LONG-TERM
QUALITY ALLIANCE

THE SENIOR CARE OPTIONS (SCO) PROGRAM:
INTEGRATED CARE AND MEDICAL UTILIZATION

INTRODUCTION

The Massachusetts Medicaid program, MassHealth, provides health insurance coverage to approximately 1.8 million low-income state residents, including children, people with disabilities, and seniors. Of these, 310,000 residents, mostly seniors and younger adults with disabilities, are covered under Medicare as well as Medicaid ("dually eligible").[1]

Traditionally, individuals with dual eligibility have separate and distinct coverage through Medicare and Medicaid for various aspects of their health care. Medicare provides basic coverage for hospital, physician, drug, and other medical expenses, while Medicaid fills gaps in medical coverage and pays Medicare copayments as well as covering services not covered by Medicare, primarily long-term services and supports (LTSS) in nursing homes or in home- and community-based settings. This silo-ed approach in traditional Medicare and Medicaid creates complexity and a lack of coordination of care for beneficiaries.

Massachusetts has been a leader in efforts to integrate Medicare and Medicaid coverage and create a seamless and well-coordinated care experience for dual eligible residents. In 2004, MassHealth collaborated with the Centers for Medicare and Medicaid Services (CMS) to launch the Senior Care Options (SCO) demonstration -- the fourth dual-eligible demonstration approved by CMS. Through the SCO demonstration, MassHealth and CMS combined Medicare and Medicaid resources and contracted with managed care organizations (MCOs) to assume risk and manage holistic care for beneficiaries 65 and older and living in the community and in institutions. In 2013, MassHealth joined CMS's Financial Alignment Initiative (FAI) with the One

[1] Health Management Associates. "Massachusetts' Duals Demo 2.0 to Grow the SCO and OneCare Programs. https://www.healthmanagement.com/blog/massachusetts-duals-demo-2-0-grow-sco-one-care-programs/

Care program, extending the effort to integrate care to the dual eligible population who are adults under age 65 with a disability.

Despite the national leadership of MassHealth in the effort to integrate care, as of January 2018, less than one-fourth of all dually-eligible beneficiaries in Massachusetts were enrolled in integrated plans. To address this problem and expand integrated plan enrollment in the state, MassHealth has proposed to CMS a "Duals Demonstration 2.0" that would take effect in 2020.[2] The new demonstration would align the SCO and One Care programs and pursue a more aggressive effort to grow enrollment, achieve a more seamless member experience, and strengthen the fiscal sustainability of the two programs for the future.

As MassHealth continues to invest in an integrated approach to care, it is important to take stock of the impact that the integrated approach has on outcomes that matter for both the state and dually-eligible beneficiaries.

The purpose of this project is to develop evidence of the impact that long-term services and supports (LTSS), provided through a plan that integrates and takes full risk for LTSS and medical care, can have on medical utilization and outcomes for persons with functional limitations. The project has prepared case studies of three of the six SCO plans to identify key characteristics and practices of the plans that influence the quality of care and to measure the impact of their integrated approach on medical utilization.

The project pairs the case studies with an analysis of plan data to determine the plan's impact on health care utilization. The analysis compares the "predicted utilization" of a comparator population enrolled in traditional ("fee-for-service") Medicare with the actual utilization of Medicare enrollees in SCO plans to measure the impact of SCO's model of integrated care on health care utilization.

Our hypothesis is that a population with complex care needs that is enrolled in a SCO integrated plan benefits from being able to remain independent longer in home and community settings. A matched population that is not enrolled in an integrated plan will exhibit greater use of expensive medical services and is more likely to be institutionalized.

[2] IBID.

SCO PROGRAM OVERVIEW

Senior Care Options (SCO) is an integrated managed care program available to MassHealth members aged 65 and over. The program integrates Medicare and Medicaid coverage primarily for beneficiaries who are dually eligible for both programs.[3] The state contracts with managed care health plans to cover a full spectrum of services normally paid for through Medicare and MassHealth (Medicaid). The program is operated jointly by the state and the federal government under a federal regulation that authorizes a model of a combined Medicare and Medicaid plan known as a Fully-Integrated Dual-Eligible Special Needs Plan (FIDE-SNP).[4]

The SCO program was established in 2004 as an early dual-eligible demonstration. At that time, the one-quarter of MassHealth beneficiaries who were dually eligible accounted for half of the state's Medicaid spending.[5] About 60 percent of Massachusetts' dually eligible members were elderly individuals with poor access to primary care who saw multiple specialist providers.[6] The goal of the SCO program was, through integration of Medicare and Medicaid coverage, to improve the coordination of medical care, behavioral health care, and long-term services and supports (LTSS) for this population, lower overall costs, and improve outcomes. The program was originally established through a three-way contract between the federal Centers for Medicare and Medicaid Services (CMS), MassHealth, and the SCO plan.

Today, the SCO program serves 56,000 members in 11 out of the 14 counties in Massachusetts, where 97% of the population resides. In counties where they operate, multiple plans are available for seniors to choose from.[7]

[3] While SCO is designed to integrate Medicare and Medicaid coverage for dually eligible beneficiaries, around 10 percent of the enrolled SCO population has Medicaid coverage only.

[4] A FIDE-SNP is a single plan that combines a Medicare Advantage Dual Eligible Special Needs Plan (D-SNP) with a Medicaid Managed LTSS (MLTSS) Plan to provide a full range of benefits for individuals who are eligible for coverage in both Medicare and Medicaid. The member experiences the plan as a single plan in terms of enrollment and coverage, although operationally the plan functions as two separate components. See: 42 CFR 438.207.

[5] In 2004, 224,000 of the 950,000 enrolled in MassHealth were dual eligible beneficiaries. Auditor of the Commonwealth. "Independent state auditor's report on certain activities of the Medicaid program administered by MassHealth." Official Audit Report # 2004-1374-3S. October 13, 2005.

[6] Porter, M. and J. Baron (2008), "Commonwealth Care Alliance and Disabled Care", Harvard Business School.

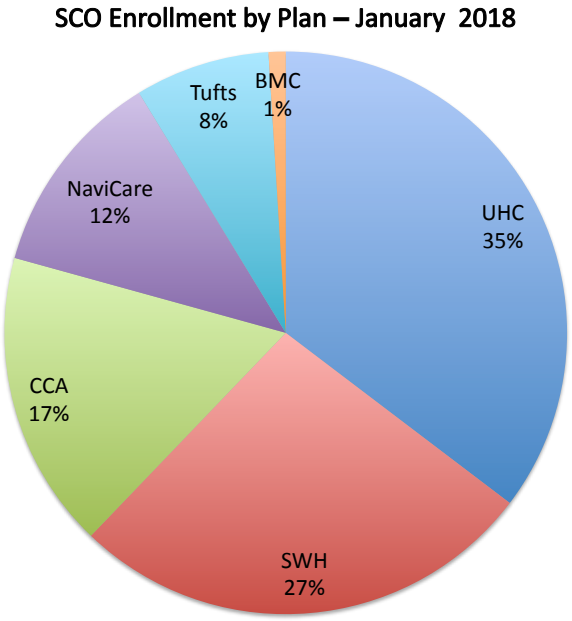
[7] Executive Office of Health and Human Services, Commonwealth of Massachusetts. MassHealth Snapshot Enrollment Summary for July 2018. https://www.mass.gov/lists/masshealth-measures.

SCO Participating Plans

MassHealth solicits contracts from all qualified organizations that can demonstrate their capacity to deliver the program.[8] Participating plans must provide a full range of medical and social services, including primary and acute care, behavioral health, prescription drugs, and LTSS.[9] Plans must also combine clinical and social support services through coordinated care and specialized geriatric supports and offer respite care for families and caregivers.

Six SCO plans signed five-year contracts in 2016; two of them (BMC and Tufts) are relatively new. The six participating plans are:

- Boston Medical Center (BMC) HealthNet Plan
- Commonwealth Care Alliance
- Fallon NaviCare
- Senior Whole Health
- Tufts Health Plan
- United Healthcare



[8] Burwell, B. et al. (2010), "Care Management Practices in Integrated Care Models for Dual Eligibles", *AARP Public Policy Institute*; and Health Management Associates; Value Assessment of Senior Care Options; June 2015.
[9] Flanders, D. (2006), "Senior Care Options: Bringing Medicare and MassHealth together", Presentation at Centre for Health Strategies [Center for Health Care Strategies?], 6 November.

Eligibility and Enrollment

Enrollment in the SCO program is voluntary, and, once enrolled, a member may dis-enroll any month of the year. Enrollment in SCO is open to MassHealth Standard[10] members who meet the following criteria:

- Are aged 65 or older;
- Live at home or in a long-term-care facility (member cannot be an inpatient at a chronic or rehabilitation hospital or reside in an intermediate care facility for people with intellectual disabilities);
- Are not subject to a six-month deductible period under MassHealth regulations[11];
- Are not diagnosed with end-stage renal disease; and
- Reside in an area served by a SCO plan.

To enroll, the MassHealth member (or responsible party) must select one of the SCO plans that is available in the member's geographic region. The selected plan will assist the member with completing a SCO enrollment form and selecting a primary care provider (PCP) from the available network. The SCO then processes the enrollment with MassHealth and, if applicable, with Medicare.

Before the SCO program was launched, previous initiatives that aimed to provide inclusive care for Medicare/Medicaid patients experienced limited growth due to strict regulatory frameworks and specifications.[12] The SCO program has been more effective in attracting members. Even now, though, only about one-third (32%) of seniors enrolled in MassHealth are enrolled in SCOs,[13] a market penetration rate that has remained fairly consistent in recent years. Enrollment in a SCO is voluntary for a dual beneficiary. Recently, the state has considered implementing a program of "passive enrollment"[14] of eligible MassHealth members in SCOs as a strategy for growing enrollment. MassHealth used passive enrollment for Medicaid adults under age 65 in Medicare-Medicaid plans (MMPs) as part of the One-Care

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[9] MassHealth Standard is the Medicaid coverage available to citizens and lawful residents with incomes and assets below the lowest Medicaid threshold (2018 monthly income/assets below $1032/$2000 individual and $1392/$3000 couple).

[11] The deductible is the amount that a household's income is higher than MassHealth's deductible income standard for a six-month period. Individuals with incomes above the limit become eligible when their medical bills exceed the deductible.

[12] Masters,R.& C.Eng (2001),"Integrating Acute and Long-Term Care For High-Cost Populations", *Health Affairs*, v20.

[13] EEOHHS (2018). "MassHealth Snapshot Enrollment Summary for May 2018." https://www.mass.gov/lists/masshealth-measures. Health Management Associates; Value Assessment of Senior Care Options; June 2015.

[14] Medicare Advantage embodies the principle of beneficiary choice – choice whether to enroll in an MA plan and choice of plan. When dual beneficiaries have the option of enrolling in plans that integrate Medicare and Medicaid, CMS has allowed states to waive choice and **passively enroll** dual beneficiaries in Medicare and Medicaid coverage for the same organization to facilitate integration of the coverage and coordination of care. Beneficiaries are provided advance notice that they will be enrolled in the integrated plan and have a window in which they can opt for another plan or to return to traditional Medicare ("opt-out").

program in CMS's Financial Alignment Demonstration,[15] and has recently announced it is seeking CMS approval to extend passive enrollment to all dual eligible beneficiaries.[16]

Care Model

The SCO plan receives payment from Medicare and Medicaid to authorize, arrange, coordinate and provide all Medicare and Medicaid covered services for its members. The plan aims, through integration of Medicare and Medicaid benefits, to improve the coordination of their members' medical care, behavioral health care, and long-term services and supports (LTSS) in order to improve their quality of care, quality of life, and lower overall costs. Members are enrolled at a primary care center and have a dedicated care manager and primary care team who they are able to reach 24 hours a day, 7 days a week.

Care Managers: The SCO plan manages care for its members through a care manager assigned to the member. The care manager has overall responsibility for arranging the care provided to the member and ensuring effective coordination of clinical and non-clinical (e.g., LTSS) services provided to the member. Within 30 days of a member's initial enrollment, the care manager will complete, with the member, an assessment of the member's functional status and need for LTSS, including the availability of informal support. The care manager will then develop, with the member, an individualized plan of care that details the services to be provided to meet the member's needs. SCOs are required to conduct a reassessment at least once every six months for each enrolled member.

Most of the SCOs assign different levels of practitioners and care intensity to enrollees based on their assessed level of need. At higher levels of need, plans may assign registered nurses as care managers and require more frequent contact and in-home assessments and visits. For "community well members" and members with a low-level of acuity, plans may assign staff with lower levels of training as care managers and provide less frequent, telephonic contact to monitor the enrollee's condition and anticipate needs.

