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EVALUATION OF THE NEXT GENERATION ACCOUNTABLE CARE ORGANIZATION (NGACO) MODEL

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Appendix A: Quantitative Methods and Analysis

Study Design to Assess Impact for the NGACO Model

Difference-in-Differences (DID) Design

We used a DID design to assess the impact of the NGACO Model in its six performance years (PYs) that spanned calendar years 2016 to 2021. As shown in **Exhibit A.1**, the design compares differences in outcomes for the NGACO and propensity score-weighted comparison beneficiaries (residing in the same markets) in a PY against differences in outcomes for the NGACO and comparison groups in three preceding baseline years (BY 1, BY 2, BY 3) that are unique for each cohort.

- A separate NGACO group in the baseline period was created for each PY by identifying beneficiaries eligible for alignment with an NGACO, had their care been mainly with NGACO providers active in the PY.

- A comparison group comprising non-NGACO FFS beneficiaries was created for each PY and the baseline period; its beneficiaries were propensity score-weighted to resemble beneficiaries in the NGACO group on observed characteristics.

- Baselines for the comparison group and the NGACO group were used to establish what would have happened to the NGACO beneficiaries in a given PY in the absence of the NGACO Model (counterfactual).

- The NGACO Model's treatment effect was estimated relative to the untreated counterfactual, which included COVID-19 in PY 5 (2020) and PY 6 (2021).

The DID design assumes that time-varying and time-invariant, unobservable factors affect the treatment and comparison groups similarly. If observed characteristics between the NGACO and comparison groups correlated with unobserved characteristics between the two groups, using propensity-score weights would mitigate biases that may result from observed and unobserved differences influencing outcomes between the two groups. A key assumption of our DID design is that of parallel trends, namely, that changes in outcomes from the BYs to the PY would have been similar in the NGACO and comparison groups in the absence of the NGACO Model. We tested this assumption across the BYs by comparing the NGACO group's trend in BY 1 to BY 3 against the trend in the comparison group for all outcomes, noting where the assumptions passed and failed for each cohort and model-wide.

Exhibit A.1. Use of Difference-in-Differences to Estimate the NGACO Model's Treatment Effect
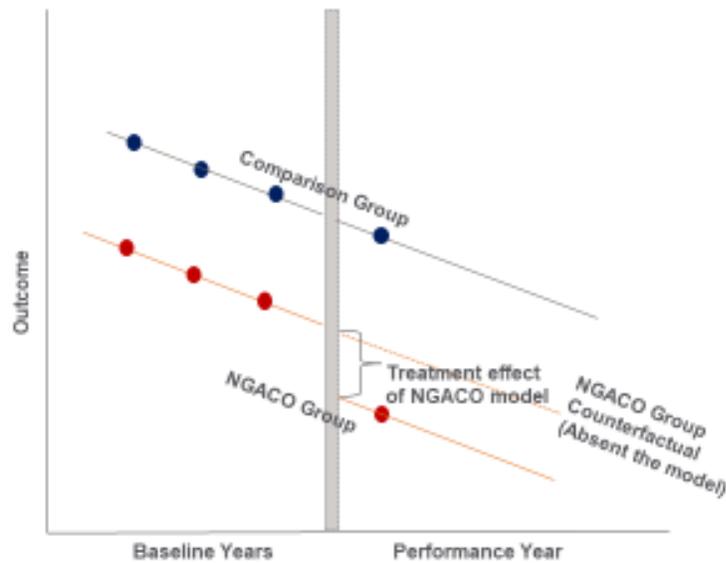
Performance and Baseline Years

In our DID design we examined changes in outcomes for the NGACO and comparison group beneficiaries in each PY relative to three BYs (BY 1, BY 2, BY 3,) that preceded model entry for each cohort. **Exhibit A.2** shows calendar years (CY) as they correlated with PYs and BYs for each NGACO cohort. For each PY, the NGACO group in the BYs was defined based on the respective PY's participant providers, as described in the next section.

Exhibit A.2. Calendar Years that Corresponded to BYs and PYs for the 2016, 2017, and 2018 NGACO Cohorts

Performance Year	NGACO and Comparison Group	CY 2013	CY 2014	CY 2015	CY 2016	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
PY 1 (CY 2016)	2016 Cohort	BY 3	BY 2	BY 1	PY 1	-	-	-	-	-
PY 2 (CY 2017)	2016 Cohort	BY 3	BY 2	BY 1	-	PY 2	-	-	-	-
	2017 Cohort	-	BY 3	BY 2	BY 1	PY 2	-	-	-	-
PY 3 (CY 2018)	2016 Cohort	BY 3	BY 2	BY 1	-	-	PY 3	-	-	-
	2017 Cohort	-	BY 3	BY 2	BY 1	-	PY 3	-	-	-
	2018 Cohort	-	-	BY 3	BY 2	BY 1	PY 3	-	-	-
PY 4 (CY 2019)	2016 Cohort	BY 3	BY 2	BY 1	-	-	-	PY 4	-	-
	2017 Cohort	-	BY 3	BY 2	BY 1	-	-	PY 4	-	-
	2018 Cohort	-	-	BY 3	BY 2	BY 1	-	PY 4	-	-

Performance Year	NGACO and Comparison Group	CY 2013	CY 2014	CY 2015	CY 2016	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
PY 5 (CY 2020)	2016 Cohort	BY 3	BY 2	BY 1	-	-	-	-	PY 5	-
	2017 Cohort	-	BY 3	BY 2	BY 1	-	-	-	PY 5	-
	2018 Cohort	-	-	BY 3	BY 2	BY 1	-	-	PY 5	-
PY 6 (CY 2021)	2016 Cohort	BY 3	BY 2	BY 1	-	-	-	-	-	PY 6
	2017 Cohort	-	BY 3	BY 2	BY 1	-	-	-	-	PY 6
	2018 Cohort	-	-	BY 3	BY 2	BY 1	-	-	-	PY 6

NOTES: BY=baseline year, CY=calendar year (January 1 through December 31), PY= performance year.

Defining NGACO and Comparison Groups

NGACO beneficiaries and comparison beneficiaries were prospectively attributed to the performance year NGACO providers (treatment group) or providers unaffiliated with any Medicare ACO (comparison group), for each PY and its respective BYs. See **Exhibit A.3** for summary definitions.

Exhibit A.3.   NGACO and Comparison Groups Defined, in BYs and PYs

	Baseline Years	Performance Years
NGACO Group		
All NGACO-aligned FFS beneficiaries	Beneficiaries residing in NGACO market areas in the BYs prospectively attributed to NGACO participant providers in a given PY using the model's alignment rules	Beneficiaries prospectively attributed to NGACO participant providers in a given PY using the model's alignment rules, situated in NGACO market areas
Comparison Group		
Alignment-eligible FFS beneficiaries in NGACO markets not aligned with NGACOs	Beneficiaries residing in NGACO market areas in the BYs prospectively attributed to non-NGACO providers during the BY using NGACO Model alignment rules	Beneficiaries residing in NGACO market areas prospectively attributed to non-NGACO providers during the PY using NGACO Model alignment rules

NOTES: The set of NGACO participant providers used in the alignment trigger file to align beneficiaries during BYs or PYs were those that remained on a NGACO's participant list for at least 30 days during the PY. Non-NGACO providers were defined as excluding NGACO participant providers, NGACO preferred providers, and providers in Medicare Shared Savings Program (SSP) and Pioneer ACOs in the respective years. FFS=fee-for-service.

Alignment Approach

We used final action claims and followed the NGACO Model's alignment algorithm to prospectively attribute beneficiaries to either NGACO or comparison groups in our analyses.[1] The term *prospective attribution* indicates that the NGACO Model's alignment for a given PY and BYs was based on Medicare claims from a *preceding* 24-month alignment period. The alignment algorithm was used to attribute beneficiaries to an NGACO's participant providers or to non-NGACO providers in each BY or PY, based on providers that received the largest share of dollars for beneficiaries' qualifying evaluation and management (QEM) visits in the alignment period;[2] see **Exhibit A.4.**

Exhibit A.4.   Alignment Periods for the Model Evaluation, PY 6 (2021)

	Cohort	Period Type	CY 2013	CY 2014	CY 2015	CY 2016	CY 2017	CY 2021
PY 6 (CY 2021)	**2016 Cohort**		**BY 3**	**BY 2**	**BY 1**	**–**	**–**	**PY 6**
		Alignment Period	July 1, 2010– June 30, 2012	July 1, 2011– June 30, 2013	July 1, 2012– June 30, 2014	–	–	July 1, 2018– June 30, 2020
	2017 Cohort		**–**	**BY 3**	**BY 2**	**BY 1**	**–**	**PY 4**
		Alignment Period	–	July 1, 2011– June 30, 2013	July 1, 2012– June 30, 2014	July 1, 2013– June 30, 2015	**–**	July 1, 2018– June 30, 2020
	2018 Cohort		**–**	**–**	**BY 3**	**BY 2**	**BY 1**	**PY 4**
		Alignment Period	–	–	July 1, 2012– June 30, 2014	July 1, 2013– June 30, 2015	July 1, 2014– June 30, 2016	July 1, 2018– June 30, 2020

NOTE: The alignment periods were applied to the NGACO and comparison groups. BY=baseline year, CY=calendar year (January 1 through December 31), PY=performance year.

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[1] A full description of the alignment algorithm is available from: RTI International. Next Generation ACO Model Calculation of the Performance Year Benchmark: Performance Years 2019 and 2020. September, 2018. Available at https://innovation.cms.gov/files/x/nextgenaco-benchmarkmethodology-py4.pdf.

[2] QEM codes comprised the following: 99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99421, 99422, 99423, 99441, 99442, 99443, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99339, 99340, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350, 99495, 99496, 99490, 99487, 99489, 99491, G2058, G0506, 99497, 99498, G0402, G0438, G0439, G2010, G2012, 96160, 96161, 99484, 99492, 99493, 99494, GCOL1, G0444, G0442, G0443, G0463, 99483, G2064, G2065.

We used the following nine steps to implement the alignment for NGACO and comparison beneficiaries in each BY and PY:

1. **Identify alignment-eligible NGACO and non-NGACO providers.** We identified alignment-eligible NGACO participant providers in PY 6 and alignment-eligible non-NGACO providers in each BY or PY. The former were identified from the participant provider file that the Program Analysis Contractor uses for alignment. Alignment-eligible providers in PY 6 were identified as practitioners within practices or—in the case of federally qualified health centers (FQHCs), rural health clinics (RHCs), and critical access hospitals (CAHs)—practitioners within facilities.[3] To define the baseline providers for all cohorts, we identified the alignment-eligible providers by National Provider Identifier (NPI) alone, to capture practitioner performance over time; the NPI is a comprehensive way to identify providers, compared with tax identification number (TIN)-NPI and CMS certification number (CCN)-NPI combinations that can change over time. Alignment-eligible practitioners had selected primary care or specialist designations.[4] Alignment for the comparison group in each cohort mirrored the approach used for the NGACO group.

2. **Identify alignment-eligible beneficiaries.** We identified alignment-eligible beneficiaries at the beginning of each BY or PY using the Medicare enrollment database. Alignment-eligible beneficiaries had to: 1) be alive; 2) be covered by Medicare Parts A and B; 3) not be in a Medicare Advantage (MA) or other Medicare managed care plan; 4) not have Medicare as their secondary payer; 5) reside in the United States; and 6) have at least one paid claim for a qualified evaluation & management (QEM) service during the two-year alignment period.

3. **Calculate allowable charges for all alignment-eligible beneficiaries.** For all alignment-eligible beneficiaries in the BY and PY, we used Medicare claims to determine the total allowable charges for all QEM services received from the group of participant providers in each NGACO or from a non-NGACO provider during the alignment period. Charges from the earliest alignment year were weighted by one-third and those in the most recent alignment year were weighted by two-thirds to obtain the total weighted allowable charges for each alignment-eligible beneficiary, keeping with the model's attribution methodology.

4. **Align beneficiaries with NGACO and Non-NGACO providers using claims-based NGACO alignment algorithm.** We aligned each eligible beneficiary to the group of participant providers composing an NGACO or group of non-NGACO providers according to the model's alignment rules, based on the percentage of the beneficiary's weighted allowable charges for QEM services over the alignment period. The alignment rules gave precedence to primary care specialists over other selected specialists and used the most recent QEMs to break ties when weighted charges were equal across two or more groups of providers for a beneficiary.

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[3] The FQHCs, RHCs, and CAHs were identified based on billing codes 77, 71, and 85, respectively, on outpatient claims. Practitioners billing through CAHs included those receiving payment from Medicare through the Optional Payment Method, where the CAH billed for facility and professional outpatient services to Medicare when physicians or practitioners reassigned billing rights to the CAH.

[4] Primary care practitioners included those with specialty codes 01, 08, 11, 37, 38, 50, 89, and 97. Specialists included those with specialty codes 06, 12, 13, 16, 23, 25, 26, 27, 29, 39, 46, 70, 79, 82, 83, 84, 86, 90, and 98.

5. **Align beneficiaries via voluntary alignment.** We attributed voluntarily aligned beneficiaries to NGACOs in the PY.[5] Voluntarily aligned beneficiaries were also aligned with the NGACOs in the BYs if they were deemed to be alignment-eligible at the beginning of those years.[6] Voluntary alignment took precedence over claims alignment.

6. **Apply BY or PY model exclusions to replicated prospective alignment lists for NGACO and comparison groups.** We excluded NGACO and comparison beneficiaries based on the NGACO Model's exclusion criteria to determine the duration of alignment with the NGACO or comparison group in each BY or PY. A beneficiary was aligned to the NGACO or comparison group for all months of a BY or PY until they met an exclusion criterion.[7] The date a beneficiary's alignment ended for the year (alignment end date) was either their date of exclusion from alignment or the last day of the BY or PY. Per the NGACO Model's alignment rules, an aligned NGACO beneficiary could be excluded from the model over the course of the PY for several reasons: 1) death; 2) had Medicare as a secondary payer during any month; 3) lost Medicare Part A or B during any month; 4) transitioned to MA or a managed care plan during any month; 5) resided in a non-U.S. location during any month; or 6) was aligned to another Medicare shared-savings initiative. The evaluation handled these exclusions in the same way, except for the fifth and sixth criteria.

   − For the fifth criterion, the Program Analysis Contractor excluded NGACO-aligned beneficiaries who moved outside of an NGACO's extended service area during a PY or who received a majority of QEM services from a provider located outside of an NGACO's extended service area during a PY. For the evaluation, we applied geographic exclusions to the NGACO or comparison group in a BY or PY by restricting NGACO and comparison beneficiaries to those in hospital referral regions (HRRs) containing 1% or more of a PY's NGACO-aligned beneficiaries.

   − For the sixth criterion, the evaluation accounted for exclusions due to alignment to another Medicare shared-savings initiatives in BYs and PYs for both the NGACO and comparison groups. Beneficiaries aligned to the Comprehensive ESRD Care (CEC) Model were excluded from NGACO and comparison groups. Remaining beneficiaries were aligned to groups of NGACO and non-NGACO providers.

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[5] The overall proportion of NGACO voluntarily aligned beneficiaries was 0.58% for PY 6 (0.33% for the 2016 cohort, 0.78% for the 2017 cohort, and 0.60% for the 2018 cohort).

[6] The following proportions of 2016 cohort NGACO PY 6 beneficiaries were voluntarily aligned in BYs: 0.06% for BY 3, 0.07% for BY 2, and 0.08% for BY 1.
The following proportions of the 2017 cohort NGACO PY 6 beneficiaries were voluntarily aligned in BYs: 0.35% for BY 3, 0.39% for BY 2, and 0.42% for BY 1.
The following proportions of the 2018 cohort NGACO PY 6 beneficiaries were voluntarily aligned in BYs: 0.28% for BY 3, 0.31% for BY 2, and 0.34% for BY 1.

[7] The program analysis contractor excludes such beneficiaries from financial calculations for PYs.

NGACO providers included all participant providers in an NGACO. Non-NGACO providers were defined as those who were not in NGACOs in the PY as participant and preferred providers, and not in SSP or Pioneer ACOs in a respective year (BY or PY). In the next section of this Appendix, we describe how we identified these provider groups. If, after applying the NGACO alignment algorithm, a beneficiary was aligned with providers in an NGACO, SSP ACO, or Pioneer ACO, then the beneficiary was excluded from alignment to the comparison group at the beginning of a BY or PY. The attribution algorithms for the SSP were not the same as the NGACO Model's; for this reason, it was possible that after applying the NGACO alignment algorithm, some beneficiaries in the comparison group were also in SSP ACOs. Because both the NGACO and Pioneer attribution algorithms were prospective, beneficiaries in Pioneer ACOs were excluded from the comparison group. Finally, because many NGACO providers were in SSP or Pioneer ACOs in BYs, after applying the NGACO alignment algorithm, many NGACO group beneficiaries in BYs were also in SSP or Pioneer ACOs.

7. **Apply additional beneficiary exclusions.** We applied the following inclusion and exclusion criteria to beneficiaries in the NGACO and comparison groups in each year: beneficiaries were required to be 18 years or older and must have been aligned with the group for at least one month in the year. Comparison beneficiaries who ended alignment prior to the end of the PY or BYs for reasons other than death were excluded from the evaluation.

8. **Compare evaluation alignment replication against NGACO PY alignment.** We had a match rate of 97.9% of the final population used by the Program Analysis Contractor for financial reconciliation in PY 6. [8] **Exhibit A.5** shows the match rate between model-aligned beneficiaries and the evaluation-aligned beneficiaries for all PYs.

Exhibit A.5.   Comparison of NGACO Beneficiary Alignment Between the NGACO Model and NGACO Model Evaluation, PY 6–PY 1

	Before Evaluation Applied Alignment Exclusion Criteria				After Evaluation Applied Alignment Exclusion Criteria	
	# Model prospectively aligned beneficiaries	# Evaluation prospectively aligned beneficiaries	# Matching beneficiaries	% Evaluation-aligned beneficiaries matching model's alignment	# Evaluation-aligned beneficiaries matching model's alignment	% Evaluation-aligned beneficiaries matching model's alignment
PY 6	1,297,576	1,405,432	1,286,456	99.1%	954,830	97.9%
PY 5	1,318,886	1,437,908	1,309,596	99.3%	1,004,104	98.1%
PY 4	1,613,267	1,978,604	1,594,669	98.8%	1,179,390	98.0%
PY 3	1,738,749	1,742,705	1,700,105	97.8%	1,387,227	96.9%

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[8] The discrepancy is likely due to differences in timing of enrollment information and claims used for exclusions by the Program Analysis Contractor and for the evaluation.

	Before Evaluation Applied Alignment Exclusion Criteria				After Evaluation Applied Alignment Exclusion Criteria	
	# Model prospectively aligned beneficiaries	# Evaluation prospectively aligned beneficiaries	# Matching beneficiaries	% Evaluation-aligned beneficiaries matching model's alignment	# Evaluation-aligned beneficiaries matching model's alignment	% Evaluation-aligned beneficiaries matching model's alignment
PY 2	1,476,681	1,679,915	1,458,556	98.8%	1,155,039	93.7%
PY 1	612,935	807,799	604,383	98.6%	445,444	93.3%

NOTE: The evaluation inclusion criteria included the model alignment rules and, in addition, beneficiaries who were aligned during the PY for at least 30 days.

9. **Use NGACO and comparison group providers to determine beneficiary alignment.**

   – **2016, 2017, and 2018 NGACO cohort providers used for alignment in PYs.** We identified participant providers used for PY alignment in the 2016, 2017, and 2018 NGACO cohorts using the participant provider alignment file from the Program Analysis Contractor.[9] Participant providers were practitioners (that is, identified by NPIs) with primary care or specialist designations per the model's alignment rules in a PY, within either NGACO practices (as determined by TINs), FQHCs, RHCs, or CAHs delivering outpatient services (that is, identified by CCNs). The complete set of NGACO participant providers for alignment in a given PY used the TIN-NPI and CCN-NPI combinations for the NGACOs with financial liability for shared savings in the PY.

     • For all cohorts, we defined participant providers in PY 6 as providers retained by the NGACOs from PY 5, plus new providers who joined the NGACOs before the start of PY 6.

   – **2016, 2017, and 2018 NGACO cohort providers used for alignment in BYs.**[10] The providers used to align NGACO beneficiaries during the BY of a given PY included all alignment-eligible NGACO participant providers listed for the PY in question. However, TINs may change over time, and these changes are more likely the further a BY is from its PY. For this reason, we used NPIs, rather than TIN-NPI or CCN-NPI combinations, to align beneficiaries during all BYs. Since the baseline period varied by cohort, the set of providers used to align beneficiaries during the baseline period varied as follows:

   – **2016, 2017, and 2018 cohort comparison group providers used for alignment in a PY.** For the 2016, 2017, and 2018 cohorts, the comparison group of providers used for alignment in a PY included all alignment-eligible non-NGACO providers in a given year.[11] Providers who joined and

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[9] The participant provider alignment file differs from the complete list of NGACO participant providers active during the PY. The latter list includes participant providers added by the NGACO during the PY.

[10] For the first PY of each cohort, the baseline was set using TIN-NPIs and CCN-NPIs. For subsequent PYs, the baseline was set to NPIs.

[11] The group of non-NGACO providers was defined as providers other than NGACO participant providers, NGACO preferred providers, and providers in SSP ACOs and Pioneer ACOs in the respective years.

left the NGACO Model in a preceding PY were eligible for inclusion in the comparison group in subsequent PYs. As with the NGACO group alignment in the first PY, comparison group beneficiary alignment was implemented using groups of TIN-NPIs and CCN-NPIs.

- **2016, 2017, and 2018 cohort comparison group providers used for alignment in BYs.** Comparison group providers used to align beneficiaries to the comparison group in the BYs included alignment-eligible providers who were not NGACO providers in the corresponding PY and who were not in a Medicare ACO in the respective BYs. Base year comparison group beneficiary alignment was implemented using NPIs rather than TIN-NPIs or CCN-NPIs for the reasons noted earlier. As with the PYs, the comparison group in the BYs may include providers who formerly or subsequently participated in a Medicare ACO.[12] We assumed that once providers left a Medicare ACO and returned to usual FFS Medicare, they were valid representatives of the comparison group.

NGACO Market Areas for Evaluation of the Model

For the evaluation, we defined an NGACO's market area as the collection of hospital referral regions (HRRs) where 1% or more of an NGACO's aligned population of beneficiaries resided in the PY.[13] By defining the NGACOs' market areas using HRRs, we could examine the impact of the NGACO Model in market areas where NGACOs had a meaningful footprint, using a sizable comparison group of non-NGACO beneficiaries in the same markets. HRRs have been used to define markets in prior ACO evaluations.[14] **Exhibit A.6** lists and enumerates the HRRs that composed the markets for the 35 NGACOs in PY 6. We limited our evaluation to NGACO and comparison group beneficiaries located in these market areas. To ensure that comparison beneficiaries drawn from the same markets were similar to NGACO beneficiaries, we used propensity score weights on observed demographics, disease burden, and ZIP code-level community characteristics.

Exhibit A.6. NGACOs' Market Areas for Model Evaluation, PY 6

NGACO	# of HRRs in the Market Area	State and City of HRRs Composing the Market Area
2016 Cohort		
ACCST	2	TX: Beaumont, Houston
Bellin	4[a]	MI: Marquette; WI: Appleton, Green Bay, Milwaukee
CHESS	4	NC: Charlotte, Greensboro, Hickory, Winston-Salem
Deaconess	2[a]	IN: Evansville; KY: Louisville

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[12] Providers who subsequently became NGACO providers in the PY were excluded from the comparison group providers.

[13] The HRRs were Medicare FFS markets representing catchment areas around tertiary medical centers.

[14] McWilliams JM, Chernew ME, Landon BE, Schwartz AL. Performance differences in year 1 of pioneer accountable care organizations. *New Engl. J Med* 2015;372(20):1927-1936; McWilliams JM, Hatfield LA, Chernew ME, Landon BE, et al. Early performance of accountable care organizations in Medicare. *New Engl. J Med* 2016;374,(24):2357-2366.

NGACO	# of HRRs in the Market Area	State and City of HRRs Composing the Market Area
Henry Ford	6	MI: Ann Arbor, Dearborn, Detroit, Flint, Pontiac, Royal Oak
Park Nicollet	2	MN: Minneapolis, St. Paul
Pioneer Valley	4	CT: Hartford; MA: Boston, Springfield, Worcester
ThedaCare	5	WI: Appleton, Green Bay, Marshfield, Milwaukee, Neenah
Triad	7[a]	NC: Charlotte, Durham, Greensboro, Raleigh, Wilmington, Winston-Salem; VA: Roanoke
Trinity	12	IL: Blue Island, Chicago, Hinsdale, Joliet, Melrose Park; MI: Grand Rapids, Muskegon; NJ: Hackensack, Morristown, New Brunswick, Newark; OH: Columbus
UnityPoint	17[a]	IA: Cedar Rapids, Davenport, Des Moines, Dubuque, Iowa City, Mason City, Sioux City, Waterloo; IL: Peoria, Rockford, Springfield; MN: Rochester; MO: Columbia; NE: Omaha; SD: Sioux Falls; WI: La Crosse, Madison
2017 Cohort		
Accountable Care Options	2	FL: Fort Lauderdale, Miami
APA	7	CA: Los Angeles, Orange County, San Bernardino, San Francisco, San Mateo County; WA: Seattle, Tacoma
Arizona	3	AZ: Mesa, Phoenix, Sun City
Atrius	4	MA: Boston, Worcester; NH: Manchester; RI: Providence
Carilion	5	NC: Durham, Winston-Salem; VA: Charlottesville, Lynchburg, Roanoke
Indiana U	7[a]	IL: Urbana; IN: Fort Wayne, Indianapolis, Lafayette, Muncie, Terre Haute; KY: Louisville
Northwest	4	WA: Olympia, Seattle, Spokane, Tacoma
ProHealth	2	WI: Madison, Milwaukee
ProspectNE	3	CT: Hartford, New Haven; RI: Providence
St. Luke's	2	ID: Boise; UT: Salt Lake City
UNC	4	NC: Durham, Greensboro, Hickory, Raleigh
UTSW	7[a]	OK: Oklahoma City; TX: Abilene, Dallas, Fort Worth, Tyler, Waco, Wichita Falls

NGACO	# of HRRs in the Market Area	State and City of HRRs Composing the Market Area
2018 Cohort		
ACC of TN	2	TN: Johnson City, Knoxville
Best Care Collab	1	FL: Fort Myers
CareMount	4	CT: Hartford, New Haven; NY: Albany, White Plains
Central Utah	4	NV: Las Vegas; UT: Ogden, Provo, Salt Lake City
CoxHealth	1[a]	MO: Springfield
Franciscan	6[a]	LA: Baton Rouge, Lafayette, Metairie, Monroe, Shreveport, Slidell
Mary Washington	3	VA: Arlington, Charlottesville, Richmond
NEQCA	3[a]	MA: Boston, Worcester; RI: Providence
Primaria	2	IN: Indianapolis, Muncie
Primary Care Alliance	2	FL: Ocala, Orlando
Reliance	6	MI: Ann Arbor, Dearborn, Detroit, Pontiac, Royal Oak; OH: Toledo
Reliant	4[a]	CT: Hartford; MA: Boston, Worcester; RI: Providence
Torrance	2	CA: Los Angeles, Orange County
UW Health	2	WI: Madison, Milwaukee

NOTES: [a] Denotes a change in HRR assignment from PY 4: Bellin added Milwaukee, WI; Deaconess no longer included Indianapolis, IN; Triad added Charlotte, Raleigh, and Wilmington, NC and Roanoke, VA; UnityPoint added Mason City, IA, Rockford, IL, Rochester, MN, Omaha, NE, Sioux Falls, SD, and La Crosse and Madison, WI; Indiana U added Fort Wayne, IN; UTSW added Oklahoma City, OK, and Abilene, Waco, and Wichita Falls, TX; CoxHealth no longer included Springdale, AR; Franciscan added Metairie, LA; NEQCA no longer included Manchester, NH; Reliant no longer included Springfield, MA.

Accounting for COVID in PY 6 and Other Considerations

To construct the analytic data set, we included several binary indicator variables that flag certain characteristics of beneficiaries related to participation in Medicare initiatives in BYs and PYs. We also included county-level variables measuring COVID risks, to account for the effect of the COVID-19 public health emergency (PHE) in PY 6. The following variables were used to balance NGACO and comparison groups:

- **Accounting for COVID in PY 6.** Comparison groups were drawn from the same market areas, but they may have come from different communities and faced different risks for COVID-19 exposure or for delaying needed care due to health care resources. The validity of the NGACO Model's impact estimate—based on our DID design—hinged on COVID-19 having common shocks to the NGACO

and comparison groups. For this reason, we balanced the two groups on their county-level COVID-19 variables in 2021, using: 1) the number of cases per 100,000 population; 2) the number of deaths due to COVID per 100,000 population; and 3) the percent of COVID-19 cases that were fatal. The variables were not included in our evaluation's regression models.

- **Participation in other CMMI initiatives.** For both the NGACO and comparison groups, we identified whether beneficiaries participated in other concurrent CMMI shared-savings initiatives— Comprehensive Primary Care Plus (CPC+), Comprehensive Primary Care (CPC), Financial Alignment Initiative (FAI), Independence at Home (IAH), and Multi-Payer Advanced Primary Care Practice (MAPCP)—and episodic initiatives—Bundled Payments for Care Improvement Advanced (BPCI), Oncology Care Model (OCM), and Comprehensive Care for Joint Replacement (CJR). This report includes descriptive statistics on such participation for all three cohorts in PY 6. We included covariates in our regression models to adjust for participation in other concurrent CMMI shared-savings initiatives but did not adjust our regressions for episodic initiatives, as initiation of an episode could influence outcomes jointly for NGACO beneficiaries or beneficiaries in the comparison group.

- **Access to care from providers.** To ensure similar access to care for comparison and NGACO group beneficiaries in the NGACO group, we defined an access measure to providers as the number of alignment-eligible providers per 1,000 population located within 10 miles of a beneficiary's ZIP code. The variable was included in our propensity score model as well as the regression models used in the evaluation.

Data Sources

Exhibit A.7 shows the data used for to construct the NGACO and comparison groups.

Exhibit A.7. Analytic File Construction—Data Sources and Rationale

Data (Years)	Purposes	Source(s)
NGACO participant provider alignment file (2021)	Used to align Medicare beneficiaries to an NGACO or NGACO's comparison group based on total allowable QEM charges during the alignment period.	CMS
NGACO participant and preferred provider lists (2021)	Used to identify participant and preferred provider providers. The final participant provider list included providers in the alignment file who were active in the PY but also included providers added in the PY. Preferred providers in lists were excluded from the non-ACO providers to which comparison beneficiaries were attributed.	CMS
Providers in SSP (2013–2017, 2021), Pioneer (2013–2016), and NGACOs (2016–2017, 2021)	Used to exclude comparison beneficiaries who were prospectively aligned to other Medicare ACO providers during BYs or PYs.	CMS

Data (Years)	Purposes	Source(s)
NGACO attributed and excluded beneficiary lists (2021)	Used to identify the beneficiaries who were either aligned with an NGACO provider or excluded because of model exclusion criteria.	CMS
Beneficiaries in other Medicare shared-savings initiatives (2013–2017, 2021)	Used to identify beneficiaries in other Medicare shared-savings initiatives in the NGACO or comparison group. Beneficiaries in Pioneer ACOs or CEC initiatives were excluded from the comparison group.	CMS
Beneficiaries in SSP, Pioneer, and NGACOs (2013–2017, 2021)	Used to calculate Medicare ACO penetration rate in HRR.	CMS
Medicare beneficiary summary and claims files (2010–2020)	Used to define NGACO and comparison group beneficiaries through alignment, their characteristics, and outcomes including spending, utilization, and quality. Also used to calculate Medicare Advantage and ACO penetration rate in HRRs.	CMS
Medicare FFS Public Provider Enrollment Data; National Plan and Provider Enumeration System; and Medicare Data on Provider Practice and Specialty (2012–2020)	Identify individual providers (by NPIs) associated with practices (by TINs) and their specialties. Also used to compute measures of provider density by ZIP code and market competition (physician practice HHI and alignment-eligible providers per 1,000 population in HRR).	CMS
AHA survey data (2012–2020)	Calculate hospital competition in market (HHI) and acute care hospital beds per 1,000 population in HRR. Hospitals from the same system within the same HRR are considered as one market-sharing entity when calculating the HHI.	AHA
American Community Survey (2012–2020)	Identify the sociodemographic characteristics of communities (ZIP code tabulation area) where NGACO and comparison beneficiaries reside.	Census Bureau
COVID-19 Pandemic Vulnerability Index	Use source data to calculate county-level variables to measure the local risk of COVID-19 that may affect beneficiary care-seeking.	NIH
Dartmouth Atlas ZIP code–HRR crosswalks (2012–2020)	Identify markets (HRRs) in relation to ZIP codes where NGACO and comparison beneficiaries reside.	Dartmouth Institute
ZIP code–ZIP code tabulation area crosswalks (2015–2021)	Link beneficiary ZIP code with community characteristics at ZIP code tabulation area level (earlier versions of the crosswalks are not available).	HRSA

NOTES: AHA=American Hospital Association, CEC=Comprehensive ESRD [end-stage renal disease] Model, HHI=Herfindahl-Hirschman Index, HRR=hospital referral region, HRSA= Health Resources and Services Administration, NIH=National Institutes of Health, NPI=national provider identifier, QEM=qualified evaluation & management, SSP=Medicare Shared Savings Program, TIN = tax identification number.

Propensity Score Weighting

Beneficiaries in our evaluation were not randomized to the NGACO and comparison groups; for this reason, we used propensity score methods to ensure that the beneficiaries in the two groups were similar in their observed characteristics.[15] Propensity score-balancing approaches mitigate biases arising from differences in observed characteristics of NGACO and comparison beneficiaries. The propensity score is the predicted probability of a beneficiary being in the NGACO group in a year, conditional on a set of characteristics observed at the beginning of that year. We describe our approach to estimating propensity scores for beneficiaries in the NGACO and comparison groups in each BY and PY. The observed characteristics we considered for the propensity score included beneficiaries' demographic characteristics and disease burden as well as their community characteristics (ZIP code) and market (HRR) variables. For each NGACO and each BY or PY, we estimated propensity scores for beneficiaries in the NGACO and corresponding comparison group. We used logit models to predict the probability of a beneficiary being in the NGACO group (propensity score) based on the following characteristics:

- **Beneficiary characteristics** in the reference year (BY or PY) included age, gender, race/ethnicity (White, Black, Hispanic, Asian, other), disability, end-stage renal disease (ESRD) status, Medicaid dual-eligibility, Medicare Part D coverage, number of months aligned with the NGACO or comparison group in the year, death in the year, and disease burden at the end of the prior year. We defined a beneficiary's disease burden using 62 chronic condition indicators available on the Master Beneficiary Summary File (MBSF) in the Chronic Conditions Data Warehouse Virtual Data Research Center (VDRC). The conditions included 27 common chronic conditions and 35 other chronic or potentially disabling conditions the beneficiary had in the preceding year.[16] We did not use the hierarchical condition category (HCC) risk score to measure a beneficiary's disease burden because the HCC score is more susceptible to changes in provider coding practices than the chronic condition indicators.[17] We did not include utilization and cost in the reference or prior year, as these outcomes were assessed in our analysis of impacts of NGACO incentives; their inclusion would be expected to attenuate effects or dampen impacts.

- **Community characteristics** measured at the ZIP code level. The variables included rurality, density of providers within 10 miles per 1,000 population, and neighborhood socioeconomic

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[15] Austin PC. An introduction to propensity score methods for reducing the effects of confounding in observational studies. *Multivariate Behav Res.* 2011;46(3):399–424.

[16] CMS Chronic Condition Data Warehouse. *Chronic Condition Algorithms*. Available at: https://www.ccwdata.org/documents/10280/19139421/ccw-chronic-condition-algorithms.pdf; CMS Chronic Condition Data Warehouse. *Other Chronic or Potentially Disability Condition Algorithms*. Available at: https://www.ccwdata.org/documents/10280/19139421/other-condition-algorithms.pdf.

[17] RTI International. *Evaluation of the CMS-HCC Risk Adjustment Model Final Report*. 2011 Available at: https://www.cms.gov/Medicare/HealthPlans/MedicareAdvtgSpecRateStats/downloads/evaluation_risk_adj_model_2011.pdf.

characteristics (percentage of people living below the federal poverty line, percentage with high school and college education, and median income[18]) of the beneficiary's ZIP code.

- **County-level COVID variables** in PY 6 were included to balance the NGACO and comparison group beneficiaries drawn from the same HRR on their area-level COVID risks that may have influenced their care seeking in 2021. The variables included: 1) 7-day moving average of new COVID cases per 100,000 population; 2) 7-day moving average of COVID deaths per 100,000 population; and 3) percent of COVID cases that were fatal (case fatality). Each variable was measured first on a daily basis; the propensity score model used the average over the entire year.

- **Market characteristics** included indicator variables for HRRs within which the beneficiaries resided.

Weighting the comparison beneficiaries by the odds of the propensity score offered the best covariate balance for each NGACO across a PY and its BYs, while allowing us to assess the average treatment effect on the treated.[19, 20] NGACO beneficiaries were assigned a weight of one and the comparison beneficiaries were assigned weights of $PS_i/(1-PS_i)$, where PS_i was the beneficiary i's propensity score.

Further, we implemented additional checks of our results to assess the impact of weighting the comparison group by odds of the propensity score. First, because comparison beneficiaries with large weights could influence our results inordinately, we confirmed that a very small proportion of comparison group beneficiaries had large weights.[21] Second, covariates (except the county-level COVID variables) in the propensity score model were included in the DID models to obtain accurate impact estimates if the covariates were potentially mis-specified.[22]

Exhibit A.8 shows graphs of the common support in the estimated propensity scores for the respective cohort's treatment (NGACO=blue line) and comparison group (red line) in PY 5. Common support graphically summarizes the overlap in propensity scores and is used to illustrate the density of each group across the distribution of scores. Specifically, the x-axis in each graph is the propensity score (range from zero to one), and the y-axis is the percent of beneficiaries who received the corresponding propensity score.

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[18] For neighborhood socioeconomic characteristics and county-level COVID variables, we included quintile indicators rather than the continuous format of those variables in the model estimating propensity score. The variables were included in continuous format as for the covariate balance check.

[19] We assessed covariate balance by looking at standardized differences for the covariates before and after weighting. The method that yielded the lowest standardized difference of means across all covariates, with standardized differences <0.25 for all covariates, was considered to offer the best covariate balance.

[20] Stuart EA. Matching methods for causal inference: A review and a look forward. *Stat Sci.* 2010;25(1):1; Hirano K, Imbens GW, Ridder G. Efficient estimation of average treatment effects using the estimated propensity score. *Econometrica.* 2003;71(4):1161–1189.

[21] For the comparison beneficiaries, 0.4% had a weight of greater than three.

[22] Bang H, Robins JM. Doubly robust estimation in missing data and causal inference models. *Biometrics* 2005;61(4):962–973.

Exhibit A.8. Common Support of the Propensity Score by Cohort, BYs and PY 6

2016 Cohort

2017 Cohort

2018 Cohort
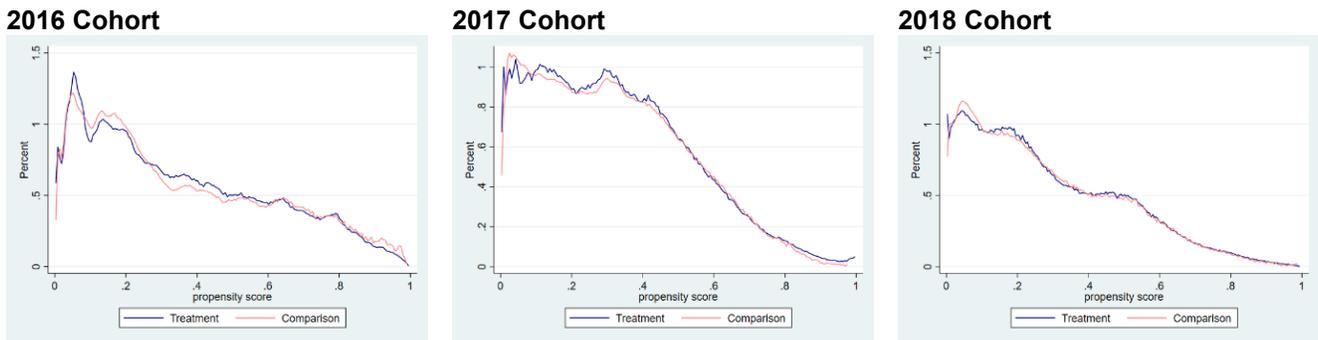
Measures of Spending, Utilization, and Quality

Exhibit A.9 provides definitions for the 23 claims-based outcome measures used to assess the NGACO Model's impacts in the Sixth Evaluation Report. Measures included total Medicare spending, eight categories of Medicare spending by care setting and service, eleven utilization measures, and three quality of care measures.

Exhibit A.9. Definitions for Claims-Based Outcome Measures

Measure	Definition
Medicare Spending [a]	
Total Medicare Parts A and B spending per beneficiary per year (PBPY)	Total Medicare Parts A and B spending PBPY for beneficiaries aligned to either the NGACO or comparison group. Spending included Medicare paid amounts on Parts A and B claims from the start of the PY until the end of the PY or until the end date for the beneficiary's alignment (that is, until the beneficiary was excluded because of alignment exclusion criteria), for the treatment or comparison group.
Medicare spending on acute care inpatient hospitals PBPY	Total Medicare spending on acute care inpatient hospitals PBPY for beneficiaries aligned either to the NGACO or to the comparison group. Spending included Medicare paid amount on facility claims from the start of the year until the end of the year or until the last day the beneficiary remained aligned with the treatment or comparison group. Spending on Part B professional services in this setting was excluded.
Medicare spending on skilled nursing facility (SNF) PBPY	Total Medicare spending on SNFs, including swing beds, PBPY for beneficiaries aligned to either the NGACO or comparison group. Spending included Medicare paid amount on SNF claims from the start of the year until the end of the year or until the last day the beneficiary remained aligned with the treatment or comparison group. Spending on Part B professional services in this setting was excluded.
Medicare spending on other post-acute care (PAC) facilities PBPY	Total Medicare spending on other inpatient, PAC facilities (long-term care hospitals and inpatient rehabilitation hospitals) PBPY for beneficiaries aligned to either the NGACO or comparison group. Spending included Medicare paid amount on facility claims from the start of the year until the end of the year or until the last day the beneficiary remained aligned with the treatment or comparison group. Spending on Part B professional services in these settings was excluded.

Measure	Definition
Medicare spending on outpatient facilities PBPY	Total Medicare spending for outpatient facilities (including hospital outpatient departments, emergency departments [EDs], federally qualified health centers [FQHCs], and rural health centers [RHCs]) PBPY for beneficiaries aligned to either the NGACO or comparison group. Spending included Medicare paid amount on facility claims from the start of the year until the end of the year or until the date the beneficiary remained aligned with the treatment or comparison group. Spending on Part B professional services in these settings was excluded.
Medicare spending on physician and professional services PBPY	Total Medicare Part B professional spending PBPY for beneficiaries aligned to either the NGACO or comparison group. Included spending for physician and non-physician professional services and ancillary services, including ambulance, anesthesia, labs, imaging, and drugs administered in physician offices. Spending included Medicare paid amount on Part B claims from the start of the year until the end of the year or until the last day the beneficiary remained aligned with the treatment or comparison group.
Medicare spending on home health services PBPY	Total Medicare spending on home health services PBPY for beneficiaries aligned to either the NGACO or comparison group. Spending included Medicare paid amount on home health services claims from the start of the year until the end of the year or until the last day the beneficiary remained aligned with the treatment or comparison group. Spending on Part B professional services in the home setting was excluded.
Medicare spending on hospice PBPY	Total Medicare spending on hospice services PBPY for beneficiaries aligned to either the NGACO or comparison group. Spending included Medicare paid amount on hospice claims from the start of the year until the end of the year or until the last day the beneficiary remained aligned to the treatment or comparison group. Spending on Part B professional services was excluded.
Medicare spending on durable medical equipment PBPY	Total Medicare spending on durable medical equipment PBPY for beneficiaries aligned to either the NGACO or comparison group. Spending included Medicare paid amount on durable medical equipment claims from the start of the year until the end of the year or until the last day the beneficiary remained aligned with the treatment or comparison group.
Utilization	
Acute care hospital stays per 1,000 beneficiaries per year (BPY)	Number of acute care hospital stays per 1,000 beneficiaries per year (BPY) for beneficiaries aligned to either the NGACO or to the comparison group. Stays that included transfers between facilities were counted as one stay. All stays occurring between the start of the year and the end of the year, or the end date of the beneficiary's alignment to the treatment or comparison group during the PY, are included in the measure.
SNF stays per 1,000 BPY	Number of SNF stays per 1,000 BPY for beneficiaries aligned to either the NGACO or comparison group. All SNF stays that began between the start of the year and the end of the year, or the end date of the beneficiary's alignment to the treatment or comparison group during the PY, are counted towards the measure.
SNF days per 1,000 BPY	Number of SNF days per 1,000 BPY for beneficiaries aligned to either the NGACO or comparison group. All SNF days that began between the start of the year and the end of the year, or the end date of the beneficiary's alignment to the treatment or comparison group, were counted towards the measure.

Measure	Definition
Emergency department (ED) visits (including observation stays) per 1,000 BPY	Number of ED visits, including observational stays, per 1,000 BPY for beneficiaries aligned to either the NGACO or comparison group. Visits that included transfers between facilities were counted as one visit. ED visits resulting in hospital stays were excluded. All ED visits, including observational stays, occurring between the start of the year and the end of the year, or to the end date of a beneficiary's alignment to the treatment or comparison group, were included in the measure.
Evaluation and management (E&M) visits (excluding visits in acute care hospital and ED) per 1,000 BPY	Number of nonhospital E&M visits from primary care or specialist providers per 1,000 BPY for beneficiaries aligned to either the NGACO or comparison group (defined by BETOS codes for E&M visits, which include M1A, M1B, M4A, M4B, M5A, M5B, M5C, M5D, M6; E&M visits in acute care hospitals and EDs were excluded). All E&M visits occurring between the start of the year and the end of the year, or the end date of a beneficiary's alignment to the treatment or comparison group, were included in the measure.
Procedures per 1,000 BPY	Count of procedures per 1,000 BPY for beneficiaries aligned to either the NGACO or comparison group. This rate was computed as the number of claims with BETOS codes on carrier and outpatient claims with code "PXX," occurring between the beneficiary's alignment start and end dates in each year.
Tests per 1,000 BPY	Count of tests per 1,000 BPY for beneficiaries aligned to either the NGACO or comparison group. These were computed as the number of claims with BETOS codes on carrier and outpatient claims with code "TXX," occurring between the beneficiary's alignment start and end dates in each year.
Imaging Services per 1,000 BPY	Count of imaging services per 1,000 BPY for beneficiaries aligned to either the NGACO or comparison group. These were computed as the number of claims with BETOS codes on carrier and outpatient claims with code "IXX," occurring between the beneficiary's alignment start and end dates in each year.
Beneficiaries with Annual Wellness Visit (AWV) per 1,000 BPY	Number of beneficiaries with an AWV in the year, per 1,000 beneficiaries aligned to either the NGACO or comparison group. This measure reflected the likelihood of beneficiaries receiving an AWV visit in the year. The AWV codes on Medicare claims included G0438 (for the initial visit) and G0439 (for subsequent visits), and the AWVs could be included in the E&M visit count.
Home health episodes per 1,000 BPY	Number of home health episodes per 1,000 BPY for beneficiaries aligned to either the NGACO or comparison group. Episodes included sum of 60-day home health episodes, as well as home health episodes with low-utilization payment adjustments and partial episode payment adjustments. All episodes that began between the start of the year and the end of the year, or the end date of a beneficiary's alignment to the treatment or comparison group during the year, were included in the measure.
Home health visits per 1,000 BPY	Number of home health visits per 1,000 beneficiaries for beneficiaries aligned to either the NGACO or comparison group. The number of home health visits for physical/occupational/speech therapy, skilled nursing, and medical social services and from home health aides were identified based on lines with revenue center codes 420–449 and 550–599. All visits that began between the start of the year and the end of the year, or the end date of a beneficiary's alignment to the treatment or comparison group during the year, were included in the measure.

Measure	Definition
Quality of Care	
Beneficiaries with hospitalizations for ambulatory care-sensitive conditions (ACSCs) per 1,000 BPY	Number of beneficiaries with one or more ACSC acute care hospitalizations in the year per 1,000 beneficiaries for beneficiaries aligned to either the NGACO or to the comparison group. This measure reflected the likelihood of beneficiaries being hospitalized for ACSCs during the year. ACSC hospitalizations included diabetes short-term complications, diabetes long-term complications, chronic obstructive pulmonary disease or asthma in older adults, hypertension, heart failure, dehydration, bacterial pneumonia, urinary tract infection, uncontrolled diabetes, asthma in younger adults, and lower-extremity amputation among patients with diabetes.[b]
Beneficiaries with unplanned 30-day readmissions per 1,000 eligible BPY	Number of beneficiaries with one or more occurrences of unplanned hospital readmissions within 30 days of discharge in the year per 1,000 eligible beneficiaries for beneficiaries aligned to either the NGACO or comparison group. This measure reflected the likelihood of beneficiaries having unplanned readmissions in the year. We used CMS's risk-standardized all-condition readmission measure to identify eligible hospitalizations and unplanned readmissions.[c] The beneficiaries eligible for this measure were NGACO or comparison group beneficiaries with one or more eligible hospitalizations in the year.
Beneficiaries with hospital readmissions from skilled nursing facilities (SNF) per 1,000 eligible BPY	Number of beneficiaries with one or more occurrences of unplanned hospital readmissions within 30 days of admission to SNF in the year (immediately after a preceding hospitalization) per 1,000 eligible beneficiaries for beneficiaries aligned to an NGACO or comparison group. This measure reflected the likelihood of beneficiaries having unplanned 30-day readmissions following a SNF stay during the year. We used CMS's SNF readmission measure to identify eligible SNF admissions and unplanned readmissions occurring within 30 days of SNF admission.[d] Beneficiaries eligible for this measure were NGACO and comparison group beneficiaries with one or more eligible SNF admissions in the year.

NOTES:

[a] All Medicare spending was expressed in 2021 dollars and was based on Medicare paid amounts on claims; we did not exclude any outlier payments nor did we use standardized payments. Our models adjusted for health, demographic, and market characteristics. For providers in NGACOs that opted for population-based payments (PBPs) or all-inclusive-population-based-payments (AIPBPs), we used the actual amount Medicare would have paid for services absent the PBPs. Findings were consistent to sensitivity analyses that excluded payments above the 99th percentile. BETOS=Berenson-Eggers Type of Service, BPY=beneficiaries per year, E&M=evaluation and management, PBPY=per beneficiary per year.

[b] Agency for Healthcare Research and Quality. Prevention Quality Overall Composite Technical Specifications. Prevention Quality Indicator 90, Version 6.0, 2016. Available at: http://www.qualityindicators.ahrq.gov/Downloads/Modules/PQI/V60-ICD09/TechSpecs/PQI_90_Prevention_Quality_Overall_Composite.pdf. For claims prior to October 1, 2015, with ICD-9 codes, we used Version 5.0 of Prevention Quality Indicator 90. For claims after October 1, 2015, with ICD-10 codes, we used Version 6.0 of Prevention Quality Indicator 90.

[c] Centers for Medicare & Medicaid Services. A Blueprint for the CMS Measures Management System, ACO #8: Risk-Standardized All Condition Readmission. Version 1.0, 2012. Available at: https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Downloads/Measure-ACO-8-Readmission.pdf.

[d] Smith L, West S, Coots L, Ingber M, Reilly K, Feng Z, Etlinger A, et al. Skilled nursing facility readmission measure (SNFRM) NQF# 2510: All-cause risk-standardized readmission measure. Waltham, MA: RTI International; 2015. Available at: https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Downloads/SNFRM-Technical-Report-3252015.pdf.

Analytic Approach to Estimate Impacts of the NGACO Model

Exhibit A.10 summarizes the models used for the 23 claims-based outcome measures for the 2016, 2017, and 2018 cohorts (35 NGACOs) in PY 6. Outcome measures for spending and utilization were modeled as continuous variables, using generalized linear models (GLMs). For outcomes where more than 20% of the sample had zero values, we used two-part models with a probit or logit model to

assess the likelihood of a nonzero outcome and GLM to assess levels of the outcome for those with nonzero outcomes. For outcome variables modeled with GLMs, we determined the appropriate distributional form using a modified Park test.[23] This test examined the empirical relationship between the mean and the variance to ascertain the appropriate distribution. One utilization measure (beneficiaries with an AWV) and the three quality of care measures were modeled as binary measures.[24]

Exhibit A.10. Models Used for Specific Outcome Measures

Outcome Measure	Model Used
Spending	
Total Medicare spending	GLM: Gamma distribution and log link
Physician services spending	GLM: Poisson distribution and log link
Outpatient facility spending Acute care hospital facility spending Other post-acute care facility spending Home health spending	TPM: first part probit; second part GLM with gamma distribution and log link
SNF spending Hospice care spending Durable medical equipment spending	TPM: first part probit; second part GLM with Poisson distribution and log link
Utilization	
Acute care hospital admissions ED visits including observation stays SNF days SNF stays Home health visits Home health episodes Imaging Procedures	TPM: first part logit; second part GLM with negative binomial distribution and log link
E&M visits (excluding inpatient hospital and ED)	GLM; Poisson distribution and log link
Beneficiaries with Annual Wellness Visit	Logit
Quality of Care	

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[23] Manning W, Mullahy J. Estimating log models: To transform or not to transform? *J Health Econ*. 2001;20:461–494.

[24] A Medicare beneficiary is eligible for a single AWV each year, so the utilization measure was modeled as a binary variable. For ACSC hospitalizations, unplanned 30-day readmissions, and unplanned 30-day SNF readmissions, few beneficiaries had events, and fewer had more than one event. We chose to model these quality-of-care measures as binary—whether or not the beneficiary had the event during the year.

Outcome Measure	Model Used
Beneficiaries with ACSC hospitalizations Beneficiaries with unplanned 30-day readmissions Beneficiaries with unplanned 30-day SNF readmissions	Logit

NOTES: ACSC=ambulatory care-sensitive condition, E&M=evaluation and management, ED=emergency department, GLM=generalized linear model, SNF=skilled nursing facility, TPM = two-part model.

Difference-in-differences regression models to estimate impacts in PY 6 and cumulatively as of PY 6

We estimated impacts using DID regression models for the 2016, 2017, and 2018 cohorts separately in PY 6. We also ran separate DID regression models for each NGACO in PY 6 to obtain impact estimates for the spending, utilization, and quality of care outcomes relative to an individual ACO's comparison group. The model-wide impact in PY 6 was calculated by weighting the impact estimates for the three cohorts by their respective proportion of NGACO beneficiaries in the year. The cumulative model-wide impact as of PY 6 was calculated by weighting the impact estimates—for the 2016 cohort in PY 1; the 2016 and 2017 cohorts in PY 2; and the 2016, 2017, and 2018 cohorts in PY 3 through PY 6—by the proportion of NGACO beneficiaries in each year and in each cohort. Aggregating impact estimates in this way assumes statistical independence between NGACO cohorts and PYs. We similarly calculated cumulative impacts for each NGACO as of PY 6 for total spending by weighting their impact estimates for each PY by the respective proportion of beneficiaries a cohort had in each year. We expected treatment effects to vary by PY for the three cohorts that started the model in different years; for this reason, we estimated model-wide impacts cumulatively and in each PY using separate DID regression models for each cohort in a PY.[25]

We reported impact estimates in a PY in percentage terms as increases or decreases of outcomes for NGACOs relative to their counterfactual absent the model. All outcomes were at the beneficiary level; however, we describe impacts as relative increases or decreases for NGACOs, as the intervention was at the NGACO level. We reported three sets of impact estimates for PY 6: 1) model-wide, 2) for each of the three cohorts, and 3) for each NGACO. We also reported three sets of cumulative impact estimates as of PY 6: 1) model-wide; 2) for the 2016, 2017, and 2018 cohorts; and 3) for NGACOs in the 2016, 2017, and 2018 cohorts active as of PY 6.

Equation A.1 shows the general specification of the DID model that we used to estimate impacts of the NGACO Model in a given PY.

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[25] The alternative of pooling cohorts or PYs and running two-way fixed effects DID models has been shown to yield biased estimates when there is differential treatment timing and when treatment effects vary by time. For more please see Goodman-Bacon A. Difference-in-differences with variation in treatment timing. *J Econometrics* (2021);225(2):254-277. doi.org/10.1016/j.jeconom.2021.03.014

Equation A.1: **DID model to estimate impact in a given PY, controlling for beneficiary demographic, clinical, and community characteristics, with year and HRR fixed effects.**

$$g\ [E(Y_{ijkt})] = \beta_0 + \beta_1 NGACO_j + \delta_1 BY2_t + \delta_2 BY1_t + \delta_3 PY_t + \theta_1\ NGACO_j * PY_t + \\ \gamma BENE_{ijkt} + \Lambda Community_{jkt} + \Pi HRR_k$$

Where:

- Y_{ijkt} is the outcome for the ith beneficiary in NGACO or comparison group j, in market k, in year t. We model Y with appropriate distributional form and link function g, based on the spending, utilization, or quality of care outcome.

- β_0 is the intercept.

- $NGACO_j$ is the binary indicator for being in the NGACO group in either PYs or BYs. It is set to the value of one if the beneficiary is aligned with an NGACO PY provider in a given year. The coefficient β_1 captures the mean of the difference between the NGACO and comparison group that is constant over time.

- *BY 2*, *BY 1*, and *PY* are fixed effects for each year (with $BY3$ as reference) whose coefficients (δ_1, δ_2, δ_3) capture changes in the NGACO and comparison group over time.

- Coefficient θ_1 is the DID estimate for $NGACO_j * PY_t$, the binary indicator for being in the NGACO group in a given PY of the NGACO Model. The θ_1 coefficient is the impact of NGACO Model on its providers' beneficiaries. Because over half the NGACO providers previously participated in the SSP or the Pioneer ACO Model, this estimate should be interpreted as the marginal effect of the NGACO Model over the mix of prior Medicare ACO models and FFS.

- $BENE$ and $Community$ are sets of beneficiary and community characteristics with coefficient sets γ and Λ, respectively.

- HRR is a fixed effect for each HRR with coefficient vector Π, to control for differences across markets.[26]

Because we were estimating the average treatment effect on the NGACO group, our models included weights for the comparison group, to make it comparable to the NGACO group on the beneficiary and market-level covariates of interest. Details follow on the estimation of the cohort-level models based on **Equation A.1**. All models were estimated using Stata 16.[27]

Cohort-level models. Impacts at the cohort level were estimated as follows:

- **Beneficiary-level covariates** included age, gender, race/ethnicity, disability, ESRD status, dual-eligibility, Medicare Part D coverage, number of months of alignment in the year, death in the year, and disease burden at the end of the preceding year (using indicators for 62 chronic conditions).

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[26] Our models were robust to controlling for differences across markets over time using HRR and year interactions.
[27] StataCorp. 2019. *Stata Statistical Software: Release 16*. College Station, TX: StataCorp LP.

We included the square of months aligned because outcomes could increase nonlinearly based on the number of months a beneficiary was aligned with the NGACO or with a comparison group in a given BY or PY. We also included variables that accounted for NGACO and comparison beneficiaries' participation in other shared-savings CMMI initiatives during the BYs and PY. The initiatives included CPC+, CPC, FAI, IAH, and MAPCP.[28]

- **Community-level covariates** included number of alignment-eligible providers within 10 miles per 1,000 population, percent of population in poverty, percent of population with a college education, and urban/rural status based on beneficiary ZIP code.

- **Market-level covariates** included indicators for each HRR. We clustered standard errors at the level of the NGACO's market for the treatment and comparison groups, as outcomes could be correlated within these clusters.[29]

Model for each NGACO. NGACO-level models included the beneficiary and community covariates used in the cohort-level model, with the exception that we used a summary variable for disease burden (number of chronic conditions out of 62)[30] and binary variables for the 10 conditions most expensive to Medicare.[31,32] In the models for each NGACO, we estimated robust standard errors.[33]

Post-estimation calculations. We performed the following four post-estimation calculations:

- Because we used nonlinear models for the outcome variables, we employed the approach suggested by Puhani to express the DID θ_1 coefficient in **Equation A.1** as the estimated outcome for the treated NGACO group relative to its expected outcome absent the treatment.[34] We calculated the results using post-estimation predictions, computing the marginal effect for all treated

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[28] We excluded variables that captured participation of NGACO and comparison beneficiaries in overlapping episodic CMMI initiatives (OCM, BPCI Advanced, and CJR) because they were indicative of care that could take place based on certain health needs; inclusion of such beneficiaries resulted in the failure of the parallel trends test for total spending for one or more cohorts. In addition, we did not flag those beneficiaries in the comparison group who were assigned to SSP ACOs because NGACO alignment rules disallowed NGACO beneficiaries from being assigned to other ACOs and resulted in the failure of parallel trends for total spending for one or more cohorts.

[29] Bertrand M, Duflo E, Mullainathan S. How Much Should We Trust Differences-in-Differences Estimates. *Q J Econ.* 2003;119(1):249–275. Cameron AC, Miller DL. *Robust Inference with Clustered Data.* University of California, Department of Economics; 2010. Working Papers, No. 10(7).

[30] We could not use indicator variables for all 62 chronic conditions, due to small cell sizes that limited estimation of the models.

[31] Erdem E, Prada SI, Haffer SC. Medicare payments: how much do chronic conditions matter? *Medicare Medicaid Res Rev* 2013;3(2): mmrr.003.02.b02. doi: 10.5600/mmrr.003.02.b02.

[32] In prior analyses, we examined the effects of this altered specification of chronic conditions in the cohort model to understand the impact of not including all 62 conditions at the NGACO level. Using the total count of all 62 conditions and binary variables for the 10 chronic conditions changed the DID estimate for total Medicare spending in the cohort-level analysis by about -$0.10 annually or less than -$0.01 per beneficiary per month (PBPM).

[33] Wooldridge JM. *Econometric analysis of cross section and panel data.* MIT Press, 2010.

[34] Puhani PA. The treatment effect, the cross difference, and the interaction term in nonlinear "difference-in-differences" models. *Econ Lett.* 2012;115(1):85–87. doi.org/10.1016/j.econlet.2011.11.025

beneficiaries and subtracting the marginal effect for the beneficiaries with the DID interaction term set to zero.[35] We computed confidence intervals using the delta method.[36]

- We expressed the estimated impact as a percentage of the expected outcome for the NGACO group in a given PY absent the model. We computed the percentage change from the DID coefficient for outcomes estimated with log-linear models.[37] For outcomes estimated with two-part and logit models, we computed the predicted level of outcomes for NGACO beneficiaries in a given PY absent NGACO incentives by summing the adjusted mean for the comparison group in that PY and the adjusted difference between the NGACO and the comparison group in the BYs. We obtained the latter from the average predicted and adjusted outcomes for the NGACO and comparison group in the BYs, which we calculated post-estimation.

- We used post-estimation marginal effects to predict the average adjusted outcomes (i.e., the conditional means) for the NGACO and comparison group in the baseline period (all BYs) and PY. We report these for the NGACO and comparison group in **Appendix K** alongside the impact estimates to understand whether the latter were driven by improved performance for the NGACO group or by deteriorating performance for the comparison group or both.

- Finally, we expressed impact estimates as PBPY for spending outcomes and per 1,000 BPY for utilization and quality outcomes.

Testing the Assumption of Parallel Trends in the Baseline Years. A key assumption of the DID design is that the NGACO and the comparison group had similar trends in outcomes during the BYs before the onset of the NGACO incentives. This assumption of parallel trends allows the comparison group to establish a reliable representation of the NGACO group in a given PY in the absence of the NGACO Model. We tested this assumption using **Equation A.2**, which extended **Equation A.1** by including leading interaction terms for NGACO treatment effects in BY 1 and BY 2 (relative to BY 3). We assessed whether the coefficient θ_{-2} for the leading interaction term in BY 1 was significantly different from zero (p<0.05). If the term were significantly different, the assumption of parallel trends did not hold.

Equation A.2: DID model with leading interaction terms, controlling for beneficiary, HRR, and community characteristics

$$g[E(Y_{ijkt})] = \beta_0 + \beta_1 NGACO_j + \delta_1 BY2_t + \delta_2 BY1_t + \delta_3 PY_t + \theta_{-1} NGACO_j * BY2_t$$
$$+ \theta_{-2} NGACO_j * BY1_t + \theta_1 NGACO_j * PY_t + \Upsilon BENE_{ijkt} + \Lambda Community_{jkt} + \Pi HRR_k$$

For the evaluation, we determined that the DID estimate for a PY was valid if the trends between the NGACO and comparison group were parallel between BY 1 and BY 3. This condition was checked by

[35] Karaca-Mandic P, Norton EC, Dowd B. Interaction terms in nonlinear models. *Health Serv Res.* 2012;47(1pt1):255–274. doi: 10.1111/j.1475-6773.2011.01314.x

[36] Dowd BE, Greene WH, Norton EC. Computation of standard errors. *Health Serv Res.* 2014;49(2):731–750. doi.org/10.1111/1475-6773.12122

[37] For a log-linear model with a dummy variable D: *ln[E(Y)]* = *a* + *bX* + *cZ* + ε; if *Z* switches from 0 to 1, then the percentage impact of *Z* on *Y* is 100*[*exp(c)* - 1], where *c* is the coefficient on the dummy variable Z.

testing whether θ_{-2} was statistically different from zero at the five percent level (p<0.05). Our assumption allowed the NGACO providers and organizations to outperform or underperform on outcomes relative to the comparison group at mid-baseline (BY 2 versus BY 3). However, the NGACO and comparison groups were required to have similar trends in the year immediately prior to start of the NGACO Model, in the event that the treatment group underwent any marked changes prior to start of the model. [38]

Calculating the Net Spending Impact of the NGACO Model. In addition to estimating the gross impact of the NGACO Model on total Medicare Parts A and B spending, we calculated the net spending impact of the NGACO Model by accounting for shared savings or losses for NGACOs and if applicable, coordinated care reward (CCR) payments made to NGACO beneficiaries. Calculating the cumulative net spending impact of the NGACO Model used publicly available data on earned shared savings or losses across the 2016–2021 PYs and CCR payments made during the 2017 and 2018 PYs as well as cumulative gross savings impacts for the six years of the model.

Sensitivity Check. Our main analysis for gross spending did not adjust for differences in COVID-19 among the NGACO and comparison beneficiaries after we balanced the two groups on their county-level COVID variables in a given year. We conducted the sensitivity check to include county-level COVID variables and diagnosis of COVID in the regression model for the 2016, 2017, and 2018 cohorts in PY 6. Results from our sensitivity checks indicated that our gross spending impact estimates were robust to differences in severe cases of COVID that resulted in hospitalizations among the NGACO and comparison groups.

Estimation of Model-wide, Cohort-level, and NGACO-level Cumulative Impacts as of PY 6. In Exhibit A.11, we summarize how we estimated cumulative impacts model-wide and for each cohort as of PY 6, by combining the impact estimates for cohorts of NGACOs across PY 1–PY 6. To calculate the model-wide cumulative impact estimates as of PY 6 for a given outcome measure, we combined impact estimates for each cohort and PY as an average, weighted by the proportion of NGACO beneficiaries in each cohort and PY, as shown in **Exhibit A.12**. The standard errors for model-wide cumulative impact estimates were also combined as a weighted average by converting individual standard errors into variances, then combining the variances corresponding to the separate estimates weighted by the squared proportion of NGACO beneficiaries, then the standard error of the combined variance. Separate DID regression models were estimated for each NGACO cohort in a given PY up to PY 6.

The **cumulative impact for each cohort as of PY 6** for a given outcome measure was calculated as the weighted average of that cohort's DID impact estimates in all of the model's PYs in which that cohort was active. As noted earlier, the standard errors associated with the cumulative impact estimate were calculated as a weighted average following a similar procedure used in calculating the model-wide cumulative impact.

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[38] Ashenfelter O. Estimating the Effect of Training Programs on Earnings. *Rev Econ Stat.* 1978;60:47–50.

Exhibit A.11. Estimation of Cumulative and Performance Year Impacts, Model-Wide and for Cohorts

Cumulative Impact	PY 6 Impact	PY 5 Impact	PY 4 Impact	PY 3 Impact	PY 2 Impact	PY 1 Impact
Model-wide: 225 NGACO-years	Model-wide: 35 NGACOs	Model-wide: 37 NGACOs	Model-wide: 41 NGACOs	Model-wide: 50 NGACOs	Model-wide: 44 NGACOs	Model-wide: 18 NGACOs
2016 cohort: 81 NGACO-years	2016 cohort: 11 NGACOs	2016 cohort: 11 NGACOs	2016 cohort: 12 NGACOs	2016 cohort: 13 NGACOs	2016 cohort: 16 NGACOs	2016 cohort: 18 NGACOs
2017 cohort: 87 NGACO-years	2017 cohort: 11 NGACOs	2017 cohort: 12 NGACOs	2017 cohort: 15 NGACOs	2017 cohort: 21 NGACOs	2017 cohort: 28 NGACOs	
2018 cohort: 57 NGACO-years	2018 cohort: 13 NGACOs	2018 cohort: 14 NGACOs	2018 cohort: 14 NGACOs	2018 cohort: 16 NGACOs		

The **cumulative impact for an individual NGACO as of PY 6** was calculated as the weighted average of the NGACO's DID impact estimates across every PY the NGACO was active in the model through PY 6. Separate DID regression models were estimated for individual NGACOs in each PY. The cumulative impact for an individual NGACO as of PY 6 combined these estimates across the applicable PYs for a given NGACO weighted by the proportion of an NGACO's beneficiaries in a given year. For instance, an NGACO belonging to the 2016 cohort could have up to six years of cumulative impact and fewer if the NGACO dropped out after one or more PYs. Similarly, an NGACO in the 2017 cohort could have up to five years of cumulative impact, and an NGACO in the 2018 cohort could have up to four years of cumulative impact.

