, and result in better health and fewer hospitalizations among the children. The target population consisted of children and youth diagnosed with at least one chronic condition in any of nine categories (neuromuscular, respiratory, cardiovascular, renal, hematologic, immunologic, metabolic, autism spectrum, and congenital defect) and had high service use in the year before enrollment or were considered to be at risk for high service use.

### PARTICIPANTS



The program enrolled 365 participants from December 2015 through August 2017, reaching 81 percent of its original goal. Children could enroll in the 4C program regardless of their insurance type. Sixty-nine percent (252) of the participants were covered by Medicaid or the Children's Health Insurance Program; the rest were privately insured or uninsured. Medicaid participants ranged in age from birth to 21 years and had an average age at the time of enrollment of 8 years. Nearly 60 percent of Medicaid participants were male. More than half (55 percent) of Medicaid participants enrolled through Baystate Medical Center; the remaining Medicaid participants enrolled through Boston Medical Center.

### FINDINGS

#### PROGRAM IMPLEMENTATION



Care coordination activities by 4C staff included, among other things:

- Assisting families with scheduling appointments with providers outside the 4C program
- Attending appointments together with families
- Acquiring medical supplies for the children and teaching families how to use those supplies
- Assisting with access to special services at schools
- Finding housing, food, or transportation supports
- Helping families to be more self-sufficient in addressing their needs

The program was mostly successful in delivering care coordination services to children and their families as intended. Program staff reported performing intake assessments and developing care plans for all 4C participants and completing the minimum number of required follow-up interactions for most participants. The awardee reported that, by the end of the program, it had provided more than 15,000 unique encounters to its 365 participants since the program's launch, for an average of 41 encounters per child.

Despite these successes, 4C staff reported that they had difficulty coordinating with participants' primary care providers outside the 4C program and maintaining the intensity of care coordination services as their caseloads grew. In a survey of 4C program staff conducted at the beginning of the third year, 60 percent of 4C staff reported that their participant caseload was too heavy, and 40 percent reported that they had insufficient time for the work they wanted to do. Nevertheless, all respondents reported that they thought the program had a positive effect on quality of care and participants' satisfaction and quality of life.

### CHALLENGES OF MEASURING IMPACT OF 4C PROGRAM ON SERVICE USE AND COSTS



It was not possible to conduct a rigorous impact evaluation of the 4C program and measure the impact of the intervention on service use and costs for three reasons.

1. Because identifying children at risk for high service use required clinical judgment, the eligibility criteria for the 4C program could not be verified or replicated in Medicaid claims data. Children at risk for high service use included, among others, those with complicating psychosocial and economic factors that adversely affected outcomes or posed the risk of doing so, such as children whose caregivers had significant stressors. Because these psychosocial and economic characteristics are not reported in claims data, it was not possible to select a comparison group that met the eligibility criteria of the 4C program. Without a credible comparison group, estimated changes in outcomes after program enrollment could not be attributed to the intervention.
2. Only 60 percent (152) of the 252 Medicaid participants could be identified in Medicaid administrative data. The inability to link many participants to claims data restricted the ability to measure changes in participants' health care service use and spending over time.
3. The available sample for the study was too small to be able to identify statistically significant changes in outcomes of reasonable magnitude for the 4C program.

### PAYMENT MODEL



Both BMC and Baystate Medical Center were negotiating payment contracts with local Medicaid accountable care organizations (ACOs) to fund and continue the 4C program after the end of the award. Each site had flexibility to negotiate its own payment approach with ACOs. Baystate Medical Center proposed a per-beneficiary-per-month fee of \$100, which would include all program services except for physician visits. At the end of the award, BMC was still determining the staffing model it needed to serve the broader ACO population before developing its payment model. As of August 2018, neither site had reached an agreement with an ACO.

### KEY TAKEAWAYS

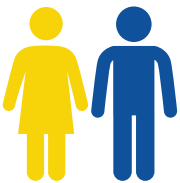
BMC reported being mostly successful in implementing the 4C program to provide intensive care planning and care coordination to children and youth with complex medical conditions in Massachusetts. The program leaders said that the program provided personalized, intensive services that went beyond the care coordination that BMC and Baystate Medical Center previously offered. Program staff perceived that the 4C program had positive impacts on care delivery and health outcomes for the children and their families. However, the reliance on clinical judgment to determine one aspect of 4C program eligibility and the small number of Medicaid participants meant that the program's impacts on Medicaid spending and service use could not be statistically assessed.



## MODEL OVERVIEW

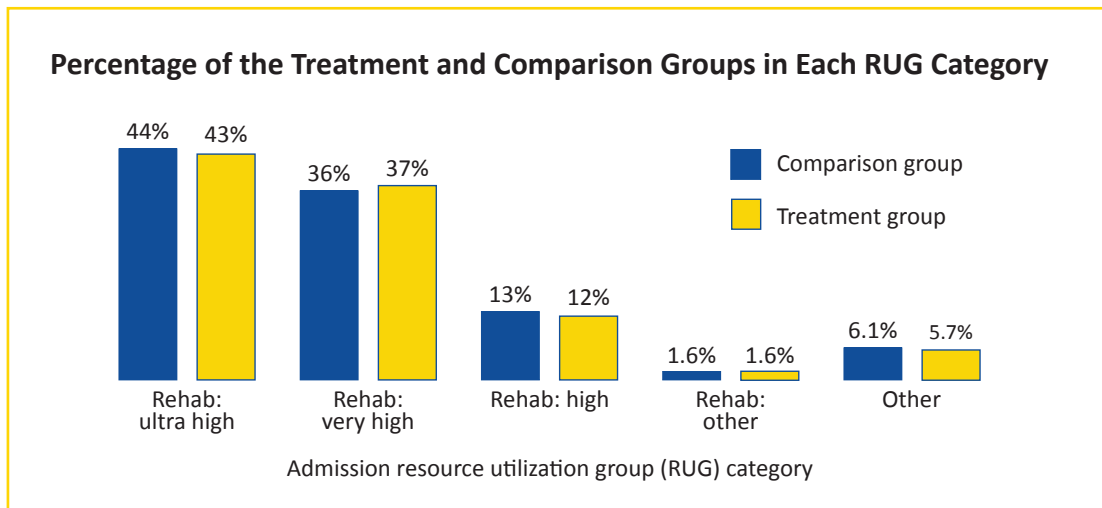
The CareChoice Cooperative used its Round 2 Health Care Innovation Award to implement the Person-Centered Care Connections (PCCC) program in 10 skilled nursing facilities (SNFs) in Minnesota. The program was an expansion of an earlier CareChoice pilot program and consisted of comprehensive discharge planning and transitional care coordination for SNF patients discharged home. The program aimed to improve the care and safety of SNF patients who transitioned home and reduce their total costs of care. It included four components: (1) transitional care coordination, (2) patient and family engagement, (3) quality improvement and workflow process redesign, and (4) education and training. The program provided services during the SNF stay with continued care coordination for 90 days after discharge. CareChoice expected the program to reduce post-discharge hospital readmissions by 20 percent and total costs of care by 3.5 percent. The target population comprised all SNF patients who transitioned to home or community, regardless of payer.

## PARTICIPANTS



All patients admitted to participating SNFs during the intervention period, regardless of payer, were automatically enrolled in the program and received program services. The program enrolled 8,016 patients, reaching 94 percent of its enrollment goal. Of the 2,191 Medicare participants who were discharged home, the evaluation included 900 fee-for-service (FFS) beneficiaries who were admitted to participating SNFs between January 2015 and March 19, 2017 and met the study's claims-based inclusion criteria.

The average age of the 900 Medicare FFS beneficiaries in the analytic sample was 80 years, two-thirds were female, the vast majority (92 percent) were White, and 16 percent were dually eligible for Medicaid. The mean hierarchical condition category score for treatment beneficiaries was more than twice the national average for Medicare FFS beneficiaries. The majority of the study sample had high rehabilitation needs, as evidenced by the distribution of treatment and comparison beneficiaries by resource utilization group (RUG). RUGs are mutually exclusive categories that reflect levels of resource need in long-term care settings, and used to facilitate Medicare and Medicaid payment.



## FINDINGS

### PROGRAM IMPLEMENTATION



The awardee implemented the program successfully, with timely operational milestones, successful service delivery, high attainment of facility-level self-monitoring goals, high staff and patient engagement, and high patient satisfaction. A large majority (85 percent) of participants had a successful 48-hour post-discharge follow-up call, 83 percent had a successful 30-day call, and 79 percent had a successful 90-day call. Almost all patients (92 percent) kept their scheduled appointment with a clinician by the 30-day phone call.

### SERVICE USE AND COSTS

The comparison group for this analysis included 2,563 matched Medicare FFS beneficiaries admitted to 46 non-participating SNFs in treatment and neighboring counties in Minnesota during the same period and discharged home.



A cross-sectional post-period analysis revealed that the PCCC program did not have a discernible impact on inpatient spending, total Medicare spending, hospital admissions, or 30-day post-discharge hospital readmissions during the two-year follow-up period.



Though not a specific goal, the PCCC program had an estimated statistically significant 21 percent reduction in emergency department (ED) visits relative to the comparison group during the first year after enrollment. This effect persisting in the second year of enrollment. The estimated lower number of ED visits was not accompanied by a significant decrease in outpatient payments, nor an increase in primary care or specialist visits.

### PAYMENT MODEL



The awardee decided to forgo the originally proposed payment model that relied on fee-for-service (FFS) payments after its analyses showed that the program did not achieve its intended goals of reducing costs and readmissions. The awardee anticipated that, without these outcomes, it would be difficult to negotiate a FFS payment model with payers.

## KEY TAKEAWAYS

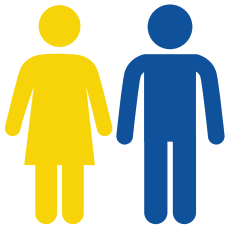
The evidence suggesting little or no discernible impact of CCC on targeted outcomes—total Medicare spending and hospital readmissions—is surprising given the success of implementing the program, the impact of the precursor pilot program, and high levels of staff and participant engagement. Although not an explicit goal of the program, the intervention was associated with a significant decrease in ED visits. This study was limited by the inability to control for concurrent regional-, state-, and national-level initiatives and regulations focused on reducing readmissions in SNFs that might have confounded the ability to detect a possible program impact relative to the comparison group. Further, involvement of CareChoice SNFs in the precursor pilot intervention might have resulted in a persistent improvement in facilities' outcomes and reduced the ability to detect a potential incremental program effect.

### Findings at a Glance

## MODEL OVERVIEW

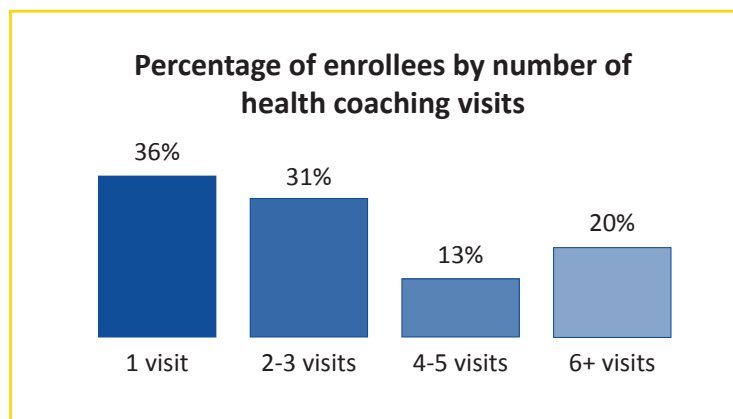
The Mercy Accountable Care Organization (ACO), a division of Catholic Health Initiatives Iowa Corp. (CHIIC), used its Round 2 Health Care Innovation Award to create the Transitioning a Rural Health Network to Value-Based Care program. The purpose of the program was to expand population health activities—such as health coaching at primary care clinics, a disease registry throughout the ACO network, and quality improvement projects at hospitals and clinics—to rural, low-income communities in Iowa and Nebraska. The program sought to engage residents with diabetes, hypertension, chronic obstructive pulmonary disease (COPD), and cardiovascular disease, or emergency department (ED) utilization for non-emergency management of chronic diseases. The goals of the program were to improve population health; increase use of primary care, decrease use of the ED for non-emergency conditions, and reduce preventable hospitalizations; and reduce the total cost of care. The awardee created a new rural ACO for critical access hospitals (CAHs) and their affiliated clinics in the Mercy Health Network. Billable population health activities, such as transitional care management and annual wellness exams conducted by the nurse health coaches, supplemented the shared savings arrangement.

## PARTICIPANTS



The program enrolled 6,489 participants in health coaching, five times its original goal. Program enrollment was defined as having at least an initial face-to-face visit with a health coach for health coaching services. The impact analysis, however, was based on only 1,924 Medicare fee-for-service (FFS) beneficiaries. The study sample did not include an estimated 1,372 patients from hospitals in one region that changed their care management software and could no longer link with the awardee’s reporting system. The study also excluded 2,634 patients who could not be linked to Medicare data, and 559 beneficiaries who did not meet the standard claims-based eligibility criteria of the study.

Interactions with a nurse health coach were intended to take place at least once a week for six weeks. Among all enrollees reported in the awardee’s database, 36 percent had only one visit with a health coach, 31 percent had two or three visits, and 13 percent had four or five visits. Only 20 percent of participants had the recommended six or more visits with a health coach.



## Findings at a Glance

### FINDINGS

The impact analysis compared outcomes among participants to a comparison group that included 7,560 Medicare FFS beneficiaries who had a primary care visit at a CAH-affiliated clinic in Iowa or Eastern Nebraska that was not a member of the Mercy ACO network and thus ineligible to participate in the program. Comparison group members had similar demographic and health characteristics as participants.

#### SERVICE USE AND COSTS



The estimated effect of the health coaching program on total Medicare spending was small and not statistically significant when measured over all participants. However, the effect was larger and statistically significant when measured over the 179 participants who enrolled within the first nine months of program operations. For this cohort of early enrollees, health coaching resulted in an estimated 24 percent reduction in total Medicare spending during their first 12 months of enrollment. Total Medicare spending remained lower among early enrollees during their second year of follow-up as well, but the estimated impact was not statistically significant.



A **21 percent** estimated reduction in inpatient stays and, to a lesser extent, an estimated 16 percent reduction in ED visits appears to have driven the lower spending among the 179 early enrollees. These estimates were large and sustained in the second year after enrollment, but they were not statistically significant in either the first or second year of follow-up.



The health coaching intervention also led to a substantial and statistically significant estimated 8 percent increase in primary care visits (with the effect concentrated in the first year after enrollment) and a decrease of similar magnitude in specialty care visits (with the effect concentrated in the second year after enrollment) over all participants.

#### PAYMENT MODEL



CHIC proposed a payment model that relied on shared savings with its rural ACO, supplemented by FFS billing for covered services that nurse health coaches could conduct, such as transitional care management, advance care planning, and annual wellness visits. To participate in the ACO, hospitals must hire a health coach and pay the ACO an annual fee. The fee provides access to a disease registry and care management software; education on how to increase revenue through FFS billing and technical assistance with provider credentialing, compliance, and interpreting Medicare payment rules and regulations.

### KEY TAKEAWAYS

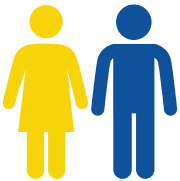
The study findings suggest that the program might be effective in lowering costs if appropriately targeted to patients who can benefit the most from health coaching services. Those who enrolled during the first nine months experienced a favorable effect during their first year of follow-up. They also had more chronic conditions, used more health care services, and had higher medical expenditures during the year before they enrolled than later enrollees. Program administrators also reported that, over time, frontline staff began to expand the enrollment criteria, enrolling patients with other health goals (such as weight loss and smoking cessation) and those who only had risk factors for chronic conditions. Expanding the eligibility criteria likely weakened the program's effects on outcomes in the second and third years of the program.

## Findings at a Glance

### MODEL OVERVIEW

The Children's Home Society of Florida (CHS) used its Round 2 Health Care Innovation Award to support an expanded patient navigation program and provision of direct health care services to students at the Evans Community School and other residents of Pine Hills, Florida. The goals of the community-based program were to (1) reduce health care costs; (2) reduce the use of emergency departments (EDs) and crisis care; (3) expand access to preventive, primary, dental, and behavioral health care services; and (4) reduce care gaps for adolescents through increased visits to primary care practitioners and improved access to preventive care. CHS hypothesized that providing both patient navigation and direct health care services would reduce health care costs, increase appropriate health care services use, and improve health outcomes. The target population included mostly racial minorities, many low-income individuals, many Medicaid enrollees, and a larger share of children than in the U.S. population.

### PARTICIPANTS



The program enrolled 6,017 participants from October 2014 through August 2017, more than four times its original goal. The program counted as enrollees anyone who (1) participated in patient navigation provided by CHS staff; or (2) received primary, behavioral, or dental care services provided by CHS staff based in the school or by providers at a clinic located on school grounds operated by a clinical partner. Among a sample of 99 students who used behavioral health services at the school, common diagnoses included attention deficit disorder with hyperactivity, adjustment disorders, and adolescent-onset conduct disorder. Data from a sample of 1,750 users of the on-campus clinic showed that many students used the clinic for medical and dental services, but about 60 percent of users were parents and other adult community members. The diagnosis codes reported for clinic users indicated that most patients sought general primary care and preventive services. Disease-specific diagnoses included asthma, allergies, high blood pressure, high cholesterol, and diabetes. Dental caries (cavities) were common diagnoses in dental claims.

### FINDINGS

#### PATIENT ENGAGEMENT



The program was mostly successful in engaging student participants. All staff who completed surveys in the final program year agreed that it had successfully engaged student participants in the services provided. In interviews, school-based staff consistently reported that students were generally more engaged with the program than community residents, especially through the after-school health education program called Student Health Ambassadors. Nearly half of the sample of students for whom CHS provided either behavioral health or patient navigation records had five or more visits, suggesting ongoing engagement.

In contrast, staff reported challenges in engaging community residents, many of whom mistrusted government and community institutions. This resistance was a barrier to the program fully achieving its goals. Although roughly 6 in 10 people in the sample of on-campus clinic users were adults, many adult participants used the clinic only once during the 16 months for which data were available.

## Findings at a Glance

### SERVICE USE



CHS staff working with students inside the school conducted mental health assessments, developed mental health service plans, and provided therapeutic behavioral and comprehensive medication services. Many of the 99 students for whom the awardee provided data also used patient navigation services, although the awardee did not report the specific assistance rendered during these visits.

Clinicians at the on-campus clinic provided a wide range of primary care and preventive services. Most visits were for routine infant and child health checks, immunizations, and general medical examinations—including exams for medical reasons (for example, acute illnesses) and administrative purposes (for example, sports physicals). Dental services such as routine oral examinations, cleanings, and fillings were also widely used. The diagnoses, procedures, and patterns of care were consistent with the limited size of the clinic and its focus on primary care, preventive care, and general or nonsurgical dental care.

### CHALLENGES OF MEASURING IMPACT OF THE PROGRAM ON SERVICE USE AND COSTS



It was not possible to conduct a rigorous impact evaluation of the CHS program and measure the impact of the intervention on service use and costs for three reasons.

1. Lack of Medicaid data made it difficult to identify the treatment group and a credible comparison group in administrative records.
2. Data provided by the awardee's clinical partner did not include information on health care costs and inpatient or ED service use and did not cover the full award period.
3. Few individuals had enough exposure to intervention services to have a reasonable chance of achieving program impacts.

### PAYMENT MODEL



CHS proposed a per beneficiary per month payment model but was unsuccessful in negotiating a payment contract with any Medicaid managed care organizations by the end of the award. As a result, CHS sought additional funding from state appropriations and municipal resources to continue aspects of the program after the award ended.

## KEY TAKEAWAYS

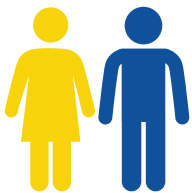
Qualitative and program data supplied by the awardee indicated that CHS was partly successful in implementing its patient navigation intervention and providing direct health care services to the target population. Students received patient navigation services, mental health assessments, and behavioral health treatment services at the school, and many stayed engaged in services for extended periods. Medical and dental services provided at the on-campus clinic were consistent with the needs of a low-income community. Program staff reported that they believed the program made a difference in meeting the needs of the community and had a positive impact on participants' health goals. However, because of the inability to identify the treatment group and define a credible comparison group in administrative data and a lack of claims to measure core outcomes, it was not possible to assess the impact of the program on service use and costs.