SCOs are required by the state to hire Geriatric Support Services Coordinators (GSSCs) through a contract with one or more Aging Service Access Points (ASAPs). A GSSC is either a social worker or someone with professional experience in geriatric care. As a member of the care

[15] Passive enrollment has been used in the Financial Alignment Demonstration with mixed results. See: D. Grabowski, et al. "Passive Enrollment Of Dual-Eligible Beneficiaries Into Medicare And Medicaid Managed Care Has Not Met Expectations.". Health Affairs . online May 1, 2017 https://www.healthaffairs.org/doi/10.1377/hlthaff.2016.1082.

[16] Ellen Breslin, "Massachusetts' Duals Demo 2.0 to Grow the SCO and OneCare Programs." HMA Weekly Roundup. June 20, 2018.

team, the GSSC participates in initial and ongoing assessments and arranges, coordinates, and authorizes the provision of community-based LTSS. Community-based services can include personal care assistance, home-delivered meals, non-urgent transportation, and adult day services. The GSSC also monitors and tracks the delivery of services that are provided under the care plan.

Primary Care Providers (PCPs): SCO members have a primary care provider (PCP) that is a part of the SCO plan's network of providers. The PCP provides overall clinical direction and serves as a member of the Interdisciplinary Primary Care Team for the integration and coordination of the covered services.

Aging Service Access Points (ASAPs)

An ASAP is a regional organization with extensive knowledge of and relationships with the local LTSS provider network. (In other states, these organizations are called Area Agencies on Aging (AAAs)). In Massachusetts ASAPs are also responsible for administering Medicaid fee-for-service LTSS benefits and monitoring LTSS providers in collaboration with the state's Elder Affairs office. SCOs may enter into contracts with ASAPs to provide some community-based services or to conduct risk assessment and care planning activities.

Interdisciplinary Primary Care Team (PCT): For individuals with complex care needs, the SCO is responsible to create an interdisciplinary Primary Care Team (PCT). The PCT includes a nurse care manager and geriatric services support coordinator (GSSC) and the member's PCP. The PCT is responsible to work with the member (and applicable caregivers) to develop an individualized plan of care to specifically address the needs of the member. The PCT may be expanded to include one or more specialists (e.g., nutritionist, physical therapist, mental health professional) for individual SCO members depending on their needs. The SCO maintains a single, comprehensive record (the Centralized Enrollee Record (CER)) that combines information on medical, functional, and social status.

Behavioral Health Care: SCOs offer a continuum of behavioral health care that is coordinated with the PCT. Behavioral health problems are systematically identified and addressed by the enrollee's PCP or PCT at the initial and ongoing assessments through the use of appropriate mental-health screening tools. The plan has a structured process for identifying and addressing complex behavioral health needs at all levels of care and in all residential settings. Referrals that are made to specialty behavioral health services are coordinated, monitored and documented by the plan.

Health Promotion and Wellness: SCOs provide informational health promotion and wellness activities for enrollees, family members, and other significant informal caregivers. The focus and content of the information is geared to the specific health-status needs and high-risk behaviors of seniors.

Coordination with Service Providers: The SCO contracts with and coordinates services across different providers, rather than provide care itself. The SCO collaborates with community-based organizations providing LTSS and health care providers to coordinate LTSS and medical services. The SCO plans have flexibility in the methods they use to pay providers in order to structure incentives for providers to assist in achieving quality outcomes for members. All providers, including contracted providers, are required to make timely entries in the CER describing the care provided.

Institutional Care and Care Transitions: SCOs are required to provide institutional care as determined by the PCT and to provide community alternatives to institutional care and other transitional, respite, and residential support services to maintain members safely in the community. A key role for the SCO is to manage the transition of patients from one setting to another, for example, from an institution to the member's home, with an emphasis on maintaining the member's quality of life. The SCOs have given particular focus to enhanced primary care, and use regular home visits and monitoring of patients across the system to ensure that SCO can intervene early and provide the right care in the right setting.[17]

Plan Payment Model

Plans receive separate payments per member per month from CMS for Medicare services and MassHealth for Medicaid services. SCOs combine these payments and, although Medicare and Medicaid coverage rules apply, have a degree of flexibility in how they use the funds to support a member's needs. In the end, though, SCOs must disaggregate the total spent in order to account back to the individual sources for the services that are provided.

MassHealth makes monthly per-member payments in six separate rating categories that reflect the relative service needs among a SCO's population. Payment for each of these six categories is then further adjusted based on region of residence (Boston or non-Boston). The state's payments are structured in a manner that incentivizes plans to provide members with lower-cost community-based alternatives rather than institutional care when this appropriate. [18]

[17] Burwell, B. et al. (2010), "Care Management Practices in Integrated Care Models for Dual Eligibles", AARP Public Policy Institute.

[18] The categories are based on eligibility, region of residence, clinical status, and care settings. Three of the categories are institutional rating categories and three are community rating categories . Health Management Associates; "Value Assessment of Senior Care Options"; June 2015. P. 18-19.

CMS makes two separate per member per month payments to SCOs that are risk-adjusted: one payment covers hospital and physician services that in traditional Medicare are provided under Parts A and B; the other payment covers prescription drugs that are covered under Part D of Medicare. Some SCOs may qualify for an annual frailty payment if its members have demonstrably higher needs than average.[19]

Outcomes

The SCO model for integration of Medicare and Medicaid coverage is an innovative approach with its origins in Massachusetts that has been adopted and advanced by CMS in other states. The model employs a high level of care management for those enrollees with complex care needs to help them remain in their homes and communities rather than be admitted to a long-stay in a nursing facility.

While the model is widely viewed as successful in achieving better outcomes and lower health care utilization and expense, there has been no thorough evaluative study that has measured these effects. The outcomes that have been measured have been limited.

One study by JEN Associates in 2013 concluded that enrollees in SCO plans are at lower risk of long-stay nursing home entry than comparable Medicare-Medicaid beneficiaries who are not enrolled in a SCO plan.[20]

Another indicator of SCO performance is the aggregate result of SCO plans on Medicare's overall health care quality ranking – the Medicare Star Ratings. SCOs overall have achieved comparatively high Medicare Star Ratings particularly given the complex needs of their population, and their ratings when compared to those for plans with less complex or similarly complex populations.[21]

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[19] SCOs as FIDE-SNPs are eligible to apply for an annual frailty payment based on a methodology that determines if the SCO's members have a "similar average level of frailty" compared to members enrolled in the Program for All-Inclusive Elderly (PACE) program.

[20] JEN Associates (2013) "Massachusetts Senior Care Option 2005-2010 Impact on Enrollees: Nursing Home Entry Utilization." Available at: http://www.mass.gov/eohhs/docs/masshealth/sco/sco-evaluation-nf-entry-rate-2004-through- 2010-enrollment-cohorts.doc

[21] The Medicare Star Rating program is a comparative quality-rating program for Medicare Advantage plans. Plans are awarded between one and five stars based on a summary of mostly-clinical quality measures. The average rating for the five SCOs In 2015 was 4.1, compared to the national average of 3.9. Health Management Associates; Value Assessment of Senior Care Options; June 2015.

In general, though, it is difficult to measure cost and quality outcomes for SCO for several reasons: First, there are not adequate widely-adopted outcomes measures for services that are not medical and provided beyond the clinic walls, particularly for home- and community-based services (HCBS). Second, since SCO enrollees with complex care needs are unlikely to experience significant diminishment of chronic conditions or functional limitations over time, a time-series analysis (before and after enrollment) is unlikely to show impact from the plans on health outcomes or spending. Third, the SCO population has more substantial medical and functional needs than the average person in fee-for-service Medicare. Comparisons of SCO and fee-for-service outcomes require substantial adjustments to the comparator population to ensure differences between the populations are not driving the results.

Conclusion

The SCO program is one of the original integrated programs for individuals with dual eligibility, and, unlike most other initiatives and demonstrations seeking to integrate care, has settled in as a permanent part of the Medicare-Medicaid landscape, with 14 years of operating experience under its belt.

The SCO model has many features, such as: intensive, person-centered, care management and interdisciplinary care teams, which are widely viewed as having a significant effect on the ability of its members to remain in their homes and communities as they age and on the overall need for and use of very expensive and intensive medical treatment and institutional care.

While SCO is an attractive prototype for integrated duals plans, ready to be replicated in other environments, it lacks two features needed to gain wide-scale adoption. The first is broad enrollment of its target population in Massachusetts, and the second is the accumulation of the evidence base needed to measure and communicate its value.

On the first point, enrollment in all the SCO program overall has failed to grow to more than one-third of the eligible population over the last decade and a half. For SCO, this low enrollment may be a result of its voluntary enrollment policy (people with eligibility have to affirmatively enroll in a SCO plan) and other factors such as medical and LTSS provider resistance, beneficiary aversion to managed care, or lack of adequate information on enrollment choices. MassHealth is currently seeking approval from CMS for a “Duals Demonstration 2.0” that would enable it to align its two Duals Demonstration programs (One Care and SCO), adopt new tactics to grow enrollment, and strengthen its financial stability.

On the second point, the case studies and the quantitative study presented in the following sections provide new evidence of the impact of SCO as a program on medical utilization by the portion of its membership with the most complex care needs.

METHODOLOGY

This report presents an analysis of the impact of the Senior Care Option (SCO) program in Massachusetts. Three organizations participated in the study: UnitedHealth Group, Commonwealth Care Alliance, and Fallon Health.[22]

The hypothesis for the study is that a population with complex care needs and functional limitations enrolled in a plan providing the SCO program's fully-integrated, holistic model of care has lower medical utilization than a similar population enrolled in traditional fee-for-service Medicare.

The study has two distinct research components: a qualitative description of the participating SCO plans and a quantitative analysis comparing the utilization outcomes of these plans to that of a similar population enrolled in fee-for-service Medicare.

The qualitative phase of the project is an in-depth case study of each participating plan. Information for the case studies was collected through a series of semi-structured interviews that were conducted with leadership and staff of the SCO plan by phone and during site visits to each organization's headquarters. Typical leadership individuals who were interviewed include the SCO plan's Chief Executive Officer, Chief Medical Officer, Chief Financial Officer, and the individual overseeing the care management function for SCO enrollees. At each plan, we also interviewed care managers who worked with high-need SCO members, and managers of care managers. LTQA staff recorded and took detailed notes on each of these interviews. Following a careful review of these notes, the team drafted a general description of the common features of the SCO program, and an individual case study report on each plan describing unique features in that plan's care model. The initial draft of each case study report was shared with that plan's interviewees, and they were invited to submit corrections of any misstatements of fact.

The quantitative analysis for this study compares the medical utilization in 2015 of each plan's "high-need" membership with the medical utilization in 2015 of a benchmark "high-need" population in fee-for-service Medicare. For purposes of the quantitative analysis, the null

[22] Two organizations -- Tufts Health Plan and Boston Medical Center (BMC) HealthNet Plan – were excluded because their more recently launched SCO plans had insufficient data for the time period of the quantitative study. One organization – Senior Whole Health -- chose not to participate.

hypothesis is that there will be no difference between the medical utilization of the plan and the benchmark population. Our primary outcome measure is the average hospitalization rate, and secondary outcomes are the average number of ER visits per person and average number of Medicare-reimbursed skilled nursing facility admissions per person (i.e., post-acute admissions).

To conduct this analysis, we constructed a benchmark population of adults ages 65 and older who required assistance with two or more activities of daily living (ADLs) who responded to the 2015 National Health and Aging Trends Study (NHATS). Using this study population, we developed a multivariate regression model for each of the utilization outcomes for each health plan. We constructed separate multivariate regression models for each health plan in which we used all variables for which information is available and comparably measured by the health plan and NHATS.[23] These regression analyses allow us to examine the relationship between population characteristics and healthcare utilization.

Using the predictive models developed from the NHATS, we estimated expected utilization outcomes for each health plan's membership were it in traditional (fee-for-service) Medicare. The expected outcome for each outcome (e.g., average number hospitalizations per person) is then compared to the plans' actual value (e.g., average number of hospitalizations per person).

Individual plan results could not be statistically aggregated for the three plans to create a single result for SCO. Rather the individual plan results are reported separately but are not attributed to specific plans. In the analysis, we discuss results that are similar across all three SCO plans in the study and report on results that varied for the three plans. We conclude on the outcomes that we believe are attributable to the SCO program as a whole.

[23] To calculate the expected values from the NHATS model, the health plan value (average or proportions) for each independent variable is multiplied by the regression coefficients generated by the NHATS benchmark regression analysis for that plan. That calculation produces an expected outcome (e.g., average number hospitalizations per person) that is then compared to the plans' actual value (e.g., average number of hospitalizations per person).

COMMONWEALTH CARE ALLIANCE CASE STUDY

Introduction

Commonwealth Care Alliance, Inc., (CCA) is a not-for-profit organization that operates two insurance plans: CCA SCO for individuals age 65 and older, launched in 2004 at the inception of the state program, and CCA One Care, a Medicare-Medicaid Plan (MMP) for dual-eligible individuals age 21 to 64. CCA also provides direct care for patients through Commonwealth Community Care (CCC), a primary care practice with four locations across the state, and through two Crisis Stabilization Units, which are inpatient psychiatric facilities available to CCA members experiencing an acute mental health crisis.