Standard errors were calculated as a weighted average of the standard errors associated with DID impacts in each PY included in an NGACO's cumulative impact. Similar to how standard errors were determined for the model-wide cumulative impact, standard errors for individual PY estimates were first converted to variances and weighted by the squared proportion of NGACO beneficiaries in a given PY, then converted back to standard error from the combined variance.

In calculating the cumulative estimates:

- We assumed that DID estimates for cohorts or NGACOs in different PYs were statistically independent. In addition, we assumed that the impact estimates of different cohorts or NGACOs within the same PY were independent, given that different cohorts or NGACOs had different participant providers and aligned beneficiaries in each PY and its associated BYs.

- Impact estimates were calculated and reported in PBPY, aggregate, and percentage terms to facilitate interpretation and comparisons. Conditional means for the NGACO and comparison groups in BYs and PY(s) were calculated in the same way as impact estimates.

- The significance of cumulative impact estimates was tested by determining the two-sided p-value based on the normal cumulative distribution function z-score:

$$z - score = \frac{x-\mu}{\sigma}$$

where x is the cumulative DID estimate, μ is zero, and σ is the standard error of the cumulative DID estimate.

If any of the contributing cohorts' impact estimates were uninterpretable due to failure of the parallel trends test, then model-wide impacts (outcomes) were calculated by weighting NGACO-level estimates by their proportion of beneficiaries, for NGACOs that passed the parallel trends test; see **Exhibit K.3** for results. **Exhibit A.12** presents the treatment group sizes for all cohorts and years, and their proportional contribution to the cumulative impact estimates.

Exhibit A.12. Treatment Group Sizes and Contributions to the Cumulative Impact Estimates

	Model-wide cumulatively as of PY 6	Model-wide in PY 6	2016 cohort cumulatively as of PY 6	2017 cohort cumulatively as of PY 6	2018 cohort cumulatively as of PY 6
Total number of beneficiary years	6,310,668	975,252	2,576,087	2,697,481	1,037,100
2016 cohort, PY 6	336,914 (0.0534)	336,914 (0.3455)	336,914 (0.1308)		
2017 cohort, PY 6	396,406 (0.0628)	396,406 (0.4065)		396,406 (0.1470)	
2018 cohort, PY 6	241,932 (0.0383)	241,932 (0.2481)			241,932 (0.2333)
2016 cohort, PY 5	354,308 (0.0561)		354,308 (0.1375)		
2017 cohort, PY 5	409,890 (0.0650)			409,890 (0.1520)	
2018 cohort, PY 5	258,969 (0.0410)				258,969 (0.2497)
2016 cohort, PY 4	470,657 (0.0746)		470,657 (0.1827)		
2017 cohort, PY 4	484,152 (0.0767)			484,152 (0.1795)	
2018 cohort, PY 4	248,648 (0.0394)				248,648 (0.2398)
2016 cohort, PY 3	459,603 (0.0728)		459,603 (0.1784)		
2017 cohort, PY 3	652,244 (0.1034)			652,244 (0.2418)	
2018 cohort, PY 3	287,551 (0.0456)				287,551 (0.2773)

	Model-wide cumulatively as of PY 6	Model-wide in PY 6	2016 cohort cumulatively as of PY 6	2017 cohort cumulatively as of PY 6	2018 cohort cumulatively as of PY 6
2016 cohort, PY 2	477,426 (0.0757)		477,426 (0.1853)		
2017 cohort, PY 2	754,789 (0.1196)			754,789 (0.2798)	
2016 cohort, PY 1	477,179 (0.0756)		477,179 (0.1852)		

Estimating the role of provider turnover in the NGACO Model's impact on gross spending.

We estimated the impacts of the NGACO Model on PBPY total gross spending disaggregated by categories of provider participation status (that is, providers who joined the model after the first year of the NGACO, providers who left the model before the NGACO exited or the model as a whole ended, or providers who were retained in the model). Participation status was defined as follows:

- Providers (specifically, NPIs) who joined were those present in the index PY t and the following year $t+1$ but not in year $t-1$.

- Providers who left were present in the prior year $t-1$ and the PY t but not in the subsequent year $t+1$.

- Retained providers were present in the model in $t-1$, t, and $t+1$. Non-NGACO providers were not present in the model in any of the years.[39]

We applied the provider's participation status in the PY t to the respective BYs so that provider participation status was the same in the BYs and PYs in our analysis. The process for assigning providers to participation categories required consideration of NGACOs in their first or last years in the model. For NGACOs in their first PY of the model, no providers were categorized as "joined", those who were present in PY t and $t+1$ were categorized as "remained" and those present in PY t and absent in $t+1$ were categorized as "left." For NGACOs in their last year of the model, we excluded all providers because our categorization of providers did not apply. This includes providers in PY 1–PY 5 of NGACOs that were about to exit and providers in PY 6 because all NGACOs were in the last year of the model.

The analysis was at the beneficiary-year level. To apply provider participation status categories to beneficiary-years, within each PY and BY, we attributed (that is, assigned)[40], NGACO and comparison group beneficiaries to the provider from whom they received the plurality of Medicare Parts A & B spending during the year. In contrast, alignment to the NGACO versus comparison group was based on patient claims in the 24 months *before* the index year. Because of this distinction in time periods, some

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[39] A small number of providers were present only in year t and not in the preceding or subsequent years; results are not presented for this group due to small sample sizes.

[40] The term "assignment" was distinct from the term "alignment." Alignment was used to specify which beneficiaries compose the NGACO and comparison groups and was prospective, based on the care a beneficiary received from providers in the two-year time period preceding a PY or BY. In contrast, assignment was used to determine the provider responsible for most of a beneficiary's care in a year and was concurrent, based on care received during a PY or BY.

beneficiaries assigned to the comparison group received the plurality of care in the index year from NGACO providers and for this reason were linked to a provider with a participation status, while some treatment group beneficiaries received the plurality of care from a non-NGACO provider.

For each cohort in each PY, we estimated a DID model in which the treatment effect was allowed to vary for beneficiaries assigned to NGACO providers with different participation status categories. We estimated generalized linear models with a log link and gamma distribution. The specification in **Equation A.3** was similar to that used in our main analyses, as follows:

Equation A.3: DID model with provider-type fixed effects and interaction terms to estimate treatment effect associated with each subgroup of providers

$$g\left[E(Y_{ijkt})\right] = \beta_0 + \beta_1 NGACO_j + \delta_1 BY2_t + \delta_2 BY3_t + \delta_3 PY_t + \beta_3 X_i$$
$$+ \beta_4 NGACO\_Provider\_Status_{ij} + \beta_6 NGACO_{tx} \times PY_j \times NGACO\_Provider\_Status_i$$
$$+ \Upsilon BENE_{ijkt} + \Lambda Community_{jkt} + \Pi HRR_{k_t}$$

where:

- $g\left[E(Y_{ijkt})\right]$ is the log of the per beneficiary per year total gross cost of care for the ith beneficiary in the tth year in the jth provider participation status category in the kth hospital referral region (HRR).

- $NGACO_j$ is the NGACO indicator.

- $\delta_1 BY2_t$, $\delta_2 BY1_t$, $\delta_3 PY_t$ represent the second and third BYs and the PY. The first BY is omitted.

- $NGACO\_Provider\_Status_{ij}$ is a vector of fixed effects for the three provider-participation status categories joined, left, and retained. In addition to these three provider-participation status categories some providers are cla

- $\beta_6 NGACO_j \times PY_t \times NGACO\_Provider\_Status_i$ is the interaction of beneficiary attribution to the ACO, the PY, for each type of provider participation. These are the treatment effects of interest.

- $\Upsilon BENE_{ijkt}$ = a vector of demographics and clinical conditions of the beneficiary

- $\Lambda Community_{jkt}$ = community-level factors

- ΠHRR_k = HRR fixed effects

Following the approach used in our main analyses, our post-estimation calculations involved calculating conditional means to estimate the total gross spending for patients who saw providers that joined NGACO, left NGACO, or remained in NGACO, relative to the expected outcomes for these groups absent the NGACO treatment. Overall results were calculated as weighted averages, with results for each provider participation status category weighted by the number of beneficiaries in the category in the PY. Spending was inflated to reflect dollars as of PY 6.

We reported weighted results for the impact of NGACO Model by provider participation status on total gross spending overall (**Exhibit 4.5**) and for each cohort (**Appendix F, Exhibit F.4**). In addition, we

reported how impacts by provider participation status varied over time within each cohort (**Appendix F, Exhibits F.5-F.7**). The estimated impacts were intended to identify whether NGACO/provider behavior shifted over time (that is, if savings from the model within participation categories increased over time, this could indicate that NGACOs were learning). We reported results for non-NGACO providers separately because we did not interpret the findings as a causal impact of the model.

We conducted two adjusted cross-sectional supplemental analyses to characterize providers leaving or joining NGACOs over time.

- First, we assessed if patients of providers that joined in the PY had lower total gross spending in the BYs relative to comparison group beneficiaries who did not receive the plurality of care from NGACO providers. Summary results for this analysis were weighted by the number of ACO beneficiaries in the BY who were assigned to providers who joined in the PY (**Exhibit 4.6**).

- Second, we assessed whether, in the PY, patients of providers who were about to leave had higher total gross spending than patients of providers retained in the model. Summary results were weighted by the number of beneficiaries assigned to providers about to leave in the PY.

Both cross-sectional analyses controlled for the same covariates included in the impact models.

There were several limitations to our provider participation status analyses:

- We could not distinguish whether transitions were due to the choice of the NGACO or the providers. We did not have data on why providers join or leave.

- We examined patients' gross spending in the BYs as a proxy for the data that NGACOs may have used when inviting new providers to join the model; however, NGACOs may have had data on different, potentially more recent time periods or other metrics. For each cohort, the BYs were the same for all PYs (for example, for the 2016 cohort, the base years were 2013 through 2015 for all PYs), meaning that the base year spending may have been less relevant for later PYs.

- We assigned beneficiaries to one provider from whom they received the plurality of care (by cost); however, in reality, beneficiaries received care from multiple providers. Providers may have had little or no influence over care received by other providers.

Estimating Impacts on Total Medicare Spending for Subgroups of Beneficiaries. We applied the DID framework to estimate the model's impact for total gross Medicare spending among subgroups of beneficiaries in the 2016, 2017, and 2018 cohorts, separately in each PY. Selected beneficiary subgroups included:

- **Subgroups of beneficiaries with multiple chronic conditions.** Three categories included beneficiaries with 0–2 conditions, those with 3–7 conditions, and those with 8 or more conditions.

- **Subgroups of beneficiaries based on hospitalizations in the preceding year.** Two categories included beneficiaries with one or more hospitalizations in the prior year, and those with no hospitalizations in the prior year.

- **Subgroups based on race and ethnicity.** Three categories included White non-Hispanic beneficiaries, Black non-Hispanic beneficiaries, and others.

- **Subgroups based on dual eligibility.** Two categories included beneficiaries dually eligible for Medicare and Medicaid, and those in Medicare only (non-duals).

We used Equation A.4 to assess treatment effects for beneficiary categories in a subgroup set. The original treatment effect $NGACO_j * PY_t$ specified in D.1 was split into $NGACO_j * PY_t * Subgroup_m$ for m beneficiary categories in a subgroup. We also included two-way interaction terms between subgroup and NGACO group indicator (to control for baseline differences between NGACO and comparators for the beneficiary categories) and between subgroup and PY indicator (to control for differences between the PYs and BYs for the beneficiary categories). We used the approach developed by Puhani (2012) to estimate the marginal NGACO treatment effect for the beneficiary categories in a subgroup, relative to the treated counterfactual.[41] Conditional means for NGACO and comparison group in BY period and PY, and the percentage of impact (impact relative to the counterfactual) for beneficiary categories in a subgroup were estimated as well. We tested whether trends in outcomes between NGACO and comparison groups were parallel between BY 1 and BY 3 for each beneficiary category in a subgroup. Finally, we calculated the model-wide impacts in PY 6 and cumulative impacts as of PY 6 for each subgroup, using methods described previously.

Equation A.4: DID model for 3-beneficiary categories subgroup, controlling for beneficiary, HRR, and community characteristics

$$
\begin{aligned}
g[E(Y_{imjkt})] = {} & \beta_0 + \beta_1 NGACO_j + \delta_1 BY2_t + \delta_2 BY1_t + \delta_3 PY_t + \tau_1 Subgroup_1 + \tau_2 Subgroup_2 \\
& + \varphi_1 NGACO_j * Subgroup_1 + \varphi_2 NGACO_j * Subgroup_2 + \omega_1 PY_t * Subgroup_1 \\
& + \omega_2 PY_t * Subgroup_2 + \theta_1 NGACO_j * PY_t * Subgroup_1 + \theta_2 NGACO_j * PY_t \\
& * Subgroup_2 + \theta_3 NGACO_j * PY_t * Subgroup_3 + YBENE_{imjkt} + \Lambda Community_{jkt} \\
& + \Pi HRR_k
\end{aligned}
$$

where:

- Y_{ijkt} is the outcome for the ith beneficiary in subgroup m in NGACO or comparison group j, in market k, in year t.

- θ_m is the coefficient of the DID estimate for m^{th} beneficiary category in the subgroup.

Estimated differential model impacts associated with years of continuous beneficiary alignment to NGACOs. We conducted longitudinal analyses to estimate how model impacts on total spending changed with increasing years of continuous beneficiary alignment to NGACOs. To do so, we identified NGACO beneficiaries with continuous model participation and comparison beneficiaries with continuous years of observation across all PYs, separately for each cohort (PY 1–PY 6 for 2016 cohort

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[41] Puhani PA. The treatment effect, the cross difference, and the interaction term in nonlinear "difference-in-differences" models. *Econ Lett.* 2012;115(1):85–87. doi.org/10.1016/j.econlet.2011.11.025

beneficiaries; PY 2–PY 6 for 2017 cohort beneficiaries; and PY 3–PY 6 for 2018 cohort beneficiaries). Then, using data from the cohorts' first PY, we applied propensity score matching (1:2 match with replacement; 0.2*standard deviation caliper) to all treatment beneficiaries and confirmed common support and covariate balance to identify and weight comparison beneficiaries included in the analyses (**Exhibits A.13 – A.15**). Finally, we appended data across all PYs for matched beneficiaries to construct our cohort-specific panel data samples (six years of data for cohort 2016 beneficiaries; five years of data for cohort 2017 beneficiaries; and four years of data for cohort 2018 beneficiaries).

We applied generalized linear models with a gamma-log distribution, accounting for clustering and correlation within beneficiaries using **Equation A.5**:

Equation A.5: Generalized linear longitudinal model to estimate impacts associated with number of years of continuous enrollment, accounting for clustering and correlation within beneficiaries over time and controlling for beneficiary characteristics, community characteristics, and HRR.

$$g\left[E\left(Y_{ijkt}\right)\right] = \beta_0 + \beta_1 NGACO_j + \delta Years_t + \theta[NGACO_j * Years_t] + \gamma BENE_{ijkt} + \Lambda Community_{jkt} + \Pi HRR_k$$

Where:

- Y_{ijkt} is total spending for the ith beneficiary in NGACO or comparison group *j*, in market *k*, in year *t*. Spending was adjusted for inflation to 2021-dollar values.
- β_0 is the intercept.
- $NGACO_j$ is a binary term indicating whether the beneficiary is in the NGACO or comparison group.
- Years is a set of binary indicators representing continuous number of years of model participation for NGACO beneficiaries, or continuous number of years observed for comparison beneficiaries, with coefficient vector δ.
- θ represents the coefficient vector for estimating the impact of the NGACO Model at different number of years of continuous enrollment.
- *BENE* represents beneficiary characteristics, including sex, race/ethnicity, dual-eligibility, Part D coverage, ESRD status, disability, number of months of alignment in the year, square of months alignment, and disease burden (indicators for 62 chronic conditions).
- *Community* represents community-level characteristics including number of alignment-eligible providers within 10 miles per 1,000 population, percent of population in poverty, percent of population with a college education, and urban/rural status based on beneficiary ZIP code.
- HRR is a fixed effect for each HRR with coefficient vector Π, to control for differences across markets.

We used post-estimation marginal effects to predict the conditional means for the NGACO and comparison groups, as well as the difference in spending between NGACO and comparison groups, at each level of experience years; both means and differences are reported separately for each cohort in Appendix K. We computed cumulative impact at each PY associated with continuous enrollment as the weighted average across the three cohorts (weighted by the number of unique NGACO beneficiaries

included in each cohort analysis). Standard errors associated with the cumulative impact estimates were calculated as a weighted average following procedures described earlier in calculating model-wide cumulative impact. Specifically, we converted cohort-specific standard errors to variances and weighted them by the corresponding squared proportion of NGACO beneficiaries; weighted variances were then summed to a combined variance and converted back to standard error.

Exhibit A.13. Common Support and Covariate Balance for 2016 Cohort Beneficiary Longitudinal Analysis Sample

C2016 standardized difference

- Before PS Matching
- After PS Matching
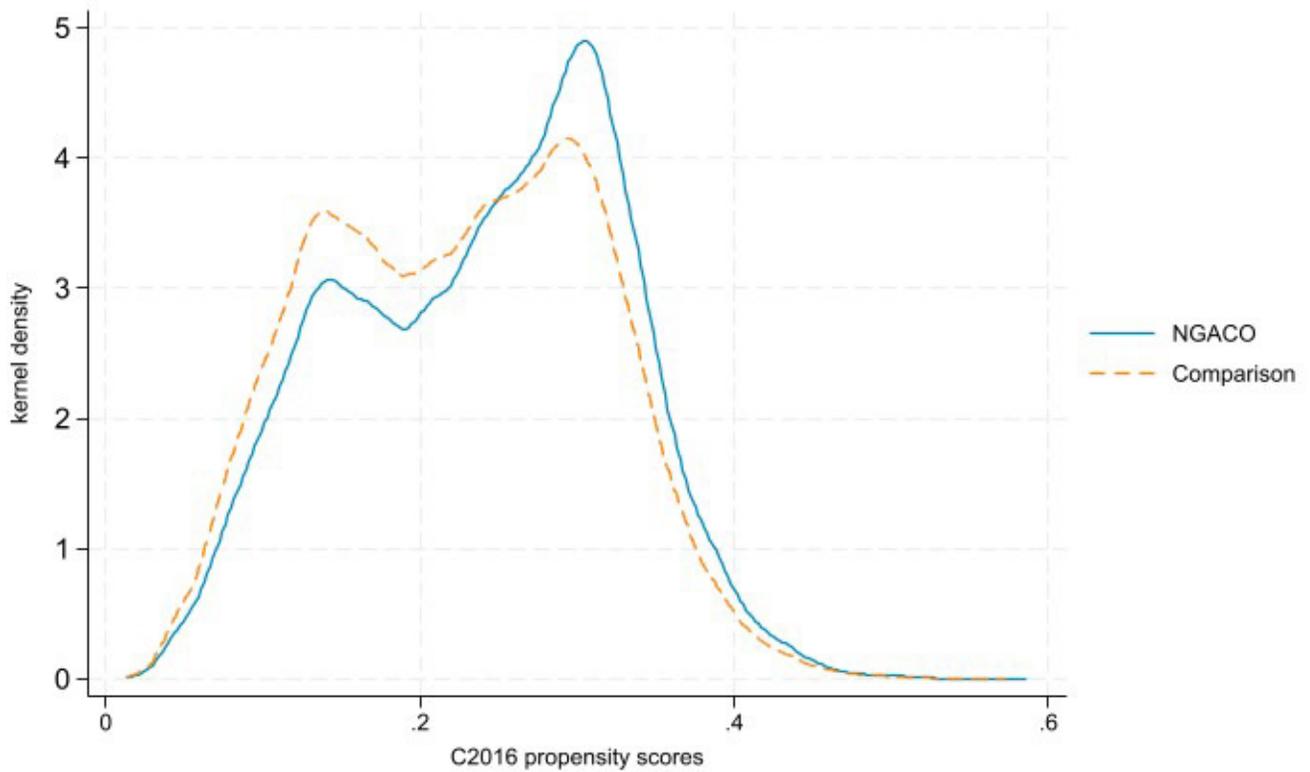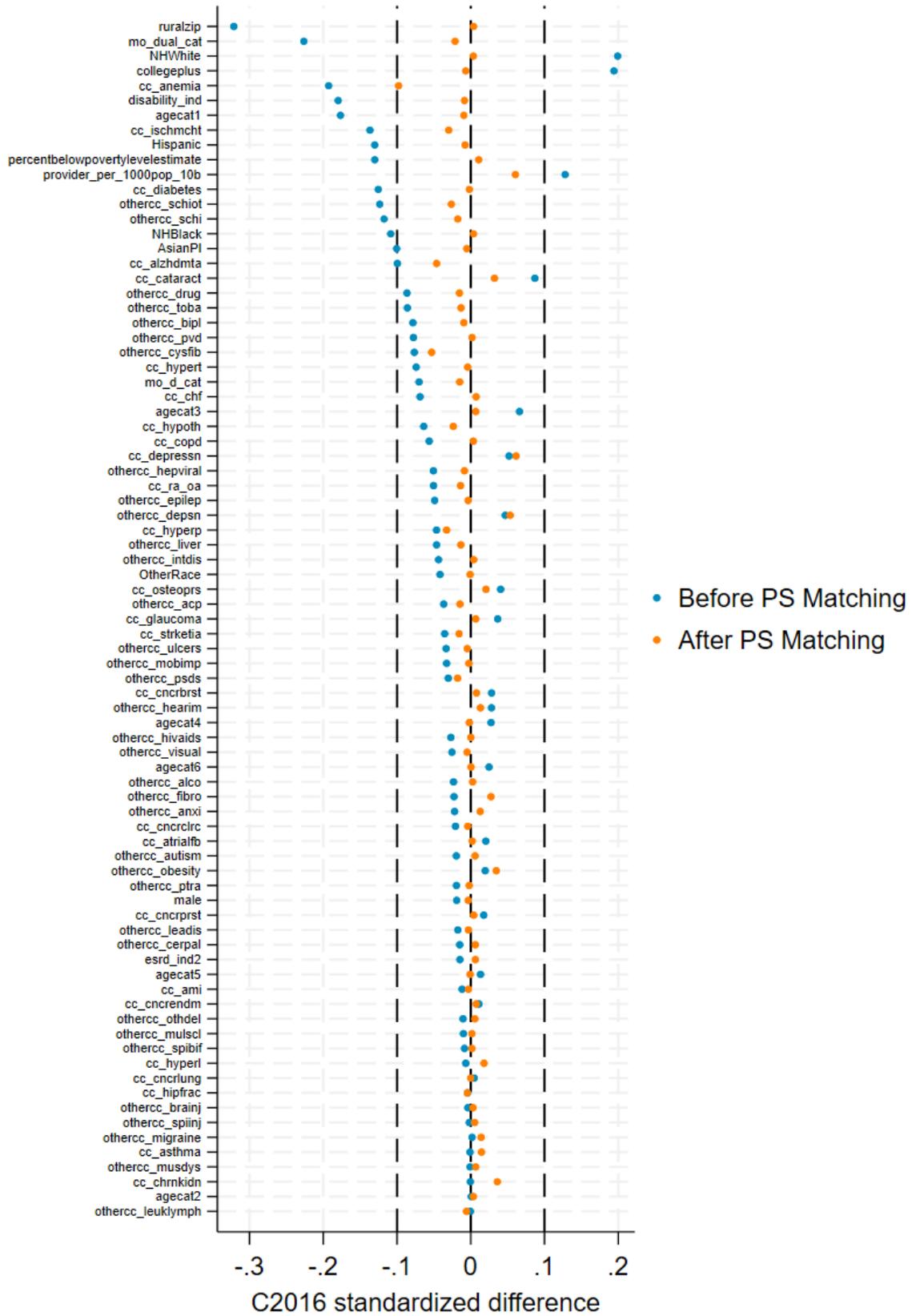
Exhibit A.14. Common Support and Covariate Balance for 2017 Cohort Beneficiary Longitudinal Analysis Sample

Figure showing C2017 standardized difference for multiple variables before and after PS matching.

Y-axis variables (top to bottom): ruralzip, collegeplus, disability_ind, agecat1, AsianPI, percentbelowpovertylevelestimate, cc_hyperl, othercc_schi, othercc_schiot, mo_dual_cat, cc_chrnkidn, cc_hypert, cc_osteoprs, OtherRace, cc_cataract, othercc_bipl, othercc_obesity, othercc_drug, cc_glaucoma, agecat3, othercc_ptra, othercc_toba, othercc_hearim, mo_d_cat, othercc_intdis, othercc_acp, cc_hyperp, othercc_pvd, agecat4, NHBlack, othercc_liver, othercc_hivaids, othercc_epilep, cc_cncrprst, othercc_autism, cc_cncrbrst, othercc_alco, cc_chf, othercc_ulcers, cc_ra_oa, othercc_anxi, NHWhite, othercc_psds, othercc_cerpal, othercc_othdel, agecat5, cc_ischmcht, male, cc_alzhdmta, provider_per_1000pop_10b, othercc_mobimp, othercc_mulscl, othercc_leadis, cc_diabetes, cc_hypoth, othercc_cysfib, cc_depressn, cc_cncrclrc, cc_copd, cc_cncrlung, othercc_brainj, othercc_visual, Hispanic, cc_cncrendm, cc_atrialfb, cc_asthma, othercc_depsn, cc_strketia, agecat2, cc_ami, cc_anemia, othercc_leuklymph, cc_hipfrac, othercc_spiinj, othercc_musdys, othercc_spibif, othercc_fibro, esrd_ind2, agecat6, othercc_hepviral, othercc_migraine

Legend:
• Before PS Matching
• After PS Matching

X-axis: C2017 standardized difference, values -.4, -.2, 0, .2, .4

Exhibit A.15. Common Support and Covariate Balance for 2018 Cohort Longitudinal Analysis Sample

C2018 standardized difference

- Before PS Matching
- After PS Matching
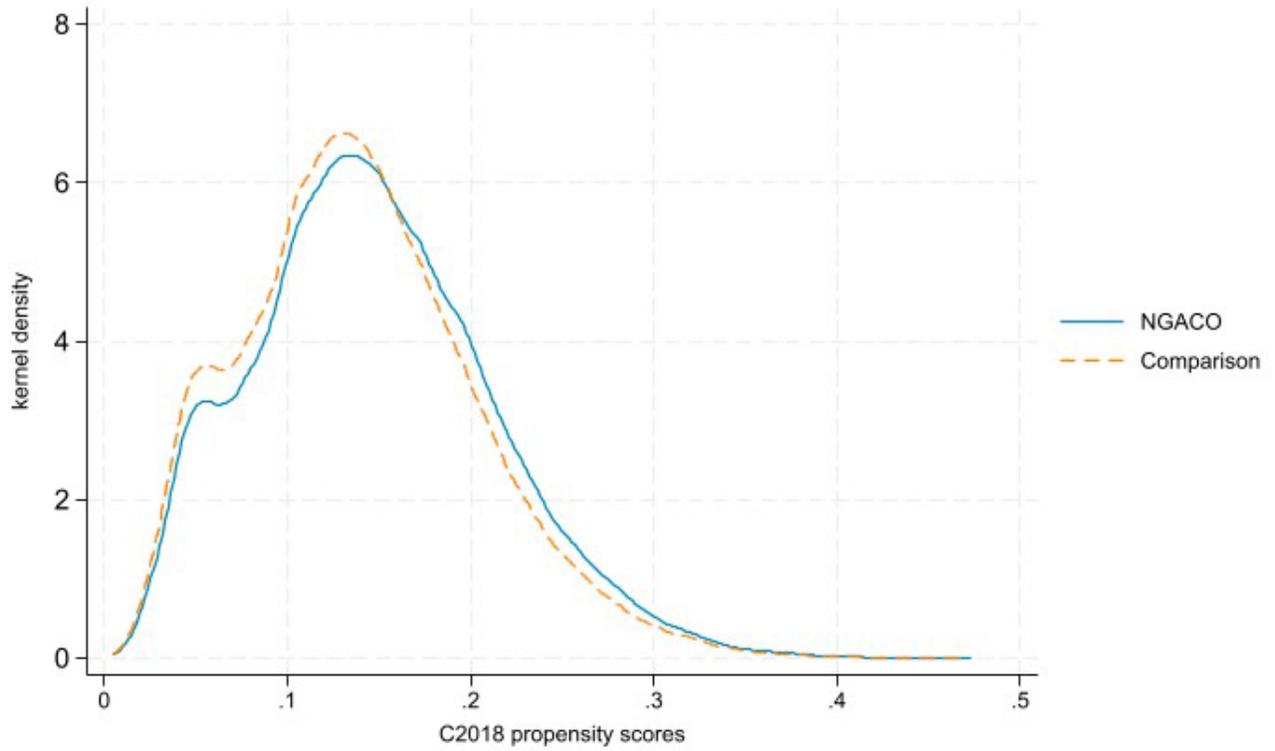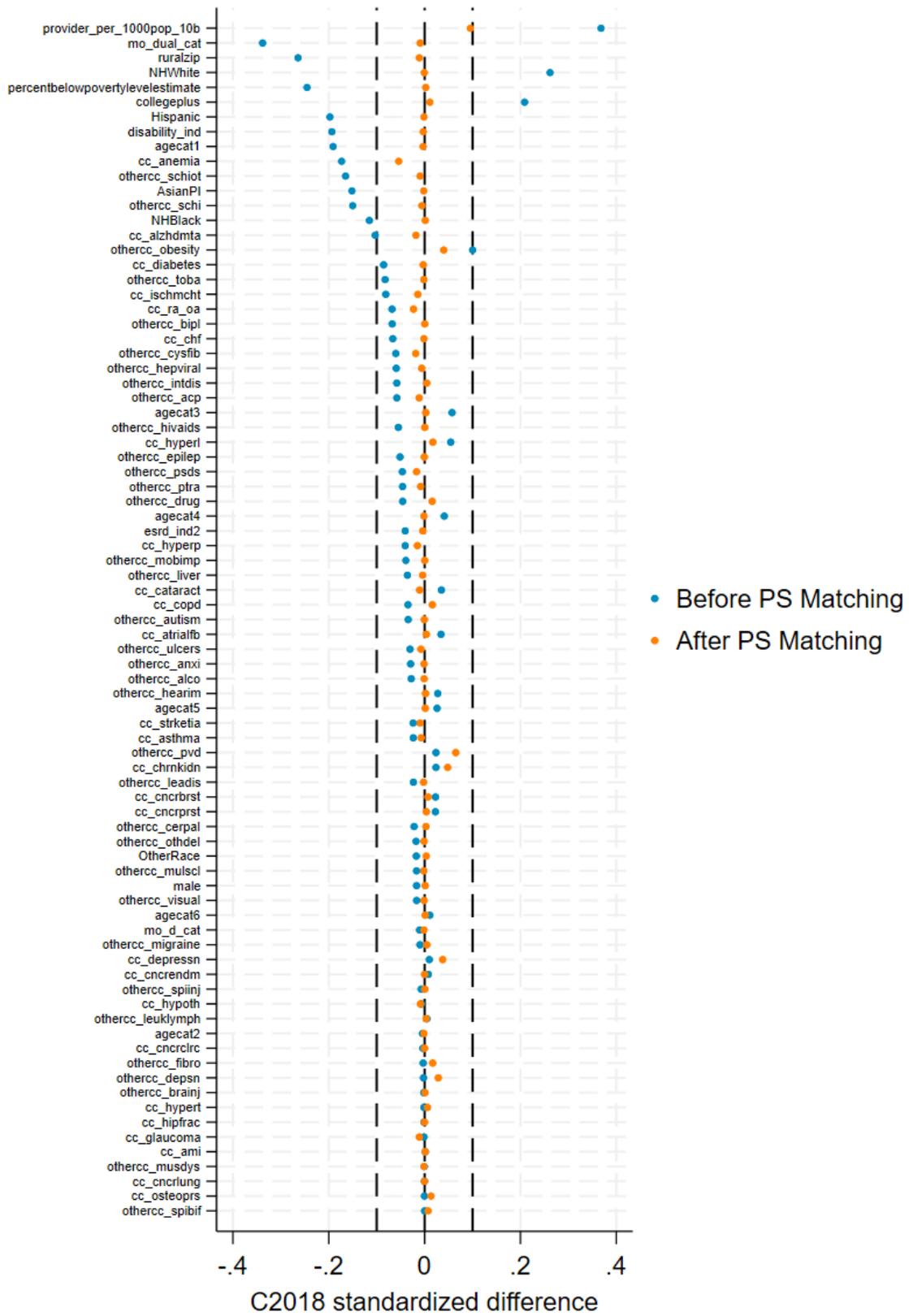
Estimating effects of overlap between episodic initiatives and the NGACO Model on total spending. We investigated how CMMI's episodic initiatives influenced the effects of the NGACO initiative—an important policy question given the proliferation of new models. Episodic initiatives could have an additive effect, as they bundle payments for beneficiaries' episodes of acute, post-acute, or specialty care with ACO models and focus on beneficiaries' care across the continuum during a PY.

We studied whether the overlap between NGACO and each of three initiatives—BPCI, CJR, and the OCM would affect total (gross) Medicare Parts A and B spending. Our results shed light on whether there was synergy between the NGACO Model and the three episodic payment models in reducing total Medicare spending. We defined synergy as an amplification of the magnitude of total Medicare spending reduction for NGACO beneficiaries in overlapping episodic initiatives.

For BPCI and OCM, we estimated treatment effects of NGACO participation among beneficiaries in each initiative separately through a triple-difference model, where we added interaction terms (episodic initiative indicator, treatment indicator) to the main DID analyses. For CJR, we present descriptive results showing that the distributions of CJR beneficiaries in the NGACO and comparison group diverged in the intervention period; for this reason, impacts for overlap could not be estimated using a regression approach. The CMS Innovation Center's overlap policy precluded NGACO-aligned beneficiaries from being included in BPCI Advanced (BPCI-A) episodes, so analysis of overlap with NGACO was not possible.

As shown in **Exhibit A.16.**, the three episodic payment models overlapped with the NGACO Model for at least three full years (two BYs and one PY) during the 2016–2021 period. The analytic sample differed when we studied each initiative, reflecting different overlap periods; see **Exhibit A.17** for the study population and period setting. Specifically,

- BPCI started in October 2013 and ended in September 2018 (PY 3), which allowed estimation of the spending effects of overlap between NGACO and BPCI for calendar years 2016–2018. Because the first BY for the 2016 NGACO cohort was 2013, which only overlapped with BPCI by three months, we used 2014–2015 as BYs for the analysis of overlap. Gor BPCI, we estimated the effects for all three cohorts (2016, 2017, and 2018) and calculated cumulative effects from PY 1 to PY 3 (2016–2018). We linked the BPCI evaluation data, acquired from the BPCI evaluation team, with the NGACO evaluation data to identify BPCI beneficiaries and conduct the analysis.[42]

- OCM started in 2016, the same year as the first PY for NGACO. For this reason, we were unable to separate the effects of OCM from NGACO for the 2016 cohort. We were also unable to test the parallel trends assumption for the 2017 cohort since there was only one BY. For OCM, we estimated the effects for the 2018 cohort cumulatively, from PY 3 to PY 6 (2018–2021), using 2016–2017 as the two-year BY. We identified OCM beneficiaries in the NGACO and comparison groups using OCM episodes for Medicare beneficiaries identified from OCM's monitoring data.

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[42] The evaluation data includes fewer beneficiaries, compared with the monitoring data.

Exhibit A.16. Summary of Three Episodic Initiatives That Overlapped With NGACO

Initiative	Target Episodes	Start and End Times Overlap with NGACO BYs and PYs as of PY 6	Estimated Effects of Overlap with NGACO on Total Spending
BPCI (excluding BPCI-Advanced)	Beneficiaries with any of 48 clinical episode types in hospital and post-acute settings	*Start*: Oct 2013 *End*: Sept 2018 *Overlap*: 2016, 2017, and 2018 cohorts in two BYs and as of PY 3 of the Model	Model-wide (2016, 2017, and 2018 cohorts) cumulatively as of PY 3 (2016–2018)
OCM	Beneficiaries with episodes of chemotherapy for cancer	*Start*: Jul 2016 *End:* Jun 2022 *Overlap:* 2018 cohort in two BYs and as of PY 6 of the Model	2018 cohort alone, cumulatively as of PY 6 (2018–2021)
CJR	Beneficiaries with episodes of lower-extremity joint replacement	*Start:* Apr 2016 *End*: Dec 2024 *Overlap:* 2018 cohort in two BYs and as of PY 6 of the Model	N/A

Exhibit A.17. Study Population and Period Setting to Assess Overlap of Episodic Initiatives With NGACO

Initiative	Cohort	Pre-Period (Calendar Year)	Post Period (Calendar Year)
BPCI	2016	2014–2015 $N_{BY\ for\ PY1}$ =1,740,859 $N_{BY\ for\ PY2}$=1,890,322 $N_{BY\ for\ PY3}$=1,811,162	2016–2018 N_{PY1}=949,659 N_{PY2}=954,145 N_{PY3}=912,402
	2017	2015–2016 $N_{BY\ for\ PY2}$=2,715,083 $N_{BY\ for\ PY3}$=2,637,191	2017–2018 N_{PY2}=1,500,705 N_{PY3}=1,298,845
	2018	2016–2017 $N_{BY\ for\ PY3}$=1,078,524	2018 N_{PY3}=574,468
OCM	2018	2016–2017 $N_{BY\ for\ PY3}$=1,078,524 $N_{BY\ for\ PY4}$=1,206,679 $N_{BY\ for\ PY5}$=992,867 $N_{BY\ for\ PY6}$=911,406	2018–2021 N_{PY3}=574,468 N_{PY4}=497,258 N_{PY5}=519,657 N_{PY6}=483,980

NOTE: $N_{BY/PY}$ denotes the number of beneficiaries for the corresponding BY or PY analytic sample. For example, $N_{BY\ for\ PY3}$ was the number of beneficiaries in baseline periods at PY3.

For each cohort in each PY, we estimated the following model for each initiative:

Equation A.6: DID model for estimating effect of the NGACO Model with overlapping episodic initiative, controlling for beneficiary, HRR, and community characteristics

$$g\left[E(Y_{ijkt})\right] = \beta_0 + \beta_1 NGACO_j + \beta_2 EPI_i + \delta_1 BY2_t + \delta_2 BY1_t + \delta_3 PY_t$$
$$+ \theta_1 NGACO_j * PY_t + \theta_2 NGACO_j * EPI_i + \theta_3 PY_t * EPI_i$$
$$+ \theta_4 NGACO_j * PY_t * EPI_i$$
$$+ \Upsilon BENE_{ijkt} + \Lambda Community_{jkt} + \Pi HRR_k + \varepsilon_{ijkt}$$

where $NGACO_j$ denotes the NGACO indicator, EPI_i denotes the episodic initiative indicator, and $BY2_t$ $BY1_t$ and PY_t are period dummies. We adjusted for beneficiaries' demographics and clinical conditions, community factors, and HRR fixed effects. For robustness check analysis, we further controlled for model, episode initiator, and diagnosis-related groups (DRGs) as beneficiary characteristics. Our treatment effects of interest were θ_4 for NGACO beneficiaries who were in the episodic initiative in the PY and θ_1 for NGACO beneficiaries who were not in the episodic initiative in the PY. Results for analyses of overlap with episodic initiatives are presented in Appendix **Exhibits G.8** through **G.13**.

Estimating Impacts on Total Medicare Spending for Subgroups of NGACOs Based on Characteristics of their Organizations, Election of Model Features, and Tenure in the Model. For each subgroup of interest, we compiled total Medicare spending, utilization, or quality estimates from NGACOs in the subgroup. For spending outcomes, we included only NGACO-PYs that passed the baseline parallel trends test for total spending. For all other outcomes, we included only NGACO-PYs that passed the baseline parallel trends test for the specific outcome (for example, for unplanned 30-day readmissions, only estimates from PYs that passed the parallel trends test for unplanned 30-day readmissions for each NGACO were included). The NGACO impact estimate for the subgroup was determined by combining NGACO-PY impact estimates weighted by the proportion of beneficiaries in the NGACO-PY out of the total number of beneficiaries in the subgroup as of PY 6.[43] Similar to the procedures used to calculate cumulative model-wide or cumulative cohort level impacts, combining NGACO level impact estimates in this way assumes statistical independence across NGACOs and PYs. The same formulas used for the cumulative impact calculation described earlier were used to combine NGACO DID estimates, DID standard errors, percentage impacts, and probability values (p-values) for individual subgroups.

We calculated E-values to test the robustness of the association between NGACOs' financial elections (payment mechanism and risk election) and their impact on total Parts A and B spending (DID estimates from ACO-level analysis).[44] The E-value measures the extent to which an observed

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[43] Eight NGACOs were dropped from the subgroup calculation cumulatively as of PY 4 due to failure in baseline parallel trends test for total Medicare spending.

[44] VanderWeele TJ, Ding P. Sensitivity analysis in observational research: introducing the E-value. *Ann. Intern Med.* 2017;167(4):268-74. doi: 10.7326/M16-2607

association was potentially subject to confounding (that is, other unobserved or unmeasured NGACO characteristics). A large E-value indicates that large unmeasured confounding would be needed to explain an effect estimate (favoring the evidence that NGACO Model impact was attributable to ACO financial risk election). Similarly, a small E-value indicates that little unmeasured confounding would be needed to explain an effect estimate. We also examined the E-values for the following NGACO characteristics and used them as a comparison: NGACO organizational type, prior Medicare ACO experience, and average number chronic conditions in aligned beneficiaries. We used the Stata *evalue* package[45] to obtain the E-value for standardized mean difference for the selected NGACO characteristics, measured by Cohen's d effect size for the adjusted mean difference of a continuous variable between two groups. We presented these findings in Appendix **Exhibit H.7**.

Additionally, we examined the factors associated with tenure in the model and election of model features. To examine the factors associated with NGACOs exiting the model, we calculated the weighted average of model factors and calculated correlations between each set of variables to determine which could be removed from an overall model. We used stepwise logistic regression modeling the probability of exiting the model and the reduced factor list as covariates. We used a similar method to examine the factors associated with election of payment models, risk levels, and risk score adjustment caps. First, we conducted a correlation analysis to determine which factors to include in the model and, applying that list, we used stepwise logistic regression modeling the probability of electing PBP/AIPBP, electing 100% risk, or electing a 5% risk score adjustment cap. We calculated odds ratios and 95% confidence intervals for all regressions and presented these findings in Appendix **Exhibits D.32, H.4, H.5, and H.6.**

Assessing Patterns of Care: Stickiness and Direct Spillover

In this section, we describe our approach to measuring patterns of care in the PYs for NGACO and comparison beneficiaries. The patterns of care constructs include *stickiness* for the NGACO group and *direct spillover* for the comparison group. These constructs can be operationalized in different ways. We defined and measured them as follows:

- **Stickiness of NGACO beneficiaries to NGACO providers.** We defined stickiness as the extent to which NGACO beneficiaries in a PY received care within the NGACO to which they were aligned; that is, if they obtained services from participant and preferred providers in the NGACO to which they were aligned. We measured the numerator as FFS payments for all Parts A and B services furnished to NGACO beneficiaries by providers in their aligned NGACO. We measured the denominator as total FFS payments for all Part A and carrier services furnished to NGACO beneficiaries by all providers.[46] Stickiness was defined for all cohorts and NGACOs in the PYs.

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[45] Linden A, Mathur MB, VanderWeele TJ. Conducting sensitivity analysis for unmeasured confounding in observational studies using E-values: the evalue package. *The Stata Journal* 2020;20(1):162-75. DOI: 10.1177/1536867X20909696

[46] NGACO providers electing PBPs or AIPBPs had FFS claims with payments reduced by a fixed amount. Calculation of numerators and denominators for these measures utilized full FFS payment amounts that would have been paid under typical Medicare FFS instead of the reduced fees paid under PBP or AIPBP.

- **Direct spillover from NGACO participant providers to the comparison group.** We defined direct spillover for the comparison group as the extent to which comparison beneficiaries in a PY received care from NGACO participant providers. We measured the numerator as FFS payments for all Part B carrier services furnished to comparison beneficiaries by any NGACO participant provider. We measured the denominator as FFS payments for all Part B carrier services furnished to comparison beneficiaries by all providers.39 Spillover was defined for all cohorts' and NGACOs' comparison groups in the PYs.

To create the measures, we used the extract of Part A and carrier research identifiable files (RIF) that was used to create the claims-based outcome measures. We extracted claims for beneficiaries in the NGACO and comparison groups using beneficiary identifiers and identified instances of care delivered by NGACO or non-NGACO using NPIs and referencing NGACO provider lists for CY 2021. Comparison beneficiaries were weighted using the **propensity** score weights and all beneficiaries were limited to those residing in NGACO market areas. The measures were calculated for each beneficiary and then aggregated to the NGACO-, cohort- or model-level, where we reported the mean and 95% confidence intervals.

Differences Between NGACO Model's Evaluation and Financial Benchmarking Methodologies

Differences between the NGACO model's evaluation and financial benchmarking methodologies, summarized in Exhibit A.18, influence model's net impact on Medicare spending. The evaluation estimates the impact of the NGACO model on Medicare Parts A & B spending relative to a counterfactual or relative to what's expected absent the model. In contrast, the financial benchmarks are not counterfactuals, and are intended to incentivize NGACO participation in the model by providing them administratively set Medicare Parts A & B spending targets.

Exhibit A.18. Differences between the NGACO Model Evaluation and Financial Benchmarking Methodologies

	Evaluation Methodology	**Benchmarking Methodology (as of 2021)**
What is estimated?	NGACOs' gross impact on Medicare Parts A & B spending in a PY for their beneficiaries, relative to a comparison group.	NGACOs' shared savings (or losses) based on performance against a prospective financial benchmark for Medicare Parts A and B spending for their beneficiaries in a PY.

	Evaluation Methodology	Benchmarking Methodology (as of 2021)
How is it estimated?	Comparison group • Gross spending impact estimated using a DID design, comparing changes in spending between the PY and a baseline period for each NGACO and their propensity score weighted comparison group from the same markets. • Gross spending impact estimated separately for each NGACO relative to its comparison group. • Comparison markets had similar county-level population rates of COVID-19 as their NGACO's market.	No comparison group • Shared savings (or losses) calculated as the difference between the NGACO's financial benchmark and incurred expenditures for its beneficiaries in a PY. • NGACO's financial benchmark in a PY is trended from its BYs' expenditures with an adjustment reflecting the NGACO's efficiency in the baseline period. In PYs 5 and 6, a retrospective trend was applied to the benchmark to account for changes in Medicare spending in context of COVID-19. The retrospective trend was regional for NGACOs that chose the COVID amendment in PY 5 and was national for other NGACOs in PY 5 and for all NGACOs in PY6. • Final shared savings (or losses) depend on the NGACO's risk level, savings/losses cap, performance on quality measures, and election of stop-loss. • Medicare spending for beneficiaries' COVID-19 episodes was excluded from incurred expenditures in a PY. • Benchmark was computed for NGACOs relative to all eligible beneficiaries nationally.
How is the baseline period determined?	A three-year average, set prior to an NGACO's first year in the model, as follows: • 2016 Cohort: 2013 to 2015 • 2017 Cohort: 2014 to 2016 • 2018 Cohort: 2015 to 2017	For PY 1–PY 3 the baseline was one year (2014). For PY 4–PY 6, the baseline was a two-year rolling average that starts three years prior to a PY, set as follows: • PY 4 (2019): 2016 and 2017 • PY 5 (2020): 2017 and 2018 • PY 6 (2021): 2019 and 2020
How are beneficiaries attributed?	Beneficiaries are aligned to the NGACO and comparison providers in the PY and in the respective BYs using the model's prospective attribution approach.	Beneficiaries are aligned to the NGACO providers in the PY and in the respective BYs using the model's prospective attribution approach.
Which beneficiaries are eligible?	NGACO and comparison beneficiaries meet model's eligibility requirements and are aligned for at least a month in the PY or BY. Part-year eligibility is considered.	NGACO beneficiaries meet model's eligibility requirements to be aligned. Part-year eligibility is considered.
How is risk-adjustment done?	Risk-adjustment is prospective and includes beneficiaries' demographics, disease burden, and socioeconomic status of their communities.	Risk-adjustment is prospective based on a coding adjustment risk score, which is no less or no more than 3% of the risk score from the rolling BYs. In PY 6 to account for COVID-19, a retrospective update was applied to the coding factor used to adjust risk scores, based on observed risk scores for all eligible beneficiaries nationally.

	Evaluation Methodology	**Benchmarking Methodology (as of 2021)**
Which providers are considered for attribution?	NGACO beneficiaries attributed to alignment eligible participant providers in the PY and respective BYs. Comparison beneficiaries attributed to alignment-eligible providers who were not in NGACOs or other Medicare ACOs.	NGACO beneficiaries attributed to participant providers in the PY and respective BYs.
What market or service area is considered?	HRRs with one percent or more of an NGACO's aligned beneficiary population in the PY.	Counties in which an NGACO's participant providers practice and contiguous counties.

NOTE: DID=difference-in-differences, HRR=hospital referral region.
SOURCE: Next Generation ACO Model Benchmarking Methodology in 2019 and 2020.[47]

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[47] Centers for Medicare & Medicaid Services. Calculation of the Performance Year Benchmark: Performance Years 2019 and 2020. 2018 (September). https://innovation.cms.gov/files/x/nextgenaco-benchmarkmethodology-py4.pdf.

Appendix B: Configurational Comparative Methods Analysis

Our evaluation used two types of configurational comparative methods (CCM)—Coincidence Analysis (CNA) and fuzzy set Qualitative Comparative Analysis (fsQCA)—to analyze how some NGACOs reduced spending without reduction in quality of care (using CNA) and how other NGACOs failed to achieve reductions in spending (using fsQCA). We used CCM methods to systematically group NGACOs based on shared characteristics and to uncover causal pathways that led to our outcomes of interest. The methods are useful to understand the multiple ways that NGACO Model implementation can affect spending, given the expectation that no single factor is likely to explain findings. NGACOs are likely to implement context-specific, multi-prong strategies, which interact with each other to produce outcomes. Factors related to implementation, for example, are likely shaped by other NGACO-level structural and contextual factors.

The CCM is grounded in set theory and use Boolean logic to examine the relationship of various conditions to an outcome. Identification and analysis of "necessary" and "sufficient" conditions for the outcome to occur is the foundation of CCM; that is, CCM examines whether any one condition must be present for the outcome to occur as well as which conditions, or combinations of conditions, are sufficient to realize the outcome.[29]

Using CCM is beneficial when an outcome is observed under varying contexts, where multiple conditions are present when the outcome occurs, or when causality is asymmetric (that is, the absence of a condition does not necessarily mean the outcome did not occur). The methods are particularly valuable and relevant to understand the NGACO Model, as NGACOs operated in markets with distinct characteristics, were affiliated with organizations with different structures and capacities for value-based care and were likely to implement strategies shaped by the internal and external environments in which they operated.

The two analyses discussed in this section used two different CCM—CNA for the analysis of spending reductions without negative effects on quality and fsQCA for the analysis of failure to reduce spending. **Exhibit B.1** compares the characteristics of CNA and fsQCA. The CNA's ability to accommodate a larger number of conditions and to specify causal ordering made it well-suited to analyze pathways to reduced spending without reduced quality of care. To analyze the failure to reduce spending, we used fsQCA to mirror the methodology used in the Fourth Report to analyze pathways to spending reductions.

Exhibit B.1. Characteristics of Coincidence Analysis (CNA) and Qualitative Comparative Analysis (QCA)

Characteristic of method	Coincidence Analysis (CNA)	Qualitative Comparative Analysis (QCA)
Approach	Bottom-up	Top-down
Redundancy	Eliminates <u>all</u> redundancy	Eliminates some redundancy through minimization
Number of conditions	Accommodates larger number of conditions	Accommodates smaller number of conditions [48]
Specification of temporal ordering	Allows for specification of temporal ordering of conditions within a causal chain	Cannot specify ordering of conditions
Outcome specification	Multiple outcomes possible	One outcome only
Results interpretation	Causal chains can be more difficult to disentangle, may require deeper understanding of underlying data to evaluate solutions	Causal chains are more straightforward, but may less accurately evaluate complex chains

The CCM methodology comprises five iterative steps described in this Appendix, from the rationale for answering evaluation questions using the selected method, through identification of contextual, structural, and implementation factors and causal pathways, to integrating qualitative and quantitative data to validate our results and write up case studies; see **Exhibit B.2** for a visual depiction of the process. Each analysis will include these steps.

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[48] Kane H, Lewis MA, Williams PA, Kahwati LC. Using qualitative comparative analysis to understand and quantify translation and implementation. *Translational behavioral medicine* 2014;*4*(2):201-208.

Exhibit B.2. Configurational Comparative Methods (CCM) Analytic Process
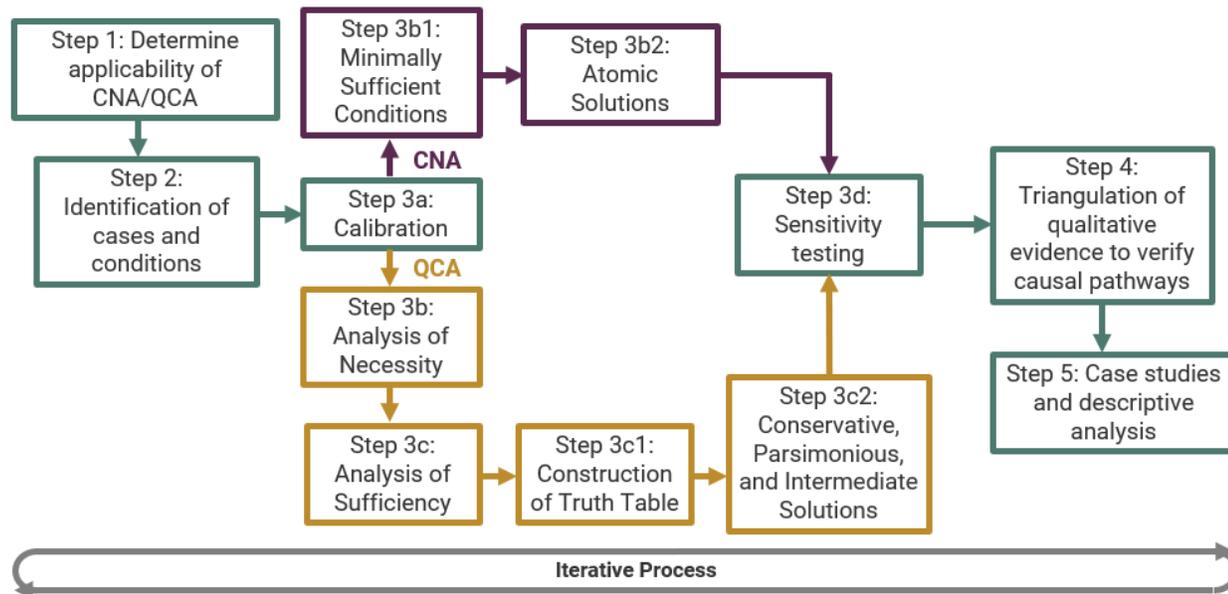
Analyzing How NGACOs Reduced Spending Without Reducing Quality

Step 1. Determine the applicability of CCM to understand causal implementation pathways leading to the outcome

To use CCM, the phenomena being studied must meet three criteria, related to the characteristics of equifinality, conjunctural causation, and asymmetric causation. In **Exhibit B.3**, we define the three criteria and justify how each applies to our evaluation of the NGACO Model.

Exhibit B.3. Applicability of CCM: NGACO Model Implementation Meets the Three Criteria

Criteria	Justification
Equifinality: Multiple, mutually non-exclusive explanations of the phenomenon exist.	NGACOs in each PY can use a range of strategies to achieve an overall spending reduction. The policy environment, characteristics of the health care and insurance market, and organizational characteristics can influence choice of implementation strategy.
Conjunctural causation: The effect of a causal factor is likely to unfold only in combination with other factors.	Given the many stakeholders involved and the complex nature of the implementation approaches, it is unlikely that a single factor can determine outcomes.
Asymmetric causation: When the outcome occurs when a factor is present, it is not necessarily the case that the absence of that factor means the outcome will not occur.	NGACOs in each PY face several barriers to implementing the model. The absence of an implementation barrier does not automatically result in implementation and program effectiveness.

In prior years' analyses, we determined that NGACOs operating in heterogenous market contexts and with different structural characteristics successfully reduced gross Medicare spending, and that these spending reductions could not be attributed to a single causal factor. In fact, we determined NGACOs succeeded under distinct circumstances and using different approaches, suggesting that success is likely the product of a constellation of factors. The CCM enable us to identify multiple causal pathways leading to the same outcome.

Step 2. Identify cases and population health management strategies

We defined our unit of analysis (or case) as an NGACO and limited analyses to those that remained in the model in its final PY (n=35 NGACOs). As our analyses focused on the impact of implementation strategies on cumulative spending and quality, we focused our analyses on NGACOs that remained in the model until the end of the implementation period and that also provided data on their implementation status in the final PY via the 2021 NGACO Leadership Survey.

In this analysis, we defined achievement of our outcome of interest as significant spending reduction (that is, cumulative gross impact reduction in Medicare Part A and B spending in PYs 1-6) without adversely affecting quality of care. The premise of this approach is to penalize NGACOs that reduced Medicare spending at the expense of quality of care (for example, failed to prevent quality of care from getting worse). We operationalized quality of care using two measures of quality—ambulatory care-sensitive conditions (ACSC) hospitalization and 30-day all-cause readmission. Those NGACOs with a null or favorable impact on both ACSC hospitalizations and 30-day all-cause readmission outcomes were considered to have not adversely affected quality of care. One reason for choosing the two measures was because of their close relationship with population health management and care transition planning activities.

We hypothesized that the causal pathways would comprise a combination of contextual and structural factors and population health management implementation strategies identified in the conceptual framework (**Exhibit B.4**). Our analysis included a total of 14 factors—three structural/contextual factors and eleven factors characterizing population health management implementation settings (5 factors) and strategies (6 factors). See **Exhibit B.5** for a summary of the factors analyzed in combination to describe causal pathways.

Exhibit B.4. NGACO Model Evaluation Conceptual Framework

Exhibit B.5. Key Factors—Operationalization and Rationale for Inclusion

Domain	Factor	Operationalization	Rationale for Inclusion
Market context	*Baseline Medicare market spending* (↑MARKSPEND)	Standardized, risk-adjusted per capita Medicare Part A & B spending in the NGACO market, as weighted and averaged over the model implementation period (PY 1–PY 6)	• Higher baseline Medicare market and NGACO-adjusted spending may present unique opportunities (or challenges) to reduce unnecessary spending and utilization
	NGACO-adjusted baseline Medicare spending (↑ACOSPEND)	Standardized, risk-adjusted per capita Medicare Part A & B spending at the NGACO level, as weighted and averaged over the model implementation period (PY 1–PY 6)	

Domain	Factor	Operationalization	Rationale for Inclusion
Organizational structure	*NGACO organization type (3 types)*	Physician practice-led (PHSYNPRACLED), IDS/hospital-led (IDSHOSPLED), or physician-hospital partnership-led (PHYSNHOSPLED)	• Resources and infrastructure available for accountable care may affect NGACOs' capacity to reduce spending • Different affiliations may offer distinct leverage and incentive structures to change care delivery
	NGACO size (↑NGACOSIZE)	Size of the prospectively attributed beneficiary population, as weight and averaged over the model implementation period (PY 1—PY 6)	• Large patient bases that can be enrolled in care management programs and receive preventive care can lead to cost reductions
Population health management settings and strategies	*Strategies to manage the NGACO's attributed beneficiary population (6 strategies)*	The extent to which NGACOs reported that they: • Know when beneficiaries are registered in an ED or admitted to a hospital (CMEDHOSP) • Provide primary care team with real-time data on beneficiary hospitalization (CMREALTIME) • Navigate beneficiaries to the right PAC setting (CMNAVPAC) • Track beneficiaries at risk for readmission to the hospital (CMTRACKREADM) • Identify gaps in beneficiary care (CMIDGAPS) • Educate beneficiaries, families, and caregivers to make informed, shared decisions (CMEDU)	• Provision of more intensive care management in various settings may be more effective in reducing unnecessary spending and utilization and in improving health outcomes
	Where and how NGACOs report providing population health management	Whether or not NGACOs reported using embedded, centralized, and/or no care managers in the following settings: • Primary care offices or practices (CMINPC) • Specialty offices or practices (CMINSPEC) • Inpatient hospital (CMINIP) • ED (CMINED) • SNF (CMINSNF)	• Substantively managing beneficiaries (that is, "to a great extent") across the care continuum using one or more targeted care management strategies may reduce unnecessary spending and utilization

NOTE: ED=emergency department, IDS=integrated delivery system, SNF=skilled nursing facilities.

Step 3. Identify causal pathways based upon shared population health management strategies that are sufficient for achieving reductions in Medicare spending.

We used CNA to identify combinations of contextual/structural factors and population health management settings and strategies leading to reductions in cumulative gross Medicare spending without negatively affecting quality. Identification of causal pathways was an iterative process and involved multiple analytic steps, as follows:

Step 3.a. Calibration—Rescaling Factors for CNA

The CNA method accommodates inclusion of continuous and ratio scale variables as factors in the analysis, maximizing the available information. The likelihood an NGACO belongs to a group of NGACOs with a shared factor (for example, NGACOs with larger beneficiary populations) or a causal pathway is measured on a scale ranging from 0 to 1. For continuous factors (that is, NGACO size, baseline Medicare market spending, and ACO-specific baseline spending), we used a logistic transformation function to rescale and standardize the distribution. Thresholds for the logistic transformation function were set at the 5th, 50th, and 95th percentiles.

For population health management settings and strategies, responses to each survey question were rescaled manually based on examining the distribution of responses and contextual information about the model. Factors measuring the extent of implementation of care strategies were calibrated to be "crisp"—only those NGACOs that implemented a strategy to a great extent were considered to have fully implemented, while all others received a score of 0. Factors related to how care management was delivered (embedded or centralized) and in which care settings (for example, emergency department [ED], inpatient hospital, skilled nursing facility [SNF]) were rescaled based on care management intensity, such that embedded care management signaled full implementation and centralized care management fell in the middle and setting no care management offered as no implementation. See **Exhibit B.6** for more information about the calibration of the factors.

Exhibit B.6. Data Calibration—Rescaling Factor Values for Analysis

Factor(s)	Calibration Type	Calibration Method
Implement each strategy to a great extent to manage the NGACO's aligned beneficiary population • Know when aligned beneficiaries are registered in an ED or admitted to a hospital • Provide primary care team with real-time data on beneficiary hospitalization • Navigate aligned beneficiaries to the right PAC setting • Track beneficiaries at risk for readmission to the hospital • Identify gaps in beneficiary care • Educate beneficiaries, families, and caregivers to make informed, shared decisions	Crisp	1 = To a great extent 0 = Somewhat, very little, not at all
Intensity of care management offered in each setting • Primary care offices or practices • Specialty offices or practices • Inpatient hospital • ED • SNF	Fuzzy	1 = Embedded OR embedded and centralized care management 0.49 = Centralized care management only 0 = No care management offered
Larger ACO size	Fuzzy	95th percentile for inclusion; 50th for crossover; 5th percentile for exclusion
Higher ACO-specific baseline spending	Fuzzy	95th percentile for inclusion; 50th for crossover; 5th percentile for exclusion
Higher market baseline spending	Fuzzy	95th percentile for inclusion; 50th for crossover; 5th percentile for exclusion
Organization type (IDS/Hospital, Physician Practice, Physician Hospital Partnership)	Crisp (3 binary variables)	1 = IDS/Hospital; 0 = All else 1 = Physician Practice; 0 = All else 1 = Physician Hospital Partnership; 0 = All else

NOTES: ACO=accountable care organization, ED=emergency department, IDS=integrated delivery system, PAC=post-acute care, SNF=skilled nursing facility.

We conducted sensitivity testing to assess whether the key findings were robust to alternate threshold values of the transformation function; findings should not change based on threshold decisions. See discussion of Step 3.d for more information about our sensitivity analysis.

Step 3.b. Calibration—Rescaling the Outcome for CNA

The outcome of interest was calibrated as fuzzy; the calibrated outcome condition took on fractional values ranging from 0 to 1 and incorporated performance on quality-of-care outcomes into the calibration of overall spending impacts. First, we used a logistic transformation function to rescale the Medicare spending outcome to standardize the distribution. Specific inclusion, crossover, and exclusion thresholds were set based on the distribution. Second, we adjusted the calibrated outcome measure further, based on the two measures (ACSC hospitalization and all-cause 30-day readmission) to produce a meta-condition. There were two major adjustments in the process. The first adjustment penalized NGACOs that successfully reduced spending but did not improve both quality outcomes. The second penalized NGACOs that successfully reduced spending at the expense of quality, reflected by significantly worsened performance on both quality outcomes.

- The first adjustment involved penalizing all NGACOs with calibrated spending values above the lowest calibrated value for an NGACO that significantly reduced spending and significantly improved on both quality measures of interest to fall below this lowest calibrated value (n=14 NGACOs). The calibrated value for this group of NGACOs was reduced by 0.075, which was determined by the difference between the highest calibrated value for a penalized NGACO and the lowest calibrated value for an NGACO that reduced spending and improved on both quality measures.

- The second adjustment moved the one NGACO that significantly reduced spending, but also did significantly worse on both quality measures, to a calibrated outcome value that fell below all other NGACOs that reduced spending (reduction of 0.102).

Exhibit B.7 depicts the outcome of the two adjustments made. The black filled dots represent the final cumulative impact estimates for each NGACO, while the orange unfilled dots mark the original calibration for NGACOs for which the calibrated cumulative impact estimate was adjusted based on quality outcomes.

Exhibit B.7. NGACO-Level Coincidence Analysis—Outcome Calibration

Cumulative Impact Condition Estimates by ACO
Original and Adjusted

NOTE: The black filled dots represent the final cumulative impact estimates for each NGACO. The orange unfilled dots represent the original calibration for NGACOs for which the calibration was adjusted, based on quality outcomes.

Step 3.c. Coincidence Analysis

Once factors were rescaled, we identified configurations of contextual/structural factors and population health management settings and strategies that were sufficient to achieve the outcome (that is, to reduce cumulative gross Medicare spending without negatively impacting quality). There were three steps in the analysis:

First, we constructed a configuration table that included a row for every possible combination of the fourteen factors. The configuration table included 35 rows, with a row for each combination of factors associated with at least one case (NGACO).

Second, we applied the CNA algorithm to the configuration table, with additional constraints applied based on assumptions about the relationships among the conditions. As CNA is designed to allow for combinations of causal conditions leading to multiple outcomes in causal chains, the algorithm, by default, treats all input conditions as potential outcomes. For this analysis, we focused on the combinations of conditions leading to a specific outcome, and we designated the Medicare spending and quality meta-condition factors as the only outcomes of interest.

In applying the algorithm, we also incorporated an assumption about causal ordering—namely, that contextual/structural factors (ACO size, market baseline spending, ACO-specific baseline spending, and organization type) are endogenous and logically should precede population health management settings and strategies in causal pathways. Additionally, because we were not interested in the relationship of the endogenous factors with each other, in the absence of implementation conditions, we instructed CNA not to search for causal relationships between upstream factors.

Thirdly, we evaluated "goodness of fit" of our CNA solutions using two primary measures—consistency and coverage.

- *Consistency* measures the degree to which cases where a condition is present or combination of conditions is present also lead to the outcome of interest.
- *Coverage* measures the degree of relevance of an input condition, specifically what proportion of all cases with the outcome are explained by the condition or combination of conditions.

Both measures use a range from 0 to 1, with values of 0.9 and above considered optimal. In CNA, the researchers can dictate minimum consistency and coverage thresholds for final solutions.[49]

The CNA uses a bottom-up approach. First, it builds minimally sufficient conditions (MSCs), which are combinations of individual conditions that together produce the outcome. The algorithm creates MSCs by first assessing whether single conditions are sufficient for the outcome and meet the set consistency threshold. After considering all individual conditions, it considers whether combinations of two conditions are sufficient for the outcome, excluding any individual conditions that were sufficient. Then, it considers combinations of three conditions, and so on.

Next, the algorithm takes the assembled set of MSCs and carries out the same process, developing a redundancy-free atomic solution formula (ASF) comprising combinations of MSCs separated by the Boolean "OR" operator. The algorithm reviews whether single MSCs are necessary for the outcome, then whether combinations of two MSCs are necessary, and so on. The necessity of combinations of MSCs for the solution is determined by whether the solution meets a specified coverage threshold.[50] Generally, an ideal coverage threshold should be as close to 1 as possible, given the redundancy-free

[49] Ragin C. Set relations in social research: Evaluating their consistency and coverage. *Political Analysis* 2006;14:291-310. doi:10.1093/pan/mpj019

[50] Baumgartner M & Ambul M. Causal modeling with multi-value and fuzzy set coincidence analysis. *Political Science Research and Methods.* 2020; 8(3): 526-542. https://doi.org/10.1017/psrm.2018.45

nature of ASFs (that is, the lower the coverage, the greater the proportion of instances of the outcome that are wholly unaccounted for in the ASF).[51]

$$Minimally\ sufficient\ condition\ (MSC) = condition1 * condition2$$
$$Atomic\ solution\ formula\ (ASF) = MSC1 + MSC2 + MSC3$$

The CNA is sensitive to small adjustments in consistency and coverage thresholds. For this reason, we applied a technique that involved deriving sets of causal pathways at multiple different combinations of consistency and coverage thresholds within a range, then prioritized the pathways that appeared more often and at optimal thresholds. Specifically, we applied the rationale that the causal pathways best fit to describe the outcome would emerge in many models at varying consistency and coverage thresholds, while pathways that performed very well but only appeared at certain specific thresholds would fall out.[52] The rationale served as a quasi-sensitivity test.