### Findings at a Glance

## MODEL OVERVIEW

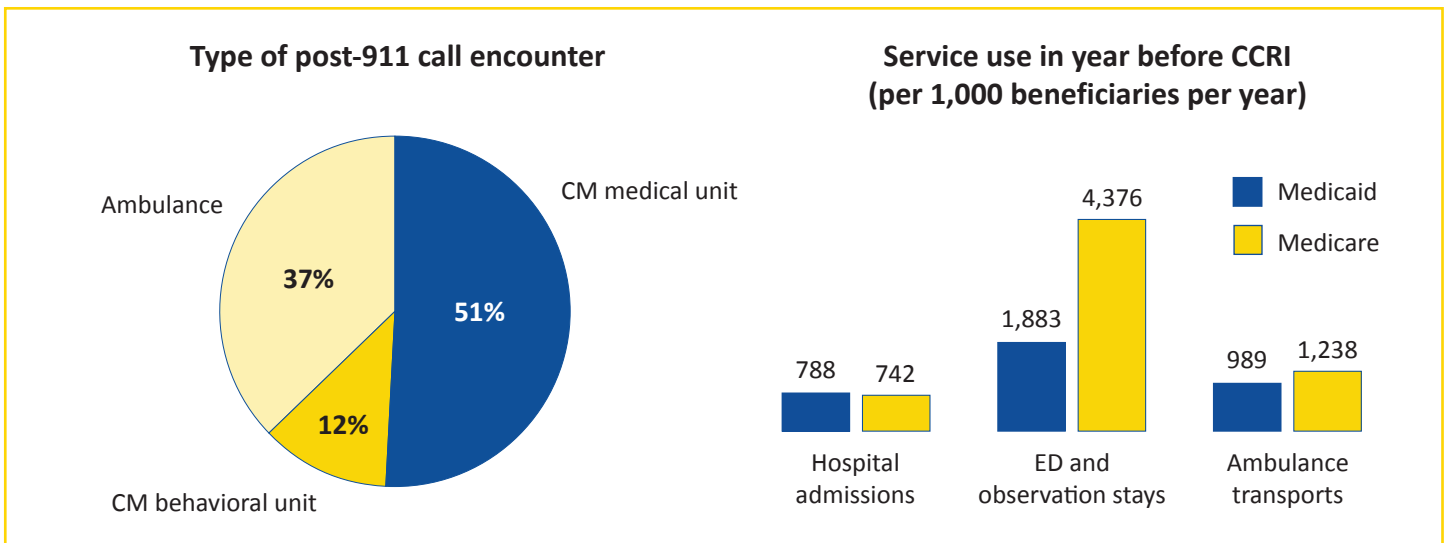
The City of Mesa Fire and Medical Department (Mesa) used its Round 2 Health Care Innovation Award to develop the Community Care Response Initiative (CCRI). The CCRI sought to address the high cost of transporting people with low-acuity conditions by ambulance and treating them in hospital emergency departments (EDs) and the accompanying diversion of professionals and resources needed to respond to true emergencies. To achieve this, Mesa dispatched community medicine (CM) units to provide care to low-acuity 911 callers in the home or community. The awardee introduced two types of CM units—CM medical units and CM behavioral units. Paramedics and advanced practice providers such as nurse practitioners or physician assistants staffed CM medical units; paramedics and licensed behavioral health clinicians staffed the CM behavioral units. Mesa expected that the CM units would reduce low-acuity patients’ ED and ambulance use as well as overall health care expenditures.

## PARTICIPANTS



The program reported serving 12,818 participants from December 2014 through February 2018, 47 percent of its original three-year goal. The evaluation focused on the 4,622 participants who called a Mesa 911 dispatcher, could be linked to Medicare and Medicaid claims and enrollment data, and had a CM visit or ambulance transport, of which 2,872 (62 percent) were enrolled in Medicaid and 1,750 (38 percent) were covered by fee-for-service (FFS) Medicare. The majority of these participants (51 percent) received a visit from a CM medical unit. Another 12 percent had a behavioral unit encounter. The remaining 37 percent were transported by ambulance to an ED.

In the year before CCRI’s launch, participants were frequent users of inpatient, ED, and ambulance services. Both Medicaid and Medicare beneficiaries had hospital admission rates of about 750 per 1,000 beneficiaries in the year before their 911 call. Among Medicare beneficiaries the number of ED and observation stays per 1,000 beneficiaries was more than 4,300 and the number of ambulance transports was more than 1,200. Among Medicaid beneficiaries, the number of ED and observation visits was close to 1,900 per 1,000 beneficiaries; the number of ambulance transports was 1,238 per 1,000 beneficiaries for Medicaid and 989 per 1,000 beneficiaries for Medicare.



## Findings at a Glance

### FINDINGS

The impact analysis compared outcomes among 2,872 Medicaid beneficiaries and 1,750 Medicare FFS beneficiaries who called a Mesa 911 dispatcher, could be linked to claims and enrollment data, and had a CM visit or an ambulance transport to those of a matched comparison group of 11,291 Medicaid beneficiaries and 6,014 Medicare FFS beneficiaries with similar demographic, health, expenditure, and service use characteristics as the treatment beneficiaries and who had an ambulance transport from home to an ED.

#### SERVICE USE AND COSTS



The CCRI reduced the estimated number of Medicaid ambulance transports by an estimated **32 percent** in the first quarter and by 14 percent over the full year after enrollment, both of which were statistically significant. Medicare ambulance transports declined in the short-run only but Medicare ambulance expenditures declined over both a 3- and a 12-month follow-up period.



There was no short-term effect on the estimated number of ED visits among Medicaid or Medicare beneficiaries, but there was an estimated 11 percent statistically significant increase among Medicaid beneficiaries over the follow-up year. Other statistically significant findings included a 15 percent decline in hospitalizations and a 9 percent decline in specialist visits within the first 3 months of Medicaid beneficiaries' 911 call, and a 12 percent increase in hospitalizations for Medicare beneficiaries over the 12 months following their 911 call.



The estimated 24 percent decrease in Medicare ambulance expenditures did not result in a reduction in total Medicare expenditures.

#### PAYMENT MODEL



The awardee used FFS billing codes to generate revenue from Medicaid and commercial payers to help cover the cost of the services furnished by the CM units. The awardee concluded that the only way to sustain the program would be through coverage for intervention services under the Medicare FFS program.

### KEY TAKEAWAYS

Consistent with program expectations, the number of ambulance transports and ambulance expenditures were reduced over a 12-month period. However, there was an estimated increase in the number of ED visits over the 12 months for Medicaid beneficiaries. The subsequent increased ED use could reflect the fact the treatment beneficiaries deferred care to a later date and needed more intensive emergency services. Although the program did not target hospitalizations and specialist visits, there were short-term estimated reductions in these services for Medicaid beneficiaries. The services provided by the CM unit could have substituted for those furnished by specialists. The program might have diverted more participants from the ED if the awardee had engaged them. This is especially true for the Medicare population, which had a much lower participation rate (44 percent). The low participation rate among Medicare beneficiaries was due in part to the fact that 911 dispatchers typically did not dispatch CM units to older callers because they considered age as a factor in determining acuity. The awardee achieved a much higher participation rate (75 percent) among Medicaid beneficiaries.



## MODEL OVERVIEW

Clifford W. Beers Guidance Clinic, Inc., a community-based mental health clinic in Connecticut, used its Round 2 Health Care Innovation Award to create Wraparound New Haven. The program connected eligible children with complex needs and their families to coordinators to better manage, coordinate, and integrate behavioral and physical health services and social supports. It was innovative because it focused on the entire family unit’s needs, rather than just the child’s behavioral health needs. Care coordinators helped families identify and address crises, educated them on health and social service systems, supported their efforts to manage and coordinate services, identified and helped them to mitigate environmental factors in the home, and referred them to other services and supports. The awardee hypothesized that families working with care coordinators would better understand how to manage their own health, determine needed services, and find those services. Use of those services would, in turn, result in improved mental and physical health outcomes, and lower health care spending. Participants also received services from other members of the Wraparound New Haven team, such as short-term counseling to family members and follow up after emergency department (ED) visits or hospitalizations.

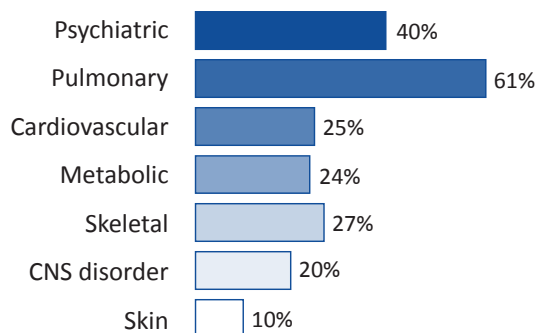
## PARTICIPANTS



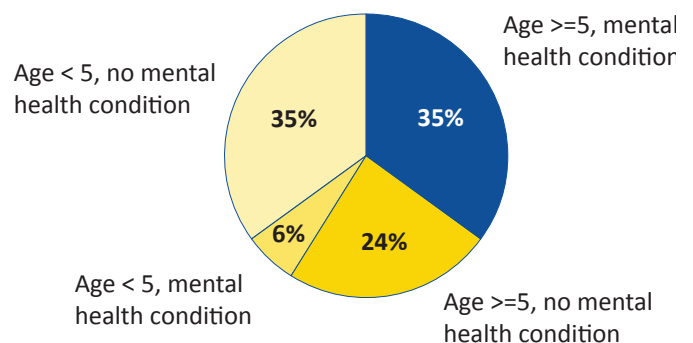
Wraparound New Haven focused on Medicaid-enrolled children younger than 18 in Greater New Haven who had at least one chronic physical health condition, had or were at risk of a mental health condition, and had multiple ED visits or a hospitalization in the prior 12 months. The program enrolled these children and all interested family members for 6 to 12 months. Despite challenges recruiting participants at the start, Wraparound New Haven enrolled 518 primary enrollees (children with complex needs) and 1,426 family members by August 2017, representing 85 percent of its original goal.

This analysis included 305 of the 518 primary enrollees. The analysis excluded all 1,426 family members. It excluded 213 primary enrollees due to incomplete data or because they did not meet all of the program eligibility criteria. All children in the sample had a chronic health condition, led by pulmonary (for example, asthma) and psychiatric conditions. Among them, 40 percent had a Medicaid claim for mental health conditions at baseline, mostly among older children. The awardee

**Prevalence of conditions among participating children before enrollment**



**Age and use of mental health services among participating children before enrollment**



## Findings at a Glance

required that participants have a mental health condition or live in an environment that would be predictive of mental health concerns; the enrollees without mental health claims likely fell in the latter category.

## FINDINGS

### PARTICIPANT ENGAGEMENT



Program staff reported that care coordinators actively engaged and met with participants multiple times per month. Care coordinators also met regularly with participants' primary care physicians and other people and organizations that supported participants, to gain their input and assistance.

### CHALLENGES OF MEASURING IMPACTS OF WRAPAROUND NEW HAVEN PROGRAM



A rigorous impact evaluation to test whether the program achieved its aims was not possible for two reasons.

1. A key component of the eligibility criteria for the treatment group—having a mental health diagnosis or living in an environment that predicted mental health issues—could not be replicated in the Medicaid claims data.
2. Restricting the sample to the beneficiaries for whom the eligibility criteria could be replicated left only 122 beneficiaries; estimates based on such a small sample would be too imprecise.

### SERVICE USE YEAR BEFORE ENROLLMENT



As anticipated given the eligibility criteria for Wraparound New Haven (that patients had to have at least one or more hospitalizations or two or more ED visits to participate), participants had a high rate of acute hospitalizations and ED visits. Specifically, the hospitalization rate was 948 per 1,000 beneficiaries and the ED visit rate was 2,949 per 1,000 beneficiaries. In turn, Medicaid expenditures per month (\$1,777) were much higher than the average for Medicaid children in Connecticut (\$281 per month).

### PAYMENT MODEL



The awardee originally designed two payment arrangements to sustain Wraparound New Haven for children with Medicaid: (1) a value-based arrangement with the state Medicaid agency, potentially including shared savings; and (2) contracting with provider organizations participating in value-based arrangements, for which care coordination might help reduce costs. The program did not implement either of these arrangements. The awardee later developed a third payment model consisting of a fee-for-service payment for implementing the program to privately insured children, which resulted in a contract with the state's largest commercial insurer.

## KEY TAKEAWAYS

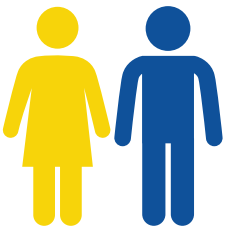
By the middle of the second program year, Clifford Beers had successfully implemented Wraparound New Haven. Although the awardee struggled with recruitment, the program eventually enrolled participants with significant health care needs. Program enrollees met frequently with Wraparound New Haven staff, who provided a range of services including self-management support, care coordination, medication reviews, and behavioral health counseling. A rigorous impact analysis was not possible because key program eligibility requirements could not be replicated in the Medicaid claims data. Restricting the analysis to only those participants who met the eligibility criteria (305) would result in a very low likelihood of finding statistically significant estimates even if the true impact was very large.

## Findings at a Glance

### MODEL OVERVIEW

Community Care of North Carolina (CCNC) received a cooperative agreement under Round 2 of the Health Care Innovation Awards (HCIA R2) to implement the North Carolina Community Pharmacy Enhanced Services Network (CPESN). This community-based care delivery and payment model provided training and financial incentives for pharmacists to improve medication management for at-risk patients in addition to the pharmacies' traditional role of dispensing medications. The program targeted Medicare, Medicaid, or S-CHIP patients receiving medication for one or more chronic conditions. The awardee expected the program to improve chronic disease self-management, adherence to prescribed medication, multidisciplinary care across providers, and hospital follow-up enhanced pharmacy services and thereby reduce total annual health care expenditures by at least \$30 million by 2017.

### PARTICIPANTS



The program served 388,053 participants, reaching more than 100 percent of its original enrollment target. CCNC used Medicaid claims and prescription fill data from pharmacies to attribute patients to a treatment pharmacy if they had one or more chronic condition medications filled by that pharmacy and 80 percent or more of their medications were filled at that pharmacy in the 90 days before the attribution date. Participants also included patients with a drug therapy problem (such as drug-drug interactions or allergies) as determined by a pharmacist's clinical judgment. Of the 388,053 participants, 102,877 (27 percent) were identified as Medicare beneficiaries.

The average age of the treatment group used in the analysis was 68; 59 percent were female and 73 percent were White. The average hierarchical condition categories risk score was 1.3 for the treatment group, 30 percent higher than the average for Medicare beneficiaries nationally. Mean total Medicare expenditures PBPM during the baseline year was \$887.

### FINDINGS

The evaluation estimated impacts on 110,968 Medicare fee-for-service (FFS) beneficiaries enrolled in a Medicare Part D plan and attributed to a CCNC treatment pharmacy from March 2015 through May 2017 using a Medicare claims-based algorithm. CCNC's attribution method identified about 55 percent (61,513) of Medicare claims-attributed treatment beneficiaries as program participants. The study compared changes in outcomes among the treatment group of all eligible Medicare FFS beneficiaries to changes in outcomes among 147,034 Medicare FFS beneficiaries who were also enrolled in Medicare Part D and attributed to nonparticipating pharmacies in North Carolina using the same claims-based attribution algorithm.

### PROGRAM IMPLEMENTATION



To successfully implement the service delivery components of the model, the CPESN pharmacies had to augment or change their workflows to accommodate new processes. Although CCNC provided leadership, support, training, and technical assistance to implement key components of the program, the awardee faced service delivery challenges from participating pharmacies. Although interest in the new service delivery model among participating pharmacies was high, the intervention required pharmacies to make

## Findings at a Glance

major workflow changes, adapt to an ever-changing (based on risk- and value-based payments combined with a per beneficiary per month fee for care management and coordination services) financial incentive structure, and use a burdensome health information technology system. Community pharmacy care management (CPCM), which included a comprehensive initial pharmacy assessment, was the most intensive service delivered by the participating pharmacists and deemed essential for achieving CCNC's target outcomes. However, only about 10% of enrolled beneficiaries consented to participate in the CPCM component of the program.

### SERVICE USE AND COSTS



Within two years of attribution to a treatment pharmacy, treatment beneficiaries had an estimated 3.6 percent fewer primary care visits in any setting than comparison group beneficiaries. This impact estimate suggest that the medication management and other enhanced pharmacy services provided by the treatment pharmacies might have eliminated the need for some primary care visits.



The medication management intervention did not result in discernible differences in total Medicare expenditures, inpatient hospital stays, or ED visits, when estimated over all eligible beneficiaries who met the claims-based attribution algorithm.

### PAYMENT MODEL



CCNC proposed a value-based payment model to cover the cost of CPESN services. Under the model, pharmacies would receive a monthly payment amount from payers for submitting one care plan per patient per month. The monthly payments would range from \$2.50 to \$40 per care plan, depending on the patient's risk score and the pharmacy's performance on risk-adjusted metrics. CCNC had not secured agreements with payers by the end of the award period, but continued pursuing funding from payers.

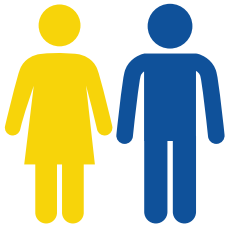
## KEY TAKEAWAYS

The intervention appeared to reduce primary care visit rates, but these reductions were not large enough to noticeably affect total expenditures. Treatment beneficiaries using enhanced pharmacy services provided by the intervention as a substitute for primary care physician visits might have caused the observed reduction in primary care visits. Estimated reductions in ED visits and hospitalizations were less than 1 percent and not statistically significant. Program effects on these outcomes of were likely limited by the low rate of participation in the pharmacy care management portion of the intervention.

## MODEL OVERVIEW

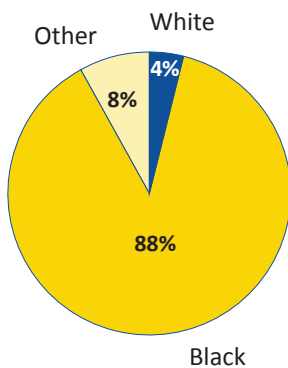
The Detroit Medical Center (DMC) used its Round 2 Health Care Innovation Award to create the Gateway to Health program. The program sought to engage a Detroit, Michigan, population that lacked regular primary care and who either made frequent use of DMC emergency departments (EDs) or had received a diagnosis of diabetes, asthma, hypertension, congestive heart failure, depression, chronic obstructive pulmonary disease, or HIV/AIDS. Gateway’s innovation was to locate a patient-centered medical home clinic in or adjacent to EDs in three of DMC’s Detroit hospitals. The locations of Gateway’s clinics’ and their extended hours of operation sought to encourage participants’ use of primary care services and substitute for care provided in the EDs. The goals were to improve participants’ health and reduce their reliance on the ED for non-emergency care needs. Patient navigators recruited participants when they visited a DMC ED, although in its second program year, Gateway also started accepting referred patients to bolster enrollment. The program sought to engage Medicare, Medicaid, and dually eligible beneficiaries but enrolled some patients with commercial insurance. One of the clinics located in Children’s Hospital of Michigan served a pediatric population.

## PARTICIPANTS

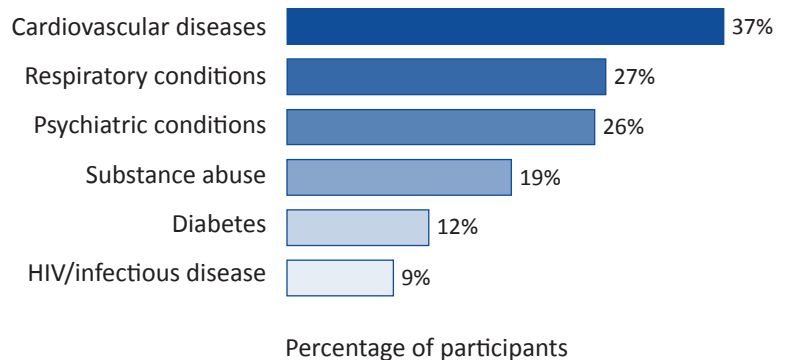


The program enrolled 6,996 participants, about 60 percent of its original target of 11,525 across all payers, including 3,974 Medicaid enrollees (57 percent). Data on the 1,953 Medicaid fee-for-service (FFS) participants who could be identified in Medicaid claims and had credible enrollment information (representing 49 percent of total Medicaid participants and on whom this analysis was conducted) shows they were predominantly African American and had high disease burdens. More than one-third of Medicaid participants had cardiovascular problems, and more than one-quarter had respiratory difficulties. In addition, about one-quarter had psychiatric conditions and about one-fifth had substance abuse disorders.

**Racial composition of Medicaid participants (N=1,953)**



**Health conditions of Medicaid participants at enrollment (N=1,953)**



## **FINDINGS**

### **RECRUITING AND ENGAGING PARTICIPANTS**



DMC struggled to enroll patients. The program had difficulty reaching many potentially eligible patients after their ED visit. According to data supplied by the awardee, about 45 percent of those reached and deemed eligible to participate declined to do so. Furthermore, during the implementation period, nearly one-half of those who enrolled had no Gateway clinics visits, suggesting difficulties engaging patients in the program after enrollment. Gateway clinics also reported high participant no-show rates for appointments. Nonetheless, program staff expressed confidence that the program had positive effects on the health of enrolled patients who engaged with the program.

### **CHALLENGES OF MEASURING IMPACTS OF GATEWAY PROGRAM**



A rigorous impact evaluation of this program was not possible, primarily because a key eligibility criterion (lack of a primary care provider) could not be replicated in Medicaid claims data. This made it impossible to develop a credible comparison group for estimating program impacts. Patient self-selection into the program and the referral process also raised substantial concerns that impact estimates comparing participants to a comparison group would be biased. An analysis using as the treatment group all Medicaid FFS patients who visited a DMC ED and had one of the target conditions would have yielded unbiased estimates, but the low participation rate among eligible patients would have made detecting even large true impacts very unlikely.

### **PAYMENT MODEL**



DMC did not submit a proposal for a new payment model. Instead, it planned to continue to support the program through billing existing fee-for-service and transitional care management codes.

## **KEY TAKEAWAYS**

The Gateway program struggled to recruit and engage patients presenting at DMC EDs. The evaluation could not obtain valid estimates of impact for the program's 3,974 Medicaid participants because of the severe selection bias and low participation rate among eligible individuals. The awardee's difficulty engaging patients who it did enroll made it unlikely that the program achieved its objectives of substantially lowering participants' average use of EDs.