The CCA SCO program serves 9,195 members as of January 1, 2018. The service area includes all cities and towns in Bristol, Essex, Hampden, Hampshire, Middlesex, Suffolk and Worcester counties as well as many cities and towns in Franklin, Norfolk, and Plymouth counties. The average age of SCO members is 76, 64 percent do not speak English, and 70 percent have four or more chronic conditions. Although 70 percent of members are nursing home certifiable, CCA supports 96 percent of the population in the community, with only 4 percent living in long-term care facilities

Care Management Approach

Organization and Structure

CCA's care management teams are organized geographically, with each team covering members living within their region. Each team consists of care partners (community based case managers) and managers of care partners, with the size of the team varying based on the number of members being managed. Each team is supported by centralized clinical and specialized staff, including medical directors and the transitions-of-care team.

Community Residents

Every new CCA SCO member receives an initial comprehensive assessment, conducted in his or her home or another community location if the member prefers. A CCA nurse visits the member to complete this assessment covering medical, social, behavioral, and LTSS needs. During this meeting, the nurse drafts a provisional care plan in consultation with the member; the plan is then reviewed by the broader CCA care team. The CCA care team then determines whether the member will receive care management support via telephone or home visits, and assigns a care partner to serve as the member's main point of contact and coordination. The care partner may be a registered nurse (RN), health outreach worker, behavioral specialist, nurse practitioner (NP) or physician assistant (PA), depending on the member's needs.

After the initial comprehensive assessment is completed, the assigned care partner visits the member to introduce themselves, review the assessment and care plan, modify the care plan as necessary, and finalize the care plan with the member. The care partner also completes any additional assessments triggered in the nurse's initial visit, for example, a falls risk or nutritional assessment, and update the care plan to address any newly identified needs. After this meeting, services are established in collaboration with the member's assigned GSSC, a separate individual dedicated exclusively to managing the member's LTSS needs. The role of the GSSC is explained further below.

CCA care plans are standardized documents integrating behavioral health services, primary care, and social services. The plans are shared with the member once an agreement of the content is reached between the parties who have participated in the assessment process. The plan, ultimately, informs the activities of the care partner.

The care partner is responsible for ongoing monitoring and support of the member. Care partners endeavor to respond to member needs as they arise and help to update services when necessary, for example, if a member is hospitalized or the family requests additional assistance. Care partners receive alerts and have bidirectional electronic communication with LTSS providers, which can prompt further investigation into the status of the member. Additionally, all members are reassessed by the CCA nurse every six months and care plans are adjusted accordingly.

Enhanced Primary Care

The majority of CCA members have a PCP in the community. Members assigned to CCA's clinical groups and delegated sites[24] receive care from CCA-employed doctors. CCA also provides "enhanced primary care" to the majority of SCO members by assigning an advanced practitioner as the member's care partner. The key to a good working relationship between community primary care and CCA is frequent, clear communication. An NP or PA communicates with the member's PCP and extends care by carrying out the care plan, prescribing medicines, and ordering tests for the patient as needed. The NP's or PA's role as a CCA care partner offers them a unique advantage in providing this enhanced primary care, as they have a deep understanding of the member's medical and behavioral health needs as well as the environment in which the member lives. CCA's NPs and PAs are supervised by a CCA medical director from one of the clinical groups.

[24] CCA works with delegated and non-delegated sites. Delegated sites assume full responsibility for all care management and may have financial risk sharing with CCA. See below in section on "Provider Relationships: Primary Care Providers."

Long-Term Care Facility Residents

Despite enrolling a population with complex health care needs, many of whom are nursing home certifiable, only four percent of members in the CCA SCO plan are long-term care facility residents. All long-term care facility residents have a transitions of care team nurse assigned as their care partner. CCA nurses are assigned according to nursing home facility, which enables them to develop long-term relationships with the facility's staff.

All nursing home residents receive an initial comprehensive assessment and are re-assessed every six months. CCA nurses participate in goals of care meetings and family meetings for the member, advocating for the member and helping ensure that any family concerns are addressed by the nursing facility. The CCA nurse also reviews therapy orders placed by the nursing facility team to help ensure appropriate types and frequency of services.

CCA nurses use their clinical skills to manage the care of members who are frequently hospitalized. The nurse investigates the root causes of hospitalizations, aiming to address any underlying facility or member issues identified. In general, the CCA nurse develops a collaborative relationship with the on-site clinical team of case managers, social workers, and RNs.

Managing Hospitalizations and Other Inpatient Utilization

Hospitalizations and inpatient care services are major drivers of overall health care spending, and managing this utilization is critical to the overall success of integrated plans. CCA's primary strategy for reducing unnecessary hospital use is to prevent unnecessary hospital admissions with a variety of hospital diversion approaches and options. In addition to active care management for members, CCA's internal clinical capacity (described below) helps members to avoid hospitalizations. This section describes CCA's approach when a member ends is hospitalized.

Admission

When CCA is alerted of a hospitalization, the care team shares member information with the hospital, including medications, medical history, and advance directives. A nurse from CCA's transitions of care team is assigned to the case, and begins coordinating with family and hospital discharge planners.

In managing member hospitalizations, CCA has occasionally encountered a barrier common in the industry—a delay in communication that alerts the plan early of an admission. This lack of communication hinders plan efforts at discharge planning and transition management. Successfully increasing safe, well-planned transitions requires collaborative solutions that

address this disconnect. CCA is evaluating a possible technology solution by implementing PatientPing—a service that notifies users of admissions to participating hospitals based on links to hospitals' electronic medical record systems.

Inpatient Care Management

While the member is in the hospital, the transitions of care nurse focuses on three primary goals: ensuring the safest, most appropriate transitions; minimizing unneeded transitions; and helping the member return home as soon as possible. Since multiple transitions can be harmful to frail elders, CCA will often authorize a longer hospital stay with discharge directly to home, avoiding an additional transition to a rehabilitation facility for a short stay.

The CCA transitions-of-care nurse supports the member and member's family during the hospital stay, helping empower them to engage in care decisions. Without such support, members may have difficulty participating in their own care, especially during an acute incident. A dedicated support person with clinical expertise and a holistic view of the patient's life outside the hospital is a valuable resource, providing the hospital team with rich context to the member's care needs and preferences. During the inpatient stay, the CCA nurse communicates with the member and their family, takes part in family meetings regarding major care decisions, and helps ensure that any concerns about care are addressed by hospital staff.

In several large hospitals across the state, CCA has embedded staff who enhance the plan's ability to influence inpatient care. At Boston Medical Center, CCA has a joint venture with the hospitalist service -- concentrating CCA patients in the family medicine department and scheduling frequent conferences between the hospitalist and the CCA care team. At two other hospitals—Cambridge Health Alliance and Baystate Medical Center—CCA has a full-time transitions-of-care nurse located onsite. For other hospitals, transitions of care nurses are not onsite, but are staffed consistently so that they can develop relationships with key facility staff.

Discharge

The CCA transitions-of-care nurse generally leads discharge assessment and planning, working in collaboration with the hospital case manager and regular CCA care partner. The CCA nurse helps to ensure that the discharge plan addresses both new and pre-existing medical needs and that necessary community-based services are re-established. If the member is being discharged to a rehabilitation facility, the nurse helps the family choose a high-quality facility, and then follows the member and continues to help manage their care in the rehabilitation facility. Once a member is discharged home, the nurse conducts a 48-hour post-discharge home visit, after which care management transfers back to the regular CCA care partner.

Internal Clinical Capacity at CCA

One of the unique characteristics of CCA is that the organization not only operates health plans, but also has internal clinical capacity that enables CCA clinicians to provide care directly to members. Many SCO members benefit from the enhanced primary care delivered by NPs and PAs on the CCA care team. CCA also serves members through its primary care clinics, behavioral health facilities, mobile health teams, and palliative care.

Primary Care Clinics

CCA serves some of its most complex members directly through one of its four primary care clinics across the state, CCC. In this model, the member has a CCC physician in addition to a care partner. CCC has been a key asset in caring for CCA's One Care population, but plays a minor role in caring for SCO members. In 2017, a small percentage of SCO members saw a PCP based in a CCC clinic. CCC staff are available 24/7 for patients and provide care in patient homes when appropriate. CCA care management teams meet in person with the full provider team at each clinic to coordinate care and problem-solve on high-need patients and those experiencing transitions.

Mobile Integrated Health

CCA's Mobile Integrated Health team is staffed by specially-trained paramedics through a contractor. In 2017, the team served hundreds of SCO members in the Boston and South Shore areas. The paramedics may conduct assessments under the supervision of a physician and administer therapeutic interventions in the home for members with urgent care needs, working closely with CCA clinicians to determine the appropriate care plan. Paramedics can provide point-of-care blood analysis, collect lab samples, deliver medications, administer IV medications and fluids, and do cardiac work ups on members with 12 lead EKGs. The most common reasons for dispatches are urgent medical needs, palliative care, and long-term chronic disease management. The majority of members served by the paramedics are able to remain at home—preventing an emergency department visit and its ensuing complications.

Palliative Care

CCA has a dedicated team consisting of physicians, advanced practice clinicians (NPs and PAs), RNs, licensed social workers, and health outreach workers who provide palliative care to members to support their quality of life, regardless of functional ability, stage of illness, or prognosis. The plan also contracts with hospice agencies on a per-visit basis for services from their staff, including hospice nurses, social workers, chaplains, bereavement counselors, and home health aides. These hospice agencies also provide after-hours symptom management and death pronouncement. The combination of the in-house palliative care capabilities with contracted hospice services allow SCO members to remain enrolled with CCA for Medicare benefits while receiving hospice-level services—avoiding the need for beneficiaries to disenroll

from their Medicare Advantage plan and forgo curative care in order to receive quality end-of-life care. Some members whose needs are appropriate for hospice are able to also remain enrolled with CCA, receiving continuous care management and some service coverage.

Behavioral Health

Frail elders often struggle with comorbid behavioral health issues, in particular, depression and anxiety. CCA can meet these needs with in-house behavioral health capacity. There are behavioral health specialists on CCA care teams, who serve as care partners for members whose primary need is behavioral health-related and collaborate with care partners for other members as needs arise. Behavioral health specialists have a variety of licensures.

CCA has also developed two Crisis Stabilization Units (CSUs)—facilities available to treat members experiencing behavioral health crises who could benefit from inpatient care, but whose condition is not so acute as to justify an inpatient psychiatric hospitalization. These units are not focused on geriatric care and primarily serve younger persons with disabilities through the One Care program. CSUs are staffed by mental health workers, psychiatric NPs, and psychiatrists. CCA established these units to fill a gap in the available behavioral health delivery system. Preliminary evidence suggests that these units have held down behavioral health costs, reduced inpatient admissions, and reduced inpatient psychiatric days.[25]

Provider Relationships

Primary Care Providers

CCA works with a wide range of primary care provider (PCP) practices including both large health systems and small practices. CCA selects PCPs for its network based on a robust ability and desire to collaborate in the integrated care model. In the CCA SCO model, PCPs have primary responsibility for the member's care. CCA's role is to support the PCP by managing LTSS and providing other wraparound services for the member. CCA care partners also extend care into the home and community, which is not generally an option for overtaxed PCPs. PCPs view this as a major benefit of partnering with CCA, since they often lack the time and expertise to manage care coordination and LTSS. CCA customizes the relationship with each PCP practice based on its current capabilities. Some practices are more advanced and actively engage in care management, while other practices rely more heavily on CCA to play that role.

CCA has two main kinds of arrangements in its PCP network: delegated and non-delegated primary care sites. Delegated sites assume full responsibility for all care management and may

[25] R Lester and J Verdier (2016) "Alternatives to Inpatient Psychiatric Services for Medicare-Medicaid Enrollees: A Case Study of Commonwealth Care Alliance," *Integrated Care Resource Care Center,* Mathematica Policy Research.

have financial risk sharing with CCA. CCA specifies the basic structure and process for managing members care through a care management contract with each delegated site. The model of financial risk sharing varies across sites. Non-delegated sites do not take responsibility for care management, as this is done by CCA's clinical group. These sites are paid on a fee-for-service basis with some pay-for-performance and varied risk-sharing arrangements. About 30 percent of SCO members are in delegated site arrangements, while 70 percent are in non-delegated models.

CCA leadership view the organization's strong relationship with its PCPs as a differentiating feature of its program and cite the fact that physician referrals have been the largest source of new members for CCA as evidence of what they view as the high regard their PCPs have for CCA and its unique value for their patients.

HCBS Providers

CCA works with a dedicated team of GSSCs at each ASAP. The GSSC is part of the CCA member's care team and works closely with the member's care partner. GSSCs do a separate assessment of all CCA members twice annually to determine the types of LTSS needed, the number of hours, and the specific vendor that will best meet the individual's needs. CCA develops a care plan for all SCO members that includes both medical and LTSS needs. The GSSC maintains a service plan specific to the member's LTSS needs. The relationship between the GSSC and CCA care partner is collaborative—the care team works to arrive at a mutual understanding of the most appropriate care plan for a member.