Before applying various consistency and coverage thresholds to the analysis, we determined the highest threshold at which the algorithm would output any atomic solutions (consistency=0.90, coverage=0.85). The threshold was determined by incremental testing of consistency/coverage combinations. We used the threshold as the starting point for exploring variation in the thresholds. First, holding coverage at 0.85, we varied the consistency threshold by 0.1-point increments from 0.85 to 0.95. Second, holding consistency at 0.85, we varied the coverage threshold by 0.1-point increments from 0.85 to 0.95. At each consistency-coverage combination, we output the MSCs and ASFs, if any were output. We then aggregated all ASFs into one dataset, including a count variable to denote the number of CNA outputs in which the ASF appeared. Unlike ASFs, MSCs output does not change if the coverage threshold changes, as the coverage threshold dictates solution coverage, not coverage of individual MSCs. Therefore, we only aggregated MSCs based on the output of varied consistency thresholds. The thresholds (and corresponding number of MSCs and ASFs at each threshold) are listed in **Exhibit B.8** below.

Exhibit B.8.   Coincidence Analysis—Number of Pathways Output at Different Consistency-Coverage Threshold Combinations

Consistency	Coverage	Number of MSCs	Number of ASFs	Consistency	Coverage	Number of ASFs
0.85	0.85	270	13,056	0.85	0.85	13,056
0.86	0.85	274	6,130	0.85	0.86	13,056
0.87	0.85	321	2,075	0.85	0.87	4,161
0.88	0.85	352	339	0.85	0.88	2,433

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[51] Ibid.

[52] Parkinnen V & Baumgartner M. Robustness and model selection in configurational case modeling. *Sociological Methods & Research* 2021;52(1):176-208. https://doi.org/10.1177/0049124120986200

Consistency	Coverage	Number of MSCs	Number of ASFs	Consistency	Coverage	Number of ASFs
0.89	0.85	360	365	0.85	0.89	1,327
0.90	0.85	376	20	0.85	0.90	751
0.91	0.85	356	0	0.85	0.91	389
0.92	0.85	346	0	0.85	0.92	175
0.93	0.85	350	0	0.85	0.93	83
0.94	0.85	338	0	0.85	0.94	41
0.95	0.85	308	0	0.85	0.95	11

NOTE: ASF=atomic solution formula, MSC=minimally sufficient condition.

Through comparison of the final "superset" of pathways and solutions, complemented by qualitative knowledge, we identified a final set of causal pathways. Some NGACOs met the criteria to be included in more than one pathway. We used case-level information to select the pathway that best fit the qualitative and quantitative data. **Exhibit B.9** presents the final pathways.

Exhibit B.9. Coincidence Analysis—Final Pathways

Pathway	Consistency Score	Coverage Score	NGACOs	Pathway Label
PHYSNPRACLED & CMINIP	0.916	0.249	Primary Care Alliance; CareMount; Primaria; APA	1
(IDSHOSPLED or PHYSNHOSPLED) & CMIDGAPS & CMEDU	0.904	0.247	UTSW; ProHealth; UNC	2
↓NGACOSIZE & CMTRACKREADM & CMIDGAPS	0.905	0.339	Torrance; Best Care Collaborative; PSW (NW Momentum); ACCST; ProspectNE	3
↑NGACOSIZE & ~CMREALTIME	0.964	0.278	UnityPoint; Indiana U	4

NOTE: ~ Denotes the absence of a condition; see Exhibit B.5 for descriptions of each condition.

The four causal pathways account for 56% of NGACOs that reduced spending without reducing quality and for all NGACOs that reduced spending and improved both quality of care outcomes of interest.

Step 3.d. Sensitivity Testing

As noted previously, the results are sensitive to analytic decisions related to the selection of conditions and calibration thresholds. To mitigate this issue, the main analysis integrates results from multiple analytic runs that were based on different input assumptions to generate the findings.

In addition, we tested the robustness of the results by reproducing our analyses using alternate calibration approaches and outcome specifications. We performed the following sensitivity tests (see **Exhibit B.10** for a summary of sensitivity test findings):

- *Proxy substitution*, to determine whether the exchange of variables that represent similar factors would change the analysis. We replaced one variable from the original analysis with the next closest proxy in our data.
- *Manual calibration modifications*, to determine the robustness of the outcome and the appropriateness of calibration methods used for these variables. The analysis was performed on the outcome measure in two ways as well as on the manually calibrated input conditions.
- *Manual CNA modification*, to explore whether the CNA analysis itself was sensitive to adjustments in the thresholds used in the analysis.

After making the adjustments to specifications, we repeated all other steps in the CNA modeling and interpretation process, including applying the same threshold for final atomic solutions, and extracted MSCs in the final set of atomic solutions. We compared the list of MSCs generated in each sensitivity analysis with the final four pathways in the main analysis.

We found that final pathways results were somewhat robust to changes in calibration of the outcome and adjustments to consistency and coverage thresholds but were somewhat sensitive to calibration decisions around care management conditions. Specifically, adjustments in the calibration of care location resulted in only one of the final pathways appearing in the final set of atomic solutions. Further, sensitivity testing of care management strategies could not be carried out fully, as there was not sufficient variability in responses when "to a great extent" and "somewhat" responses were both calibrated as 1. For example, based on the re-calibration, every NGACO received a value of 1 for identifying gaps in care, which was a key condition in the main pathways. All NGACOs received a value of 1 for this condition, so that the algorithm automatically excluded the condition from the pathways, limiting comparability with our main pathways. Additionally, no resulting atomic solutions from this adjustment reached the consistency and coverage threshold used for the main analysis.

Exhibit B.10. Coincidence Analysis—Sensitivity Analysis Approaches and Implications

Sensitivity Analysis	Original Approach	Sensitivity Change	Implications of Analysis
Outcome calibration	Calibration of % impact of total Medicare cost of care: Inclusion < -4.010% Crossover = 0% Exclusion > 0.695%	Calibration of % impact of total Medicare cost of care: Inclusion set at first NGACO that reduced spending and was statistically significant Crossover = 0% Exclusion set at first NGACO that increased spending and was statistically significant	The final results are somewhat *sensitive* to adjustments in calibration. Two of four final pathways appear in the resulting set of atomic solutions. Two final pathways do not appear: 1) hospital-affiliated NGACOs that identify gaps in care and foster shared decision-making; and 2) smaller NGACOs that track beneficiaries at risk for readmission and identify gaps in care.
	NGAO calibration shifted based on results of two quality measures: 1. NGACOs with calibration above the lowest calibrated value for an NGACO the improved both quality measures significantly moved down systematically by the difference between the highest calibrated NGACO in this group and that lowest calibrated value for an NGACO in the best performing group (0.0755) 2. The one NGACO that worsened both quality measures moved to fall below all other NGACOs that reduced spending (0.1020)	NGACO calibration shifted based on results of two quality measures: 1. NGACOs with calibration above the lowest calibrated value for an NGACO the improved both quality measures significantly moved down systematically by *half of* the difference between the highest calibrated NGACO in this group and that lowest calibrated value for an NGACO in the best performing group (0.0378) 2. The one NGACO that worsened both quality measures moved to fall below all other NGACOs that reduced spending (0.1020)	The final results are somewhat *robust* to adjustments in this calibration. Not all final pathways appear in the resulting set of atomic solutions; three of four appear. The pathway of hospital-affiliated NGACOs that identify gaps in care and foster shared decision-making does not appear within the final set of atomic solutions.
Condition calibration	Calibration of care management location items: 1 = Embedded care management (with or without centralized care management) 0.49 = Centralized care management only 0 = No care management	Calibration of care management location items: 1 = Both embedded and centralized care management 0.49 = Embedded or centralized care management only 0 = No care management	The final results are sensitive to adjustments in this calibration. Only one of the final pathways appears in the resulting set of atomic solutions (smaller NGACOs that track beneficiaries at risk for readmission and identify gaps in care).

Sensitivity Analysis	Original Approach	Sensitivity Change	Implications of Analysis
	Calibration of care management strategies: 1 = To a great extent 0 = Somewhat, Very little, Not at all	Calibration of care management strategies: 1 = To a great extent, Somewhat 0 = Very little, Not at all	There was not enough variability in the responses to this variable to conduct complete sensitivity testing. Certain conditions were lost (due to 100% of responses calibrated as 1) with the re-calibration for sensitivity testing.
CNA analysis code modification	Run CNA and output MSCs and ASFs at: Consistency = 0.85 Coverage = 0.85-0.95 Coverage = 0.85 Consistency = 0.85-0.95	Run CNA and output MSCs and ASFs at: Consistency = 0.89 Coverage = 0.80-0.85	The final results are robust to adjustments in the calibration. All final pathways appear in the resulting set of atomic solutions.

Step 4. Integrate Quantitative and Qualitative Data to Validate and Interpret Causal Pathways

After identifying the causal pathways, we used qualitative and quantitative data to characterize additional shared factors (related to NGACO context, structure, and implementation) that might help explain each pathway. First, we analyzed qualitative data to validate and identify complementary and/or alternative population health management strategies and approaches that NGACOs in each pathway used, to consider how strategies may have led to the observed patterns in outcomes. Then, we assessed patterns in cumulative Medicare spending by service area (that is, acute care/hospital, outpatient, SNF, and professional services) for NGACOs in each pathway, comparing patterns across pathways. Next, we explored additional shared structural and contextual factors of the NGACOs in each causal pathway (for example, market competitiveness, NGACO provider network size and structure) and how factors differed across pathways. Lastly, case-level qualitative information was used to assess how the factors may have collectively influenced NGACOs' population health management strategies and implementation activities.

For each NGACO associated with a CNA pathway, we reviewed qualitative data collected during baseline interviews, site visits, and virtual site visits with the NGACOs (conducted between March 2017 and March 2019). We extracted qualitative data on NGACOs' building and expanding population health management capacity, including health IT infrastructure, data analytic capacity, data sharing, and care management programs.

Step 5. Complement the CNA Findings with Illustrative Case Studies

For each causal pathway, we synthesized the available qualitative data to describe the pathways and to develop case studies that illustrated how the environment in which an NGACO operated influenced

implementation and outcomes. The case studies added detail about NGACOs' organizational structure and available resources, as well as the implementation activities that they pursued to improve care delivery for beneficiaries.

We used the information sources outlined in Step 4 (that is, baseline/second-round interview transcripts, site visit summaries, profiles based on application data, and exit interviews [when applicable]). Data were analyzed through a collaborative case selection process, with findings deliberated among qualitative researchers and in consultation with mixed methods and quantitative teams. Case selection was based on several considerations, including data availability; whether case information balanced cross-cutting insights about NGACOs and the NGACO's unique features that allowed us to exclude outlier cases; and the richness of available information concerning the CNA pathways and factors of interest.

Qualitative data were reviewed and synthesized to develop an illustrative narrative for one NGACO per pathway. Each case study described and highlighted qualitative themes relevant to the NGACO's corresponding pathway. As appropriate, we incorporated narrative mentions of key quantitative outcomes that supported thematic discussion.

Analyzing How NGACOs Failed to Achieve Spending Reductions

Step 1. Determine the applicability of CCM to understand causal implementation pathways leading to the lack of reductions in Medicare spending

For the analysis, we elected to use CCM's fuzzy set qualitative comparative analysis (fsQCA) to systematically group the NGACOs—based on their shared contextual, structural, and provider-based characteristics—to identify causal pathways that led to the failure to reduce Medicare spending during the model's six PYs. We chose fsQCA to align with the approach used in the Fourth Evaluation Report, where a similar set of contextual and structural factors were combined to identify pathways leading to reductions in Medicare spending. The fsQCA is applicable because the sample size—an NGACO PY (NGACO-PY)—is sufficient to assess the key contextual and structural factors associated with failure to achieve spending reductions.

Step 2. Identify cases and key contextual and structural factors

We defined our unit of analysis or case as an NGACO-PY, rather than an NGACO as a case, following the precedent of our QCA analyses in the Fourth Evaluation Report. In each successive PY, a given NGACO could have changed one or more structural and contextual characteristics, to reduce Medicare spending; likewise, a given NGACO's Medicare spending in a given PY could have been influenced by factors out of the NGACO's control, such as Medicare spending in the market. Considering each NGACO-PY as a distinct case allowed us to account for the dynamic nature of model participation. The

approach also enabled a systematic assessment of how NGACOs' strategies and outcomes changed over time and greater precision in characterizing the NGACOs that fit within the pathways to failure in reducing spending. The analysis included 225 NGACO-PYs, accounting for all NGACOs participating in the model through PY 6; the analysis was not confined to those NGACO-PYs that failed to reduce spending.

Analysis of conditions across all cases identified a set of causal pathways associated with failure to reduce Medicare spending. We describe the conditions involved in each pathway, as well as differences between cases in and out of each pathway.

Outcome

The outcome measure was an NGACO's failure to achieve significant gross spending reductions (at $p < 0.05$) in a PY. The NGACOs that did not have a statistically significant reduction in their DID estimate for gross Medicare Parts A and B spending (that is, the difference between the NGACO and comparison mean adjusted spending in the PYs and BYs) were considered to be cases that did not achieve significant spending reductions. The DID estimates from all NGACOs and PYs (PY 1-PY 6) were included in the analysis (n=225 NGACO-PYs).

Conditions and Analysis

We included seven contextual and structural conditions in the fsQCA, to examine their collective impact on NGACOs' failure to reduce Medicare spending. There is much overlap across the conditions and those analyzed in the Fourth Evaluation Report; however, the conditions are not identical. The context and mechanisms associated with reduced spending may differ from those associated with the constraints and limitations that may lead to increases in spending or no change in spending. One key characteristic of QCA is that if specific factors are found to lead to one outcome, the absence of those factors does not necessarily lead to the opposite of the outcome (an idea described as causal asymmetry). For example, choosing greater financial risk was a condition in the earlier analysis as an indicator of an NGACO's confidence, experience, and past success with risk-based models. However, an NGACO selecting lower financial risk may do so for reasons not related to inability or inexperience and may not incur spending increases in the model.

For this analysis examining failure to reduce spending, we selected explanatory factors or conditions based on our evaluation theory of change (**Exhibit 1.2**), a review of peer-reviewed literature, case-level insights, data availability, iterations within the QCA framework, and priorities identified by CMMI. The conditions capture the market context in which NGACOs operated, their organizational structure, and key characteristics of an NGACO's provider network. Together, they indicated possible limitations on an NGACO's resources and capacity, the leverage over provider networks, and cost-saving opportunities that all constrained an NGACO's ability to achieve savings in the model. Beneficiary-related factors considered in the Fourth Evaluation Report, such as the average number of chronic conditions and rate of dual eligibility within an NGACO's beneficiary population, were explored in this analysis but ultimately

not included in the QCA model. After several iterations within the model, we found that the beneficiary characteristics did not contribute in a linear fashion to NGACOs' failure to reduce spending, based on the data through PY 6 (2021). Descriptive analyses indicated that the data were very heterogeneous, especially with regard to beneficiary characteristics, so that identifying a limited number of pathways to failure and/or describing a large number of NGACO-PYs was not feasible. **Exhibit B.11** lists the seven factors or conditions and the rationale for inclusion. Following the exhibit, we summarize each condition, how we hypothesize it relates to Medicare spending, and how the condition was operationalized in the analysis.

Exhibit B.11. Qualitative Comparative Analysis—Factors Included to Understand the Failure to Achieve Spending Outcomes

Factor (Acronym)	Description	Rationale
Physician practice ACO (PHYSNLED)	ACO is affiliated with a Physician Practice (either a Physician Practice or a Physician Hospital Partnership)	The organization type of an NGACO can affect the ability to achieve spending reductions.
Larger ACO size (↑ACOSIZE)	Meta-condition: Number of beneficiaries aligned in the NGACO-PY, and number of total practitioners listed in the ACO's network	Large numbers of patients enrolled in care management programs, as well as larger provider networks, may be more challenging to manage.
Higher baseline spending in the market (↑MARKSPEND)	Total standardized, risk-adjusted, per-capita Medicare Parts A & B spending in NGACO-PY market at baseline	Higher spending may present opportunities to reduce unnecessary spending and utilization.
Higher market concentration (↑MARKCONC)	Measured market concentration through computation of the Herfindahl-Hirschman Index (HHI) for each ACO	Higher concentration indicates less competition, reflects level of market control.
Higher MA penetration (↑MAPEN)	Percentage of the NGACO-PY beneficiary population eligible for Medicare who are enrolled in Medicare Advantage (MA) plans	Higher MA penetration in the beneficiary population can present opportunities to reduce spending.
Higher proportion of PCPs employed by the ACO (vs. contracted) (↑PCPSEMP)	Proportion of PCPs employed by the NGACO-PY (almost all employed/about half and half/almost all contracted)	Higher levels may reflect the ACO's ability to enact buy-in or management behaviors and decisions among PCPs.
Higher ratio of specialists to PCPs (↑SPECIALISTS)	Ratio of participating and preferred specialists, to PCPs aligned to the NGACO-PY	Provider composition can indicate the capacity for an ACO to reduce spending.

NOTE: ACO=accountable care organization, MA=Medicare Advantage, PCP=primary care provider.

Market Conditions

Medicare spending efficiencies in the market at baseline. Baseline market spending was defined as the standardized, risk-adjusted per capita Medicare Parts A and Part B spending in the NGACO market during the baseline period. Lower-than-average spending signaled efficiencies in spending and health

care utilization in the market before an NGACO joined the model, meaning fewer opportunities to reduce unnecessary spending and utilization, even if an NGACO successfully leveraged provider networks and employed coordinated population health and care management strategies.

Hospital market concentration. Hospital market concentration was defined as the hospital Herfindahl-Hirschman Index (HHI) in the NGACO market in the year prior to the PY. Research has shown that high hospital concentration is negatively associated with ACO formation, possibly because hospital concentration promotes informal coordination and as a result may reduce the economic incentives of ACO entry.[53] Similarly, NGACOs operating in more concentrated markets may have been unable to find or leverage new coordination channels to reduce costs. In addition, higher levels of market control could have further discouraged an NGACO from lowering costs, due to direct impacts on its finances.

Medicare Advantage penetration. The Medicare Advantage (MA) penetration rate was defined as the proportion of Medicare beneficiaries belonging to the NGACO who were also enrolled in a MA product. More MA enrollees tend to lead to higher utilization of preventive services, but lower utilization of home health and post-acute care (PAC) within the Medicare population, presenting more opportunities for reductions in spending.[54]

Structural Conditions

Organization type. The NGACOs were affiliated with either physician practices or hospitals, including integrated delivery systems (IDS) and physician-hospital partnerships. Organization type could have affected the number and types of services offered, the proportion of providers oriented toward primary care and the types of physician performance management systems, and the level of prior experience in payment reform initiatives. Additionally, different organization types faced different internal and external incentives. Neither type had a clear incentive to reduce revenue associated with their own care settings, and the attempt to reduce overall spending while preserving their own revenue streams could have presented distinct challenges to different organization types. To date, the evidence on the relationship between organization type, quality and cost outcomes continues to be inconsistent.[55]

Organization size and capacity. The analytic value for organizational size was determined by calibrating both the number of aligned beneficiaries and the size of the provider network and taking the higher of the two calibration values. We defined provider network size as the number of participant and preferred providers in an NGACO's network. NGACOs with smaller aligned beneficiary populations and smaller provider network sizes might have been unable to achieve proper economies of scale when investing in population health and care management infrastructure. Conversely, larger beneficiary

[53] Colla CH, Lewis VA, Tierney E, Muhlestein DB. Hospitals Participating in ACOs Tend to be Large and Urban, Allowing Access to Capital and Data. *Health Aff (Milwood)*. 2016;35(3):431-439. doi: 10.1377/hlthaff.2015.0919

[54] Ochieng N & Biniek JF. *Beneficiary Experience, Affordability, Utilization, and Quality in Medicare Advantage and Traditional Medicare: A Review of the Literature*. 2022: Kaiser Family Foundation, https://www.kff.org/report-section/beneficiary-experience-affordability-utilization-and-quality-in-medicare-advantage-and-traditional-medicare-a-review-of-the-literature-report/.

[55] Henke RM, Karaca Z, Moore B, Cutler E, et al. Impact of Health System Affiliation on Hospital Resource Use Intensity and Quality of Care. *Health Serv Res*. 2016;53(1):63-86. doi: 10.1111/1475-6773.12631

populations with larger provider networks may have had more varied morbidities and care needs and for this reason seen additional barriers to managing the care of a diverse beneficiary and provider pool. Many NGACOs experienced changes in the size of their beneficiary populations over time. We are interested in examining whether such changes were associated with consequent changes in Medicare spending outcomes.

Provider Characteristics

Relationship between the NGACO and their primary care providers. We explored whether primary care providers were either primarily employed or contracted by the NGACO, as determined through responses to surveys of NGACO leadership and affiliated physicians. The NGACO Leadership survey methodology was described as part of the Third Evaluation Report;[56] surveys were administered in 2017 for the 2016 NGACO cohort, in 2018 for the 2017 NGACO cohort, and in 2019 for the 2018 NGACO cohort. Respondents were asked a variation of the question, "What is the nature of your Next Gen ACO's relationship with its primary care providers?" Responses varied slightly for each cohort's survey but were collapsed into three categories— "almost all employed by the NGACO," "almost all contracted by the NGACO," and "about half employed and half contracted by the NGACO." The nature of the relationship between an NGACO and its primary care providers was assumed not to change over time, and NGACOs' responses during their respective cohort surveys were applied for all PYs. NGACOs that primarily contracted with their providers may have had less ability to leverage or change behaviors and practices for improved primary care management.

Ratio of specialists to primary care providers. We defined this variable by comparing the total number of both preferred and participating specialists to the preferred and participating primary care providers (PCPs) for each NGACO. The ratio of the two measures could have informed the priorities of a given NGACO, considered with the other factors in our QCA model. A higher proportion could have indicated higher utilization and more opportunities to reduce spending; alternatively, a lower proportion could have indicated robust provider-beneficiary engagement, with opportunities to reduce spending.

Step 3. Identify causal pathways

Identification of causal pathways was an iterative process involving multiple analytic steps, as follows:

Step 3.a. Calibration—Rescaling Factors for fsQCA

To be included in the QCA, conditions needed to be rescaled and standardized to be comparable in the analysis (for example, proportion of employed PCPs and hospital HHI had very different data ranges in their raw forms). The likelihood of an NGACO belonging to a group of NGACOs (a set) with a shared factor or a causal pathway was measured on a scale ranging from 0 to 1, with values closer to 1 indicating that an NGACO was more likely to belong to that set. For example, if the condition was

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[56] NORC at the University of Chicago, 2020. "Next Generation Accountable Care Organization Model Evaluation: Third Evaluation Report Technical Appendices. Appendix F." At https://www.cms.gov/priorities/innovation/data-and-reports/2022/nextgenaco-thirdevalrpt-appendices

baseline market spending, an NGACO in a market with high baseline spending would have a calibrated value for the condition very close to 1, indicating that the NGACO was very likely to belong to the set of NGACOs operating in higher spending, less efficient markets.

To maximize the available information, conditions could be calibrated to be either continuous in scale (for example, NGACOs operating in markets ranging from concentrated to competitive) or discrete (for example, NGACO organization type either physician-led or hospital-affiliated). For our analysis, organization type was calibrated as discrete, with 1 as physician practice and 0 as hospital-affiliated (either IDS/hospital or physician hospital partnership). The relationship between NGACO and primary care providers was manually calibrated as fuzzy, with NGACOs closest to 1 having employed the majority of their PCPs and NGACOs closest to 0 having contracted more PCPs than it employed. Market concentration (a continuous variable) was rescaled manually at two cut points based on established thresholds for HHI, from highly concentrated (closer to 1) to competitive markets (closer to 0). We used a logistic transformation function to rescale the outcome factor as well as all other factors on a continuous scale. We set specific inclusion, crossover, and exclusion thresholds based on the distributions of each factor and of the outcome, to determine the shape of the logistic transformation function. The shape of the distribution informed the choice of thresholds. For most factors, the 5th, 50th, and 95th percentiles were used. **Exhibit B.12** documents the approach we employed to set the thresholds for the factors and presents the cut points for each of the factors and the outcome. We strived to preserve the original shape of the distribution in the rescaled factors.

Exhibit B.12. QCA Data Calibration—Rescaling Factor and Outcome Values for Analysis

Factor(s)	Calibration Type	Threshold
Physician practice NGACO	Binary	NA
Baseline market spending; ACO size; ratio of specialists to PCPs; MA penetration rate	High values are favorable; lower values are unfavorable	95th percentile for inclusion; median for crossover; 5th percentile for exclusion
Hospital HHI	Higher values are favorable; lower values are unfavorable	Calibrated in thirds based on established thresholds[57]: <1,500 = competitive market 1,500-2,500 = moderately concentrated >2,500 = highly concentrated
Proportion of providers employed by NGACO (vs. contracted)	Higher values are favorable; lower values are unfavorable	Calibrated in at three levels: 1 = less than half of providers employed by NGACO 2 = about half of providers employed by NGACO 3 = more than half of providers employed by NGACO

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[57] Based on information from https://www.kff.org/wp-content/uploads/sites/3/2011/09/acos-cory-capps-hospital-market-consolidation-final.pdf

Factor(s)	Calibration Type	Threshold
NGACO-PY failed to reduce Medicare spending	Outcome	For purposes of QCA – "failure to reduce spending" is based on the impact estimates calculated from the DID model, which looks at changes in spending, utilization, and quality.
		These estimates indicate the percentage an NGACO-PY increased/decreased it's spending as compared to the counterfactual model estimate.

NOTE: DID=difference-in-differences, HHI= Herfindahl-Hirschman Index, MA=Medicare Advantage, QCA=qualitative comparative analysis.

We conducted sensitivity testing to assess whether the key findings were robust to alternate threshold values of the transformation function; findings should not change based on threshold decisions. See discussion under **Step 5.d** for more information about our sensitivity analysis.

Step 3.b. Analysis of Necessity

We conducted an analysis of necessity to assess whether the presence of a specific contextual and structural factor was necessary to reduce Medicare spending. We determined whether a factor is necessary[58] by assessing the likelihood of a factor being present in a group of NGACO-PYs likely to have failed to achieve reduction in Medicare spending. We used the QCA package in RStudio to calculate two measures of necessity:[59]

- **Necessity-consistency score.**[60] This score measures the degree to which the presence of the outcome signifies the presence of an explanatory factor. In our analysis, the presence or absence of most factors or outcome was not binary; for this reason, we applied the following formula to calculate necessity-consistency:

$$\frac{\sum_{i=1}^{i}[Min(X_i, Y_i)]}{\sum_{i=1}^{i} Y_i}$$

where X represents the calibrated value for the factor and Y is the calibrated value for the outcome for the *i*th case (NGACO-PY).

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[58] A factor is defined as necessary if its presence is required for a desired outcome to occur. However, the presence of the factor does not guarantee the outcome; a necessary factor may be sufficient but other factors may be required. In complex social systems, a combination of several factors is usually required to produce an outcome. In an analysis of necessity, a higher consistency score for a given condition indicates a higher likelihood of the given condition being necessary for the outcome to occur. A generally accepted threshold for a condition's necessity is 0.9, but this is not a strict or definitive threshold.

[59] Version 2022.07.0.

[60] The necessity-consistency score represents the average of the degree to which the calibrated value of the factor is less than the calibrated value of the outcome across all NGACO-PYs. The higher the necessity-consistency score, the more necessary a factor is for the outcome to occur; a score greater than 0.9 is generally considered the minimum threshold to interpret a factor as being necessary.

- **Necessity-coverage score.**[61] We used the necessity-coverage score to measure the degree of relevance of a necessary factor. For this score, we applied the following formula:

$$\frac{\sum_{i=1}^{i}[Min(X_i, Y_i)]}{\sum_{i=1}^{i} X_i}$$

where X represents the calibrated value for the factor and Y is the calibrated value for the outcome for the *i*th case (NGACO-PY).

Exhibit B.13 presents the necessity-consistency and necessity-coverage scores for each explanatory factor. Necessity-consistency scores above 0.9 were deemed "necessary"; for this reason, we identified hospital concentration as necessary to the analysis. Other factors were not clearly necessary, but their scores (except for organization type) were above 0.5, implying that they may have been necessary to the analysis. The results of the analysis of necessity informed the assumptions we made for the analysis of sufficiency.

Exhibit B.13. QCA Analysis of Necessity—Consistency and Coverage Scores

Factor	Necessity-Consistency Score	Necessity-Coverage Score	Relevance Coverage
Higher market concentration (HHI) (PY)	0.91	0.57	0.33
Larger NGACO size (PY)	0.73	0.70	0.74
Higher ratio of specialists to PCPs (PY)	0.64	0.64	0.73
Higher MA penetration (PY)	0.61	0.64	0.74
Higher baseline market spending (BY)	0.61	0.63	0.73
NGACO employed larger proportion of providers (BY)	0.56	0.54	0.85
NGACO organization type was a physician practice (BY)	0.30	0.48	0.80

NOTE: HHI= Herfindahl-Hirschman Index, MA=Medicare Advantage.

Step 3.c. Analysis of Sufficiency

We conducted an analysis of sufficiency to identify causal pathways comprising combinations of contextual and structural characteristics sufficient for failure to achieve reductions in Medicare spending. We calculated the sufficiency-consistency score, which represented the average of the degree to which the calibrated value of the outcome was less than the calibrated value of the combination of factors across all NGACO-PYs. All 225 NGACO-PYs were used to calculate a sufficiency score for each row, rather than counting only the NGACO-PYs listed in a given row. Higher

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[61] The necessity-coverage score represents the average of the degree to which the calibrated value of the outcome is less than the calibrated value of a necessary factor across all NGACO-PYs.

sufficiency-consistency scores identified the rows (combinations of factors) more likely to result in an overall lack of spending reduction. We used the following formula to calculate the sufficiency-consistency score:[62]

$$\frac{\sum_{i=1}^{i}[Min(Z_i, Y_i)]}{\sum_{i=1}^{i} Z_i}$$

where *Z* was derived using the formula presented earlier and *Y* represented the calibrated score for the outcome.

There were three steps in analysis: 1) constructing a "truth table" to array specific combinations of factors (possible causal pathways) by row; 2) applying the Quine-McCluskey algorithm—a logical minimization technique—to the truth table to derive our final, simplified set of causal pathways; and 3) sensitivity testing to assess the robustness of the findings.

Step 3.c.1. Constructing the truth table

First, we constructed a truth table that included a row for every possible combination of the seven key contextual and structural factors. Since our analysis included seven factors, the truth table comprised 2^7 or 128 rows. **Exhibit B.14** depicts the table, with a row for each combination of factors associated with at least one case (NGACO-PY).[63]

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[62] The calculations were performed using the 'QCA' package in RStudio, version 2022.07.0.
[63] Truth Table rows that had no cases were removed from the table, to simplify presentation.

Exhibit B.14. QCA Analysis of Sufficiency—Truth Table

↑MARKSPEND	↑MARKCONC		↑ACOSIZE	↑PCPSEMP	↑SPECIALISTS	PHYSNLED	↑MAPEN	Sufficient for Outcome	# of Cases	Consistency Score	Cases
1	0		1	1	1	1	0	1	3	0.81	Atrius (2017, 2018), Primaria (2019)
0	0		1	1	1	1	0	1	1	0.80	NECQA (2018)
1	1		1	1	1	1	1	1	2	0.80	ACC of TN (2020, 2021)
1	1		0	1	1	1	1	1	5	0.78	ACC of TN (2018, 2019), Primary Care Alliance (2018, 2019, 2021)
1	1		1	1	1	1	0	1	6	0.77	Atrius (2019, 2020, 2021), Primaria (2018, 2020, 2021)
1	1		0	1	0	1	1	1	2	0.75	Central Utah (2021), Primary Care Alliance (2020)
1	0		0	0	0	0	1	1	1	0.74	Torrance (2018)
0	1		1	1	1	1	0	1	3	0.72	NECQA (2019, 2020, 2021)
1	0		1	0	0	0	1	1	1	0.72	MemorialCare (2016)
0	1		0	1	1	1	0	1	4	0.70	Reliant (2018, 2019, 2020, 2021)
1	1		0	0	0	1	1	1	4	0.70	Accountable Care Options (2017, 2018, 2019, 2020)
1	1		0	1	0	1	0	1	3	0.69	Central Utah (2018, 2019, 2020)
1	1		1	1	0	1	1	1	1	0.69	CHESS (2016)
0	0		0	0	0	0	1	1	3	0.66	Torrance (2019, 2020, 2021)
1	1		0	1	1	0	1	1	3	0.64	Franciscan (2018, 2019, 2020)
1	1		1	1	1	0	1	1	7	0.63	Franciscan (2021), St. Luke's (2017, 2018, 2019, 2020, 2021), Trinity (2021)
0	0		1	1	1	1	1	1	1	0.63	HCP (2019)
0	0		0	1	1	1	1	1	2	0.61	HCP (2017, 2018)
1	1		0	1	1	0	0	1	4	0.61	Best Care Collab (2018, 2020, 2021), North Jersey (2018)
1	1		0	1	0	0	1	1	1	0.60	ProHealth (2020)
0	0		1	0	1	1	1	1	5	0.59	APA (2017, 2018, 2019, 2020, 2021)
0	1		0	1	0	1	0	1	1	0.59	CareMount (2019)

↑MARKSPEND	↑MARKCONC		↑ACOSIZE	↑PCPSEMP	↑SPECIALISTS	PHYSNLED	↑MAPEN	Sufficient for Outcome	# of Cases	Consistency Score	Cases
1	1		0	1	0	0	0	1	1	0.58	Best Care Collab (2019)
1	1		1	0	1	1	0	1	1	0.58	ACCC (2017)
0	1		0	1	0	0	1	1	5	0.57	CoxHealth (2020), ProHealth (2019, 2021), ThedaCare (2016, 2018)

Step 3.c.2. Deriving a simplified set of causal pathways

We applied the Quince-McCluskey algorithm—a logical minimization technique—to the truth table data to derive our final, simplified set of causal pathways, using pairwise matching of similar conjunctions.[64] Before performing the algorithm, we prepared two solutions—called conservative[65] and parsimonious[66]—to set boundaries for the minimization procedure and to inform our approach to assessing the truth table rows that were empty (called logical remainders). See **Exhibit B.14** for results.

Next, we derived the intermediate solution—a solution set that lies between those identified in the conservative and parsimonious solutions. The algorithm used to generate the intermediate solution was bounded by a set of directional expectations for how logical remainders were integrated during the minimization process. **Exhibit B.15** lists the pathways composing the intermediate solution.

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[64] In set theory, a conjunction indicates a combining of sets using the Boolean operator "AND."

[65] The conservative solution is based only on truth table rows in which data are available. The solution is based on the most restrictive set of assumptions because the algorithm is not allowed to make logical assumptions about the logical remainders, based on available data. As a result, the conservative solution generally identifies pathways that are more complex, with the potential to include all factors.

[66] The parsimonious solution incorporates all logical remainders when identifying pathways. The algorithm uses logical remainders as simplifying assumptions, to reduce the number of factors and operators in the subsequent pathways identified. There are no restrictions on the assumptions that the algorithm can make to derive the simplest possible solution. As a result, the parsimonious solution generates the simplest pathways (of the three minimizations) that cover the most cases. However, if no constraints are set, the algorithm tends to make assumptions that are unlikely to be true.

Exhibit B.15. QCA Analysis of Sufficiency—Intermediate Solution

Pathway	Sufficiency Consistency Score	Sufficiency Coverage Score	NGACO-PYs	Interim Pathway Label
↑MARKSPEND & ↑MARKCONC & ↓PCPSEMP & not PHYSNLED	0.773	0.247	Mary Washington (2018, 2019, 2020, 2021); MemorialCare (2017), Deaconess (2016, 2017, 201, 2019, 2020, 2021); MPACO (2017, 2018); CHESS (2017, 2019); Steward (2018, 2019); Arizona (2017, 2018, 2019, 2020, 2021); Premier (2017); OSF (2016)	A
↑MARKSPEND & ↑ACOSIZE & ↓PCPSEMP & ↑MAPEN	0.865	0.214	MemorialCare (2016); Arizona (2017, 2018, 2019, 2020, 2021); CHESS (2019); Premier (2017); Optum (2016, 2017); UniPhy (2016, 2018)	B
↑MARKCONC & ↑ACOSIZE & ↓PCPSEMP & ↓SPECTOPCP	0.887	0.280	Bellin (2020); Integra (2018); NatACO (2018); Hill (2018); RHeritage (2018); Steward (2018, 2019); Arizona (2017); CHESS (2019); Premier (2017); Optum (2016, 2017); UniPhy (2016)	C
↑MARKCONC & ↓PCPSEMP & ↑SPECTOPCP & not PHYSNLED	0.770	0.236	Bellin (2017); NW Momentum (2021); Pioneer Valley (2016, 2017, 2018, 2019, 2020, 2021); Triad (2017); Deaconess (2016, 2017, 2018, 2019, 2020, 2021); MPACO (2017, 2018); CHESS (2017); OSF (2016); Arizona (2018, 2019, 2020, 2021)	D
↓MARKSPEND & ↓MARKCONC & ↑MAPEN & ↓PCPSEMP & ↓SPECTOPCP	0.865	0.207	Bellin (2016, 2017, 2018, 2019, 2020, 2021) Integra (2018); Hill (2017, 2018); Rheritage (2018)	E
↑MARKSPEND & ↑MARKCONC & ↓MAPEN & ↓PCPSEMP & ↑SPECTOPCP	0.844	0.241	Deaconess (2016, 2017, 2018, 2019, 2020, 2021); MPACO (2017, 2018); ACCST (2016, 2017); NatACO (2017); Reliance (2018); OSF (2016); ACCC (2017)	F
↓MARKCONC & ↓MAPEN & ↑ACOSIZE & ↓SPECTOPCP & not PHYSNLED	0.871	0.085	Partners (2017, 2018); Steward (2016, 2017)	G
↓MARKSPEND & ↑MARKCONC & ↓MAPEN & ↓ACOSIZE & ↑PCPSEMP	0.810	0.124	ProHealth (2017, 2018); Connected Care (2018); CoxHealth (2018); ProspectNE (2017, 2018)	H

Pathway	Sufficiency Consistency Score	Sufficiency Coverage Score	NGACO-PYs	Interim Pathway Label
↑MARKSPEND & ↑MARKCONC & ↑MAPEN & ↑ACOSIZE & ↓SPECTOPCP & not PHYSNLED	0.829	0.210	Arizona (2017); CHESS (2018, 2019, 2020, 2021); Premier (2017); Henry Ford (2019, 2020, 2021); UTSW (2021)	I
↑MARKSPEND & ↑MARKCONC & ↓MAPEN & ↑ACOSIZE & ↑SPECTOPCP & not PHYSNLED	0.829	0.230	Deaconess (2016, 2017, 2018, 2019); OSF (2016); Trinity (2018, 2019, 2020); UTSW (2018)	J
↓MARKSPEND & ↓MARKCONC & ↑MAPEN & ↑PCPSEMP & ↑SPECTOPCP & not PHYSNLED	0.839	0.050	Prospect (2016); Park Nicollet (2019); Sharp (2017)	K
↓MARKSPEND & ↑MAPEN & ↑ACOSIZE & ↑PCPSEMP & ↑SPECTOPCP & not PHYSNLED	0.804	0.165	Sharp (2017); Park Nicollet (2016, 2017, 2018, 2019, 2020, 2021)	L

We used case-level data to validate the pathways for each NGACO. To facilitate interpretation of the identified causal pathways, we stratified the pathways based on exogenous factors likely to have influenced the NGACOs implementation approach—their organization type and external market characteristics.

For instances in which an NGACO-PY appeared in multiple pathways, we assessed the case-level information to select the pathway that best fit the qualitative and quantitative data; see **Exhibit B.16** for description of the six final causal pathways.

Exhibit B.16. Featured Pathways Identified by the Intermediate Solution

Market concentration	Market spending	Org type	Size	MA penetration	Provider relationships	Final Pathway	Interim Pathway Label
More highly concentrated markets	Markets with higher Medicare spending in the BY	Hospital-affiliated	Agnostic of ACO size	Agnostic of MA penetration	Lower proportion of PCPs employed	1	A, I, J
			Large ACO size	High MA penetration	Lower ratio of specialists to PCPs		
				Low MA penetration	Higher ratio of specialists to PCPs		

Market concentration	Market spending	Org type	Size	MA penetration	Provider relationships	Final Pathway	Interim Pathway Label
More highly concentrated markets	High market spending Agnostic of market spending	Agnostic of org type Hospital-affiliated	Agnostic of ACO size	Low MA penetration Agnostic of MA penetration	Lower proportion of PCPs employed AND Higher ratio of specialists to PCPs	3	D, F
Less concentrated markets	Lower market spending	Agnostic of org type	Agnostic of ACO size	High MA penetration	Lower proportion of PCPs employed AND Lower ratio of specialists to PCPs	2	E
More highly concentrated markets	Agnostic of market spending	Agnostic of org type	Large ACO size	Agnostic of MA penetration	Lower proportion of PCPs employed AND Lower ratio of specialists to PCPs	5	C
Agnostic of market concentration	Lower market spending	Hospital-affiliated	Large ACO size	High MA penetration	Higher proportion of PCPs employed AND Higher ratio of specialists to PCPs	4	L
More highly concentrated markets	Lower market spending	Agnostic of org type	Medium-low ACO size	Lower MA penetration	Higher proportion of PCPs employed	6	H

NOTE: ACO=accountable care organization, MA=Medicare Advantage, PCP=primary care provider.

As shown in **Exhibit B.16**, the six pathways accounted for 47% (59 out of 126) of the NGACO-PYs that failed to achieve spending reductions (spending impact estimates above -2.89%). About 12% (7 out of 59) of the NGACO-PYs in the causal pathways had significant spending increases (spending impact estimates above 3.60-3.83%). NGACO-PYs that had achieved significant spending reductions were not reported in the final featured pathways but can be viewed with their corresponding original pathways in the Truth Table (**Exhibit B.14**). We do not recommend generalizing findings from this analysis because the causal pathways only accounted for a subset of NGACOs that failed to reduce spending.

Exhibit B.17. QCA—Distribution of NGACO-PYs, Identified Pathway Coverage, and Statistical Significance in Total Medicare Parts A and B Gross Spending
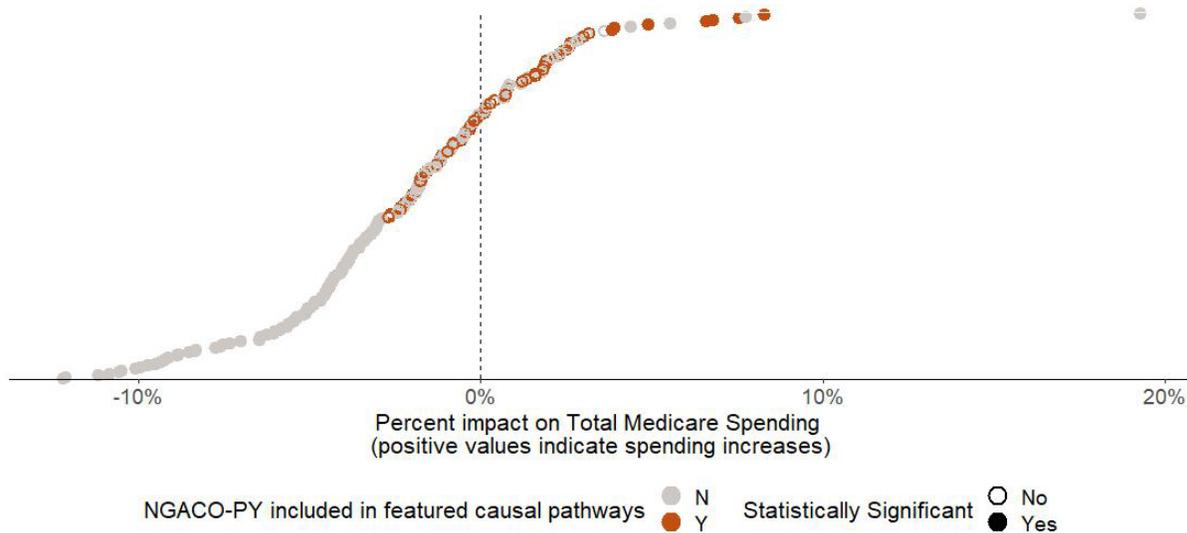
Step 3.d. Sensitivity Testing

To test the robustness of the results to alternate specifications, we analyzed necessity and sufficiency using alternative calibration approaches, for example, by differing the combinations of included factors and choices of meta-factors. The methods are summarized below:

- *Proxy substitution*, to determine whether the exchange of variables that represent similar factors would change the analysis. We compared our proxy for NGACO size with the proxy used for the analysis in the Fourth Evaluation Report.

- *Manual calibration modifications*, to demonstrate the robustness of the factor and the appropriateness of calibration cutoffs for the factors. The analyses were conducted for several conditions and for the outcome measure (percent impact of total Medicare cost of care). Based on the results of the analysis, we could cover a greater proportion of ACO-PYs that failed to achieve spending reductions (up to 51%).

- *Condition inclusion,* to establish the optimal combination of factors that lead to the best possible coverage of cases and detailed, distinct pathways to lack of spending reductions, while achieving robust results.

- *Manual QCA modification*, to explore whether the QCA analysis itself was sensitive to minor adjustments in the code.

We observed that most sensitivity changes led to similar cases being covered by pathways with similar attributes; however, the analysis also showed that the NGACO-PYs that failed to achieve spending reductions were a heterogeneous group difficult to characterize entirely in one QCA. For example, in adjusting the calibration of the outcome to be more extreme toward NGACOs with spending increases (inclusion > 13.76; crossover = 0; exclusion < -2.89), the resulting pathways were highly specific but not

internally distinct (that is, pathways shared several key characteristics); we covered only 10% of NGACO-PYs that failed to achieve spending reductions. However, the covered cases were also covered in the final QCA and pathways identified in our analysis. Findings from the sensitivity analyses do not always include the same pathways and cases, yet common themes and case-level implications remain similar. See **Exhibit B.18** for results of the sensitivity analysis. Our final QCA result included the combination of factors, calibration of the factors and the outcome, and proxy substitution that was best able to describe a high proportion of NGACO-PYs, to provide specific and internally distinct pathways, and to maintain the maximum level of robustness allowed by the data.

Exhibit B.18. QCA—Results of Sensitivity Analysis Approaches and Implications

Sensitivity Analysis	Original Approach	Sensitivity Change	Implications of Analysis
Proxy substitution	Proxy for NGACO-PY size: meta-condition in which the higher calibrated size number is taken (between provider network size and number of aligned beneficiaries)	Proxy for NGACO-PY size: Number of aligned beneficiaries and provider network size as separate conditions included in the QCA	When utilized as separate conditions, the number of aligned beneficiaries and provider network size often appeared together in pathways with the same directionality.
Calibration of conditions	Calibration of hospital HHI as fuzzy (thirds)[67]: <1,500 = 0.333 ≥1,500 & ≤2,500 = 0.667 >2,500 = 1.0	Calibration of hospital HHI as crisp: Crossover = 1,500	Coverage of unique ACO PYs was poorer overall; fewer NGACO-PYs were captured.
		Calibration of hospital HHI as fuzzy: Inclusion > 4,636.57; Crossover = 2,690.96; Exclusion < 874.06	Resulted in less overall coverage of unique NGACO-PYs, with a greater proportion of those covered being physician practice. Captured ACOs were not representative of the total NGACO-PY study population.
	Calibration of baseline market Medicare spending as fuzzy: Inclusion < 9,645.66 Crossover = 10,631.97 Exclusion > 12,360.96	Calibration of baseline market Medicare spending as crisp[68]: Crossover = 10,632	Resulted in many indistinct pathways; fuzzy baseline market Medicare spending was a necessary condition.
	Calibration of Medicare Advantage penetration rate (%) as fuzzy: Inclusion > 58.22% Crossover = 41.53% Exclusion < 22.78%	Calibration of Medicare Advantage penetration rate (%) as crisp: Crossover = 41.53%	Similar output, but with poorer overall coverage of unique ACOs.

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[67] Based on information from the Kaiser Family Foundation: https://www.kff.org/wp-content/uploads/sites/3/2011/09/acos-cory-capps-hospital-market-consolidation-final.pdf.

[68] For crisp calibration, the median value of the condition of all ACO PYs was used as the crossover point.

Sensitivity Analysis	Original Approach	Sensitivity Change	Implications of Analysis
Calibration of the outcome	Fuzzy calibration of the Medicare spending impacts, based on extremes of significance: Inclusion > 3.83 Crossover = -2.89 Exclusion < -6.44	Fuzzy calibration of the Medicare spending impacts, based on medians of significance: Inclusion > 7.15 Crossover = -2.04 Exclusion < -5.38.	Few pathways with fewer conditions included in each pathways (that is, not enough specificity).
		Fuzzy calibration of the Medicare spending impacts, based on a combination of extreme and medians of significance: Inclusion > 3.83 Crossover = 0 Exclusion < -2.89.	Similar output, but with poorer overall coverage of unique ACOs
		Fuzzy calibration of the Medicare spending impacts, based on the results of a cluster analysis and outcome distribution: Inclusion > 13.76 Crossover = 0 Exclusion < -2.89	Few pathways with fewer conditions included in each pathways (that is, not enough specificity).
		Crisp calibration of the Medicare spending impacts based on significance: Crossover = -2.89	Similar output, but with poorer overall coverage of unique ACOs
Condition inclusion	Seven included QCA conditions: Fuzzy set: baseline market spending, ACO size, ratio of specialists to PCPs, hospital HHI (thirds), ACO relationship with providers (3 levels), and MA penetration rate Crisp set: organization type	Eight included QCA conditions: Add to crisp set: provider leakage (%)	N/A; logical minimization algorithm did not converge
		Seven included QCA conditions: Swap provider leakage (%; crisp set) for ratio of specialists to PCPs	Few resulting pathways, few conditions contained within each pathway (less specificity)
		Seven included QCA conditions: Swap MA penetration rate for ACO years of experience	Less specificity within pathways; ACO years of experience not a necessary condition

Sensitivity Analysis	Original Approach	Sensitivity Change	Implications of Analysis
QCA code modification	Minimum inclusion score: 0.8	Minimum inclusion score: 0.75	N/A; logical minimization algorithm did not converge
		Minimum inclusion score: 0.85	Indistinct pathways that largely covered the same ACOs
	Intermediate solution	Conservative solution	Similar output, with less specificity within pathways
		Parsimonious solution	Similar output, with fewer conditions included per pathway but the exact same ACO PYs included

Step 4. Integrate quantitative and qualitative data to validate and interpret causal pathways

After identifying the causal pathways, we used qualitative and quantitative data to identify additional shared factors (related to NGACO context, structure, and implementation) that might help explain each pathway. First, we assessed whether patterns in Medicare spending by service area (that is, acute care/hospital, outpatient, SNF, and professional services) for NGACOs in each pathway differed when compared with other NGACOs. Next, we explored additional shared structural and contextual factors of the NGACOs in each causal pathway (for example, market competitiveness, NGACO provider network size and structure) and how that differed across pathways. Lastly, case-level qualitative information was used to assess how these factors may have collectively influenced NGACOs' population health management strategies and implementation activities.

For each NGACO associated with a QCA pathway, we reviewed qualitative data collected during baseline interviews, site visits, and virtual site visits with the NGACOs (conducted between March 2017 and March 2019). We extracted qualitative data in the following categories:

- NGACOs' perception of their market environment and competition
- NGACOs' perceptions of the beneficiary characteristics and needs
- NGACO organization type and structure
- Reasoning behind risk-level selection
- Past value-based, MA, or ACO experience (commercial, Medicare and/or Medicaid)
- An overview of care management provided by the NGACO; description of NGACO provider networks (individual practitioners and facilities)
- Evidence of NGACOs leveraging economies of scale (for example, health IT infrastructure, or replicating or applying existing processes and resources to the NGACO Model)
- NGACO leadership perceptions of sustainability or possibility of success in the model

Appendix C: Exhibits to Support Chapter 1

This appendix presents supplemental exhibits that support the overview of the NGACO model and of the evaluation presented in Chapter 1. The exhibits depict ACO participation in the model by PY and by cohort **(Exhibit C.1)**, summarize baseline characteristics of PY 6 NGACO and non-NGACO markets (Exhibit C.2), and list hypotheses for model outcomes (Exhibit C.3).

Exhibit C.1. ACO Participation by Performance Year (PY) and by Cohort
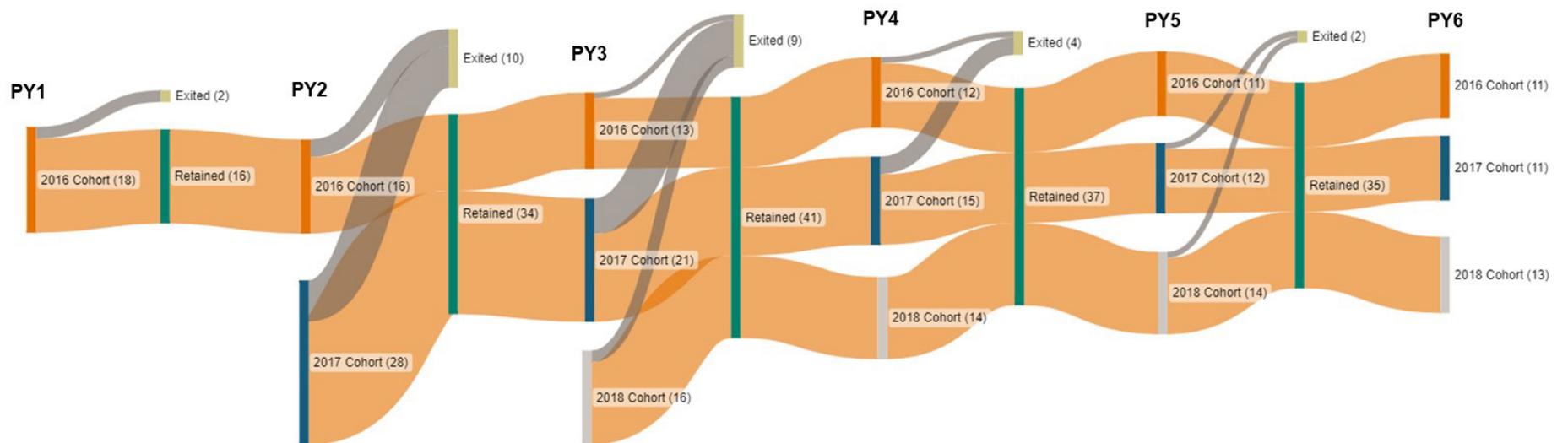
SOURCE: NORC analysis of organizational data from PY 1 through PY 6.

Exhibit C.2. Baseline Characteristics of NGACO and non-NGACO Markets

	NGACO Markets Average (Range)	Non-NGACO Markets Average (Range)
Number of FFS Medicare Beneficiaries per HRR, 2015*	139,665 (18,007 – 643,200)	79,845 (16,965 – 545,205)
Percent of HRR Population in Rural Areas, 2015*	21% (0% – 100%)	34% (0% – 100%)
Std. Risk-Adjusted Per Capita HRR Medicare Spending, 2015	$9,006 ($6,909 – $11,011)	$9,119 ($6,376 – $10,681)
MA Penetration Rate, 2015 (%)*	33 (7 – 67)	29 (1 – 62)
Hospital Market Concentration, 2015 (HHI)*	3,162 (492 – 10000)	3,908 (996 – 10,000)
Medicare ACO Penetration, 2015 (%)*	27 (0 – 70)	16 (0 – 73)
Physician Practice Market Concentration, 2015 (HHI)*	584 (29 – 5,055)	875 (81 – 4,859)

NOTES: HHI = Herfindahl-Hirschman Index. The HHI ranges from 0 to 10,000. Markets with an HHI from 1,500 to 2,500 are considered moderately concentrated. Markets with an HHI larger than 2,500 are highly concentrated. Calculation of hospital HHI considers common market share for hospitals within a health system. Physician practice HHI computed from Medicare Data on Physician and Physician Specialties (MD-PPAS) does not distinguish practices (defined as tax identification numbers [TINs]) with shared ownership and therefore may understate the degree of practice concentration across markets. Where noted, the differences between the groups are statistically significant at p<0.1*, <0.05**, and <0.01***.
SOURCE: NORC analysis of NGACO programmatic data and NGACO beneficiary data linked to Medicare Claims, Medicare Geographic Variation Public Use File, and ancillary data; Medicare Geographic Variation Public Use File, 2015; American Community Survey 5-year estimates, 2015; Federal Office of Rural Health Policy Rural Zip Code; American Hospital Association Survey and Provider of Service Current File, 2015; Master Data Management beneficiary file, 2015; Medicare Data on Physician Practice and Specialty, 2015.

Exhibit C.3. Hypotheses for Model Outcomes—Characteristics of NGACOs Associated with Larger Reductions in Medicare Parts A & B Spending

Hypotheses Based on Prior Findings (PYs 1-5)

NGACOs realizing higher gross-spending reductions under the NGACO Model will be associated with:

- operating in **markets with higher per-capita Medicare spending**

- using practitioners and provider organizations with **more experience in Medicare ACOs**

- having aligned **beneficiaries with greater clinical need** (e.g., more chronic conditions)

- having aligned beneficiaries exhibiting fewer indicators of **need for social and other supports** such as a smaller share of dually eligible beneficiaries or disabled beneficiaries

- electing **higher levels of financial risk and PBP arrangement**

Physician practice-affiliated NGACOs will have **larger spending reductions** in **acute care hospital spending** compared to hospital-affiliated NGACOs

Hospital-affiliated NGACOs will have **greater spending reductions** in professional services spending than NGACOs compared to **physician practice-affiliated** NGACOs

New Hypotheses for PY 6

- NGACOs that included providers and beneficiaries participating in other episodic models may have had larger spending reductions

- NGACOs that communicated with SNF partners regularly and exchanged data had higher reductions in SNF stays, days, and spending

- NGACOs that offered financial incentives to providers or shared data with providers were more likely to have successful outcomes in reducing total Medicare spending or improving claims-based quality of care

- NGACOs that had fully implemented population health management strategies to address their priorities were more likely to have successful outcomes in reducing total Medicare spending or improving claims-based quality of care

- NGACOs that managed their beneficiary population's needs across the continuum of care were more likely to have successful outcomes

Appendix D: Exhibits to Support Chapter 2

This appendix presents supplemental exhibits that support the summary discussion of model impacts on spending, utilization, and quality of care presented in Chapter 2. The exhibits provide descriptive characteristics of NGACO-aligned and comparison group beneficiaries, estimated impacts on gross and net Medicare spending by cohort, estimated impacts on utilization and quality of care by cohort, and estimated impacts for selected ACO subgroups, as follows:

- Descriptive Characteristics of NGACO-Aligned and Propensity Score-Weighted Comparison Beneficiaries for the 2016 Cohort (**Exhibit D.1**), the 2017 Cohort (**Exhibit D.2**), and the 2018 Cohort (**Exhibit D.3**), BYs and PY 6

- Differences in Gross Spending Between NGACO and Comparison Groups Increased Across PYs (**Exhibit D.4**)

- Estimated Impacts on Gross (**Exhibit D.5**) and Net (**Exhibit D.6**) Medicare Spending and Estimated Aggregate Impacts by Cohort, Cumulative and by PY

- Estimated Gross and Net Impacts by Cohort on Medicare Spending, Cumulative and by PY (**Exhibit D.7**)

- NGACO-Level Impact on Gross Medicare Spending PBPY, Cumulative (**Exhibit D.8**) and in PY 6 (**Exhibit D.9**)

- Model-level Estimated Impacts on Medicare Spending and Utilization by Care Setting (**Exhibits D.10–D.17**) and by Quality of Care (**Exhibit D.18**), Cumulative and by PY

- Percentage of Total Gross Medicare Spending by Care Setting in BY(s) for NGACOs in PY 6 (**Exhibit D.19**)

- Patterns of Care
  - NGACO Stickiness (Mean), Model-Wide and by Cohort, in PY 6 and Cumulative (**Exhibit D.20**)
  - NGACO Stickiness (Mean), Model-Wide Cumulative and by PY (**Exhibit D.21**)
  - NGACO Direct Spillover (Mean) on Comparison Group from NGACO providers, Model-Wide and for Cohorts, in PY 6 and Cumulative (**Exhibit D.22**)
  - NGACO Direct Spillover (Mean) on Comparison Group from NGACO providers, Model-Wide Cumulative and by PY (**Exhibit D.23**)

- Impacts by NGACO
  - Cumulative Gross Spending Impacts as of PY 6 (**Exhibit D.24**)
  - Gross Spending Impacts in PY 6 and Preceding PYs (**Exhibit D.25**)
  - Cumulative Gross Spending and Shared Savings/Losses for NGACOs that Remained in the Model (**Exhibit D.26**) and Exited the Model (**Exhibit D.27**), by Cohort, as of PY 6

- Estimated Gross Spending Impacts and Shared Savings / Losses for NGACOs that Remained in the Model and Exited (**Exhibits D.28–D.31**), on Average and in Each PY

- NGACOs With Less Than Five Years of Prior Experience as a Medicare ACO Were More Likely to Withdraw From the Model Than Those With At Least Five Years of Experience (**Exhibit D.32**)

Exhibit D.1.   Descriptive Characteristics of NGACO-Aligned and Propensity Score-Weighted Comparison Beneficiaries for the 2016 Cohort, BYs and PY 6

Characteristics	Baseline Years (BYs)		PY 6		Differential Change†
	NGACO	Comparison	NGACO	Comparison	
Number of beneficiaries	893,274	893,074	336,914	342,972	-
Total person-months	10,278,345	10,381,484	3,913,347	3,985,084	-
Variables Included in propensity score models					
Mean months of alignment (±standard deviation [SD])	11.5 ± 1.9	11.6 ± 1.8	11.6 ± 1.6	11.6 ± 1.8	0.094***
Mean age (years ± SD)	72.9 ± 12.6	72.9 ± 12.7	73.7 ± 11.0	73.6 ± 11.1	0.143***
Gender (%)					
Male	41.5	41.5	42.9	43.1	-0.003
Race/ethnicity (%)					
White	85.6	85.8	86.5	86.6	0.001
Black	8.7	8.6	6.4	6.5	-0.001
Hispanic	3.4	3.2	2.9	2.9	-0.001**
Asian	1.1	1.1	1.3	1.3	0.000
Other	1.2	1.2	2.9	2.8	0.001*
Disability/ESRD (%)					
Disability	16.3	16.4	10.9	11.2	-0.003*
ESRD	1.1	1.2	0.9	1.0	-0.000
Coverage (%)					
Any dual eligibility	19.9	20.4	14.6	15.1	-0.000
Any Part D coverage	72.4	73.0	79.5	80.0	0.001
Chronic conditions					
Mean no. of chronic conditions (± SD)	4.8 ± 3.4	4.9 ± 3.5	5.2 ± 3.7	5.3 ± 3.8	-0.006
Alzheimer's/dementia (%)	8.4	8.8	7.3	7.9	-0.001
Chronic kidney disease (%)	16.4	16.7	25.6	26.2	-0.003
COPD (%)	10.7	10.9	9.5	9.6	-0.000
Congestive heart failure (%)	13.0	13.2	13.1	13.4	0.000
Diabetes (%)	28.3	28.3	26.3	26.4	-0.001

Characteristics	Baseline Years (BYs)		PY 6		Differential Change†
	NGACO	**Comparison**	**NGACO**	**Comparison**	
Ischemic heart disease (%)	26.9	27.0	24.3	24.6	-0.002
Depression (%)	17.7	17.9	20.3	20.4	0.001
RA/OA (%)	30.7	30.8	33.9	34.0	0.000
Stroke/TIA (%)	3.4	3.4	2.7	2.8	0.000
Cancer (%)	8.8	8.9	9.4	9.3	0.002
Mortality (%)					
Death in reference period	4.2	5.0	4.1	5.0	-0.002
Community characteristics					
Median income ($ ± SD)	56,196.1 ± 21,572.4	55,805.4 ± 20,597.0	70,151.9 ± 26,724.3	69,947.8 ± 25,677.5	-186.557*
Below federal poverty line (% ± SD)	13.8 ± 8.8	13.6 ± 8.7	11.0 ± 7.0	10.9 ± 7.0	0.027
Bachelor's degree or higher (% ± SD)	27.8 ± 15.5	27.5 ± 15.3	33.1 ± 16.7	32.9 ± 16.4	-0.006
Rurality (%)	22.8	22.6	22.2	22.1	-0.001
Alignment-eligible providers within 10-mile radius of beneficiary ZIP code (per 1,000 population ± SD)‡	1.8 ± 1.1	1.8 ± 1.1	3.3 ± 1.1	3.3 ± 1.2	0.028***
Variables excluded from propensity score and regression models					
Hospital referral region (HRR) characteristics					
ACO penetration rate (% ± SD)	25.6 ± 16.5	26.0 ± 16.7	47.0 ± 10.5	47.3 ± 10.6	0.140***
Medicare Advantage (MA) penetration rate (% ± SD)	28.7 ± 13.7	28.9 ± 13.7	43.2 ± 13.1	43.6 ± 13.3	-0.214***
Hospital HHI (± SD)	3,049.8 ± 1,486.0	3,097.7 ± 1,516.7	3,787.4 ± 1,623.22	3,859.6 ± 1,684.4	-24.211***
Practice HHI (± SD)	591.3 ± 551.8	590.8 ± 546.3	760.4 ± 573.6	749.3 ± 562.4	10.747***
Hospital beds (per 1,000 ± SD)	2.8 ± 0.8	2.8 ± 0.8	2.7 ± 0.7	2.7 ± 0.7	0.011***
Alignment-eligible providers (per 1,000 population ± SD)	1.4 ± 0.3	1.4 ± 0.3	2.1 ± 0.5	2.0 ± 0.5	0.010***
Participation in Medicare ACOs (%)					
NGACO	0.0	0.0	100.0	0.0	-
Pioneer / Medicare Shared Savings Program (SSP) ACO	55.8	13.2	0.0	7.4	-
Participation in Other CMMI initiatives (%)					
Financial Alignment Demonstration	0.0	0.0	0.0	0.0	-
Independence at Home	0.0	0.1	0.0	0.0	-

Characteristics	Baseline Years (BYs)		PY 6		Differential Change†
	NGACO	Comparison	NGACO	Comparison	
Comprehensive Primary Care Classic or Plus	0.8	0.3	0.0	6.1	-
Multi-Payer Advanced Primary Care	0.0	0.0	0.0	0.0	-
Participation in Episodic CMS initiatives (%)					
Bundled Payments for Care Improvement (BPCI) Initiative Classic or Advanced	0.5	0.5	0.0	1.4	-
Comprehensive Care for Joint Replacement (CJR) Model	0.0	0.0	0.0	0.0	-
Oncology Care Model (OCM)	0.0	0.0	0.4	0.5	-

NOTES: $p<0.1$* $p<0.05$**, $p<0.01$***. † Differential change represents the change in the NGACO group minus the change in the comparison group, from BYs to PY 6. Where the differential change was less than 0.1, we did not denote statistical significance. COPD=chronic obstructive pulmonary disease; ESRD=end-stage renal disease. HHI=Herfindahl-Hirschman Index, a measure of the degree of market concentration or competition (higher HHI means more concentrated market, while lower HHI means more competitive market). The denominator for ACO penetration rate was the number of Medicare fee-for-service (FFS) beneficiaries with Part A and B coverage; the denominator for the MA penetration rate was the total number of Medicare beneficiaries with Part A and B coverage. OA=osteoarthritis, RA=rheumatoid arthritis, TIA=transient ischemic attack. Community characteristics were at the ZIP code level. ‡ Alignment eligible providers per 1,000 persons based on the total population (not restricted to the Medicare population). Specified HRR characteristics were not included in propensity score (PS) or difference-in-differences (DID) regression models; rather, we accounted for changes in the HRR characteristics over time by including HRR fixed effects, along with year fixed effects, in our PS and DID analysis. The HRR characteristics were weighted to the proportion of NGACO and comparison beneficiaries in the HRRs in the BYs and PY.
SOURCE: NORC analysis of Medicare enrollment and claims data, 2013-2021 and ancillary data.