## MODEL OVERVIEW

Four Seasons Compassion for Life, a nonprofit hospice and palliative care organization based in western North Carolina, used its Round 2 of the Health Care Innovation Award (HCIA R2) to expand its Increasing Patient and System Value with Community-Based Palliative Care (CPC) program to other providers and nearby communities. The program sought to provide patient-centered palliative care to participants with life-limiting illnesses through care teams that served participants' needs holistically. The awardee provided integrated care to deliver symptom management, social work services, disease management education, coordination with community-based resources, advance care planning, support with complex medical decisions, and psychosocial support through collaborative and multidisciplinary teams headed by a nurse practitioner or physician assistant. The awardee also educated patients and their families about palliative care and trained CPC and referring providers about how to judge whether to refer patients to the program based on their diagnoses and prognoses.

## PARTICIPANTS



The program enrolled 5,652 participants during the funding period, 73 percent of the awardee's goal. The awardee enrolled participants that had less than two years to live when a provider referred them to the program. Participants remained enrolled in the program until they were discharged, elected hospice care, or died. Most participants were 75 or older, and they were predominantly White. Their disease burden was relatively high. The study sample had expected annual Medicare costs four times the national average of all fee-for-service beneficiaries. During the year before enrollment, all had a hospital admission (or observation stay) due to program eligibility requirements, and more than half had an emergency department (ED) visit. Seventeen percent were dually eligible for both Medicare and Medicaid.

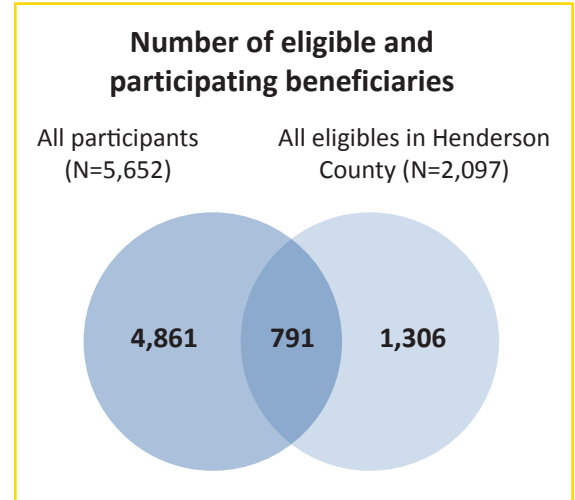
## FINDINGS

### PROGRAM IMPLEMENTATION

Four Seasons had 12 years of experience in delivering the CPC program when it received its funding and did not make major changes to the type of health care services it provided during the cooperative agreement. However, it expanded its service delivery to additional locations during the funding period. The awardee also used HCIA R2 funding to develop and deliver a training program geared toward providers and for community outreach activities to educate providers about appropriate patients for palliative care. The awardee faced initial challenges in enrolling participants in the program, partly because more beneficiaries than expected were ineligible due to enrollment in a Medicare Advantage plan. Program exposure was brief for many participants because they died soon after enrolling. This short exposure period might also have limited the benefits of the CPC program for these enrollees.

### IMPACT FINDINGS

The treatment group included the 2,097 beneficiaries who met the claims-based eligibility requirements who resided in Henderson County, North Carolina, 791 of whom participated in the program. The study restricted the treatment group sample to Henderson County because a relatively high proportion (38 percent) of its eligible residents enrolled in the program. The sample was restricted to those who had a recent hospitalization. Because the program targeted beneficiaries expected to die soon, the sample was also restricted to those who died within one year of admission to the hospital. The comparison group comprised 4,144 beneficiaries who met these same criteria and resided in six hospital referrals regions throughout the United States with similar use of hospice care as Henderson County before the intervention.



### SERVICE USE AND COSTS



Estimated total expenditures per beneficiary per month were about 10 percent higher in the treatment group than in the comparison group. Higher hospice and skilled nursing facility (SNF) spending drove the higher estimated total expenditures in the treatment group.



Both hospital admissions and in-hospital deaths were lower among the treatment group than the comparison group, but neither difference was statistically significant.

### PAYMENT MODEL



Four Seasons proposed paying for the CPC program through a bundled payment model. Payments would cover advance care planning, up to three conferences discussing patients' care goals, home and clinic visits, symptom management, coordination of services, social work, and some services provided by the hospice team. Services unrelated to palliative care were carved out of the payment model, including hospitalizations and primary and specialty care. The awardee partnered with the American Academy of Hospice and Palliative Medicine to develop the model.

## KEY TAKEAWAYS

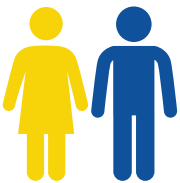
Four Seasons received positive feedback for training providers, and its community outreach led to increased program enrollment, especially toward the end of the funding period. Program enrollees had higher post-implementation hospice use than the comparison group, as anticipated, but this did not lead to lower total expenditures. The (not statistically significant) estimated reductions in the proportion of patients with hospitalizations and in-hospital deaths did not generate sufficient estimated savings to offset the sizable estimated increase in hospice and SNF expenditures. It is unclear whether the estimated differences were effects of the program or due to other differences between the treatment and comparison areas that affect service use and expenditures.



## MODEL OVERVIEW

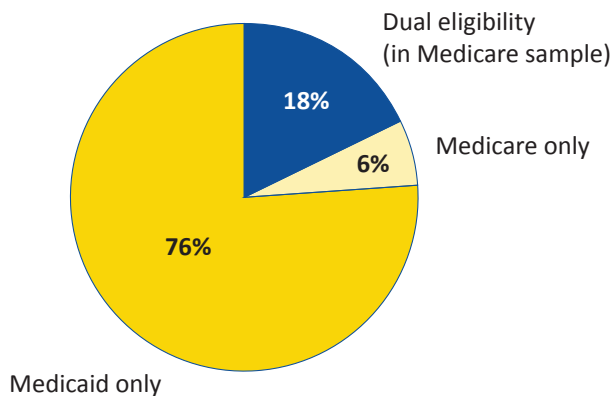
The Fund for Public Health in New York (FPHNY) used its Round 2 Health Care Innovation Award to create and support the implementation of Project INSPIRE. FPHNY is a nonprofit organization established by the New York City Department of Health and Mental Hygiene (DOHMH) to advance the health of all New York City residents. According to the program’s theory of action, the use of care coordinators would improve uptake and adherence to the hepatitis C virus (HCV) drug treatment, and eventually obtain a sustained viral response. The target population consisted of Medicare and Medicaid enrollees, 18 years of age or older with a detectable HCV ribonucleic acid (RNA) viral load, born between 1945 and 1965; and who had difficulty keeping appointments, had received sporadic care, had never been in care, or who requested support and lived in New York City. During its award period, DOHMH proposed a payment model using a one-time bundled payment from Medicare or from Medicaid managed care organizations that would fund care coordination services for patients with HCV.

## PARTICIPANTS

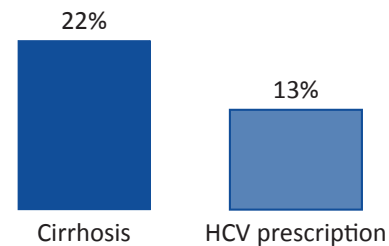


The program enrolled 2,775 participants, reaching 92 percent of its original enrollment goal. All participants had a diagnosis of HCV, but only 13 percent had filled an HCV-related prescription before enrollment. More than 20 percent had a comorbid diagnosis of cirrhosis. The evaluation only includes 1,637 of the 2,775 participants, excluding those with incomplete Medicaid or Medicare data and those who did not appear to meet the program’s eligibility requirements in the claims data.

**Medicaid/Medicare status of participants**



**Percentage of participants with diagnosis of cirrhosis and HCV prescription fill during year before enrollment**



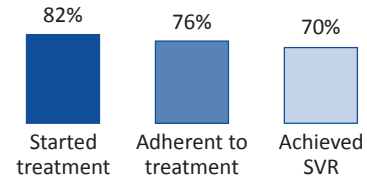
## FINDINGS

### PARTICIPANT ENGAGEMENT



Care coordinators engaged participants to initiate and complete treatment by calling them, sending them letters, providing MetroCards for transportation, and developing personal relationships with them. According to awardee data, 76 percent of participants who were clinically suitable for treatment were adherent, and 70 percent had a sustained viral response (SVR) 12 weeks after treatment.

#### Participants' receipt of HCV treatment



### SERVICE USE AND COSTS

The study estimated program impacts using a model that compared changes over time among participants with those of a matched comparison group. The comparison group consisted of 5,085 Medicaid beneficiaries with HCV who did not receive care at either of the two participating health systems, and thus were unlikely to have been recruited for the program.



Project INSPIRE increased the number of beneficiaries with at least one prescription claim for a drug used to treat HCV by an estimated 52 percentage points. Nearly 84 percent of the treatment group filled an HCV prescription by the end of the three-year period, compared to 30 percent of the comparison group.



Project INSPIRE increased primary care visits for Medicare beneficiaries by 21 percent. These results might be due to more frequent doctor visits for regular appointments for HCV prescriptions and follow-up check-in and screening visits—all part of the intervention protocols.



The program had no discernible impact on hospitalizations or emergency department visits among Medicaid or Medicare beneficiaries. Nor did it have an observable effect on Medicare expenditures.

### PAYMENT MODEL



DOHMH proposed that participating sites pay for integrated care delivery services for patients with HCV using a one-time bundled payment. The awardee also proposed a separate shared savings and shared loss component to the payment model. The awardee calculated that, based on its enrollment through February 2017, program services would cost sites an average of \$760 per beneficiary over the full period of enrollment.

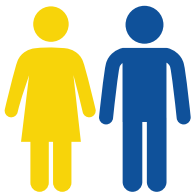
## KEY TAKEAWAYS

Project INSPIRE had a sizeable estimated impact on the percentage of beneficiaries starting and completing prescription drug treatment, likely due to the high level of provider engagement. The program also increased primary care visits, likely due to beneficiaries visiting their doctors more frequently as part of the intervention protocols: regular appointments for HCV prescriptions and follow-up check-in and screening visits. However, because the awardee expected benefits of treating HCV to occur many years after treatment, it is not surprising that the study did not observe impacts on expenditures or hospitalizations over the 3-year follow-up period used here.

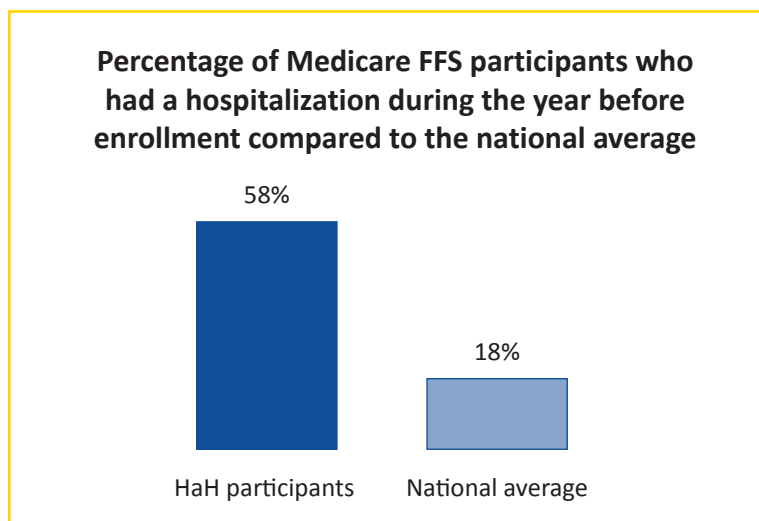
### MODEL OVERVIEW

The Icahn School of Medicine at the Mount Sinai Hospital used its Round 2 of the Health Care Innovation Awards to create the Hospital at Home (HaH) program and develop an associated payment model. The HaH program aimed to lower costs, improve process and clinical health outcomes, and increase participants’ satisfaction by providing an alternative model for traditional acute care—including both the acute care services that patients would have otherwise received in the hospital plus any post-acute services deemed appropriate by Mobile Acute Care Team (MACT) staff. Mount Sinai hypothesized that acute care services provided in the home by the MACT would produce health outcomes as good or better than those the participants would have experienced if hospitalized. The target population consisted of adults who presented at the Mount Sinai Hospital emergency departments (EDs) and its outpatient settings, lived at home in Manhattan, met the Milliman Care Guidelines (MCG) admission criteria for their conditions, and could be safely cared for at home.

### PARTICIPANTS



By the end of the initial cooperative agreement, 295 participants had enrolled in the HaH program. Of these, 184 beneficiaries (62 percent) were enrolled in Medicare FFS and met the claims-based inclusion criteria for the study. This subset of participants was a predominantly elderly group with more than three-quarters age 75 or older. The average hierarchical condition category (HCC) risk score for participants was almost triple the average score for Medicare fee-for-service (FFS) beneficiaries nationally, indicating participants were substantially less healthy and had a greater need for care than the general Medicare FFS population. Consistent with their high needs, participants had high rates of Medicare expenditures and service use in the year before enrollment. More than half of participants had a hospitalization during the 12 months before they enrolled in the program, much higher than the national rate of 18 percent.<sup>1</sup>



<sup>1</sup> The national data of percentage of Medicare FFS beneficiaries using inpatient services in 2014 are from the Centers for Medicare & Medicaid Services. “Public Use File; New Data on Geographic Variation.” Available at [www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Geographic-Variation/GV\\_PUF.html](http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Geographic-Variation/GV_PUF.html). Accessed February 2020.

## FINDINGS

### PARTICIPANT ENGAGEMENT



The program engaged most patients who enrolled in the HaH program for the duration of their care. The program required patients and their caregivers to engage in the patients' care because many of the activities, such as helping the patient to the bathroom or preparing food that nurses or support staff would have completed in an inpatient setting, were left to the patient and his or her support system to complete. Most clinicians (87 percent) who provided direct patient care and responded to the clinician survey strongly agreed that the MACT team had successfully engaged patients with the program.

### CHALLENGES OF MEASURING IMPACT OF HAH PROGRAM ON SERVICE USE AND COSTS



It was not possible to conduct a rigorous impact evaluation of the HaH program and measure the impact of the intervention on service use and costs among Medicare FFS beneficiaries for two reasons. First, the program's eligibility criteria relied heavily on clinical assessments that the program could not replicate using Medicare FFS enrollment and claims data, making it infeasible to construct a credible comparison group. Second, the program's low enrollment of Medicare FFS beneficiaries would produce very low statistical power to detect effects. As a result, the evaluation can provide only a descriptive analysis of the demographic and health characteristics of Medicare FFS participants, and does not provide estimates of program impacts.

### PAYMENT MODEL



To fund the HaH program of the MACT, Mount Sinai developed a bundled payment model that it could tailor based on the payer's preferences and executed contracts with two commercial payers. The bundle of services included the core MACT services in the acute care phase that did not already have a payment mechanism. Mount Sinai also developed a separate Medicare payment model that included a bundled payment for services in the acute and post-acute services with risk sharing and proposed it to the Physician-Focused Payment Model Technical Advisory Committee, which had recommended it to the Secretary of Health and Human Services for implementation. However, the Secretary indicated that HHS would not implement the model.

## KEY TAKEAWAYS

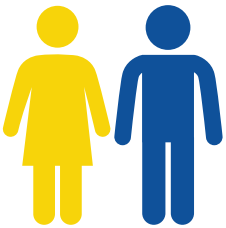
Mount Sinai implemented the HaH program on time and provided acute and post-acute care services to patients in the home. Most staff who provided direct MACT care and responded to the nonclinician or clinician surveys perceived that the HaH program had positive impacts on the delivery of care and patients' outcomes. Despite these successes, the program had difficulties meeting its initial enrollment goal and had enrolled only a little more than half of its target by the end of the cooperative agreement due to difficulty obtaining referrals from providers and a participant acceptance rate lower than expected. In addition, although originally designed to depend primarily on outsourced services, the HaH program reported challenges obtaining adequate services from outside vendors. In response, Mount Sinai reduced its reliance on external contractors by hiring nurses internally to provide HaH services. Due to the small sample size and an inability to replicate the eligibility criteria by using Medicare claims data or clinical registry data—one of which required clinicians' judgement—it was not possible to identify a comparison group that was similar to the intervention group at the time of enrollment into the program and thus it was not possible to conduct a rigorous impact evaluation of this program.

## Findings at a Glance

### MODEL OVERVIEW

Johns Hopkins University used its funding under Round 2 of the Health Care Innovation Awards (HCIA R2) to support the Maximizing Independence at Home (MIND) program. The purpose of the MIND program was to identify and address the unmet needs of individuals diagnosed with Alzheimer’s disease or another dementia-related neurodegenerative disease and their caregivers. Johns Hopkins University hypothesized that memory care coordination would delay transitions to nursing home care and reduce emergency department (ED) visits and hospital admissions, thereby improving quality of life and reducing long-term care costs, especially to Medicaid. The target population consisted of Medicare and Medicare–Medicaid dual eligible beneficiaries with dementia and their caregivers living at home in Baltimore, Maryland, and surrounding counties.

### PARTICIPANTS



The MIND program enrolled 342 participants from March 2015 through September 2016, representing 57 percent of its three-year enrollment goal. Three-fourths of the participants were women, with an average age of 81. About 60 percent of enrollees identified as Black or African American, 31 percent as White, and 8 percent as other racial or ethnic groups. The majority had moderate (46 percent) or severe (16 percent) dementia at enrollment. More than two-thirds lived with their caregivers. Based on an initial needs’ assessment, the average participant had unmet needs in 12 of 43 areas, ranging from cognitive symptoms to personal safety, meaningful activities, and care planning.

### FINDINGS

#### PROGRAM IMPLEMENTATION



The MIND program featured several core components of service delivery:

- Care management through memory care coordinators (MCCs) and an interdisciplinary clinical team to address unmet needs of individuals with dementia
- Patient and family engagement to support family caregivers to delay institutionalization
- Training and health technology to support home health agency staff as MCCs

Johns Hopkins University succeeded in establishing the MIND program to deliver services in a manner consistent with its initial program design. MCCs contracted through partnering home health agencies received training and participated in weekly planning meetings with the clinical team. The MCCs successfully engaged and retained participants with an average of 4.3 contacts per participant per month at peak participation, including telephone calls, in-person meetings, and written contacts. Based on data reported by the awardee, the number of unmet needs fell 38 percent on average between the first assessment and the final 18-month assessment. In a satisfaction survey, about 95 percent of caregivers reported that they would recommend MIND to others. They also reported that they felt more confident, in control, and educated about dementia as a result of the program.

## Findings at a Glance

Low enrollment was the primary challenge for the MIND program. Two major barriers were (1) limited success in recruiting Medicare–Medicaid dual eligible beneficiaries and (2) underdiagnosis of prior dementia—two of the original eligibility criteria. Johns Hopkins University had difficulty recruiting enough dual eligible beneficiaries, given oversaturation of research in Baltimore, community mistrust of the research consent process, and severe social isolation among dual eligible beneficiaries with dementia. The program also found that dementia was underdiagnosed among the patient population living in Baltimore. As a result of these challenges, Johns Hopkins University opened the program to Medicare-only beneficiaries, included people without a prior dementia diagnosis for whom dementia was identified at enrollment, and expanded to surrounding counties.

### CHALLENGES OF MEASURING PROGRAM IMPACTS



It was not possible to conduct a rigorous analysis of the MIND program’s impacts on delayed entry to nursing homes and associated costs for three reasons.

1. It was not possible to construct a reliable comparison group because MIND participants were diagnosed with dementia as part of the enrollment and were also required to have an involved caregiver—two factors that could not be reproduced in claims.
2. There were too few beneficiaries in the treatment group to detect significant effects for primary outcomes.
3. Because many Medicare beneficiaries never qualify for nursing home benefits under Medicaid and those who do often rely on private payment in the beginning, the potential impact of the program on costs would be diluted.

### PAYMENT MODEL



Johns Hopkins University envisioned a \$250 per beneficiary per month care coordination payment for MIND services, split between MCCs within a home health agency and a clinical team, payable as long as a participant remained living at home. Because delayed entry to nursing homes reduces Medicaid costs, but Medicare would be the likely payer for the MIND program, the awardee explored partnerships with providers in financial or care settings that bridge these payment systems. Examples include Medicaid Accountable and Integrated Care Organizations, and the Program of All-Inclusive Care for the Elderly. Johns Hopkins University had not identified a payer at the end of the award period.

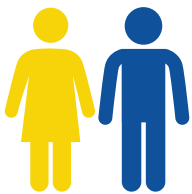
### KEY TAKEAWAYS

Johns Hopkins University succeeded in implementing its MIND program to provide memory care coordination for individuals with dementia and their caregivers. By the end of the three-year cooperative agreement, the awardee had enrolled 342 participants; trained MCCs to support individuals through in-person, telephone, email, text, and mail messages; and delivered services in a manner consistent with the design proposed in its HCIA R2 application. The awardee’s self-monitoring statistics indicate high levels of participant contacts, reductions in unmet needs, and high rates of participants’ satisfaction with the MIND program. However, it was not possible to conduct a rigorous analysis of the MIND program’s impacts. Because it was not embedded in an ongoing care system, the program was not sustained after the award. The awardee developed a payment model that would provide ongoing memory care coordination through a monthly payment split between MCCs and a clinical team, but had not negotiated an agreement with payers.