Quality and Performance Management

Measuring and accounting for the impact of the medical and non-medical care provided under the plan is essential for effective management of plan resources and accounting to government entities for the use of funds. CCA employs several strategies for provider performance management. The plan collects performance data on primary care sites, including metrics for clinical quality, overall medical spending, and service use, and conducts a wide range of analyses on utilization and expenses. CCA shares this information with sites, including methods such as quarterly presentations on performance for larger practices. Performance reports include not only these metrics but also comparisons against the CCA network, analyses of underlying drivers of trends, and recommendations for improvement.

In addition to this regular performance management process, CCA engages in a wide range of quality improvement projects. Ten or more such projects are active at any time, with participation varying by primary care site. CCA develops these initiatives based on needs identified in performance data to systematically improve overall quality across the plan. Active

projects for SCO members include improving osteoporosis testing for members who have had fractures, improving dementia care, better identifying patients with palliative care needs, and helping increase awareness and use of CCA's dental benefits, among others.

CCA leadership point to several quantitative measures of the quality of care members receive. CCA's SCO plan has consistently been awarded 4.0 or more stars out of 5 stars awarded in the annual Medicare Advantage Star Ratings. The Star Ratings are a comparative quality rating for MA plans that CMS determines from a combination of plan performance on Healthcare Effectiveness Data and Information Set (HEDIS) clinical quality measures and member satisfaction scores.[26]

CCA has stated in its annual report that it has decreased high-cost and potentially burdensome utilization among SCO members. Data reported in their Annual Report shows that, between 2011 and 2016, the plan experienced a 30 percent decline in total hospital admissions and readmissions, a 10 percent decline in the 30-day hospital readmission rate, and a 4 percent decrease in members overall acute care expenses.[27]

CCA leadership view its low rate of voluntary disenrollment as a sign of high member satisfaction. They report that the main reasons members leave the plan are death, moving out of the plan's service area, or loss of Medicaid eligibility.

Challenges

One area of ongoing work for CCA is fully integrating behavioral health services. Historically, there have been strong rules and expectations that information about behavioral health be segregated from the rest of an individual's health records, driven by privacy concerns. However, these legacy silos hinder seamless team-based care for members with multiple needs—for example, when a single member has multiple complex medical conditions, LTSS providers, and behavioral health conditions. CCA endeavors to integrate these previously disparate areas.

CCA has also been working to continually improve the sharing of information between the plan, medical providers, and LTSS providers. Actively addressed issues include security and IT risk concerns as well as operational gaps in electronic communication across different record

[26] For further details on HEDIS see: https://www.ncqa.org/hedis/ For further details on member satisfaction scores see: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/CAHPS/mcahps.html

[27] Source: Commonwealth Care Alliance, "2016 Annual Report." Available at: http://www.commonwealthcarealliance.org/getmedia/fa31ec60-f87c-4e8b-a8ec-150f2f9339d2/10-18-17_CCA_AnnualReport_Web

systems. Care coordination is facilitated when CCA team members can access PCP patient records and message with PCPs in their own systems. While this is currently more the exception than the norm, CCA has this type of access with several partners and constantly seeks to develop provider relationships in this direction.

Conclusion

CCA leadership view several factors as contributing to CCA's success with integration. The design of the SCO program enabled CCA to develop an innovative approach to care by being fully integrated for medical, behavioral, and LTSS from the outset in 2004. The inherent flexibility of the program's capitated premium structure also allowed CCA to invest in the kind of resources that enables members with complex needs to live independently in the community. These design features underwrote CCA's development of a powerful internal clinical infrastructure—a unique strength among SCO health plans.

CCA leadership also attribute the strength of its approach to qualitative characteristics. CCA has attracted and retained staff who share the organization's vision and are deeply committed to working with this complex need population. Plan leadership notes that it takes time, interest, patience, and skill to support members with complex health profiles. The CCA team consists of people who spend time with the members, building strong and trusting relationships with members that help sustain the organization's long-term success.

FALLON HEALTH CASE STUDY

Introduction

Fallon Health is a not-for-profit health plan that covers more than 200,000 lives in commercial, Medicare, and MassHealth insurance products throughout the state. In addition to offering a full array of insurance products, Fallon has long had a special focus on frail elderly populations. Summit ElderCare, Fallon's Program of All-Inclusive Care for the Elderly (PACE) program, was established 20 years ago and today has more than 1,300 members enrolled across seven sites. It is one of the largest PACE programs in the country. NaviCare, Fallon's SCO plan, was established in 2010 and currently serves 6,000 members, primarily in Essex and Middlesex counties. NaviCare members are a complex population. All members are Medicaid-eligible, 10 percent live in long-term care facility, and over 30 percent do not speak English.

Overview of Care Management Approach

Care Team Structure

Fallon's overarching goal for care management is to maintain the member's functioning at the highest level and in the least restrictive setting possible.

Every NaviCare member who resides in the community or in a long-term care facility is assigned a Navigator[28] and a nurse case manager, who form the core of their care team. Navigators are non-clinical staff who are the central communicator for the care team, and serve as the member's main point of contact. In addition to facilitating communication between members and providers, the Navigator takes the lead on care coordination for the member including handling transportation needs, environmental issues, and understanding health plan processes in order to qualify for specific benefits. Navigators work closely with nurse case managers to serve members. Navigators and nurse case managers are generally assigned to work with members based on their primary care provider (PCP), so that the care management team develops personal and collaborative relationships with specific PCPs over time. Nurse case managers take the lead on clinical services and assessment, and coach members on managing their medications and conditions. Many navigators and nurse care managers are embedded in physician offices or other community settings such as adult day health care, assisted living facilities, or other residential settings, which facilitates faster communication and problem solving on behalf of members. NaviCare members who live in long-term care facilities are also

[28] Fallon refers to non-nurse care management staff assigned to individuals as "Navigators." In the literature, these are often called "care managers" or "case managers."

assigned a Navigator. The Navigator partners closely with the PCP and facility liaisons to form the care team.

Other professionals on the Fallon plan team are engaged for specific subpopulations of NaviCare members or on an as-needed basis. For example, all members receiving home and community-based services (HCBS) are assigned a Geriatric Support Service Coordinator (GSSC) on their care team (see below for further description of the GSSC). Members with mental health and substance use disorder needs are assigned a Fallon behavioral health case manager to coordinate behavioral services and providers. Additionally, Fallon has centralized clinical staff—pharmacists, utilization management staff, and medical directors—who support all NaviCare care teams in managing complex members on an as-needed basis.

Community Residents

When a new member enrolls in NaviCare, a Navigator and nurse case manager are assigned to the member, and the Navigator places a welcome call to the member to introduce the care team and schedule a home visit for the plan's initial assessment. The Navigator also ensures that all immediately needed services (e.g., incontinence supplies, personal care) are provided and that continuity-of-care arrangements are in place. Prior to the home visit, the Navigator identifies all of the new member's current providers, and finds in-network alternatives for any who do not contract with Fallon.

At the initial home visit, the Navigator, nurse case manager, and GSSC conduct a comprehensive assessment that covers the member's living environment, medical needs, diagnoses, medications, and current services. The team works with the member to create a service plan, adding any new services and adjusting current services appropriately. The nurse case manager also creates a care plan with the member that establishes short-term goals for disease management and sets up any interventions needed to meet that goal. After the visit, the Navigator compiles a care plan document and shares this with the member's PCP and the member. The Navigator is responsible for ensuring all services in the care plan are ordered and delivered according to the preferences of the member and in conjunction with members of the care team.

The Navigator responds to member issues as they arise, encourages the member to receive preventive care, and coordinates care delivery (e.g., arranges transportation, helps make appointments, verifies the member attends appointments). The Navigator plays a similar role for the member's providers, serving as the main point of contact and facilitating collaboration across medical, behavioral, and LTSS providers.

The care team checks in with the member at least every three months to ensure the member is meeting all goals and determine if any additional services or interventions are needed

according to the member's preferences and personal goals. Interventions are actively managed until the goal is met and that care plan element can be closed. Care management processes vary somewhat according to risk stratification. Complex members are re-assessed every three months, while less complex members are re-assessed every six months.

Long-Term Care Facility Residents

Similar to members residing in the community, when new long-term care facility resident enrolls in NaviCare, a Navigator is assigned to the member. The Navigator places a welcome call to the member or their authorized representative to introduce the care team and schedule a visit to meet the Navigator at the long-term care facility.

For members living in a long-term care setting, the member's PCP and the facility MDS Coordinator complete assessments[29]. The Navigator ensures the assessments are incorporated into the Fallon Health record. The Navigator works with the PCP, facility staff, Fallon facility liaison, member, and their caregivers to create a new service plan. The team creates a care plan that establishes goals and sets up any interventions needed to meet those goals.

The Navigator responds to the needs of members in long-term care facilities as they arise, just as with community-dwelling members, and checks in with the member and facility liaison at least every six months to ensure the member is meeting all goals and to determine if the member has any additional needs.

Care Management Tools for High-Need Members

In addition to the standard care management approach described above, Fallon has implemented special care management tools for addressing the needs of particular subpopulations of NaviCare members.

Behavioral Health

NaviCare's care management teams are supported by behavioral health case managers. The case managers are licensed social workers with varying backgrounds that support the teams based upon Massachusetts geography. Although less than 10 percent of NaviCare members have serious mental illness, there is a very high prevalence of depression and anxiety as well as a substantial prevalence of substance use disorders. Behavioral health case managers provide expertise to Navigators and nurse case managers, help to locate placements for members, coordinate behavioral health services, and follow members during inpatient psychiatric

[29] The MDS is the federally-mandated standard assessment that must be completed on all nursing home residents at least every 90 days, a process overseen by the facility MDS Coordinator. The state requires that SCOs administer a version of the MDS (the HC-MDS) to community resident SCO members.

admissions. The case manager also works with case managers at the state Department of Mental Health and the Office of Disability and with GSSCs to establish protective services for members. One challenge in meeting members' behavioral health needs has been shortages of providers accepting new patients. Fallon has been working with Beacon Health Strategies, which offers clinical mental health and substance use disorder management and access to a network of behavioral health providers and facilities, encompassing all levels of specialty mental health and addiction services, to address these shortages and strengthen the provider network.

Dementia Support Program

The NaviCare population also has a high prevalence of Alzheimer's and dementia. Fallon has a special initiative targeting NaviCare members with dementia and their caregivers. The intervention is delivered by a memory specialist employed by Fallon and embedded within the local Alzheimer's Association. For new members identified for the program, the memory specialist conducts an hour-long phone interview with the member and their caregivers to identify any issues (e.g., challenging behavior, unsafe situations) happening in the home, discuss coping and management strategies, and create a care plan that is shared with the caregiver and member. They then follow up to address educational needs around advance care planning issues, the likely trajectory of the disease, and referrals to the full range of online and community resources offered by the Alzheimer's Association. Ongoing follow-up calls and home visits to support the family are provided in collaboration with the member's care team. Fallon expects to see utilization improvements (e.g., a decrease in emergency department [ED] visits) as a result of this program, as members are stabilized in the home with appropriate supports.

Partnership with Contracted Medicare Certified Home Health Care Agencies

Fallon partners with Medicare certified skilled home health care agencies to offer a range of home-based medical care. Agency nurses are sent to members' homes to do home evaluations, assessments for durable medical equipment (e.g., shower chair, rolling walker), and member education on using the equipment, and to train caregivers on topics like wound care and physical therapy exercises as necessary. Agency nurses are also leveraged to avoid more expensive medical services by providing in-home health services to manage conditions, such as a urinary tract infection (UTI) that might otherwise precipitate an ED visit or hospitalization. Finally, the agencies deliver basic palliative care in the home for NaviCare members with serious illness who are not eligible for hospice.

Medication Therapy Management

The typical NaviCare member is on nine or more medications, and managing this drug regime is a key part of controlling disease and preventing adverse events. Fallon has several pharmacists on staff to support medication management efforts. These pharmacists complete a medication

review for all new enrollees, and communicate any concerns or recommended changes to the PCP. Pharmacists also educate providers on high-risk medications, and implement the Safe Transitions program described . Fallon also pays for automated medication dispensers in some members' homes, and provides nurse home visits to do pre-filling and education with members when eligibility criteria are met.

Managing Hospitalizations and Other Inpatient Utilization

In order to effectively manage inpatient events among its members, Fallon has a process in place (as detailed below) that ensures they are notified of any hospital admission and able to mobilize the SCO care team at discharge to ensure a smooth transition for members and prevent re-hospitalizations.

Admission

Fallon's pre-authorization team is notified of all member hospital admissions. The plan has implemented processes to ensure that every inpatient episode is communicated to the member's care team as soon as possible. The member's care team receives a daily report on all members who are inpatient, and also receives real-time notifications of admissions through the electronic case management system. Often, a Navigator receives multiple notifications when a member is hospitalized. The Navigator then notifies the member's other care team members and providers of the admission.