Exhibit D.2. Descriptive Characteristics of NGACO-Aligned and Propensity Score-Weighted Comparison Beneficiaries for the 2017 Cohort, BYs and PY 6

Characteristics	Baseline Years (BYs)		PY 6		Differential Change†
	NGACO	Comparison	NGACO	Comparison	
Number of beneficiaries	1,034,531	1,023,128	396,406	399,635	-
Total person-months	11,938,974	11,921,273	4,619,310	4,667,543	-
Variables included in propensity score models					
Mean months of alignment (±standard deviation [SD])	11.5 ± 1.8	11.7 ± 1.7	11.7 ± 1.6	11.7 ± 1.6	0.085***
Mean age (years ± SD)	73.3 ± 11.5	73.3 ± 11.6	74.4 ± 9.9	74.4 ± 9.9	-0.006
Gender (%)					
Male	41.7	41.8	42.8	43.1	-0.206
Race/ethnicity (%)					
White	80.2	80.9	82.0	82.2	0.399***
Black	6.8	6.7	4.9	4.8	0.061
Hispanic	4.5	4.3	3.8	3.7	-0.079

Characteristics	Baseline Years (BYs)		PY 6		Differential Change†
	NGACO	Comparison	NGACO	Comparison	
Asian	6.7	6.3	6.1	6.1	-0.375***
Other	1.8	1.8	3.2	3.2	-0.006
Disability/ESRD (%)					
Disability	13.3	13.2	7.7	7.7	-0.096
ESRD	1.1	1.2	0.7	0.7	-0.022
Coverage (%)					
Any dual eligibility	21.9	21.7	14.5	14.6	-0.357***
Any Part D coverage	72.3	72.9	77.2	77.6	0.141
Chronic Conditions					
Mean no. of chronic conditions (± SD)	5.1 ± 3.6	5.1 ± 3.6	5.3 ± 3.7	5.3 ± 3.8	-0.009
Alzheimer's/dementia (%)	9.3	9.5	8.4	8.7	-0.057
Chronic kidney disease (%)	19.1	19.2	27.7	28.0	-0.151
COPD (%)	10.7	10.8	9.1	9.2	0.017
Congestive heart failure (%)	12.8	13.0	12.2	12.5	-0.037
Diabetes (%)	29.7	29.7	27.7	27.8	-0.143
Ischemic heart disease (%)	28.1	28.2	26.6	26.9	-0.097
Depression (%)	18.3	18.5	19.1	19.2	0.054
RA/OA (%)	33.5	33.5	36.3	36.5	-0.097
Stroke/TIA (%)	3.6	3.6	2.9	2.9	-0.003
Cancer (%)	8.7	8.8	9.5	9.6	-0.057
Mortality (%)					
Death in reference period	3.8	4.4	3.7	4.3	0.013
Community characteristics					
Median income ($ ± SD)	59,478.1 ± 23,047.9	59,253.8 ± 22,880.2	75,089.5 ± 27,936.7	74,827.4 ± 27,751.0	37.779
Below federal poverty line (% ± SD)	14.2 ± 8.6	14.1 ± 8.6	10.9 ± 6.7	10.9 ± 6.8	-0.053**
Bachelor's degree or higher (% ± SD)	31.5 ± 17.0	31.3 ± 16.8	36.6 ± 17.6	36.4 ± 17.7	-0.030
Rurality (%)	17.0	17.6	16.3	17.0	-0.154
Alignment-eligible providers within 10-mile radius of beneficiary ZIP code (per 1,000 population ± SD)‡	1.8 ± 1.2	1.8 ± 1.2	3.0 ± 1.2	3.0 ± 1.2	-0.006
Variables excluded from propensity score and regression models					
Hospital referral region (HRR) characteristics					
ACO penetration rate (% ± SD)	25.8 ± 13.6	25.9 ± 13.7	44.0 ± 11.3	43.9 ± 11.4	0.106***

Characteristics	Baseline Years (BYs)		PY 6		Differential Change†
	NGACO	Comparison	NGACO	Comparison	
Medicare Advantage (MA) penetration rate (% ± SD)	31.1 ± 10.6	30.9 ± 10.6	42.5 ± 8.9	42.4 ± 9.0	-0.072***
Hospital HHI (± SD)	2,314.8 ± 1,698.0	2,348.0 ± 1,712.7	2,638.3 ± 1,703.9	2,664.0 ± 1,720.1	7.448
Practice HHI (± SD)	370.4 ± 370.6	376.2 ± 376.4	416.9 ± 377.5	420.4 ± 380.9	2.228*
Hospital beds (per 1,000 ± SD)	2.4 ± 0.6	2.4 ± 0.7	2.2 ± 0.7	2.2 ± 0.7	-0.001
Alignment-eligible providers (per 1,000 population ± SD)	1.4 ± 0.3	1.3 ± 0.3	2.0 ± 0.5	2.0 ± 0.5	-0.002
Participation in Medicare ACOs (%)					
NGACO	0.0	0.0	100.0	0.0	-
Pioneer/ Medicare Shared Savings Program (SSP) ACO	52.1	13.7	0.0	8.5	-
Participation in Other CMMI initiatives (%)					
Financial Alignment Demonstration	0.3	0.2	0.0	0.2	-
Independence at Home	0.1	0.2	0.0	0.1	-
Comprehensive Primary Care Classic or Plus	0.0	0.4	0.0	1.0	-
Multi-payer Advanced Primary Care	0.0	0.0	0.0	0.0	-
Participation in Episodic CMS initiatives (%)					
Bundled Payments for Care Improvement (BPCI) Initiative Classic or Advanced	0.9	1.0	0.0	1.7	-
Comprehensive Care for Joint Replacement (CJR) Model	0.1	0.1	0.0	0.0	-
Oncology Care Model	0.2	0.2	1.0	1.1	-

NOTES: p<0.1* p<0.05**, p<0.01***. † Differential change represents the change in the NGACO group minus the change in the comparison group, from BYs to PY 6. Where the differential change is less than 0.1, we did not denote statistical significance. COPD=chronic obstructive pulmonary disease, ESRD=end-stage renal disease. HHI=Herfindahl-Hirschman Index, a measure of the degree of market concentration or competition (higher HHI means more concentrated market, while lower HHI means more competitive market). The denominator for ACO penetration rate was the number of Medicare fee-for-service (FFS) beneficiaries with Part A and B coverage; the denominator for the MA penetration rate was total number of Medicare beneficiaries with Part A and B coverage. OA=osteoarthritis, RA=rheumatoid arthritis, TIA=transient ischemic attack. Community characteristics were at the ZIP code level. ‡ Alignment eligible providers per 1,000 persons based on the total population (not restricted to the Medicare population). Specified HRR characteristics were not included in propensity score (PS) or difference-in-differences (DID) regression models; rather, we accounted for changes in the HRR characteristics over time by including HRR fixed effects along with year fixed effects, in our PS and DID analysis.
SOURCE: NORC analysis of Medicare enrollment and claims data, 2014-2021 and ancillary data.

Exhibit D.3. Descriptive Characteristics of NGACO-Aligned and Propensity Score-Weighted Comparison Beneficiaries for the 2018 Cohort, BYs and PY 6

Characteristics	Baseline Years (BYs)		PY 6		Differential Change†
	NGACO	**Comparison**	**NGACO**	**Comparison**	
Number of beneficiaries	668,549	664,629	241,932	242,049	-
Total person-months	7,745,876	7,741,735	2,820,372	2,825,611	-
Variables included in propensity score models					
Mean months of alignment (±standard deviation [SD])	11.6 ± 1.8	11.6 ± 1.7	11.7 ± 1.6	11.7 ± 1.6	0.046***
Mean age (years ± SD)	73.8 ± 11.2	73.8 ± 11.3	74.7 ± 10.0	74.6 ± 10.2	0.117***
Gender (%)					
Male	42.5	42.6	42.8	43.1	-0.002
Race/ethnicity (%)					
White	85.9	85.8	86.9	86.9	-0.000
Black	7.1	7.2	5.1	5.1	0.001
Hispanic	2.6	2.6	2.4	2.4	-0.000
Asian	2.3	2.2	2.2	2.2	-0.000
Other	2.2	2.2	3.4	3.4	-0.000
Disability/ESRD (%)					
Disability	12.2	12.1	8.0	8.2	-0.002*
ESRD	0.9	0.9	0.5	0.5	0.000
Coverage (%)					
Any dual eligibility	16.2	16.4	11.9	12.2	-0.000
Any Part D coverage	73.5	74.2	77.6	77.8	0.005***
Chronic conditions					
Mean no. of chronic conditions (± SD)	5.2 ± 3.6	5.2 ± 3.7	5.5 ± 3.7	5.5 ± 3.8	0.005
Alzheimer's/dementia (%)	8.6	8.9	7.9	8.2	-0.000
Chronic kidney disease (%)	20.1	20.3	27.5	27.5	0.001
COPD (%)	10.8	10.9	9.9	10.0	0.000
Congestive heart failure (%)	12.8	13.0	12.4	12.6	0.001
Diabetes (%)	28.3	28.3	26.1	26.1	0.000
Ischemic heart disease (%)	28.9	29.1	27.9	28.0	0.001
Depression (%)	18.0	18.2	20.0	20.2	-0.000
RA/OA (%)	33.9	34.0	35.8	35.8	0.000
Stroke/TIA (%)	3.8	3.9	3.1	3.3	-0.000

Characteristics	Baseline Years (BYs)		PY 6		Differential Change†
	NGACO	Comparison	NGACO	Comparison	
Cancer (%)	9.6	9.7	10.1	10.1	0.000
Mortality (%)					
Death in reference period	3.9	4.4	3.8	4.4	-0.001
Community characteristics					
Median income ($ ± SD)	65,607.9 ± 27,373.2	65,185.2 ± 26,480.1	77,856.7 ± 29,829.5	77,901.8 ± 29,520.6	-467.795***
Below federal poverty line (% ± SD)	12.5 ± 8.5	12.5 ± 8.5	10.2 ± 6.9	10.0 ± 6.8	0.162***
Bachelor's degree or higher (% ± SD)	34.6 ± 17.5	34.8 ± 17.7	38.4 ± 17.6	38.5 ± 17.8	0.088
Rurality (%)	9.2	9.6	9.3	9.4	0.002**
Alignment-eligible providers within 10-mile radius of beneficiary ZIP code (per 1,000 population ± SD)‡	2.1 ± 1.3	2.1 ± 1.3	3.4 ± 1.2	3.4 ± 1.2	0.005
Variables excluded from propensity score and regression models					
Hospital referral region (HRR) characteristics					
ACO penetration rate (% ± SD)	29.3 ± 14.7	29.3 ± 14.7	42.1 ± 13.6	42.1 ± 13.7	-0.043
Medicare Advantage (MA) penetration rate (% ± SD)	33.3 ± 10.0	33.2 ± 10.0	42.7 ± 9.2	42.7 ± 9.2	-0.075**
Hospital HHI (± SD)	2,120.3 ± 1,207.0	2,119.2 ± 1,209.3	2,490.1 ± 1,142.3	2,503.1 ± 1,154.3	-13.973***
Practice HHI (± SD)	463.0 ± 562.1	463.2 ± 564.1	525.9 ± 550.2	534.0 ± 560.4	-7.849***
Hospital beds (per 1,000 ± SD)	2.5 ± 0.6	2.5 ± 0.6	2.4 ± 0.5	2.4 ± 0.4	0.006***
Alignment-eligible providers (per 1,000 population ± SD)	1.7 ± 0.5	1.7 ± 0.5	2.2 ± 0.5	2.2 ± 0.5	0.004**
Participation in Medicare ACOs (%)					
NGACO	0.0	0.0	100.0	0.0	-
Pioneer / Medicare Shared Savings Program (SSP) ACO	48.9	10.7	0.0	7.6	-
Participation in Other CMMI initiatives (%)					
Financial Alignment Demonstration	0.0	0.0	0.0	0.0	-
Independence at Home	0.0	0.0	0.0	0.0	-
Comprehensive Primary Care Classic or Plus	2.3	2.9	0.0	5.2	-
Multi-payer Advanced Primary Care	0.0	0.0	0.0	0.0	-

Characteristics	Baseline Years (BYs)		PY 6		Differential Change†
	NGACO	**Comparison**	**NGACO**	**Comparison**	
Participation in Episodic CMS initiatives (%)					
Bundled Payments for Care Improvement (BPCI) Initiative Classic or Advanced	1.6	1.4	0.0	1.7	-
Comprehensive Care for Joint Replacement (CJR) Model	0.3	0.3	0.0	0.1	-
Oncology Care Model	0.4	0.3	0.5	0.6	-

NOTES: $p<0.1$* $p<0.05$**, $p<0.01$***. † Differential change represents the change in the NGACO group minus the change in the comparison group, from BYs to PY 6. Where the differential change is less than 0.1, we did not denote statistical significance. COPD=chronic obstructive pulmonary disease, ESRD=end-stage renal disease. HHI=Herfindahl-Hirschman Index, a measure of the degree of market concentration or competition (higher HHI means more concentrated market, while lower HHI means more competitive market). The denominator for ACO penetration rate was the number of Medicare fee-for-service (FFS) beneficiaries with Part A and B coverage; the denominator for the MA penetration rate was the total number of Medicare beneficiaries with Part A and B coverage. OA=osteoarthritis, RA=rheumatoid arthritis, TIA=transient ischemic attack. Community characteristics were at the ZIP code level. ‡ Alignment eligible providers per 1,000 persons based on the total population (not restricted to the Medicare population). Specified HRR characteristics were not included in propensity score (PS) or difference-in-differences (DID) regression models; rather, we accounted for changes in the HRR characteristics over time by including HRR fixed effects, along with year fixed effects, in our PS and DID analysis.
SOURCE: NORC analysis of Medicare enrollment and claims data, 2014-2021 and ancillary data.

Exhibit D.4. Differences in Gross Spending Between NGACO and Comparison Groups Increased Across PYs
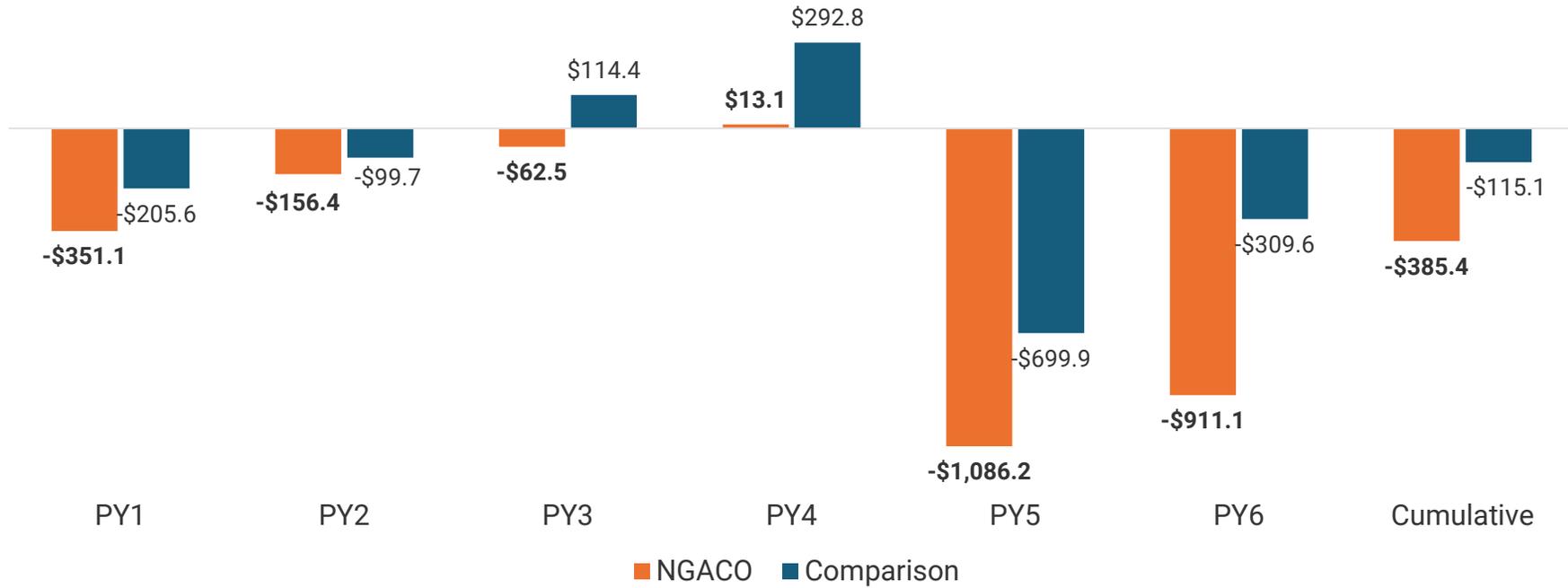
NGACO █ Comparison

NOTES: Bars denote differences in total adjusted Medicare spending per beneficiary per year (PBPY), relative to baseline. Orange bars represent the NGACO group and blue bars represent the comparison group, from PY 1 through PY 6 of the model and cumulatively as of PY 6.

Exhibit D.5. Estimated Impacts on Gross Medicare Spending and Estimated Aggregate Impacts by Cohort, Cumulative and by PY
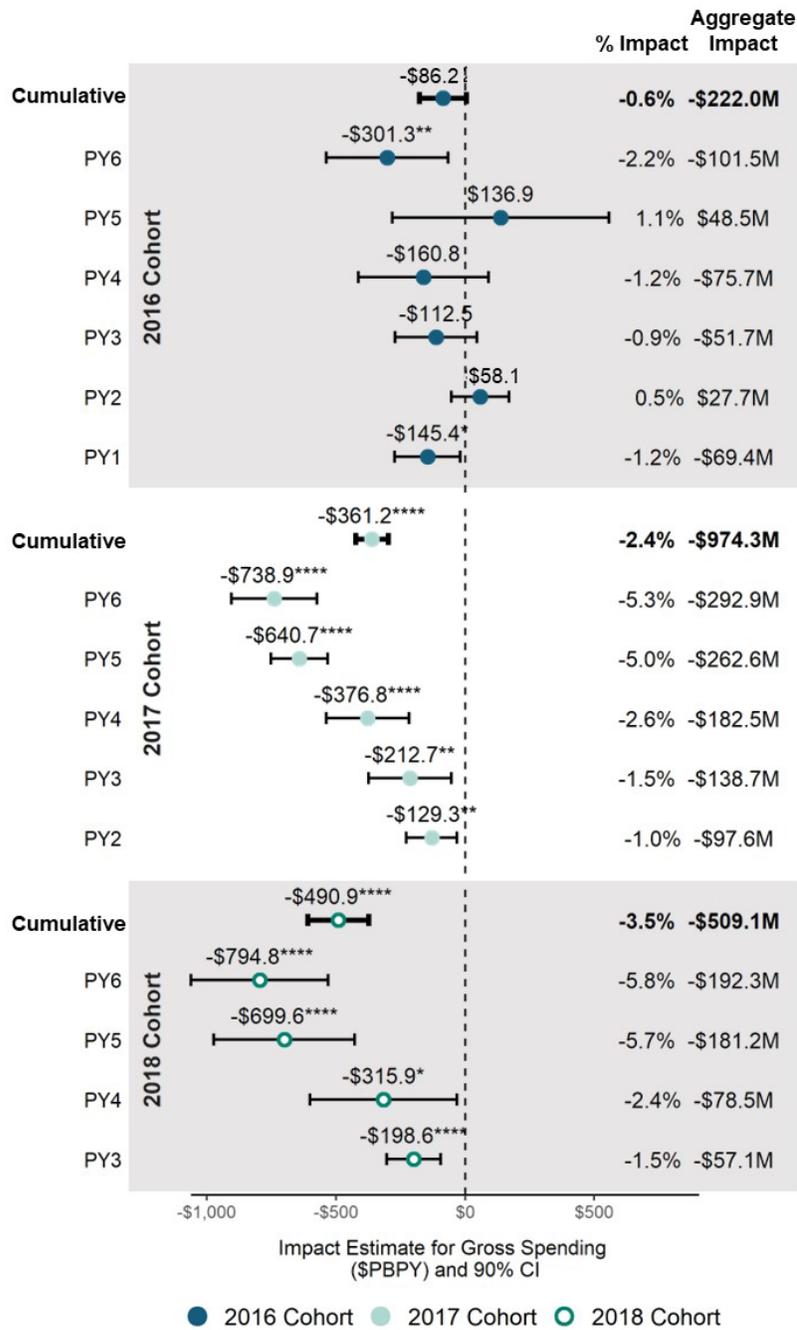
NOTES: Estimated impacts per beneficiary per year (PBPY) significant at *p<0.1, **p<0.05, ***p<0.01, ****p<0.005. Estimated gross spending impact was the difference-in-differences (DID) estimate of the NGACO Model on Medicare Parts A and B spending. The 90% confidence intervals are depicted as bars around the estimates. Impact for the cohorts in each PY reflected impacts for their NGACOs and providers active in the model in the PY. Cumulative impact was the summary impact from PY 1 through PY 6 of the model. Percentage impact was the impact relative to expected spending for NGACO beneficiaries in PY(s) absent the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit D.6. Estimated Impacts on Net Medicare Spending and Estimated Aggregate Impacts by Cohort, Cumulative and by PY
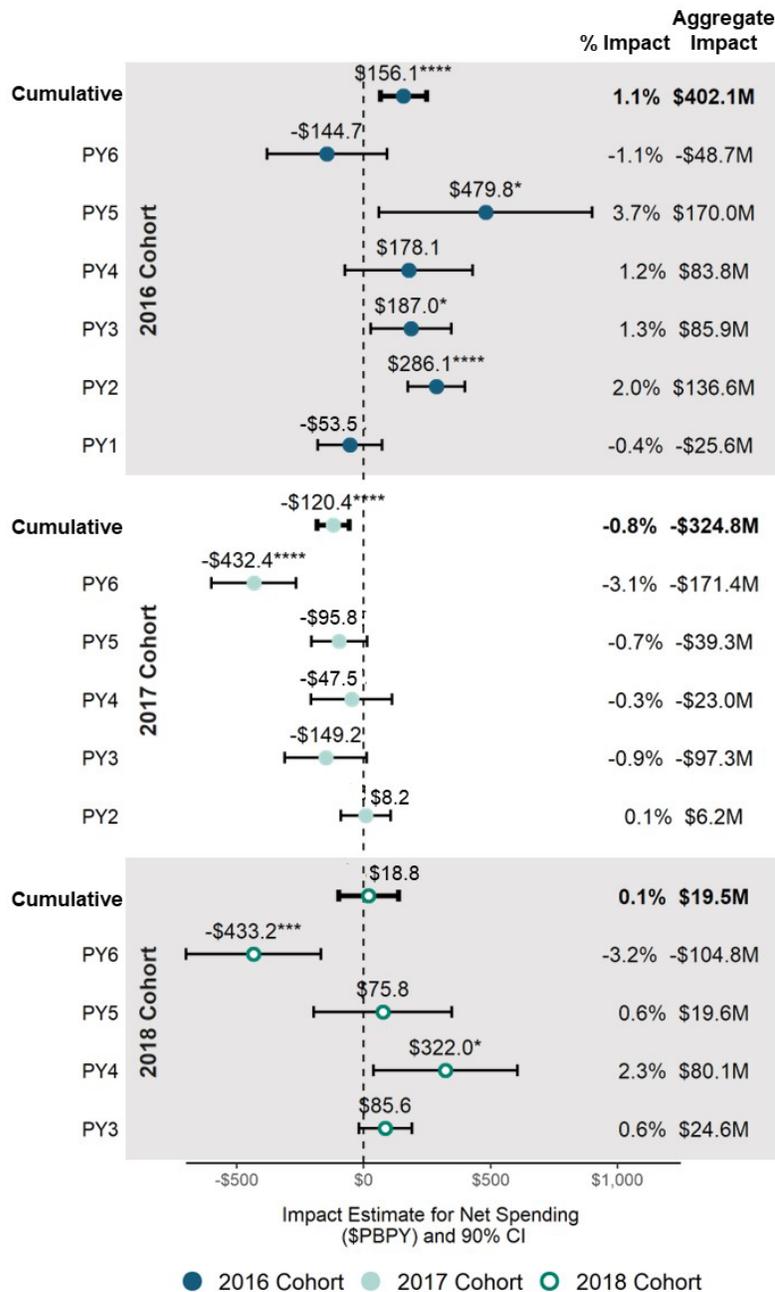
		Aggregate	
		% Impact	Impact
2016 Cohort			
Cumulative	$156.1****	1.1%	$402.1M
PY6	-$144.7	-1.1%	-$48.7M
PY5	$479.8*	3.7%	$170.0M
PY4	$178.1	1.2%	$83.8M
PY3	$187.0*	1.3%	$85.9M
PY2	$286.1****	2.0%	$136.6M
PY1	-$53.5	-0.4%	-$25.6M
2017 Cohort			
Cumulative	-$120.4****	-0.8%	-$324.8M
PY6	-$432.4****	-3.1%	-$171.4M
PY5	-$95.8	-0.7%	-$39.3M
PY4	-$47.5	-0.3%	-$23.0M
PY3	-$149.2	-0.9%	-$97.3M
PY2	$8.2	0.1%	$6.2M
2018 Cohort			
Cumulative	$18.8	0.1%	$19.5M
PY6	-$433.2***	-3.2%	-$104.8M
PY5	$75.8	0.6%	$19.6M
PY4	$322.0*	2.3%	$80.1M
PY3	$85.6	0.6%	$24.6M

Impact Estimate for Net Spending ($PBPY) and 90% CI

● 2016 Cohort ● 2017 Cohort ○ 2018 Cohort

NOTES: Estimated impacts per beneficiary per year (PBPY) significant at *p<0.1, **p<0.05, ***p<0.01, ****p<0.005. Estimated net spending impact was the sum of the gross impact less CMS' payouts to NGACOs for shared savings and coordinated care rewards (CCR). The 90% confidence intervals are depicted as bars around the estimates. Impact for the cohorts in each PY reflected impacts for their NGACOs and providers active in the model in the PY. Cumulative impact was the summary impact from PY 1 through PY 6 of the model. Percentage impact was the impact relative to expected spending for NGACO beneficiaries in PY(s) absent the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit D.7. Estimated Gross and Net Impacts by Cohort on Medicare Spending, Cumulative and by PY

	Number of Beneficiaries	Mean Adjusted Spending per beneficiary per year (PBPY)				Gross Impact Estimate		Shared Savings		Net Impact Estimate	
		NGACO group in baseline period ($)	NGACO group in performance period ($)	Comparison group in baseline period ($)	Comparison group in performance period ($)	PBPY ($) (95% confidence interval [CI])	Aggregate ($ in Millions) (95% CI)	PBPY ($)	Aggregate ($ in Millions)	Estimate PBPY ($) (95% CI)	Aggregate ($ in Millions) (95% CI)
2016 Cohort											
Cumulative	2,576,087	13,932.47	13,942.02	14,161.82	14,257.55	-86.19 (-193.90, 21.53)	-222.03 (-499.51, 55.46)	242.26	624.08	↑ 156.07**** (48.36, 263.79)	↑ 402.06**** (124.57, 679.54)
PY 6	336,914	13,346.22	13,247.71	13,521.84	13,724.59	↓ -301.26** (-582.50, -20.01)	↓ -101.50** (-196.25, -6.74)	156.57	52.75	-144.69 (-425.93, 136.56)	-48.75 (-143.50, 46.01)
PY 5	354,308	13,396.55	13,188.67	13,622.08	13,277.25	136.94 (-362.67, 636.55)	48.52 (-128.50, 225.4)	342.89	121.49	↑ 479.82* (-19.79, 979.44)	↑ 170.01* (-7.01, 347.02)
PY 4	470,657	13,910.47	14,425.81	14,130.93	14,807.07	-160.80 (-460.66, 139.06)	-75.68 (-216.81, 65.45)	338.91	159.51	178.11 (-121.75, 477.96)	83.83 (-57.30, 224.96)
PY 3	459,603	14,164.08	14,305.81	14,391.41	14,645.61	-112.47 (-301.55, 76.61)	-51.69 (-138.59, 35.21)	299.44	137.63	↑ 186.98* (-2.10, 376.05)	↑ 85.93* (-0.97, 172.84)
PY 2	477,426	14,121.20	14,102.95	14,432.61	14,356.29	58.07 (-75.28, 191.43)	27.73 (-35.94, 91.39)	228.01	108.89	↑ 286.09**** (152.73, 419.44)	↑ 136.59**** (72.92, 200.25)
PY 1	477,179	14,354.09	14,003.01	14,552.83	14,347.19	↓ -145.44* (-295.99, 5.11)	↓ -69.40* (-141.24, 2.44)	91.90	43.85	-53.55 (-204.09, 97.00)	-25.55 (-97.39, 46.29)
2017 Cohort											
Cumulative	2,697,481	15,276.93	14,658.65	15,618.36	15,361.29	↓ -361.21**** (-436.01, -286.40)	↓ -974.35**** (-1,176.13, -772.56)	240.78	649.50	↓ -120.43**** (-195.23, -45.62)	↓ -324.85**** (-526.64, -123.06)
PY 6	396,406	14,505.39	13,090.69	14,797.63	14,121.86	↓ -738.93**** (-936.71, -541.14)	↓ -292.91**** (-371.32, -214.51)	306.55	121.52	↓ -432.38**** (-630.16, -234.59)	↓ -171.40**** (-249.80, -92.99)
PY 5	409,890	14,515.48	12,961.47	14,873.33	13,959.99	↓ -640.67**** (-771.61, -509.74)	↓ -262.61**** (-316.28, -208.94)	544.89	223.34	-95.79 (-226.72, 35.15)	-39.26 (-92.93, 14.41)
PY 4	484,152	15,664.37	15,380.42	15,983.38	16,076.27	↓ -376.85**** (-566.82, -186.88)	↓ -182.45**** (-274.43, -90.48)	329.33	159.45	-47.52 (-237.49, 142.45)	-23.01 (-114.98, 68.97)
PY 3	652,244	15,780.87	15,553.19	16,105.50	16,090.54	↓ -212.72** (-403.91, -21.53)	↓ -138.75** (-263.45, -14.04)	63.48	41.40	-149.24 (-340.43, 41.95)	-97.34 (-222.05, 27.36)
PY 2	754,789	15,411.64	15,167.81	15,798.89	15,684.40	↓ -129.34** (-245.45, -13.23)	↓ -97.63** (-185.27, -9.99)	137.50	103.79	8.16 (-107.95, 124.27)	6.16 (-81.48, 93.80)

	Number of Beneficiaries	Mean Adjusted Spending per beneficiary per year (PBPY)				Gross Impact Estimate		Shared Savings		Net Impact Estimate	
		NGACO group in baseline period ($)	NGACO group in performance period ($)	Comparison group in baseline period ($)	Comparison group in performance period ($)	PBPY ($) (95% confidence interval [CI])	Aggregate ($ in Millions) (95% CI)	PBPY ($)	Aggregate ($ in Millions)	Estimate PBPY ($) (95% CI)	Aggregate ($ in Millions) (95% CI)
2018 Cohort											
Cumulative	1,037,100	14,161.54	13,400.96	14,365.60	14,095.92	⬇ -490.90**** (-631.43, -350.36)	⬇ -509.11**** (-654.85, -363.36)	509.69	528.60	18.79 (-121.74, 159.33)	19.49 (-126.26, 165.24)
PY 6	241,932	14,108.88	12,891.12	14,348.60	13,925.59	⬇ -794.75**** (-1111.21, -478.29)	⬇ -192.28**** (-268.84, -115.71)	361.56	87.47	⬇ -433.19*** (-749.65, -116.73)	⬇ -104.80*** (-181.36, -28.24)
PY 5	258,969	14,024.43	12,476.96	14,268.02	13,420.19	⬇ -699.64**** (-1,023.59, -375.69)	⬇ -181.19**** (-265.08, -97.29)	775.41	200.81	75.77 (-248.18, 399.72)	19.62 (-64.27, 103.52)
PY 4	248,648	14,227.63	13,868.38	14,472.81	14,429.42	⬇ -315.87* (-653.72, 21.98)	⬇ -78.54* (-162.54, 5.46)	637.82	158.59	⬆ 321.95* (-15.90, 659.80)	⬆ 80.05* (-3.95, 164.06)
PY 3	287,551	14,272.17	14,257.90	14,375.09	14,559.42	⬇ -198.60**** (-323.29, -73.92)	⬇ -57.11**** (-92.96, -21.25)	284.21	81.73	85.61 (-39.07, 210.30)	24.62 (-11.24, 60.47)

NOTES: Estimated impacts per beneficiary per year (PBPY) significant at *p<0.1, **p<0.05, ***p<0.01, ****p<0.005. Estimated gross impact was the difference-in-differences (DID) estimate, or the difference between the NGACO and comparison mean adjusted spending in the PY(s) and BYs. Cumulative impact was the summary impact from PY 1 through PY 6 of the model for the respective cohorts. Mean adjusted spending for the NGACO and comparison groups in the BYs and PY(s) were the conditional means from the DID regressions. Estimated net impact was the gross impact less shared savings payments to NGACOs and coordinated care reward (CCR) payouts to aligned beneficiaries in the PYs. Significant impacts at the p<0.1 level appear in shaded cells. Lower spending impact estimates are shaded in green with an ⬇ and higher spending estimates are shaded in orange with an ⬆. The PBPY estimate was the impact estimate PBPY for the respective cohorts. The aggregate estimate was the impact estimate for all aligned beneficiaries in PY(s) for the respective cohorts.

Exhibit D.8. NGACO-Level Impact on Gross Medicare Spending PBPY, Cumulative

Organization	Impact
Torrance	-7.9%***
Primaria	-8.7%***
APA	-4.6%***
Best Care Collab	-5.9%***
Primary Care Alliance	-5.6%***
ACCST	-4.3%***
Accountable Care Options (PY5)	-4.8%***
Central Utah	-5.4%***
Mary Washington	-4.8%***
Northwest	-5.1%***
ACC of TN	-5.2%***
St. Luke's	-4.6%***
UTSW	-3.4%***
ProspectNE	-3.4%***
Prospect (PY1)	-2.0%
Franciscan	-3.4%***
Atrius	-3.1%***
Allina (PY2)	-3.0%
UnityPoint	-3.1%***
UNC	-3.0%***
ThedaCare	-2.9%*
NECQA	-2.1%**
Carilion	-2.7%***
Deaconess	-2.1%*
KentuckyOne (PY2)	-2.2%
Trinity	-1.7%***
UW Health	-1.7%
Hill (PY3)	-0.9%
Reliant	-1.0%
Monarch (PY2)	-0.9%
Steward (PY4)	-0.7%
Integra (PY3)	-0.2%
Baroma (PY3)	-0.1%
ACCC (PY2)	-0.1%
Pioneer Valley	-0.1%
Partners (PY3)	0.0%
Connected Care (PY3)	0.2%
HCP (PY4)	0.3%
CoxHealth (PY5)	0.6%
Fairview (PY2)	0.8%
Bronx (PY4)	0.8%
Park Nicollet	1.4%
RHeritage (PY4)	1.2%
Sharp (PY2)	1.8%
OSF (PY1)	2.3%
Reliance	2.1%*
Dartmouth-Hitchcock (PY3)	2.2%
Premier (PY2)	2.4%
Bellin	3.8%***
Triad	3.3%**

Cumulative Impact Estimate for Gross Spending ($PBPY) and 90% CI
-$2,000   -$1,000 $0

● 2016 Cohort   ● 2017 Cohort   ○ 2018 Cohort

— Participated in PY6   - - Exited

NOTES: ***p<0.01, **p<0.05, *p<0.1. Impact estimates and confidence intervals (CIs) to the left of the zero line denote NGACOs with reductions in gross Medicare spending, and those to the right denote NGACOs with increases in gross Medicare spending. NGACOs were listed in increasing order of their PBPY impact estimates, with those reducing spending on top and those increasing spending at the bottom.

- Cumulative impact estimates as of PY 6 and 90% CIs for gross Medicare spending PBPY were displayed for 29 NGACOs, including 2016 cohort NGACOs (n=9) in blue solid dots, 2017 cohort NGACOs (n=8) in light teal solid dots, and 2018 cohort NGACOs (n=12) in dark teal open dots.

- For 24 NGACOs that exited the model before PY 6, cumulative impact as of PY prior to exit and 90% CI were displayed with dashed lines, including 2016 cohort NGACOs (n=7) in faded blue solid dots, 2017 cohort NGACOs (n=15) in faded light teal solid dots, and 2018 cohort NGACOs (n=2) in faded dark teal open dots. Parentheses were used to indicate the last PYs in which the exiting NGACOs were active.

- Impacts were not displayed for nine NGACOs that failed the parallel trends tests for gross Medicare spending, including 2016 cohort NGACOs (n=2), 2017 cohort NGACOs (n=4), and 2018 cohort NGACOs (n=2).

Exhibit D.9. NGACO-Level Impact on Gross Medicare Spending PBPY, in PY 6
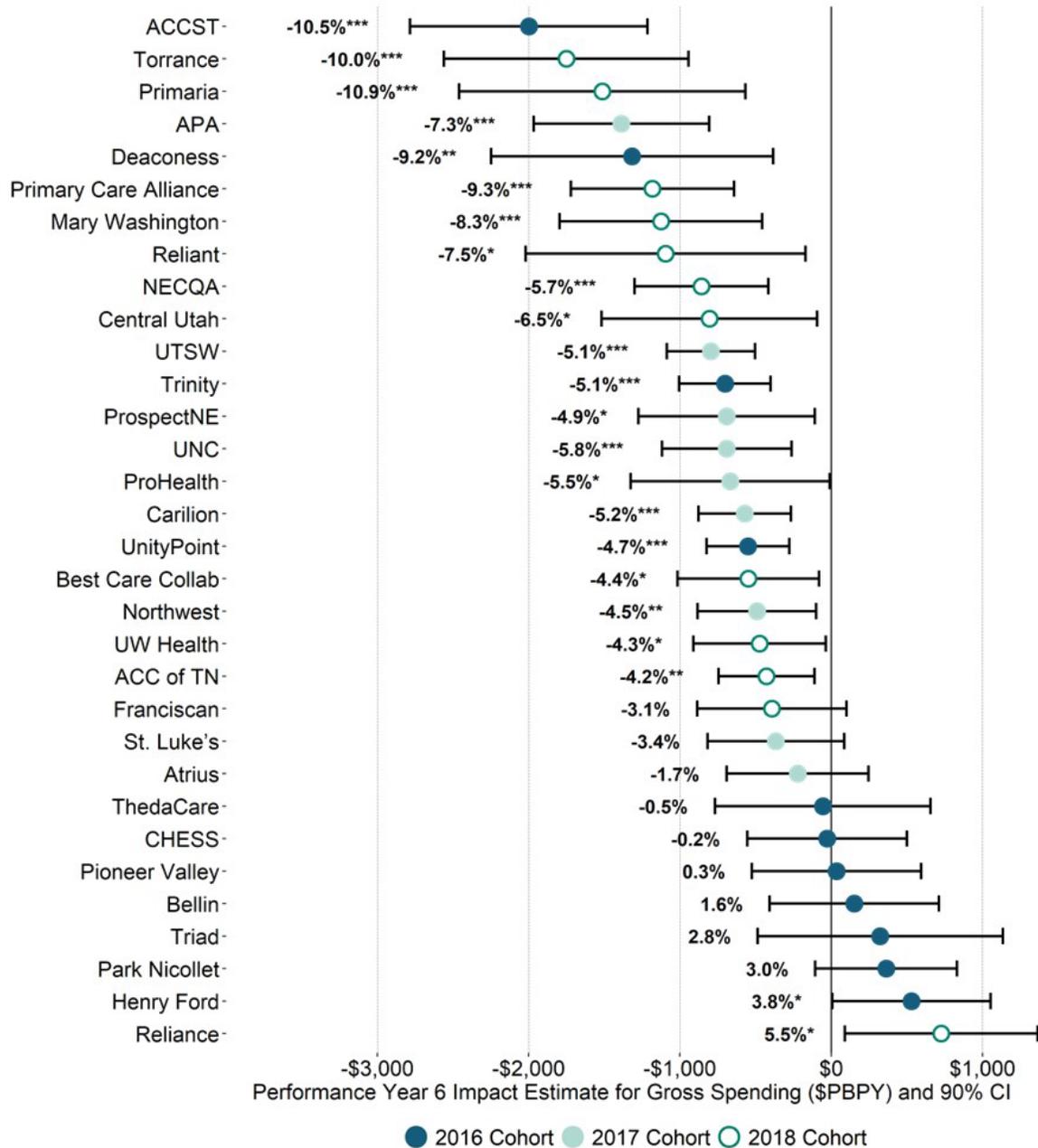
ACCST -10.5%***
Torrance -10.0%***
Primaria -10.9%***
APA -7.3%***
Deaconess -9.2%**
Primary Care Alliance -9.3%***
Mary Washington -8.3%***
Reliant -7.5%*
NECQA -5.7%***
Central Utah -6.5%*
UTSW -5.1%***
Trinity -5.1%***
ProspectNE -4.9%*
UNC -5.8%***
ProHealth -5.5%*
Carilion -5.2%***
UnityPoint -4.7%***
Best Care Collab -4.4%*
Northwest -4.5%**
UW Health -4.3%*
ACC of TN -4.2%**
Franciscan -3.1%
St. Luke's -3.4%
Atrius -1.7%
ThedaCare -0.5%
CHESS -0.2%
Pioneer Valley 0.3%
Bellin 1.6%
Triad 2.8%
Park Nicollet 3.0%
Henry Ford 3.8%*
Reliance 5.5%*

Performance Year 6 Impact Estimate for Gross Spending ($PBPY) and 90% CI

● 2016 Cohort ● 2017 Cohort ○ 2018 Cohort

NOTES: ***p<0.01, **p<0.05, *p<0.1. Impact estimates and confidence intervals (CIs) to the left of the zero line denote NGACOs with reductions in gross Medicare spending, and those to the right denote NGACOs with increases in gross Medicare spending. Impact estimates in PY 6 and 90% CIs for gross Medicare spending per beneficiary per year (PBPY) were displayed for 32 NGACOs, including 2016 cohort NGACOs (n=11) in blue solid dots, 2017 cohort NGACOs (n=9) in light teal solid dots, and 2018 cohort NGACOs (n=12) in dark teal open dots. Impacts were not displayed for two 2017 cohort NGACOs and one 2018 cohort NGACO that failed the parallel trends tests for gross Medicare spending. NGACOs were listed in increasing order of impact estimates, with those reducing spending on top and those increasing spending at the bottom.

Exhibit D.10. Model-Level Estimated Impacts on Acute Care Hospital Spending and Acute Care Hospital Stays, Cumulative and by PY
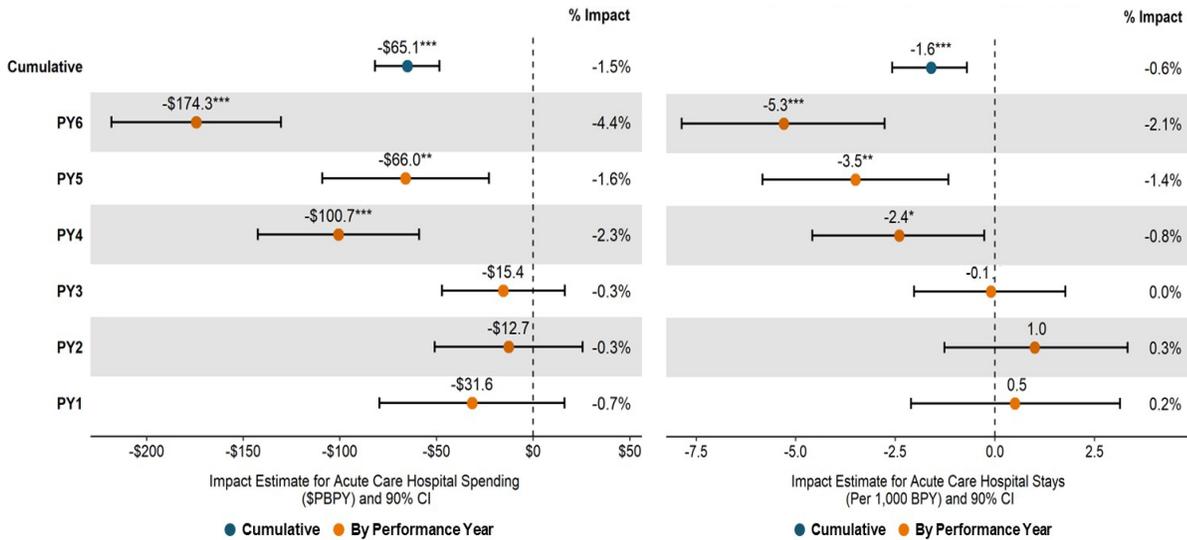
NOTES: Estimated impacts per beneficiary per year (PBPY) for spending and per 1,000 beneficiaries per year (BPY) for utilization significant at *p<0.1, **p<0.05, and ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for Medicare spending and stays for acute care hospital facilities. Confidence intervals at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected spending or utilization for NGACO beneficiaries in PY(s) absent the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment and claims data.

Exhibit D.11. Model-Level Estimated Impacts on SNF and Other PAC Facility Spending, Cumulative and by PY
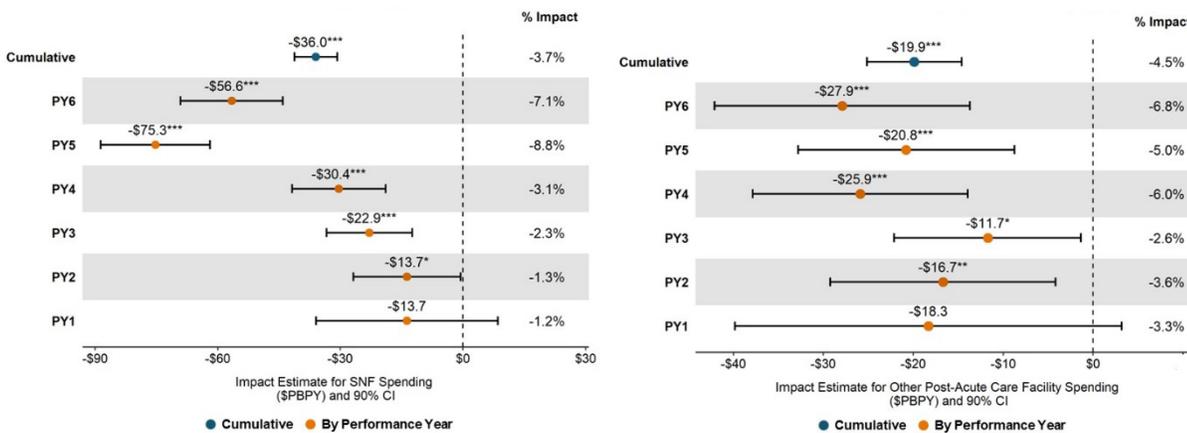
NOTES: Estimated impacts per beneficiary per year (PBPY) for spending significant at *p<0.1, **p<0.05, and ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for Medicare spending for skilled nursing facilities (SNF) and other post-acute care (PAC) facilities. For SNF spending the DID estimates were calculated as weighted average model-level estimates from NGACOs meeting the assumption of parallel trends for this outcome. Confidence intervals at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected spending for NGACO beneficiaries in PY(s) absent the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment and claims data.

Exhibit D.12. Model-Level Estimated Impacts on SNF Stays and Days, Cumulative and by PY
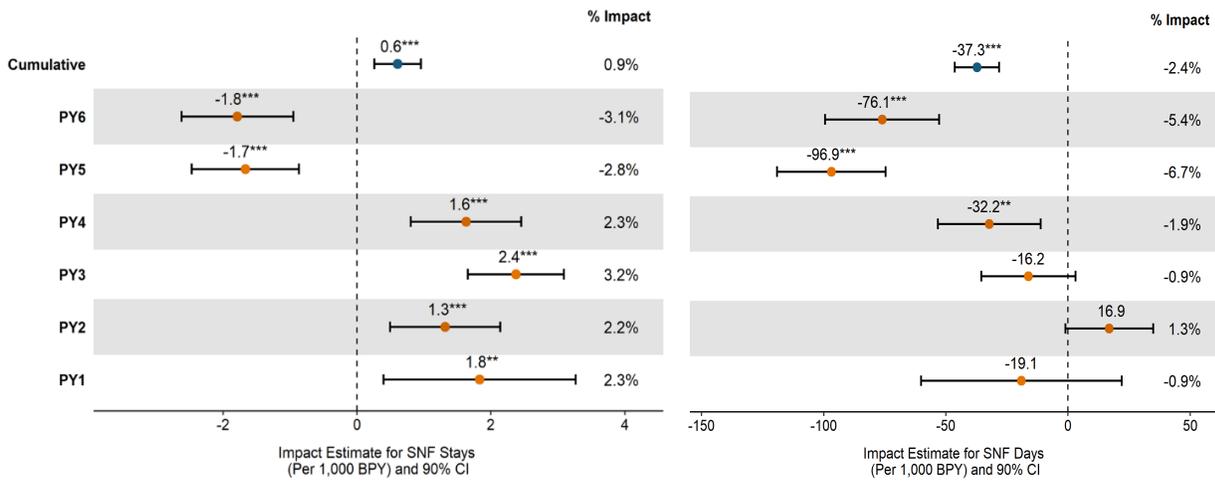
NOTES: Estimated impacts for skilled nursing facility (SNF) utilization per 1,000 beneficiaries per year (BPY) significant at *p<0.1, **p<0.05, and ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for SNF days and SNF stays; calculated as weighted average model-level estimates from NGACOs meeting the assumption of parallel trends for these outcomes. Confidence intervals at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected utilization for NGACO beneficiaries in PY(s) absent the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data

Exhibit D.13. Model-Level Estimated Impacts on Outpatient Spending and ED Visits and Observation Stays, Cumulative and by PY
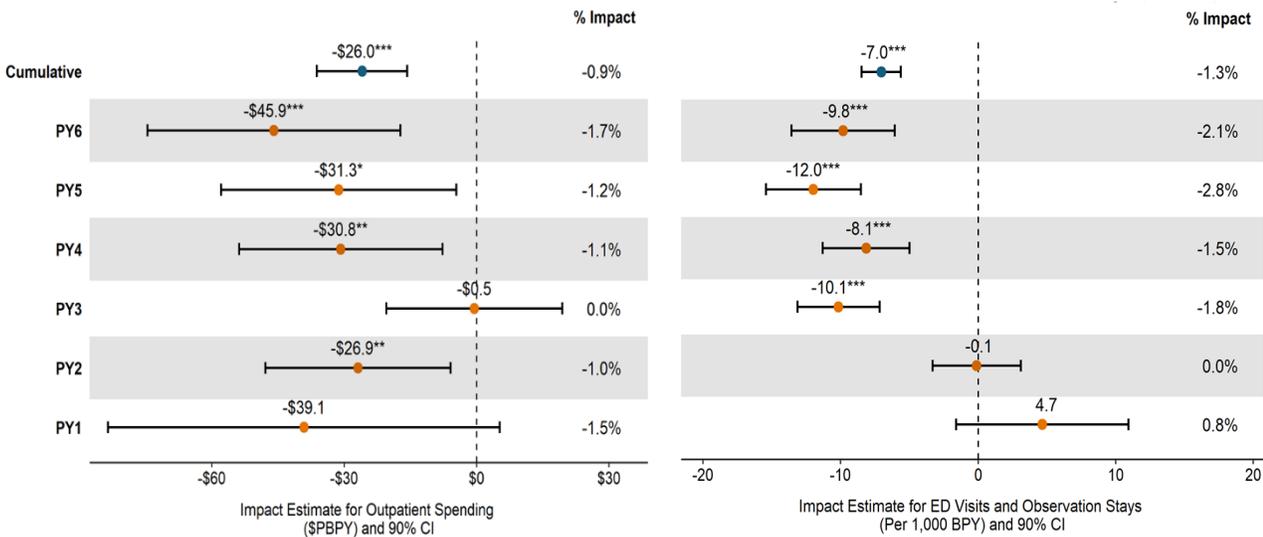
NOTES: Estimated impacts per beneficiary per year (PBPY) for outpatient spending and per 1,000 beneficiaries per year (BPY) for emergency department (ED) visits and observation stays significant at *p<0.1, **p<0.05, and ***p<0.01. Impact estimates are the difference-in-differences (DID) estimates for Medicare spending in outpatient facilities and ED visits and observation stays; calculated as weighted average model-level estimates from NGACOs meeting the assumption of parallel trends for these outcomes. Confidence intervals at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected spending or utilization for NGACO beneficiaries in PY(s) absent the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment and claims data.

Exhibit D.14. Model-Wide Estimated Impacts on Professional Services Spending and E&M Visits, Cumulative and by PY
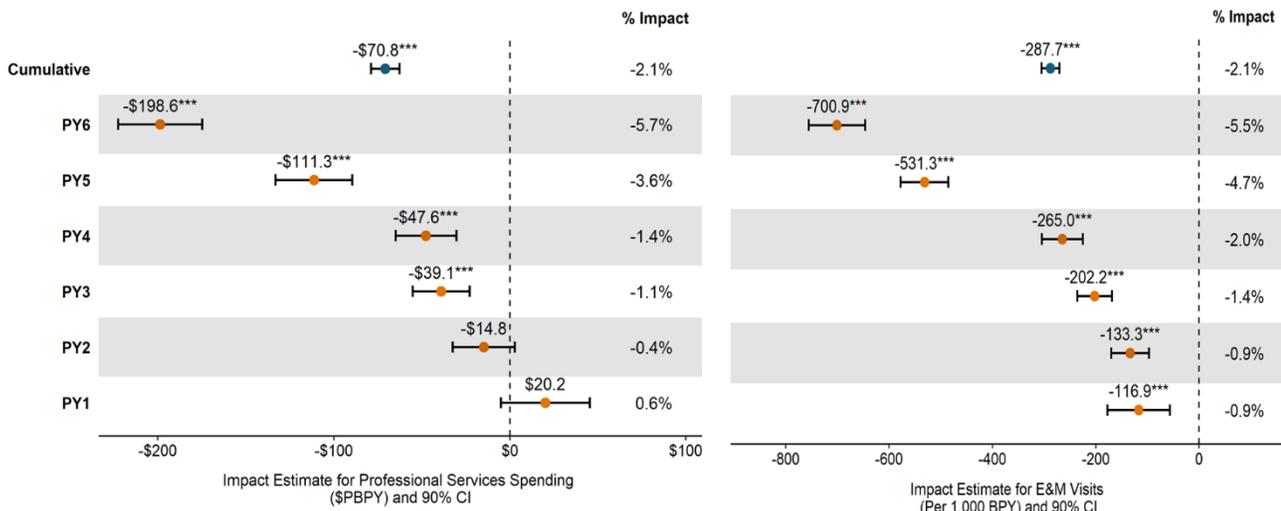
NOTES: Estimated impacts per beneficiary per year (PBPY) for professional services spending and per 1,000 beneficiaries per year (BPY) for evaluation and management (E&M) visits significant at *p<0.1, **p<0.05, and ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for professional services spending and E&M visits utilization; calculated as weighted average model-level estimates from NGACOs meeting the assumption of parallel trends for these outcomes. Confidence intervals at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected spending or utilization for NGACO beneficiaries in PY(s) absent the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment and claims data.

Exhibit D.15. Model-Wide Estimated Impacts on Imaging Services, Procedures, and Tests, Cumulative and by PY
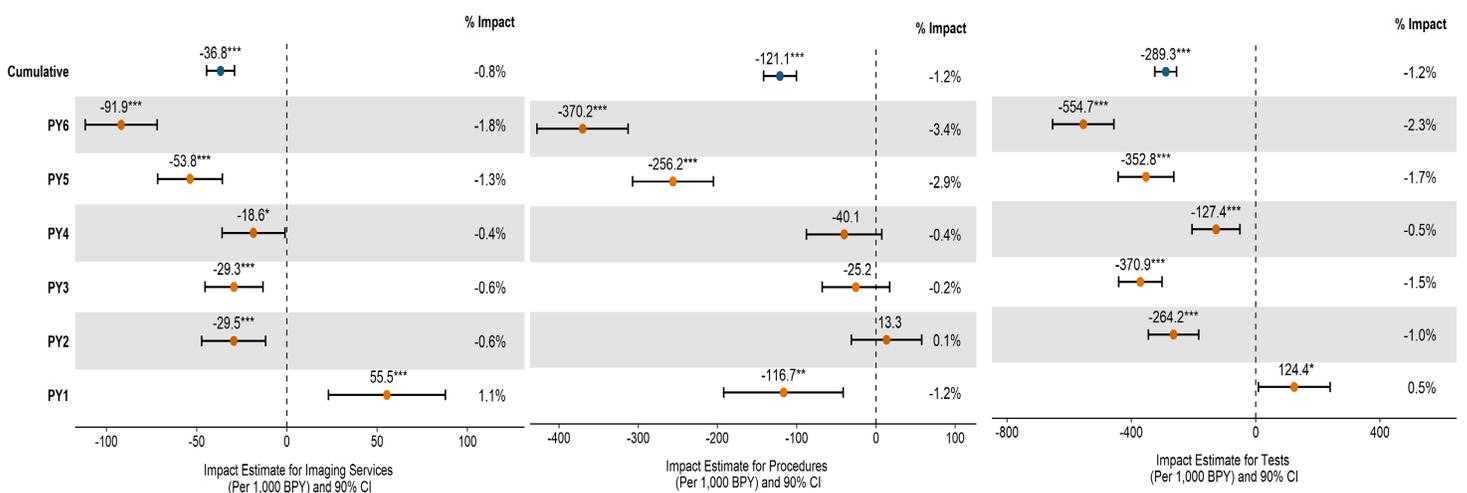
NOTES: Estimated impacts for utilization of imaging services, procedures, and tests per 1,000 beneficiaries per year (BPY) significant at *p<0.1, **p<0.05, and ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for utilization of imaging services, procedures, and tests; calculated as weighted average model-level estimates from NGACOs meeting the assumption of parallel trends for these outcomes. Confidence intervals at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected utilization for NGACO beneficiaries in PY(s) absent the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit D.16. Model-Wide Estimated Impacts on Home Health Spending and Episodes, Cumulative and by PY

Impact Estimate for Home Health Spending ($PBPY) and 90% CI

Impact Estimate for Home Health Episodes (Per 1,000 BPY) and 90% CI
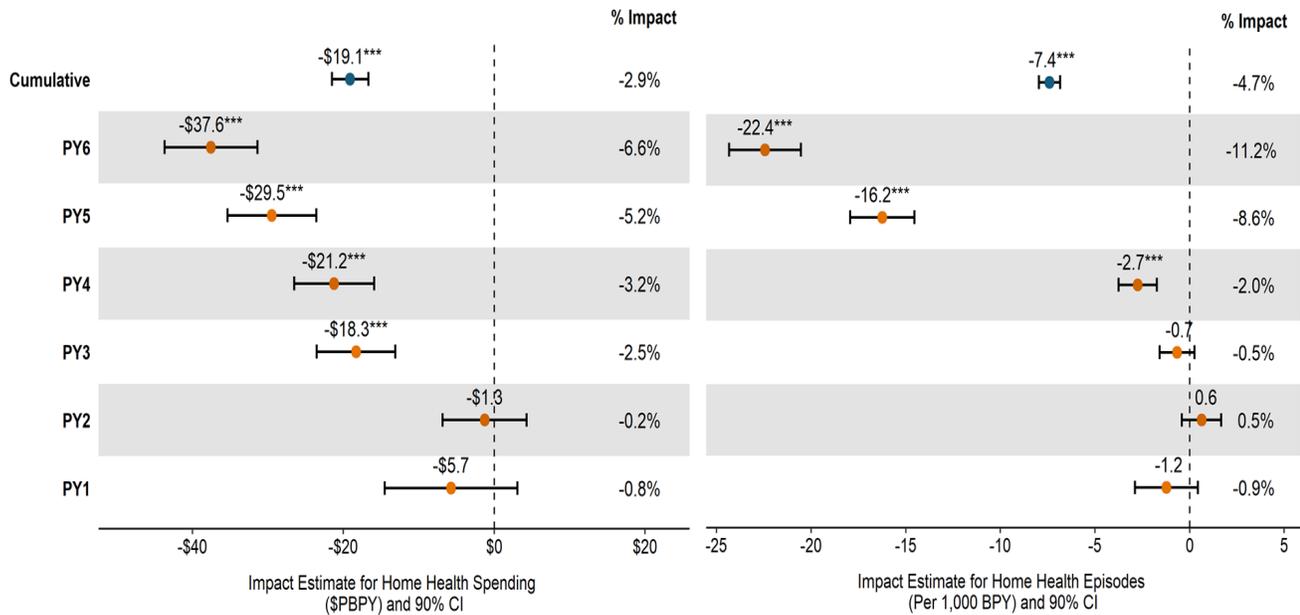
NOTES: Estimated impacts per beneficiary per year (PBPY) for home health spending and per 1,000 beneficiaries per year (BPY) for home health episodes significant at *p<0.1, **p<0.05, ***p<0.01, ****p<0.005. Impact estimates were the difference-in-differences (DID) estimates for Medicare spending on home health or utilization for home health episodes; calculated as weighted average model-level estimates from NGACOs meeting the assumption of parallel trends for these outcomes. Confidence intervals at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected spending or utilization for NGACO beneficiaries in PY(s) absent the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment and claims data.

Exhibit D.17. Model-Wide Estimated Impacts on Hospice Spending, Cumulative and by PY
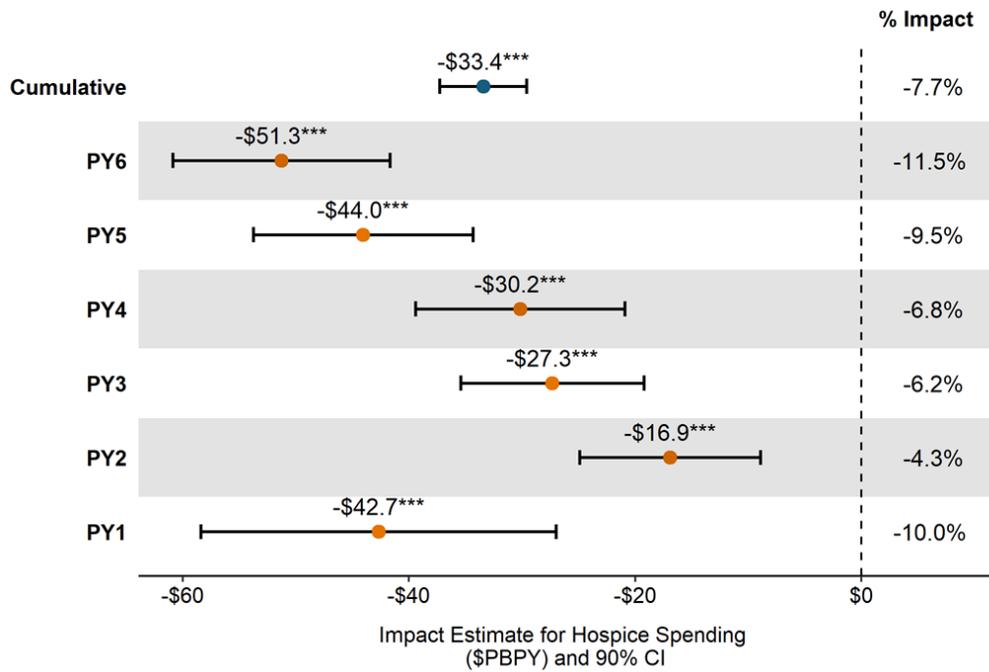
NOTES: Estimated impacts per beneficiary per year (PBPY) for spending significant at *p<0.1, **p<0.05, and ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for Medicare spending for hospice; calculated as weighted average model-level estimates from NGACOs meeting the assumption of parallel trends for this outcome. Confidence intervals at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected spending for NGACO beneficiaries in PY(s) absent the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment and claims data.

Exhibit D.18. Model-Wide Estimated Impacts on ACSC Hospitalizations, Unplanned 30-Day Hospital Readmissions, and 30-Day Hospital Readmissions from SNF, Cumulative and by PY
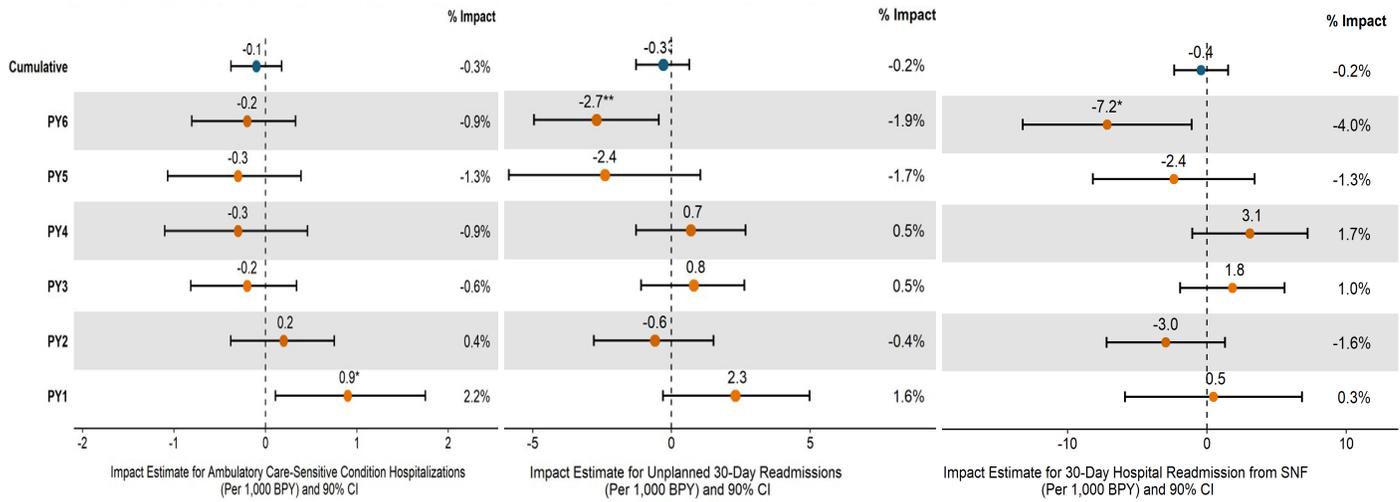
NOTES: Estimated impacts for quality of care for beneficiaries per 1,000 beneficiaries per year (BPY) significant at *p<0.1, **p<0.05, and ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for beneficiaries with hospitalizations for ambulatory care-sensitive conditions (ACSC), unplanned 30-day hospital readmissions, and 30-day hospital readmissions from skilled nursing facility (SNF). Confidence intervals at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected utilization for NGACO beneficiaries in PY(s) absent the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit D.19. Percentage of Total Gross Medicare Spending by Care Setting in BY(s) for NGACOs in PY 6
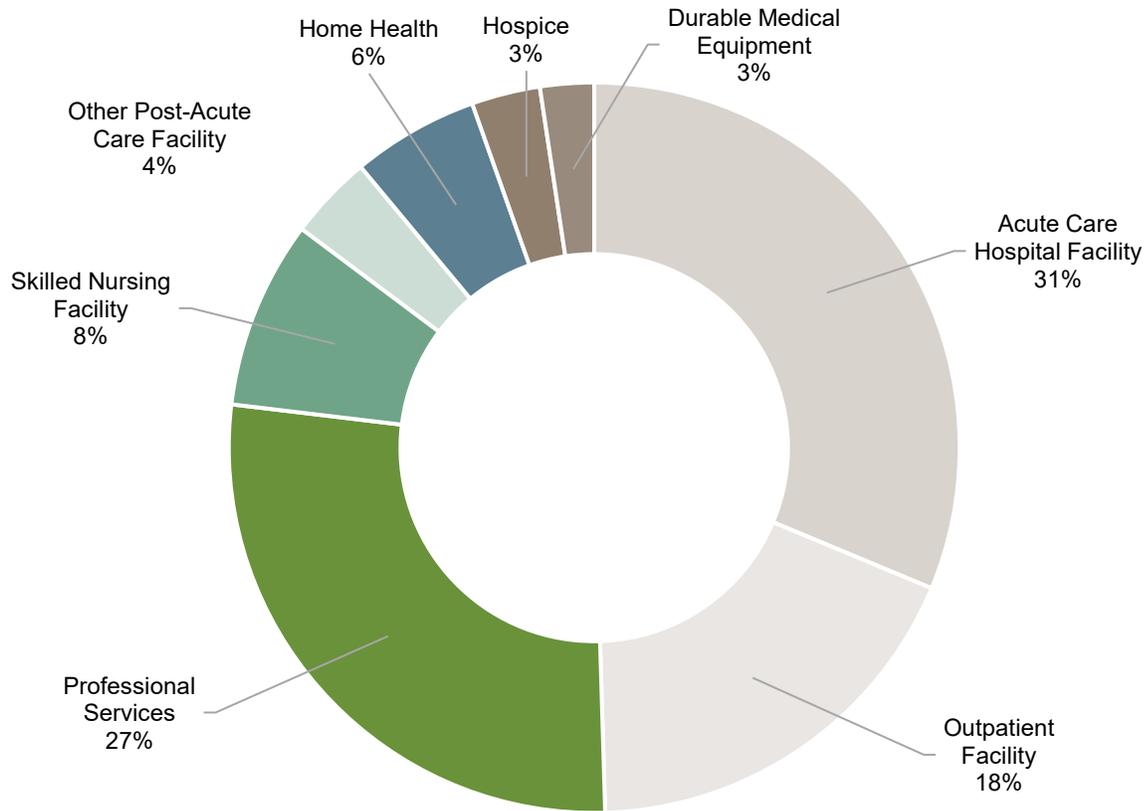
NOTES: Baseline period (BY) spending included unadjusted gross Medicare Parts A and B spending for the 35 NGACOs participating in PY 6; BYs varied by cohort between 2013 and 2017. "Other post-acute care facility" included inpatient rehabilitation facilities and long-term care hospital facilities. Outpatient facility included hospital outpatient, emergency department, and comprehensive outpatient rehabilitation facilities. Professional services included physician, other professional, and ancillary services rendered under Part B.
SOURCE: NORC analysis of NGACO and comparison group enrollment and claims data.