## MODEL OVERVIEW

Montefiore Medical Center, a large tertiary care center in the Bronx, New York, used its Round 2 Health Care Innovation Award to implement the Behavioral Health Integration Program (BHIP) into 6 of its 22 primary care practices. Primary care physicians collaborated with behavioral health staff, who used data from physicians’ assessments to monitor their patients’ progress and adjust treatment. The awardee expected that alleviating behavioral health symptoms would improve self-care, adherence to lifestyle changes and medications, and physical health. The program aimed to reduce unnecessary emergency department (ED) use and inpatient admissions and lower the costs of care for patients at participating sites. To continue the program after the end of the award, Montefiore collaborated with two health plans to develop a bundled payment model for enrollees with Medicaid, Medicare Advantage, or commercial coverage.

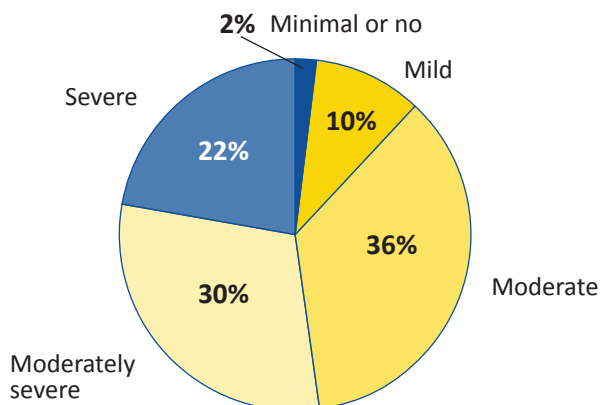
## PARTICIPANTS



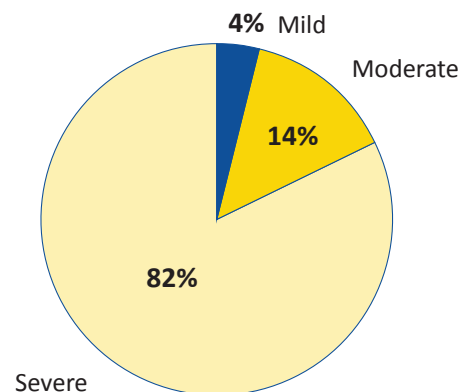
Between program start on February 1, 2015 and August 31, 2017, the awardee enrolled 6,559 primary care patients diagnosed with depression, anxiety, alcohol use disorder, and (for children) attention deficit hyperactivity disorder—reaching 143 percent of its original enrollment goal. While 6,559 participants were enrolled in the program, the impact evaluation was based on 2,069 adult Medicaid beneficiaries who screened positive for depression, agreed to participate in the program from May 2015 through August 2017, and met the study’s standard claims-based inclusion criteria.

The PHQ-9 depression scores indicated unmet need among participants for behavioral health services. Slightly more than half of participants had moderately severe or severe depression and slightly more than one-fifth had severe depression. Only 2 percent of participants in the analytic sample had minimal or no depression (PHQ-9 scores from 1 to 4). These patients were also likely to have enrolled in the program due to their anxiety. Nearly all (96 percent) of treatment group beneficiaries also screened positive for moderately severe or severe anxiety, as evidenced by their GAD-7 scores of 10 and higher.

**Severity of depression symptoms among 2,069 treatment group beneficiaries**



**Severity of anxiety symptoms among 2,069 treatment group beneficiaries**



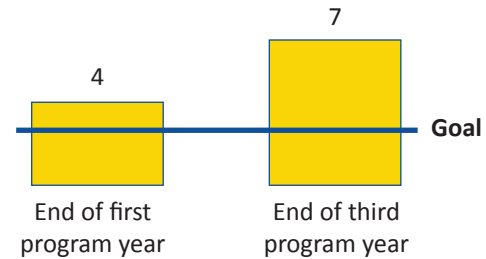
## Findings at a Glance

### DELIVERY OF INTERVENTION SERVICES



Based on a review of awardee-reported program data, by fall 2017, 89 percent of the total 6,559 patients who enrolled in the program received a behavioral health care service. The awardee aimed to provide at least three follow-up visits to participants. By the end of the first year of the program, participants received four visits on average and by the end of the third year, seven visits.

Number of behavioral health care visits received



### FINDINGS SERVICE USE AND COSTS

The study included 1,432 comparison beneficiaries who screened positive for depression and who had similar characteristics as the treatment group. The comparison group also received collocated behavioral health services, though not as intensive and integrated as the 2,069 treatment group members.



The program had favorable but small and not statistically significant estimated effects during the first year after enrollment. During the second year of enrollment, participants had an estimated 14 percent fewer ED visits than comparison beneficiaries. Findings were more favorable for participants who had mild or moderate depression symptoms at enrollment.



During the second year after enrollment, participants had 18 percent fewer hospitalizations, but due to small sample sizes, the estimate was not statistically significant. However, in this case, the results were more favorable among participants who had moderately severe or severe depression symptoms at enrollment.



The study was unable to evaluate the impact of the program on Medicaid expenditures because reliable and complete spending data were not available.

### PAYMENT MODEL



The awardee developed a value-based bundled payment model for participants in Medicaid, Medicare Advantage, or commercial coverage. Behavioral health providers would receive a fixed monthly payment for each patient with at least one contact during that month. In addition, providers would be eligible for a 15 percent bonus for achieving quality and performance targets. The awardee planned to serve Medicare fee-for-service beneficiaries through a Next Generation Accountable Care Organization.

## KEY TAKEAWAYS

This study found that the program reduced ED visits and lowered hospitalizations during the second year of enrollment. These findings suggest that team-based, collaborative care with careful monitoring of participants' progress and subsequent adjustment of treatment is more effective than collocated behavioral health services that do not involve a team-based approach or as much follow-up with patients.



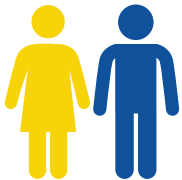
## Findings at a Glance

### MODEL OVERVIEW

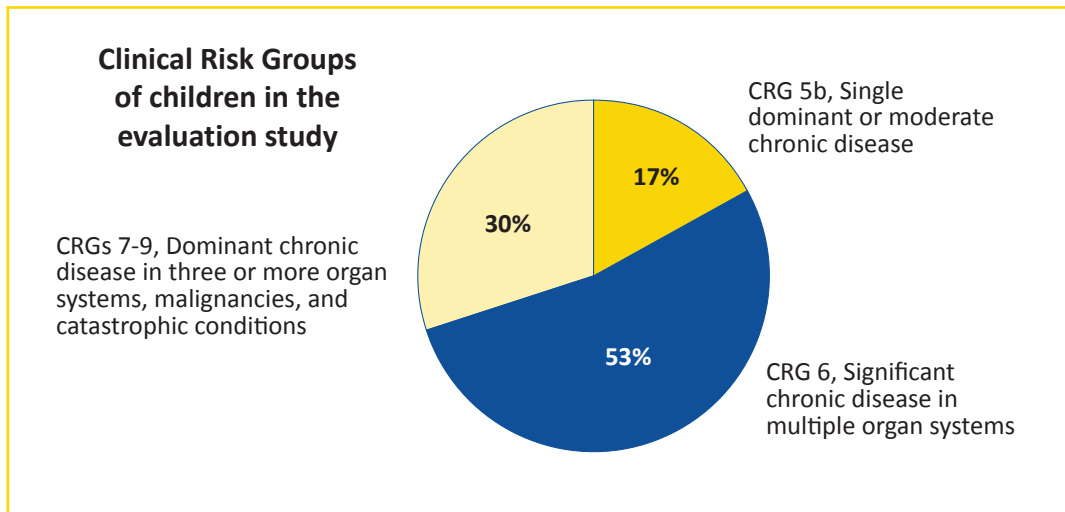
The National Association of Children’s Hospitals and Related Institutions (NACHRI) used its Round 2 Health Care Innovation Award to create the Coordinating All Resources Effectively (CARE) program. The program sought to improve the often disjointed and costly state of care for children with medical complexity. In all, 10 children’s hospitals and 53 affiliated primary care and complex care practices in eight states participated in a learning collaborative to improve care for children with medical complexity by implementing patient registries, connecting members of the children’s dynamic care teams, and developing access plans and care plans for participating children and their caregivers.

NACHRI expected that improved care coordination and management for children with medical complexity would help families have better experiences with care and lower stress levels related to care. Improvements in the child’s care would result in lower health care spending by decreasing avoidable use, such as emergency department (ED) visits and hospitalizations. The program sought to engage Medicaid beneficiaries from birth to 21 who had lifelong or complex chronic conditions, malignancies, and catastrophic conditions and who received care from participating practices. The awardee also sought to implement payment models, which varied by site and payer, through contracts with its state Medicaid agency or a Medicaid managed care organization (MCO).

### PARTICIPANTS



The program enrolled 8,111 participants, slightly more than 100 percent of its original enrollment goal. Of the 8,111 children and youth enrolled in the program, 1,695 participants could not be matched to Medicaid data and 2,580 participants enrolled through hospitals or practices that did not submit Medicaid data of adequate quality for analysis. The treatment group for the impact analysis consisted of the remaining 3,836 participants who enrolled in the CARE program through practices affiliated with 6 of the 10 participating hospital sites with sufficient Medicaid data. The average age of participating children was 8 and over half were boys. Nearly one-third of the treatment group were in the most severely ill group, which included children with chronic disease in three or more organ systems; children with malignancies; and children with catastrophic conditions such as HIV, spina bifida, paralysis, or reliance on a ventilator or feeding tube.



## Findings at a Glance

### FINDINGS

The impact analysis was based on the 3,836 participants who enrolled in the CARE program through practices affiliated with 6 of the 10 participating hospital sites with sufficient Medicaid data, as well as 15,138 comparison beneficiaries with similar demographic and health characteristics who were insured by the same Medicaid payers (state or MCO) and lived in similar types of counties.

#### PARTICIPANT ENGAGEMENT



Based on implementation and engagement data that NACHRI collected, participating sites reported steady increases over time in families engaging with the CARE program, as evidenced by increased completion of access and care plans for participating children. Most of the sites implemented care plans for more than 90 percent of their enrolled patients. These care plans aimed to provide the families clear plans for self-managing their children's acute care needs.

#### SERVICE USE



Hospitalizations and ED use were high during the baseline year and decreased steadily in the two-year follow-up period for the CARE participants and the matched comparison group, due to regression toward the mean. ED use decreased by **5.5 percent** more among CARE participants than among the comparison group; these statistically significant program effects on ED use grew over the follow-up period, with the reduction in Year 2 estimated at **10 percent**. The effects on ED use were larger, statistically significant, and more favorable among the sickest group of children (CRGs 7, 8, and 9).



Impact estimates suggest that the program effect on hospitalizations was adverse, with the rate decreasing far less over time for the participants than for the comparison group.

The analysis could not directly measure effects on Medicaid spending because managed care organizations covered many participants in the program, and data on Medicaid expenditures were not available for the study.

#### PAYMENT MODEL



Each of the 10 sites participating in NACHRI's CARE program developed a payment model approach specific to the state and local context. By the end of the award, 5 of the 10 sites had successfully implemented payment models through contracts with their state Medicaid agency or a Medicaid MCO. Example payment models include a per beneficiary per month care coordination fees and a shared savings arrangement between a provider network and an MCO.

### KEY TAKEAWAYS

CARE's estimated effects were mixed, with a favorable estimated reduction in ED visits, but a large estimated increase in hospitalizations. These contradictory findings raise concerns that the treatment and comparison groups may not be well-matched on unobserved factors that affect these outcomes. The estimated reduction in ED visits is consistent with the awardee's focus on improving access and communications, and greater support for parents in managing their children's care. However, the large estimated increase in hospitalizations would increase total cost of care and more than offset any savings that the ED reduction would generate.

## MODEL OVERVIEW

National Health Care for the Homeless Council (NHCHC) used its Round 2 Health Care Innovation Award to support the Medical Respite Care for People Experiencing Homelessness program, which sought to develop and implement a standard set of respite care services. Medical respite care is defined as post-acute medical care provided to homeless individuals who are not sick enough to be in the hospital but who are too sick to recover from an illness or injury on the street. NHCHC implemented the program in five existing respite care programs, all in Medicaid expansion states (Arizona, Connecticut, Minnesota, Oregon, and Washington State). The goals of the program were to decrease the use of acute care and lower health care costs for this vulnerable population by providing medical respite care that included care management services, self-management support, and transition to primary care.

## PARTICIPANTS



The program enrolled 1,441 participants from March 2015 through May 2017, reaching 46 percent of its original goal. NHCHC enrolled 1,205 participants with Medicaid only (84 percent) and 174 dual eligible participants (12 percent). The remaining participants had Medicare, were uninsured, or had unknown insurance status. The eligibility criteria for the program were people ages 18 or older experiencing homelessness and who had already enrolled in respite care.

## FINDINGS

### PROGRAM IMPLEMENTATION



NHCHC was successful in implementing some parts of the standardized respite care program. The program hired staff dedicated to working with the homeless, achieved high rates of primary care follow-up, and surpassed national rates of smoking cessation therapy. Less successful elements of implementation included lower-than-expected enrollment, lower need for certain services such as case management for enrolling in Medicaid (which might be due to the location of participating respite care centers in Medicaid expansion states), and difficulty collecting data from this vulnerable patient population.

### CHALLENGES OF ESTIMATING IMPACT OF RESPITE CARE PROGRAM ON OUTCOMES



A rigorous impact analysis was not conducted due to an inability to reliably identify homeless beneficiaries in claims data and the use of clinical judgment to determine who was eligible for respite care. Additional limitations of state Medicaid data files received from the awardee included (1) the absence of an eligibility file for two states; (2) the lack of state Medicaid data from two states; and (3) limited follow-up data for the remaining three states, resulting in the absence or truncation of follow-up data for participants who enrolled during the last two years of program operations. These data limitations made it impossible to determine the demographic, health, service use, and spending characteristics of Medicaid participants before they enrolled in the program.

## Findings at a Glance

### PAYMENT MODEL



At the end of the award, each of the sites had implemented multipayer models that were largely in place before the cooperative agreement. These models varied to reflect differences in Medicaid policies across states as well as in each site's organizational structure and clinical service offerings. The payment models included prospective payments for federally qualified health centers; value-based, bundled, or episode payments from managed care or accountable care organization contracts; and fee-for-service payments from state Medicaid agencies. All participating respite care sites had supplemental funding from local hospitals, foundations, and grants as well.

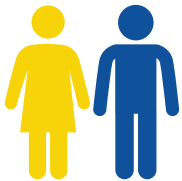
### KEY TAKEAWAYS

The NHCHC partly succeeded in implementing its standardized respite care model across five sites located in Medicaid expansion states, providing a more complete model of respite care services than many other respite care centers nationally offered. The program was particularly successful at recruiting and retaining a staff dedicated to working with a vulnerable population and connecting participants with follow-up care. Due to an inability to identify the program eligibility criteria in claims data, an impact analysis for this intervention was not conducted.

## MODEL OVERVIEW

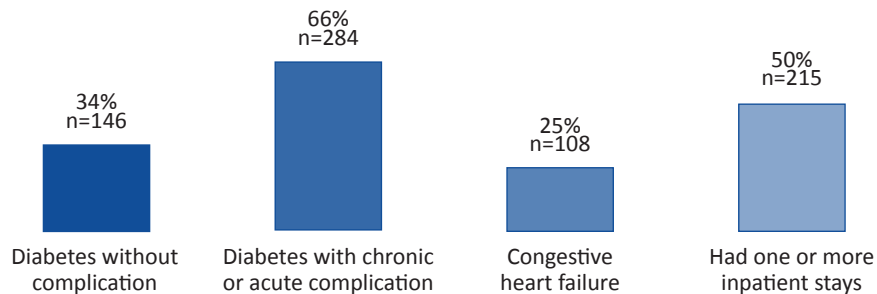
Nebraska Medicine, an academic medical center and teaching hospital for the University of Nebraska Medical Center, used its Round 2 of the Health Care Innovation Awards to develop and test the Remote Interventions Improving Specialty Complex Care (RIISCC) program. RIISCC provided remote patient monitoring (RPM) for participants with diabetes for 90 days after their discharge from the hospital. The goal of the program was to combine RPM with health coaching to help patients with diabetes to better manage their own care. Nebraska Medicine hypothesized that health coaching, supported by daily information on weight and blood pressure and glucose values, can produce improvements in patients' health and that these improvements can themselves result in lower inpatient and emergency department (ED) service use, reduced total costs of care, and a higher quality of life. The target population consisted of patients with a diagnosis of type 2 diabetes who had an inpatient admission or outpatient visit (including ED, outpatient surgery or procedure, or other hospital outpatient services) for any reason, not necessarily related to diabetes, at Nebraska Medicine or Nebraska Medicine-Bellevue Hospital, and starting in Year 3, from other local hospitals.

## PARTICIPANTS



By the end of the cooperative agreement, 1,903 participants enrolled in the RIISCC program, 76 percent of the awardee's original enrollment goal. This impact analysis, however, relied on only 430 Medicare fee-for-service (FFS) beneficiaries. Most excluded enrollees were not enrolled in Medicare or could not be identified in enrollment files; others failed to meet program eligibility criteria in claims data. Nearly two-thirds of enrollees had at least one other chronic condition besides diabetes, and half had a hospitalization in the year before enrollment.

**Percentage of Medicare FFS RIISCC program participants, by condition and service use (n=430)**



## FINDINGS

### PROGRAM IMPLEMENTATION



The RIISCC program featured three innovative health information technology (health IT) components:

1. All participants received RPM equipment to use in their homes. The equipment transmitted information about the participant's weight, blood pressure, and blood glucose values to the health coach and providers.
2. The program developed an interface that transferred patients' data from the RPM system into the electronic medical record system at Nebraska Medicine. The interface facilitated communication and collaboration between the health coaches and participants' primary care providers.
3. The electronic medical record system reserved a section for telemedicine encounters; it displayed the RPM data along with the coaching notes.

### SERVICE USE AND COSTS

The impact analysis compared outcomes for 430 Medicare participants to a matched comparison group that included 1,855 Medicare FFS beneficiaries with similar demographic and health characteristics who received inpatient or outpatient care at any other nonparticipating hospital in Omaha during the intervention period and thus were ineligible to participate in the program.



In the one-year follow-up period, the estimated program effects on both number of hospitalizations and number of ED visits were small (one percent or less) and not statistically significant. The estimated effect on Medicare expenditures was larger but not statistically significant, and was not attributable to reductions in any type of service use. Thus, it appears to be due to random variation or residual selection bias, rather than a true program effect. The program also led to a statistically significant increase in primary care visits, as intended.

### PAYMENT MODEL



The awardee proposed a bundled payment model, in which payers would reimburse the awardee a set amount per patient for one episode of services (90-day RIISCC intervention). The payment would cover the entire intervention team, rather than paying separately for the individual services each team member provided. The payer would then either pay the awardee more if it spent less than the target, or recoup payment if it exceeded the target. By the end of the award period, the awardee had not implemented its payment model, but continued to pursue it.

## KEY TAKEAWAYS

Findings from this impact analysis suggest that the RIISCC program of Nebraska Medicine achieved its goal to increase regular contact with primary care physicians, but had no estimated impacts on other main outcomes, including the total expenditures for care, number of hospitalizations, and probability of having a 30-day readmission. The program also expected to reduce ED visits, but the study estimates show no such effects. These findings, together with results from earlier programs, suggest that interventions involving RPM and patient activation have the potential to help patients with diabetes better manage their own care by working closely with primary care providers. However, it might require a longer intervention and additional efforts to engage patients most likely to benefit from the intervention (for example, those with higher risk and worse health status) for changes in diabetes management to yield lower costs and use of care.

## MODEL OVERVIEW

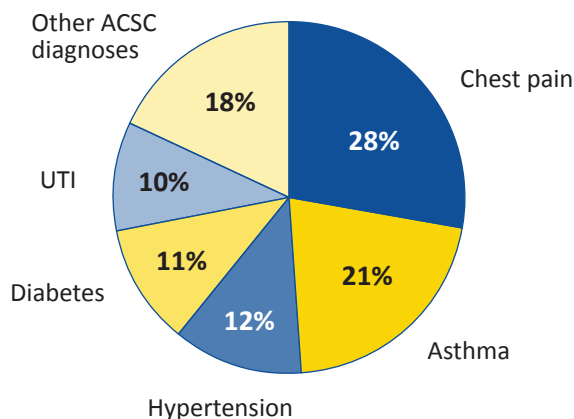
New York City Health + Hospitals (NYC H+H), a public benefit corporation that serves as the public safety net in the city’s health care system, used its Round 2 of the Health Care Innovation Awards (HCIA R2) funding to develop and support the Emergency Department (ED) Care Management Initiative at 6 of its 11 hospitals. To be eligible for the program, a patient who visited the ED at a participating site must have been able to be discharged from the ED safely and either had an ambulatory care-sensitive condition (ACSC) or met other eligibility criteria based on medical history or clinician’s judgment. The program provided care management in the ED along with 90 days of follow-up care coordination. The program began in September 2014 and ended in August 2017. The awardee hypothesized that providing interdisciplinary care management and extended care coordination would help ED patients with ACSCs better manage their health and avoid unnecessary hospitalizations and repeated visits to the ED, thereby lowering the cost of their care.