Inpatient Care Management

During a member's inpatient stay, a nurse from Fallon's utilization management team takes the lead on most communication with the hospital such as discharge planning and care transition support and approval. The member's nurse case manager may visit the member in the hospital, and will work with the utilization management nurse and hospital discharge planner for members with complex care needs, especially if new services will be needed or the member will be discharged to a rehabilitation or custodial care facility.

Discharge

The care management team meets weekly to coordinate, problem solve, and proactively manage the transitions for all expected discharges. Once a month, the full NaviCare clinical team—nurse case managers, the medical director, and pharmacists—meet for medical rounds where Navigators and nurse case managers present the most complex cases for input. If a member is transitioning to a rehabilitation facility, Fallon will help to choose a preferred facility. Skilled care at inpatient rehabilitation facilities is managed by Fallon's utilization management team. Members who transition permanently into a long-term care facility are assigned a new nurse case manager and Navigator dedicated to that facility for ongoing care management. For

members who are discharged to the community, the member's nurse case manager conducts a transitions of care assessment and creates a new care plan.

Fallon has also implemented a "Safe Transitions" program, with the goal of reducing re-hospitalizations due to medication errors. Fallon pharmacists review all inpatient cases to identify high-risk members for the program. During the transitions of care assessment, the nurse case manager introduces the program to members at risk for re-hospitalization. If the member consents to participate, a Fallon pharmacist will visit them at home after discharge to review all medications, educate the member on how to follow their discharge plan, and follow-up with the member's PCP to address any concerns with the member's medication list.[30]

Provider Relationships

Primary Care Providers

Fallon has a flexible and collaborative approach to relationships with PCP practices. Fallon adapts to each provider's level of sophistication and builds a system for care management that fits into the practice's existing structure. The degree of integration between the plan and PCPs varies by practice, as some see only a handful of NaviCare members while others have more than 1,000 members in their practice.

Fallon Navigators and nurse case managers lead the relationship with PCPs, and have flexibility in how they manage collaboration. This flexibility includes how often they host team meetings, whether they sit in the PCP's office, and how they communicate with the PCP (e.g., email versus phone call versus texting). PCPs are generally receptive to Navigators and nurse case managers, and develop familiar relationships over time as the result of "consistent assignment." The Fallon care team knows which of a PCP's patients are members of the plan, when they have appointments scheduled, and whether they've had a recent visit. Navigators and nurse case managers often work with the PCP's nursing team, collaboratively problem-solving around any member barriers or gaps in care. The Fallon leadership contend that the teams' requests to PCPs for referrals, durable medical equipment (DME), and medication changes are generally successful because of this relationship.

The plan is particularly integrated in two PCP practices with large panels of NaviCare members: UMass, which covers 22 percent of NaviCare members, and Reliant Medical Group (formerly Fallon Clinic), which covers 19 percent of NaviCare members. At UMass, NaviCare Navigators are based at the practice for set times during the week (weekly "embedding hours") and have

[30] For more information about the safe transitions program please visit https://www.fchp.org/~/media/Files/SeniorPDFS/SafeTransitionsFSP.ashx?la=enCached

regularly scheduled meetings with the PCPs. UMass physicians often call Fallon nurse case managers directly to discuss patients, and Fallon care management staff are able to work in the UMass electronic medical records (EMR). At Reliant, Navigators and nurse case managers have monthly meetings with physicians, Navigators have read-only access to the EMR, and physicians can see Fallon's LTSS service plan and care plan for their patients in the electronic case management system. In addition to UMass and Reliant, some community health centers also work closely with the Fallon care team.

NaviCare leadership state that PCP engagement is successful in these practices because the physicians there have experience working as members of a team, the practice has a population health orientation, and there is typically a care management structure already in place. With smaller practices less experienced in care management, customized and less sophisticated approaches are necessary.

HCBS Providers

Like other SCO plans, Fallon is required by the state contract with ASAPs to meet members' LTSS needs. Fallon has dedicated GSSCs at each ASAP who manage the LTSS service package for NaviCare members. The GSSCs are then able to offer input on the best services and vendors (e.g., home-delivered meals, personal care assistance) to support the member's care plan, coordinate all LTSS for members, and address any member problems with LTSS (e.g., if meal is not delivered or homemaker fails to show up). GSSCs also check in with members every 3 to 6 months to determine if their needs have changed and the LTSS service plan needs to be adjusted.

Fallon leadership believe that the relationship between the SCO plan and ASAPs is an asset to the NaviCare program. They see the GSSCs as a major source of local knowledge on the LTSS delivery system and valuable resources to the care team.

Quality and Performance Management

Fallon tracks the NaviCare's performance on a variety of measurable outcomes: utilization of high-cost services like hospitalization, emergency department visits, and custodial nursing home care; Healthcare Effectiveness Data and Information Set (HEDIS) measures of clinical quality; sources and drivers of new enrollment; member services reports on quality of life and service complaints; and compliance with best practice guidelines for disease management. Metrics are tracked at the overall organization level and separately for NaviCare and each of Fallon's other plans.

The plan also undertakes targeted quality improvement initiatives related to high-risk medication management, fall prevention, dementia assessment, and other potentially valuable

interventions. These programs are closely tracked to evaluate the impact on utilization and outcomes, allowing the plan to calculate resulting cost avoidance and return on investment.

In 2018, Fallon will launch a performance management program for PCPs. This program will track a range of metrics, including total medical cost and over- and under-utilization at both the individual PCP and provider group level. The first phase of this program will be straightforward quality reporting, with the plan reviewing performance quarterly with large provider groups. As the program matures, the plan will assess the feasibility of implementing incentives and shared savings.

Fallon also monitors a monthly dashboard on Navigator performance, tracking compliance with regulatory requirements, member satisfaction, and transitions of care.

Challenges

As Fallon has built its integrated program with NaviCare, it has had to overcome several challenges. One difficulty has been caring for a population that is diverse both geographically, with a mix of rural and urban residents, and culturally with a multitude of languages to support. Fallon believes it has met this challenge by hiring Navigators who come from the communities they serve, with the cultural and linguistic competencies necessary to build effective relationships.

Another challenge has been the lack of flexibility with benefits in Medicare that limit the ability of the plan to individualize member care. This has lessened in recent years as federal regulators, state regulators and the plan have been able to work more collaboratively, giving the plans more latitude to innovate in meeting member needs.

Conclusion

Fallon leadership attribute the success of NaviCare to the organization's unique character and history. The operations of the NaviCare plan reflect years of experience at Fallon contracting with government agencies to administer health programs, particularly for frail elderly and for underserved and disadvantaged populations. Fallon sees itself as part of the fabric of the community, and its mission—"*Making our communities healthy"*—reflects that viewpoint. Fallon maintains close relationships with community-based organizations (CBOs) throughout the state and has an active community relations department supporting local non-profits through grants.

Another factor underpinning the success of NaviCare is the role of the Navigator and their close relationships with PCPs and members. Every NaviCare member gets to know their care team and knows who to call when they have a problem. This individualized, high-touch approach

helps Navigators build trusting relationships with members and providers, allowing them to connect the two and advocate for members. The overall objective is to continue building trusting relationships which will lead to members being more engaged in their care and receptive to care team recommendations. The partnership the SCO plan is able to create with the member and the PCP is the essence of integration.

UNITED HEALTHCARE CASE STUDY

Background Information

United Healthcare (UHC) is a large, national, for profit, health insurance company. Their government plans subsidiary - United Healthcare Community Plan - has been a SCO contractor since 2004. UHC operates the largest SCO plan in the program, covering about a third of all SCO enrollees.[31]

All of UHC's SCO members are age 65 or older and eligible for Medicaid, and the majority (88 percent) has dual eligibility. Of the members, 89 percent live in the community and 11 percent in institutions. English is spoken by 65 percent of members. The most common non-English languages are Spanish (28 percent of members) and Chinese (13 percent). UHC SCO has a broad network of medical providers, including many choices for PCPs, hospitals, pharmacies, specialists, and other providers.

Care Management Approach

UHC SCO has a care management model that addresses the needs of members whether they are residents of long-term care nursing facilities or live at home in the community. The goal of the model is to help members live in the least restrictive setting, supported by the appropriate level of LTSS. The model is focused on frequent member interaction and coordination with each member's PCP and extended care team, including family members and other informal supports.

Community Residents

The overwhelming majority of UHC SCO members (89 percent) live in the community. For these individuals, the plan's goal is to support the member safely in the community for as long as possible (that is, to delay or prevent institutionalization). The plan has a great deal of flexibility in what services are provided to support the member at home.

Care Team: The plan subcontracts with ASAPs for almost all HCBS, and works with only a small number of HCBS vendors directly. The state requires the SCO plans to contract with ASAPs for the GSSCs. In turn, the plan helps the ASAPs with more complex administrative processes, like

[31] As of June 2015, http://www.mahp.com/unify-files/HMAFinalSCOWhitePaper_2015_07_21.pdf p 9

billing and claims. Care managers are registered nurses or social workers who are employees of the plan.

The core team for a member in the community depends on the member's level of complexity but always includes, at a minimum, the member, their care manager, and their PCP. Less complex members with minimal LTSS needs are managed telephonically by plan staff, who include community health workers trained for this purpose. Members with low-to-moderate LTSS needs are managed by GSSCs. Members with moderate LTSS needs coupled with Alzheimer's disease or chronic mental illness are managed by a GSSC with support from a plan RN. Finally, members with an institutional level of need who live in the community are managed by a plan RN with support from a GSSC.

The care manager is responsible for coordinating all of a member's care: medical, LTSS, behavioral, and any other supports that may be necessary. As part of this coordination, the care manager collaborates regularly with the PCP around changes in member condition and plan of care. Care managers provide PCPs with necessary information about the members' home and psycho-social context—information that often impacts member medical care and progress.

Assessments: There are multiple assessments, beginning after the member's first call to the plan. During the enrollment process, individuals who are already receiving LTSS are triaged for immediate in-home assessment to avoid any disruption in services.

Within the first 30 days of enrollment, a Health Risk Assessment (HRA) is conducted by phone for every member, which helps to determine the member's level of complexity and appropriate care management staffing.

Following the initial HRA screening, a comprehensive, in-home assessment is done for every member. Assessments include evaluation of clinical, functional, and nutritional status, in addition to physical well being. These assessments also include screenings for mental health conditions, tobacco, alcohol and drug use, and the need for LTSS, including the availability of unpaid support.

Depending on the level of LTSS required by a member, reassessments occur either telephonically or face to- face at least every three to six months. In practice, the complexity of the enrolled population means that most members are reassessed more frequently due to changes in status or acute events that trigger reassessment.

Care Plan: During a home visit, the care manager develops a comprehensive, individualized care plan built around the member's disease states, with a treatment plan for each condition.

The care manager coordinates implementation of all elements of the care plan, and follows up with the member on an ongoing basis to ensure that services are being delivered. Member assessments, care plans, and other information are documented in a centralized, electronic record that is available to all members of the care team.

Long-Term Care Facility Residents

For members who are residents of nursing facilities, the primary goal of UHC SCO is to promote and support a high quality of life by focusing on treating in place to avoid unnecessary hospitalizations. About 1,700 (11 percent) members live in long-term care facilities.

The UHC SCO care management model leverages primary care to improve outcomes for nursing home residents enrolled in the plan. Plan-employed nurse practitioners (NPs) and physician assistants (PAs) work closely with each member's PCP and facility nursing staff, and act as leaders of the member's health care team by serving as collaborator, clinician, coordinator, advocate, and coach. NPs/PAs are assigned a member panel at between two to four different facilities in a geographic area. The consistent assignment of one NP/PA to members at a few facilities enables them to establish long-term relationships with facility nursing staff, interdisciplinary team members, and management. The NP/PA serves as an advocate for members with facility staff, and oversees member care through frequent on-site visits. This regular presence and proactive communication between plan and facility staff facilitates collaboration and increases the degree to which facilities align with UHC's goals of integrating medical, behavioral health, and long-term care.

NPs/PAs conduct a comprehensive (medical, functional, and behavioral), in-person assessment of the member within five business days of enrollment in the SCO plan. The member is reassessed every 60 days or more frequently if there is an acute event or change in the member's health status or functional condition. Between assessments, NPs/PAs visit the facilities and provide ongoing follow-up and oversight of the member. The NP/PA generates an individualized care plan as part of the comprehensive assessment process, and upon completion shares the plan with the PCP and extended interdisciplinary care team to get their agreement. The NP/PA acts as the gatekeeper and coordinator for the member as the care plan is implemented. Under the oversight of the NP/PA, facility staff carry out the elements of the care plan. The NP/PA coordinates and runs family meetings to establish goals of care and individual preferences, and leads advance care planning conversations.