Exhibit D.20. Patterns of Care—NGACO Stickiness (Mean), Model-Wide and by Cohort, in PY 6 and Cumulative
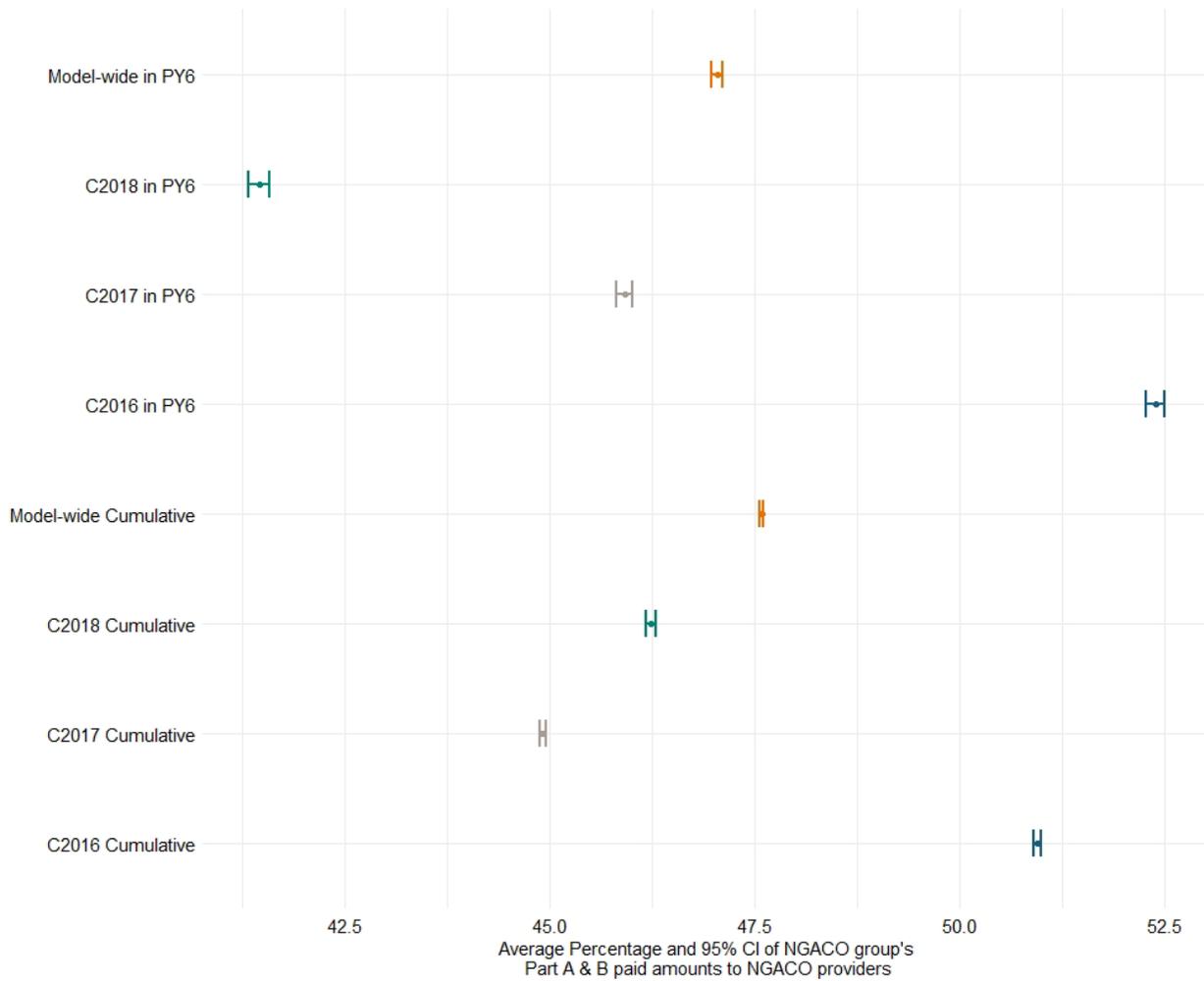
NOTES: Stickiness measured as percentage of NGACO beneficiaries' Medicare Parts A and B paid amounts in the PY(s) to providers inside their NGACOs; mean and 95% confidence intervals are depicted. Providers in an NGACO included both participant and preferred providers. Model-wide estimate depicted in orange, 2016 Cohort depicted in blue, 2017 Cohort depicted in gray, and 2018 Cohort depicted in teal.
SOURCE: NORC analysis of NGACO enrollment, claims, and model programmatic data.

Exhibit D.21. Patterns of Care—NGACO Stickiness (Mean), Model-Wide, Cumulative and by PY
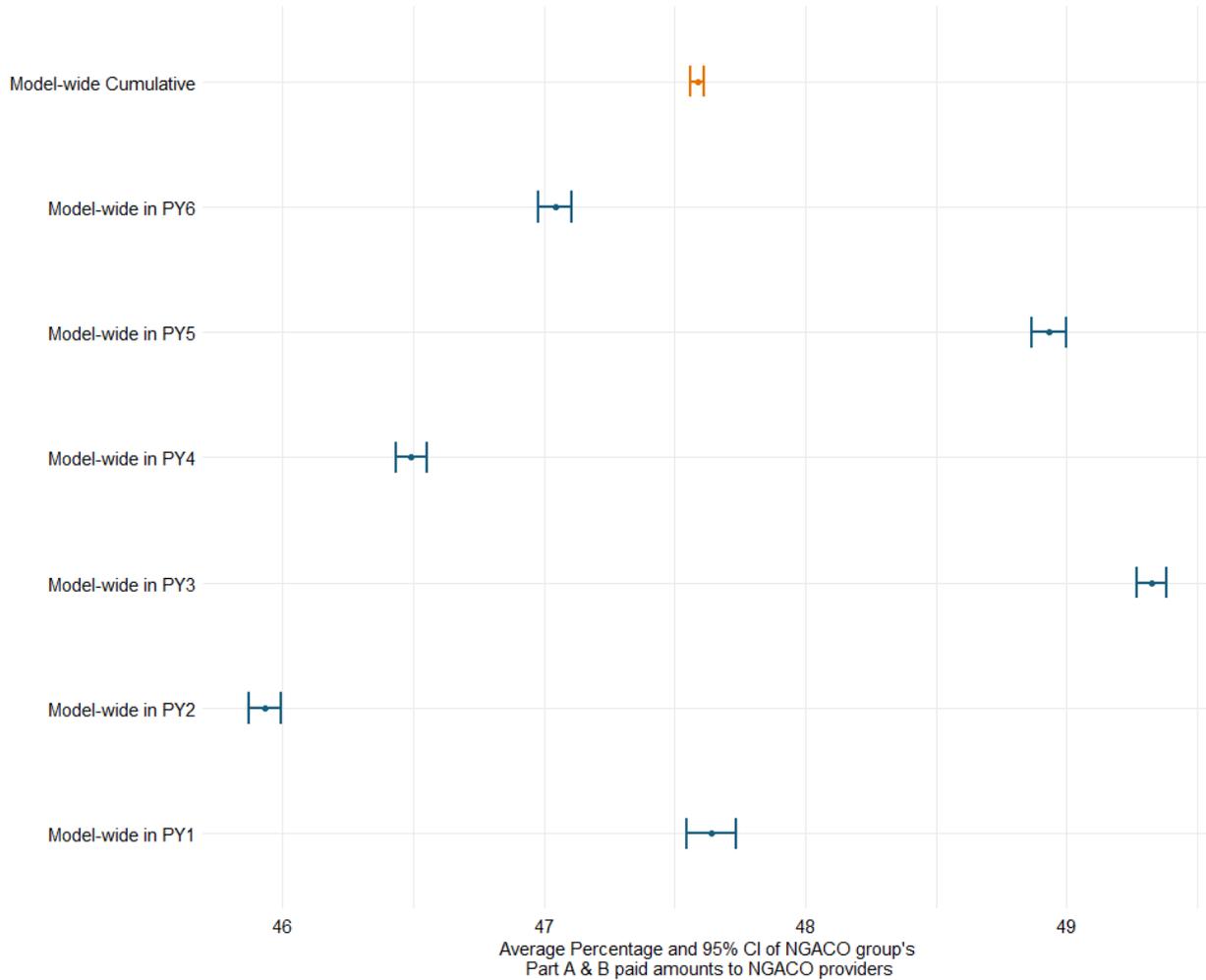
NOTES: Stickiness measured as percentage of NGACO beneficiaries' Medicare Parts A and B paid amounts in the PY(s) to providers inside their NGACOs; mean and 95% confidence intervals are depicted. Providers in an NGACO included both participant and preferred providers. Cumulative depicted in orange and estimates by PY depicted in blue.
SOURCE: NORC analysis of NGACO enrollment, claims, and model programmatic data.

Exhibit D.22. Patterns of Care—NGACO Direct Spillover (Mean) on Comparison Group from NGACO providers, Model-Wide and by Cohort, in PY 6 and Cumulative
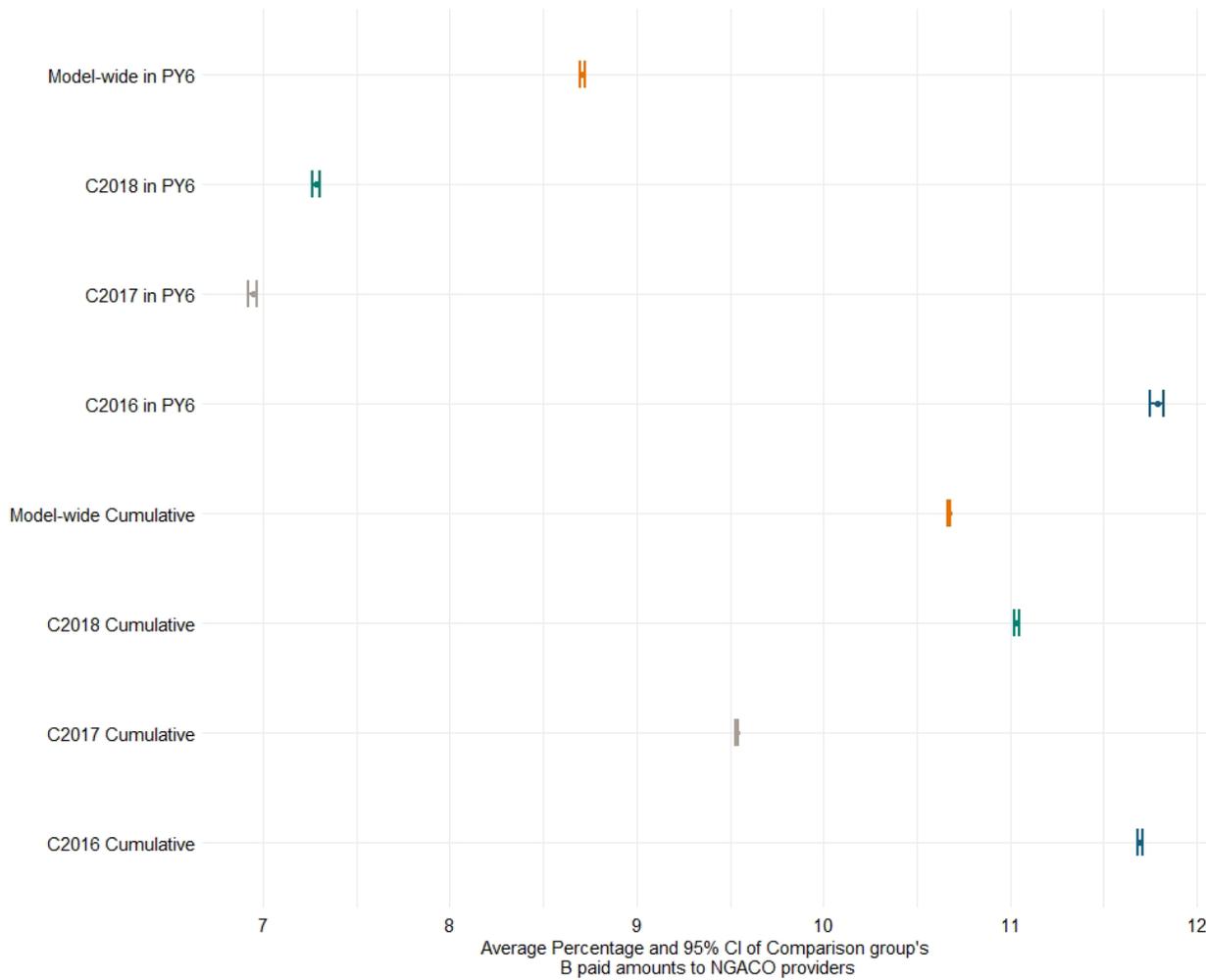
NOTE: Direct spillover was the percentage of the comparison group beneficiaries' Medicare Part B paid amounts in the PY(s) to NGACO participant providers. Mean and 95% confidence intervals are depicted. Model-wide estimate depicted in orange, 2016 Cohort depicted in blue, 2017 Cohort depicted in gray, and 2018 Cohort depicted in teal.
SOURCE: NORC analysis of NGACO enrollment, claims, and model programmatic data.

Exhibit D.23. Patterns of Care—NGACO Direct Spillover (Mean) on Comparison Group from NGACO providers, Model-Wide Cumulative and by PY
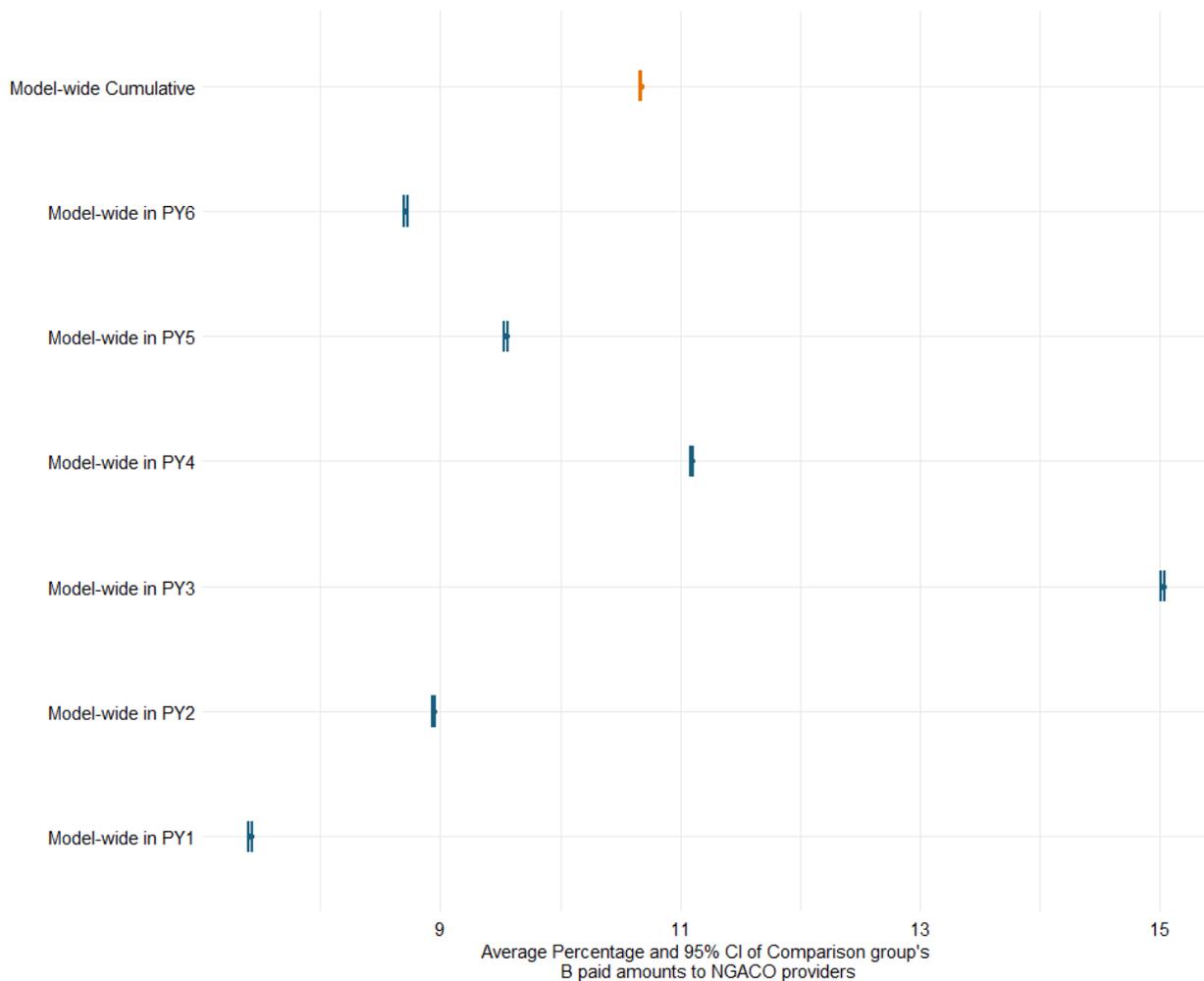
NOTE: Direct spillover was the percentage of the comparison group beneficiaries' Medicare Part B paid amounts in the PY(s) to NGACO Participant Providers. Mean and 95% confidence intervals are depicted. Cumulative estimate depicted in orange and estimate by PY depicted in blue.
SOURCE: NORC analysis of NGACO enrollment, claims, and model programmatic data.

Exhibit D.24. NGACO-Level Cumulative Gross Spending Impacts as of PY 6

Impact Estimate for Gross Spending ($PBPY)

Legend: PY1 PY2 PY3 PY4 PY5 PY6 ● P<0.1 ○ P>=0.1 ⊠ Uninterpretable
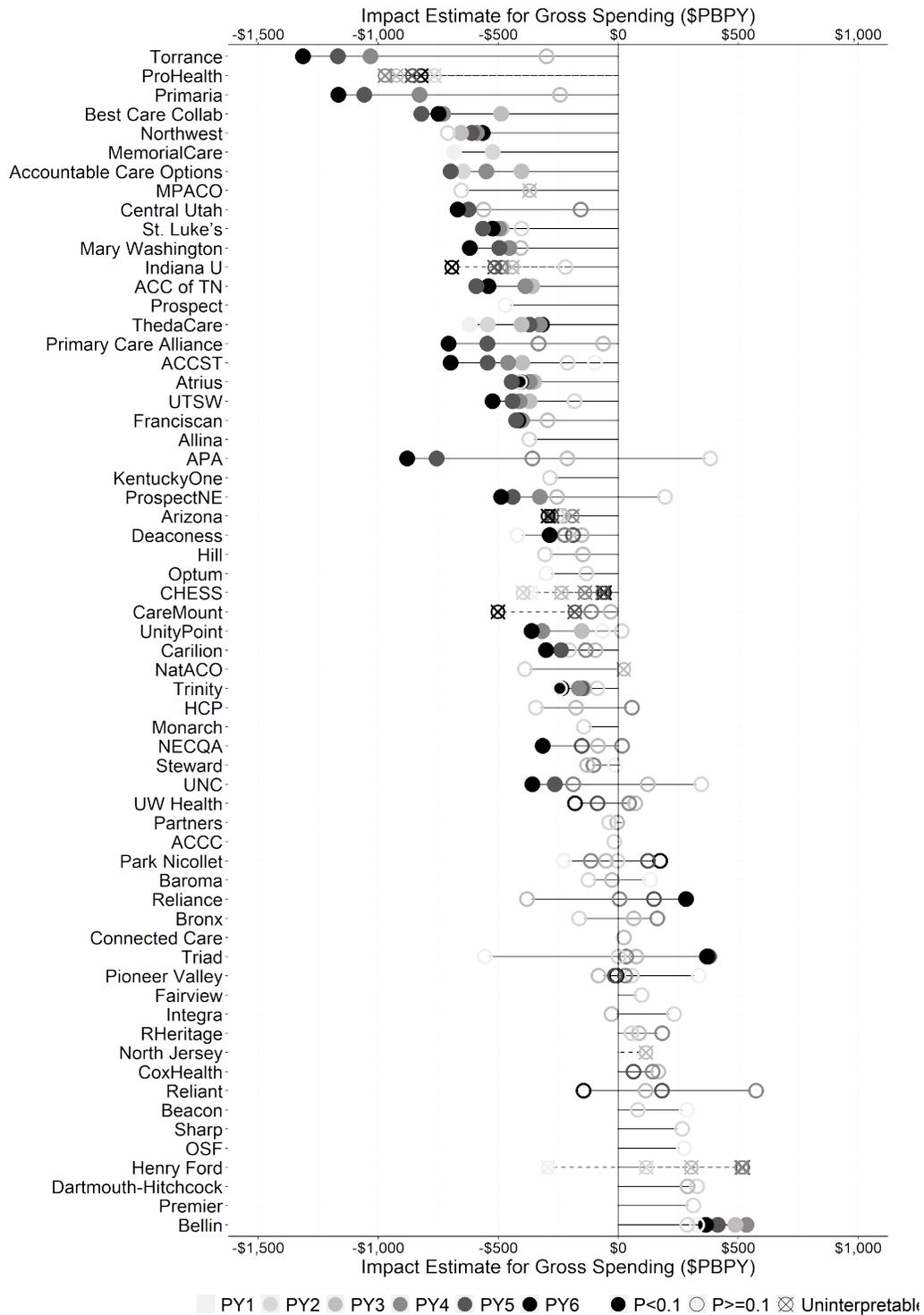
NOTES: Impact estimates as of each PY and 90% confidence intervals (CI) for gross Medicare spending PBPY displayed for 62 NGACOs. Impact estimates and CIs to the left of the zero line denote NGACOs with reductions in gross Medicare spending, and those to the right denote NGACOs with increases in gross Medicare spending. Crossed estimates are uninterpretable as baseline trends were not parallel.
SOURCE: NORC analysis of NGACO enrollment, claims, and model programmatic data.

Exhibit D.25. NGACO-Level Gross Spending Impacts in PY 6 and Preceding PYs
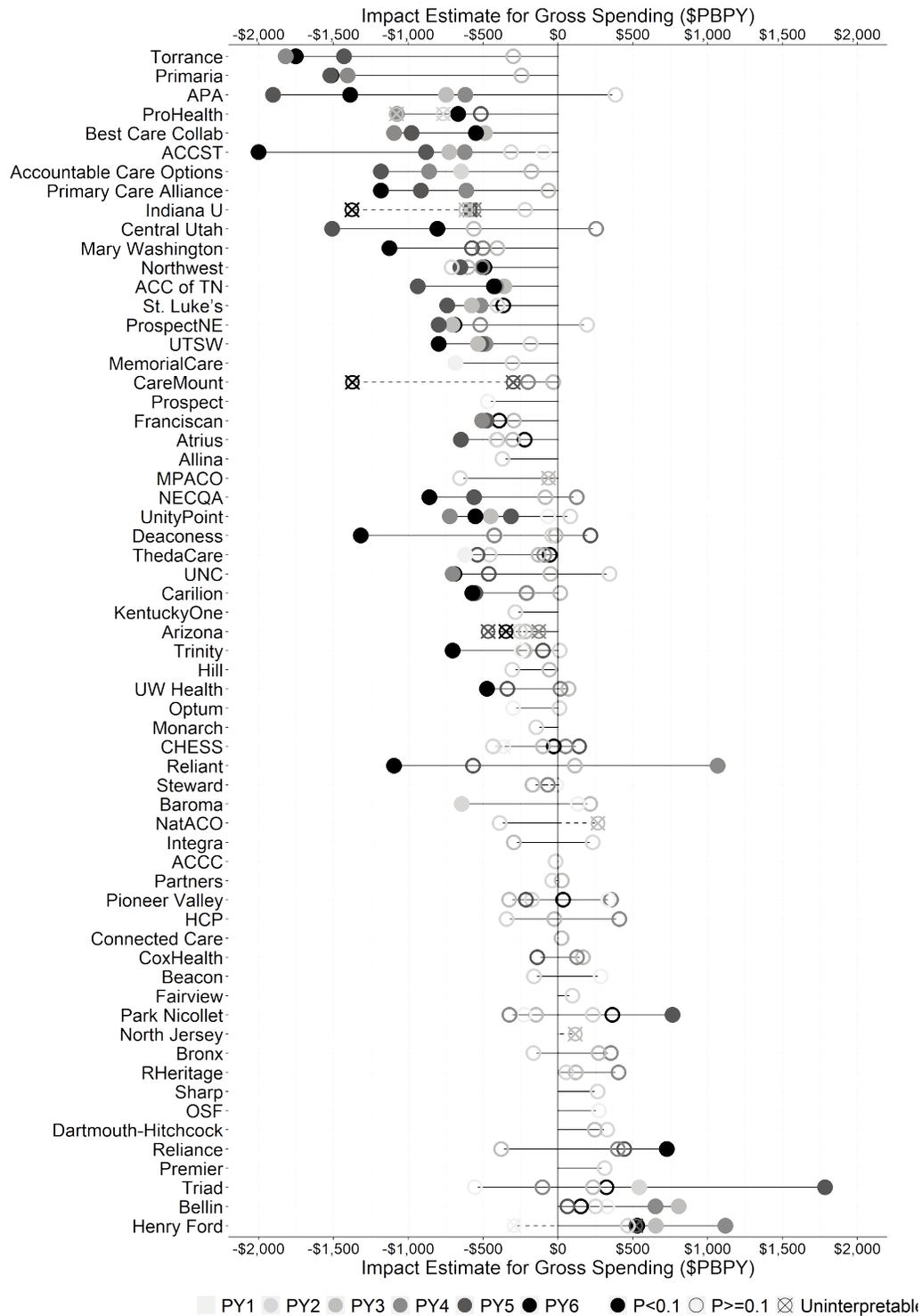
NOTES: Impact estimates in each PY and 90% confidence intervals (CI) for gross Medicare spending PBPY displayed for 62 NGACOs. Impact estimates and CIs to the left of the zero line denote NGACOs with reductions in gross Medicare spending, and those to the right denote NGACOs with increases in gross Medicare spending. Crossed estimates are uninterpretable as baseline trends were not parallel.
SOURCE: NORC analysis of NGACO enrollment, claims, and model programmatic data.

Exhibit D.26. Cumulative Gross Spending and Shared Savings / Losses for NGACOs that Remained in the Model, by Cohort, as of PY 6
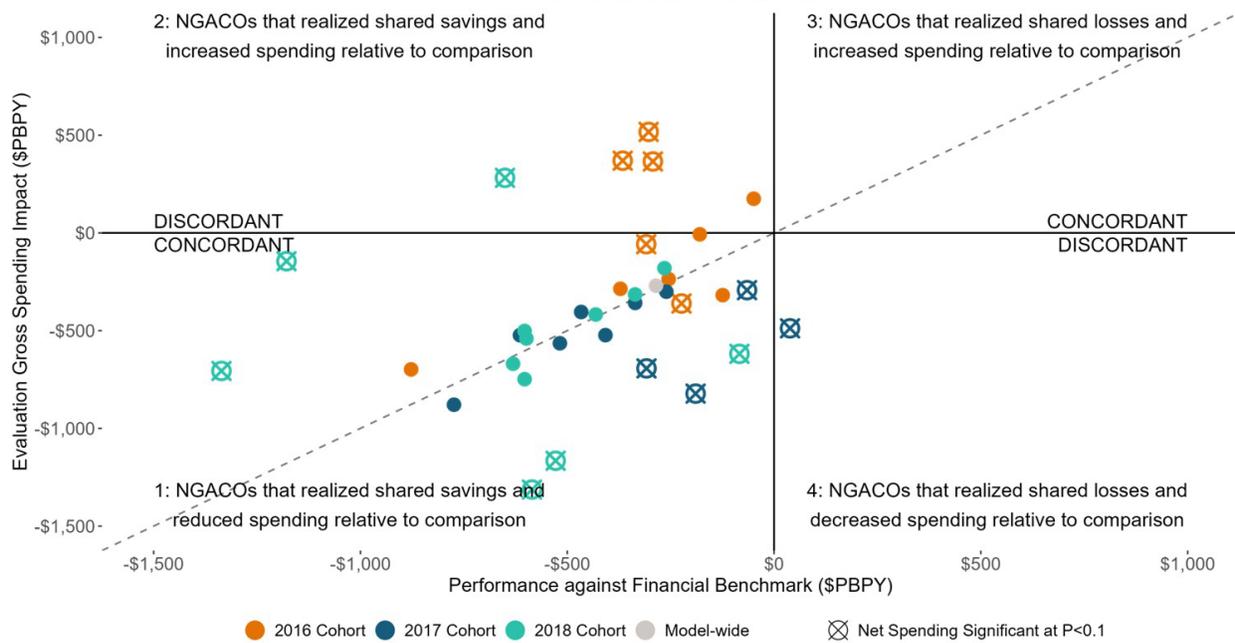
NOTES: For 35 NGACOs that remained in the model as of PY6, we display the cumulative point estimate PBPY for gross spending impacts (relative to comparison group) on the vertical axis, and shared savings/losses (relative to financial benchmark) on the horizontal axis for each NGACO, and the weighted-average model-wide estimate for these 35 NGACOs. Cohorts are indicated by the color, per the legend. The lower left quadrant shows concordant NGACOs that realized shared savings and reduced gross spending relative to comparison. The upper left quadrant shows discordant NGACOs that realized shared savings and increased gross spending relative to comparison. The upper right quadrant shows concordant NGACOs that realized shared losses and increased gross spending relative to comparison. The lower right quadrant shows discordant NGACOs that realized shared losses and reduced gross spending relative to comparison.
SOURCE: Results are from claims-based analyses of total Medicare Part A and B spending, for the 35 NGACOs that remained in the model as of PY 6.

Exhibit D.27. Cumulative Gross Spending and Shared Savings / Losses for NGACOs that Exited the Model, by Cohort, as of PY 6
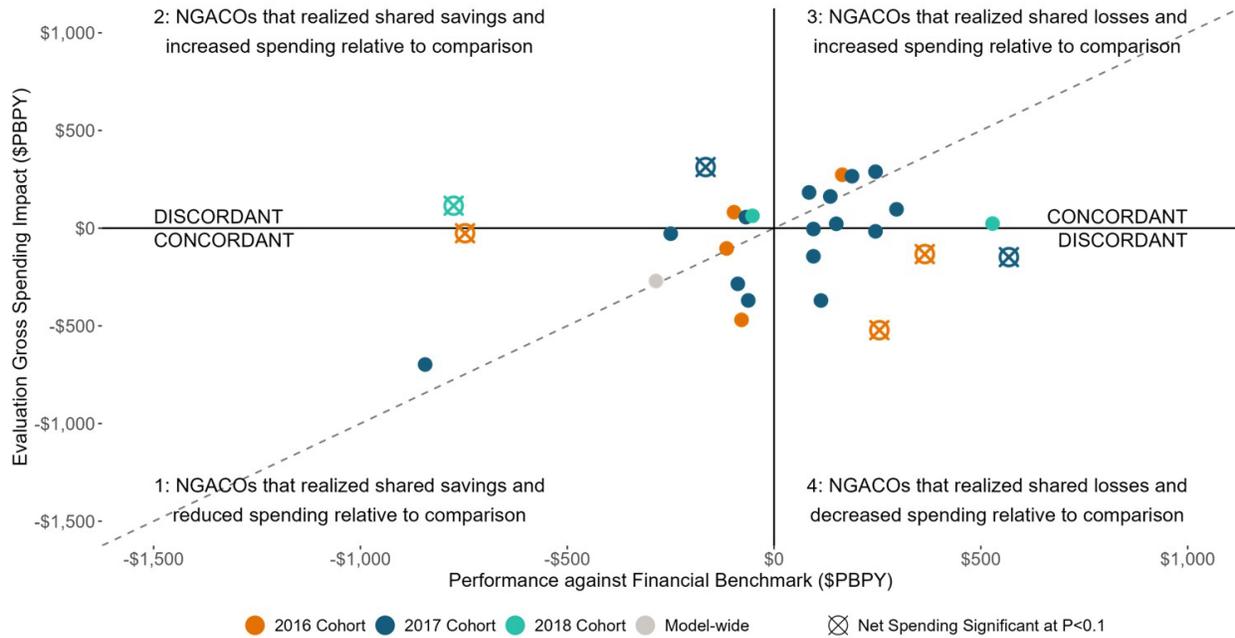
NOTES: For 27 NGACOs that exited the model prior to PY6, we display the cumulative point estimate PBPY for gross spending impacts (relative to comparison group) on the vertical axis, and shared savings/losses (relative to financial benchmark) on the horizontal axis, for each NGACO and the weighted average model-wide for these 27 NGACOs. Cohorts are indicated by the color; model wide is grey dot, per the legend. The lower left quadrant shows concordant NGACOs that realized shared savings and reduced gross spending relative to comparison. The upper left quadrant shows discordant NGACOs that realized shared savings and increased gross spending relative to comparison. The upper right quadrant shows concordant NGACOs that realized shared losses and increased gross spending relative to comparison. The lower right quadrant shows discordant NGACOs that realized shared losses and reduced gross spending relative to comparison.
SOURCE: Results are from claims-based analyses of total Medicare Part A and B spending, for the 27 NGACOs that left the model prior to PY 6.

Exhibit D.28. Estimated Gross Spending Impacts and Shared Savings / Losses for NGACOs that Remained in the Model, on Average and in Each PY

NOTES: Average performance against the benchmark reflected shared savings / losses per beneficiary per year (PBPY) from PY 1 through PY 6 for NGACOs that exited or remained in the model, significant at *p<0.1, **p<0.05, and ***p<0.01. Gross spending impact in a PY was the average difference-in-differences (DID) estimate for Medicare Parts A and B spending for NGACOs that exited the model after a PY or remained in the model. Confidence intervals for the gross spending impacts are shown for the 90% level and are displayed as bars around the impact estimates. The shared savings or loss is not an estimated value but are the actual payments made; there is no standard error for these results and for this reason, no confidence intervals computed. Percentage impact was the impact relative to expected average number of NGACO beneficiaries with average gross spending impacts from PY 1 through PY 6. § Denotes failure of parallel trends assumption for outcome across BYs, where estimated impact should be interpreted with caution.

Exhibit D.29. Estimated Gross Spending Impacts and Shared Savings / Losses for NGACOs that Exited the Model, on Average and in Each PY

NOTES: Average performance against the benchmark reflected shared savings / losses per beneficiary per year (PBPY) from PY 1 through PY 6 for NGACOs that exited or remained in the model, significant at *p<0.1, **p<0.05, and ***p<0.01. Gross spending impact in a PY was the average difference-in-differences (DID) estimate for Medicare Parts A and B spending for NGACOs that exited the model after a PY or remained in the model. Confidence intervals for the gross spending impacts are shown for the 90% level and are displayed as bars around the impact estimates. The shared savings or loss is not an estimated value but the actual payments made; there is no standard error for these results and for this reason, confidence intervals were not computed. Percentage impact was the impact relative to expected average number of NGACO beneficiaries with average gross spending impacts from PY 1 through PY 6. No NGACOs exited the model in PY 6. § Denotes failure of parallel trends assumption for outcome across BYs, where estimated impact should be interpreted with caution.

Exhibit D.30. Estimated Gross Spending Impacts and Shared Savings / Losses for NGACOs that Passed Parallel Trends and Remained in the Model, on Average and in Each PY

	% Impact	N
Average: -$297.4*** / -$333.2	-2.2%	184
PY6: -$556.6*** / -$287.0	-4.3%	32
PY5: -$444.9*** / -$526.3	-3.7%	31
PY4: -$328.7*** / -$507.1	-2.5%	35
PY3: -$195.6*** / -$243.7	-1.4%	39
PY2: -$80.9 / -$229.5	-0.6%	33
PY1: -$156.8** / -$113.0	-1.1%	14

$PBPY and 90% CI

● Gross Spending ● Shared Savings/Losses

NOTES: Average performance against the benchmark reflected shared savings / losses per beneficiary per year (PBPY) from PY 1 through PY 6 for NGACOs that remained in the model, significant at *p<0.1, **p<0.05, and ***p<0.01. Only NGACOs that passed the parallel trends test were included in the exhibit. Gross spending impact in a PY was the average difference-in-differences (DID) estimate for Medicare Parts A and B spending for NGACOs that exited the model after a PY or remained in the model. Confidence intervals for the gross spending impacts are shown for the 90% level and are displayed as bars around the impact estimates. The shared savings or loss was not an estimated value but the actual payments made; there is no standard error for these results and for this reason, confidence intervals were not computed. Percentage impact was the impact relative to expected average number of NGACO beneficiaries with average gross spending impacts from PY 1 through PY 6.

Exhibit D.31. Estimated Gross Spending Impacts and Shared Savings / Losses for NGACOs that Passed the Parallel Trends Test and Exited the Model, on Average and in Each PY
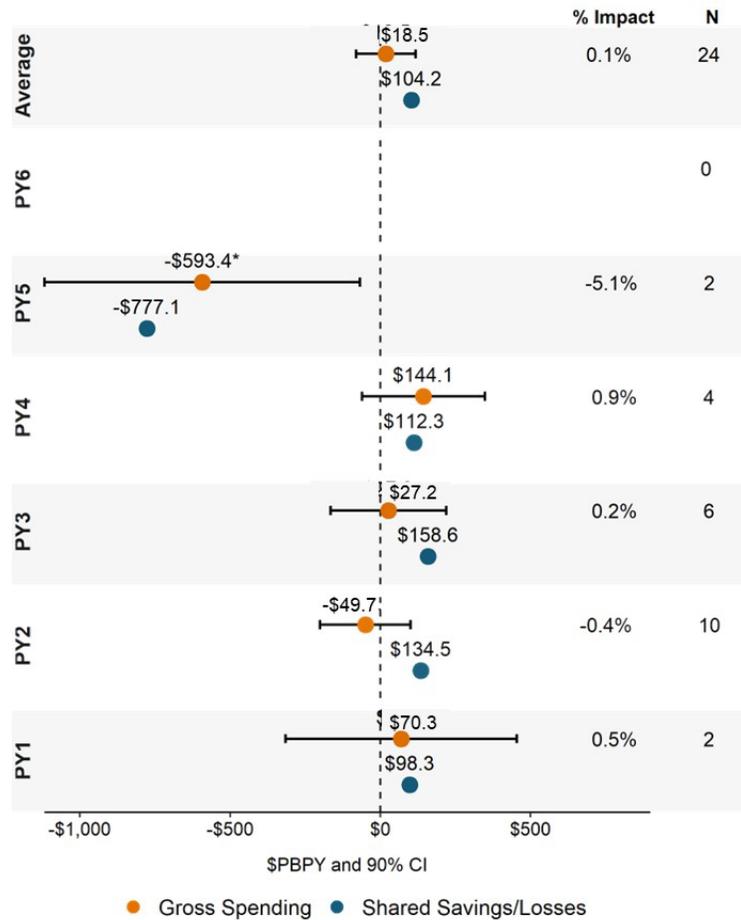
NOTES: Average performance against the benchmark reflected shared savings / losses per beneficiary per year (PBPY) from PY 1 through PY 6 for NGACOs that exited in the model, significant at *p<0.1, **p<0.05, and ***p<0.01. Only NGACOs that passed the parallel trends test were included in the exhibit. Gross spending impact in a PY was the average difference-in-differences (DID) estimate for Medicare Parts A and B spending for NGACOs that exited the model after a PY or remained in the model. Confidence intervals for the gross spending impacts are shown for the 90% level and are displayed as bars around the impact estimates. The shared savings or loss was not an estimated value but the actual payments made; there is no standard error for these results and for this reason, confidence intervals were not computed. Percentage impact was the impact relative to expected average number of NGACO beneficiaries with average gross spending impacts from PY 1 through PY 6. No NGACOs exited the model in PY 6.

Exhibit D.32. NGACOs With Less Than Five Years of Prior Experience as a Medicare ACO Were More Likely to Withdraw From the Model Than Those With at Least Five Years of Experience
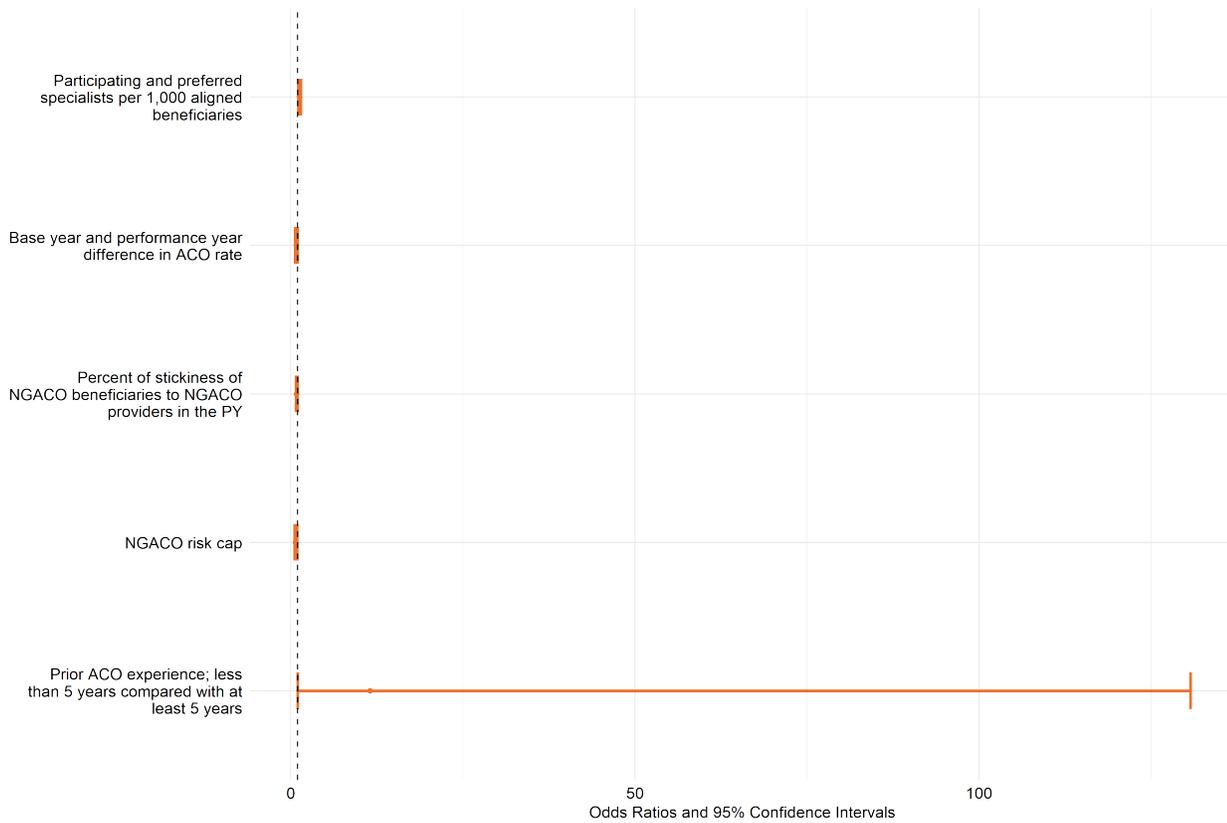
NOTES: A stepwise logistic regression was used to model the probability of exiting the model. All covariates in the model were statistically significant at the 0.05 level; odds ratios and 95% confidence intervals are depicted.
SOURCE: NORC analysis of NGACO enrollment, claims, and model programmatic data.

Appendix E: Exhibits to Support Chapter 3

This appendix presents supplemental exhibits that support the summary descriptions presented in Chapter 3. The exhibits present model outcomes by organization characteristics, including organization type and prior ACO experience, as follows:

- Spending Reductions by Organization Type Before and During COVID-19 (**Exhibit E.1**)
- Estimated Impacts on Medicare Spending Categories, Utilization, and Quality of Care by Organization Type, PY 5 Through PY 6 (**Exhibit E.2**)
- Contributions to Gross Spending Reductions by Spending Category and PY for IDS/Hospital System NGACOs (**Exhibit E.3**), Physician Practice NGACOs (**Exhibit E.4**), and Physician Practice/Hospital NGACOs (**Exhibit E.5**)
- Estimated Impact on ACSC Hospitalizations (**Exhibit E.6**), on Unplanned 30-Day Readmissions (**Exhibit E.7**), and on 30-Day Hospital Readmissions from SNF (**Exhibit E.8**), by Organization Type, Cumulative and by PY
- Average Impacts on ACSC Hospitalizations (**Exhibit E.9**), Unplanned 30-Day Readmissions (**Exhibit E.10**), and 30-Day Readmissions from SNF (**Exhibit E.11**) by Organization Type and Years of Model Participation
- Contributions to Gross Spending Reductions by Spending Category for IDS/Hospital System NGACOs (**Exhibit E.12**), Physician Practice NGACOs (**Exhibit E.13**), and Physician Practice/Hospital NGACOs (**Exhibit E.14**) that Remained in the Model
- Average Impacts on ACSC Hospitalizations (**Exhibit E.15**), Unplanned 30-Day Readmissions (**Exhibit E.16**), 30-Day Readmissions from SNF (**Exhibit E.17**) for NGACOs that Remained in the Model by Organization Type and Years of Model Participation

Exhibit E.1. Spending Reductions by Organization Type Before and During COVID-19
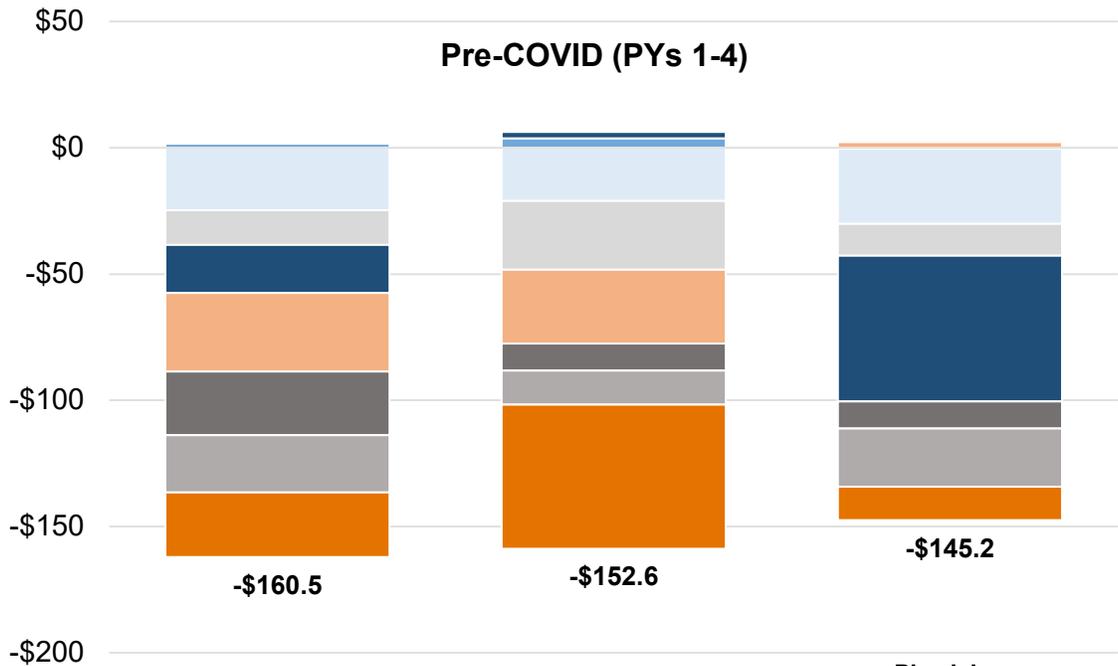
Pre-COVID (PYs 1-4)

	IDS/Hospital System	Physician Practice	Physician Practice/Hospital
Total Spending Impact	-$160.5	-$152.6	-$145.2
■ **Acute Care Hospital**	-$25.6	-$57.2	-$13.3
■ **SNF**	-$22.7	-$13.4	-$23.0
■ **Other PAC Facility**	-$25.2	-$10.8	-$10.7
■ **Outpatient**	-$31.1	-$29.3	$2.3
■ **Professional Services**	-$19.0	$2.5	-$57.7
■ **Home Health**	-$13.7	-$27.2	-$12.6
■ **Hospice**	-$24.8	-$21.1	-$29.7
■ **DME**	$1.6	$3.7	-$0.4

During COVID (PYs 5-6)
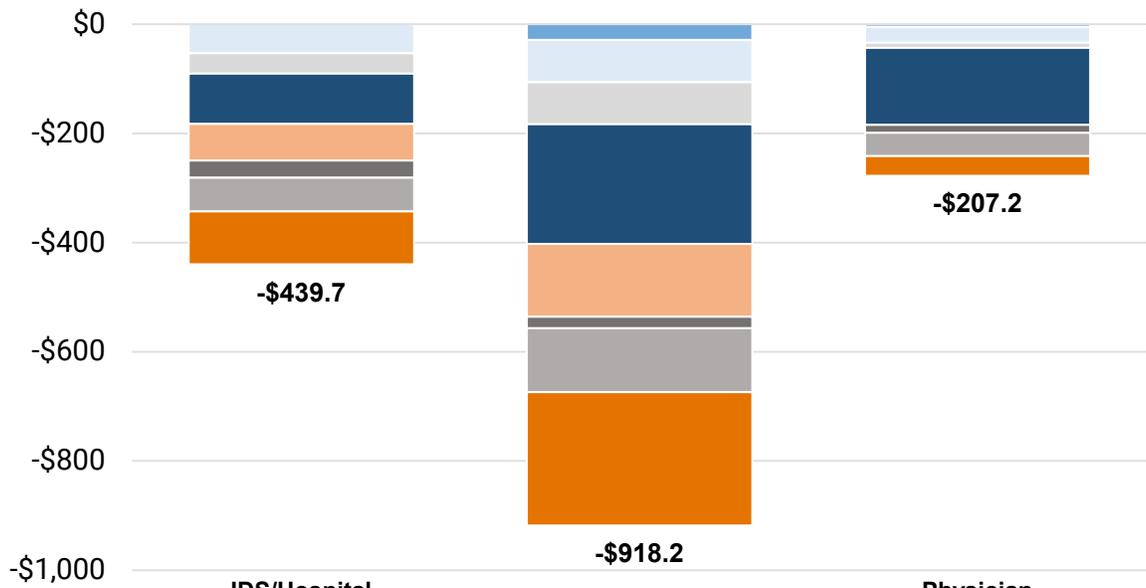
	IDS/Hospital System	Physician Practice	Physician Practice/Hospital
Total Spending Impact	-$439.7	-$918.2	-$207.2
■ **Acute Care Hospital**	-$96.9	-$244.5	-$35.7
■ **SNF**	-$61.6	-$117.1	-$42.6
■ **Other PAC Facility**	-$31.4	-$20.6	-$14.6
■ **Outpatient**	-$67.4	-$133.4	$70.2
■ **Professional Services**	-$91.8	-$219.1	-$140.9
■ **Home Health**	-$37.2	-$77.1	-$9.3
■ **Hospice**	-$53.5	-$77.5	-$29.3
■ **DME**	$0.2	-$28.8	-$5.0

NOTES: This figure is intended to convey the relative proportion of each category to the total. The amounts shown were approximate contributions, based on summing the PBPY estimate from the model-estimated distribution across all spending outcomes and calculating the relative contribution of each to that total. The values shown here do not align with spending estimates for each care setting shown in Appendix D Exhibits D.19-D.20. Because we used different statistical models for total spending and spending categories, impacts for spending categories do not sum to the impacts for total spending. DME=durable medical equipment, IDS=integrated delivery system, PAC=post-acute care, SNF=skilled nursing facilities.

Exhibit E.2. Estimated Impacts on Medicare Spending Categories, Utilization, and Quality of Care, by Organization Type, PY 5 Through PY 6

Outcome	Average Impact PY 5–PY 6								
	IDS / Hospital System-Affiliated NGACOs			Hospital-Physician Partnership NGACOs			Physician Practice-Affiliated NGACOs		
	N ACO-PY	Impact estimate (95% confidence interval [CI])	% impact	N ACO-PY	Impact estimate (95% CI)	% impact	N ACO-PY	Impact estimate (95% CI)	% impact
Spending ($ Per Beneficiary Per Year)									
Acute care hospital facility	26	-99.9*** (-138.3, -61.5)	-2.82	18	-44.4 (-114.1, 25.3)	-1.25	21	-207.7*** (-268.0, -147.4)	-5.26
SNF	26	-63.5*** (-78.1, -48.8)	-8.01	18	-53.0*** (-80.3, -25.7)	-6.54	21	-99.5*** (-120.6, -78.4)	-10.91
Other PAC facility	26	-32.4*** (-45.9, -18.8)	-8.07	18	-18.2* (-39.2, 2.8)	-5.00	21	-17.5* (-35.9, 0.8)	-4.15
Outpatient facility	26	-69.5*** (-101.4, -37.6)	-2.52	18	87.4*** (26.1, 148.6)	3.09	21	-113.3*** (-155.7, -70.9)	-4.55
Professional services	26	-94.6*** (-121.2, -67.9)	-2.93	18	-175.4*** (-209.4, -141.5)	-5.89	21	-186.1*** (-225.7, -146.5)	-5.23
Home health	26	-38.4*** (-44.9, -31.9)	-6.96	18	-11.6* (-23.3, 0.2)	-2.09	21	-65.5*** (-76.4, -54.6)	-8.00
Hospice	26	-55.2*** (-66.8, -43.6)	-12.26	18	-36.5*** (-55.4, -17.7)	-8.26	21	-65.8*** (-84.2, -47.4)	-12.96
DME	26	0.2 (-8.8, 9.2)	0.05	18	-6.2 (-19.4, 6.9)	-2.01	21	-24.5*** (-35.0, -14.1)	-8.11
Utilization (Per 1,000 Beneficiaries Per Year)									
Acute care stays	26	-4.7*** (-6.7, -2.8)	-1.91	18	2.0 (-1.7, 5.6)	0.83	22	-10.5*** (-13.3, -7.6)	-4.07
SNF stays	27	-0.9* (-1.8, 0.0)	-1.53	19	-1.5* (-3.0, 0.0)	-2.82	19	-4.2*** (-5.6, -2.9)	-6.98
SNF days	29	-72.0*** (-97.7, -46.4)	-4.96	18	-69.5*** (-114.1, -24.8)	-5.30	21	-143.2*** (-180.1, -106.4)	-9.53
ED visits & observation stays	21	-17.1*** (-21.3, -12.9)	-3.74	18	4.8 (-2.1, 11.6)	1.02	18	-15.0*** (-20.3, -9.6)	-3.62
E&M visits	9	-682.1*** (-762.0, -602.2)	-5.77	6	-283.8*** (-377.9, -189.8)	-2.65	13	-679.1*** (-737.2, -621.0)	-5.39
Procedures	25	-299.9*** (-360.7, -239.2)	-3.10	18	-308.9*** (-410.8, -207.1)	-3.07	20	-349.6*** (-444.7, -254.4)	-3.30
Tests	16	-568.9*** (-696.0, -441.9)	-2.65	19	-405.9*** (-547.6, -264.3)	-1.78	13	-382.1*** (-521.2, -243.0)	-1.61
Imaging services	23	-35.3*** (-56.8, -13.7)	-0.76	17	-40.3** (-78.5, -2.1)	-0.91	20	-186.3*** (-214.9, -157.6)	-3.89

Outcome	Average Impact PY 5–PY 6								
	IDS / Hospital System-Affiliated NGACOs			Hospital-Physician Partnership NGACOs			Physician Practice-Affiliated NGACOs		
	N ACO-PY	Impact estimate (95% confidence interval [CI])	% impact	N ACO-PY	Impact estimate (95% CI)	% impact	N ACO-PY	Impact estimate (95% CI)	% impact
Beneficiaries with AWV	5	108.5*** (102.9, 114.2)	19.21	6	144.9*** (139.9, 149.9)	36.96	3	221.5*** (217.1, 226.0)	52.12
Home health episodes	26	-20.5*** (-22.5, -18.5)	-11.31	19	-10.4*** (-13.8, -7.1)	-5.83	20	-25.8*** (-29.1, -22.6)	-10.52
Home health visits	23	-152.1*** (-187.3, -117.0)	-6.60	18	-68.8** (-123.4, -14.1)	-3.00	18	-355.4*** (-423.0, -287.7)	-9.93
Quality of Care (Beneficiaries with Outcome, Per 1,000 Beneficiaries Per Year)									
ACSC hospitalizations	26	0.5** (0.0, 1.0)	1.94	19	0.1 (-0.8, 0.9)	0.23	21	-1.3*** (-2.0, -0.6)	-4.92
Unplanned 30-day Readmissions	29	-4.0*** (-6.8, -1.2)	-2.86	20	0.0 (-5.0, 5.0)	0.00	23	-2.7 (-6.5, 1.1)	-1.84
Hospital readmissions from SNF	22	-6.7* (-13.6, 0.1)	-3.75	19	-1.8 (-13.6, 10.1)	-0.97	22	-3.4 (-12.5, 5.7)	-1.78

NOTES: Impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. Impacts for the NGACO subgroups by organization type estimated from impacts for their respective NGACO-years weighted by their respective proportions of beneficiaries in a subgroup. Spending outcomes excluded impacts from NGACO years that failed the parallel trends tests for total spending, and other outcomes excluded impacts from NGACO years that failed the parallel trends tests for that given outcome. ACSC=ambulatory care-sensitive condition, AWV=annual wellness visit, DME=durable medical equipment, ED=emergency department, E&M=evaluation and management, IDS=integrated delivery system, SNF=skilled nursing facility.

Exhibit E.3. Contributions to Gross Spending Reductions by Spending Category and PY for IDS / Hospital System NGACOs

	Year 1	Year 2	Year 3	Year 4	Year 5+
Total Spending Impact	-$98.91	-$105.93	-$317.17	-$345.12	-$387.00
■ **Acute Care Hospital**	$7.81	-$0.47	-$83.52	-$81.74	-$89.58
■ **SNF**	$2.68	-$18.24	-$51.10	-$52.35	-$58.41
■ **Other PAC Facility**	-$21.24	-$23.58	-$34.81	-$29.71	-$28.89
■ **Outpatient**	-$53.97	-$8.10	-$15.87	-$52.92	-$77.47
■ **Professional Services**	-$9.08	-$29.63	-$67.61	-$58.98	-$46.78
■ **Home Health**	-$10.10	-$9.19	-$27.85	-$27.21	-$32.36
■ **Hospice**	-$18.91	-$17.66	-$34.43	-$40.37	-$57.57
■ **DME**	$3.90	$0.93	-$1.99	-$1.85	$4.06

NOTES: This figure is intended to convey the relative proportion of each category to the total. The amounts shown in this Exhibit were approximate contributions based on summing the PBPY estimate from the model-estimated distribution across all spending outcomes and calculating the relative contribution of each to that total. Because we used different statistical models for total spending and spending categories, impacts for spending categories do not sum exactly to the impacts for total spending. DME=durable medical equipment, PAC=post-acute care, SNF=skilled nursing facilities.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.4. Contributions to Gross Spending Reductions by Spending Category and PY for Physician Practice NGACOs

	Year 1	Year 2	Year 3	Year 4	Year 5+
Total Spending Impact	-$160.79	-$167.11	-$388.48	-$914.65	-$918.79
■ Acute Care Hospital	-$88.40	-$59.84	-$79.96	-$218.17	-$297.16
■ SNF	-$2.31	-$36.74	-$46.98	-$94.94	-$109.88
■ Other PAC Facility	-$8.90	-$6.32	-$19.04	-$12.45	-$57.17
■ Outpatient	-$24.74	-$33.88	-$47.25	-$174.91	-$90.82
■ Professional Services	$8.66	$4.03	-$93.87	-$235.60	-$146.92
■ Home Health	-$20.81	-$25.41	-$45.99	-$74.85	-$117.89
■ Hospice	-$27.90	-$7.58	-$50.68	-$81.34	-$71.08
■ DME	$3.62	-$1.38	-$4.70	-$22.41	-$27.86

NOTES: This figure is intended to convey the relative proportion of each category to the total. The amounts shown in this Exhibit were approximate contributions based on summing the PBPY estimate from the model-estimated distribution across all spending outcomes and calculating the relative contribution of each to the total. Because we used different statistical models for total spending and spending categories, impacts for spending categories do not sum exactly to the impacts for total spending. DME=durable medical equipment, PAC=post-acute care, SNF=skilled nursing facilities.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.5. Contributions to Gross Spending Reductions by Spending Category and PY for Physician Practice/Hospital NGACOs

	Year 1	Year 2	Year 3	Year 4	Year 5+
Total Spending Impact	-$164.08	-$207.96	-$282.29	-$298.70	-$36.15
■ **Acute Care Hospital**	-$15.66	-$35.56	-$55.59	-$32.77	$16.90
■ **SNF**	-$3.09	-$25.53	-$37.53	-$49.03	-$73.94
■ **Other PAC Facility**	-$14.45	-$12.41	-$10.63	-$3.83	-$28.83
■ **Outpatient**	-$64.83	-$22.16	$48.38	$10.76	$225.71
■ **Professional Services**	-$18.66	-$79.62	-$146.82	-$161.29	-$135.08
■ **Home Health**	-$13.81	-$18.66	-$17.45	-$9.63	-$7.21
■ **Hospice**	-$38.39	-$12.35	-$59.06	-$41.28	-$31.27
■ **DME**	$4.82	-$1.67	-$3.59	-$11.64	

NOTES: This figure is intended to convey the relative proportion of each category to the total. The amounts shown in this Exhibit were approximate contributions based on summing the per beneficiary per year (PBPY) estimate from the model-estimated distribution across all spending outcomes and calculating the relative contribution of each to that total. Because we used different statistical models for total spending and spending categories, impacts for spending categories do not sum exactly to the impacts for total spending. DME=durable medical equipment, PAC=post-acute care, SNF=skilled nursing facilities.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.6. Estimated Impact on ACSC Hospitalizations by Organization Type, Cumulative and by PY

NOTES: Estimated impacts for quality per 1,000 beneficiaries per year (BPY) significant at *p<0.1, **p<0.05, ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for ambulatory care-sensitive condition (ACSC) hospitalizations. Confidence intervals (CI) at the 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected utilization for NGACO beneficiaries in PY(s) absent the model. Cumulative impact was the summary impact from PY 1 through PY 6 of the model. IDS=integrated delivery system.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.7. Estimated Impact on Unplanned 30-Day Readmissions by Organization Type, Cumulative and by PY
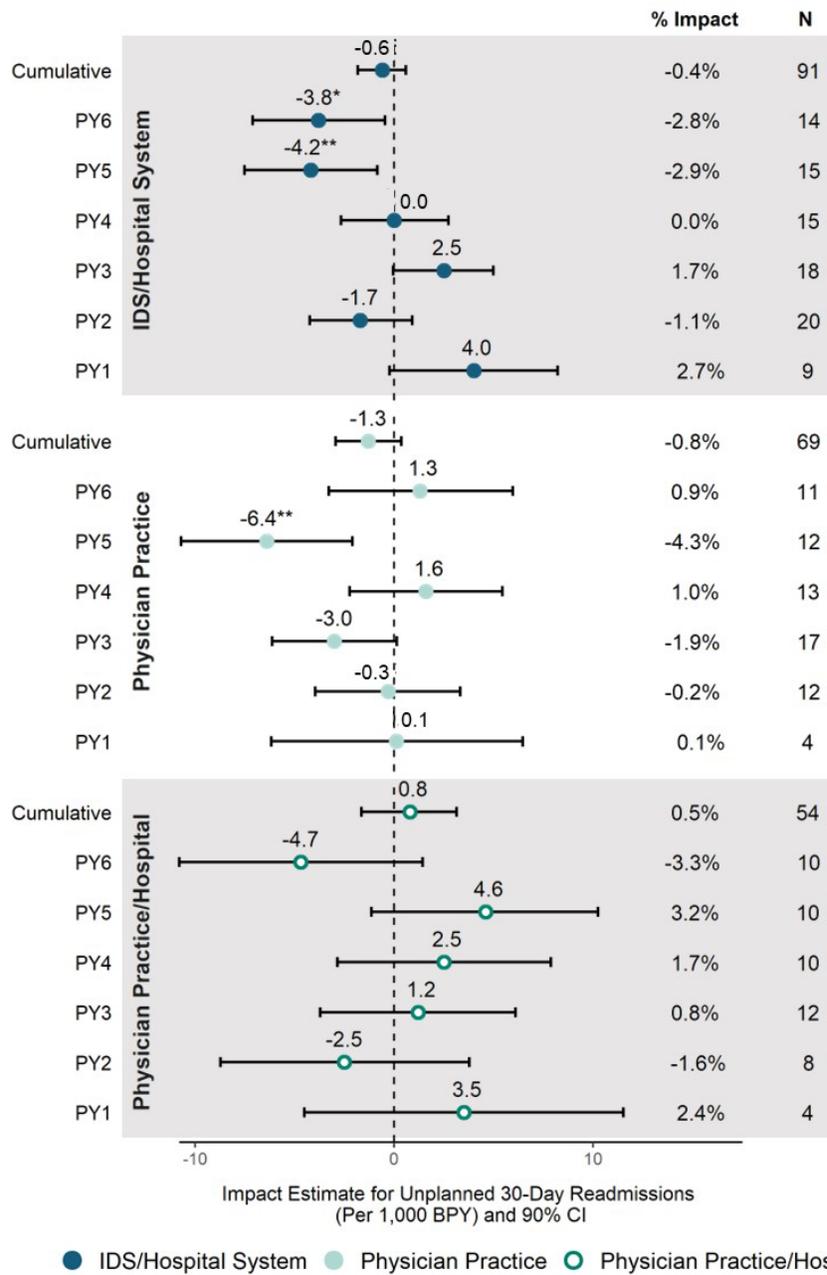
NOTES: Estimated impacts for quality per 1,000 beneficiaries per year (BPY) significant at *p<0.1, **p<0.05, ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for unplanned 30-day readmissions. Confidence intervals (CI) at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected utilization for NGACO beneficiaries in PY(s) absent the model. Cumulative impact was the summary impact from PY 1 through PY 6 of the model. IDS=integrated delivery system.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.8. Estimated Impact on 30-Day Hospital Readmissions from SNF by Organization Type, Cumulative and by PY

		% Impact	N
IDS/Hospital System			
Cumulative	-2.1	-1.2%	79
PY6	-11.3**	-6.3%	11
PY5	-2.0	-1.1%	11
PY4	-1.8	-1.0%	15
PY3	3.5	1.9%	16
PY2	-5.7*	-3.1%	17
PY1	-0.2	-0.1%	9
Physician Practice			
Cumulative	-0.1	-0.1%	70
PY6	1.1	0.6%	10
PY5	-7.2	-3.7%	12
PY4	8.6**	4.6%	15
PY3	-8.3**	-4.4%	17
PY2	5.5	2.8%	12
PY1	-1.7	-0.8%	4
Physician Practice/Hospital			
Cumulative	3.6	2.0%	55
PY6	-6.6	-3.7%	9
PY5	2.9	1.6%	10
PY4	8.4	4.9%	10
PY3	12.5**	6.7%	13
PY2	-5.8	-3.1%	9
PY1	3.5	2.1%	4

Impact Estimate for 30-Day Hospital Readmission from SNF
(Per 1,000 BPY) and 90% CI

● IDS/Hospital System   ● Physician Practice   ○ Physician Practice/Hospital

NOTES: Estimated impacts for quality per 1,000 beneficiaries per year (BPY) significant at *p<0.1, **p<0.05, ***p<0.01. Impact estimates were the difference-in-difference (DID) estimates for 30-day hospital readmissions from skilled nursing facility (SNF). Confidence intervals (CI) at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected utilization for NGACO beneficiaries in PY(s) absent the model. Cumulative impact was the summary impact from PY 1 through PY 6 of the model. IDS=integrated delivery system.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.9. Average Impacts on ACSC Hospitalizations by Organization Type and Years of Model Participation

	% Impact	N
IDS/Hospital System		
5th+ Year — 0.6*	2.2%	17
4th Year — 1.0***	3.2%	14
3rd Year — -0.7*	-1.7%	15
2nd Year — 0.0	0.0%	17
1st Year — 0.6	1.4%	20
Physician Practice		
5th+ Year — -0.9	-3.4%	3
4th Year — -0.9	-3.1%	10
3rd Year — -0.3	-1.0%	15
2nd Year — -0.3	-0.7%	18
1st Year — -0.3	-0.7%	16
Physician Practice/Hospital		
5th+ Year — -0.1	-0.4%	9
4th Year — -0.8	-2.7%	10
3rd Year — -1.0	-2.8%	10
2nd Year — 0.2	0.6%	10
1st Year — 0.1	0.3%	15

Impact Estimate for ACSC Hospitalizations (Per 1,000 BPY) and 90% CI

● IDS/Hospital System   ● Physician Practice   ○ Physician Practice/Hospital

NOTES: Estimated impacts for quality per 1,000 beneficiaries per year (BPY) significant at *$p<0.1$, **$p<0.05$, ***$p<0.01$. Impact estimates were the difference-in-differences (DID) estimates for ambulatory care-sensitive condition (ACSC) hospitalizations. Confidence intervals (CI) at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected utilization for NGACO beneficiaries in PY(s) absent the model. Cumulative impact was the summary impact from PY 1 through PY 6 of the model.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.10. Average Impacts on Unplanned 30-Day Readmissions by Organization Type and Years of Model Participation

NOTES: Estimated impacts for quality per 1,000 beneficiaries per year (BPY) significant at *p<0.1, **p<0.05, ***p<0.01. Impact estimates were the difference-in-difference (DID) estimates for unplanned 30-day readmissions. Confidence intervals (CI) at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected utilization for NGACO beneficiaries in PY(s) absent the model. Impacts shown for NGACO organization types were based on their number of years in the model, dropping NGACO-years that did not meet the assumption of parallel trends in the baseline.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.11. Average Impacts on 30-Day Hospital Readmissions from SNF by Organization Type and Years of Model Participation
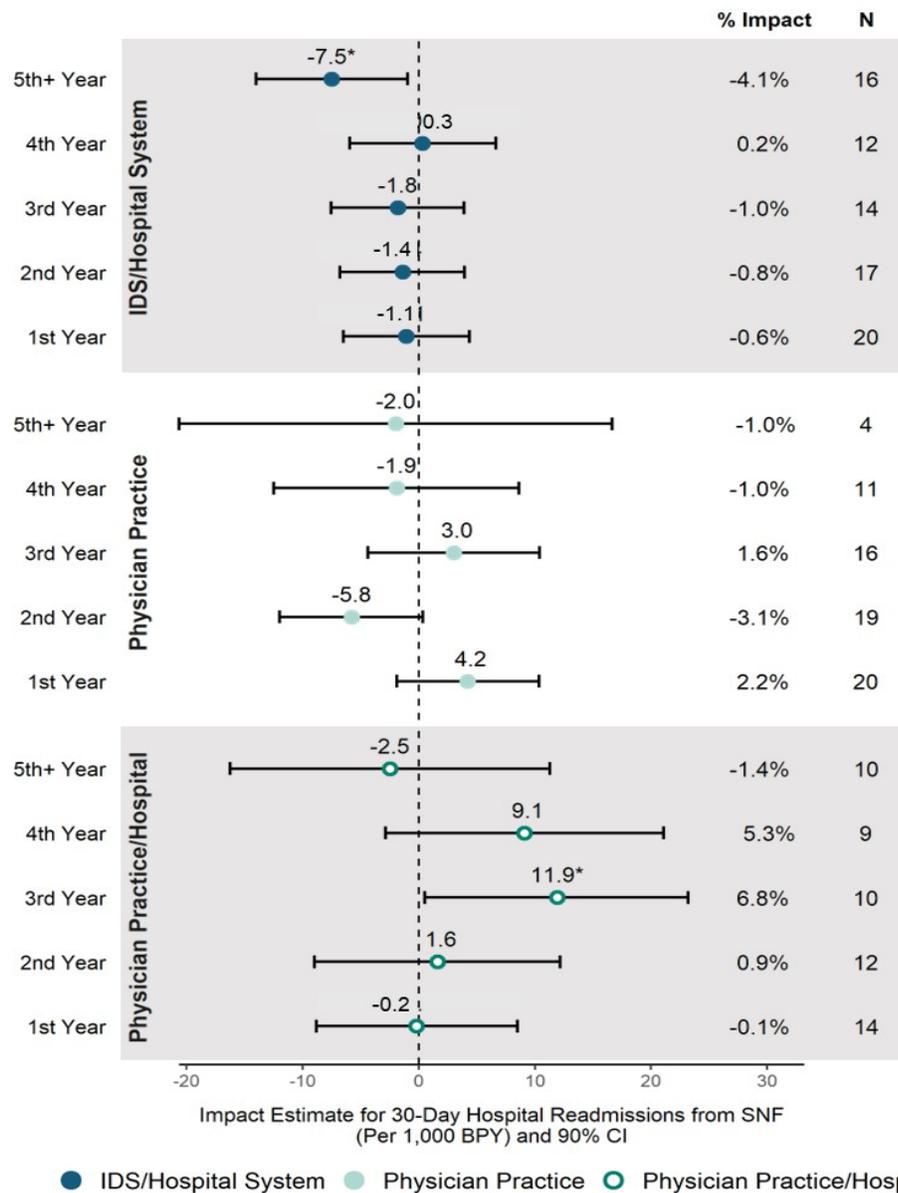
NOTES: Estimated impacts for quality per 1,000 beneficiaries per year (BPY) significant at *p<0.1, **p<0.05, ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for 30-day hospital readmissions from a skilled nursing facility (SNF). Confidence intervals (CI) at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected utilization for NGACO beneficiaries in PY(s) absent the model. Impacts shown for NGACO organization types was based on their number of years in the model, dropping NGACO-years that did not meet the assumption of parallel trends in the baseline.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.12. Contributions to Gross Spending Reductions by Spending Category for IDS / Hospital System NGACOs that Remained in the Model

	Year 1	Year 2	Year 3	Year 4	Year 5+
Total Spending Impact	-$156.07	-$145.74	-$341.05	-$407.30	-$387.00
■ Acute Care Hospital	-$28.19	-$36.64	-$91.15	-$88.63	-$92.36
■ SNF	-$25.13	-$34.86	-$66.95	-$71.13	-$48.23
■ Other PAC Facility	-$17.93	-$21.73	-$30.65	-$26.60	-$29.78
■ Outpatient	-$37.05	$11.82	-$19.01	-$69.65	-$79.87
■ Professional Services	-$25.13	-$34.86	-$66.95	-$71.13	-$48.23
■ Home Health	-$7.24	-$13.31	-$31.61	-$33.58	-$33.37
■ Hospice	-$14.13	-$15.95	-$32.12	-$40.74	-$59.35
■ DME	-$1.27	-$0.20	-$2.59	-$5.83	$4.19

NOTES: This figure is intended to convey the relative proportion of each category to the total. The amounts shown in this Exhibit were approximate contributions based on summing the PBPY estimate from the model-estimated distribution across all spending outcomes and calculating the relative contribution of each to that total. Because we used different statistical models for total spending and spending categories, impacts for spending categories do not sum exactly to the impacts for total spending. DME=durable medical equipment, PAC=post-acute care, SNF=skilled nursing facilities.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.13. Contributions to Gross Spending Reductions by Spending Category for Physician Practice NGACOs that Remained in the Model

	Year 1	Year 2	Year 3	Year 4	Year 5+
Total Spending Impact	-$153.35	-$309.04	-$756.20	-$902.85	-$918.79
■ **Acute Care Hospital**	-$110.82	-$119.30	-$217.25	-$201.40	-$297.16
■ **SNF**	$7.26	-$40.66	-$101.53	-$92.83	-$109.88
■ **Other PAC Facility**	-$12.93	-$26.11	-$32.78	-$12.82	-$57.17
■ **Outpatient**	-$5.34	-$69.23	-$100.09	-$179.27	-$90.82
■ **Professional Services**	$31.52	-$0.52	-$158.18	-$238.25	-$146.92
■ **Home Health**	-$40.99	-$37.85	-$71.47	-$75.05	-$117.89
■ **Hospice**	-$20.06	-$0.26	-$55.63	-$79.89	-$71.08
■ **DME**	-$1.97	-$15.11	-$19.27	-$23.32	-$27.86

NOTES: This figure is intended to convey the relative proportion of each category to the total. The amounts shown in this Exhibit were approximate contributions based on summing the per beneficiary per year (PBPY) estimate from the model-estimated distribution across all spending outcomes and calculating the relative contribution of each to the total. Because we used different statistical models for total spending and spending categories, impacts for spending categories do not sum exactly to the impacts for total spending. DME=durable medical equipment, PAC=post-acute care, SNF=skilled nursing facilities.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.14. Contributions to Gross Spending Reductions by Spending Category for Physician Practice/Hospital NGACOs that Remained in the Model

	Year 1	Year 2	Year 3	Year 4	Year 5+
Total Spending Impact	-$245.43	-$202.02	-$282.29	-$298.70	-$36.15
■ **Acute Care Hospital**	-$30.84	-$29.96	-$55.59	-$32.77	$16.90
■ **SNF**	-$24.20	-$32.38	-$37.53	-$49.03	-$73.94
■ **Other PAC Facility**	-$6.96	-$7.78	-$10.63	-$3.83	-$28.83
■ **Outpatient**	-$93.78	-$17.20	$48.38	$10.76	$225.71
■ **Professional Services**	-$27.87	-$81.95	-$146.82	-$161.29	-$135.08
■ **Home Health**	-$21.99	-$20.98	-$17.45	-$9.63	-$7.21
■ **Hospice**	-$46.53	-$12.09	-$59.06	-$41.28	-$31.27
■ **DME**	$6.73	$0.32	-$3.59	-$11.64	

NOTES: This figure is intended to convey the relative proportion of each category to the total. The amounts shown in this Exhibit were approximate contributions based on summing the per beneficiary per year (PBPY) estimate from the model-estimated distribution across all spending outcomes and calculating the relative contribution of each to the total. Because we used different statistical models for total spending and spending categories, impacts for spending categories do not sum exactly to the impacts for total spending. DME=durable medical equipment, PAC=post-acute care, SNF=skilled nursing facilities.

SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.15. Average Impacts on ACSC Hospitalizations for NGACOs that Remained in the Model by Organization Type and Years of Model Participation

NOTES: Estimated impacts for quality per 1,000 beneficiaries per year (BPY) significant at *p<0.1, **p<0.05, ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for ambulatory care-sensitive condition (ACSC) hospitalizations. Confidence intervals (CI) at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected quality of care for NGACO beneficiaries in PY(s) absent the model. Impacts shown for NGACO organization types were based on their number of years in the model, dropping NGACO-years that did not meet the assumption of parallel trends in the baseline. Analysis was limited to the 35 NGACOs that remained in the model as of PY 6. IDS=integrated delivery system.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.16. Average Impacts on Unplanned 30-Day Readmissions for NGACOs that Remained in the Model by Organization Type and Years of Model Participation

NOTES: Estimated impacts for quality per 1,000 beneficiaries per year (BPY) significant at *p<0.1, **p<0.05, ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for unplanned 30-day hospital readmissions. Confidence intervals (CI) at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected quality of care for NGACO beneficiaries in PY(s) absent the model. Impacts shown for NGACO organization types was based on their number of years in the model, dropping NGACO-years that did not meet the assumption of parallel trends in the baseline. Analysis was limited to 35 NGACOs that remained in the model as of PY 6. IDS=integrated delivery system.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit E.17. Average Impacts on 30-Day Hospital Readmissions from SNF for NGACOs that Remained in the Model by Organization Type and Years of Model Participation
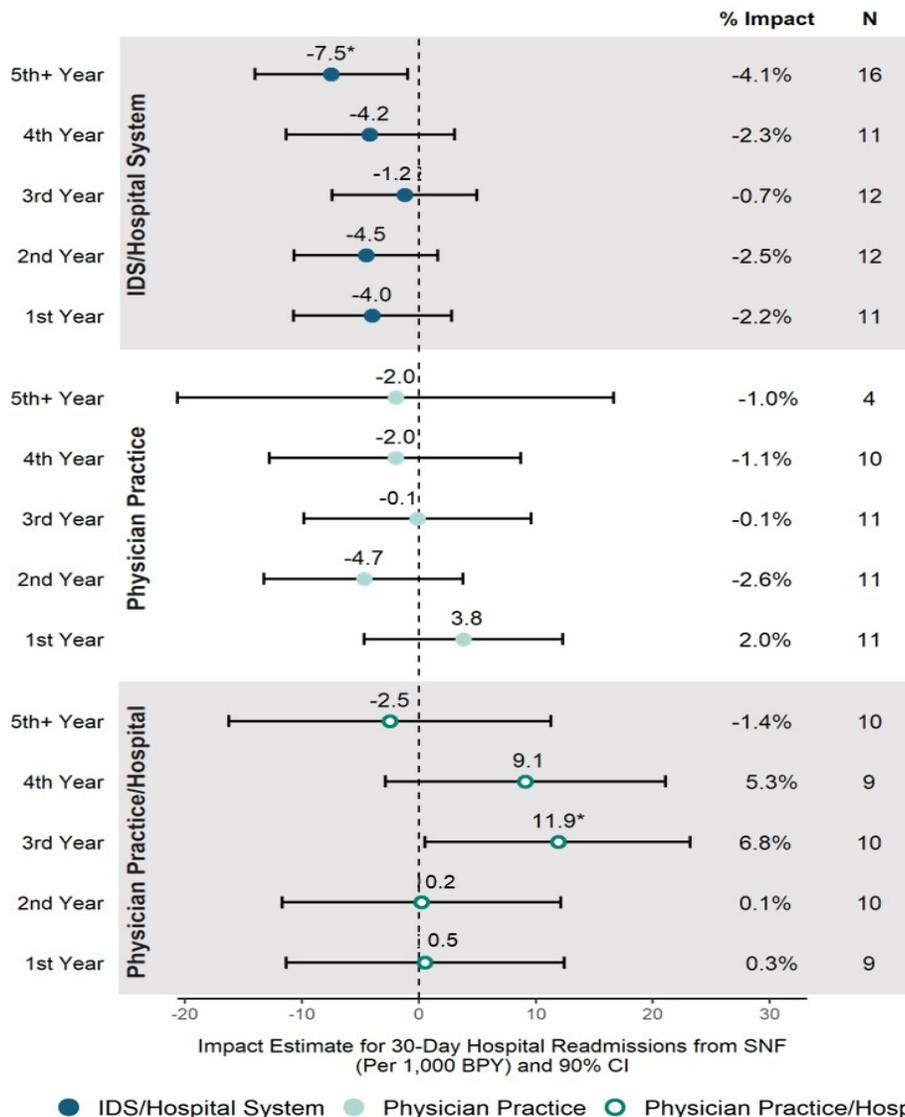
NOTES: Estimated impacts for quality per 1,000 beneficiaries per year (BPY) significant at *p<0.1, **p<0.05, ***p<0.01. Impact estimates were the difference-in-differences (DID) estimates for 30-day hospital readmissions from SNF. Confidence intervals (CI) at 90% level are displayed as bars around the impact estimates. Percentage impact was the impact relative to expected quality of care for NGACO beneficiaries in PY(s) absent the model. Impacts shown for NGACO organization types were based on their number of years in the model, dropping NGACO-years that did not meet the assumption of parallel trends in the baseline. Analysis was limited to 35 NGACOs that remained in the model as of PY 6. IDS=integrated delivery system.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Appendix F: Exhibits to Support Chapter 4

This appendix presents supplemental exhibits to support the summary descriptions presented in Chapter 4. The exhibits depict NGACO participating practitioners by PY and note spending impact differences among NGACO practitioners that joined, left, or remained with NGACOs over time, as follows:

- Preferred Providers by Specialty and PY (**Exhibit F.1**)

- Average Years of ACO Experience for Participant Providers, by PY (**Exhibit F.2**)

- Frequencies and Mean Total Cost of Care for Beneficiaries Assigned to Providers Categorized by Participation Status (**Exhibit F.3**)

- Gross Spending Impacts by NGACO Providers' Participation Status and Cohort (**Exhibit F.4**)

- Gross Spending Impacts for Providers Retained in the NGACO Model, by Cohort and PY (**Exhibit F.5**), for Providers that Joined the NGACO Model, by Cohort and PY (**Exhibit F.6**), and for Providers that Left the Model, by Cohort and PY (**Exhibit F.7**)

- Gross Spending Associations for NGACO Beneficiaries Assigned to Non-NGACO Providers, Model-Wide and by Cohort (**Exhibit F.8**)

- NGACO Facility Composition (**Exhibit F.9**)

- Average Years of Medicare ACO Experience for NGACO Participant and Comparison Group Providers (**Exhibit F.10**)

Exhibit F.1.   Preferred Providers by Specialty and by PY
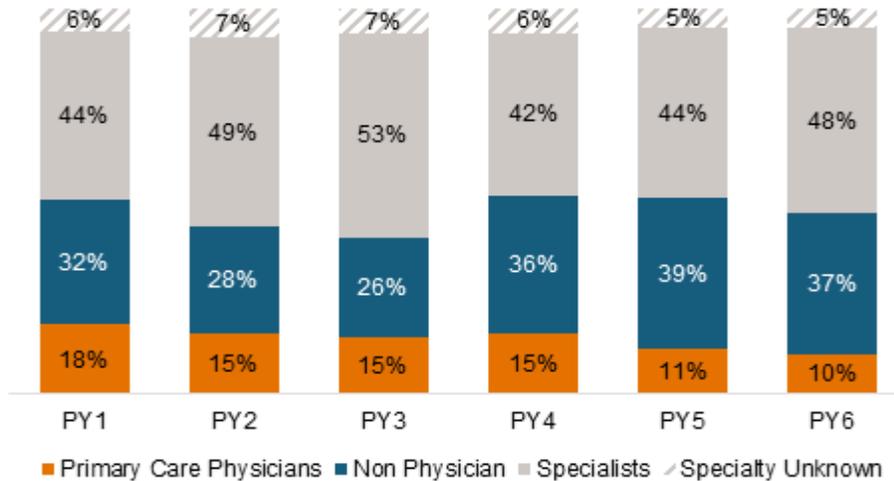
NOTES: Specialists included medical/surgical specialists, obstetricians/gynecologists, hospital-based physician specialists, and psychiatrists. "Unknown" denotes unidentified practitioner specialty. Non-physician preferred providers included nurse practitioners and physician assistants, as well as chiropractors, optometrists, podiatrists, psychologists, audiologists, physical therapists, occupational therapists, registered dietitians, clinical social workers, and clinical nurse specialists. PY=performance year.
SOURCE: NORC analysis of NGACO provider data linked to CMS provider files. Medicare Data on Physician and Physician Specialties (MD-PPAS) categories were used to group the taxonomy code for individual practitioners reported on the National Plan and Provider Enumeration System into the broad specialty classification provided in CMS MD-PPAS documentation. See Appendix A for more information.

Exhibit F.2.   Average Years of ACO Experience for Participant Providers, by PY

	Model	2016 Cohort	2017 Cohort	2018 Cohort
■ PY1	1.69	1.69		
■ PY2	2.02	2.03	2.01	
■ PY3	2.49	2.60	2.45	2.35
■ PY4	3.18	3.19	3.23	3.01
■ PY5	3.79	3.84	3.72	3.78
■ PY6	4.24	4.39	4.06	4.36
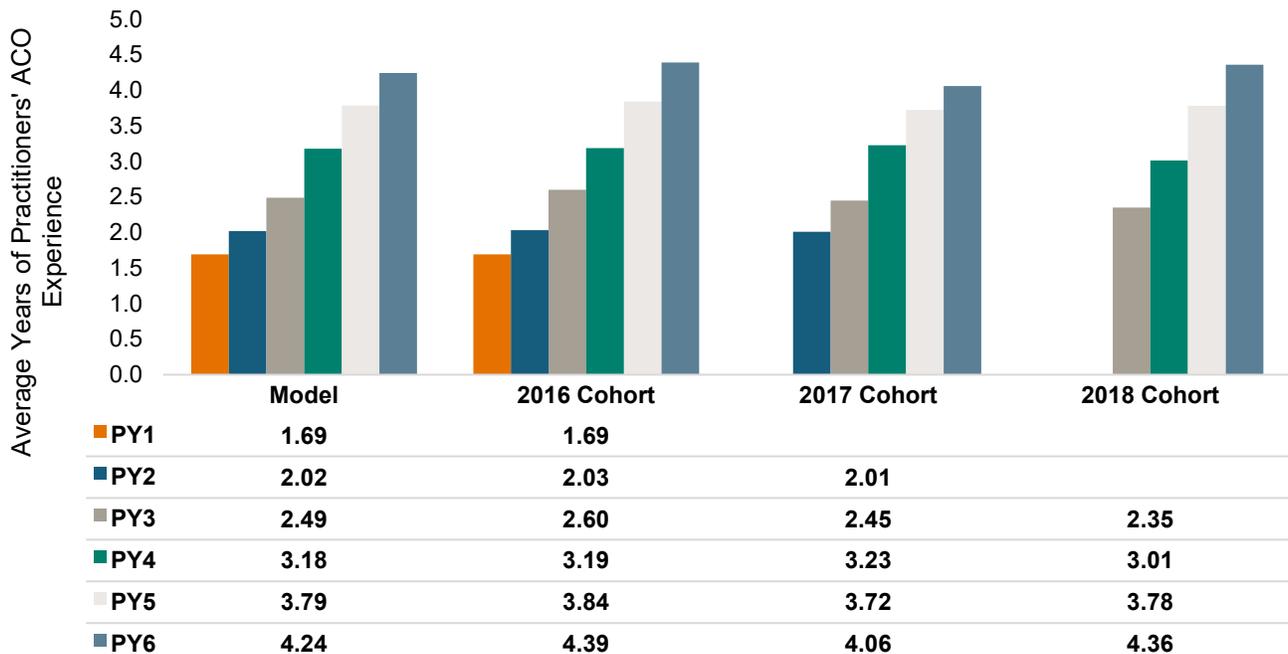
NOTE: PY=performance year.
SOURCE: NORC analysis of NGACO provider data linked to CMS's ACO programmatic data.

In **Exhibit F.3**, we compare the gross Medicare spending for beneficiaries by the participation status of providers. Across the three categories of participation status (joined the model, left the model, retained in the model), spending was lower for the NGACO beneficiaries than for the comparison group beneficiaries in both the baseline years and performance year. For the comparison group, beneficiaries whose main providers were NGACO providers had higher spending, on average, relative to those who received the plurality of care from non-NGACO providers. For NGACO beneficiaries, those whose main provider was outside the NGACO had higher spending, on average.

Exhibit F.3.   Frequencies and Mean Total Cost of Care for Beneficiaries Assigned to Participant Providers Categorized by Participation Status

| Participation Category | Performance Year | | | | | | | | Baseline Years | | | | | | | |
| | NGACO | | | | Comparison Group | | | | NGACO | | | | Comparison Group | | | |
	n	%	Mean	Standard deviation (SD)	n	%	Mean	SD	n	%	Mean	SD	n	%	Mean	SD
Joined the NGACO	139,029	3.0%	$11,347	$22,502	46,011	1.0%	$15,103	$34,956	231,506	1.8%	$10,779	$21,858	77,803	0.6%	$14,547	$24,639
Left the NGACO	98,532	2.2%	$11,325	$23,387	30,464	0.7%	$14,761	$28,333	402,464	3.1%	$10,380	$20,775	105,480	0.8%	$14,432	$25,261
Retained in the NGACO	1,285,477	28.1%	$9,611	$20,156	282,697	6.2%	$14,622	$25,427	3,172,002	24.3%	$9,936	$20,454	710,554	5.4%	$14,998	$25,853
Non-NGACO Providers	3,052,830	66.7%	$13,251	$25,178	4,218,465	92.2%	$12,313	$24,131	9,234,520	70.8%	$13,681	$26,245	12,153,404	93.1%	$12,472	$24,073

NOTES: Number of beneficiaries (n) and percentage (%) in NGACO and comparison group in PYs and BYs was based on the NGACO participation status of their assigned participant provider. Most beneficiaries were assigned to non-NGACO providers (as we have assigned beneficiaries to the provider from whom they received the plurality of Medicare Part A and B spending). The comparison group was propensity score-weighted. Our analysis omitted a small number of beneficiaries for providers that were present only in the PY (the provider both joined and left during the same model year).
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit F.4. Gross Spending Impacts by NGACO Providers' Participation Status and Cohort
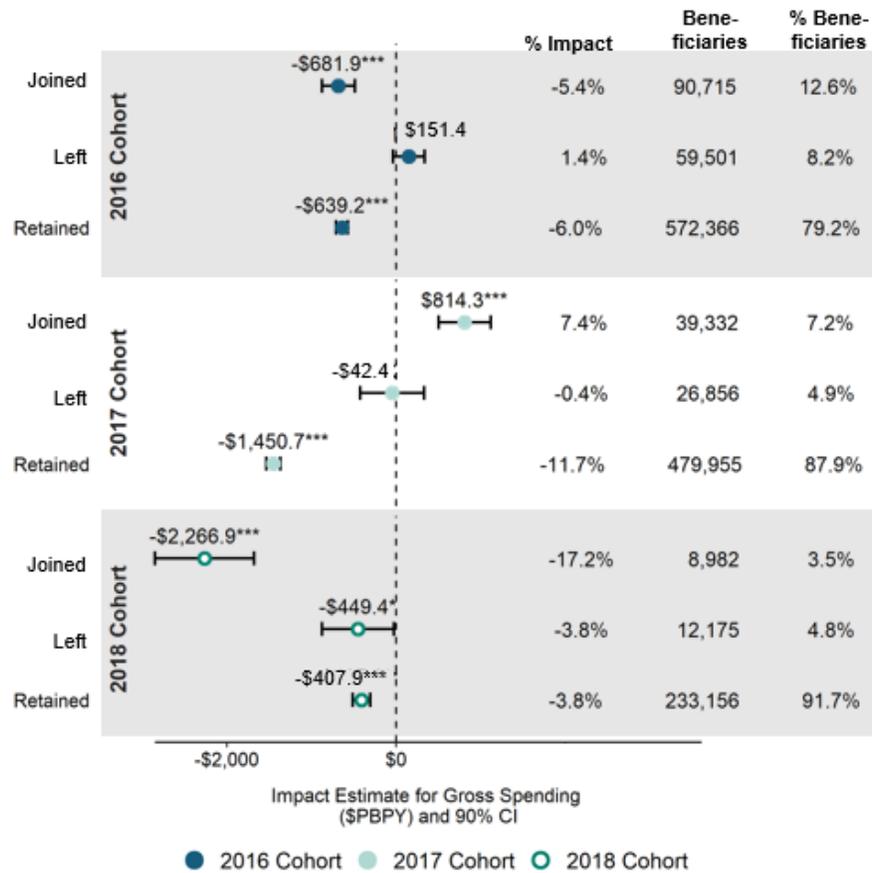
NOTES: Impact estimates for gross Medicare spending per beneficiary per year (PBPY); significant at *p<0.1, **p<0.05, ***p<0.01. Confidence intervals (CI) at the 90% level are displayed as bars around the impact estimates. Impact estimates were cumulative gross Medicare spending impacts from difference-in-differences (DID) analysis for subgroups of NGACO providers' beneficiaries in each cohort. Because we used non-linear models, we followed the approach suggested by Puhani (2012)[69]: the results reflect the difference between the estimated outcome for each treated group (joined, left, and retained) and the expected outcome for the given group in the absence of the NGACO. NGACOs that withdrew were excluded in their PY of withdrawal. There were no providers in the "joined" category for NGACOs in their first year. Cumulative estimates for categories of providers were as of PY 5 because the provider categories for "remained" and "left" were undefined in PY 6. Our approach to estimating impacts for the subgroups is detailed in Appendix A.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

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[69] Puhani PA. "The treatment effect, the cross difference, and the interaction term in nonlinear 'difference-in-differences' models." *Economics Letter* 2012;115(1):85-87. doi.org/10.1016/j.econlet.2011.11.025

Exhibit F.5. Gross Spending Impacts for Providers Retained in the NGACO Model, by Cohort and PY
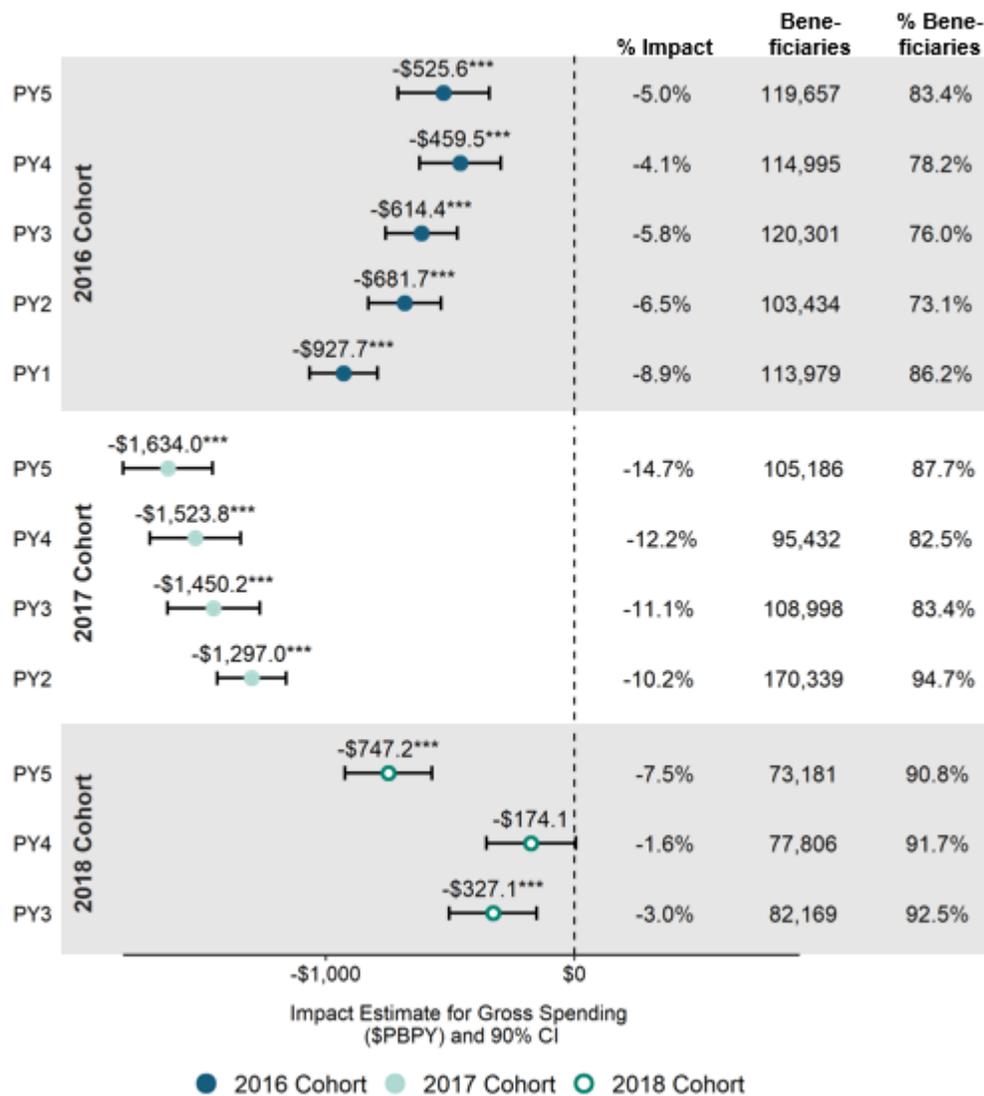
	% Impact	Bene-ficiaries	% Bene-ficiaries
2016 Cohort			
PY5 −$525.6***	−5.0%	119,657	83.4%
PY4 −$459.5***	−4.1%	114,995	78.2%
PY3 −$614.4***	−5.8%	120,301	76.0%
PY2 −$681.7***	−6.5%	103,434	73.1%
PY1 −$927.7***	−8.9%	113,979	86.2%
2017 Cohort			
PY5 −$1,634.0***	−14.7%	105,186	87.7%
PY4 −$1,523.8***	−12.2%	95,432	82.5%
PY3 −$1,450.2***	−11.1%	108,998	83.4%
PY2 −$1,297.0***	−10.2%	170,339	94.7%
2018 Cohort			
PY5 −$747.2***	−7.5%	73,181	90.8%
PY4 −$174.1	−1.6%	77,806	91.7%
PY3 −$327.1***	−3.0%	82,169	92.5%

Impact Estimate for Gross Spending
($PBPY) and 90% CI

● 2016 Cohort ● 2017 Cohort ○ 2018 Cohort

NOTES: Impact estimates for gross Medicare spending were per beneficiary per year (PBPY); significant at *p<0.1, **p<0.05, ***p<0.01. Confidence intervals (CI) at the 90% level are displayed as bars around the impact estimates. Gross Medicare spending impacts from difference-in-differences (DID) analysis for retained NGACO providers' beneficiaries for each cohort and PY are shown. Because we used non-linear models, we followed the approach suggested by Puhani (2012)[70]: the results reflect the difference between the estimated outcome for the treated group (retained providers) and the expected outcome for the treated group in the absence of the NGACO model. NGACOs that withdrew were excluded in their PY of withdrawal. There are no estimates for PY6 because the provider categories for remained and left were undefined in this PY. Our approach to estimating impacts for the subgroups is detailed in Appendix A.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

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[70] Puhani PA. "The treatment effect, the cross difference, and the interaction term in nonlinear 'difference-in-differences' models." *Economics Letter* 2012;115(1):85-87. doi.org/10.1016/j.econlet.2011.11.025

Exhibit F.6.   Gross Spending Impacts for Providers that Joined the NGACO Model, by Cohort and PY
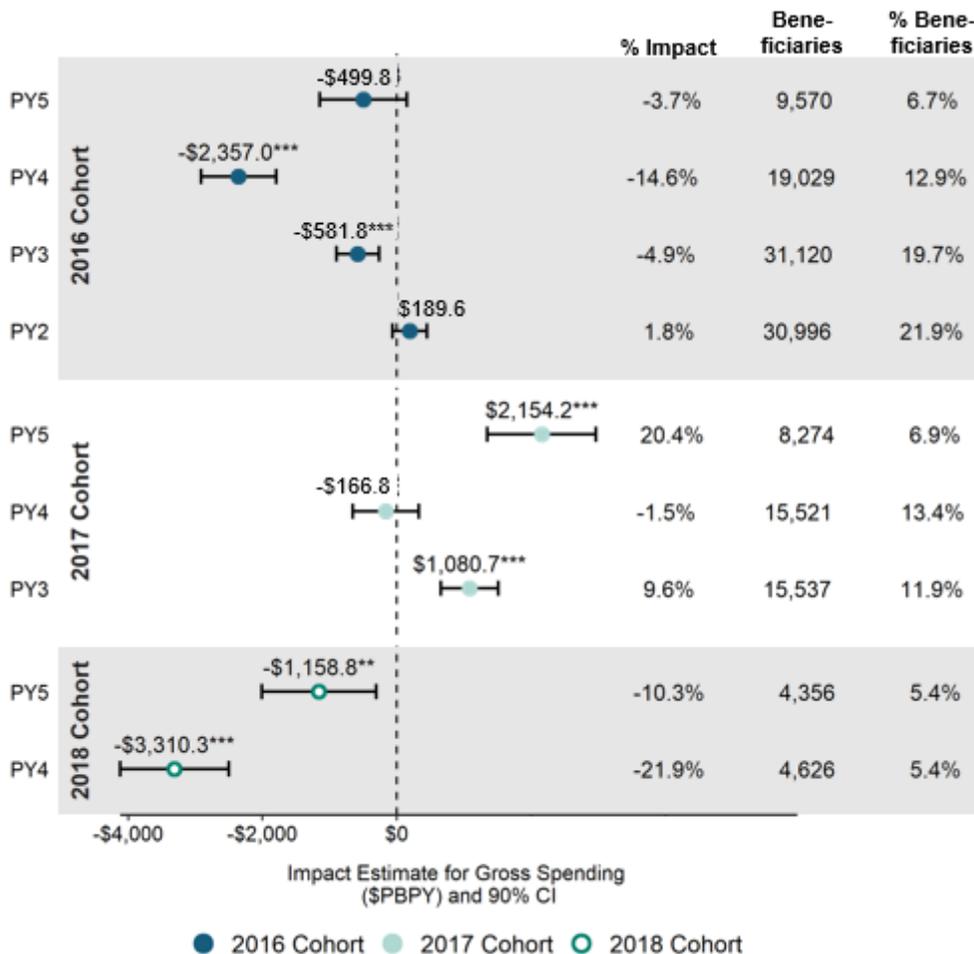
	% Impact	Bene-ficiaries	% Bene-ficiaries
2016 Cohort			
PY5 −$499.8	-3.7%	9,570	6.7%
PY4 −$2,357.0***	-14.6%	19,029	12.9%
PY3 −$581.8***	-4.9%	31,120	19.7%
PY2 $189.6	1.8%	30,996	21.9%
2017 Cohort			
PY5 $2,154.2***	20.4%	8,274	6.9%
PY4 −$166.8	-1.5%	15,521	13.4%
PY3 $1,080.7***	9.6%	15,537	11.9%
2018 Cohort			
PY5 −$1,158.8**	-10.3%	4,356	5.4%
PY4 −$3,310.3***	-21.9%	4,626	5.4%

Impact Estimate for Gross Spending ($PBPY) and 90% CI

● 2016 Cohort   ● 2017 Cohort   ○ 2018 Cohort

NOTES: Impact estimates for gross Medicare spending were per beneficiary per year (PBPY), significant at *p<0.1, **p<0.05, ***p<0.01. Confidence intervals (CI) at the 90% level are displayed as bars around the impact estimates. Gross Medicare spending impacts from difference-in-differences (DID) analysis for NGACO providers that joined after their NGACOs' first year for each Cohort and PY are shown. Because we are using non-linear models, we followed the approach suggested by Puhani (2012);[71] the results reflect the difference between the estimated outcome for the treated group (providers who joined) and the expected outcome for the treated group in the absence of the NGACO Model. Estimates for providers that joined are shown for the second year of each cohort through PY5 because the "joined" category did not apply to the first year of each cohort, and we did not include PY6 because the "remained" and "left" categories could not be defined. Our approach to estimating impacts for the subgroups is detailed in Appendix A.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

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[71] Puhani PA. "The treatment effect, the cross difference, and the interaction term in nonlinear 'difference-in-differences' models." *Economics Letter* 2012;115(1):85-87. doi.org/10.1016/j.econlet.2011.11.025

Exhibit F.7.   Gross Spending Impacts for Providers that Left the NGACO Model, by Cohort and PY
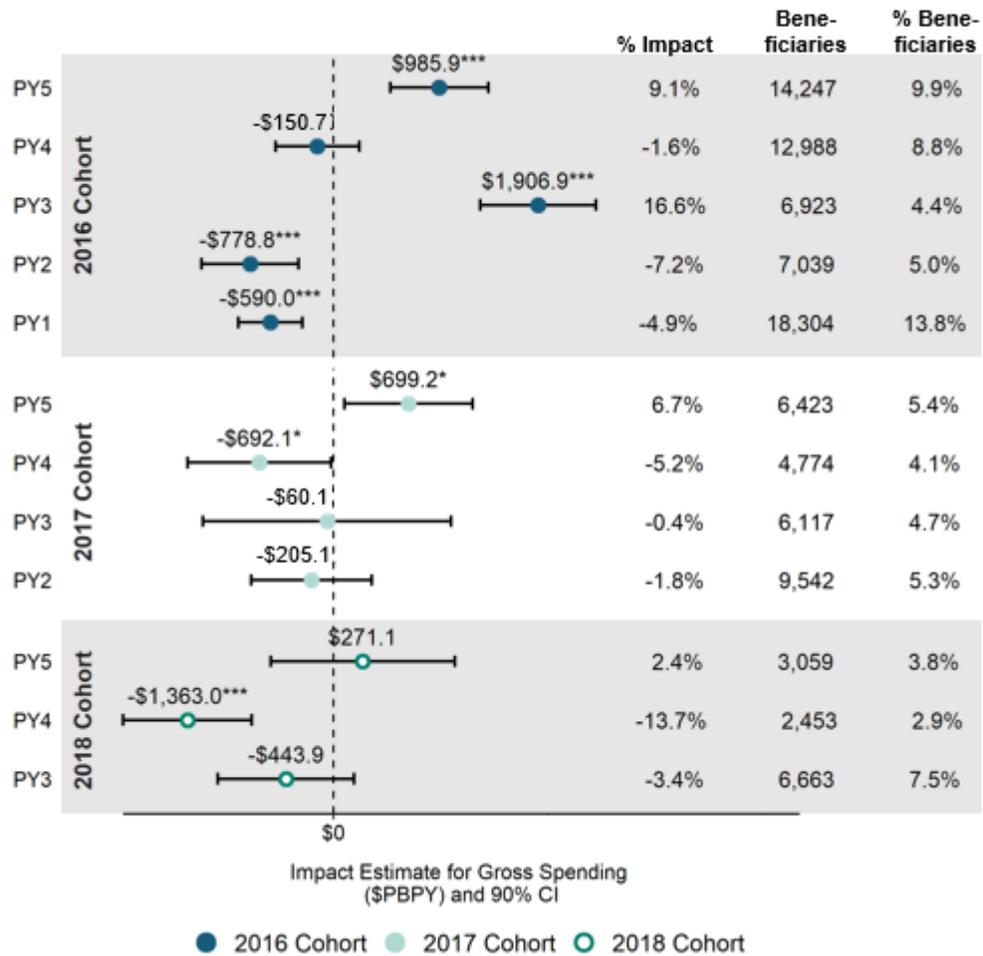
	% Impact	Bene-ficiaries	% Bene-ficiaries
2016 Cohort			
PY5 — $985.9***	9.1%	14,247	9.9%
PY4 — -$150.7	-1.6%	12,988	8.8%
PY3 — $1,906.9***	16.6%	6,923	4.4%
PY2 — -$778.8***	-7.2%	7,039	5.0%
PY1 — -$590.0***	-4.9%	18,304	13.8%
2017 Cohort			
PY5 — $699.2*	6.7%	6,423	5.4%
PY4 — -$692.1*	-5.2%	4,774	4.1%
PY3 — -$60.1	-0.4%	6,117	4.7%
PY2 — -$205.1	-1.8%	9,542	5.3%
2018 Cohort			
PY5 — $271.1	2.4%	3,059	3.8%
PY4 — -$1,363.0***	-13.7%	2,453	2.9%
PY3 — -$443.9	-3.4%	6,663	7.5%

Impact Estimate for Gross Spending
($PBPY) and 90% CI

● 2016 Cohort   ● 2017 Cohort   ○ 2018 Cohort

NOTES: Impact estimates for gross Medicare spending were per beneficiary per year (PBPY); significant at *p<0.1, **p<0.05, ***p<0.01. Confidence intervals (CI) at the 90% level are displayed as bars around the impact estimates. Gross Medicare spending impacts from difference-in-differences analysis for NGACO providers that left their NGACO for each cohort and PY are shown. Because we used non-linear models, we followed the approach suggested by Puhani (2012):[72] the results reflect the difference between the estimated outcome for the treated group (providers who left) and the expected outcome for the treated group in the absence of the NGACO. NGACOs that withdrew were excluded in their PY of withdrawal. There are no results for PY6 because the provider categories for "remained" and "left" were undefined in this PY. Our approach to estimating impacts for the subgroups is detailed in Appendix A.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

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[72] Puhani PA. "The treatment effect, the cross difference, and the interaction term in nonlinear 'difference-in-differences' models." *Economics Letter* 2012;115(1):85-87. doi.org/10.1016/j.econlet.2011.11.025

Exhibit F.8. Associated Gross Spending Impacts for NGACO Beneficiaries Assigned to Non-NGACO Providers, Model-Wide and by Cohort

	Impact Estimate for Gross Spending ($PBPY) and 90% CI	% Impact	Bene-ficiaries	% Bene-ficiaries
Model-wide	$552.9***	4.5%	3,052,830	66.7%
2016 Cohort	$612.0***	5.4%	1,273,578	63.8%
2017 Cohort	$515.9***	3.9%	1,281,330	70.1%
2018 Cohort	$496.8***	3.9%	497,922	66.2%

Impact Estimate for Gross Spending ($PBPY) and 90% CI

● Model-wide ● 2016 Cohort ● 2017 Cohort ● 2018 Cohort
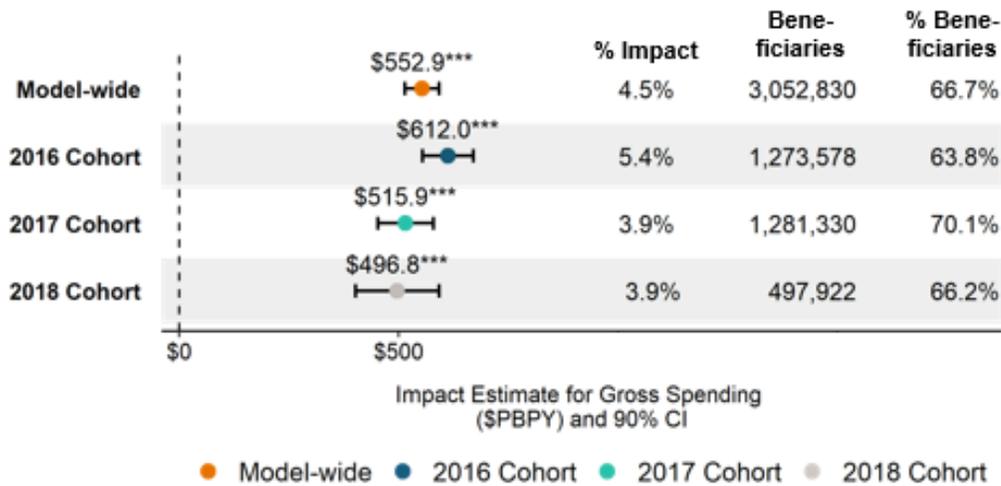
NOTES: Impact estimates for gross Medicare spending PBPY were significant at *p<0.1, **p<0.05, ***p<0.01. Confidence intervals (CI) at the 90% level are displayed as bars around the impact estimates. Impact estimates were cumulative gross Medicare spending impacts from difference-in-differences (DID) analysis for NGACO beneficiaries who were assigned to non-NGACO providers due to leakage in each Cohort and PY. We do not interpret the findings for non-NGACO beneficiaries as causal. Because we used non-linear models, we followed the approach suggested by Puhani (2012):[73] the results reflect the difference between the estimated outcome for each treated group (joined, left, and retained) and the expected outcome for the given group in the absence of the NGACO. NGACOs that withdrew were excluded in their PY of withdrawal. There were no providers in the "joined" category for NGACOs in their first year. Cumulative estimates for categories of providers were as of PY 5 because the provider categories for "remained" and "left" were undefined in PY 6. Our approach to estimating impacts for the subgroups is detailed in Appendix A.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

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[73] Puhani PA. "The treatment effect, the cross difference, and the interaction term in nonlinear 'difference-in-differences' models." *Economics Letter* 2012;115(1):85-87. doi.org/10.1016/j.econlet.2011.11.025

Exhibit F.9.   NGACO Facility Composition

	Skilled Nursing Facility	Home Health Agency	Acute Care Hospital	Alignment-Eligible Facility	Hospice	Other	Total Number of Facilities
PY6	46%	23%	5%	9%	8%	8%	2,125
PY5	47%	23%	7%	6%	7%	11%	1,823
PY4	54%	17%	10%	7%	5%	8%	1,779
PY3	60%	19%	6%		5%	8%	3,129
PY2	64%	10%	7%			13%	3,125
PY1	61%	12%	14%	7%			730

■ Skilled Nursing Facility ■ Home Health Agency ■ Acute Care Hospital ■ Alignment-Eligible Facility ▫ Hospice ▒ Other
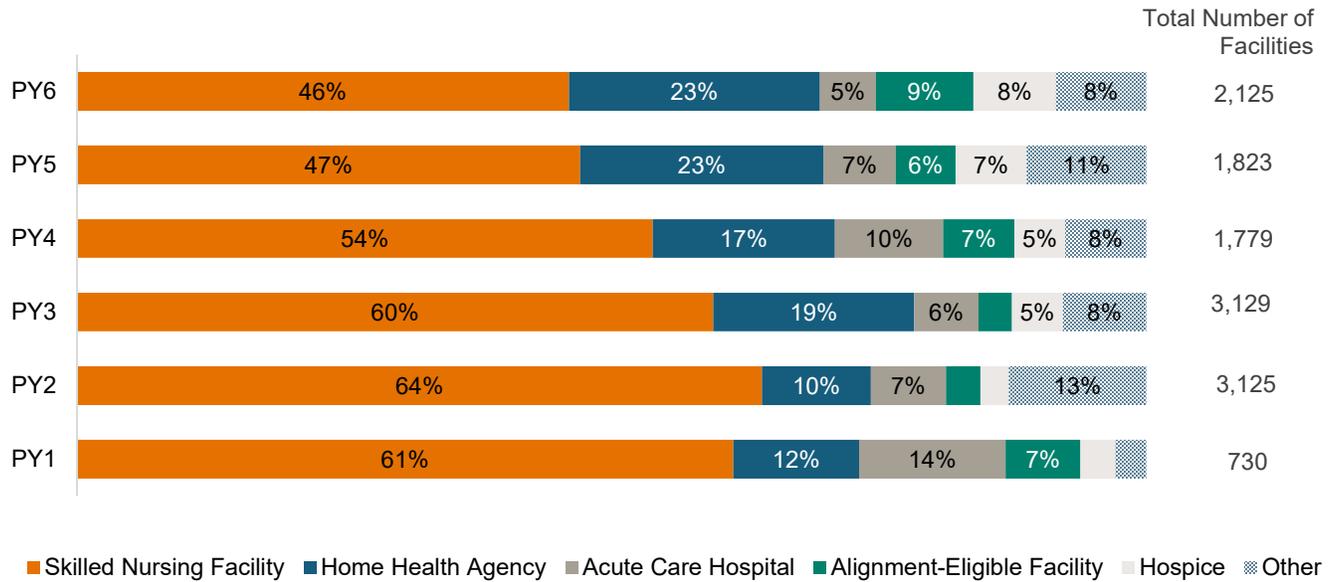
NOTES: Included both participant and preferred provider facilities. Alignment-eligible facilities were defined as Critical Access Hospitals billing professional services for outpatient care, Federally Qualified Health Centers, and Rural Health Clinics; the category "other" included all other facility types.
SOURCE: NORC analysis of administrative and claims data. We used multiple data sources to summarize provider characteristics. We identified Participant and Preferred Provider facilities using their taxpayer identification number (TIN), national provider identifiers (NPIs), and/or their CMS Certification Number (CCN) at the beginning of the PY. For participant and preferred provider facilities in the NGACO Model, we obtained data from CMS, as compiled by the NGACO Program Analysis Contractor. We linked the data on participant and preferred provider facilities to multiple CMS provider datasets and identified the provider type by the third digit of the CCN. See Appendix A for more information.

Exhibit F.10. Average Years of Medicare ACO Experience for NGACO Participant and Comparison Group Providers
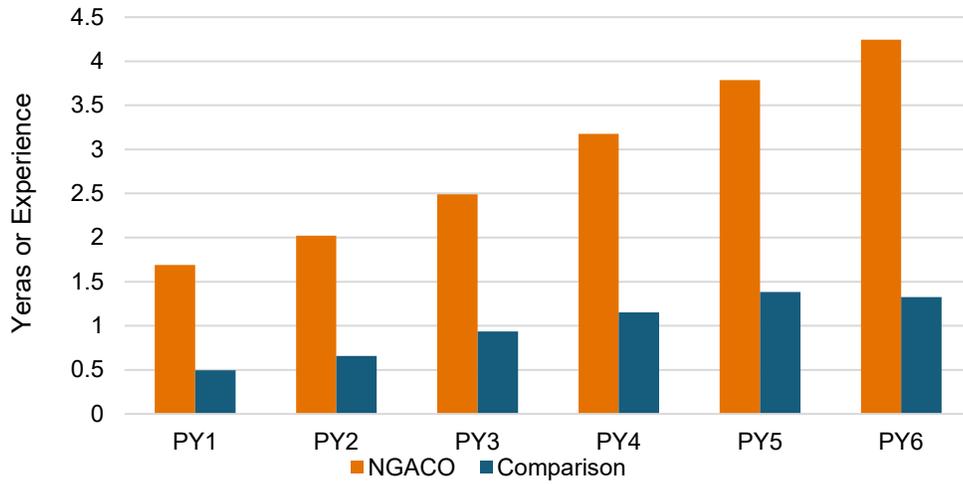
SOURCE: NORC analysis of NGACO and comparison provider data linked to CMS's ACO programmatic data.

Appendix G: Exhibits to Support Chapter 5

This appendix shows exhibits to support the summary discussion presented in Chapter 5, as follows:

- Beneficiary Attribution by Performance Year (**Exhibit G.1**)

- Estimated Impacts on Gross Medicare Spending by Beneficiary Subgroups, Cumulatively as of PY 6 and in Each PY (**Exhibit G.2**)

- Estimated Impacts on Selected Utilization and Quality of Care Outcomes by Race and Ethnicity, Cumulatively as of PY 6 and in each PY (**Exhibit G.3**)

- Descriptive Characteristics of Model and Comparison Beneficiaries by Race and Ethnicity for PYs 3–6 (**Exhibit G.4**)

- Descriptive Characteristics of Model Beneficiaries by Dual Eligibility by PYs 3–6 (**Exhibit G.5**)

- Gross Spending for NGACO Beneficiaries Who Continued in the Model, Relative to Matched Comparison Beneficiaries, by Cohort and PY (**Exhibit G.6**)

- NGACO Market Participation Peaked in PY 3 (**Exhibit G.7**)

- Overlap of NGACO and BPCI—Estimated Gross Impacts of NGACO Model on Medicare Spending, Model-Wide and by BPCI Status as of PY 3 (**Exhibit G.8**)

- Overlap of NGACO and OCM—Estimated Gross Impacts of NGACO Model on Medicare Spending, 2018 Cohort and by OCM Status as of PY 6 (**Exhibit G.9**)

- Overlap of NGACO and CJR—Changes in CJR Program Rules Coincided with the 2018 Cohort's Entry to the NGACO Model (**Exhibit G.10**)

- Overlap of NGACO and CJR—Systematic Decline in Percentage of 2018 NGACO Cohort Beneficiaries with a CJR Episode (BY: 2016–2017, PYs: 2018–2021) (**Exhibit G.11**)

Exhibit G.1.   Beneficiary Attribution by Performance Year
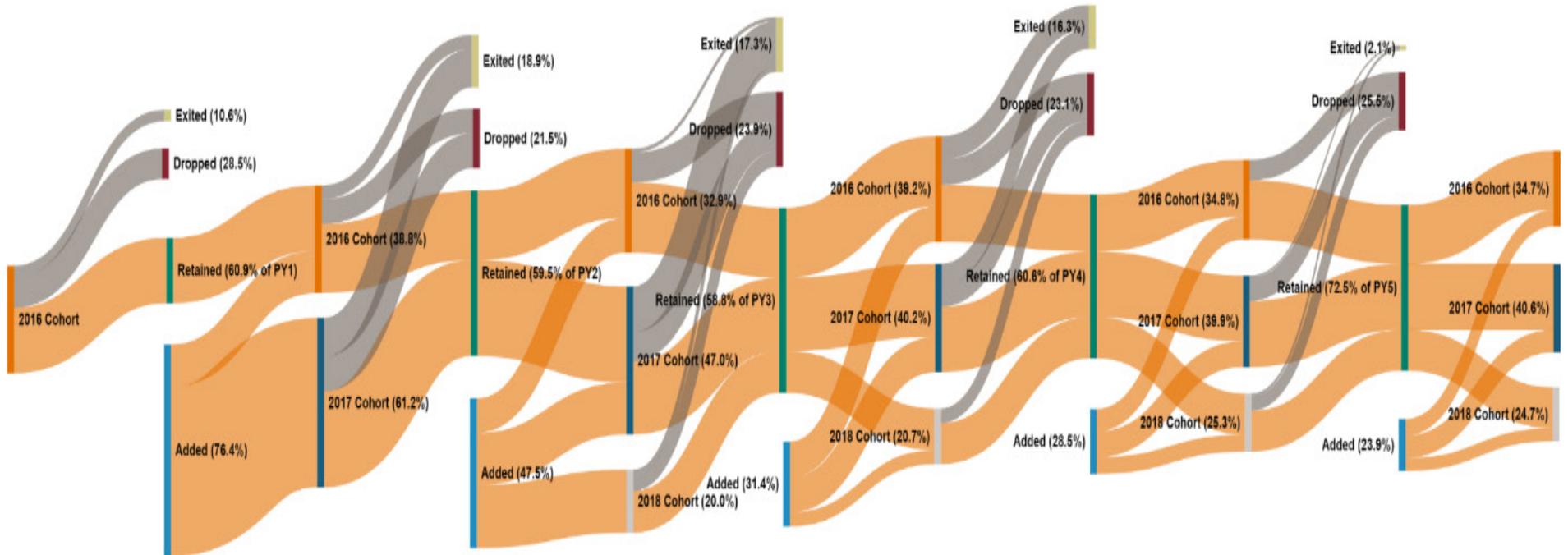
Exhibit G.2. Estimated Impacts on Gross Medicare Spending by Beneficiary Subgroups, Cumulatively as of PY 6 and in each PY

| Cumulatively as of PY 6 | Baseline Years BY 3–BY 1 | | Total Spending Cumulatively as of PY 6 | | | | | | | |
| | | | As of PY 6 | | Difference-in-Differences | | | | | |
Subgroup	Aligned beneficiaries	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact	p
8+ chronic conditions§	1,607,416	34,915.1	35,035.4	31,295.2	32,238.8	-823.2	-3,619.8	-2,796.6	-979.4, -667.0	-2.56	****
3–7 chronic conditions	3,295,238	10,191.8	10,428.6	9,339.0	9,776.7	-200.9	-852.8	-651.8	-248.2, -153.7	-2.11	****
0–2 chronic conditions	1,408,014	4,899.7	5,021.5	4,561.2	4,748.7	-65.7	-338.5	-272.8	-106.7, -24.7	-1.42	****
White, non-Hispanic	5,241,573	14,385.5	14,622.3	13,164.9	13,701.3	-299.5	-1,220.5	-921.0	-360.9, -238.1	-2.22	****
Black, non-Hispanic	406,380	20,401.4	20,819.3	18,535.3	18,909.4	43.8	-1,866.1	-1,909.9	-231.0, 318.6	0.24	
Other§	662,715	14,527.5	15,053.6	13,429.2	14,116.1	-160.8	-1,098.3	-937.5	-286.2, -35.4	-1.18	**
Hosp. in prior year	995,635	38,664.6	39,159.5	35,521.9	36,564.2	-547.4	-3,142.7	-2,595.2	-823.7, -271.2	-1.52	****
No hosp. in prior year§	5,315,033	9,870.2	10,061.4	9,146.2	9,524.7	-187.2	-724.0	-536.7	-225.8, -148.7	-2.01	****
Non-dual eligible	5,208,985	12,646.0	12,915.1	11,616.3	12,118.3	-232.8	-1,029.6	-796.8	-287.9, -177.7	-1.96	****
Dual eligible§	1,101,683	23,603.2	23,817.5	21,305.6	21,904.5	-384.7	-2,297.6	-1,912.9	-594.31, -175.00	-1.77	****

| In PY 6 | Baseline Years BY 3–BY 1 | | Total Spending in PY 6 | | | | | | | |
| | | | PY 6 | | Difference-in-Differences | | | | | |
Subgroup	Aligned beneficiaries	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact	p
8+ chronic conditions§	235,797	34,033.6	34,079.0	29,663.8	31,275.5	-1,566.3	-4,369.8	-2,803.5	-2,017.6, -1,115.1	-5.02	****
3–7 chronic conditions	503,243	10,072.0	10,272.0	8,997.8	9,776.9	-579.1	-1,074.2	-495.1	-710.4, -447.8	-6.05	****
0–2 chronic conditions	236,212	4,852.6	4,980.8	4,528.3	4,699.4	-42.9	-324.2	-281.4	-147.2, 61.5	-0.94	
White, non-Hispanic	826,477	13,952.1	14,148.3	12,509.4	13,322.9	-617.4	-1,442.7	-825.3	-778.0, -456.7	-4.70	****
Black, non-Hispanic	53,424	19,061.5	19,378.6	16,842.8	17,753.9	-594.0	-2,218.7	-1,624.7	-1,111.5, -76.5	-3.41	**
Other	95,351	13,293.2	13,903.2	12,323.0	13,344.4	-411.4	-970.2	-558.8	-677.7, -145.1	-3.23	****
Hosp. in prior year	125,090	37,543.3	37,841.7	33,693.3	35,334.2	-1,342.4	-3,850.0	-2,507.5	-2,476.0, -208.9	-3.83	**
No hosp. in prior year	850,162	9,713.9	9,892.8	8,894.0	9,487.4	-414.6	-820.0	-405.4	-495.8, -333.4	-4.45	****
Non-dual eligible	839,711	12,388.3	12,635.6	11,190.2	11,955.1	-517.6	-1,198.1	-680.5	-643.2, -392.0	-4.42	****
Dual eligible§	135,541	22,673.3	22,785.3	19,873.7	20,918.3	-932.6	-2,799.6	-1,867.0	-1,436.4, -428.9	-4.48	****

| In PY 5 | Baseline Years BY 3–BY 1 | | Total Spending in PY 5 | | | | | | | |
| | | | PY 5 | | Difference-in-Differences | | | | | |
Subgroup	Aligned beneficiaries	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact	p
8+ chronic conditions§	275,021	33,997.1	34,198.8	27,620.8	29,282.7	-1460.2	-6,376.3	-4,916.1	-1,824.3, -1,096.0	-5.02	****
3–7 chronic conditions	534,033	9,996.2	10,243.7	8,198.3	8,702.1	-256.3	-1,797.9	-1,541.6	-418.6, -94.0	-3.03	****
0–2 chronic conditions	214,113	4,809.3	4,930.5	3,960.0	4,157.8	-76.6	-849.3	-772.7	-187.2, 34.1	-1.90	
White, non-Hispanic	862,827	14,205.1	14,440.4	11,658.0	12,322.0	-428.7	-2,547.1	-2,118.4	-622.7, -234.6	-3.55	****
Black, non-Hispanic	60,178	19,827.3	20,216.6	16,432.1	16,397.2	424.2	-3,395.2	-3,819.4	-506.7, 1,355.1	2.65	
Other	100,162	13,730.0	14,485.5	11,103.0	12,240.4	-381.9	-2,627.0	-2,245.1	-738.3, -25.5	-3.32	**
Hosp. in prior year	157,866	37,789.4	38,256.3	32,017.9	32,867.5	-382.7	-5,771.5	-5,388.8	-1,077.4, 312.0	-1.18	
No hosp. in prior year	865,301	9,763.9	9,969.8	8,074.2	8,570.6	-290.4	-1,689.7	-1,399.2	-430.4, -150.4	-3.47	****
Non-dual eligible	872,181	12,590.1	12,875.8	10,317.9	10,927.3	-323.8	-2,272.2	-1,948.5	-523.2, -124.4	-3.04	****
Dual eligible§	150,986	23,303.3	23,529.9	19,209.9	20,113.4	-676.9	-4,093.4	-3,416.5	-1,213.9, -139.9	-3.40	**

| In PY 4 | Baseline Years BY 3–BY 1 | | Total Spending in PY 4 | | | | | | | |
| | | | PY 4 | | Difference-in-Differences | | | | | |
Subgroup	Aligned beneficiaries	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact	p
8+ chronic conditions	324,898	34,810.4	34,970.2	31,806.0	32,785.2	-819.4	-3,004.4	-2,185.0	-1,268.2, -370.6	-2.51	****
3–7 chronic conditions	628,876	10,178.9	10,414.9	9,482.2	9,917.9	-199.7	-696.7	-497.0	-324.9, -74.6	-2.06	****
0–2 chronic conditions	249,683	4,911.2	5,016.9	4,685.0	4,868.1	-77.3	-226.2	-148.8	-160.3, 5.6	-1.62	*
White, non-Hispanic	998,343	14,550.0	14,763.6	13,562.4	14,099.7	-323.6	-987.6	-663.9	-488.0, -159.3	-2.33	****
Black, non-Hispanic	75,731	20,526.9	20,981.2	18,972.9	19,566.0	-138.8	-1,554.0	-1,415.2	-854.2, 576.6	-0.73	
Other	129,383	14,397.0	15,026.2	13,622.6	14,233.8	18.0	-774.4	-792.4	-204.3, 240.3	0.13	
Hosp. in prior year	194,470	38,838.1	39,310.3	36,387.2	37,233.1	-373.8	-2,450.9	-2,077.2	-1,096.0, 348.4	-1.02	
No hosp. in prior year	1,008,987	9,907.3	10,089.8	9,368.2	9,754.8	-204.2	-539.1	-335.0	-298.1, -110.3	-2.13	****
Non-dual eligible	989,008	12,702.3	12,948.5	11,906.2	12,418.4	-266.0	-796.1	-530.1	-405.0, -126.9	-2.18	****
Dual eligible	214,449	23,759.2	24,066.1	21,762.2	22,251.2	-182.1	-1,997.0	-1,814.9	-613.7, 249.4	-0.83	

| In PY 3 | Baseline Years BY 3–BY 1 | | Total Spending in PY 3 | | | | | | | |
| | | | PY 3 | | Difference-in-Differences | | | | | |
Subgroup	Aligned beneficiaries	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact	p
8+ chronic conditions	367,165	35,443.1	35,569.3	32,373.0	32,968.4	-469.4	-3,070.1	-2,600.9	-762.7, -176.0	-1.43	****
3–7 chronic conditions	732,703	10,303.5	10,529.3	9,655.7	10,005.5	-123.9	-647.8	-523.8	-200.5, -47.3	-1.27	****
0–2 chronic conditions	299,530	4,962.2	5,051.4	4,690.1	4,846.2	-66.8	-272.1	-205.2	-172.9, 39.2	-1.41	
White, non-Hispanic	1,147,718	14,739.4	14,956.9	13,781.2	14,189.9	-191.2	-958.2	-767.0	-308.9, -73.4	-1.37	****
Black, non-Hispanic	96,352	21,129.6	21,523.1	19,495.2	19,584.2	304.5	-1,634.4	-1,938.9	-280.6, 889.7	1.59	
Other	155,328	14,870.0	15,285.2	13,925.8	14,597.8	-256.8	-944.2	-687.4	-449.9, -63.6	-1.81	***
Hosp. in prior year	233,436	39,644.4	40,068.3	36,767.3	37,826.7	-635.5	-2,877.1	-2,241.6	-1,112.6, -158.4	-1.70	***
No hosp. in prior year§	1,165,962	10,037.3	10,208.7	9,500.2	9,774.8	-103.3	-537.1	-433.9	-179.8, -26.8	-1.08	***
Non-dual eligible	1,135,965	12,870.7	13,120.6	12,098.5	12,485.8	-137.4	-772.2	-634.8	-229.3, -45.6	-1.12	****
Dual eligible§	263,433	24,179.9	24,312.4	22,044.5	22,509.9	-332.9	-2,135.4	-1,802.5	-868.5, 202.7	-1.49	

| In PY 2 | Baseline Years BY 3–BY 1 | | Total Spending in PY 2 | | | | | | | |
| | | | PY 2 | | Difference-in-Differences | | | | | |
Subgroup	Aligned beneficiaries	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact	p
8+ chronic conditions	299,170	35,935.7	36,125.0	33,340.5	33,708.3	-178.5	-2,595.2	-2,416.7	-446.8, 89.7	-0.53	
3–7 chronic conditions	642,317	10,329.0	10,623.8	9,802.6	10,100.3	-2.8	-526.4	-523.5	-75.9, 70.3	-0.03	
0–2 chronic conditions	290,728	4,940.3	5,099.3	4,720.5	4,943.8	-64.3	-219.8	-155.5	-143.7, 15.1	-1.34	
White, non-Hispanic	1,002,375	14,601.4	14,925.0	13,831.1	14,233.6	-78.9	-770.3	-691.4	-163.1, 5.4	-0.57	*
Black, non-Hispanic	88,556	20,937.7	21,439.4	19,452.0	19,935.8	18.0	-1,485.7	-1,503.6	-489.8, 525.8	0.09	
Other§	141,284	14,987.7	15,541.4	14,202.5	14,694.7	61.8	-785.2	-847.1	-320.2, 443.8	0.44	
Hosp. in prior year	204,414	39,568.6	40,309.0	36,962.0	38,093.4	-391.0	-2,606.6	-2,215.6	-848.7, 66.7	-1.05	*
No hosp. in prior year	1,027,801	9,946.6	10,187.9	9,527.4	9,789.3	-20.6	-419.2	-398.6	-83.2, 42.0	-0.22	
Non-dual eligible	989,799	12,804.8	13,136.6	12,210.7	12,558.3	-15.7	-594.1	-578.3	-97.7, 66.2	-0.13	
Dual eligible§	242,416	23,786.3	24,197.1	21,826.9	22,551.9	-314.2	-1,959.4	-1,645.2	-770.4, 141.9	-1.42	

| In PY 1 | | Baseline Years BY 3–BY 1 | | Total Spending in PY 1 | | | | | | | |
| | | | | PY 1 | | Difference-in-Differences | | | | | |
Subgroup	Aligned beneficiaries	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact	p
8+ chronic conditions	105,365	34,868.1	34,606.2	33,399.5	33,710.6	-572.9	-1,468.6	-895.6	-1,036.8, -109.0	-1.69	**
3–7 chronic conditions	254,066	10,203.4	10,377.2	9,973.4	10,208.3	-61.1	-230.0	-168.9	-173.0, 50.7	-0.61	
0–2 chronic conditions	117,748	4,875.4	5,009.6	4,737.0	4,938.9	-67.8	-138.4	-70.7	-186.0, 50.5	-1.41	
White, non-Hispanic	403,833	13,708.9	13,930.1	13,338.7	13,728.5	-168.7	-370.2	-201.6	-354.2, 16.7	-1.25	*
Black, non-Hispanic	32,139	19,747.2	20,142.4	18,852.3	19,136.0	111.5	-894.9	-1,006.4	-536.3, 759.3	0.59	
Other	41,207	16,863.5	16,636.3	16,513.4	16,292.7	-6.5	-350.1	-343.6	-461.9, 449.0	-0.04	
Hosp. in prior year	80,359	36,563.4	37,056.1	35,877.1	36,565.6	-195.8	-686.3	-490.5	-837.4, 445.8	-0.54	
No hosp. in prior year	396,820	9,653.6	9,789.7	9,432.9	9,679.3	-110.4	-220.7	-110.4	-206.0, -14.7	-1.16	**
Non-dual eligible	382,321	12,114.7	12,347.9	11,793.2	12,185.6	-159.3	-321.5	-162.3	-335.2, 16.7	-1.33	*
Dual eligible	94,858	22,987.3	22,843.4	22,271.4	22,045.4	82.0	-715.9	-798.0	-313.6, 477.7	0.37	

NOTES: §Subgroups that did not have parallel trends in baseline outcomes between NGACO and comparison group for at least one cohort in one PY. ****p<0.005, ***p<0.01, **p<0.05, *p<0.1. Model-wide cumulative results as of PY 6 for each subgroup were calculated by weighting estimates for each cohort in each PY (six PYs for 2016 cohort, five PYs for 2017 cohort, and four PYs for 2018 cohort). Model-wide results in each PY for each subgroup were calculated by weighting estimates for each cohort in each PY. For each cohort in each PY, four models were run separately for each beneficiary subgroup (chronic conditions, race/ethnicity, acute care hospitalization in prior year, and status of dual-eligibility). Difference-in-differences (DID) estimates were reported, as well as conditional means for the NGACO and comparison group means in the BY and PY. The % impact was the magnitude of the DID estimate relative to the counterfactual (NGACO group in PY in absence of the model).
SOURCE: NORC analysis of NGACO and comparison group enrollment and claims data.