## PARTICIPANTS

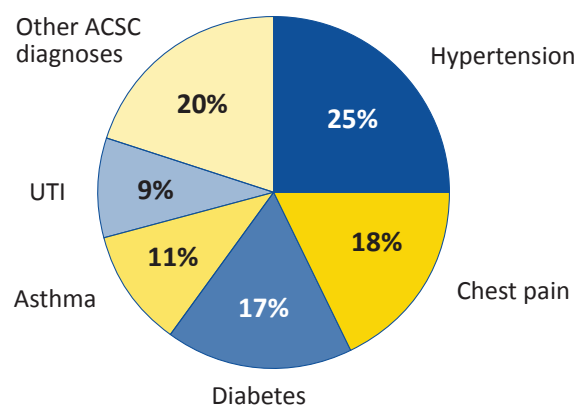


The program reported enrolling 83,946 participants in the ED Care Management Initiative, representing 84 percent of its original goal. Of the 83,946 participants, 30,105 were linked to Medicaid enrollment data and 5,388 were linked to Medicare enrollment data. Twenty-four percent (7,140) of the linked Medicaid participants and 30 percent (1,627) of the linked Medicare participants met the standard claims-based inclusion criteria for the study and were included in the impact analysis. Participants had claims histories that indicated their expected annual spending was significantly higher than average for Medicaid or Medicare beneficiaries. The most common ACSC diagnoses among Medicaid participants were chest pain and asthma. The most prevalent ACSC diagnoses among Medicare participants were hypertension, chest pain, and diabetes.

**Distribution of ACSC diagnoses among Medicaid participants (N = 7,140)**



**Distribution of ACSC diagnoses among Medicare participants (N = 1,627)**



## Findings at a Glance

### FINDINGS

#### SERVICE USE AND COSTS

Because it was not possible to replicate the program’s selection criteria using claims, the evaluation used an intent-to-treat (ITT) design. An ITT design compares outcomes for a treatment group of beneficiaries who met the sample inclusion criteria regardless of program participation status to a comparison group who met the same criteria. The treatment group included 45,277 Medicaid beneficiaries (7,140 of whom participated in the program) and 9,134 Medicare FFS beneficiaries (1,627 of whom participated in the program) who had an ED visit for an ACSC at a participating hospital in New York City and met the evaluation study eligibility criteria. The fact that only 16 percent of the Medicaid treatment sample and 18 percent of the Medicare treatment sample participated in the program made it more difficult to detect program effects. The comparison group consisted of 47,602 Medicaid and 9,901 Medicare beneficiaries with similar demographic and health characteristics as the treatment group and had an ED visit for an ACSC at hospitals in New York City that did not participate in the program.



There were statistically significant estimated reductions of 8 percent in ED visits and 6 percent in hospitalizations among Medicaid beneficiaries who enrolled during the first nine months of the program. Among early Medicaid enrollees and all Medicare enrollees, there was also evidence of a reduction in the proportion who had any ED visit. The baseline service use of early Medicaid enrollees indicate they were higher risk than those who enrolled after the first nine months of the program.



The ED Care Management program did not have a discernible impact on total Medicare expenditures. Lack of data prevented modeling the program’s impact on Medicaid costs.



Specialist visits declined in the 12-month follow-up period among both Medicare and Medicaid beneficiaries. However, because the program intended to both connect enrollees to appropriate services and reduce costs, it is unclear whether the decline in specialist visits represents a favorable outcome.

#### PAYMENT MODEL



NYC H+H proposed three models to pay for the ED Care Management Initiative. The first model would have incorporated the program into existing global risk-capitated contracts with two Medicaid and Medicare managed care plans. The second option involved a value-based payment model that would have adjusted Medicaid and commercial FFS payments for quality performance. The awardee also considered a shared savings model with an all-payer accountable care organization. As of August 2018, however, the awardee had not pursued any of these models.

### KEY TAKEAWAYS

The ED Care Management Initiative led to estimated reductions in ED use across both Medicaid and Medicare patients, but the effects were particularly pronounced among higher-risk Medicaid beneficiaries. The program also led to reduced hospitalizations among higher-risk Medicaid patients. This was consistent with the awardee’s theory of action, which suggested that extended care management could help reduce repeated ED visits, hospitalizations, and costs for high-risk patients. However, the program did not have a statistically significant impact on hospitalizations among the full sample of Medicaid patients, nor it did not discernably affect costs or hospitalizations among the full sample of Medicare patients. Program staff and leaders suggested that they might be able to improve the intervention’s effectiveness by targeting their recruitment to high-risk patients.



## MODEL OVERVIEW

Northwell Health, an integrated health system in New York, used its Round 2 Health Care Innovation Award to expand its Healthy Transitions in Late Stage Chronic Kidney Disease (CKD) program to serve residents of Manhattan, Nassau, Queens, and Suffolk counties in New York with Stage 4 or 5 CKD. This patient-centered program relied on registered nurse care managers to help integrate and coordinate care for people with late-stage CKD by (1) focusing on educating patients and managing care to delay the onset of end-stage renal disease (ESRD) and (2) helping patients make informed choices about ESRD treatment that reflect their personal preferences. The awardee hypothesized that the care managers would develop personal relationships with participants and guide them through the complex care system, which would help patients with ESRD choose more optimal modes of renal replacement therapy. These changes would lead to better outcomes, such as improved quality of life for patients, decreased hospital and emergency department (ED) use, and lower health care costs. Nurse care managers helped to identify, recruit, and enroll potential participants; conducted home visits to assess participants' home environments, social support needs, and risk of readmission; educated patients about CKD and ESRD and their treatment options; and followed up with patients to monitor their progress. Care managers also followed up with patients' health care providers to help them coordinate care and make decisions.

## PARTICIPANTS



Northwell Health enrolled 705 patients in Healthy Transitions during the award period, exceeding its enrollment goal. Enrollees included Medicare, Medicaid, and privately insured patients, mostly from the counties on Long Island. Most participants remained in the program until the end of the cooperative agreement, but more than one-quarter disenrolled after progressing to ESRD. The evaluation focused on a subset of 203 participants enrolled in Medicare fee-for-service (FFS) (29 percent of all participants) for this analysis. The average age of these Medicare FFS participants was 75 and one in five were also eligible for Medicaid. Average total Medicare expenditures during the year before enrollment was \$2,226 per month, nearly three times the national Medicare FFS average.

## FINDINGS

### PROGRAM IMPLEMENTATION



The awardee surpassed its enrollment goal by more than 40 percent and was successful in recruiting and engaging providers and participants, and delivering services, and mostly successful in staffing and training. Several factors contributed to these successes. The program was free to patients. Nurse care coordinators actively engaged referring nephrologists throughout the program, and they were embedded in nephrologists' offices to facilitate more direct engagement starting in the second program year. Nurse care managers spent an extensive amount of time communicating with patients before and after enrollment. Their dedication gained the trust of patients and nephrologists. The awardee also coordinated with staff from the Northwell Health transplant center and created a medical advisory board to help program leaders and nephrologists address challenges for their patients.

Despite these successes, the awardee faced several implementation challenges. Staff reported difficulties recruiting and engaging patients, often related to patients' socioeconomic status and home conditions. These factors impeded service delivery and could have lowered program effectiveness. For example, some participants' homes were not suitable for home dialysis, reducing treatment options.

Other factors likely affected service delivery and program effectiveness. Many patients referred to Healthy Transitions were too close to beginning dialysis to fully benefit from the program's preventive and planning aspects, such as implanting an arteriovenous fistula. This timing likely limited the program's potential impacts on hospitalizations, ED use, and costs. A factor beyond the program's control was that a leading manufacturer of peritoneal dialysis fluid left the market, limiting access to that treatment option during the award.

The awardee also experienced staffing issues. The nurse care manager assigned to the Manhattan practices left, so the program did not roll out in those clinics. The palliative care nephrologist also left in the final year of the award, ending the palliative and conservative care treatment option for patients. Some of the nurse care managers also expressed concern that their caseloads were too heavy and might affect service quality, although evidence showed that patients' satisfaction was high.

### CHALLENGES OF MEASURING IMPACTS ON CKD, USE, AND COST OUTCOMES



It was not possible to conduct a rigorous analysis of the Healthy Transitions program's impacts on CKD treatment and associated costs for three reasons.

1. The number of Medicare FFS enrollees in the program was too small to detect even substantial effects (plus or minus 20 percent) on hospitalization, ED, or expenditure outcomes.
2. There were serious concerns about identifying a valid comparison group because the Medicare claims lacked data on two clinical eligibility criteria that likely affected outcomes. Also, staff reported that housing conditions and other socioeconomic factors that correlated with outcomes affected enrollment. About 90 percent of people with CKD are undiagnosed, so unobservable factors could determine when patients engage in care for CKD that would limit the comparability of the small treatment group and any comparison group constructed solely using claims.
3. In addition, lack of data on some key intermediate outcomes that are specific to CKD made it impossible to evaluate program effects on these outcomes.

### PAYMENT MODEL



Northwell Health collaborated with the National Kidney Foundation to develop a payment model that combined a condition-specific, population-based payment with value-based incentives and penalties for nephrologists. The payments would cover care coordination and care management costs. Performance on select quality measures would determine rewards or penalties for providers. The awardee was optimistic that negotiations with a private company would generate enough funding to sustain the program for at least five years and had not engaged payers to adopt the payment model.

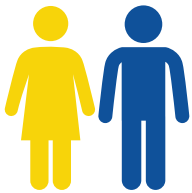
### KEY TAKEAWAYS

Northwell Health successfully implemented the Healthy Transitions model for individuals with Stage 4 or 5 CKD living in eastern New York City and western Long Island. The awardee exceeded its enrollment projections and, despite several implementation challenge, was successful at enrolling and engaging providers, engaging patients, and delivering services. One notable concern was that the program enrolled many people who were on the brink of dialysis, which disrupted the planning and preventive aspects critical to the awardee's theory of action and likely limited any potential reductions in hospitalizations, ED use, and costs during the short follow-up period in available data. A rigorous impact evaluation was not possible for this awardee, primarily due to small sample size and concerns about finding a suitable comparison group.

### MODEL OVERVIEW

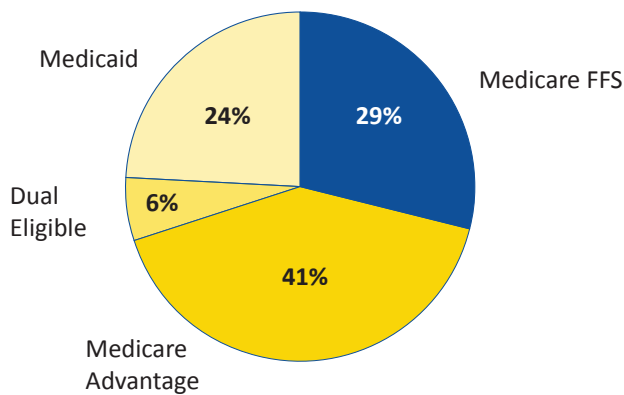
The Regents of the University of California at San Diego (UCSD) used its Round 2 Health Care Innovation Award to create the Heart Attack and Stroke Free Zone (HSF-Z) program. The program targeted patients at elevated risk for cardiovascular disease with the goal of reducing heart attacks and strokes and associated effects on mortality and health care costs. UCSD partnered with 10 health systems and medical groups serving the San Diego area. Participating organizations provided ongoing health coaching to enrollees. Health coaches educated patients on cardiovascular disease and its prevention, including evidence-based medication bundles and lifestyle changes. Community-wide education efforts also targeted the general public and providers. The program targeted Medicaid, Medicare, and dually eligible beneficiaries at high risk for a major adverse cardiovascular event—defined as a heart attack, stroke, or sudden death due to cardiovascular complications—and who were either not on the evidence-based medication bundle or were on evidence-based medications but whose blood pressure was not adequately controlled.

### PARTICIPANTS

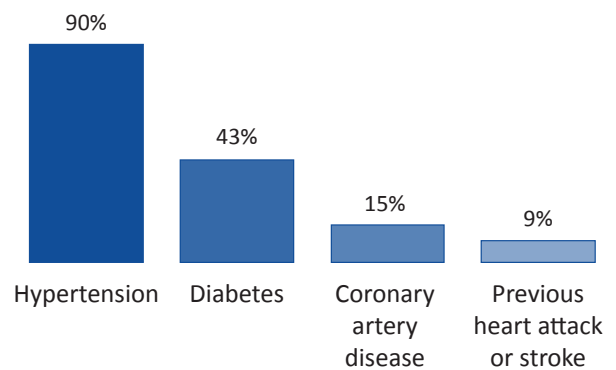


The program enrolled a total of 4,158 participants, reaching over 100 percent of its original enrollment goal. The evaluation of the HSF-Z program relied on self-reported data that health coaches submitted on their patients, including demographic characteristics, medical conditions, and information on cardiovascular risk factors, such as blood pressure and cholesterol levels, collected at enrollment and during the program. This descriptive evaluation describes HSF-Z participants, measures success participating organizations had in engaging patients, and assesses the extent of changes in measurable cardiovascular disease risk factors. Of the participants, 70 percent were Medicare beneficiaries, while 30 percent were Medicaid-only or dually eligible beneficiaries. At enrollment, 90 percent had a history of hypertension, while fewer than 10 percent had a previous heart attack or stroke.

Percentage of participants by payer



Percentage of participants by condition



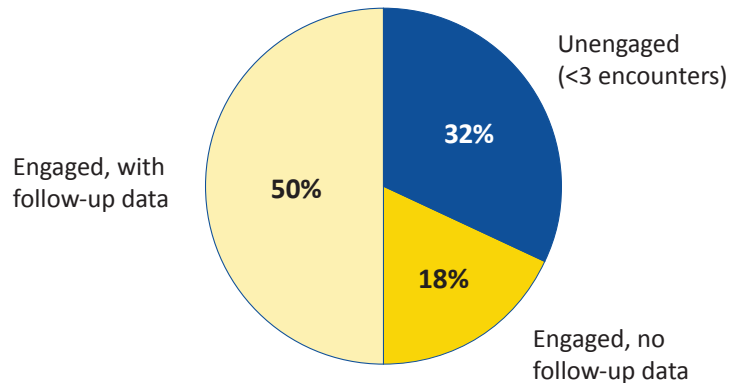
## FINDINGS

### PARTICIPANT ENGAGEMENT



HSF-Z experienced difficulties keeping participants engaged in the program. Although program leaders envisioned monthly encounters between participants and health coaches, a third met less than three times and three in four met with a health coach fewer than 10 times during the award period. Only half of all participants both met with health coaches three or more times and provided at least some follow-up health data.

Percentage of participants by level of engagement



### CHANGES IN CARDIOVASCULAR DISEASE RISK FACTORS



An impact analysis of HSF-Z was not possible because the program eligibility criteria included information from clinical records that were not available in claims data. As a result, it was not possible to identify a credible comparison group. Instead, a descriptive analysis of self-reported program data was conducted to assess changes in indicators of cardiovascular risk and to identify the factors associated with improvements.

Based on a descriptive analysis of awardee-reported program data among engaged participants with both baseline and follow-up data, the proportion of participants with high blood pressure fell from 45 to 20 percent, and the proportion of participants with elevated LDL cholesterol levels fell from 45 to 30 percent. Participation in HSF-Z was not associated with any change in Hemoglobin A1c levels among diabetic enrollees, nor in the proportion who were obese or overweight. In the absence of a comparison group, it is not possible to determine whether these improvements in intermediate outcomes are attributed to the intervention itself or would have occurred (in part or in whole) without the program.

### PAYMENT MODEL



The University of California at San Diego proposed a per-beneficiary annual payment to cover the cost of the HSF-Z program but was not able to implement the payment model with any payers by the end of the award. The awardee continued to hold discussions with health plans after its award ended.

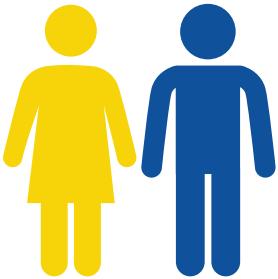
## KEY TAKEAWAYS

This study found that, among patients who received HSF-Z health coaching services and for whom clinical data were collected, cardiovascular disease risk factors, such as blood pressure and cholesterol levels, improved after they enrolled in the program. It is feasible that greater use of recommended drug therapies contributed to these improvements, but it is impossible to make this conclusion without a comparison group. Other risk factors showed little improvement. Longer-term impacts on the incidence of heart attacks and strokes would require following participants over a much longer timeframe.

## MODEL OVERVIEW

The Regents of the University of California at San Francisco (UCSF), in partnership with the University of Nebraska Medical Center, used its Round 2 Health Care Innovation Award to create the Dementia Care Ecosystem program. The program aimed to develop and test a new proactive model of dementia care that provided personalized support and education to local dementia patients and their caregivers. Care team navigators (CTNs) provided resources related to disease and behavior management, caregiver support, and legal and financial planning. A multidisciplinary clinical team supervised the CTNs, provided guidance, and performed medication reviews. UCSF expected telephone-based support and education would enable caregivers to better support patients with dementia in the community, reduce avoidable hospitalizations and emergency department (ED) visits, and lower the total cost of care for participants. The program sought to engage Medicare fee-for-service (FFS) and Medicaid beneficiaries ages 45 and older with dementia and an identified primary family caregiver (called dyads). UCSF proposed two payment models. The first model was for non-risk-sharing organizations that featured FFS billing codes for chronic care management and advanced care planning. The second was a value-based payment model that had not been developed at the end of the award.

## PARTICIPANTS



The program enrolled 780 participants, reaching less than 40 percent of its original enrollment goal. The evaluation, however, only included the 538 Medicare FFS beneficiaries who were enrolled in a randomized controlled trial (RCT) arm of the intervention and met claims and Medicare eligibility criteria. The random assignment produced an intervention group with 358 beneficiaries and a control group with 180 beneficiaries that were similar at baseline on health status and service use. Enrolled RCT participants had mild to moderate dementia. They were also disproportionately White, high-income, and English-speaking, rather than the low-income, ethnically diverse, underserved population that the awardee had intended to reach. As a result, participants had access to more services at baseline and less need for the resources offered by the intervention than expected.

## Findings at a Glance

### FINDINGS

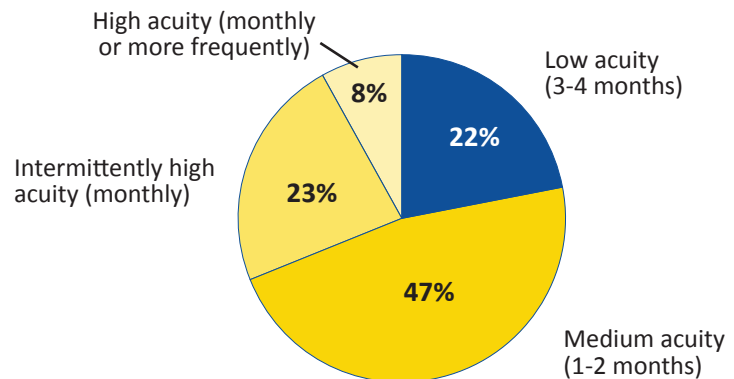
#### PATIENT AND PROVIDER ENGAGEMENT



UCSF tailored services to the dyads based on an acuity score that reflected severity of dementia and service needs. Sixty-nine percent of intervention participants were determined to have low or medium acuity and were transitioned to a Dementia Care Ecosystem Lite program that delivered less frequent and intense services and that might have made it more difficult to observe an intervention effect.

In addition, the Dementia Care Ecosystem program was never fully integrated with primary care providers outside the networks of the UCSF and the University of Nebraska Medical Center. Program staff found external providers difficult to engage due to their busy schedules and relative disinterest in the program. Multiple attempts by staff and program leadership to contact providers using various strategies were unsuccessful. As a result, the CTNs worked with caregivers to empower them to engage with the dementia patient's provider directly.

**Frequency of CTN contact by dementia acuity score**



#### SERVICE USE AND COSTS



While the program showed promising results – with the beneficiaries in the intervention group having somewhat (about 10 percent) fewer hospitalizations and ED visits, and slightly (5 percent) lower expenditures, than those in the control group, these results were not statistically significant and may not be due to the program. The small study sample makes it unlikely that statistically significant results would be obtained unless the true (unobserved) program effects were quite large.

#### PAYMENT MODEL



UCSF proposed two payment models. The first model was intended for non-risk-sharing organizations and featured FFS billing codes for the chronic care management and advanced care planning codes (specifically, the G0505 code for care planning and dementia). The second was intended to be a value-based payment model, but it had not been developed by the end of the award.

### KEY TAKEAWAYS

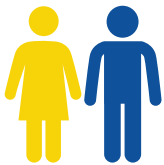
While the Dementia Care Ecosystem program showed promising results, the small study sample makes it unlikely that statistically significant results would be obtained unless the true program effects were quite large. In addition, the program's inability to recruit a high-needs population of patients with dementia and their caregivers, and low engagement of primary care physicians outside the UCSF and University of Nebraska Medical Center networks, likely hindered the awardee's capacity to have large effects on outcomes.

### Findings at a Glance

## MODEL OVERVIEW

The University of Michigan used its Round 2 of the Health Care Innovation Awards (HCIA R2) to expand the Michigan Surgical and Health Optimization Program (MSHOP) to 39 non-University of Michigan Health System (UMHS) hospitals. The program sought to improve surgical outcomes for adults scheduled for major abdominal surgery. The target population consisted of individuals at participating surgical practices who were scheduled for a major abdominal surgery, were scored as high risk for poor surgical outcomes, and had at least one week between MSHOP enrollment and their planned surgery date. The MSHOP providers used a risk assessment tool at the point of referral or surgical consult to assess patients’ risk for postoperative complications. The MSHOP taught participants healthy habits (such as those related to exercise and diet), giving them a kit with supportive tools and materials. The awardee designed a tracking system that reminded participants to record their activities and monitor their progress online. The goals of the program were to reduce surgical complications, length of inpatient hospital stays after surgery, and payments for treatment of complications that occur in the hospital or after discharge.