The NP/PA also acts as a communication hub for the member, family, facility staff, and the PCP. The NP/PA communicates regularly with the member's PCP via face-to-face meetings and telephonically, but has the training to provide independent clinical judgment as well. For example, the NP/PA can write orders for medications and therapies. In the event a member is

hospitalized, the NP/PA continues to coordinate care. The NP/PA calls the hospital and talks to the ED staff before the member arrives, and ensures that the member's chart is transferred. Throughout the hospitalization, the NP continues to monitor the member, communicate with the hospital regarding diagnosis, treatment, and patient care preferences, and keeps the family/care gives informed. Upon the member's return to the nursing facility, the NP/PA meets with the member in person and ensures that arrangements are made to minimize the disruptive effects of the transition for the member.

Inpatient (or Hospital) Transitions

If a community-dwelling member is hospitalized, a nurse on UHC's inpatient care management (ICM) team follows the member and coordinates with the admitting facility, member, assigned care manager, and family/care giver. Prior to discharge, the ICM nurse conducts a readmission risk assessment with the member. Members who are identified as high risk receive a more intensive level of transition management following discharge. The ICM nurse works with the member's care manager and the facility's discharge staff on discharge planning. Within two business days of discharge, the care manager contacts the member by phone to ensure needed services are in place.

Within seven days of discharge, the care manager conducts a post-hospital assessment to determine whether changes are necessary to the care plan, and updates the plan as necessary. Similarly, if the member has a short stay in a skilled nursing facility, the care manager will follow them throughout their stay, ensure that discharge is safe, and work closely with the member, family, PCP and interdisciplinary care team to ensure a successful transition back to the community.

Utilization Management Strategy

UHC SCO's utilization management strategy is best viewed in light of the overarching goals of program: (1) help community-dwelling members live in the least restrictive setting, supported by the appropriate level of LTSS, and (2) support quality of life for members living in long-term care facilities by avoiding unnecessary hospitalization and procedures. The plan's primary tools for managing utilization are the care management staff and the comprehensive and flexible set of services available to support the member.

Care managers use a two-fold approach to utilization management. First, care managers work to understand the service needs of their members, whether in the community or in nursing facilities. Standardized clinical assessments along with clinical experience help care managers develop service plans that consider not only current needs but also future needs that may arise due to aging in place or worsening of existing conditions. Services that do not add additional

value to accomplish the goals of each member's care plan are slowly reduced or eliminated with the consent of the member and PCP. Changes to the service package—whether increases or decreases—are implemented gradually.

When increasing services, the care manager starts with the least expensive option (e.g., one hour of homemaking weekly), and then evaluates the impact and further escalates if necessary. For community-dwelling members, HCBS is explicitly viewed as a tool for preventing exacerbations of chronic illness and high-cost events, like hospitalizations. The plan focuses on the most complex members to manage these outcomes. A Significant Episodes of Cluster Activity (SECA) report is used to identify the 1 to 2 percent of population that drives overall plan costs. The plan actively tracks and monitors these high-risk members over time. Care managers follow these members very closely and check on them regularly for any changes or deterioration. Particularly challenging cases are brought to interdisciplinary team meetings including medical directors, behavioral health specialists, and pharmacists to problem solve and share best practices. In addition to these reports, the plan uses data from initial and subsequent assessments to identify high-risk members and anticipate ED and hospital admissions. By comparing changes in member assessments over time, the plan identifies new HCBS needs and provides services that could prevent unnecessary ED or hospital admissions.

A third tool the plan uses is Interdisciplinary Care Review (IDCR), which is a case conference where the plan medical director and other members of the interdisciplinary care team discuss enrollees who are readmitted to the hospital within 30 days – with a goal of ensuring members have proper services and supports in the community and minimizing re-hospitalizations generally. Finally, the plan averts some hospitalizations via a 24/7 hotline staffed by an on-call team of NPs that members can call for assistance before calling 911 or going to the emergency room.[32] UHC uses NPs on staff to answer the hotline. When members are hospitalized, a centralized UHC inpatient utilization management team works with the hospitals, checking in daily to monitor the services being used and assist in discharge planning. After discharge, RNs provide transition management home visits to members identified as being at high risk of readmission based on the Coleman model.[33] For lower risk members, transition management is telephonic.

[32] This hotline required by plan's contract with the state is a useful tool for preventing hospitalizations.

[33] The Care Transitions Program (http://www.caretransitions.org) was developed by Dr. Eric Coleman to improve care transitions by providing patients with tools and supports that promote knowledge and self-management of their condition as they move from hospital to home. Details of the Care Transitions Intervention can be found on the website.

Quality and Performance Management

UHC SCO's quality measurement activities are primarily medically focused—75 percent of the measures they track are clinical indicators, while 25 percent assess quality of life, social supports, and member satisfaction. Compliance drives the plan's quality program, with a focus on HEDIS, Medicare Star Ratings, and other measures required for D-SNPs. The plan also administers a survey to measure functional health and well being from the patient's point of view. UHC conducts chart audits on all care managers monthly to measure adherence to the care model. These audits include timely initial member assessments, timely ongoing member assessments, health risk assessments generating appropriate care plans, communication with interdisciplinary care team, and other elements.

The plan's clinical management team also conducts regular field-based visits with the staff to monitor adherence to corporate guidelines. While care plans are individualized and oriented to individual needs, they are also organized around the member's disease states. Member goals and preferences are reflected in the care plan, but are balanced by what is realistic for the individual to achieve.

Key Integration Strategies

UHC SCO's integration strategy is grounded in its ability to offer a comprehensive suite of services. The plan presents the benefits to the member as a single, complete package, and coordinates all care so that the member experience is seamless. A single care manager is responsible for coordinating the entire package of services for each member, serving as a single point of contact for that member's medical, LTSS, and behavioral health needs. The care model is needs-based and customized for each member, with care management staff carefully titrating services to effectively support the individual in the community. Coordinating an effective package of supports may mean increasing or decreasing services—the emphasis is on filling members' unmet needs. UHC SCO also hires linguistically and culturally competent staff, which has proven critical to effectively serving their diverse membership.

Outcomes

A state evaluation of the SCO program showed that the program has succeeded in keeping members in the community and decreasing the utilization of SNFs.[34] UHC SCO also points to its

[34] JEN Associates (2013) "Massachusetts Senior Care Option 2005-2010 Impact on Enrollees: Nursing Home Entry Utilization." Available at: http://www.mass.gov/eohhs/docs/masshealth/sco/sco-evaluation-nf-entry-rate-2004-through- 2010-enrollment-cohorts.doc

low disenrollment rate (less than two percent) and strong membership growth as indicators of how well the plan is doing.

Conclusion

UHC SCO attributes its success to several distinguishing attributes. Primary is the close relationship with ASAPs, which employ experts on the LTSS provider network and play a key role in connecting members with appropriate resources. The plan also points to effective management of care management staff as an important contributor to successful integration. Finally, the SCO care model leverages UHC's years of experience of caring for residents of long-term care facilities. The plan focuses on results that reflect its primary goals: helping members live in the least restrictive setting, supported by the appropriate level of LTSS services; and supporting a high quality of life for members in nursing facilities by focusing on treating in place.

QUANTITATIVE RESULTS

Introduction

This project sought to compare the healthcare utilization of high-need individuals enrolled in SCO plans to high-need individuals in traditional fee-for-service Medicare. The hypothesis was that a population with complex care needs benefits that is enrolled in an integrated health plan that supports their LTSS needs and maintains their independence in their home and community has less use of expensive medical services and institutional care than a similarly complex population that is not enrolled in an integrated plan.

The study used the National Health and Aging Trends Survey (NHATS) to develop high-need benchmark populations that were matched with similar populations enrolled in SCO plans, and whose integrated programs we have profiled in case studies. The study performed regression analyses on these benchmark populations to examine the relationship between population characteristics and healthcare utilization. The analysis enabled us to predict the expected utilization for a group that on average possessed comparable characteristics to SCO plan enrollees but were enrolled in fee-for-service Medicare.

The research team included staff from the Long-Term Quality Alliance (LTQA) and the Department of Health Policy and Management at Johns Hopkins Bloomberg School of Public Health. The health plans that participated were the three Senior Care Options (SCO) Fully-Integrated Dual-Eligible Special Needs Plans (FIDE-SNPs) that have been operating the longest in Massachusetts.

Methodology

NHATS Data

The research team used the National Health and Aging Trends Study (NHATS) dataset linked to Medicare claims. NHATS collects annual data from a nationally-representative cohort of Medicare beneficiaries age 65 and older. This study used data from the 2015 wave of NHATS, which was fielded to approximately 8,000 older adults. NHATS builds and improves upon previous survey research to assess disability among older adults, collecting both self-reported and performance-based measures of physical and cognitive capacity, as well as the accommodations respondents make to enhance their capacity (for example by using assistive devices). This analysis of this study relied on self- and proxy reports of how NHATS study participants complete self-care, mobility, and household activities. The research team also examined Medicare claims for services received by study participants enrolled in fee-for-service

Medicare for one year following their 2015 survey date, which allowed for analysis of Medicare utilization as it relates to individual characteristics measured in the survey.

Plan Data

Each of the three SCO plans that were recruited for the study were sent a detailed description of the information, including a list of the data items, that the research team wanted to obtain from the plan. The team first reviewed SCO plan assessment tools for variables of interest: activities of daily living (ADLs), instrumental activities of daily living (IADLs), chronic conditions, cognitive impairment, and demographic information. The team then crosswalked the variables of interest from health plan assessments with those available in NHATS to ensure that variables were defined similarly in both sources.

Next, the research team worked with analysts at each SCO plan to develop detailed specifications for the data request, defining the study population, descriptive variables, and utilization variables. This iterative process resulted in a mutually agreed upon specifications memo and data request table shell for each health plan.

SCO plans completed the table shells with population-level data and health care utilization for the designated study population. SCO plan data was reviewed for consistency and logical errors by the LTQA team. Because individual-level data was not shared by the health plan, comprehensive data validation was not possible. However, the consistency of many of the population variables across plans provided additional validation of the aggregate data.

Research Plan

Regression models were constructed to predict the healthcare utilization of individuals with specific characteristics enrolled in each SCO plan, relative to the benchmark population of individuals with LTSS needs enrolled in traditional fee-for-service Medicare. Then, the predicted utilization was statistically compared to actual utilization of integrated plan enrollees.

Implementing this methodology proceeded in five steps. A more detailed description of the methodology and technical considerations for the study can be found at http://www.ltqa.org/report-integrated-utilization/.

1. Defining the study population: Assembling comparable integrated health plan and benchmark variables

The first step of the research process involved defining the study population. The research team used the available data to identify similar benchmark populations across the participating plans.

The research team restricted the study population from each plan and NHATS to individuals with high LTSS need, representing the population for which integrated care is expected to have the greatest impact. In general, the research team defined the study population as individuals who received help with two or more of six standard activities of daily living (ADLs): eating, bathing, toilet use, transfer, indoor mobility, and dressing. This definition is similar to the criteria used by many state Medicaid programs and long-term care insurance programs to determine eligibility for long-term care benefits. We worked collaboratively with health plans to ensure that the definitions of ADLs and "receiving help" were reasonably consistent across plans as part of the data specification process.

The research team imposed additional eligibility criteria to match plan data to NHATS participants. The study population was limited to individuals age 65 and older, enrolled in Medicare, and who did not live in a nursing home at the beginning of the study period. To ensure data completeness, the study population for each plan was limited to enrollees who had a completed assessment during the study year (2015) and who were enrolled at the beginning of the year and either (a) died before the end of the year or (b) remained enrolled for the entire year.

2. Identifying key independent variables

The research team selected independent variables for inclusion in the regression model that were expected to be associated with utilization outcomes of interest. Next, variables were defined in the health plans and the NHATS to measure constructs consistently in both populations. This effort required a thorough understanding of the types of information collected by plans, as well as how information is collected.

Where plan data permitted, the following independent variables were collected: activities of daily living (ADLs), instrumental activities of daily living (IADLs), measures of cognitive impairment, chronic conditions, Medicaid eligibility, gender, age, race/ethnicity, educational level, primary language, living arrangements, and residential setting. Data availability varied across the participating plans (see Table 1).

Table 1: Plan Data Availability			
	SCO 1	SCO 2	SCO 3
Available Data	• ADLs • IADLs • Cognitive Impairment • Chronic Conditions • Age • Sex • Race • Ethnicity (Hispanic) • Education • Language • Residential Setting (i.e., assisted living) • Living Arrangement (i.e., alone, with others) • Medicaid Enrollment	• ADLs • IADLs • Cognitive Impairment • Age • Sex • Education • Language • Residential Setting • Living Arrangement • Medicaid Enrollment	• ADLs • IADLs • Cognitive Impairment • Chronic Conditions • Age • Sex • Education • Language • Residential Setting • Living Arrangement • Medicaid Enrollment
Missing Data	None	• Chronic Conditions • Race • Ethnicity (Hispanic) • Education	• Race • Ethnicity (Hispanic)
Included Populations	• Study population including decedents • Study population excluding decedents • Decedents		
Missing Populations	None		
Data Year	1/1/2015-12/31/2015		

3. Defining utilization outcomes

The primary outcome measure was average hospitalization rate, operationalized as the aggregate number of hospitalizations per person incurred by the enrolled population over 365 days. Hospitalizations in fee-for-service Medicare were defined on the basis of admission dates within 365 days of the first day of the month in which the NHATS interview occurred. The research team worked with each health plan to construct comparable measures from claims data. Secondary outcomes included average number of Emergency Department (ED) visits per person and average number of Medicare-reimbursed skilled nursing facility admissions per person (i.e., post-acute admissions).