Exhibit G.3. Estimated Impacts on Selected Utilization and Quality of Care Outcomes by Race and Ethnicity, Cumulatively as of PY 6 and in each PY

Outcome per 1000 beneficiaries per year	Subgroup	As of PY 6 Aligned beneficiaries	Baseline Years NGACO mean	Baseline Years Comp. mean	PY 6 NGACO mean	PY 6 Comp. mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact
Acute care stays	White, non-Hispanic	5,241,573	315.4	316.4	264.2	267.3	-2.1***	-51.2	-49.1	-3.06, -1.04	-0.8
	Black, non-Hispanic	406,380	439.2	432.6	373.5	367.6	-0.64§	-65.7	-65.1	-4.24, 2.94	-0.2
	Other	662,715	290.7	299.9	249.3	256.5	2.1§	-41.3	-43.4	-0.08, 4.24	0.8
SNF days	White, non-Hispanic	5,241,573	2,133.2	2,172.4	1,480.0	1,564.1	-44.87***§	-653.2	-608.3	-58.93, -30.82	-2.9
	Black, non-Hispanic	406,380	2,511.6	2,563.2	1,864.6	1,936.8	-20.7	-647.0	-626.3	-63.38, 21.96	-1.1
	Other	662,715	1,531.2	1,659.3	1,149.1	1,300.7	-23.5§	-382.1	-358.6	-47.89, 0.80	-2.0
ED visits & observation stays	White, non-Hispanic	5,241,573	524.4	532.6	468.5	483.1	-6.5***§	-56.0	-49.5	-9.37, -3.55	-1.4
	Black, non-Hispanic	406,380	916.3	930.6	800.6	822.9	-8.1*§	-115.7	-107.7	-16.06, -0.07	-1.0
	Other	662,715	516.2	537.0	463.7	491.8	-7.3***§	-52.5	-45.3	-11.35, -3.22	-1.5
E&M visits	White, non-Hispanic	5,241,573	13,966.7	14,038.0	12,793.2	13,096.7	-232.2***§	-1,173.5	-941.2	-277.00, -187.47	-1.8
	Black, non-Hispanic	406,380	14,307.4	14,088.8	13,222.3	13,286.8	-283.2***§	-1,085.1	-801.9	-368.77, -197.54	-2.1
	Other	662,715	13,607.6	13,578.8	12,358.4	12,559.5	-229.9***	-1,249.1	-1,019.3	-295.23, -164.47	-1.8
AWVs	White, non-Hispanic	5,241,573	260.3	224.5	465.1	349.0	80.4***	204.9	124.5	70.17, 90.54	20.9
	Black, non-Hispanic	406,380	179.3	159.3	348.6	266.2	62.3***§	169.2	106.9	51.90, 72.79	21.8
	Other	662,715	229.5	181.0	427.3	311.1	67.7***§	197.8	130.1	57.27, 78.07	18.8
Imaging services	White, non-Hispanic	5,241,573	5,507.1	5,518.7	4,841.5	4,880.0	-26.9***§	-665.6	-638.7	-40.58, -13.20	-0.6
	Black, non-Hispanic	406,380	6,061.4	6,053.2	5,281.4	5,229.1	44.1**	-780.0	-824.1	11.18, 77.10	0.8
	Other	662,715	5,059.7	5,122.0	4,480.7	4,548.5	-5.6§	-579.1	-573.5	-31.14, 19.92	-0.1
Procedures	White, non-Hispanic	5,241,573	9,711.7	9,758.2	10,169.7	10,354.4	-138.2***§	458.0	596.1	-185.50, -90.85	-1.3
	Black, non-Hispanic	406,380	9,296.4	9,296.8	9,376.5	9,446.2	-69.4§	80.1	149.4	-157.57, 18.80	-0.7
	Other	662,715	9,158.1	9,014.4	9,329.2	9,182.7	2.80	171.0	168.3	-84.71, 90.26	0.0
Tests	White, non-Hispanic	5,241,573	26,718.3	27,125.7	23,749.6	24,417.2	-260.2***§	-2,968.8	-2,708.5	-332.18, -188.29	-1.1
	Black, non-Hispanic	406,380	33,571.3	34,207.5	29,740.5	30,281.7	94.9§	-3,830.8	-3,925.7	-149.69, 339.51	0.3
	Other	662,715	28,784.8	29,440.2	26,368.0	26,772.1	251.3***§	-2,416.8	-2,668.1	94.91, 407.69	1.0
ACSC hospitalizations	White, non-Hispanic	5,241,573	43.2	43.4	32.7	33.0	-0.10	-10.5	-10.3	-0.41, 0.17	-0.4
	Black, non-Hispanic	406,380	60.5	58.8	49.6	48.0	-0.1§	-10.9	-10.8	-0.88, 0.72	-0.2
	Other	662,715	37.9	39.1	29.8	30.9	0.1§	-8.1	-8.2	-0.34, 0.59	0.4

| Outcome per 1000 beneficiaries per year | In PY 6 | | Baseline Years | | Impacts in PY 6 | | | | | | |
| | | | | | PY 6 | | Difference-in-Differences | | | | |
	Subgroup	Aligned beneficiaries	NGACO mean	Comp. mean	NGACO mean	Comp. mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact
Acute care stays	White, non-Hispanic	826,477	309.5	310.3	227.7	234.1	-5.5***	-81.7	-76.2	-8.13, -2.86	-2.4
	Black, non-Hispanic	53,424	424.8	419.7	324.6	325.2	-5.7	-100.2	-94.5	-15.38, 4.03	-1.7
	Other	95,351	275.4	285.9	208.4	220.9	-1.9	-67.0	-65.0	-7.44, 3.54	-0.9
SNF days	White, non-Hispanic	826,477	2,191.9	2,235.2	1,319.4	1,466.6	-103.8***§	-872.5	-768.6	-139.99, -67.68	-7.3
	Black, non-Hispanic	53,424	2,549.9	2,607.3	1,621.6	1,709.4	-30.4	-928.3	-898.0	-145.30, 84.53	-1.8
	Other	95,351	1,537.1	1,695.1	978.1	1,171.3	-35.2	-559.0	-523.8	-80.12, 9.76	-3.5
ED visits & observation stays	White, non-Hispanic	826,477	529.9	537.4	433.6	452.4	-11.3*§	-96.3	-85.0	-21.26, -1.42	-2.5
	Black, non-Hispanic	53,424	939.4	952.7	684.8	719.9	-21.8§	-254.6	-232.8	-48.47, 4.81	-3.1
	Other	95,351	510.9	538.5	408.5	439.5	-3.3§	-102.3	-99.0	-14.51, 7.84	-0.8
E&M visits	White, non-Hispanic	826,477	13,745.0	13,774.2	12,057.1	12,536.0	-449.7***§	-1,687.9	-1,238.2	-612.23, -287.12	-3.6
	Black, non-Hispanic	53,424	13,876.5	13,586.2	12,451.7	12,863.1	-701.7***§	-1,424.8	-723.1	-960.01, -443.40	-5.3
	Other	95,351	13,309.2	13,189.5	11,492.9	11,968.0	-594.9***	-1,816.4	-1,221.5	-777.80, -411.97	-4.9
AWVs	White, non-Hispanic	826,477	267.3	231.3	537.2	392.1	109.2***	269.9	160.8	78.32, 139.98	25.5
	Black, non-Hispanic	53,424	183.1	165.1	405.4	295.8	91.5***§	222.2	130.7	56.25, 126.72	29.1
	Other	95,351	245.6	189.6	490.7	353.4	81.3***	245.2	163.9	48.59, 114.02	19.9
Imaging services	White, non-Hispanic	826,477	5,498.6	5,483.5	4,882.0	4,933.8	-66.9***	-616.6	-549.7	-102.59, -31.18	-1.4
	Black, non-Hispanic	53,424	6,151.3	6,098.7	5,351.9	5,295.9	3.4	-799.4	-802.8	-66.76, 73.63	0.1
	Other	95,351	5,019.3	5,049.8	4,462.9	4,548.5	-55.1§	-556.4	-501.3	-116.70, 6.59	-1.2
Procedures	White, non-Hispanic	826,477	9,869.0	9,840.5	10,870.2	11,231.1	-389.4***	1,001.2	1,390.6	-509.59, -269.22	-3.5
	Black, non-Hispanic	53,424	9,410.5	9,294.6	9,708.9	9,757.3	-164.2§	298.4	462.7	-410.63, 82.16	-1.7
	Other	95,351	9,665.3	9,301.0	9,707.6	9,721.9	-378.6***	42.3	420.9	-602.68, -154.44	-3.8
Tests	White, non-Hispanic	826,477	26,110.1	26,327.1	24,178.4	24,854.9	-459.5***§	-1,931.7	-1,472.1	-719.35, -199.71	-1.9
	Black, non-Hispanic	53,424	32,352.7	32,775.7	29,733.8	30,179.2	-22.3	-2,618.9	-2,596.6	-969.24, 924.68	-0.1
	Other	95,351	27,167.4	27,963.4	26,592.3	26,626.3	762.0***§	-575.1	-1,337.1	286.98, 1236.96	2.9
ACSC hospitalizations	White, non-Hispanic	826,477	41.4	41.8	24.0	24.3	0.0	-17.5	-17.5	-0.61, 0.64	0.1
	Black, non-Hispanic	53,424	57.6	56.3	36.7	38.0	-2.6***	-20.9	-18.3	-3.71, -1.44	-6.5
	Other	95,351	35.0	36.0	19.5	21.4	-1.0	-15.5	-14.5	-1.99, 0.01	-4.9

Outcome per 1000 beneficiaries per year	Subgroup	In PY 5	Baseline Years		PY 5		Impacts in PY 5				
		Aligned beneficiaries	NGACO mean	Comp. mean	NGACO mean	Comp. mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact
Acute care stays	White, non-Hispanic	862,827	41.8	42.3	22.7	23.5	-0.4	-19.1	-18.8	-1.17, 0.41	-1.64
	Black, non-Hispanic	60,178	59.2	57.4	36.9	34.9	0.2§	-22.3	-22.5	-1.28, 1.72	0.59
	Other	100,162	36.0	37.1	18.8	20.1	-0.2	-17.2	-17.0	-0.92, 0.54	-1.01
SNF days	White, non-Hispanic	862,827	264.3	232.5	477.3	343.2	102.3***	213.0	110.7	72.85, 131.67	27.27
	Black, non-Hispanic	60,178	180.3	164.6	351.9	253.4	82.8***§	171.6	88.8	49.21, 116.33	30.76
	Other	100,162	242.7	188.7	431.7	297.8	79.9****§	189.0	109.1	47.61, 112.20	22.71
ED visits & observation stays	White, non-Hispanic	862,827	529.6	537.0	380.7	397.7	-9.6**§	-148.9	-139.3	-17.02, -2.14	-2.45
	Black, non-Hispanic	60,178	943.7	957.5	640.7	676.3	-21.7*§	-303.0	-281.2	-40.79, -2.69	-3.28
	Other	100,162	530.3	557.3	367.1	405.3	-11.3*§	-163.3	-152.0	-21.54, -1.00	-2.98
E&M visits	White, non-Hispanic	862,827	13,888.1	13,926.4	10,843.5	11,274.3	-392.5***§	-3,044.6	-2,652.1	-529.62, -255.41	-3.49
	Black, non-Hispanic	60,178	13,997.5	13,752.7	11,000.6	11,370.1	-614.3***§	-2,996.9	-2,382.6	-952.47, -276.22	-5.29
	Other	100,162	13,552.1	13,425.5	10,039.0	10,336.6	-424.2***	-3,513.1	-3,088.9	-610.59, -237.78	-4.05
AWVs	White, non-Hispanic	862,827	5,522.3	5,528.1	4,157.3	4,210.4	-47.4**	-1,365.0	-1,317.6	-78.55, -16.16	-1.13
	Black, non-Hispanic	60,178	6,052.3	6,033.8	4,491.9	4,372.5	100.8	-1,560.4	-1,661.2	-0.08, 201.71	2.30
	Other	100,162	4,972.9	5,067.0	3,565.6	3,685.5	-25.8§	-1,407.3	-1,381.5	-111.79, 60.21	-0.72
Imaging services	White, non-Hispanic	862,827	311.0	312.9	218.7	224.2	-3.5**	-92.2	-88.7	-6.03, -1.03	-1.59
	Black, non-Hispanic	60,178	436.1	430.3	320.7	319.3	-4.4	-115.4	-111.0	-14.87, 5.97	-1.37
	Other	100,162	289.1	301.2	203.8	217.3	-1.5	-85.3	-83.8	-5.58, 2.65	-0.71
Procedures	White, non-Hispanic	862,827	9,647.5	9,651.9	8,711.9	8,978.0	-261.6***§	-935.5	-673.9	-375.16, -148.06	-2.92
	Black, non-Hispanic	60,178	9,064.4	8,968.0	7,738.2	7,715.2	-73.4§	-1,326.2	-1,252.8	-383.54, 236.82	-0.94
	Other	100,162	9,331.9	9,036.4	7,382.6	7,309.9	-222.8	-1,949.3	-1,726.6	-472.65, 27.11	-2.93
Tests	White, non-Hispanic	862,827	2,216.6	2,259.9	1,252.4	1,389.3	-93.6***§	-964.1	-870.6	-123.72, -63.42	-6.95
	Black, non-Hispanic	60,178	2,637.7	2,695.2	1,536.6	1,787.5	-193.4**	-1,101.1	-907.7	-316.92, -69.84	-11.18
	Other	100,162	1,629.2	1,788.6	1,027.1	1,263.3	-76.8**	-602.0	-525.3	-140.89, -12.63	-6.95
ACSC hospitalizations	White, non-Hispanic	862,827	26,522.0	26,794.1	20,597.8	21,260.6	-390.7***§	-5,924.2	-5,533.5	-549.11, -232.22	-1.86
	Black, non-Hispanic	60,178	33,288.3	33,867.4	25,411.0	25,962.6	27.6	-7,877.2	-7,904.8	-718.84, 774.03	0.11
	Other	100,162	27,836.4	28,792.1	21,904.1	22,294.9	564.9**§	-5,932.3	-6,497.2	202.68, 927.10	2.65

| Outcome per 1000 beneficiaries per year | In PY 4 | | Baseline Years | | Impacts in PY 4 | | | | | | |
| | | | | | PY 4 | | Difference-in-Differences | | | | |
	Subgroup	Aligned beneficiaries	NGACO mean	Comp. mean	NGACO mean	Comp. mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact
Acute care stays	White, non-Hispanic	998,343	313.9	315.7	268.1	273.3	-3.5**	-45.8	-42.4	-5.74, -1.17	-1.27
	Black, non-Hispanic	75,731	436.6	432.8	375.5	374.9	-3.2	-61.1	-57.9	-11.76, 5.29	-0.85
	Other	129,383	292.3	302.9	255.1	258.6	7.1**	-37.2	-44.3	2.23, 11.90	2.85
SNF days	White, non-Hispanic	998,343	2,247.3	2,287.6	1,534.3	1,634.7	-60.2***	-713.0	-652.8	-92.29, -28.01	-3.77
	Black, non-Hispanic	75,731	2,694.4	2,783.6	2,073.4	2,150.8	11.9	-621.0	-632.9	-95.45, 119.16	0.57
	Other	129,383	1,664.5	1,794.3	1,312.4	1,395.3	46.9	-352.1	-399.0	-4.74, 98.49	3.70
ED visits & observation stays	White, non-Hispanic	998,343	522.4	533.6	486.0	502.8	-5.6	-36.4	-30.8	-13.51, 2.28	-1.14
	Black, non-Hispanic	75,731	915.7	934.3	836.9	861.7	-6.3	-78.8	-72.6	-26.66, 14.13	-0.74
	Other	129,383	520.9	542.1	486.5	520.8	-13.1**§	-34.3	-21.2	-23.23, -2.94	-2.62
E&M visits	White, non-Hispanic	998,343	14,072.2	14,195.5	13,051.3	13,372.4	-197.8***§	-1,020.9	-823.0	-298.36, -97.28	-1.49
	Black, non-Hispanic	75,731	14,447.5	14,310.3	13,435.5	13,574.0	-275.8**§	-1,012.1	-736.3	-462.36, -89.21	-2.01
	Other	129,383	13,790.0	13,777.9	12,669.9	12,846.3	-188.5**	-1,120.1	-931.6	-334.20, -42.75	-1.47
AWVs	White, non-Hispanic	998,343	258.1	224.8	500.2	371.5	95.4***	242.1	146.7	66.72, 124.05	23.56
	Black, non-Hispanic	75,731	177.4	161.3	384.4	287.7	80.6***§	207.0	126.4	55.97, 105.19	26.52
	Other	129,383	232.3	180.5	467.6	339.5	76.3***§	235.3	159.0	56.44, 96.08	19.49
Imaging services	White, non-Hispanic	998,343	5,536.6	5,565.9	5,043.8	5,090.2	-17.30	-492.9	-475.6	-51.99, 17.45	-0.34
	Black, non-Hispanic	75,731	6,022.1	6,054.0	5,467.5	5,395.8	103.6***	-554.6	-658.2	42.62, 164.56	1.93
	Other	129,383	5,021.8	5,098.9	4,640.5	4,689.1	28.5§	-381.2	-409.8	-27.82, 84.91	0.62
Procedures	White, non-Hispanic	998,343	9,742.3	9,787.0	10,678.0	10,778.7	-56§	935.7	991.7	-189.09, 77.13	-0.52
	Black, non-Hispanic	75,731	9,400.6	9,349.0	9,935.6	10,057.6	-173.6§	535.0	708.6	-394.27, 47.04	-1.72
	Other	129,383	9,263.6	9,101.1	9,917.8	9,743.7	11.6	654.3	642.6	-128.04, 151.27	0.12
Tests	White, non-Hispanic	998,343	27,259.8	27,482.7	24,420.5	24,788.7	-145.3§	-2,839.3	-2,694.0	-307.08, 16.51	-0.59
	Black, non-Hispanic	75,731	34,087.4	34,773.3	30,377.1	31,268.6	-205.6§	-3,710.3	-3,504.7	-692.29, 281.16	-0.67
	Other	129,383	28,759.3	29,592.6	27,033.9	27,320.1	547.1***§	-1,725.5	-2,272.5	217.25, 876.91	2.07
ACSC hospitalizations	White, non-Hispanic	998,343	43.3	43.5	32.0	32.6	-0.5	-11.4	-10.9	-1.31, 0.35	-1.47
	Black, non-Hispanic	75,731	58.7	57.7	46.8	45.2	0.6§	-11.9	-12.5	-1.32, 2.49	1.27
	Other	129,383	37.5	38.4	28.8	29.3	0.4§	-8.7	-9.1	-0.77, 1.55	1.37

Outcome per 1000 beneficiaries per year	Subgroup	In PY 3	Baseline Years		PY 3		Impacts in PY 3				
								Difference-in-Differences			
		Aligned beneficiaries	NGACO mean	Comp. mean	NGACO mean	Comp. mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact
Acute care stays	White, non-Hispanic	1,147,718	317.7	318.7	283.4	284.5	-0.1	-34.4	-34.2	-2.04, 1.76	-0.05
	Black, non-Hispanic	96,352	441.2	432.5	389.8	378.0	3.2§	-51.3	-54.5	-4.08, 10.51	0.83
	Other	155,328	289.5	298.9	258.0	268.1	-0.7	-31.5	-30.8	-5.69, 4.24	-0.28
SNF days	White, non-Hispanic	1,147,718	2,259.9	2,301.9	1,685.5	1,737.7	-10.1	-574.4	-564.2	-43.68, 23.47	-0.60
	Black, non-Hispanic	96,352	2,738.1	2,777.7	2,124.3	2,159.3	4.6	-613.8	-618.4	-94.47, 103.65	0.22
	Other	155,328	1,626.2	1,762.1	1,253.3	1,469.5	-80.2**§	-372.9	-292.6	-140.43, -20.06	-6.02
ED visits & observation stays	White, non-Hispanic	1,147,718	519.4	526.9	483.2	498.1	-7.3**§	-36.2	-28.9	-12.79, -1.84	-1.49
	Black, non-Hispanic	96,352	908.1	920.8	836.0	853.7	-5.0	-72.1	-67.1	-19.73, 9.74	-0.59
	Other	155,328	518.1	535.3	488.6	521.2	-15.4***	-29.5	-14.1	-22.91, -7.95	-3.06
E&M visits	White, non-Hispanic	1,147,718	14,241.3	14,337.1	13,526.0	13,787.1	-165.4***§	-715.3	-550.0	-228.38, -102.40	-1.21
	Black, non-Hispanic	96,352	14,658.3	14,505.4	13,857.3	13,897.8	-193.3**§	-801.0	-607.7	-351.37, -35.33	-1.38
	Other	155,328	13,810.3	13,795.8	13,015.5	13,189.4	-188.3**	-794.8	-606.4	-314.32, -62.35	-1.43
AWVs	White, non-Hispanic	1,147,718	272.7	236.1	466.3	349.9	79.7***	193.5	113.8	60.44, 99.02	20.63
	Black, non-Hispanic	96,352	182.1	163.0	343.8	271.8	52.9***§	161.7	108.8	34.75, 70.95	18.17
	Other	155,328	231.0	186.0	427.9	316.2	66.7***§	196.9	130.2	45.42, 88.06	18.48
Imaging services	White, non-Hispanic	1,147,718	5,524.5	5,533.7	4,945.9	4,960.7	-5.6§	-578.6	-573.0	-33.77, 22.50	-0.11
	Black, non-Hispanic	96,352	6,094.8	6,077.5	5,328.1	5,309.0	1.8	-766.7	-768.5	-66.60, 70.13	0.03
	Other	155,328	5,079.8	5,111.9	4,576.7	4,660.5	-51.8***§	-503.1	-451.3	-83.97, -19.57	-1.12
Procedures	White, non-Hispanic	1,147,718	9,845.4	9,903.1	10,354.0	10,458.3	-46.6	508.6	555.3	-147.97, 54.71	-0.45
	Black, non-Hispanic	96,352	9,461.8	9,515.2	9,633.7	9,681.4	5.7	171.9	166.2	-154.52, 165.95	0.06
	Other	155,328	9,203.0	8,976.1	9,619.8	9,407.8	-14.9	416.7	431.6	-171.47, 141.68	-0.15
Tests	White, non-Hispanic	1,147,718	27,110.2	27,536.5	24,284.0	25,004.6	-294.23***§	-2,826.2	-2,531.9	-443.14, -145.42	-1.20
	Black, non-Hispanic	96,352	34,023.1	34,763.7	30,475.2	31,180.3	35.4	-3,547.9	-3,583.4	-469.18, 540.05	0.12
	Other	155,328	29,266.7	29,778.3	26,841.0	27,651.8	-299.1§	-2,425.6	-2,126.5	-662.76, 64.46	-1.10
ACSC hospitalizations	White, non-Hispanic	1,147,718	44.5	44.4	38.8	38.9	-0.2	-5.7	-5.5	-0.77, 0.33	-0.56
	Black, non-Hispanic	96,352	63.2	60.9	57.2	55.1	-0.1§	-6.0	-5.8	-2.20, 1.92	-0.25
	Other	155,328	38.6	40.4	33.8	36.0	-0.4§	-4.8	-4.4	-1.51, 0.70	-1.19

| Outcome per 1000 beneficiaries per year | In PY 2 | Baseline Years | | PY 2 | | Impacts in PY 2 | | | | |
	Subgroup	Aligned beneficiaries	NGACO mean	Comp. mean	NGACO mean	Comp. mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact
Acute care stays	White, non-Hispanic	1,002,375	316.4	317.3	290.8	291.0	0.8	-25.6	-26.4	-1.94, 3.49	0.27
	Black, non-Hispanic	88,556	440.2	432.0	393.9	386.7	-0.9§	-46.3	-45.4	-8.12, 6.26	-0.24
	Other	141,284	292.6	301.7	274.6	279.5	4.2§	-18.0	-22.2	-0.50, 8.80	1.53
SNF days	White, non-Hispanic	1,002,375	1,616.7	1,645.1	1,287.2	1,309.9	5.8	-329.5	-335.3	-23.28, 34.78	0.45
	Black, non-Hispanic	88,556	1,818.7	1,835.5	1,517.7	1,482.6	51.9	-301.0	-352.9	-0.83, 104.53	3.54
	Other	141,284	1,100.8	1,192.4	895.1	986.2	0.5§	-205.7	-206.2	-43.65, 44.64	0.06
ED visits & observation stays	White, non-Hispanic	1,002,375	523.7	530.8	510.9	521.8	-3.7	-12.7	-9.0	-7.90, 0.50	-0.72
	Black, non-Hispanic	88,556	894.8	907.6	863.7	874.1	2.3	-31.2	-33.5	-14.48, 19.13	0.27
	Other	141,284	503.9	525.1	498.8	514.6	5.3	-5.1	-10.4	-3.08, 13.77	1.08
E&M visits	White, non-Hispanic	1,002,375	14,067.3	14,127.9	13,716.1	13,833.5	-56.7§	-351.1	-294.4	-137.47, 24.06	-0.41
	Black, non-Hispanic	88,556	14,519.9	14,332.0	14,137.0	13,917.8	31.3§	-382.9	-414.2	-79.89, 142.51	0.22
	Other	141,284	13,478.8	13,576.8	13,132.3	13,230.2	0.1	-346.5	-346.6	-131.02, 131.28	0.00
AWVs	White, non-Hispanic	1,002,375	257.6	215.5	419.6	328.4	49.0***	161.9	112.9	34.92, 63.18	13.24
	Black, non-Hispanic	88,556	191.0	154.9	328.7	255.0	37.7***	137.7	100.0	16.06, 59.39	12.96
	Other	141,284	223.0	173.0	389.1	285.0	54.1***§	166.1	112.1	32.19, 75.97	16.14
Imaging services	White, non-Hispanic	1,002,375	5,507.2	5,525.1	4,965.6	5,013.5	-30.1	-541.6	-511.5	-61.35, 1.21	-0.60
	Black, non-Hispanic	88,556	6,073.1	6,075.0	5,448.0	5,444.7	5.1	-625.1	-630.3	-72.05, 82.32	0.09
	Other	141,284	5,025.2	5,140.0	4,636.8	4,700.8	50.8§	-388.4	-439.2	-13.37, 114.87	1.11
Procedures	White, non-Hispanic	1,002,375	9,697.3	9,808.5	10,366.7	10,502.6	-24.7	669.4	694.1	-124.17, 74.80	-0.24
	Black, non-Hispanic	88,556	9,286.8	9,390.6	9,688.5	9,770.5	21.9	401.8	379.9	-136.00, 179.84	0.23
	Other	141,284	8,689.1	8,871.9	9,571.7	9,375.1	379.4**	882.6	503.1	122.95, 635.92	4.13
Tests	White, non-Hispanic	1,002,375	26,677.1	27,391.3	24,586.3	25,445.1	-144.6*§	-2,090.8	-1,946.2	-281.16, -8.00	-0.58
	Black, non-Hispanic	88,556	33,943.5	34,381.6	31,095.3	31,280.5	253.1	-2,848.2	-3,101.3	-157.35, 663.56	0.82
	Other	141,284	29,071.1	29,591.1	27,255.6	27,616.3	159.3	-1,815.5	-1,974.8	-162.09, 480.69	0.59
ACSC hospitalizations	White, non-Hispanic	1,002,375	43.5	43.9	39.5	39.7	0.1	-4.0	-4.2	-0.46, 0.75	0.36
	Black, non-Hispanic	88,556	61.5	59.7	57.4	55.5	0.0	-4.2	-4.2	-1.73, 1.71	-0.02
	Other	141,284	38.8	40.3	36.8	37.7	0.6§	-2.0	-2.6	-0.52, 1.72	1.67

Outcome per 1000 beneficiaries per year	Subgroup	In PY 1	Baseline Years		PY 1		Impacts in PY 1				
		Aligned beneficiaries	NGACO mean	Comp. mean	NGACO mean	Comp. mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact
Acute care stays	White, non-Hispanic	403,833	331.0	329.5	305.3	304.6	-0.8	-25.7	-24.9	-3.55, 1.97	-0.26
	Black, non-Hispanic	32,139	467.0	459.8	444.3	427.0	10.1	-22.6	-32.8	-1.84, 22.10	2.33
	Other	41,207	322.4	316.6	317.6	304.0	7.9	-4.8	-12.6	-2.67, 18.41	2.54
SNF days	White, non-Hispanic	403,833	2,474.8	2,512.6	2,055.2	2,099.9	-6.9	-419.6	-412.7	-62.18, 48.38	-0.33
	Black, non-Hispanic	32,139	3,011.9	3,084.9	2,568.2	2,675.1	-33.8	-443.7	-409.9	-200.78, 133.12	-1.30
	Other	41,207	1,978.9	2,051.5	1,806.4	1,836.2	42.9	-172.5	-215.3	-89.53, 175.29	2.43
ED visits & observation stays	White, non-Hispanic	403,833	523.4	531.1	536.6	540.6	3.7§	13.2	9.5	-2.00, 9.38	0.69
	Black, non-Hispanic	32,139	912.1	926.9	927.3	943.7	-1.7	15.2	16.8	-25.90, 22.56	-0.18
	Other	41,207	515.2	516.2	540.3	542.4	-1.1	25.1	26.2	-19.35, 17.17	-0.20
E&M visits	White, non-Hispanic	403,833	13,297.2	13,353.6	13,453.7	13,665.6	-155.5***§	156.6	312.1	-239.78, -71.28	-1.14
	Black, non-Hispanic	32,139	13,635.7	13,112.3	13,736.7	13,333.6	-120.4§	100.9	221.3	-394.52, 153.80	-0.87
	Other	41,207	13,537.3	13,416.3	13,891.0	13,757.7	12.3	353.7	341.4	-277.75, 302.25	0.09
AWVs	White, non-Hispanic	403,833	213.9	182.0	315.1	266.2	16.9*	101.1	84.2	0.08, 33.80	5.68
	Black, non-Hispanic	32,139	135.5	135.6	232.9	204.0	29.0***	97.4	68.4	15.32, 42.72	14.24
	Other	41,207	167.8	152.0	271.3	226.0	29.5***§	103.5	74.0	18.17, 40.87	12.21
Imaging services	White, non-Hispanic	403,833	5,369.1	5,396.1	5,115.6	5,120.2	22.4	-253.4	-275.9	-22.36, 67.22	0.44
	Black, non-Hispanic	32,139	5,889.2	5,879.4	5,605.4	5,495.4	100.1	-283.9	-384.0	-28.47, 228.69	1.82
	Other	41,207	5,526.3	5,471.5	5,346.5	5,260.4	31.3	-179.8	-211.1	-69.52, 132.08	0.59
Procedures	White, non-Hispanic	403,833	9,107.8	9,209.7	9,581.4	9,788.6	-105.4**	473.6	578.9	-180.96, -29.76	-1.09
	Black, non-Hispanic	32,139	8,826.9	8,879.6	8,943.2	9,131.4	-135.4	116.3	251.7	-354.30, 83.46	-1.49
	Other	41,207	8,670.3	8,658.7	9,410.3	9,217.8	180.82*	739.9	559.1	14.10, 347.54	1.96
Tests	White, non-Hispanic	403,833	26,032.6	26,759.5	24,351.2	25,126.3	-48.2§	-1,681.4	-1,633.2	-192.26, 95.92	-0.20
	Black, non-Hispanic	32,139	32,530.7	33,743.3	30,422.0	30,768.4	866.2***	-2,108.7	-2,974.9	364.96, 1367.36	2.93
	Other	41,207	32,113.5	32,162.4	29,781.8	30,061.6	-231.0§	-2,331.8	-2,100.8	-652.32, 190.30	-0.77
ACSC hospitalizations	White, non-Hispanic	403,833	44.5	44.7	39.6	39.2	0.70	-4.8	-5.5	-0.16, 1.46	1.67
	Black, non-Hispanic	32,139	61.5	59.1	57.6	53.4	1.90	-3.9	-5.8	-1.37, 5.21	3.45
	Other	41,207	44.1	44.8	43.6	41.2	3.1***	-0.5	-3.6	1.50, 4.60	7.52

NOTES: §Subgroups that did not have parallel trends in baseline outcomes between NGACO and comparison group for at least one cohort in one PY. ****p<0.005, ***p<0.01, **p<0.05, *p<0.1. Model-wide cumulative results as of PY 6 for each subgroup were calculated by weighting estimates for each cohort in each PY (six PYs for 2016 cohort, five PYs for 2017 cohort, and four PYs for 2018). Model-wide results in each PY for each subgroup were calculated by weighting estimates for each cohort in each PY. The difference-in-differences (DID) estimates were reported, as well as conditional means for the NGACO and comparison group means in BY and PY. The % impact was the magnitude of the DID estimate relative to the counterfactual (NGACO group in PY in absent of treatment). ACSC=ambulatory care-sensitive condition, AWV=annual wellness visit, ED=emergency department, E&M=evaluation and management.
SOURCE: NORC analysis of NGACO and comparison group enrollment and claims data.

Exhibit G.4. Descriptive Characteristics of Model and Comparison Beneficiaries by Race and Ethnicity for PYs 3–6

	PY 3 (2018)			PY 4 (2019)			PY 5 (2020)			PY 6 (2021)		
	NGACO	Comparison unweighted	Comparison	NGACO	Comparison unweighted	Comparison	NGACO	Comparison unweighted	Comparison	NGACO	Comparison unweighted	Comparison
Number of beneficiaries												
White	1,147,718	9,671,893	1,142,291	998,343	6,927,522	996,251	862,827	5,163,988	876,993	826,477	4,629,950	835,845
Black	96,352	967,881	92,723	75,731	647,883	76,117	60,178	515,927	61,094	53,424	419,841	53,734
Other	155,328	1,818,274	151,304	129,383	1,326,743	127,978	100,162	955,668	100,429	95,351	866,569	95,077
Demographics												
White												
Age (mean, standard deviation [SD])	74.3 (10.7)	74 (11.5)	74.4 (10.8)	74.4 (10.5)	74.1 (11.4)	74.4 (10.6)	74.6 (10.1)	74.1 (11.3)	74.5 (10.2)	74.7 (9.9)	74.1 (11.1)	74.7 (10)
Male (%)	42.3%	43.1%	42.2%	42.3%	43.3%	42.4%	42.7%	43.6%	42.8%	42.7%	43.5%	42.9%
Black												
Age (mean, SD)	68.7 (13.6)	67.7 (14.5)	68.4 (14.1)	69.2 (13.5)	67.9 (14.5)	69 (13.8)	69.3 (13.4)	67.9 (14.6)	68.9 (13.7)	69.8 (13.3)	68.1 (14.6)	69.4 (13.7)
Male (%)	38.1%	40.5%	39.4%	38.6%	40.9%	39.4%	39.1%	41.3%	40.6%	38.6%	41.2%	40.1%
Other												
Age (mean, SD)	71.7 (12.2)	71.4 (12.9)	71.5 (12.3)	72.1 (11.9)	71.6 (12.7)	71.8 (12.1)	72.5 (11.4)	71.5 (12.8)	72.3 (11.4)	72.6 (11.4)	71.5 (12.8)	72.4 (11.4)
Male (%)	44.0%	44.5%	44.7%	44.6%	44.3%	44.8%	45.9%	44.9%	46.4%	46.0%	44.8%	46.4%
Health indicators												
White												
Disability (%)	10.5%	12.7%	10.1%	9.6%	12.2%	9.7%	8.3%	11.8%	8.5%	7.6%	11.3%	7.7%
ESRD (%)	0.6%	0.6%	0.6%	0.5%	0.6%	0.6%	0.5%	0.5%	0.6%	0.5%	0.4%	0.5%
Chronic conditions (mean, SD)	5.5 (3.7)	5.7 (4)	5.5 (3.8)	5.6 (3.7)	5.7 (4)	5.6 (3.8)	5.6 (3.7)	5.7 (4)	5.6 (3.8)	5.3 (3.7)	5.4 (3.9)	5.3 (3.8)
Died (%)	3.8%	4.4%	4.6%	3.8%	4.3%	4.3%	4.1%	5.0%	4.6%	3.9%	4.6%	4.6%
Black												
Disability (%)	29.5%	33.9%	30.4%	27.2%	33.2%	27.5%	26.2%	32.7%	26.8%	24.5%	31.7%	25.0%
ESRD (%)	4.1%	4.1%	4.2%	4.0%	4.2%	4.0%	4.3%	4.0%	4.3%	3.5%	2.7%	3.4%
Chronic conditions (mean, SD)	6.2 (4.1)	6.7 (4.4)	6.5 (4.2)	6.2 (4)	6.8 (4.5)	6.4 (4.2)	6.2 (4)	6.8 (4.5)	6.5 (4.2)	5.9 (3.9)	6.4 (4.4)	6.1 (4.1)
Died (%)	3.7%	4.4%	4.9%	3.7%	4.5%	4.5%	4.3%	5.9%	5.6%	4.1%	5.1%	5.3%
Other												
Disability (%)	15.9%	18.2%	16.2%	14.2%	17.2%	14.8%	11.6%	17.1%	12.0%	11.1%	16.7%	11.5%
ESRD (%)	2.1%	2.6%	2.2%	2.0%	2.7%	2.0%	1.7%	2.4%	1.8%	1.4%	1.7%	1.5%
Chronic conditions (mean, SD)	5.7 (3.8)	5.9 (4)	5.7 (3.9)	5.7 (3.8)	6 (4.1)	5.7 (3.9)	5.5 (3.7)	5.9 (4.1)	5.6 (3.9)	5.1 (3.6)	5.4 (4)	5.2 (3.8)
Died (%)	2.7%	3.3%	3.3%	2.6%	3.3%	3.1%	3.2%	4.3%	3.6%	2.9%	3.5%	3.4%

	PY 3 (2018)			PY 4 (2019)			PY 5 (2020)			PY 6 (2021)		
	NGACO	Comparison unweighted	Comparison	NGACO	Comparison unweighted	Comparison	NGACO	Comparison unweighted	Comparison	NGACO	Comparison unweighted	Comparison
Insurance coverage												
White												
Dual (%)	13.4%	17.4%	13.2%	13.0%	17.5%	13.0%	10.6%	16.9%	10.8%	10.0%	16.8%	10.1%
Part D (%)	76.5%	76.3%	77.2%	77.0%	76.6%	77.4%	77.0%	76.8%	77.5%	77.8%	77.8%	78.2%
Black												
Dual (%)	39.7%	48.8%	42.9%	37.8%	49.2%	39.8%	34.2%	49.1%	37.6%	32.6%	48.7%	36.2%
Part D (%)	77.9%	81.0%	80.5%	77.2%	80.6%	79.2%	74.5%	80.2%	76.8%	73.6%	79.6%	75.8%
Other												
Dual (%)	46.2%	52.0%	46.9%	43.7%	50.5%	44.8%	39.1%	48.8%	39.7%	37.0%	48.1%	37.8%
Part D (%)	84.2%	84.7%	84.8%	84.2%	84.3%	84.2%	83.5%	83.9%	83.3%	83.3%	84.1%	83.0%
ZIP-code SES												
White												
Med. income (2021 $; mean, SD)	78,282 (30,581)	77,018 (30,942)	79,212 (33,094)	75,728 (29,418)	77,454 (30,997)	75,235 (28,546)	77,306 (29,344)	80,404 (32,305)	77,169 (28,856)	74,595 (27,867)	78,572 (31,265)	74,505 (27,386)
% below FPL (mean, SD)	11.2 (7.1)	11.8 (7.2)	11 (7.1)	11.4 (7)	11.7 (7)	11.2 (6.9)	10.7 (6.7)	11 (6.7)	10.6 (6.6)	10.3 (6.3)	10.4 (6.4)	10.2 (6.3)
% Bachelor's degree+ (mean, SD)	35.5 (17.4)	34.6 (17.7)	35.8 (18.4)	34.3 (16.8)	34.8 (18.2)	34.1 (16.9)	35.5 (17.2)	35.6 (18.3)	35.1 (17.2)	36.1 (17.3)	36.7 (18.5)	36 (17.4)
Rural (%)	15.2%	20.5%	15.5%	17.0%	24.4%	17.4%	17.9%	24.3%	18.0%	18.3%	23.8%	18.7%
Alignment-eligible providers within 10-mile radius (per 1,000 pop.; mean, SD)	2.3 (1.3)	2.1 (1.2)	2.3 (1.4)	2.3 (1.4)	2.2 (1.3)	2.3 (1.4)	3.1 (1.1)	2.9 (1.2)	3.1 (1.2)	3.3 (1.2)	3.1 (1.2)	3.2 (1.2)
Black												
Med. income (2021 $; mean, SD)	57,356 (25,704)	56,226 (24,781)	57,586 (27,237)	58,481 (25,296)	57,904 (25,251)	58,976 (25,394)	60,334 (26,282)	59,878 (26,561)	60,372 (25,423)	59,262 (25,172)	59,330 (25,855)	58,905 (24,430)
% below FPL (mean, SD)	20.6 (11.3)	20.8 (10.7)	20.6 (11.5)	19.4 (10.5)	19.9 (10.1)	19.1 (10.4)	18.3 (10.4)	19 (10)	18.1 (10.1)	17.1 (9.9)	17.9 (9.6)	17.2 (9.7)
% Bachelor's degree+ (mean, SD)	26.4 (15.5)	24.8 (15.1)	26.7 (16.2)	27 (15.5)	25.5 (15.7)	27.4 (15.4)	28.1 (16.4)	26.4 (15.8)	28 (15.8)	29.2 (16.4)	27.7 (16.2)	29.2 (16.2)
Rural (%)	5.4%	12.2%	5.5%	6.5%	14.0%	5.9%	7.0%	13.6%	6.3%	7.3%	13.4%	6.0%
Alignment-eligible providers within 10-mile radius (per 1,000 pop.; mean, SD)	2.5 (1.2)	2.1 (1.1)	2.3 (1.1)	2.5 (1.3)	2.2 (1.2)	2.4 (1.3)	3 (1)	2.7 (1)	2.9 (1)	3.2 (1.1)	2.9 (1.1)	3.2 (1)
Other												
Med. income (2021 $; mean, SD)	75,352 (32,176)	73,547 (31,019)	75,158 (34,081)	75,542 (31144)	75,091 (30,764)	74,643 (30,347)	79,785 (31,698)	78,756 (32,737)	78,664 (31,433)	77,815 (29,923)	77,829 (31,314)	76,888 (29,406)
% below FPL (mean, SD)	14.6 (9.3)	15.3 (8.8)	14.7 (9.4)	13.9 (8.8)	14.7 (8.4)	14.1 (8.8)	12.3 (8)	13.6 (8.1)	12.5 (8.1)	11.5 (7.5)	12.7 (7.5)	11.7 (7.5)

	PY 3 (2018)			PY 4 (2019)			PY 5 (2020)			PY 6 (2021)		
	NGACO	Comparison unweighted	Comparison	NGACO	Comparison unweighted	Comparison	NGACO	Comparison unweighted	Comparison	NGACO	Comparison unweighted	Comparison
% Bachelor's degree+ (mean, SD)	33.8 (18.1)	31.5 (18.1)	33.2 (18.9)	33.9 (17.6)	32.5 (18.5)	33.6 (17.4)	36.5 (18.1)	34.2 (18.8)	35.7 (17.9)	37.6 (18.1)	35.5 (19)	36.9 (18)
Rural (%)	4.5%	7.2%	5.0%	5.2%	8.3%	5.5%	6.6%	9.2%	7.0%	7.0%	9.0%	7.3%
Alignment-eligible providers within 10-mile radius (per 1,000 pop.; mean, SD)	2.1 (1.2)	1.8 (1)	2 (1.1)	2.1 (1.2)	1.9 (1)	2.1 (1.2)	2.7 (1.1)	2.4 (1)	2.6 (1.1)	2.9 (1.2)	2.6 (1.1)	2.8 (1.1)

NOTES: Descriptive characteristics shown for beneficiaries in NGACO and comparison groups (before and after propensity score weighting), by groupings of race and ethnicity based on the Medicare Beneficiary Summary File's RTI race code. The "other" race/ethnicity grouping included Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, Other, and Unknown categories. ESRD=end-stage renal disease; chronic conditions=count of chronic and disabling conditions at the start of each year based on Chronic Conditions Data Warehouse (CCW) indicators; Part D=Part D coverage in the year; dual=dual eligibility in the year; disability=indicator for disability in the year; SES=socioeconomic status; med. income=median income from American Community Survey (ACS) data; alignment-eligible providers within 10 mile radius per 1,000 population was based on the total population in ZIP code and not restricted to the Medicare population.
SOURCE: NORC analysis of Medicare enrollment and claims data, 2017-2021 and ancillary data.

Exhibit G.5. Descriptive Characteristics of Model Beneficiaries by Dual Eligibility for PYs 3–6

	PY 3 (2018)			PY 4 (2019)			PY 5 (2020)			PY 6 (2021)		
	NGACO	Comparison	Comparison (weighted)	NGACO	Comparison	Comparison (weighted)	NGACO	Comparison	Comparison (weighted)	NGACO	Comparison	Comparison (weighted)
Number of beneficiaries												
Non-dual	1,135,965	9,361,533	1,124,415	989,008	6,701,301	982,950	872,181	5,041,172	880,853	839,711	4,516,431	844,858
Dual	263,433	3,096,515	261,903	214,449	2,200,847	217,395	150,986	1,594,411	157,664	135,541	1,399,929	139,797
Demographics												
Non-dual												
Age (mean, standard deviation [SD])	75.4 (8.7)	75.4 (9.2)	75.5 (8.8)	75.5 (8.5)	75.5 (9)	75.5 (8.6)	75.5 (8.3)	75.4 (9)	75.4 (8.5)	75.6 (8.1)	75.6 (8.7)	75.5 (8.3)
Male (%)	43.2%	43.9%	43.1%	43.1%	44.1%	43.2%	43.4%	44.3%	43.5%	43.3%	44.2%	43.5%
Non-Hispanic White race (%)	87.5%	85.4%	88.2%	87.9%	85.3%	88.1%	88.5%	85.1%	88.8%	88.6%	85.3%	88.9%
Non-Hispanic Black race (%)	5.1%	5.3%	4.7%	4.8%	4.9%	4.7%	4.5%	5.2%	4.3%	4.3%	4.8%	4.1%
Other race/ethnicity (%)	7.4%	9.3%	7.1%	7.4%	9.8%	7.2%	7.0%	9.7%	6.9%	7.2%	10.0%	7.0%
Dual												
Age (mean, SD)	66 (16.4)	66.3 (16.5)	66 (16.5)	66.1 (16.5)	66.6 (16.4)	66.1 (16.5)	65.9 (16.6)	66.3 (16.5)	66.1 (16.5)	65.8 (16.7)	66.1 (16.6)	66 (16.5)
Male (%)	37.9%	40.5%	38.9%	38.5%	40.7%	39.3%	39.2%	41.2%	40.3%	39.6%	41.6%	40.7%
Non-Hispanic White race (%)	58.3%	54.2%	57.7%	60.3%	55.0%	59.7%	60.5%	54.9%	60.2%	61.1%	55.6%	60.4%
Non-Hispanic Black race (%)	14.5%	15.3%	15.2%	13.3%	14.5%	13.9%	13.6%	15.9%	14.6%	12.9%	14.6%	13.9%
Other race/ethnicity (%)	27.2%	30.5%	27.1%	26.4%	30.5%	26.3%	25.9%	29.2%	25.3%	26.0%	29.8%	25.7%
Health indicators												
Non-dual												
Disability (%)	5.1%	6.3%	5.0%	4.2%	5.8%	4.6%	3.9%	5.7%	4.4%	3.4%	5.0%	3.8%
ESRD (%)	0.6%	0.6%	0.7%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.5%	0.4%	0.6%
Chronic conditions (mean, SD)	5.2 (3.5)	5.3 (3.6)	5.2 (3.5)	5.3 (3.5)	5.3 (3.6)	5.3 (3.6)	5.4 (3.5)	5.3 (3.7)	5.4 (3.7)	5.1 (3.5)	4.9 (3.6)	5.1 (3.6)
Died (%)	3.4%	3.8%	3.9%	3.3%	3.7%	3.7%	3.6%	4.2%	3.9%	3.5%	4.0%	4.0%
Dual												
Disability (%)	43.6%	42.1%	42.7%	43.3%	41.0%	42.0%	43.1%	41.2%	41.0%	42.8%	41.2%	40.7%
ESRD (%)	2.5%	2.6%	2.5%	2.5%	2.7%	2.4%	2.5%	2.6%	2.5%	2.1%	1.7%	2.0%
Chronic conditions (mean, SD)	7.3 (4.4)	7.5 (4.6)	7.3 (4.5)	7.3 (4.4)	7.7 (4.7)	7.4 (4.5)	7.2 (4.4)	7.6 (4.7)	7.4 (4.5)	6.8 (4.4)	7.1 (4.7)	7 (4.5)
Died (%)	5.1%	5.5%	6.7%	5.2%	5.6%	6.4%	6.5%	7.2%	8.3%	5.8%	6.1%	7.8%
Insurance coverage												
Non-dual												
Part D (%)	72.4%	70.8%	73.4%	73.1%	71.0%	73.6%	73.7%	71.4%	74.2%	74.6%	72.5%	75.1%
Dual												
Part D (%)	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%

	PY 3 (2018)			PY 4 (2019)			PY 5 (2020)			PY 6 (2021)		
ZIP-code SES												
Non-dual												
Med. income (2021 $; mean, SD)	71,071 (28,165)	70,483 (28,635)	72,167 (30,497)	70,570 (27,743)	72,738 (29,368)	70,189 (26,961)	73,034 (28,081)	76,391 (31,050)	72,931 (27,613)	75,448 (28,500)	79,972 (32,152)	75,339 (27,970)
% below FPL (mean, SD)	11.3 (7.5)	11.8 (7.4)	11.1 (7.4)	11.4 (7.2)	11.6 (7.2)	11.3 (7.1)	10.8 (6.9)	11 (6.9)	10.6 (6.7)	10.3 (6.5)	10.4 (6.5)	10.2 (6.4)
% Bachelor's degree+ (mean, SD)	35.9 (17.5)	35.2 (18)	36.3 (18.6)	34.8 (17)	35.4 (18.5)	34.7 (17.1)	36 (17.4)	36.2 (18.6)	35.6 (17.4)	36.6 (17.5)	37.4 (18.8)	36.5 (17.6)
Rural (%)	13.6%	18.5%	14.1%	15.3%	22.2%	15.9%	16.1%	22.3%	16.5%	16.6%	22.1%	17.3%
Alignment-eligible providers within 10-mile radius (per 1,000 pop.; mean, SD)	2.3 (1.3)	2.1 (1.2)	2.3 (1.4)	2.3 (1.4)	2.1 (1.3)	2.3 (1.4)	3.1 (1.1)	2.8 (1.2)	3 (1.2)	3.2 (1.2)	3 (1.2)	3.2 (1.2)
Dual												
Med. income (2021 $; mean, SD)	59,807 (24,441)	58,442 (23,576)	58,989 (25,099)	60,526 (23,722)	60,670 (23,774)	59,960 (22,931)	62,764 (23,926)	63,966 (25,553)	62,240 (23,377)	65,532 (24,418)	67,825 (26,358)	65,086 (24,051)
% below FPL (mean, SD)	16 (9.7)	16.7 (9.2)	16.2 (9.9)	15.6 (9.1)	16.1 (8.7)	15.6 (9.2)	14.6 (8.8)	15.2 (8.6)	14.6 (8.8)	13.7 (8.2)	14.3 (8.1)	13.9 (8.5)
% Bachelor's degree+ (mean, SD)	29.7 (16.3)	28.1 (16.2)	28.9 (16.4)	29.1 (15.6)	28.6 (16.4)	28.8 (15.1)	30.2 (16)	29.8 (16.6)	29.9 (15.5)	31 (16)	31.2 (16.9)	30.9 (15.8)
Rural (%)	12.1%	16.2%	12.2%	14.0%	18.4%	13.3%	16.3%	18.0%	14.8%	16.8%	16.9%	14.6%
Alignment-eligible providers within 10-mile radius (per 1,000 pop.; mean, SD)	2.3 (1.3)	2 (1.1)	2.2 (1.2)	2.3 (1.3)	2 (1.2)	2.3 (1.3)	3 (1.2)	2.7 (1.1)	2.9 (1.1)	3.1 (1.2)	2.9 (1.2)	3.1 (1.2)

NOTES: Descriptive characteristics shown for beneficiaries in NGACO and comparison group (before and after propensity score weighting), by groupings of dual eligibility based on the Medicare Beneficiary Summary File. Non-dual=no dual eligibility in the year; Dual=dual eligibility in the year; ESRD=end-stage renal disease; chronic conditions=count of chronic and disabling conditions at the start of each year based on Chronic Conditions Data Warehouse (CCW) indicators; Part D=Part D coverage in the year; Race/ethnicity determined from RTI race code; The "other" race/ethnicity group includes Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, Other and Unknown categories of RTI race code; Disability=indicator for disability in the year; SES=socioeconomic status; med. income=median income from American Community Survey (ACS) data; FPL=federal poverty level. Alignment-eligible providers within 10-mile radius per 1,000 population, based on the total population in ZIP code and not restricted to the Medicare population.
SOURCE: NORC analysis of Medicare enrollment and claims data, 2017-2021 and ancillary data.

Exhibit G.6. Gross Spending Impacts for NGACO Beneficiaries who Continued in the Model, Relative to Matched Comparison Beneficiaries, By Cohort and PY

	NGACO-Comparison			NGACO			Comparison		
	Estimate	Standard error	95% confidence interval (CI)	Conditional mean	Standard error	95% CI	Conditional mean	Standard error	95% CI
2016 Cohort									
1 Year	77.6	93.7	(-106.1, 261.3)	7,661.5	66.8	(7,530.6, 7,792.3)	7,583.9	64.0	(7,458.4, 7,709.4)
2 Years	96.10	95.7	(-91.5, 283.7)	7,692.4	66.1	(7,563, 7,821.9)	7,596.3	62.8	(7,473.2, 7,719.4)
3 Years	67.3	98.9	(-126.5, 261)	8,049.6	67.6	(7,917, 8,182.1)	7,982.3	65.1	(7,854.7, 8,109.9)
4 Years	-227.8**	106.9	(-437.4, -18.3)	8,458.6	70.3	(8,320.9, 8,596.3)	8,686.5	-72.7	(-8,543.9, -8,829)
5 Years	-151.5	107.8	(-362.7, 59.7)	7,891.3	72.6	(7,749.1, 8,033.5)	8,042.8	75.7	(7,894.5, 8,191.2)
6 Years	-551.7***	120.6	(-788.1, -315.4)	9,509.0	79.2	(9,353.7, 9,664.2)	10,060.7	86.7	(9,890.8, 10,230.6)
2017 Cohort									
1 Year	-343.9***	81.5	(-503.6, -184.2)	7,868.4	52.0	(7,766.4, 7,970.3)	8,212.3	62.1	(8,090.5, 8,334.1)
2 Years	-339.1***	80.4	(-496.7, -181.6)	8,041.1	51.9	(7,939.3, 8,142.9)	8,380.2	60.0	(8,262.5, 8,497.9)
3 Years	-507.4***	85.9	(-675.8, -338.9)	8,379.0	54.6	(8,271.9, 8,486.1)	8,886.3	64.3	(8,760.4, 9,012.3)
4 Years	-470.2***	88.7	(-644.1, -296.2)	7,852.3	58.8	(7,737, 7,967.6)	8,322.4	-65.1	(-8,194.9, -8,450)
5 Years	-619.9***	108.6	(-832.8, -407)	9,608.2	65.1	(9,480.7, 9,735.7)	10,228.1	85.6	(10,060.3, 10,396)
2018 Cohort									
1 Year	-334.5***	81.8	(-494.9, -174.2)	8,543.6	58.7	(8,428.6, 8,658.7)	8,878.1	54.2	(8,771.9, 8984.4)
2 Years	-394.4***	82.5	(-556.2, -232.6)	8,874.1	58.7	(8,759.1, 8,989)	9,268.5	54.2	(9,162.3, 9374.6)
3 Years	-519.4***	85.6	(-687.1, -351.7)	8,222.3	63.6	(8,097.7, 8,347)	8,741.8	55.6	(8,632.7, 8850.8)
4 Years	-533.6***	97.4	(-724.6, -342.6)	9,931.9	68.4	(9,797.7, 10,066)	10,465.5	-67.3	(-10,333.5, -10597.5)

NOTES: Impact estimates for gross Medicare spending are per beneficiary per year (PBPY) and 90% confidence intervals significant at *p<0.1, **p<0.05, ***p<0.01. Impact estimates are gross Medicare spending impacts from longitudinal analysis for continuously retained NGACO beneficiaries in each cohort, relative to matched comparison beneficiaries. A total of 272,012 beneficiaries continued in the model as of PY 6, including 65,497 for six years from 2016 Cohort, 105,914 for five years from 2017 Cohort, and 100,601 for four years from 2018 Cohort. Our approach to estimating impacts and matching beneficiaries for longitudinal analyses is detailed in Appendix A.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Exhibit G.7. NGACO Market Participation Peaked in PY 3 (2019)

Always Active HRRs: Included in all PYs

Continuing HRRs: Included in PY6 and at least one previous PY

Exited HRRs: Included in at least one previous PY but not in PY6

New HRRs: Included in PY6 but not in any previous PYs
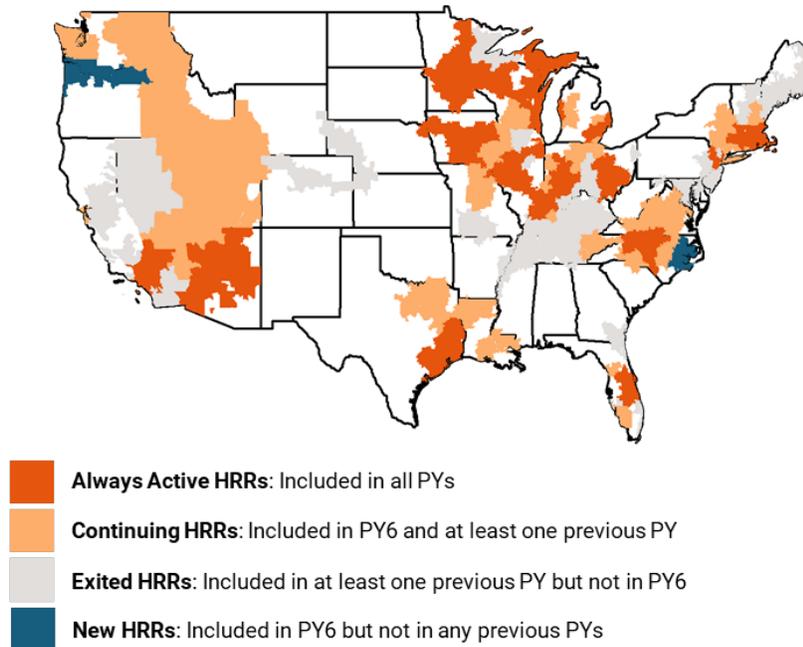
NOTE: An NGACO's market area within a given PY was defined as the collection of hospital referral regions (HRRs) containing at least 1% of the NGACO's aligned population in the PY.

Results for the Overlap of Episodic Initiatives with the NGACO Model on Total Spending

Bundled Payments for Care Improvement

Exhibit G.8 presents the estimates from our analysis of overlap between the Bundled Payments for Care Improvement (BPCI) initiative and the NGACO Model. We used a triple difference model (difference in difference-in-differences [DID]) that allowed calculation of DID estimates for the population groups reported in the table. The analysis was distinct from the NGACO evaluation results reported in Chapter 2, with different baseline periods (two baseline periods) and different performance periods (PY 1 through PY 3 [2016–2018] of the NGACO Model). The DID results from the new analytic sample and the triple-difference results are reported by BPCI status.

- Using the new analytic sample, we found that the NGACO Model was associated with a significant decrease in gross spending of $124 per beneficiary per year (PBPY) for PY 1 to PY 3.

- We saw no significant association between NGACO participation and gross spending for BPCI beneficiaries. Among non-BPCI beneficiaries, there was a significant decrease ($135 PBPY) in gross spending associated with NGACO participation.

- The aggregate effects of the NGACO Model on Medicare spending largely reflected spending reductions for beneficiaries who were **not** in BPCI.

- The findings likely reflect: 1) the early years of the NGACO Model, when the NGACOs were implementing their population-based management approaches; and 2) later years of the BPCI, when impacts were attenuated due to participants' withdrawal.

- Results were unchanged in robustness checks. The checks involved adding controls for model, episode initiator, and Diagnosis Related Groups (DRGs) for BPCI, to capture additional nuances of BPCI episodes.

Exhibit G.8.   Overlap of NGACO and BPCI—Estimated Gross Impacts of NGACO Model on Medicare Spending, Model-Wide and by BPCI Status as of PY 3

	Mean Adjusted Spending PBPY ($)				Gross Impact Estimates		
	NGACO BYs	Comp. BYs	NGACO PYs	Comp. PYs	PBPY ($) (90% confidence interval)	Aggregate ($)	% Impact
Overall							
Full sample (n=3,108,792)	$14,827	$15,122	$14,634	$15,053	-$124*** (-$179, -$68)	-$384M	-0.82%
By BPCI status							
BPCI beneficiaries (n=44,557)	$100,097	$100,296	$77,269	$76,323	$1,054 (-$-560, $2,667)	$47M	1.38%
Non-BPCI beneficiaries (n=3,064,235)	$14,516	$14,817	$13,472	$13,887	-$135*** (-$190, -$79)	-$412M	-0.98%
By BPCI status (controlling for model, episode initiator, and DRG groups)							
BPCI beneficiaries (n=44,557)	$175,426	$179,656	$155,433	$157,605	$1,594 (-$2,300, $5,488)	$71M	1.04%
Non-BPCI beneficiaries (n=3,064,235)	$28,761	$29,392	$27,712	$28,646	-$319*** (-$451, -$187)	-$976M	-1.14%

NOTES: Gross spending impact estimates were cumulative, from PY 1 to PY 3, from difference-in-differences (DID) models assessing the effect of NGACO and Bundled Payments for Care Improvement (BPCI). "N" denotes the total number of beneficiaries in NGACO PY(s). Aggregate impact is the effect for all beneficiaries in the PY(s). The % impact is the percentage effect relative to the counterfactual (absent the NGACO Model). Estimates are reported in in 2021 dollars. ***p< 0.01. BY=base year, DRG=diagnosis-related group, PBPY=per beneficiary per year, PY=performance year.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Oncology Care Model

Exhibit G.9 presents our analysis of overlap between the Oncology Care Model (OCM) and NGACO, with DID estimates for the overall sample, and for OCM and non-OCM beneficiaries. The analysis was distinct from the NGACO evaluation results reported in Chapter 2; only the 2018 NGACO cohort was

included, with a two-year baseline (2016–2017) and covering the performance period 2018–2021. The DID results from the new analytic sample and the triple-difference results are reported by OCM status.

- Using the new analytic sample, we found that the NGACO Model was associated with a significant decrease in total Medicare spending ($505 PBPY) from PY 3 to PY 6.

- Among OCM beneficiaries, we observed a decrease in total spending ($3,868 PBPY) associated with NGACO participation, although the aggregate spending decline was much smaller ($42.9M) compared with reductions from the overall model ($523.7M). The NGACO Model was associated with a significant decrease in total spending ($441 PBPY) for non-OCM beneficiaries. Although OCM beneficiaries only contributed about 1% of the sample, they represented over 8% of the total spending reduction.

- The findings reflect later years in both models, when NGACOs and oncology practices had honed their approaches to manage their beneficiaries' primary and specialty care needs.

- For robustness checks, we further restricted the sample to those who were cancer patients (having a concurrent cancer flag). We still found a large decrease in total spending associated with NGACO participation among OCM beneficiaries, although the relative change became smaller.

Exhibit G.9.　Overlap of NGACO and OCM—Estimated Gross Impacts of NGACO Model on Medicare Spending, 2018 Cohort and by OCM Status as of PY 6

	Mean Adjusted Spending PBPY ($)				Gross Impact Estimates		
	NGACO BYs	Comp. BYs	NGACO PYs	Comp. PYs	PBPY ($) (90% confidence interval)	Aggregate ($)	% Impact
Overall							
Full sample (n=1,037,100)	$14,013	$14,215	$13,328	$14,034	-$505*** (-$628, -$381)	-$523.7M	-3.65%
By OCM status							
OCM beneficiaries (n=11,089)	$73,996	$75,043	$62,821	$67,633	-$3,868*** (-$6,212, -$1,525)	-$42.9M	-5.80%
Non-OCM beneficiaries (n=1,026,011)	$13,839	$14,045	$12,548	$13,181	-$441*** (-$563, -$320)	-$452.5M	-3.40%
By OCM status (further restricted to concurrent cancer patients)							
OCM beneficiaries (n=9,188)	$48,891	$49,099	$43,645	$45,997	-$2,156*** (-$3466, -$845)	-$19.8M	-4.71%
Non-OCM beneficiaries (n=121,459)	$22,527	$23,560	$20,826	$22,503	-$694*** (-$963, -$425)	-$84.3M	-3.23%

NOTES: Gross spending impact estimates were cumulative, from PY 1 to PY 3, from difference-in-differences (DID) models assessing effect of NGACO and the Oncology Care Model (OCM). "N" denotes the total number of beneficiaries in NGACO PY(s). The aggregate impact is the effect for all beneficiaries in the PY(s). The % impact is the percentage effect relative to the counterfactual (absent the NGACO Model). Estimates are reported in in 2021 dollars. ***p< 0.01. BY=base year, PBPY=per beneficiary per year, PY=performance year.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Comprehensive Care for Joint Replacement

Initially, we planned to examine the effects of overlap between the Comprehensive Care for Joint Replacement (CJR) Model and NGACO Model, using the 2018 NGACO cohort and two baseline periods, similar to our analysis of NGACO Model overlap with OCM. However, we could not use a difference-in-differences (DID) approach to assess the impact of overlap because we observed systematic decreases among 2018 cohort NGACO beneficiaries receiving CJR episodes during the period 2018–2021. In 2018, CJR became partially voluntary, which may have resulted in the decline in CJR episodes among 2018 cohort beneficiaries. A similar decline did not occur in the 2018 cohort's comparison group, indicating that the decline was likely systematic.

Exhibit G.10 summarizes key milestones in the timeline of the CJR Model and Medicare payment policy for low extremity joint replacements. In 2018 and in 2020, Medicare started to allow total knee arthroplasty (TKA) and total hip arthroplasty (THA) in the outpatient setting. We found that the uptake pattern of outpatient TKA and THA was similar in both the NGACO and comparison groups.

Exhibit G.10. Overlap of NGACO and CJR—Changes in CJR Program Rules Coincided with the 2018 Cohort's Entry to the NGACO Model

2016	**2017**	**2018**	**2019**	**2020**	**2021**
• CJR: hospitals in 67 CBSAs required to participate starting April		• Medicare: TKA surgeries allowed in outpatient setting • CJR: mandatory participation ONLY in 34 CBSAs (participation in the other 33 CBSAs became voluntary)		• Medicare: THA surgeries allowed in outpatient setting	• CJR: 'episode of care' definition started to include outpatient TKA/THA in Oct • CJR: only hospitals in 34 mandatory CBSAs continue after Oct 1st

NOTE: CBSA=core-based statistical area, CJR=comprehensive care joint replacement, THA=total hip arthroplasty, TKA=total knee arthroplasty.

In 2018, the CJR Model made mandatory participation applicable to half of the randomized core based statistical areas (CBSAs), which may have caused declines in the proportion of NGACO beneficiaries with CJR episodes, while the proportion of beneficiaries in the comparison group did not see a similar change. **Exhibit G.11**. summarizes the percentage of CJR Model beneficiaries in the 2018 cohort's NGACO and comparison groups in the BYs (2016–2017) and PYs (2018–2021). The proportions of CJR Model beneficiaries in the NGACO and comparison groups were highly comparable during the BYs for the 2018 cohort (2016-2017). These differential patterns of CJR Model beneficiaries likely indicate selection into treatment, thereby introducing a confounding factor that hampers the evaluability of the overlap of the NGACO Model with the CJR Model using a difference-in-differences approach.

Exhibit G.11. Overlap of NGACO and CJR—Systematic Decline in Percentage of 2018 NGACO Cohort Beneficiaries with a CJR Episode (BY: 2016–2017, PYs: 2018–2021)
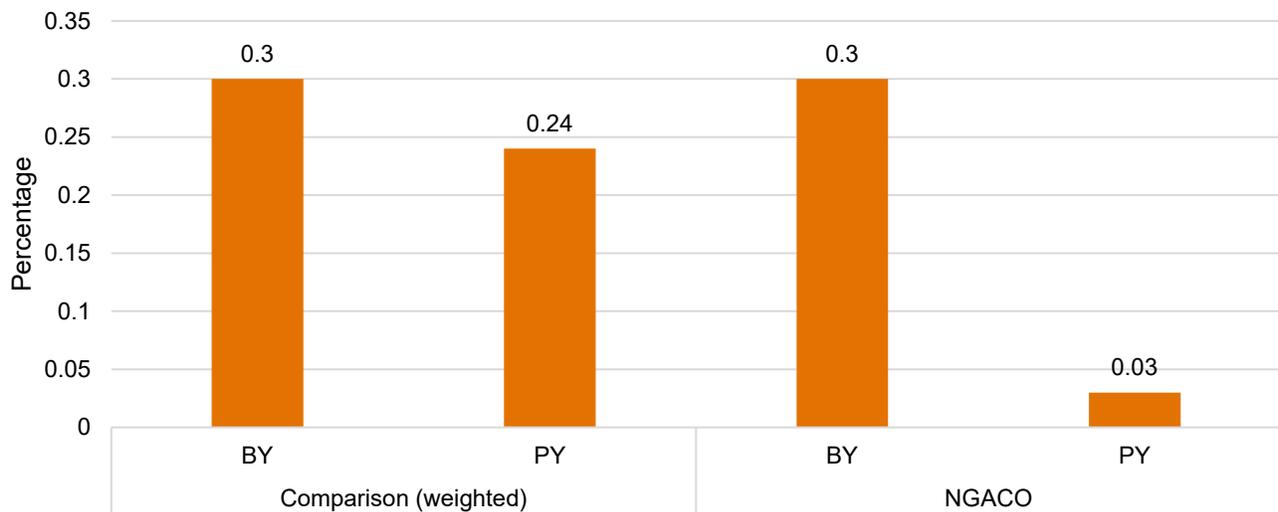
Discussion

Our findings suggest synergy between the NGACO Model and OCM, pointing to opportunities from more comprehensive care coordination in the overlap of certain specialty care and ACO models. In particular, we observed a large savings among OCM beneficiaries who participated in the NGACO Model at the same time, compared with beneficiaries who did not participate in the NGACO Model. The aggregate reductions in gross spending with the NGACO Model stemmed mainly from the majority of beneficiaries who were *not* in episodic initiatives; however, our findings identify potential benefits of embedding specialty care models within ACO models to coordinate specialty care with primary care and other needs of Medicare beneficiaries with high spending. Future research could explore utilization and quality outcomes, in addition to spending, to fully understand the cost and benefit of the overlap.

In our qualitative interviews, some NGACO leaders noted that they applied lessons from episodic initiatives to SNFs in particular. Separately, studies have shown that episodic Innovation Center initiatives themselves were associated with modest reductions in episodic Medicare spending, as follows:

- Studies of BPCI using a DID design suggest that BPCI initiatives were associated with decreased Medicare payment for lower-extremity joint replacement episodes,[74,75] without significant changes

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[74] Dummit, Laura A. et al. 2016. "Association between Hospital Participation in a Medicare Bundled Payment Initiative and Payments and Quality Outcomes for Lower Extremity Joint Replacement Episodes." *JAMA* 316(12): 1267–78.