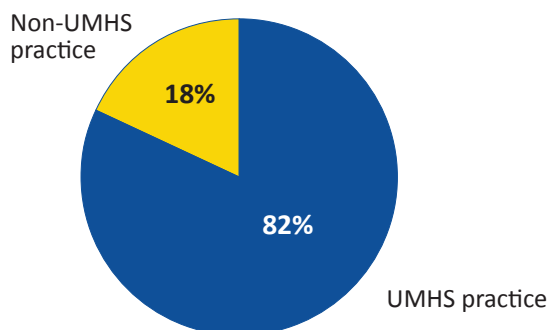
## PARTICIPANTS



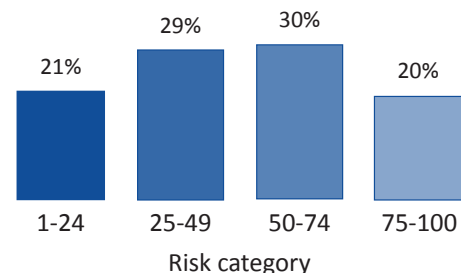
The awardee enrolled 3,051 MSHOP participants (24 percent of its original enrollment goal). Of these, 1,200 were linked to the Medicare enrollment database and included in the analysis of the awardee’s program data. Fewer fee for service (FFS) Medicare beneficiaries (795) met the study’s standard inclusion criteria (two-thirds of the excluded cases were enrolled in Medicare Advantage plans) and were included in the descriptive analysis of baseline characteristics.

Of the 1,200 Medicare participants, 82 percent enrolled at UMHS-affiliated sites, most of which had prior experience implementing the MSHOP. Only 27 percent (326) received a risk assessment and, of these, only 50 percent had a score of at least 50—the threshold used to define high risk for poor postsurgical outcomes. Of the 795 Medicare FFS participants, 18 percent were younger than 65, 30 percent became entitled to Medicare because of a disability, and 20 percent were dually eligible for Medicare and Medicaid. Medicare FFS participants also had mean predicted expenditures more than twice the average of Medicare FFS beneficiaries nationally.

**Percentage of Medicare participants, by site (N = 1,200)**



**Percentage of Medicare FFS participants, by risk score category (N = 326)**



## Findings at a Glance

### FINDINGS

#### PROGRAM IMPLEMENTATION



The awardee struggled to expand the MSHOP beyond the UMHS, due in part to a delay in disseminating the risk assessment tool to practices not affiliated with UMHS. The delay led to a lack of interest among non-UMHS providers to join the program and low engagement among those who did. The lack of engagement among non-UMHS providers, in turn, led to very low patient enrollment beyond the already-established UMHS network. To increase enrollment, the awardee expanded its eligibility criteria in the second program year to include additional abdominal surgeries. In addition, 30 percent of the Medicare participants had less than two weeks of enrollment before their planned surgery, and more than 60 percent had less than a month to adopt better healthy behaviors. Finally, according to awardee program data, 335 (42 percent) of the 795 Medicare FFS participants had their surgery suspended or cancelled after they enrolled in the MSHOP and 293 (37 percent) could not be found in Medicare claims with a qualifying procedure code from a participating surgeon.

#### CHALLENGES OF MEASURING IMPACT OF THE PROGRAM



A rigorous impact evaluation of the MSHOP was not possible because:

1. The inability to replicate the risk assessment tool in claims data prevented identifying a comparison group at similar risk of post-surgical complications.
2. The small number of beneficiaries who participated in the program and could be identified in claims data as having a qualifying procedure would have made it impossible to detect meaningful effects.
3. Many providers offered prehabilitation services before the award, preventing the identification of a pre-period without the benefits of the intervention for participating providers.

#### PAYMENT MODEL



The awardee implemented a payment model in partnership with Blue Cross Blue Shield of Michigan that paid surgeons and their care teams an incentive based on their level of engagement in the MSHOP. After hearing that surgeons felt the payments were insufficient to incentivize participation, the awardee decided to use a FFS model, whereby surgeons could bill for enrolling plan members in the MSHOP.

### KEY TAKEAWAYS

The awardee reported challenges recruiting surgeons outside the UMHS network to participate in the program and, after recruiting them, persuading them to use the risk assessment tool to identify patients at elevated risk for postoperative complications. As a result, the awardee enrolled far fewer participants than expected and, among these, very few were assessed as meeting the program's stated criterion of being at high risk for post-surgical complications (such as deep wound infection, myocardial infarction, pneumonia, and deep venous thrombosis).

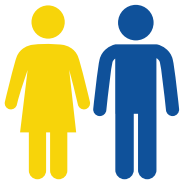


### Findings at a Glance

## MODEL OVERVIEW

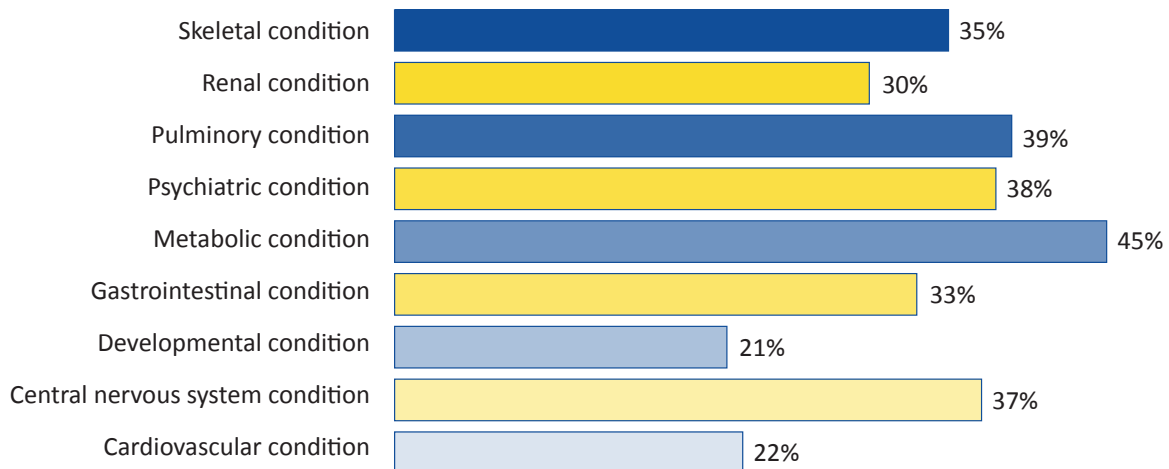
Seattle Children’s Hospital used its Round 2 Health Care Innovation Award (HCIA R2) to implement the Pediatric Partners in Care (PPIC), a care management and provider education program focused on reducing unnecessary or redundant services for children with disabilities enrolled in Medicaid and the Supplemental Security Income (SSI) program. The program’s goals were to (1) improve health outcomes of these children, (2) reduce medical costs, and (3) develop a scalable management model for outpatient care that optimized the existing care delivery infrastructure. Care coordination teams worked with each child’s family or caregivers and primary care providers (PCPs) to identify barriers to and gaps in care and developed a care plan. Care teams talked regularly with families and PCPs to review the plan, assess needs, and help families connect with community resources and navigate health care and social services systems. The awardee’s theory of action hypothesized that improving care coordination and management across settings would lead to improved quality of care and lower costs. Seattle Children’s Hospital collaborated with four Medicaid managed care organizations (MCOs) to implement the program and develop a sustainable delivery and payment model, although no MCOs had implemented the payment model at the end of this evaluation.

## PARTICIPANTS



The awardee enrolled 813 children in King and Snohomish counties in Washington State from February 2015 to August 2017, about 85 percent of the awardee’s final projections. The analysis included 516 treatment group children for whom Medicaid data was available and who met the program’s eligibility criteria based on Medicaid claims data. Program eligibility criteria required participants to have prior inpatient or emergency department (ED) use, or a risk score indicating higher-than-average expected expenditures. As a result, participating children had a wide range of chronic condition, as shown below. The awardee also provided educational programs to 34 PCPs with participating children, more than the program goal of 20 PCPs.

**Percentages of participating children in the analytic sample with selected conditions**



## Findings at a Glance

### FINDINGS

The impact analysis compared outcomes among participants to those of a comparison group of 955 children with similar characteristics from a neighboring county (Pierce county).

#### PATIENT ENGAGEMENT



The awardee tailored frequency of calls and types of home visits to meet participants' needs and not overwhelm families with contacts. Program leaders reported that a survey of families' experiences showed an increase in the proportion of families having a care coordinator. Parents also reported that PPIC helped them obtain needed community services and advocate for the children's needs.

#### SERVICE USE AND COSTS



Participants' estimated expenditures, hospitalizations, and ED visits changed after implementation by amounts that were not significantly different than the changes for the comparison group. There was a 53 percent estimated increase in prescription drug spending for PPIC participants in the second year after enrollment. Care managers might have been effective in getting patients either to start new drug regimens to manage their conditions or to better adhere to existing regimens.

#### PAYMENT MODEL



The awardee proposed a payment model in which MCOs would pay a per beneficiary per month care management fee for each child enrolled in Medicaid and SSI. Development continued past the end of the award, but no MCOs implemented the model. The awardee attempted to sustain the program, or elements of it, with MCOs and the state Medicaid agency, but efforts were unsuccessful.

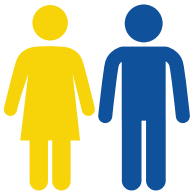
### KEY TAKEAWAYS

Seattle Children's Hospital's PPIC program provided care management to more than 800 children with a wide range of complex health conditions, and hundreds more children likely benefited from educational programs for PCPs. Qualitative and program data indicated that the program improved care management, and many stakeholders reported that it had positive effects on quality of care, patients' satisfaction, and other measures related to the theory of action but not quantifiable with claims data. The study suggests that participants' prescription drug spending increased relative to the comparison group, perhaps due to improvements in appropriate drug use or adherence, but favorable impact estimates were not observed for total Medicaid expenditures, hospitalizations, or ED use—the core outcomes of the HCIA R2 initiative and of this study.

## MODEL OVERVIEW

The Trustees of Columbia University in the City of New York received a cooperative agreement under Round 2 of the Health Care Innovation Awards (HCIA R2) to create the MySmileBuddy program, a family-level peer-counseling intervention to improve young children’s oral health. Community health workers (CHWs) (1) conducted risk assessments for eligible children; (2) educated caregivers (parents or legal guardians) about early childhood caries (ECC), including prevention strategies; (3) computed risk scores for eligible children; (4) assisted caregivers in setting family goals; and (5) developed an action plan with the family to achieve those goals. CHWs followed up with families regularly to assess progress and troubleshoot any problems in implementing the action plan and provided toothbrushes and toothpaste. Software designed for use by the CHWs, caregivers, and children supported these efforts. The awardee hypothesized that educating caregivers about ECC and engaging them in setting goals and planning to improve oral health would change caregivers’ and children’s behaviors, leading to better oral health and reduced ECC. The awardee engaged hospital-based pediatric dental delivery system (PDDS) clinics to identify and refer eligible families, but directly engaging providers was not a core component of the service delivery model.

## PARTICIPANTS



To be eligible for the MySmileBuddy program, children had to be from age 2 to 6, with ECC and no other significant illnesses. Their caregivers had to speak English or Spanish and be at least age 18. Up to two siblings from the same household, younger than 6, with or without caries, were also eligible. The program enrolled 1,207 participants, 62 percent of its original enrollment goal. The evaluation included the 579 participants who met the criteria and who had sufficient Medicaid claims data to be included in the analysis. The overall health status of the Medicaid participants was fairly typical for all Medicaid beneficiaries in this age group.

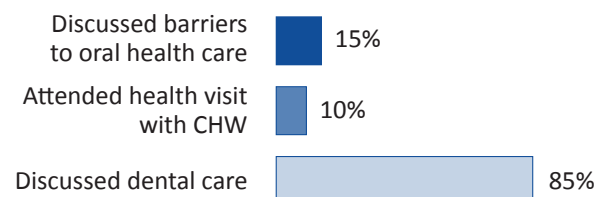
## FINDINGS

### PARTICIPANT ENGAGEMENT



Dentists applied clinical judgement to refer children to the MySmileBuddy program, then caregivers decided whether to enroll them after referral. Most participants actively engaged in the MySmileBuddy program and regularly attended scheduled encounters with CHWs. The awardee reported that CHWs made an average of 5.5 contacts per participant, most of which involved discussions about dental care. According to the awardee’s survey data, caregivers of participants reported high levels of satisfaction with the MySmileBuddy program.

#### Activities during patient encounters with community health workers



## CHALLENGES OF MEASURING PROGRAM IMPACTS



A rigorous impact evaluation of the MySmileBuddy program was not possible. First, it is likely that dentists referred children to the program, and their caregivers chose to participate, for reasons that could not be observed in claims data. Second, key eligibility criteria, particularly evidence of ECC, was not reliably recorded in the Medicaid claims data, and the sample was not large enough to limit the sample to those for whom ECC could be confirmed. Third, although an intent-to-treat analysis that included all eligible children who visited a participating PDDS clinic would have been unbiased, this type of analysis was not possible because only 2 percent of eligible children who visited a participating PDDS site actually enrolled in the program. Finally, Medicaid claims data cannot capture key program outcomes related to the progression of dental disease. Therefore, this analysis does not present estimates of program impacts.

## SERVICE USE DURING YEAR BEFORE ENROLLMENT



The analysis of baseline service use relied on 579 Medicaid recipients enrolled in the MySmileBuddy program from May 11, 2015, to October 31, 2016. Only 49 percent of participants had evidence of ECC during the year before enrollment, likely due to the underreporting of ECC in Medicaid claims data. Participants had to have a dental visit during the baseline year or on the date of enrollment to be included in this analysis, but 64 percent had a preventive care visit the year before baseline—substantially greater than the rate of 44 percent for all Medicaid or Children’s Health Insurance Program children in New York State in 2016. Thus, many participants were receiving dental care before enrollment. The rate of dental-related emergency department visits (16 per 1,000) was low.

### Percentage of Medicaid participants with dental care service use during year before enrollment



## PAYMENT MODEL



The awardee proposed a per beneficiary per month Medicaid fee to dentists to help cover the costs of the MySmileBuddy software and CHWs who provided the preventive dental services. To meet state expectations for value-based payment approaches, the awardee identified several behavioral and clinical outcome measures that dentists would have to meet to receive payment. The awardee did not implement the model during the study period.

## KEY TAKEAWAYS

Overall, the MySmileBuddy program appeared to engage participants effectively and improve access to care. CHWs successfully engaged participants, meeting with them an average of 5.5 times. Consequently, caregivers reported improvements in participants’ oral health. The awardee’s theory of action hypothesized that increases in the use of oral evaluation and preventive services for caries among participating children would change oral health behaviors, slow the progression of dental disease, and eventually lead to reduced costs. However, a rigorous impact evaluation of this awardee was not possible due to individuals qualifying for the program for reasons that cannot be observed in the Medicaid claims data and the fact that the Medicaid claims data cannot capture key program outcomes related to the progression of dental disease.

### MODEL OVERVIEW

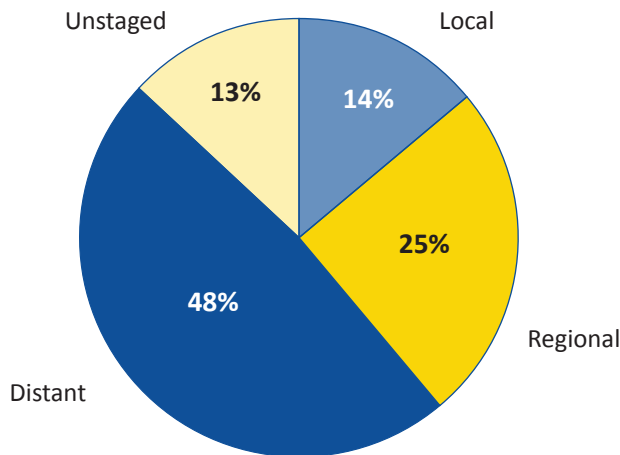
University Hospitals Cleveland Medical Center (UHCMC) used its Round 2 Health Care Innovation Award to create the Learning Individual Needs and Coordinating Care (LINCC) program. The intervention provides care management services and early and ongoing palliative care to enhance the quality and experience of care while reducing cost. Nurse care coordinators managed these services. UHCMC expected that better coordination would improve clinical outcomes and patient satisfaction, increase the quality of care, and decrease the total cost of care for patients with complex cancers. The program sought to engage Medicare and Medicaid beneficiaries receiving care at Seidman Cancer Center locations for complex cancers, particularly late-stage solid tumors, cancers with disease progression, and regionalized malignancies with comorbidities, or those who had other risk factors associated with poor outcomes or high costs. The awardee also developed a payment model that included shared savings between providers and payers and a per beneficiary per month (PBPM) care coordination payment covering all program services.

### PARTICIPANTS

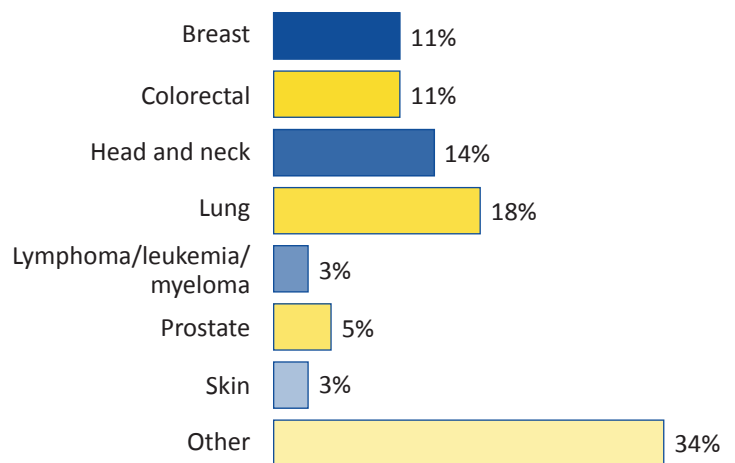


The awardee enrolled 1,340 participants, reaching 75 percent of its original enrollment goal. Of these, 488 beneficiaries (36 percent) were enrolled in Medicare fee-for-service (FFS) and met the study inclusion criteria. Among this subset of participants, the average age was 72. The mean hierarchical condition category (HCC) risk score was 3.6, indicating that UHCMC enrolled a Medicare FFS population that was predicted to be nearly four times more costly in the upcoming year than the average Medicare FFS beneficiary nationally. At the time of their initial diagnoses in the Ohio Cancer Incidence Surveillance System cancer registry, about half of beneficiaries had distant metastasis and 13 percent were unstaged. The most common cancer sites were lung, head and neck, breast, and colorectal. One-third of beneficiaries had a disparate set of cancer sites categorized as other.

**Percentage of RCT participants in each risk tier**



**Percentage of RCT participants with each of the targeted conditions**



### FINDINGS

#### PARTICIPANT ENGAGEMENT



Nurse care coordinators successfully engaged participants by providing them with an additional layer of support. Palliative care providers expressed difficulty proactively engaging asymptomatic patients and their providers. However, most participants (70 percent) received at least one palliative care consult.

#### CHALLENGES OF MEASURING PROGRAM IMPACTS



It was not possible to conduct a rigorous impact evaluation of the LINCC program because of the way in which the program identified and recruited participants. Limitations in the data prevented matching on important variables likely associated with outcomes, such as unobservable risk factors for poor outcomes and higher spending levels, disease progression, and social determinants of health. Although the study had information on stage of cancer at diagnosis, the program focused on patients with complex cancers, including people whose disease had progressed to later stages of cancer. Because the cancer registry did not contain information on disease progression after diagnosis, the study was unable to use this critical characteristic when identifying a comparison group. As an indication of the challenges in identifying an appropriate comparison group, after applying rigorous methods to selecting a potential comparison group, a descriptive analysis showed that 28 percent of the potential comparison group died and 53 percent of the treatment group died during the follow-up period, indicating matching did not sufficiently address unobservable risk factors for poor outcomes. Further, program enrollment became more subjective over time because it relied on staff's clinical judgment and assessment of social factors. For these reasons, this report does not provide estimates of program impacts.

#### PAYMENT MODEL



UHCMC proposed paying for LINCC through an approach now recognized as the Centers for Medicare & Medicaid Services' Oncology Care Model (OCM) payment approach, combining capitated payments of \$160 PBPM to cover nonreimbursable clinical services with FFS payments. UHCMC also proposed a coordination fee and shared savings arrangement through its accountable care organization to cover the cost of the program for patients not eligible for OCM.

### KEY TAKEAWAYS

UHCMC aimed to improve care quality and reduce costs for Medicare and Medicaid beneficiaries with complex cancers in Cleveland, Ohio. The LINCC care management program included coordinating care, identifying participants' needs, linking participants to resources, helping participants establish goals for their care, helping participants navigate their appointments, and increasing access to palliative care. Program staff reported successfully engaging participants and, eventually, increasing provider engagement as well. By the end of the third program year, most participants (97 percent of participants enrolled in program year 3, and 70 percent cumulatively) had received at least one palliative care consult. The LINCC program had several implementation challenges. These included staff turnover, which prevented the LINCC program from fully expanding to its three community-based satellite clinics. In addition, program staff reported difficulty integrating the program into the existing clinical workflows and physical infrastructure, especially at a large academic hospital with many providers and clinic locations. Because of how the program identified and recruited participants, it was not possible to conduct a rigorous impact evaluation of this program. A similar group of comparison beneficiaries to the intervention participants could not be identified using health care claims.