When possible, distribution of each outcome was examined for the benchmark population and each health plan. In addition to mean values for each outcome from the plans, plans shared median utilization and maximum values. The lack of individual-level information from plans

prevented examination of utilization distributions or the sensitivity of findings to outliers in the data.

4. Constructing regression models

For the benchmark study population (described above) drawn from the NHATS, a multivariate regression model was developed for each utilization outcome separately for each health plan. The research team examined the distribution of each outcome to identify the most appropriate regression analysis (e.g., whether a high number of zeros in the outcome variable need to be accounted for), as well as distributions of the independent variables to uncover potential challenges of outliers and influential points or missing data. Scatter plots were used to graphically examine the type of relationship (linear or non-linear) between each outcome variable and the independent variables.

The research team then constructed separate multivariate regression models for each health plan using all variables for which information was available and comparably measured by the health plan and NHATS.

5. Predicting health plan enrollee outcomes in a fee-for-service payment environment

a. Applying health plan summary data to model coefficients and testing for statistical significance

Using the regression models in the NHATS benchmark population, the research team predicted utilization by outcome based on characteristics of each health plan's enrolled population (i.e. average number of ADLs, average number of chronic conditions). To calculate the predicted utilization, the health plan value (average or proportions) for each independent variable was multiplied by regression coefficients generated by the NHATS benchmark regression analysis for the plan, producing predicted utilization (e.g., average number hospitalizations per person). Logistic regression was used to predict the percent of the population with any utilization, and negative binomial regression was used to predict average utilization for each outcome. All regressions incorporated complex survey design variables.

b. Comparing predicted and actual utilization by health plan

The research team compared the predicted and actual outcomes by generating a 95 percent confidence interval around the mean for the NHATS estimate using delta method generated standard errors. This confidence interval was examined in relation to the point estimate of the actual value from the health plans. Because individual-level data from each health plan was not available, it was not possible to compute the joint distribution or covariance structure. Therefore the approach is subject to the assumption that the covariance correlation terms is

zero, or that there is no difference in the covariance structure that would be observed for the health plan and the actual covariance structure that is observed for the NHATS comparison.

c. Sensitivity testing

In the cases where SCO plans varied in the availability of measures, the research team examined the extent to which including particular measures of interest made a substantial difference to the predicted outcomes. Specifically, sensitivity analyses examined the extent to which excluding data for decedents, and including a measure of Ethnicity (i.e., Hispanic/non-Hispanic) affected model estimates in plans for which these data were available (see Appendices I and II).

Limitations

The study sought to assess the differences in medical and institutional utilization in an integrated plan and what would be expected for similar population in traditional (fee-for service) Medicare. Past evaluations have typically relied exclusively on Medicare claims data to characterize a benchmark population, whereas this study used Medicare claims linked to NHATS survey responses. The NHATs survey offers more comprehensive information on characteristics such as ADLs, IADLs, cognitive impairment, and demographic variables that are not available in claims data alone. However, the NHATS sample size is limited for individuals with the high level of need that this study focuses on, which increased the degree of uncertainty surrounding our results.

To examine the intervention (integrated care), the research team relied on plan assessment and encounter data. Collaborating with the health plans to obtain plan-level information posed substantial logistical barriers. Unlike the federal Medicare databases, health plan data is not cleansed or adjudicated for research use and requires substantial up-front administrative work before analysis can begin. A detailed discussion of challenges encountered and adjustments made with this methodology can be found in Appendix 1.

Results

As Table 2 shows, the NHATS benchmark and plan study populations were comparable in terms of average age and numbers of ADLs, IADLs, and chronic conditions. There were, however, some differences between the benchmark population and plan enrollees. While only 38 percent of the NHATS benchmark population was enrolled in Medicaid, all members of the study plans were enrolled in Medicaid. Similarly, although only 9 percent of the NHATS benchmark population was non-English speaking, much higher shares of plan enrollees were non-English speaking, ranging from 27 percent to 72 percent. Plan enrollees were also, on average, less

educated, more likely to live alone, and less likely to live in independent or assisted living than the NHATS benchmark population.

Table 2: Descriptive Characteristics for Participating Plans				
	NHATS Study Population	SCO 1	SCO 2	SCO 3
Average Age	83.7	76.8	77.0	78.0
Female	69%	71%	70%	73%
Enrolled in Medicaid	38%	100%	100%	100%
High School Degree or More Education	69%	43%	Missing	53%
Non-English Speaking	9%	72%	64%	27%
Living Alone	29%	43%	42%	46%
Living in Independent / Assisted Living	18%	3%	8%	11%
Average # ADLs	3.7/6	3.6/6	3.8/6	4.5/6
Average # IADLs	2.7/4	3.3/4	4.0/4	3.6/4
Cognitive Impairment	51%	47%	75%	66%
Average # Chronic Conditions	3.3/9	2.8/9	Missing	3.9/9
Sample Size	493	>2,000	>2,000	>2,000

Table 3 summarizes results from plan-specific regression models. For each participating plan, observed utilization refers to the actual utilization experienced by enrollees who met eligibility criteria during the time period of interest. Predicted utilization is the expected utilization for a hypothetical population with comparable characteristics to that of plan enrollees but enrolled in fee-for-service Medicare.

Table 3: NHATS Model Results for Plan Outcomes			
	SCO 1	SCO 2	SCO 3
Observed Hospitalization Rate	0.35	0.47	0.25
Predicted Hospitalization Rate	0.72 (0.35-1.08)	0.83 (0.42-1.24)	0.79 (0.50-1.08)
Observed ED Visit Rate	1.20	0.84	1.49
Predicted ED Visit Rate	1.47 (0.91-2.04)	1.61 (1.00-2.22)	1.49 (1.06-1.93)
Observed # SNF Events	0.20	0.20	0.08
Predicted # SNF Events	0.18 (0.03-0.32)	0.25 (0.04-0.46)	0.29 (0.14-0.44)

The study populations in all three SCO plans had consistently lower hospitalization rates than were predicted for similar populations enrolled in traditional (fee-for-service) Medicare. The observed rate for one plan was significantly lower than the predicted rate and for another, approximated significance (at a 95 percent confidence interval). For these two plans, the observed hospitalization rate was less than half of the predicted rate.

The observed emergency department (ED) visits for two of the plans were lower than the predicted rate for a similar population in traditional Medicare, and the result was significant for one of those plans at the 95 percent confidence interval. For one of the SCO plans there was no difference between the observed rate and the rate predicted for a traditional Medicare population.

There was not a consistent difference between the observed and predicted rates of admissions to Medicare-covered (i.e. post-acute) skilled nursing facilities (SNFs) across the three SCO plans: one plan showed a significantly lower rate of SNF admissions, one showed a lower rate that was not significant at the 95 percent level, and the third had a slightly higher rate.

Discussion

Hospitalization Rates

Observed Rates

Hospitalization rates reported by the health plans for the study population ("observed hospitalization rates") are quite low for the three SCO plans. The observed SCO hospitalization rates for the study population (that have substantial functional assistance needs) are between 0.25 and 0.47. This is in comparison to an observed rate of 0.26 in the total NHATS population – a sample representative of the national population age 65 and older.

Predicted Rates

The hospitalization rates predicted by the model for traditional Medicare populations matched to each of the three plan populations fall within a small range of 0.72 to 0.83. The similarity in predicted hospitalization rates across all three plans reflects the similarity in the level of chronic conditions and functional assistance need in the different plan populations.

Differences in Hospitalization Rates

The SCO plans have very low hospitalization rates for the level of acuity in their study populations. Actual (observed) hospitalization rates for the three SCO plans are

substantially lower (40 to 70 percent lower) than the predicted rates. The result is statistically significant at a 95 percent confidence interval for one of the SCOs and is at the low end of the margin of error for the other two SCOs.

Speculation on Factors Contributing to the Results

The fact that hospitalizations are so low for this population across all three SCOs suggests that the SCO model of care, implemented in different ways by each of the three plans, is a factor associated with the low rate of hospitalization. For members with 2+ ADLs and/or cognitive impairment, the plans provide intensive care management, conduct comprehensive assessments and complete person- and family-centered care plans, engage an inter-disciplinary care team to ensure high-level care coordination across sectors, and track performance and outcomes, with a goal of preventing avoidable hospitalizations.

Emergency Department Visits

Observed Rates

Observed rates for emergency department (ED) visits for the plans seem to cluster in two groups:

- Two of the plans have observed rates of 1.20 and 1.49.
- One plan has a significantly lower observed ED visit rates of 0.84.

Predicted Rates

Predicted rates for ED visits for the three plans fall within a narrow range of 1.47 to 1.61. All three have fairly similar predicted rates, again reflecting the similarity in the populations served by the plans.

Differences in ED Visit Rates

For two of the plans, observed ED visit rates are the same or slightly lower than the predicted rates, and are within the margin of error for the predicted results.

The lower than predicted ED visit rate for the third plan is substantial and statistically significant. This plan has an ED visit rate that is less than half of the predicted value, and is well below the margin of error.

Speculation on Factors Contributing to the Results

The substantial difference among the three SCO plans in ED visit rates raises interesting questions about the plan interventions and whether there are differences in the way the SCO care model is implemented or in plan protocols that may affect the rate of ED visits. Answers to that question would require a different study methodology. Interestingly, among the three SCO plans, the plan with the lower ED visit rate had a slightly higher

hospitalization rate than the other two (although still a 40 percent reduction relative to predicted).

It is possible that a care model involving greater engagement of members living in the community with the plan, may explain the one SCO's combination of lower ED visits and slightly higher hospitalizations. Plan protocols and greater connectivity with plan members may link the plan with the member to enable the care team to anticipate and stabilize situations that would otherwise precipitate an ED visit, and thus result in more direct access to a hospital when needed, rather than through an ED visit leading to a hospitalization.

Were this true, there would be a noticeable difference between one of the SCOs and the other two SCOs in the protocols and degree of connectivity of the plan with plan members that has an observable impact on the way medical care is provided and the overall cost of medical care for members with the most complex care needs to the plan.

Skilled Nursing Facility Admissions

Observed Rates

Observed rates for skilled nursing facility (SNF) admissions vary widely across the plans, suggesting variation in the ways plans utilize SNF stays.

- One plan had a very low SNF admission rate of 0.08.
- The other two SCOs have much higher observed rates of 0.20.

Predicted Rates

The model predicted similar SNF admission rates for all three plans of between 0.18 and 0.29.

Differences in SNF Admission Rates

One of the plans had a SNF admission rate that was 70 percent lower than the model predicted for beneficiaries in traditional Medicare, a statistically significant difference. At the same time, the other two plans were either the same or slightly lower than the rates predicted for traditional Medicare beneficiaries – and in both cases, the difference was not statistically significant.

Speculation on Factors Contributing to the Results

The observed SNF admission rates for the plans in the study fell into one of two clusters:

- Extremely low (0.8) and substantially lower than predicted for the traditional fee-for-service (FFS) Medicare population, and
- Similar to the rate predicted for the FFS Medicare population.

The fact that the actual rates cluster in this way suggests the difference in observed rates may result from two different ways that plans are using SNF admissions.

The observed SNF admissions measures in this study apply to only part of institutional use by plans—short-stay Medicare-reimbursed admissions—and do not include admissions or transfers to nursing facilities for longer custodial stays. Longer NF stays are covered under Medicaid, but not under Medicare, and were, therefore, not available for this study.

The research team expected to see a difference between SNF admission rates in traditional fee-for-service Medicare and in Medicare Advantage due to the fact that traditional (fee-for-service) Medicare admission to a SNF requires a prior hospital stay for three nights. Managed care plans do not have to meet the "three-day rule" and can admit members directly to a Medicare-covered SNF. In traditional fee-for-service Medicare, we would expect hospital admissions to be higher, since they are the only route to SNF admissions, and SNF admissions to be lower because of the need for a prior hospitalization. Lower hospital admissions and higher SNF admissions for MA plans would align with the difference in incentives between the two Medicare coverages.

Differences in these rates are expected based on the different incentives. The full picture of institutional use in the integrated plans is not evident in this study, because longer nursing home stays are not captured. Nevertheless, there are factors that may contribute to the observed rates:

1. High SNF admissions as an alternative to hospitalization: It is possible that some plans were using admissions to SNFs as an alternative to hospitalization for individuals with complex care needs, since direct admission to the SNF might be a more appropriate placement for an individual with substantial functional limitation and a need for a skilled level of care than admission to a hospital, particularly for individuals without a safe housing situation or adequate supports for in-home care.

2. Low SNF admissions due to more intensive home care: It is also possible that some models of care provide intensive support in the home for individuals with the most complex care needs, and, thus, experience very low SNF or long-stay nursing home admissions as a result.

3. Low SNF admissions due to access to long-stay admissions: Integrated plans would also be able to admit members directly to a long-stay nursing facility,

without the need for a short-term SNF admission – which in Medicare is definitionally "post-acute". Lower costs for Medicaid nursing facility stays may incent plans to avoid SNF admissions for members making a transition to institutional care.

Directions for Future Research

This project used a novel research approach to evaluate plans that integrate LTSS and was unique in its access to linked assessment and utilization data from plans. If it were possible to work with similar data at the individual level, a more sophisticated matching methodology would allow for a deeper understanding of plan impact. However, there are substantial barriers to third-party researchers accessing this level of data from proprietary health plans.

The findings of this analysis identify some areas where integrated plans have lower than expected utilization of medical services by their high-need Medicare beneficiaries. Some of these differences are substantial and warrant further investigation. It will be important to include a better understanding of the interaction of Medicare-covered and Medicaid-covered services for the populations with high levels of functional limitation.

It will be important to do this kind of analysis with individual records. In some states, individual records that link Medicare and Medicaid claims data are starting to become available to researchers. In addition, there has been a recent suggestion from CMS that encounter data reported to CMS by health plans may be made available to researchers. These individual records linked with detailed assessment data would provide a particularly valuable data resource for measuring the impact of integrated care on medical utilization and outcomes.

To fully understand the differences that we have observed, it is necessary to understand how care is delivered in the plan and the incentives and objectives the plans are pursuing. For this report, the research team prepared qualitative case studies of each of the three SCO plans in the study. These case studies helped the team to understand each plan's unique care model and the factors that could be influencing the outcomes that were observed in the study. Future research needs to focus more attention on the way the plans deliver care and how that relates to the medical utilization patterns that are experienced by the plans' members.

Future research should also seek to better understand how integrated care affects the type and amount of medical utilization for specific groups of individuals in the plan. Particularly, how medical utilization differs for enrollees with a more moderate level of need.

Conclusion

The results from this study of medical utilization by an LTSS-eligible population in SCO plans compared to a similar high-need population in traditional Medicare coverage are mixed. The study shows substantial and consistent differences between SCO plan members and a similar population in traditional Medicare in hospital use. It found mixed results for Emergency Department (ED) visits and Skilled Nursing Facility admissions. For ED visits, it was substantially lower in two plans (although not significant for one of them) and was the same as the population with traditional Medicare for one SCO. The SNF admission rates were similarly mixed.

The clearest finding is that the SCO model was associated with very low hospitalization rates, rates that were 40 to 70% lower than were predicted for a similar population enrolled in traditional fee-for-service Medicare (one result was significant, and two were at the lower edge of the margin of error).

The difference between the observed rate of ED visits and the predicted rate varied by SCO. One of the plans had a substantially (50%) lower observed rate of ED visits, a statistically significant difference. The other two plans had the same or slightly (20%) lower rate, but neither of these results were significant at the 95 percent level.

The impact of SCO plans on SNF admissions was similarly mixed. One of the plans had a much (70%) lower SNF admission rate than predicted, which was a statistically significant difference. The other two SCO plans had SNF rates matching the rate predicted for their members had they been enrolled in traditional Medicare – there was no significant difference.

The variation in differences between observed and predicted ED visits and SNF admissions across plans suggests that differences in the implementation of the SCO care model by each of the individual plans and their approach to meeting the needs of their members may influence whether the care model's influence is on the rate of ED visits, hospitalizations, or SNF admissions. All of the plans had a significant effect on at least one of the utilization measures – and the effect on that aspect of utilization is substantial (in the range of 40 to 70 or more reduction). None of the plans had a clear and substantial impact on all three measures.

This study is a test of a novel methodology for measuring the association between an integrated care model and low rates of medical utilization. It is intended to provide a starting point for gathering the evidence that will be needed to estimate the medical savings that can result from providing holistic services and supports through integrated plans.

Appendix I: Methodology Limitations and Adjustments

The study sought to assess the differences in medical and institutional utilization in an integrated plan and what would be expected for similar population in traditional (fee-for service) Medicare. Past evaluations have typically relied exclusively on Medicare claims data to characterize a benchmark population, whereas this study used Medicare claims linked to NHATS survey responses. The NHATs survey offers more comprehensive information on characteristics such as ADLs, IADLs, cognitive impairment, and demographic variables that are not available in claims data alone. However, the NHATS sample size is limited for individuals with the high level of need that this study focuses on, which increased the degree of uncertainty surrounding our results.

To examine the intervention (integrated care), the research team relied on plan assessment and encounter data. Collaborating with the health plans to obtain plan-level information posed substantial logistical barriers. Unlike the federal Medicare databases, health plan data is not cleansed or adjudicated for research use and requires substantial up-front administrative work before analysis can begin.

The following is a review of the challenges encountered and adjustments made in the methodology:

Absence of Independent Data Validation

This study relied on plans sharing data. Health plan data was reviewed for consistency and logical errors by the research team and anomalies in the data were reconciled with the plans. Because individual-level data was not available from the health plans, comprehensive data validation at the plan level was not possible. However, the consistency of many of the variables from plan-to-plan provided additional validation of the aggregate data.

Lack of Individual Level Data from Plans

The approach to this analysis was constrained by the inability to access individual-level information from the health plans. Access to individual-level information for both NHATS and plan enrollees would have enabled use of a different approach involving individual-level matching for specific characteristics.

Because individual-level data from each health plan was not available, it was not possible to compute the joint distribution or covariance structure. Therefore, the approach is subject to the assumption that the covariance correlation terms is zero, or that there is no difference in the covariance structure that would be observed for the

health plan and the actual covariance structure that is observed for the NHATS comparison.

It is possible, therefore, that differences in utilization between the plan population and the traditional Medicare population that could result from selection bias toward one group or the other are not fully controlled by the variables available to construct the model. Without the ability to do a covariance structure analysis, this possibility cannot be ruled out. While the NHATS and plan study populations have the same high acuity levels, it is possible that those who selected into integrated plans were more amenable to management or were lower utilizers of health care.

Limited Sample Size

The NHATS benchmark sample is relatively small due to the focus on a subpopulation with significant impairment, which is relatively rare in the older population at large, but more common among enrollees in integrated plans. The availability of a relatively small sample was most clearly seen in the ethnicity variable (i.e., Hispanic/non-Hispanic). Only 6 percent of the NHATS benchmark population is Hispanic, while the SCO plan that was able to provide data on Ethnicity had an enrolled population that was between 37 percent Hispanic. The small prevalence of Hispanics in NHATS—fewer than 40 individuals—means that the dataset may not be able to make reliable projections about outcomes for this community. When the variable for Hispanic ethnicity was included in the plan models, there was a substantial effect on predicted utilization. Specifically, a larger Hispanic population was associated with lower predicted utilization across the three outcome variables. Due to this outsize impact, the research team decided not to include the Hispanic variable in the plan models. The results of models including this variable are available in Appendix II of this report.

Inability to Adjust for Geographic Variation

Integrated health plans operate with state or local markets, and the NHATS benchmark does not have a large enough sample to account for geographic variability in population-level characteristics and utilization. The literature has well documented the variation in healthcare spending and utilization across U.S. geographic regions.[35] This analysis did not account for the potential impact of geographic variation available on results.

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[35] M Gornick (1982) "Trends and regional variations in hospital use under Medicare," *Health Care Finance Review* 3:41-73.

JR Knickman and AM Foltz (1984) "Regional differences in hospital utilization. How much can be traced to population differences?" *Med Care* 22:971-86. WP Welch et al. (1993) "Geographic variation in expenditures for physicians' services in the United States," *NEJM* 328:621-7.

Factors Influencing Model Results

The predictions of the study models rely on adequately matching the NHATS benchmark population to the sample population enrolled in each plan. Several factors affected the ability to make this match:

- Omitted Variables: If we are not able account for a key characteristic defining the plan population in the study model, this may influence the dependent variable in the equation predicting medical utilization. If the likely direction of the missing variable's impact and the relative difference along that variable is known for the benchmark and study populations, then we can surmise the separation how including that variable might change the model predictions.

- Varying Data Availability Across Plans: If a variable was available in the NHATs study population and some of the plans but not all of the plans, the inclusion or exclusion of that variable could affect predicted rates. In this case, the research team tested the sensitivity of the predicted results (including and excluding the variable) and provided the results of sensitivity tests in the appendix.

- Large Differences in Benchmark and Study Population Characteristics: A variable in the model where there is a small "n" in the NHATS study population (e.g., Hispanic ethnicity) and a large percentage of the plan's population, may result in an effect that is anomalous. In this case, we tested the sensitivity of the predicted results - including and excluding the variable.

Factors affecting the results from the plans

- Actual rates will vary with the acuity of the plan population. The NHATS model is designed to adjust predicted utilization for variance that can be explained in terms of the acuity of the population.

- Differences in the Plans' Care Models
    - Differences between managed care organizations and traditional fee-for-service Medicare in the way beneficiaries access the healthcare system as a result of differing regulations or reimbursement incentives (e.g., the requirement in traditional Medicare of a qualifying three-day prior hospitalization before SNF admission is covered).
    - Goals for the plan that are influenced by the structure of payment, the risk that plans hold, the priorities of the state that are laid out in the managed care

organization contract with the state. For example, the state may have incentives in place that discourage SNF use for program participants.

- Unique aspects of an organization's unique care model that may influence how resources in the system are used.

Appendix II: Sensitivity Analysis Including Variable for Hispanic Ethnicity

One of the participating plans was able to provide data on ethnicity for the study population, specifically the share of the population that identified as being Hispanic. In the primary analysis the research team excluded ethnicity because the variable was not available for two of the plans. Additionally, while 37 percent of plan enrollees identified as Hispanic, this is true of only 7 percent of the NHATS benchmark population. The small sample of Hispanics in NHATS—only 31 individuals—means that the dataset did not have high enough prevalence of Hispanic ethnicity to make projections about outcomes for this community.

Table A1: NHATS Model Results Including a Variable for Ethnicity

	SCO 1
Share Hispanic	37%
Observed Hospitalization Rate	0.35
Predicted Hospitalization Rate	0.61 (0.30-0.92)
Observed ED Visit Rate	1.20
Predicted ED Visit Rate	1.39 (0.84-1.94)
Observed # SNF Events	0.20
Predicted # SNF Events	0.13 (0.02-0.24)
Sample Size	>2,000

When the study included a variable for Hispanic ethnicity in the regression, there was a dramatic effect on predicted utilization (Table A1), relative to the predicted utilization from regressions excluding this variable. Specifically, including ethnicity in the model lead to decreases in predicted utilization for the plan due to the fact that Hispanics have lower utilization that respondents who are white or other races in the NHATS benchmark population. This is a common health services research phenomenon that is referred to as "the Hispanic Paradox" and has been well documented.[36]

[36] See, for example: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3673509/

Appendix III: Sensitivity Analysis Excluding Decedents

All three of the participating plans were able to provide data for the study sample with and without individuals who died during the observation period. The primary analysis for this study included decedents where this data was available. In sensitivity analyses that excluded decedents (Table A2) we do not observe notable differences in results.

Table A2: NHATS Model Results Excluding Decedents

	SCO 1	SCO 2	SCO 3
Observed Hospitalization Rate	0.35	0.41	0.26
Predicted Hospitalization Rate	0.63 (0.24-1.02)	0.82 (0.32-1.32)	0.76 (0.44-1.09)
Observed ED Visit Rate	1.16	0.75	1.45
Predicted ED Visit Rate	1.42 (0.80-2.04)	1.58 (0.88-2.29)	1.48 (0.98-1.98)
Observed # SNF Events	0.17	0.18	0.08
Predicted # SNF Events	0.15 (0.02-0.28)	0.26 (0.04-0.47)	0.26 (0.11-0.41)
Sample Size	>2,000	>2,000	>2,000

Acknowledgements

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G. Lawrence Atkins
Jennifer Windh
Heidi Arndt
Anne Tumlinson
Lois Simon
Jan Levinson

Johns Hopkins University Project Team

Jennifer Wolff
Judith Kaspar
Amber Willink
John Mulcahy

LTQA appreciates the participation and suggestions from the members of our Technical Advisory Panel for the quantitative study: Vincent Mor (Brown University), Randall Brown (Mathematica), Marc Cohen (UMass Boston), Tamara Kuznetski (University of Chicago), Howard Gleckman (Urban Institute), Paul Saucier (IBM), and Joshua Weiner (RTI-deceased). The methodology, its execution, and the analysis of the results are the product of the project team.

MARCH 2019

LTQA is grateful for the advice, review, and support provided by the Blue Cross Blue Shield of Massachusetts Foundation.