## MODEL OVERVIEW

The University of Kansas Health System, a medical center based in Kansas City, Kansas, received a cooperative agreement under Round 2 of the Health Care Innovation Awards to implement the Kansas Heart and Stroke Collaborative across rural areas in Kansas. The Collaborative sought to improve outcomes for patients with heart disease or stroke and reduce the cost of care by supporting the increased use of evidence-based protocols, provider education, telemedicine, transitional care management (TCM), and chronic care management (CCM). The first (acute care) arm of the Collaborative supported providers in rural areas with clinical protocols, training, and tele-consultation designed to improve acute care for all patients presenting with time-sensitive heart attack or stroke symptoms; the second (ambulatory care) arm served patients who presented at participating critical access hospitals (CAHs) with heart attack or stroke symptoms and received TCM services for 30 days following a hospital discharge; and the third (ambulatory care) arm provided long-term CCM in the form of health coaching available to patients who had suffered or were at risk of heart attack or stroke.

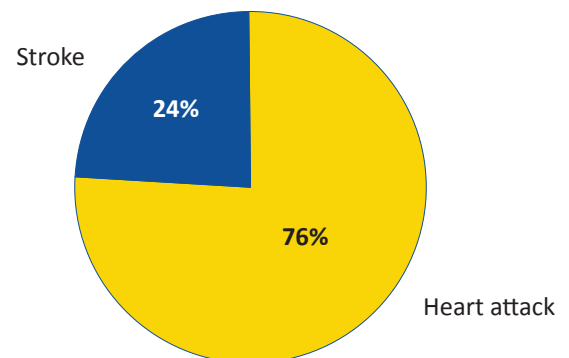
## PARTICIPANTS



The target population included residents of 14 rural counties in Kansas hospitalized with or who had symptoms of heart attack or stroke and were eligible for the acute care arm of the program. The acute care arm of the program was a provider-level intervention, based largely on the implementation of a standardized inpatient protocol for heart attack and stroke patients. The program passively enrolled all patients who met the eligibility criteria when they presented at the CAH and would likely not have been aware that they benefitted from the intervention. Because participants in the ambulatory care arm could not be linked to claims data, the study was not able to include this component of the intervention in the evaluation.

The impact evaluation relied on 920 Medicare fee-for-service (FFS) beneficiaries who presented in the EDs of 11 participating CAHs with a stroke or heart attack diagnosis from March 2015 through August 2017. Slightly more than 75 percent of the 920 Medicare treatment beneficiaries presented in the ED with signs of having a heart attack.

**Percentage of treatment beneficiaries presenting at CAHs with each diagnosis**



## FINDINGS

### SERVICE USE AND COSTS

The impact analysis compared outcomes among participants to those of a comparison group of 2,247 Medicare FFS beneficiaries who were patients at 23 CAHs in Nebraska and thus ineligible to participate in the program.



Total Medicare expenditures among treatment beneficiaries with a stroke diagnosis were an estimated 9 percent lower than for comparison beneficiaries in the year after enrollment. Estimated total and inpatient Medicare expenditures among treatment beneficiaries with a heart attack were lower than their comparison group counterparts. These reductions, though favorable, were not statistically significant.



The acute care arm of the program was associated with an estimated 27 percent lower inpatient expenditures for treatment beneficiaries with a stroke diagnosis during their first year after enrollment. Because the program did not have a discernible impact on the number of hospital admissions among stroke or heart attack patients, the CAH's average cost-based reimbursement amount likely drove the differences in inpatient expenditures. The program did not have a statistically significant impact on the number of ED visits or 30-day mortality for either group of beneficiaries.

### PROGRAM SUSTAINABILITY



The Collaborative grew over time, and by the end of the award it included 54 rural hospitals, 12 emergency medical service agencies, a tertiary care hospital, 19 rural physician practices, and two federally qualified health centers. All participating sites signed agreements to continue the program after the award ended.

The awardee calculated that the program cost \$83 per member per month, with its payment model of billing Medicare TCM and CCM codes covering roughly half that amount. The awardee generated the remainder of the necessary funds through shared savings from participating accountable care organizations, a grant from the United Methodist Hospital Ministries, and internal funding from the University of Kansas Health System.

## KEY TAKEAWAYS

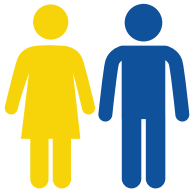
Awardee leaders hypothesized that evidence-based protocols, provider education, telemedicine, and TCM and CCM services would collectively improve rural Kansans' heart health and post-stroke survival and reduce total cost of care related to heart disease and stroke. Examining outcomes of beneficiaries eligible for the acute care arm of the program, the study found no statistically significant evidence of reductions in total Medicare spending, rates of hospital admissions, rates of ED visits, or mortality. However, the study identified lower inpatient expenditures for treatment beneficiaries with a stroke diagnosis. The reduction in inpatient expenditures without an accompanying change in the number of admissions was likely driven by differences in average payments, which are hospital specific for CAHs and based on their costs.



## MODEL OVERVIEW

The University of New Mexico (UNM) used funding from Round 2 of the Health Care Innovation Awards to launch the Access to Critical Cerebral Emergency Support (ACCESS) program. Because of the lack of access to neurosurgeons and neurologists in rural New Mexico emergency departments (EDs), local hospitals unnecessarily transfer many patients with neuro-emergent conditions, such as mild traumatic brain injuries or strokes, from their local hospitals to tertiary care providers (such as UNM) for diagnosis and treatment. The goal of the ACCESS program was to reduce unnecessary and costly transfers of patients by supporting rural hospitals in effectively diagnosing and treating neuro-emergent conditions through telehealth consultations with neurologists and neurosurgeons.

## PARTICIPANTS



Through May 2018, the ACCESS program provided 2,545 telehealth consultations, of which 1,112 were for Medicare fee-for-service (FFS) beneficiaries. Among the Medicare FFS participants, the average age was 74 years, with 85 percent older than 65. Expected average annual Medicare spending among Medicare FFS participants was nearly twice that of the average Medicare FFS beneficiary nationally. The most prevalent principal diagnoses among participants reflected conditions likely requiring a neurological or neurosurgical consultation. These included acute cerebrovascular disease, transient cerebral ischemia, epilepsy, syncope, other nervous system disorders, and intracranial injury. About one-third of participants had diagnoses that spanned a broad range of non-neurological conditions, such as urinary tract infections, septicemia, and diabetes mellitus.

## FINDINGS

### PROGRAM IMPLEMENTATION



The awardee encouraged all hospitals in New Mexico to participate in the ACCESS program. To implement the program, the awardee installed the NMXS technology and provided training to the hospital's telehealth coordinator and ED staff on the process of making a request for and facilitating the consultation. Under the cooperative agreement, the awardee helped hospitals upgrade or adopt the technology, added the neurosurgery component, and offered training and support in providing neurological care.

The awardee faced challenges meeting its enrollment goal, reaching only 30 percent of its enrollment goal of 8,504 consultations by May 2018. Implementation challenges including (1) hospitals were hesitant to participate because of financial concerns about the program, (2) it was difficult to identify new ED clinical staff who needed ACCESS training because of staff turnover, and (3) the lengthy credentialing process delayed the start of consultations at participating hospitals.

Despite challenges with hospital recruitment that led to fewer consultations than anticipated, hospital staff reported the consultation process was straightforward and enabled them to connect their patients to needed specialty care. Nearly all respondents to the clinician survey agreed that ACCESS had a positive effect on the quality of care. Roughly 80 percent of the respondents to the nonclinician hospital staff survey reported ACCESS had a positive effect on the quality and efficiency of care.

## **CHALLENGES OF MEASURING IMPACT OF PROGRAM ON SERVICE USE AND COSTS**



Because of how the program enrolled participants, it was not possible to conduct a rigorous impact evaluation of the program. Identifying comparison beneficiaries similar to the intervention participants was not possible using Medicare claims for two reasons.

1. ED physicians enrolled participants based on their presenting illness upon arrival at the ED rather than their final diagnosis, but presenting diagnoses were not fully observable in Medicare claims. Less than half of Medicare ED claims from ACCESS participating hospitals included a presenting diagnosis.
2. The final diagnosis could not serve as an accurate proxy for the presenting diagnosis because the telehealth consultation itself likely influenced the final diagnosis. According to the awardee, some patients with altered mental status who received telehealth consultation were found to not have neurological conditions after medical evaluation and treatment was complete. One-third of the participants had final diagnoses that spanned a broad range of non-neurological conditions, such as urinary tract infections, septicemia, and diabetes mellitus. Among participants with a valid presenting diagnosis, only 25 percent had a matching principal diagnosis upon ED discharge. Thus, compared to the intervention group, a potential comparison group would likely have a higher proportion of patients who did not truly have a neurological problem.

## **PAYMENT MODEL**



UNM proposed billing Medicare FFS codes that cover neurological and neurosurgery telehealth services. The awardee expected that the FFS payments would not fully cover the cost of program consults in the near term. The awardee expected that the program would ultimately pay for itself because implementing the program could help hospitals increase inpatient revenue by retaining patients who previously would have been transferred to another hospital. As of August 2018, 18 hospitals had signed contracts to continue participating in the ACCESS program.

## **KEY TAKEAWAYS**

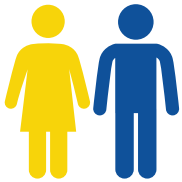
UNM partly succeeded in implementing the ACCESS program to support effective diagnosis and treatment of ED patients with neuro-emergent conditions at rural hospitals in New Mexico. Although staff at participating hospitals reported the program was a cost-effective method to improve care delivery, the program provided fewer consultations than anticipated because of difficulties in recruiting hospitals, hospital staff turnover, and low service volume at small hospitals. Because the criteria that ED clinicians used to identify and enroll participants into the ACCESS program were not observable for potential comparison cases and were likely associated with patients' outcomes, it was not possible to select an equivalent comparison group to conduct a rigorous impact evaluation.

### Findings at a Glance

## MODEL OVERVIEW

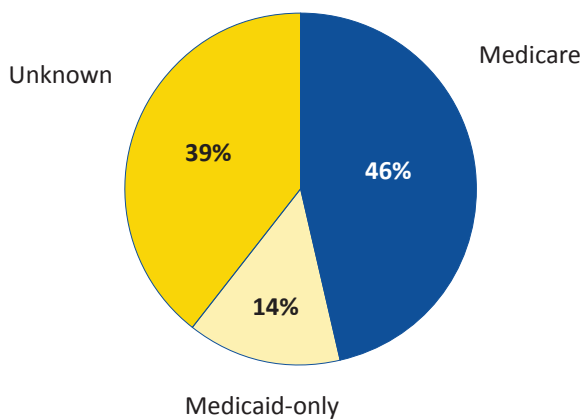
The University of North Carolina at Chapel Hill (UNC) used its Round 2 Health Care Innovation Award to implement the Better Back Care (BBC) program in primary and specialty care practices. The program comprised an evidence-based care delivery model for patients with acute, nonspecific low back pain (LBP) making their first visit to a participating provider. The program trained participating providers to use guideline-adherent conservative treatments over clinically inappropriate imaging, injections, and surgery. Nurse care managers coordinated program services, provided education to patients, and emphasized shared decision making. UNC expected that guideline-adherent treatment and care coordination would reduce inappropriate overuse of imaging, injections, and surgery, thereby reducing costs of care, improve patients’ outcomes, and improve patients’ satisfaction with staff.

## PARTICIPANTS

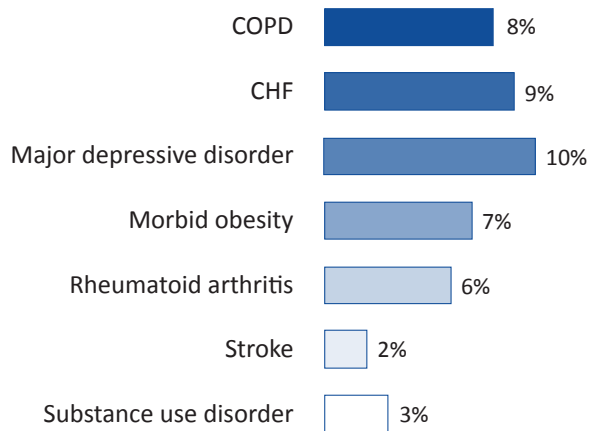


The program enrolled 1,472 participants from February 2015 to August 2017, reaching less than 10 percent of its original enrollment goal. Medicare beneficiaries accounted for 678 (46 percent) of total enrollees. In general, the 350 Medicare fee-for-service (FFS) participants who met the claims-based eligibility and study inclusion criteria looked much like the Medicare population overall, and were even slightly healthier, with an average hierarchical condition category score of only 0.90. However, nearly 10 percent had a major depressive or other psychiatric disorder, congestive heart failure (CHF), or chronic obstructive pulmonary disease (COPD) in addition to acute onset of LBP.

Percentage of participants, by insurance status (N=1,472)



Percentage of Medicare FFS participants with select chronic conditions (N=350)



## FINDINGS

### PROGRAM IMPLEMENTATION



Participating providers told interviewers that sharing provider profiles and benchmarks consistent with the program's treatment guidelines encouraged constructive competition among providers, avoidance of inappropriate testing, and discussion on approaches to increase adoption of evidence-based practices. Phone-based care coordination and support provided by nurse case managers included facilitating patients' access to exercise physiology classes; helping patients obtain appointments with program-affiliated specialists and other professionals, such as the pain psychologist or physical therapist; and encouraging positive health behaviors, such as exercise.

Despite the program's appeal to some providers and patients, the program encountered significant barriers to enrolling participants and engaging providers and participants. Many providers did not fully implement the program components as intended. In addition to difficulties recruiting eligible patients with acute LBP, the program often had difficulty contacting participants for care coordination and getting them to attend scheduled provider appointments. Although 73 percent of enrollees completed the initial call with the program's nurse case manager, only 24 percent were reachable for the scheduled six-month follow-up call.

### CHALLENGES OF MEASURING IMPACTS OF BBC PROGRAM



Just over half of the Medicare participants in BBC were in FFS Medicare and met the claims-based eligibility criteria, leaving only 350 participants for the descriptive analysis. Medicare FFS participants differed substantially from eligible nonparticipants, raising major concerns that participants were likely to have been predisposed to more favorable outcomes than eligible nonparticipants and any impact estimates obtained would suffer from severe selection bias. Obtaining unbiased estimates by using all those eligible for the program as the treatment group (an intent-to-treat approach) was rejected, because participants comprised only 5 percent of eligible Medicare FFS beneficiaries. Such an analysis would not be able to detect even large impacts of the BBC program. Thus, the study is limited to a descriptive analysis of the demographic and health characteristics of Medicare FFS participants before they enrolled in the program and does not present program impacts.

### PAYMENT MODEL



Rather than developing a payment model, the awardee encouraged adoption of the BBC care delivery model throughout UNC's health system and affiliates, where existing alternative payment models supported the value orientation of BBC.

## KEY TAKEAWAYS

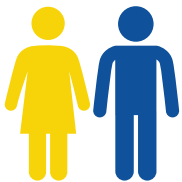
Although some providers and patients thought the BBC program was valuable, the awardee encountered significant barriers to enrolling participants and engaging providers and participants. Many providers did not implement the program as intended. In addition, the program often had difficulty contacting participants for care coordination and convincing them to attend scheduled appointments. Selecting patients on criteria not observable in claims, along with patients' self-selection into the program, made it impossible to develop a credible matched comparison group. Thus, the evaluation could not draw inferences about the impacts of BBC on the use of imaging procedures, the use of hospital inpatient or ED services, or Medicare expenditures.

## Findings at a Glance

### MODEL OVERVIEW

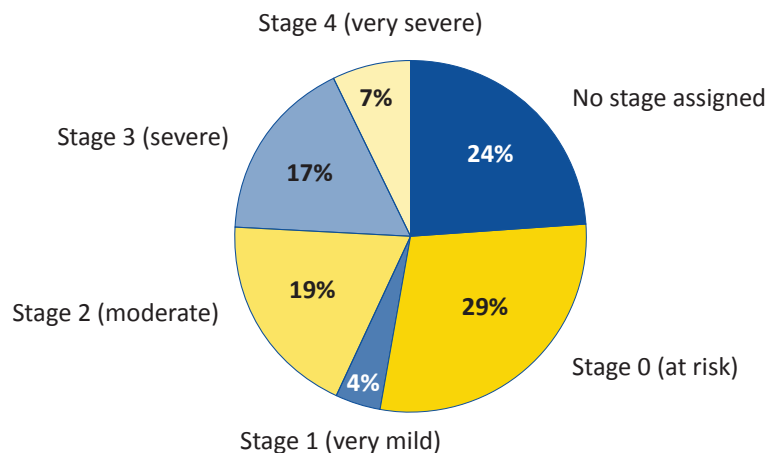
Ventura County Health Care, a public health agency based in Ventura, California, used funding from Round 2 of the Health Care Innovation Awards (HCIA R2) to create the Chronic Obstructive Pulmonary Disease (COPD) Access to Community Health (CATCH) program. Through the program, the awardee sought to provide home-based care of patients in Ventura County diagnosed with COPD. CATCH also provided training and resources that encouraged primary care providers (PCPs) to implement the Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines for the care of patients with COPD. In implementing the guidelines, PCPs received (1) training to accurately diagnose COPD in one of four stages of disease severity and (2) evidence-based strategies for treatment that aligned with each stage of the disease. Participants in the CATCH program also received care and case management from the program’s registered nurses (RNs) and registered respiratory therapists (RRTs); both coordinated care with the PCPs and specialists. The goal of CATCH was to improve the health of COPD patients and in turn reduce emergency department visits and hospitalizations resulting from COPD-related exacerbations.

### PARTICIPANTS



The awardee began enrolling beneficiaries in January 2015 and had enrolled 2,040 participants by the end of the program in August 2017, achieving 82 percent of its enrollment goal. Of the 2,040 participants, Ventura County Health Care identified 50 percent as Medicaid only, 22 percent as Medicare only, and 25 percent as dual eligible enrollees; the insurance for the remaining 3 percent could not be identified. All the Medicaid participants were in a Medicaid managed care program, Gold Cost Health Plan, and the Medicare participants were predominantly Medicare fee-for-service (FFS) beneficiaries. Nearly one-quarter of Medicare FFS participants were not assigned a COPD stage and, among those who were, the most common stage was 0, reflecting individuals at risk of developing COPD.

**Stage of COPD among CATCH Medicare FFS participants**



## Findings at a Glance

### FINDINGS

#### PROGRAM IMPLEMENTATION



Although generally successful in their engagement activities, CATCH staff indicated some obstacles in meeting program targets. Initially, there were bureaucratic hurdles to engaging providers outside the Ventura County Health Care Agency system. The program required participation by providers outside the county system to meet target enrollment figures, but staff indicated that sharing patients' information outside the system was burdensome. Initial shortages in the number of available spirometers hindered assessing participants, leading to more than 20 percent of participants failing to receive a pulmonary function test, an assessment critical to the proper diagnosis of COPD. In addition, initial shortages of nurses hampered the awardee's ambitious vision of providing each participant with a home visit.

#### CHALLENGES OF MEASURING PROGRAM IMPACTS



Two primary factors contributed to determining it was not possible to construct a good comparison group and conduct a rigorous evaluation of the impact of the CATCH program on beneficiaries' outcomes. First, due to concerns about the quality of California Medicaid encounter data and the inability to reliably match CATCH participants with these data, it was not possible to measure outcomes for Medicaid beneficiaries nor to create a comparison group of Medicaid beneficiaries. Second, there was an insufficient number of Medicare FFS beneficiaries for whom claims-based outcomes could be calculated and, of those, less than 60 percent had a COPD diagnosis in their claims history; the other beneficiaries were diagnosed as being at risk for developing COPD which could not be captured in claims data. Further, the stage of COPD is not reported in claims; this is a critical factor in drawing a similar comparison group. Thus, the evaluation provides a descriptive analysis of Medicare FFS beneficiaries' characteristics at enrollment, but because a rigorous impact analysis was not possible, it does not present estimates of program impacts.

#### PAYMENT MODEL



Ventura County Health Care originally proposed two types of payments to pay for CATCH: a discounted bundled payment for treating COPD patients for primary care practices, and an incentive payment for PCPs who followed evidence-based COPD clinical guidelines. However, the awardee did not pursue any payers to fund the payment model other than the Centers for Medicare & Medicaid Services, which declined to move forward with the bundled payment component. Without any payers on board, the physician incentive payments—for which Ventura County Health Care had used award funding—also ended after the award.

### KEY TAKEAWAYS

Ventura County Health Care reported being mostly successful in implementing the CATCH program. The program faced challenges in coordinating with providers outside of Ventura County Health Care that initially slowed enrollment. Resource constraints hindered the ability to accurately diagnose COPD at intake, and early nursing shortages made it difficult to provide an initial home visit for each participant. Even so, CATCH achieved 82 percent of its target enrollment goal, and the awardee reported growth in participation in a smoking cessation program and increases in the number of participants receiving inhaled bronchodilator therapy. Due to the small number of Medicare FFS beneficiaries, the lack of equivalent diagnostic information on claims for potential comparison cases, and a low participation rate among claims-based eligible beneficiaries, it was not possible to identify a credible comparison group needed to conduct a rigorous impact evaluation of the CATCH program.

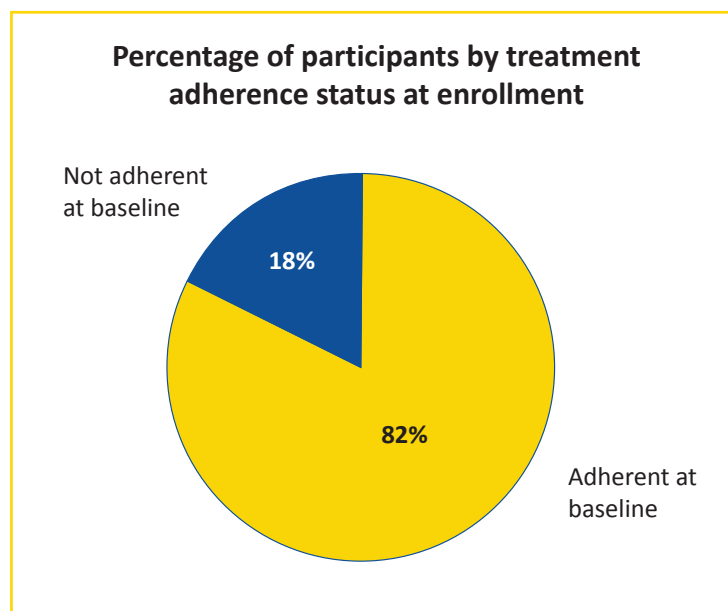
### MODEL OVERVIEW

Village Center for Care (VillageCare), a community-based nonprofit organization in New York City, used its Round 2 Health Care Innovation Award to create and support the implementation of the Rango program. The Rango program provided support to people with HIV disease via an integrated mobile platform (Rango.net) and a mobile app. Rango sought to help people with HIV maintain their health by reminding and encouraging them to take their life-saving antiretroviral medications every day as prescribed. The program also supported disease self-management through a variety of mobile features, including a community forum on which participants could post comments and interact with one another, online articles with useful information about HIV care and treatment, and automated medication and appointment reminders. The program launched in April 2015 (eight months after award) and aimed to engage adults ages 18 and older with HIV living in New York City and its surrounding regions. The awardee also developed a payment under which the entity that is responsible for the health of its population—such as an accountable care or managed care organization—would pay a per beneficiary per month care coordination fee for each enrolled beneficiary.

### PARTICIPANTS



The program enrolled 4,367 participants, reaching 85 percent of its original enrollment goal. The impact evaluation relied on a subset of 2,532 Medicaid and 420 Medicare beneficiaries with enough baseline and follow-up data to estimate program effects. According to the awardee’s data, 82 percent of participants were already adherent to treatment at enrollment, a major goal of the program. The \$40 monthly participation incentive might have induced people to participate who were already adherent. Program administrators also reported that the most actively engaged participants already effectively managed their disease, but those who needed support services the most were less likely to enroll or to use the mobile platform after they enrolled.



### FINDINGS

#### PARTICIPATE ENGAGEMENT



At least 89 percent of all participants logged on to the mobile platform at least once, and half used the medication reminder feature. Nearly two-thirds of participants remained enrolled through the second year.

#### SERVICE USE AND COSTS

The impact analysis compared changes over time for participants relative to a matched comparison group. The comparison group consisted of 1,946 Medicare and 8,873 Medicaid beneficiaries ages 18 and older with HIV living in New York City or the surrounding counties with similar demographic and health characteristics as those who were enrolled in the program



There were no sizeable or significant estimated impacts on hospitalization or emergency department visits for either Medicaid or Medicare beneficiaries over the three-year study.



There were no sizeable or statistically significant effects on primary or specialty care visits on Medicaid and Medicare beneficiaries over the study period.

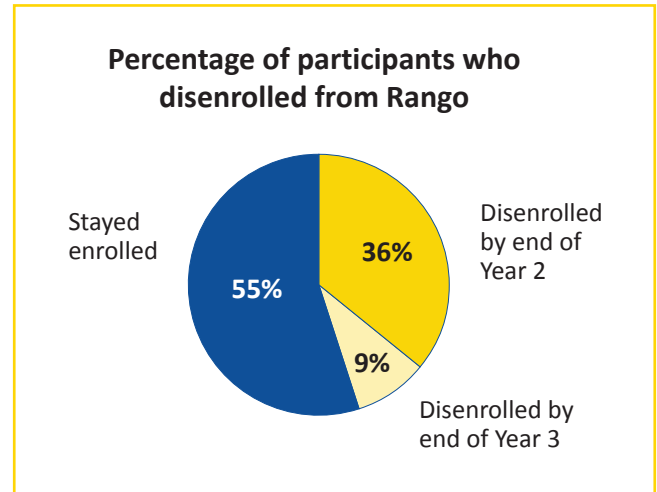


There was an estimated 8 percent reduction in expenditures for the small group of Medicare beneficiaries who participated in Rango relative to the comparison group over the full study period. However, this reduction was not statistically significant. Expenditure data were not available for Medicaid beneficiaries.

#### PAYMENT MODEL



The awardee’s proposed payment model featured a per beneficiary per month fee for each participant enrolled in the program. Payers, such as accountable care and managed care organizations, could choose one of two levels of payment. The first level included only the Rango software. The higher level covered the software and time from VillageCare staff to help with enrollment and provide health coaching services, among other activities. However, the awardee was unable to find funding sources to sustain the program.



### KEY TAKEAWAYS

Rango did not significantly reduce expenditures or key service use outcomes across the full sample of Medicaid and Medicare beneficiaries. This is not surprising because the goal of the intervention was to improve treatment adherence and self-care among adults with HIV, and 82 percent of participants were adherent to treatment when they enrolled and demonstrated good self-care. Although participants engaged in the program, for the program’s theory of action to work, Rango would have to recruit participants who were not effectively managing their care at the time of enrollment. Also, although Rango’s program leaders and partners thought they could observe behavioral change (such as treatment adherence) in the short evaluation time frame, it would likely take more than a year or two for any behavioral changes to manifest as changes in health outcomes and health care costs.

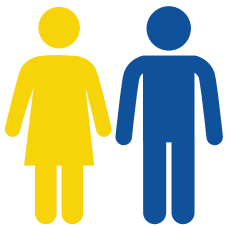


## Findings at a Glance

### MODEL OVERVIEW

The Washington University School of Medicine used its Round 2 Health Care Innovation Award to create the Contraceptive Choice Center (C3), an innovation designed to reduce unintended pregnancy among high-risk women in the St. Louis, Missouri, metropolitan area by improving access to effective methods of contraception. Washington University hypothesized that reducing financial and other barriers to evidence-based methods of contraception among women of childbearing age and among clinicians who provide family planning services would increase the uptake of methods proven to be most effective, resulting in a reduction of unintended pregnancies and childbirth and their associated costs. The target population consisted of reproductive-age women 14 years and older in the St. Louis area who were at risk for unintended pregnancy and childbirth.

### PARTICIPANTS



The C3 program enrolled 3,022 participants from January 2015 through August 2017, representing 75 percent of its adjusted three-year enrollment goal. Enrolled patients included adolescents (8 percent younger than 18), young adults (39 percent ages 19 to 25), and older adults (53 percent ages 26 or older). Almost half (47 percent) of enrollees identified as Black or African American, 35 percent as White, and 11 percent as Hispanic or Latino. About 31 percent of C3 patients had no insurance at their first clinic visit, Medicaid covered 20 percent, and the remaining reported cases (46 percent) had private insurance. About 42 percent reported having previously experienced unintended pregnancies.

### FINDINGS

#### PROGRAM IMPLEMENTATION



The C3 clinic featured three core components of service delivery:

- Providing a trained and licensed insurance navigator to help patients review insurance options and apply for coverage
- Using nonclinician health educators to provide structured, evidence-based contraceptive counseling
- Providing same-day contraceptive services, including insertion of long-acting reversible contraceptives (LARCs), such as intrauterine devices (IUDs) and implants

Washington University was successful in establishing the C3 clinic to deliver services in a manner consistent with its initial program design and in adapting its model to address barriers to and potential delays in service delivery related to insurance coverage. Staff reported few challenges to the core work of engaging patients in contraceptive counseling and providing contraceptive care. Self-monitoring statistics indicated high rates of same-day service delivery, high rates of LARC uptake among C3 patients compared to those in other family planning clinics, and high levels of patient satisfaction.

However, C3 faced numerous challenges in attracting and enrolling participants and in addressing financial barriers to access. Raising public awareness about the clinic's services and establishing reliable referral networks took more time and effort than expected. Missouri's early decision not to expand its Medicaid program and (later) to withdraw from the federally funded Medicaid family planning waiver demonstration

## Findings at a Glance

also led Washington University to devote more attention to finding alternative sources of financial support for uninsured C3 patients than anticipated and to revise its initial enrollment targets downward. C3's status as a Title X family planning clinic was critical to its ability to provide services at reduced or no cost to patients who lacked insurance and gave the clinic access to LARCs at reduced price.

### CHALLENGES OF MEASURING C3'S IMPACTS ON UNINTENDED PREGNANCY AND COSTS



It was not possible to conduct a rigorous analysis of the C3 program's impacts on unintended pregnancy and associated Medicaid costs for three reasons.

1. Prior experience with the Contraceptive CHOICE project in St. Louis, a privately funded program, precluded identifying a comparison group for a pre-post evaluation, because women in St. Louis had been exposed to a similar intervention.
2. Because Medicaid claims data do not capture information about pregnancy intention, it would not be possible to determine whether pregnancy outcomes in a Medicaid comparison group were intended or unintended.
3. Downstream costs associated with unintended pregnancy and childbirth would not be discernible through claims data within the time period of this evaluation.

### PAYMENT MODEL



Washington University developed a model for a bundled payment to cover a single 90-day episode of contraceptive care. The model contains two reimbursement rates, one for providing LARCs (\$447.46) and one for shorter-acting contraceptive methods (\$150.77). Both rates cover contraceptive counseling, short-term follow-up and support, and facility and administration charges (including insurance navigation and assistance). The LARC reimbursement rate includes an insertion fee and dispensing fee for ordering, stocking, and inventory management of IUDs and implants, but the actual cost of the contraceptive device is carved out of the bundle. Washington University proposed its model to Missouri HealthNet (Medicaid) and other payers, but had been unable to negotiate an agreement at the end of the award period.

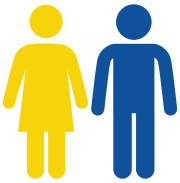
## KEY TAKEAWAYS

Washington University successfully implemented its C3 program to provide comprehensive contraceptive services to women at risk for unintended pregnancy in St. Louis, including services to women with limited means. Self-monitoring statistics indicated high levels of patient uptake of the most effective evidence-based contraceptive methods and high rates of patient satisfaction. Title X data indicated that C3 patients were much more likely to adopt highly effective contraceptive methods than patients in other Title X-funded family planning clinics in Missouri. However, it was not possible to conduct a rigorous analysis of C3's impacts on unintended pregnancy or costs. Washington University's ability to sustain C3 services depends on reimbursement. The awardee proposed a bundled payment for a 90-day episode of contraceptive care but had not been able to negotiate an agreement with payers by the end of the award period.

## MODEL OVERVIEW

The Wisconsin Department of Health Services (WI DHS) and its partners, the Children’s Hospital of Wisconsin and the University of Wisconsin Health–American Family Children’s Hospital used their Round 2 Health Care Innovation Award to develop the Special Needs Program (SNP). The goal of the program was to address the needs of children with medical complexity (CMC) and their families by providing integrated health care, including direct and consultative patient care, care management, and care coordination. The awardee hypothesized that providing enhanced care management and coordination for CMC would reduce preventable emergency department (ED) and hospital service use and spending, enhance access to necessary outpatient services, and increase satisfaction among families and primary care providers. Physicians and nurse practitioners (NPs) provided care to patients during scheduled clinic visits and inpatient stays, oversaw patients’ care plans, and collaborated with primary care and specialty providers. Teams of registered nurses and care coordination assistants ensured timely follow-up appointments and social workers addressed psychosocial, emotional, and socioeconomic issues that affected access and adherence to care. A state plan amendment introduced two new procedural codes for targeted case management that began covering SNP services after the end of the award.

## PARTICIPANTS



The SNP teams identified eligible children residing in the two hospitals’ catchment areas primarily through referrals from specialists, primary care providers, community programs, and children’s caregivers. At both sites, program teams evaluated each referral to verify alignment with SNP eligibility criteria, and then called the family to schedule an assessment office visit before enrolling a child in the program. During the visit, the program team assessed the patient’s needs, parental engagement and interest in the program, and the patient’s potential eligibility for other WI DHS programs. After the assessment visit, program teams invited eligible children to enroll in the SNP, and parents signed a consent form and agreed to participate in the program. Participants could remain enrolled in the program as long as program staff and families agreed that participation continued to offer benefits.

The program enrolled 685 beneficiaries from September 2014 through August 2017, representing 34 percent of its original three-year goal and an estimated 12 percent of all children potentially eligible for the intervention. Participants often enrolled after a medical event and had high care needs that did not always decrease in a predictable way and required time to stabilize. Among the 427 Medicaid participants included in the study sample, 43 percent were younger than 1 year at the time of enrollment. A majority of the beneficiaries younger than 1 were White (56 percent) compared to 37 percent in the group older than 1.

## FINDINGS

### PROGRAM IMPLEMENTATION



The SNP physicians and NPs provided direct patient care during scheduled clinic visits, consulted in the inpatient setting, and helped to develop and implement patients’ care plans. The SNP team worked with primary care and specialty providers to co-manage participants by collaborating on medical decision making with other physicians and participants’ families and providing around-the-clock accessibility by phone to participants’ families and other physicians, especially during acute changes in medical conditions and transitions of care between hospital units or from hospital to home. Care coordination teams ensured

that participants' care plans and specialty follow-up appointments occurred in a timely manner and served as the primary point of contact for patients' families.

Many new enrollees experienced medical events that triggered enrollment. As a result, they had high needs when they entered the program, sometimes requiring six or more months in the program before their conditions stabilized. Program leaders found that supporting enrolled children with more intense needs than expected stretched program staff capacity. The awardee also struggled to find qualified candidates for all positions on the care teams. Program leaders and staff attributed staff recruitment challenges to the unique set of skills required for SNP positions—strong communication skills, familiarity with the hospital system, a commitment to teamwork, and a passion for the CMC population. Additional challenges in recruiting physicians and NPs included a requirement to work one weekend each month and less competitive salaries compared to other specialties. SNP teams faced challenges in bringing new staff up to speed while addressing the needs of an influx of new patients who required more time and attention than existing patients.

## CHALLENGES OF MEASURING PROGRAM IMPACTS



A rigorous impact evaluation was not possible for SNP because of serious concerns about three sources of selection bias. First, SNP staff met with referred family members to assess patients' needs and parental engagement and interest. Some families felt overwhelmed by the severity (and sometimes newness) of the child's condition and chose not to enroll at that time. Thus, a key factor in whether children were enrolled was whether they had motivated and engaged parents, something that could not be observed for comparison beneficiaries. Second, because the two participating hospitals offered the most advanced care in the state, it was difficult to identify beneficiaries with similar care needs and who did not already receive services from one of the participating hospitals. Third, most participants lived in the Madison and Milwaukee metropolitan areas. Drawing comparison beneficiaries from the nonmetropolitan areas of the state might introduce bias on unobservable differences in access to care and other social determinants of health that the urbanicity of one's residence could influence.

## PAYMENT MODEL



A state plan amendment effective September 2017 created two procedural codes that covered the SNP's services not reimbursed under traditional Medicaid. One code reimbursed for one-time comprehensive assessment and completion of a patient's care plan. The second was a monthly capitated payment of \$450 when the hospital reports at least one care coordination activity for the child.

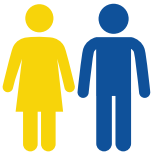
## KEY TAKEAWAYS

Despite challenges reaching its original enrollment target, WI DHS successfully engaged program participants and largely delivered services as intended. However, many enrollees had experienced a major medical event that triggered their enrollment and thus had unexpectedly high health care needs when they entered the program, sometimes requiring many months in the program before their conditions stabilized. During interviews, SNP providers hypothesized that it would take at least 18 months to see program effects. Multiple sources of potential selection bias and the associated challenges of finding a comparison group with similar motivational and health characteristics as participants, coupled with the low participation rate, precluded a rigorous evaluation of the program impact on beneficiaries' outcomes.

## MODEL OVERVIEW

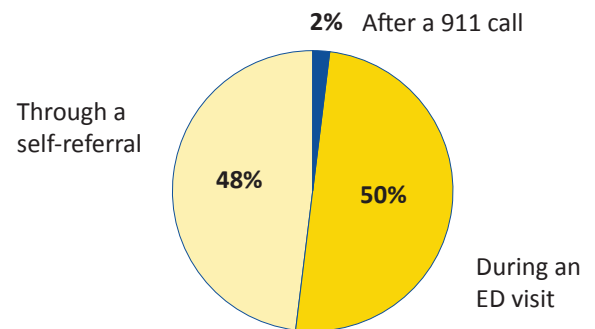
Yale University used its Round 2 Health Care Innovation Award to implement the Paramedic Referrals for Increased Independence and Decreased Disability in the Elderly (PRIDE) program. The community-based, short-term care management program sought to identify and engage elderly individuals in the greater New Haven area who had fallen or feared falling. PRIDE paramedics and nurses from partnering visiting nurse agencies (VNAs) engaged program participants in their homes to identify fall risks, address underlying medical conditions that lead to fall risk, provide referrals to relevant community resources, and implement fall-prevention strategies in the home. Yale University expected that PRIDE services would reduce falls and thus contribute to reductions in lift-assist calls, preventable emergency department (ED) visits, hospitalizations, and total Medicare expenditures. The awardee proposed a payment model under which the regional emergency medical services medical director would receive a prospective, population-based payment for a geographical region to reimburse paramedics, VNA nurses, and transportation providers for providing specific services.

## PARTICIPANTS



The program enrolled 5,222 unique participants, reaching more than 100 percent of its original enrollment target. Yale identified and recruited program participants in three ways: after a 911 call, during an ED visit, and through self-referrals. The vast majority of participants were recruited through either an ED visit or through self-referral. Focusing on the 782 participants enrolled in Medicare FFS and recruited through the ED, more than 70 percent were White and female. Almost 40 percent of participants were dually eligible for Medicare and Medicaid. The average hierarchical condition category risk score was 2.1, indicating that their expected Medicare annual spending was at least twice as high as the average for Medicare FFS beneficiaries nationally.

**Percentage of PRIDE participants by source of enrollment**



## FINDINGS

### PROGRAM IMPLEMENTATION AND PARTICIPANT ENGAGEMENT



Yale University's staff reported experiencing challenges recruiting, enrolling, and engaging patients. The initial participant identification and recruitment focus using 911 lift-assist calls was too narrow and contributed to low enrollment. The awardee subsequently expanded the target population to include individuals who were concerned about a fall and adding two new recruitment mechanisms: patients visiting the ED and self-referred patients.

Participants did not fully engage in PRIDE services, including paramedic and VNA home visits, and primary care provider (PCP) scheduling assistance. During the three-year cooperative agreement, over one-quarter of 5,222 unique participants did not receive any home visit. Yale also struggled to establish connections between participants and PCPs. PRIDE paramedics found that participants frequently declined these services, saying that they already had appointments with their PCPs or that a family member would provide transportation.

Yale also encountered several challenges in recruiting, hiring, and retaining appropriate program staff to deliver PRIDE services. Over the course of the program, Yale University created multiple new positions and modified its hiring criteria to boost enrollment and patient engagement rates; the awardee hired a central office staffer during the second year to manage paramedics' schedules, organize community outreach efforts, and oversee the PRIDE ED staff.

## CHALLENGES OF MEASURING IMPACT OF PRIDE PROGRAM



Because of how the awardee identified and recruited patients, it was not possible to measure the impact of the PRIDE program on the core outcomes. Comparison beneficiaries similar to the intervention participants could not be identified using Medicare claims for two reasons:

1. The eligibility criteria for participants who enrolled through self-referral or 911 lift-assist calls could not be replicated in Medicare claims.
2. For participants recruited through the ED, identification of similar comparison beneficiaries could not be replicated in health care claims because PRIDE and hospital staff used clinical judgment to identify and recruit participants. Evidence indicates that participants were sicker than other beneficiaries presenting to participating EDs who appear to be eligible based upon Medicare claims and enrollment data but were not enrolled. The low participation rate among those eligible according to claims data made it infeasible to obtain reliable, unbiased estimates of program impacts using all eligible cases.

## PAYMENT MODEL



Yale University proposed to fund the PRIDE program through a prospective, population-based payment amount to be paid to the regional EMS medical director for all beneficiaries in a geographic region to proactively address fall risk for individuals who had already fallen or were at risk of falling in their homes. The payment would have provided the medical director with funds to reimburse paramedics, VNA nurses, and transportation providers for conducting home assessments and linking participants to primary care providers. The awardee was unable to secure support for this payment model.

## KEY TAKEAWAYS

Yale University implemented the PRIDE program that used a community-based, short-term care management approach to improve the health of elders and others with impaired mobility among residents of the greater New Haven area in Connecticut. Implementation challenges included early low enrollment numbers that necessitated the expansion of the target population and recruitment strategies, low engagement with PRIDE services (paramedic and VNA home visits and PCP appointment scheduling), and difficulties in recruiting, hiring, and retaining appropriate program staff to deliver PRIDE services. Because of the lack of a qualifying event for self-referral and 911 lift-assist participants and the use of clinical judgment in recruiting patients in the ED, Medicare claims data could not be used to identify comparison beneficiaries similar to program participants to conduct a rigorous impact evaluation.