[75] Jubelt, Lindsay E. et al. 2017. "Early Lessons on Bundled Payment at an Academic Medical Center." Journal of the American Academy of Orthopaedic Surgeons 25(9): 654–63.

in overall volume and case mix.[76] However, the BPCI Initiative was not associated with significant changes in Medicare payments, clinical complexity, length of stay, emergency department use, hospital readmission, or mortality for the five most commonly selected medical conditions in BPCI (congestive heart failure, pneumonia, chronic obstructive pulmonary disease, sepsis, and acute myocardial infarction).[77]

- Studies of the CJR Model using a DID design suggest a modest reduction in Medicare spending without increased rates of complications associated with the CJR Model.[78] One study based on a five-year randomized trial found that the CJR Model was associated with a decrease in discharges to institutional post-acute care.[79]

- A study of OCM using a DID design found that OCM was associated with modest reductions in Medicare episode payments among cancer patients undergoing chemotherapy.[80] Another study reported fewer visits and lower costs for certain types of cancers; however, savings were offset or exceeded by program costs, such as care coordination costs or performance-based payments.[81]

Looking ahead, the Innovation Center could design and test episodic initiatives intended to overlap with ACO-like models, to amplify reductions in Medicare spending and further improve quality of care. Doing so would call for careful attention to relevant issues such as incorporating specialty care episodes into ACO design; benchmarking, attribution, and risk adjustment; potential volume effects; and the unintended consequences of such overlap on market structure.

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[76] Navathe AS, Liao JM, Dykstra SE, et al. "Association of Hospital Participation in a Medicare Bundled Payment Program with Volume and Case Mix of Lower Extremity Joint Replacement Episodes." *JAMA* 2018;320(9):901–10. doi: 10.1001/jama.2018.12345

[77] Joynt Maddox KE, Orav EJ, Zheng J, Epstein AM. "Evaluation of Medicare's Bundled Payments Initiative for Medical Conditions." *N Engl J M* 2018;379(3):260–69. DOI: 10.1056/NEJMsa1801569

[78] Barnett ML, Wilcock A, McWilliams JM, Epstein AM, et al. "Two-Year Evaluation of Mandatory Bundled Payments for Joint Replacement." *N Engl J M* 2019;380(3):252–62. doi/pdf/10.1056/NEJMsa1809010

[79] Finkelstein A, Ji Y, Mahoney N, Skinner J. "Mandatory Medicare Bundled Payment Program for Lower Extremity Joint Replacement and Discharge to Institutional Postacute Care Interim Analysis of the First Year of a 5-Year Randomized Trial." *JAMA* 2018;320(9):892–900. DOI: 10.1001/jama.2018.12346

[80] Keating NL, Jhatakia S, Brooks GA, Tripp AS, et al. "Association of Participation in the Oncology Care Model with Medicare Payments, Utilization, Care Delivery, and Quality Outcomes." *JAMA* 2021;326(18):1829–39. DOI: 10.1001/jama.2021.17642

[81] Walker B, Frytak J, Hayes J, Neubauer M, et al. "Evaluation of Practice Patterns Among Oncologists Participating in the Oncology Care Model." *JAMA Netw Open* 2020;3(5):e205165.

Appendix H: Exhibits to Support Chapter 6

This appendix presents supplemental exhibits that support the findings presented in Chapter 6, as follows:

- Payment Mechanisms for the 35 NGACOs that Remained in the Model through PY6 (**Exhibit H.1**)

- Risk Election for the 35 NGACOs that Remained in the Model through PY6 (**Exhibit H.2**)

- Risk Caps for the 35 NGACOs that Remained in the Model through PY6 (**Exhibit H.3**)

- Odds Ratios from Stepwise Logistic Regression Modeling the Probability that NGACOs Elect PBP or AIPBP (**Exhibit H.4**)

- Odds Ratios from Stepwise Logistic Regression Modeling the Probability that NGACOs Elected 100% Risk (**Exhibit H.5**)

- Odds Ratios from Stepwise Logistic Regression Modeling the Probability that NGACOs Elected 5% Risk Cap (**Exhibit H.6**)

- E-Value Estimates for Association of NGACO-level Factors with Gross Spending Impacts (**Exhibit H.7**)

Exhibit H.1. Payment Mechanisms for the 35 NGACOs that Remained in the Model Through PY 6
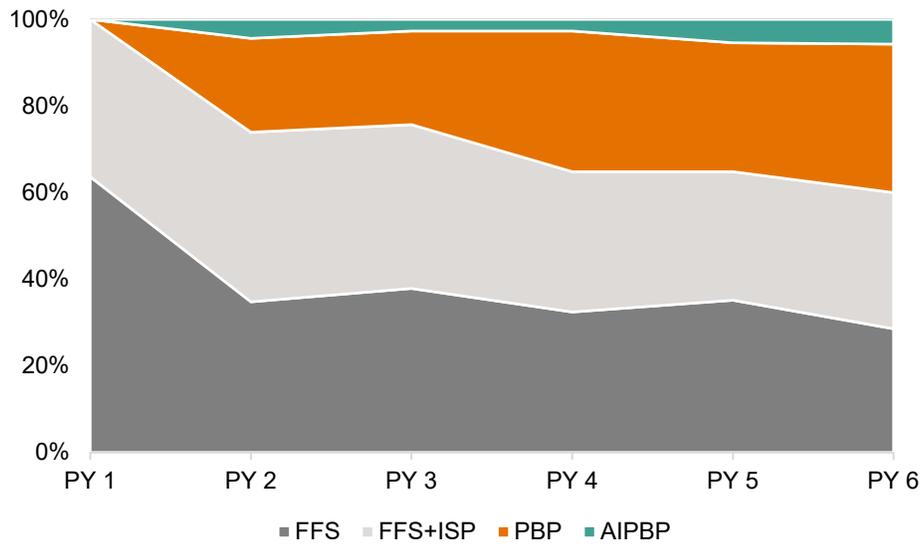
NOTE: AIPBP=all-inclusive population-based payment, FFS=fee-for-service, FFS+ISP=FFS and monthly infrastructure payment, PBP=population-based payment.

Exhibit H.2. Risk Election for the 35 NGACOs that Remained in the Model Through PY 6
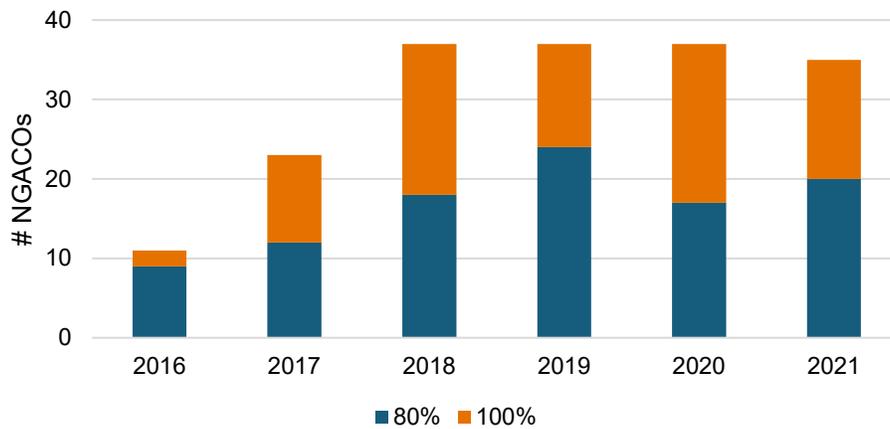
NOTE: Numbers for PY 5 and PY 6 reflect the risk levels that NGACOs selected after signing the COVID-19 amendment to their participation agreements.

Exhibit H.3. Risk Caps for the 35 NGACOs that Remained in the Model Through PY 6
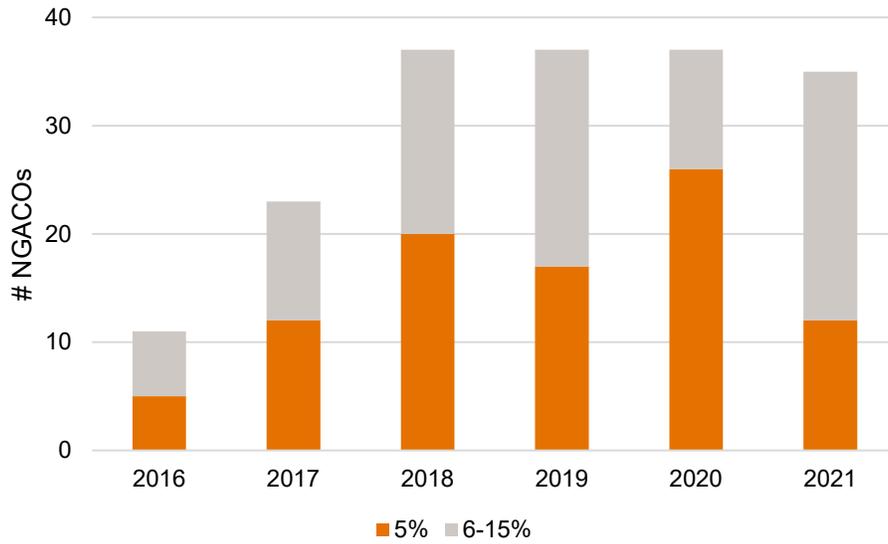
NOTE: The numbers for PY 5 and PY 6 reflect the risk caps that NGACOs selected after signing the COVID-19 amendment to their participation agreements.

Exhibit H.4.   Odds Ratios from Stepwise Logistic Regression Modeling the Probability that NGACOs Elect PBP or AIPBP
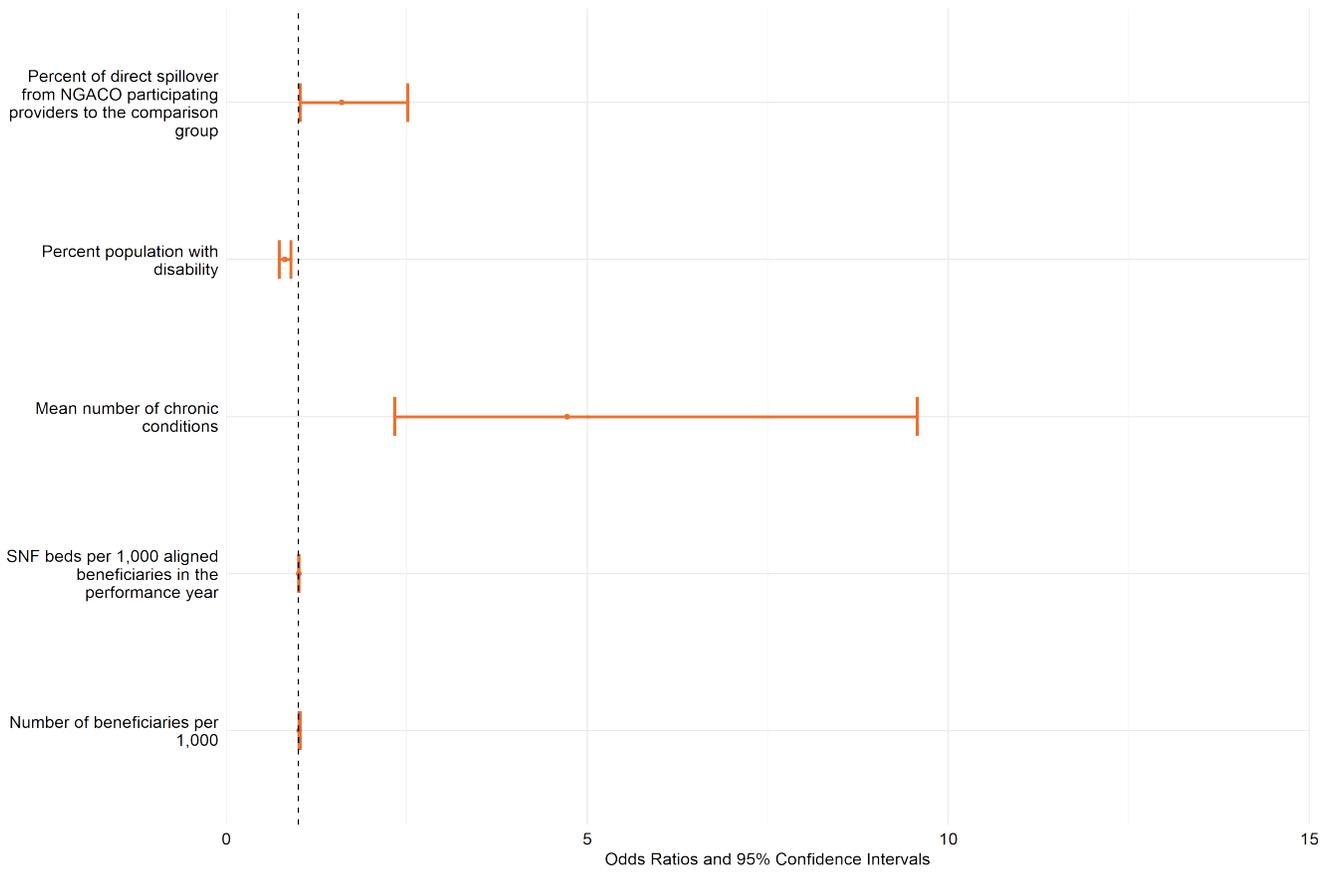
NOTES: A stepwise logistic regression was used to model the probability of electing PBP or AIPBP. All covariates in the model were statistically significant at the 0.05 level; we depict odds ratios and 95% confidence intervals. AIPBP=all-inclusive population-based payment, PBP=population-based payment
SOURCE: NORC analysis of NGACO enrollment, claims, and model programmatic data.

Exhibit H.5. Odds Ratios from Stepwise Logistic Regression Modeling the Probability that NGACOs Elected 100% Risk
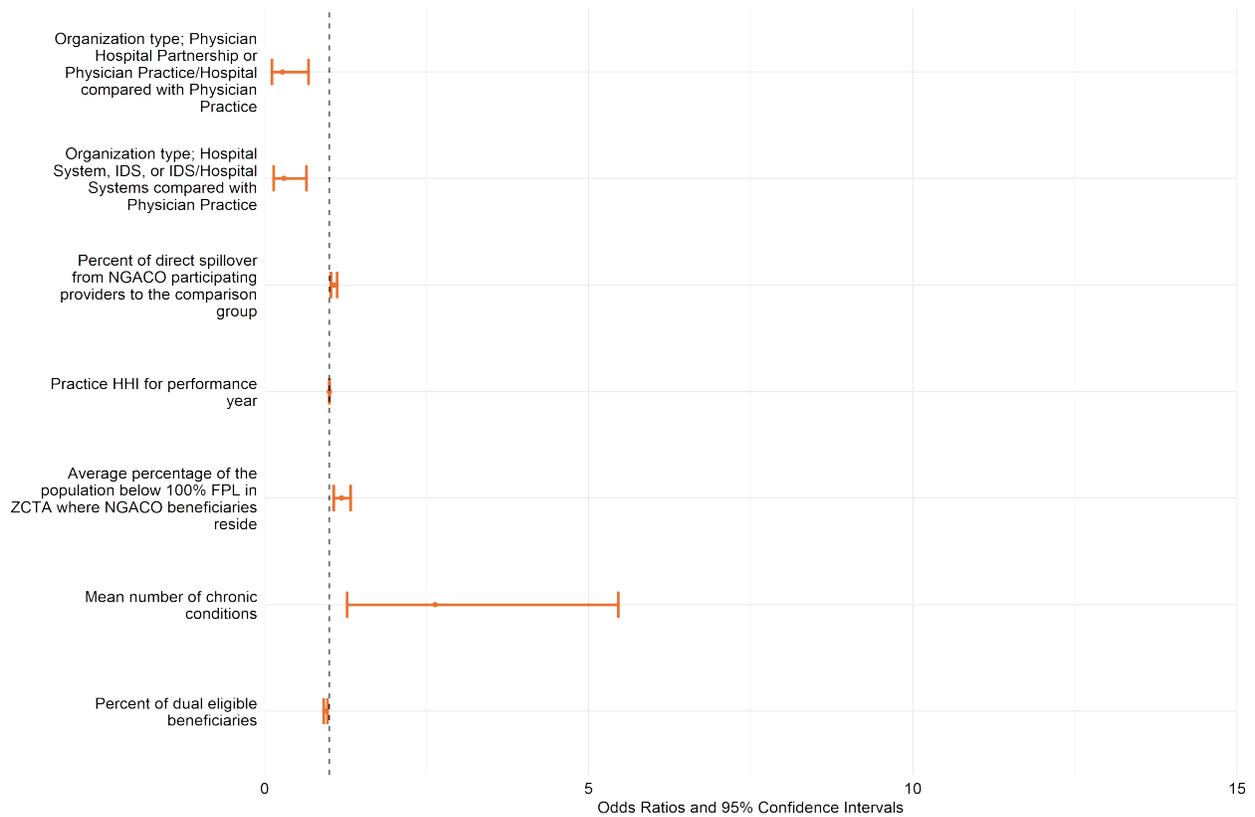
NOTES: A stepwise logistic regression was used to model the probability of NGACOs electing 100% risk. All covariates in the model were statistically significant at the 0.05 level; we depict odds ratios and 95% confidence intervals. FPL=federal poverty level, IDS=integrated delivery system, ZCTA=zip code tabulation area.
SOURCE: NORC analysis of NGACO enrollment, claims, and model programmatic data.

Exhibit H.6.   Odds Ratios from Stepwise Logistic Regression Modeling the Probability that NGACOs Elected a 5% Risk Cap
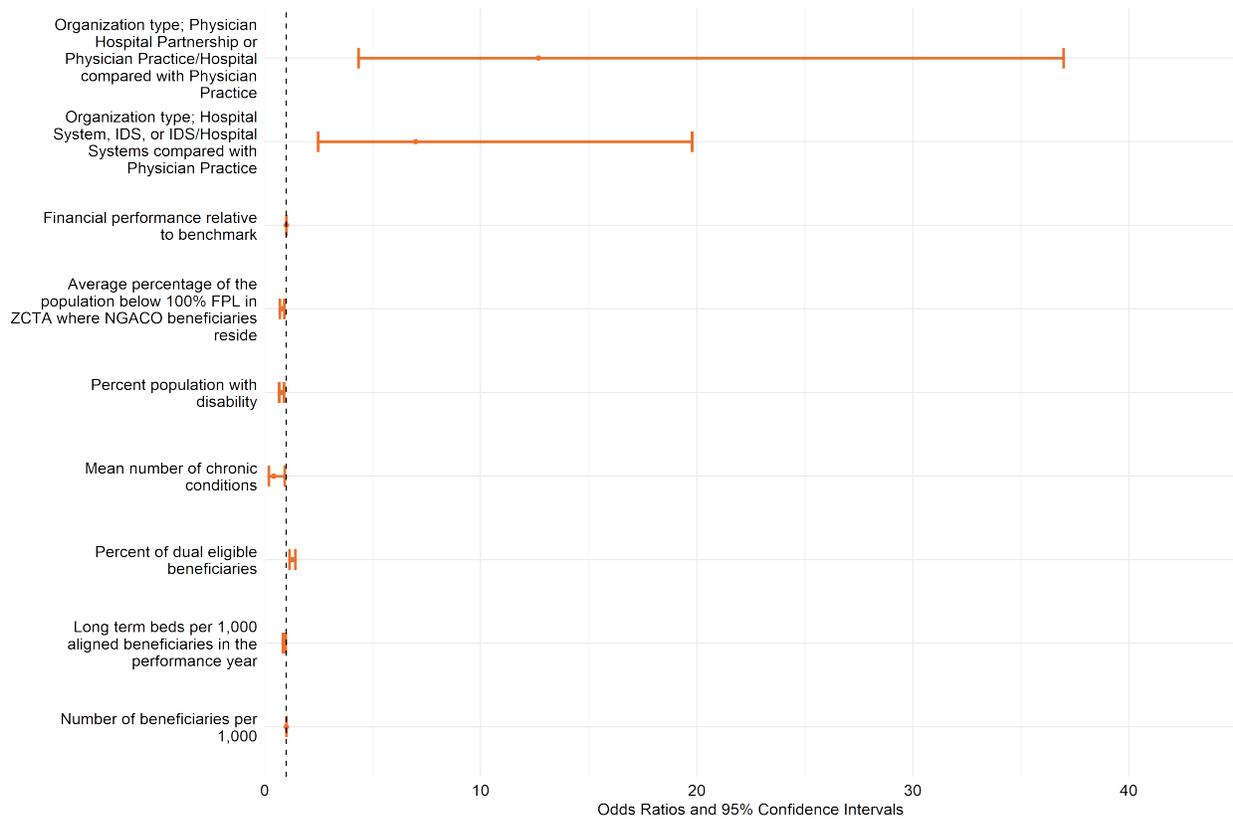
NOTES: A stepwise logistic regression was used to model the probability of electing a 5% risk cap. All covariates in the model were statistically significant at the 0.05 level; we depict odds ratios and 95% confidence intervals. FPL=federal poverty line, IDS=integrated delivery system, ZCTA=zip code tabulation area.
SOURCE: NORC analysis of NGACO enrollment, claims, and model programmatic data.

Exhibit H.7 presents the E-values for selected NGACO characteristics; for characteristics with multiple categories, the E-value is for the selected group, compared with the reference group.

The E-value measures the extent to which an observed association may be subject to confounding (other unobserved or unmeasured NGACO characteristics). A large E-value indicates that large, unmeasured confounding between the treatment group and the reference group would be needed to explain an effect estimate (that is, favor the evidence that NGACO Model impact is attributable to NGACO financial risk election).

The results show that the observed effect of NGACO payment mechanism and risk election on model impacts could be fully explained by a confounder if the association with NGACOs electing FFS payment mechanism or higher risk was 2.5 and if model impacts were 2.5 times higher for NGACOs with the confounder. Such confounding was not hard to find, given the observed associations between measured characteristics (for example, organizational type and average chronic conditions in aligned beneficiaries) and NGACO financial risk election, as well as the difference-in-differences (DID)

estimates. For this reason, the observed associations between NGACO financial risk election and model impacts could be explained by uncontrolled or unmeasured NGACO characteristics.

Exhibit H.7. E-Value Estimates for Potential Confounding Effects on Association of NGACO-level Factors with Gross Spending Impacts

	Selected group	E-value
Payment mechanism (Reference group: FFS or FFS + ISP)	PBP or AIPBP	2.592
Risk election (Reference group: 100% risk, >5% cap)	80% risk, 5% cap	2.327
	80% risk, >5% cap	1.993
	100% risk, 5% cap	2.342
Organizational type (Reference group: physician practice)	IDS / hospital system affiliation	1.856
	Physician-hospital partnership	2.354
Prior Medicare ACO experience (Reference group: <5 years)	>=5 years	1.168
Average chronic conditions in aligned beneficiaries (Reference group: >6)	<=5	2.808
	>5, <=5.5	2.626
	>5.5, <=6	2.557

NOTE: ACO=accountable care organization, AIPBP=all-inclusive population-based payment, FS=fee-for-service IDS=integrated delivery system, ISP=infrastructure payment, PBP=population-based payment.

Appendix I: Exhibits to Support Chapter 7

This appendix presents supplemental exhibits that support the findings presented in Chapter 7, as follows:

- NGACOs That Reduced Spending Without Reducing Quality of Care: Selected Provider Characteristics (**Exhibit I.1**), Market Characteristics (**Exhibit I.2**), Beneficiary Characteristics (**Exhibit I.3**), and Risk Level Selection (**Exhibit I.4**)

- NGACOs that Reduced Spending without Reducing Quality of Care: Density Plot for Factors Used in Coincidence Analysis (CNA) (**Exhibit I.5**)

- Summary of factors analyzed and data calibration of factors and outcomes:

  - Data Calibration Detailed: Rescaling Factor and Outcome Values for Analysis (**Exhibit I.6**)

  - Factors included in CNA, Description, and Data Source (**Exhibit I.7**)

- Results of Meta-Analysis for Reduced Spending without Reducing Quality of Care, by Pathway (**Exhibit I.8**)

- Estimated Impacts on Annual Wellness Visits (AWVs) Model-Wide, Cumulative and by PY (**Exhibit I.9**)

Exhibit I.1. NGACOs That Reduced Spending Without Reducing Quality of Care: Selected Provider Characteristics

□ Physician Practice NGACOs that Embed Care Managers in Inpatient Hospital Settings
○ Hospital-Affiliated NGACOs that Identify Gaps in Care and Foster Shared Decision-Making
△ Smaller NGACOs that Track Beneficiaries at Risk for Readmission and Identify Gaps in Care
◇ Larger NGACOs Less Likely to Prioritize Strategies that Provide Primary Care Teams with Real-Time Data on Hospitalizations
▨ NGACOs not in a Pathway
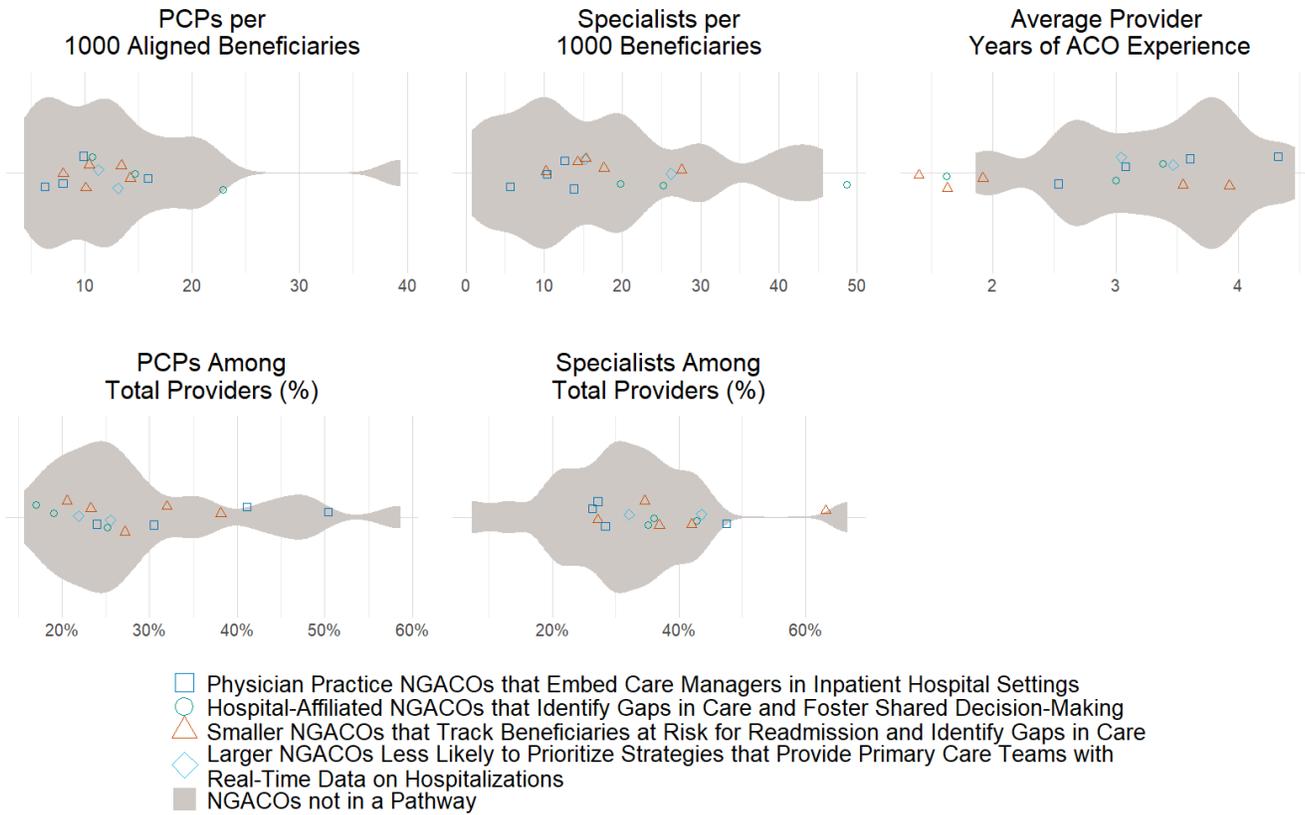
NOTES: The figures contrast the distribution of the NGACOs in the pathway with NGACOs not in the pathway. The gray shaded area represents the density plot for the NGACOs not in the pathway. For PCPs per 1000 aligned beneficiaries, specialists per 1000 aligned beneficiaries, PCPs among total providers (%), and specialists among total providers (%), the colored dots represent the average value for the variable for each NGACO across the years that NGACO was in the model, weighted by number of aligned beneficiaries, by pathway. For average provider years of experience, the colored dots represent the simple average value for the variable for each NGACO across the years that NGACO was in the model, by pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the dots has no interpretive meaning. ACO=accountable care organization, PCP=primary care provider.

Exhibit I.2. NGACOs That Reduced Spending Without Reducing Quality of Care: Selected Market Characteristics
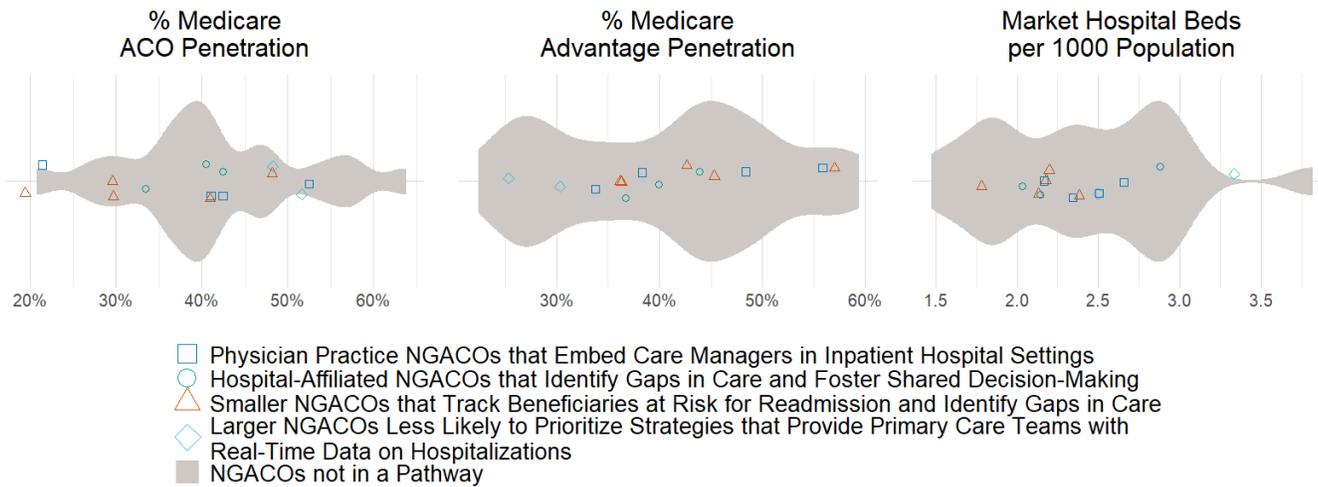
NOTES: The figures contrast the distribution of the NGACOs in the pathway with NGACOs not in the pathway. The gray shaded area represents the density plot for the NGACOs not in the pathway. The colored dots represent the average value for the variable for each NGACO across the years that NGACO was in the model, by pathway, weighted by number of aligned beneficiaries, by pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the dots has no interpretive meaning. ACO=accountable care organization.

Exhibit I.3. NGACOs that Reduced Spending Without Reducing Quality of Care: Selected Beneficiary Characteristics
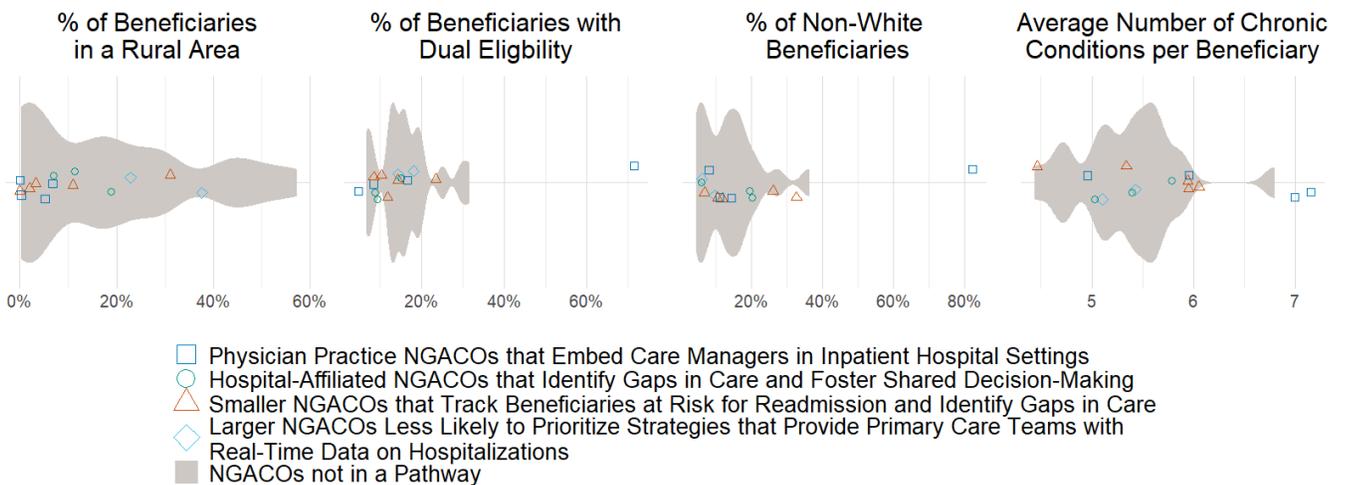
NOTES: The figures contrast the distribution of the NGACOs in the pathway with NGACOs not in the pathway. The gray shaded area represents the density plot for the NGACOs not in the pathway. The colored dots represent the average value for the variable for each NGACO across the years that NGACO was in the model, weighted by number of aligned beneficiaries, by pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the dots has no interpretive meaning.

Exhibit I.4. NGACOs that Reduced Spending Without Reducing Quality of Care: Selected Risk Level Across Model Years

Risk level	In a pathway	Not in a pathway	p-value
Risk level of 100% for >75% of model years	42.9% (6)	28.6% (6)	0.477
Risk level of 100% and risk cap >5% for >75% of model years	28.6% (4)	28.6% (6)	1.000

NOTES: * p<0.1, ** p<0.05. Bold font indicates findings that reach statistical significance.

Exhibit I.5. NGACOs That Reduced Spending Without Reducing Quality of Care: Density Plot for Factors Used in Coincidence Analysis (CNA)
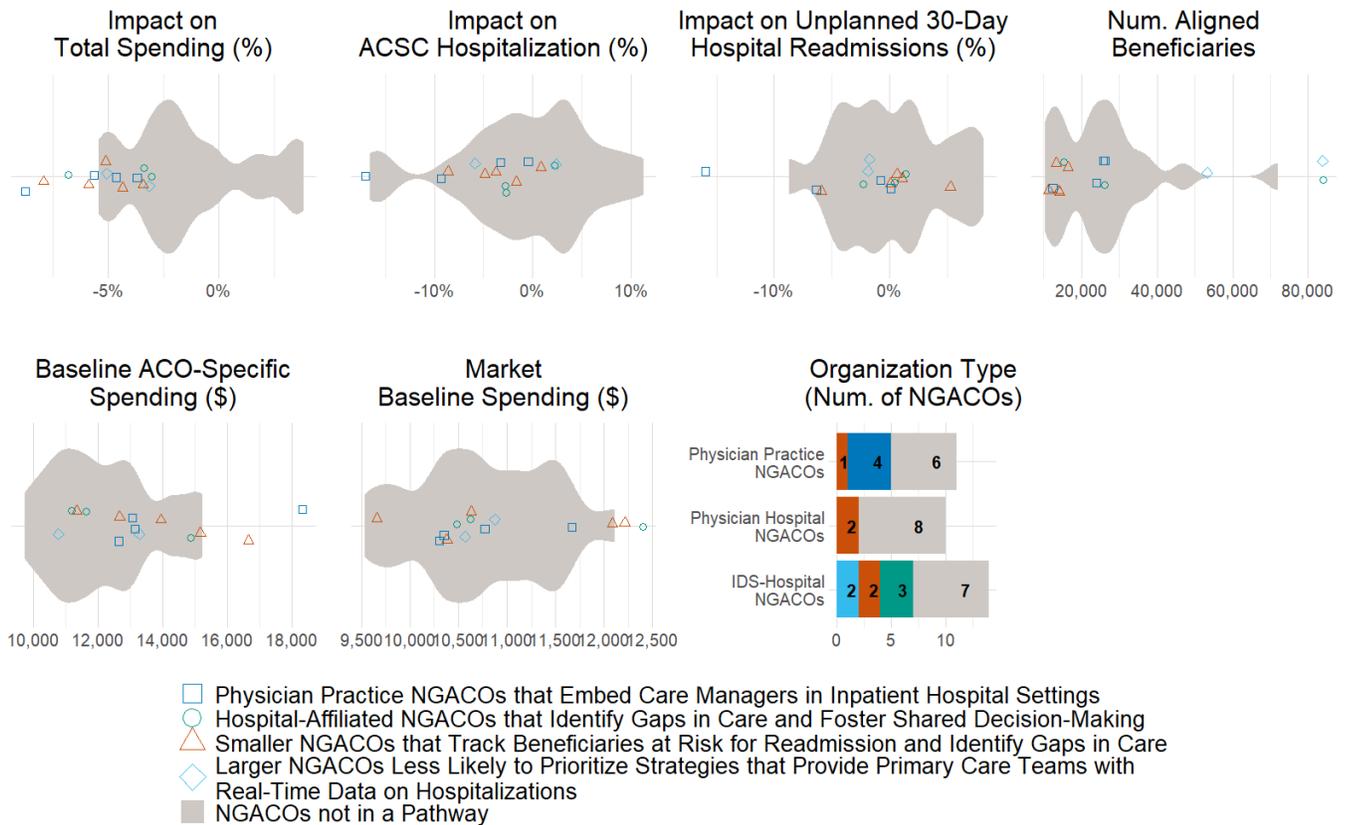
NOTES: The figures contrast the distribution of the NGACOs in the pathway with NGACOs not in the pathway. The gray shaded area represents the density plot for the NGACOs not in the pathway. For impact on total spending, ACSC hospitalization, and unplanned 30-day hospital readmissions, baseline ACO-specific spending, and market baseline spending, the colored dots represent the average value for the variable for each NGACO across the years that NGACO was in the model, weighted by number of aligned beneficiaries, by pathway. For number of aligned beneficiaries, the colored dots represent the simple average value for the variable for each NGACO across the years that NGACO was in the model, by pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the dots has no interpretive meaning. ACSC=ambulatory care-sensitive condition, IDS=integrated delivery system.

Exhibit I.6. Data Calibration Detailed: Rescaling Factor and Outcome Values for Analysis

Factor(s)	Calibration Type	Calibration Method
Implement each strategy to a great extent to manage the NGACO's aligned beneficiary population • Know when aligned beneficiaries are registered in an ED or admitted to a hospital • Provide primary care team with real-time data on beneficiary hospitalization • Navigate aligned beneficiaries to the right PAC setting • Track beneficiaries at risk for readmission to the hospital • Identify gaps in beneficiary care • Educate beneficiaries, families, and caregivers to make informed, shared decisions	Crisp	1 = To a great extent 0 = Somewhat, very little, not at all
Intensity of care management offered in each setting • Primary care offices or practices • Specialty offices or practices • Inpatient hospital • ED • SNF	Higher values signal more intensive care management	1 = Embedded OR embedded and centralized care management 0.49 = Centralized care management only 0 = No care management offered
Larger NGACO size	Higher values are favorable; lower values are unfavorable	Inclusion: 75,441.63 Crossover: 23,235.25 Exclusion: 11,274.60
Higher NGACO-specific baseline spending	Higher values are favorable; lower values are unfavorable	Inclusion: $15,636.20 Crossover: $12,657.93 Exclusion: $10,301.30
Higher market baseline spending	Higher values are favorable; lower values are unfavorable	Inclusion: $12,134.23 Crossover: $10,658.52 Exclusion: $9,654.92
Organization type (IDS/hospital, physician practice, physician hospital partnership)	Crisp (three binary variables)	1 = IDS/hospital; 0 = All else 1 = Physician practice; 0 = All else 1 = Physician hospital partnership; 0 = All else

NOTE: ED=emergency department, IDS=integrated delivery system, PAC=post-acute care, SNF=skilled nursing facility.

Exhibit I.7. Factors Included in CNA and QCA, Description, and Data Source

Category	Factor(s)	Description	Data source	Measure Calculation	
				Analysis of reduction of spending without negative quality	**Analysis of failure to reduce spending**
Spending	Total Medicare spending	Total Parts A and B spending incurred by Medicare beneficiaries aligned to the NGACO	NORC analysis of claims data	Cumulative impact estimates from DID models standardized as the percent impact relative to counterfactual comparison (that is, NGACO trends absent the model), across all years in the model	Impact estimates from DID models standardized as the percent impact relative to counterfactual comparison (that is, NGACO trends absent the model), by NGACO by year
	Acute care hospital facility	Acute care hospital facility spending incurred by Medicare beneficiaries aligned to the NGACO			
	Outpatient Facility	Outpatient facility spending incurred by Medicare beneficiaries aligned to the NGACO			
	Skilled nursing facility (SNF)	SNF spending incurred by Medicare beneficiaries aligned to the NGACO			
	Professional services	Professional Services Spending incurred by Medicare beneficiaries aligned to the NGACO			
Utilization	SNF stays	SNF stays provided to Medicare beneficiaries aligned to the NGACO			
	SNF days	SNF days utilized by Medicare beneficiaries aligned to the NGACO			
	Acute care stays	Acute care stays utilized by Medicare beneficiaries aligned to the NGACO			
	Inpatient Admission	Inpatient admissions utilized by Medicare beneficiaries aligned to the NGACO			
	ED visits and observation Stays	ED visits and observation stays utilized by Medicare beneficiaries aligned to the NGACO			
	Imaging services	Imaging services utilized by Medicare beneficiaries aligned to the NGACO			
	Tests	Tests utilized by Medicare beneficiaries aligned to the NGACO			
	Procedures	Procedures utilized by Medicare beneficiaries aligned to the NGACO			

Category	Factor(s)	Description	Data source	Measure Calculation	
				Analysis of reduction of spending without negative quality	Analysis of failure to reduce spending
	Imaging procedures	Imaging procedures utilized by Medicare beneficiaries aligned to the NGACO			
	ACSC hospitalization	Whether Medicare beneficiaries aligned to the NGACO had an ambulatory care-sensitive condition (ACSC) admission during the year			
	Unplanned 30-Day hospital readmission	Number of unplanned 30-day hospital readmissions after hospital admission by Medicare beneficiaries aligned to the NGACO			
NGACO structure	Organization type	Physician practice-affiliated NGACOs, IDS/hospital NGACOs, and physician hospital partnership NGACOs	NORC analysis of CMMI NGACO data	Categorical variable (3 categories)	Dichotomous variable (2 categories) comparing hospital-affiliated with non-hospital affiliate
	Percent dually eligible	The percent of the NGACO-attributed beneficiary population that qualify for both Medicare and Medicaid participation	NORC analysis of Medicare Beneficiary Summary File (MBSF) linked to Master Database Management File	Average value for the variable across the years that NGACO was in the model, weighted by number of aligned beneficiaries	Value for the variable by NGACO by model year
	Mean number of chronic conditions	The mean number of chronic conditions for beneficiaries aligned to the NGACO			
	Medicare ACO years of experience	Number of Medicare ACO years of experience accumulated by the NGACO as of 2019	NORC analysis of Medicare Shared Savings Plan (SSP) and Pioneer data		
	Percent of care provided in network	Percent of care provided in network (stickiness) measures the amount of care beneficiaries receive within as opposed to outside of the NGACO's network	NORC analysis of claims data		Value for the variable by NGACO by model year
	Level of financial risk	A factor of the risk level assumed by the NGACO (80% or 100%) and the risk cap chosen (5–15%)	NORC analysis of CMMI NGACO data	Dichotomous variable indicating whether NGACO selected the highest level of financial risk (100% risk and >5% cap) >75% of PYs	

Category	Factor(s)	Description	Data source	Measure Calculation	
				Analysis of reduction of spending without negative quality	**Analysis of failure to reduce spending**
NGACO network	% of beneficiaries in a rural area	Percent of NGACO-aligned beneficiaries that reside in rural areas	NORC analysis of MBSF linked to HRSA Federal Office of Rural Health Policy Data files	Average value for the variable across the years that NGACO was in the model, weighted by number of aligned beneficiaries	
	PCPs per 1,000 attributed beneficiaries	The number of PCPs per 1,000 beneficiaries attributed to the NGACO	NORC analysis of NGACO provider data linked to CMS Provider of Service files		
	Specialists per 1,000 attributed beneficiaries	The number of specialists per 1,000 beneficiaries attributed to the NGACO			
	Hospital beds in network per 1,000 attributed beneficiaries	The number of short-term acute care and critical access hospital beds per 1,000 beneficiaries attributed to the NGACO			
	SNF beds in network per 1,000 attributed beneficiaries	The number of skilled nursing facility beds per 1,000 beneficiaries attributed to the NGACO			
	Number of aligned beneficiaries	The number of beneficiaries aligned to the NGACO	NORC analysis of MBSF	Average value for the variable across the years that NGACO was in the model	
	Provider network size	The number of Participant and Preferred Providers within the NGACO's network	NORC analysis of NGACO provider data linked to CMS Provider of Service files	Average value for the variable across the years that NGACO was in the model, weighted by number of aligned beneficiaries	Value for the variable by NGACO by model year
	Ratio of specialists to PCPs	The ratio of specialists to PCPs within the NGACO's network			
NGACO market	% Medicare ACO penetration	The denominator for ACO penetration rate is the number of Medicare FFS beneficiaries with Parts A and B coverage. The numerator is the number of beneficiaries aligned to an ACO.	MBSF linked to Master Database Management File		

Category	Factor(s)	Description	Data source	Measure Calculation	
				Analysis of reduction of spending without negative quality	Analysis of failure to reduce spending
	% Medicare Advantage (MA) penetration	The denominator for the MA penetration rate is total number of Medicare beneficiaries with Parts A and B coverage. The numerator is the number of MA beneficiaries.			
	Hospital beds in market per 1,000 population	Number of hospital beds in the NGACO market area per 1,000 population	Medicare Data on Provider Practice and Specialty (MD-PPAS)		
	Baseline PAC market spending ($)	The amount of PAC spending in the NGACO's market area in the BYs	CMS Geographic Variation Public Use File		
	Total baseline market spending ($)	Total Parts A and B spending incurred by Medicare beneficiaries aligned to the NGACO in the BYs			
	Hospital market concentration (HHI)	Herfindahl-Hirschman Index (HHI), a measure of the degree of market concentration or competition (higher HHI means more concentrated market, while lower HHI means more competitive market).	American Hospital Association data		
	Market aligned providers per 1,000 population	Number of alignment-eligible providers in the NGACO market area per 1,000 population	CMS Geographic Variation Public Use File		Value for the variable by NGACO by model year

Category	Factor(s)	Description	Data source	Measure Calculation	
				Analysis of reduction of spending without negative quality	**Analysis of failure to reduce spending**
Care management implementation	Implementation of strategies to manage the NGACO's beneficiary population	• Know when aligned beneficiaries are registered in an ED or admitted to a hospital • Provide primary care team with real-time data on beneficiary hospitalization • Navigate aligned beneficiaries to the right PAC setting • Track beneficiaries at risk for readmission to the hospital • Identify gaps in beneficiary care • Educate beneficiaries, families, and caregivers to make informed, shared decisions	2021 NGACO Leadership Survey		Not included in analysis
	Intensity of care management offered in different settings	• Primary care offices or practices • Specialty offices or practices • Inpatient hospital • ED • SNF			

NOTES: ACSC=ambulatory care-sensitive condition, ED=emergency department, HHI = Herfindahl-Hirschman Index, HRSA=Health Resources and Services Administration, IDS=integrated delivery system, MA=Medicare Advantage, MBSF=Medicare Beneficiary Summary File, MD-PPAS=Medicare Data on Provider Practice and Specialty, PAC=post-acute care, PCP=primary care provider, SNF=skilled nursing facility, SSP=Medicare Shared Savings Program.

Exhibit I.8. Results of Meta-Analysis for Reduced Spending Without Reducing Quality of Care, by Pathway

Pathway	Impact variable	Number of NGACOs	Number of NGACO years	Percentage				Per beneficiary per year			
				Pooled effect estimate	95% confidence interval (CI) (Lower Limit)	95% CI (upper limit)	P-value	Pooled effect estimate	95% CI (lower limit)	95% CI (upper limit)	P-value
1	Spending	4	17	-5.4663	-8.7801	-2.1525	0.0135**	-$792.3706	-$1232.1051	-$352.6361	0.0105**
2	Spending	5	24	-5.1929	-7.2627	-3.1231	0.0022*	-$504.8695	-$2595.899	$1586.16	0.2006
3	Spending	2	11	-3.905	-15.7496	7.9396	0.1492	-$551.8491	-$1102.6008	-$1.0974	0.0498**
4	Spending	3	15	-4.2216	-9.0941	0.6509	0.065*	-$730.8923	-$1099.2743	-$362.5102	0.0053**
Not in a pathway	Spending	21	106	-1.4107	-2.6844	-0.137	0.0317*	-$170.6586	-$324.2401	-$17.0772	0.0312**
1	ACSC Hospitalizations	4	17	-7.2028	-18.5595	4.1539	0.1369	-0.5607	-5.8261	1.18	0.1253
2	ACSC Hospitalizations	5	24	-3.6707	-6.7419	-0.5996	0.0294**	-0.5954	-18.7811	17.6598	0.7627
3	ACSC Hospitalizations	2	11	-1.7989	-54.3415	50.7438	0.7388	-1.1228	-2.5454	1.3546	0.3194
4	ACSC Hospitalizations	3	15	-1.8883	-7.7579	3.9812	0.3005	-0.1861	-2.2269	-0.0187	0.0477
Not in a pathway	ACSC Hospitalizations	21	106	-0.3407	-3.3194	2.6381	0.8139	-7.5134	-1.0515	0.6792	0.6585
1	Hospital Readmissions	4	17	-5.3031	-16.6497	6.0435	0.2336	-2.5165	-22.8671	7.8402	0.2173
2	Hospital Readmissions	5	24	0.0874	-4.1556	4.3304	0.9571	-1.6653	-4.2882	-0.7447	0.0352
3	Hospital Readmissions	2	11	-1.7897	-2.3413	-1.2381	0.0154**	0.1869	-8.3408	5.0102	0.3954
4	Hospital Readmissions	3	15	-1.2477	-5.8163	3.3209	0.3609	0.2823	-6.1243	6.4981	0.9384
Not in a pathway	Hospital Readmissions	21	106	0.2663	-1.5899	2.1226	0.7678	-0.5607	-2.3394	2.9039	0.8246

NOTE: * p<0.1, ** p<0.05. ACSC=ambulatory care-sensitive condition.

Exhibit I.9. Estimated Impacts on AWVs Model-Wide, Cumulative and by PY
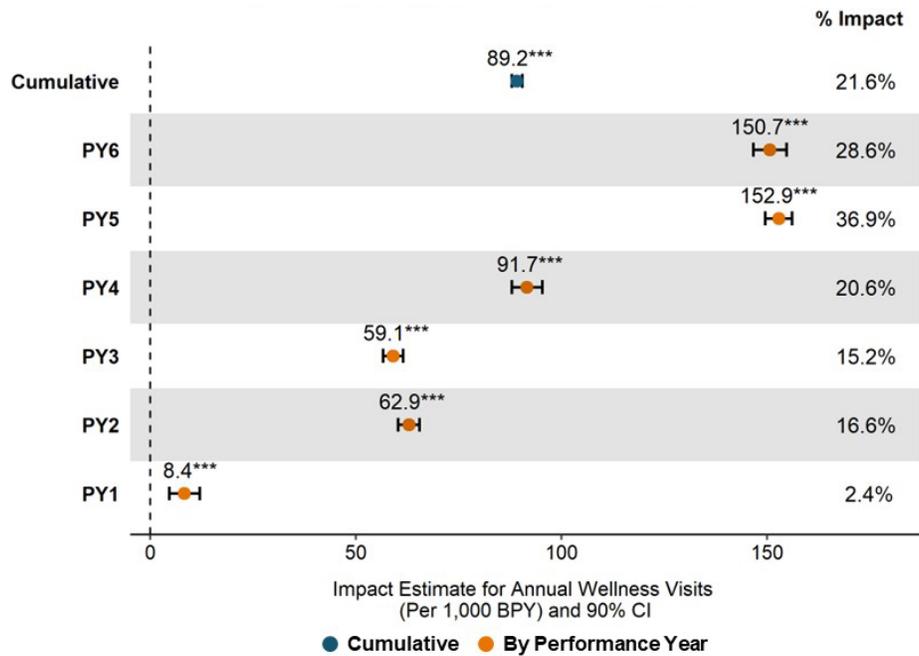
NOTES: Estimated impacts for utilization per 1,000 BPY significant at *p<0.1, **p<0.05, ***p<0.01. Impact estimates are the DID estimates for utilization for AWVs. The CIs at 90% level are displayed as bars around the impact estimates. Percentage impact is the impact relative to expected utilization for NGACO beneficiaries in PY(s) absent the model. Only NGACOs that passed parallel trends are included in the analysis. Cumulative impact is the summary impact from PY 1 through PY 6 of the model. AWV=annual wellness visit.
SOURCE: NORC analysis of NGACO and comparison group enrollment, claims, and model programmatic data.

Appendix J: Exhibits to Support Chapter 8

This appendix presents supplemental exhibits that support the findings presented in Chapter 8, as follows:

- Distribution of NGACOs in a pathway and those not in a pathway for:
  - Setting-specific spending categories (**Exhibit J.1-J.6**)
  - Setting-specific utilization and quality outcomes (**Exhibit J.7-J.12**)
  - Market context characteristics (**Exhibit J.13-J.18**)
  - Provider characteristics (**Exhibit J.19-J.24**)
  - Beneficiary characteristics (**Exhibit J.25-J.30**)
- Results of meta-analysis by pathway (**Exhibit J.31-J.32**)

Exhibit J.1. Distribution of NGACO-PYs for Spending in Hospital-Affiliated NGACOs in More Concentrated Hospital Markets with Higher Baseline Medicare Spending (Pathway 1)

NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning.

Exhibit J.2. Distribution of NGACO-PYs for Spending in Hospital-Affiliated NGACOs in Markets with Higher MA Penetration, Lower Baseline Medicare Spending (Pathway 2)

NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. MA=Medicare Advantage, SNF=skilled nursing facility.

Exhibit J.3. Distribution of NGACO-PYs for Spending in Small Hospital-Affiliated NGACOs in More Concentrated Hospital Markets with Lower Baseline Medicare Market Spending and Lower MA Penetration (Pathway 3)
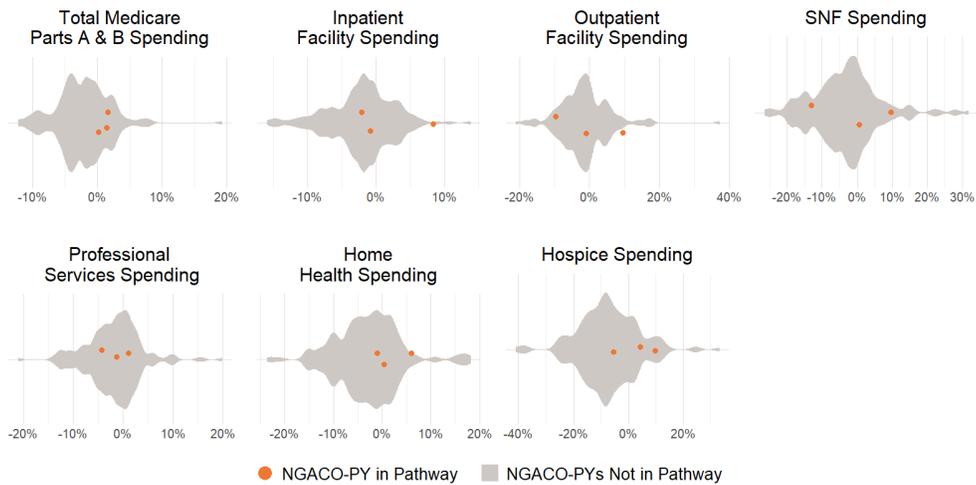
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. MA=Medicare Advantage, SNF=skilled nursing facility.

Exhibit J.4. Distribution of NGACO-PYs for Spending in Large Physician Practice NGACOs in More Concentrated Hospital Markets (Pathway 4)
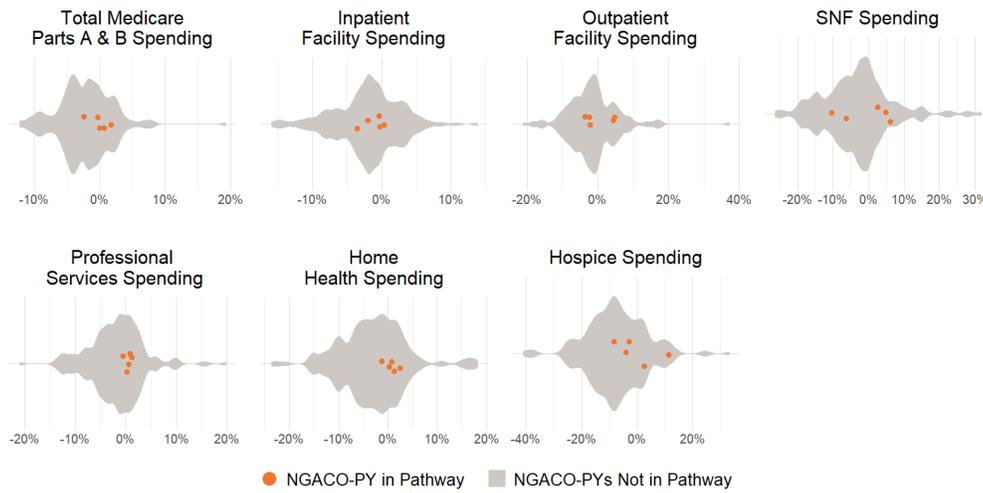
● NGACO-PY in Pathway   ▪ NGACO-PYs Not in Pathway

NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. SNF=skilled nursing facility.

Exhibit J.5. Distribution of NGACO-PYs for Spending in NGACOs in Higher MA Penetration and Lower Medicare Spending Markets (Pathway 5)
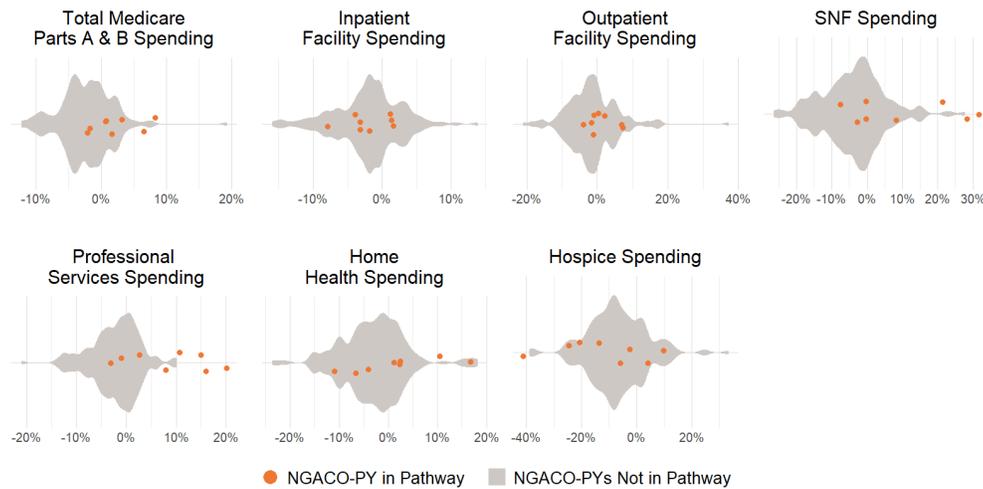
● NGACO-PY in Pathway   ▪ NGACO-PYs Not in Pathway

NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. MA=Medicare Advantage, SNF=skilled nursing facility.

Exhibit J.6. Distribution of NGACO-PYs for Spending in NGACOs in More Concentrated Hospital Markets with Lower MA Penetration (Pathway 6)
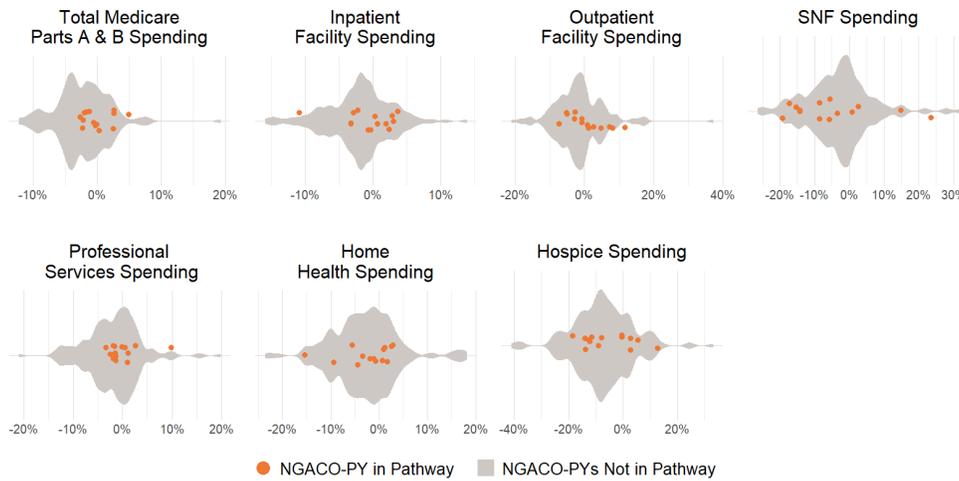
● NGACO-PY in Pathway   ▮ NGACO-PYs Not in Pathway

NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. MA=Medicare Advantage, SNF=skilled nursing facility.

Exhibit J.7. Distribution of NGACO-PYs for Utilization and Quality Outcomes in Hospital-Affiliated NGACOs in More Concentrated Hospital Markets with Higher Baseline Medicare Spending (Pathway 1)

● NGACO-PY in Pathway   ▮ NGACO-PYs Not in Pathway

NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACSC=ambulatory care-sensitive condition, ED=emergency department, SNF=skilled nursing facility.

Exhibit J.8. Distribution of NGACO-PYs for Utilization and Quality Outcomes in Hospital-Affiliated NGACOs in Markets with Higher MA Penetration, Lower Baseline Medicare Spending (Pathway 2)

● NGACO-PY in Pathway ▮ NGACO-PYs Not in Pathway

NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACSC=ambulatory care-sensitive condition, ED=emergency department, MA=Medicare Advantage, SNF=skilled nursing facility.

Exhibit J.9. Distribution of Setting-Specific Utilization and Quality Outcomes for NGACO-PYs In and Out of Pathway 3

● NGACO-PY in Pathway ▮ NGACO-PYs Not in Pathway

NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACSC=ambulatory care-sensitive condition, ED=emergency department, MA=Medicare Advantage, SNF=skilled nursing facility.

Exhibit J.10.   Distribution of Setting-Specific Utilization and Quality Outcomes for NGACO-PYs In and Out of Pathway 4

NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACSC=ambulatory care-sensitive condition, ED=emergency department, SNF=skilled nursing facility.

Exhibit J.11.   Distribution of Setting-Specific Utilization and Quality Outcomes for NGACO-PYs In and Out of Pathway 5

NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACSC=ambulatory care-sensitive condition, ED=emergency department, SNF=skilled nursing facility.

Exhibit J.12. Distribution of Setting-Specific Utilization and Quality Outcomes for NGACO-PYs In and Out of Pathway 6

NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACSC=ambulatory care-sensitive condition, ED=emergency department, SNF=skilled nursing facility.

Exhibit J.13. Distribution of Market Characteristics for NGACO-PYs In and Out of Pathway 1
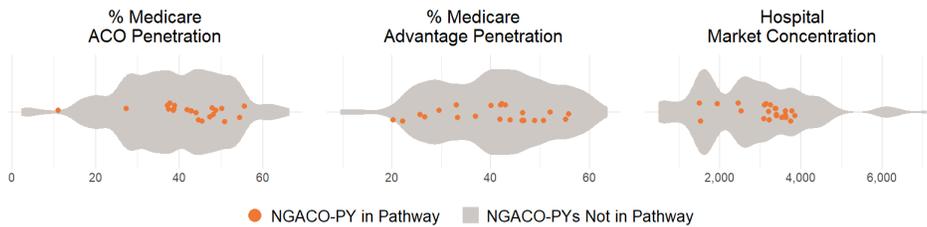
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACO=accountable care organization.

Exhibit J.14. Distribution of Market Characteristics for NGACO-PYs In and Out of Pathway 2
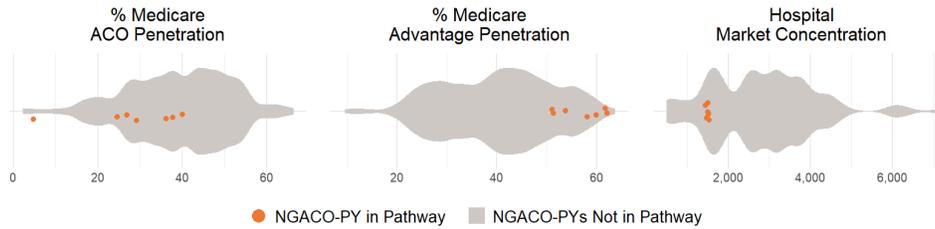
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACO=accountable care organization.

Exhibit J.15. Distribution of Market Characteristics for NGACO-PYs In and Out of Pathway 3
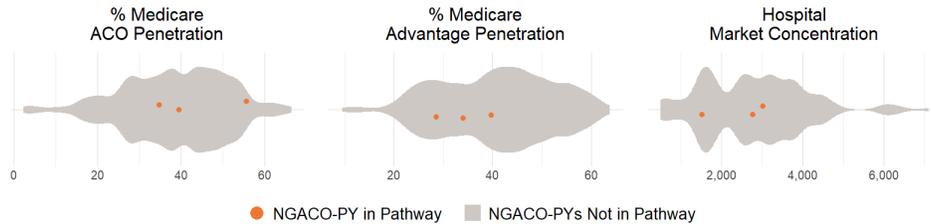
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACO=accountable care organization.

Exhibit J.16. Distribution of Market Characteristics for NGACO-PYs In and Out of Pathway 4
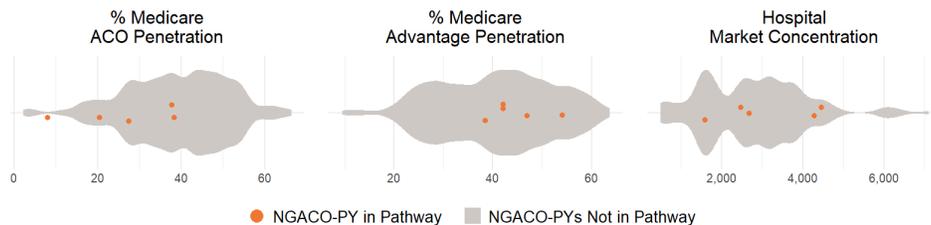
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACO=accountable care organization.

Exhibit J.17.   Distribution of Market Characteristics for NGACO-PYs In and Out of Pathway 5
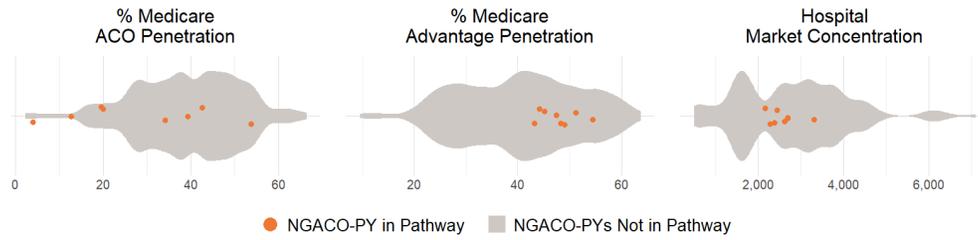
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACO=accountable care organization.

Exhibit J.18.   Distribution of Market Characteristics for NGACO-PYs In and Out of Pathway 6
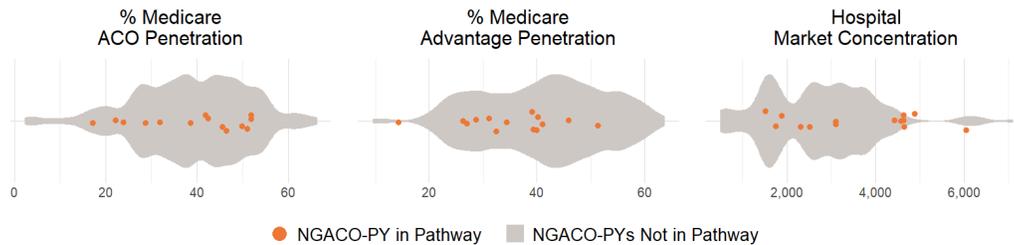
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. ACO=accountable care organization.

Exhibit J.19.   Distribution of Provider Network Characteristics for NGACO-PYs In and Out of Pathway 1
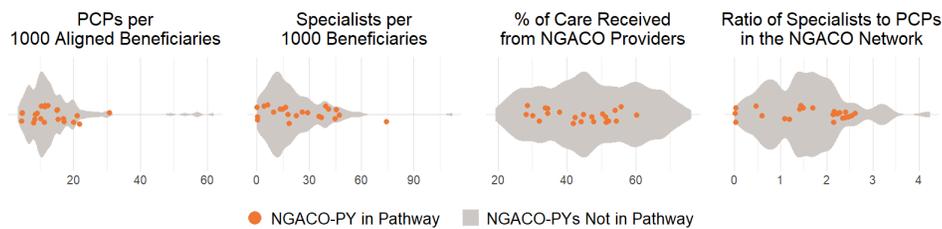
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. PCP=primary care provider.

Exhibit J.20.   Distribution of Provider Network Characteristics for NGACO-PYs In and Out of Pathway 2
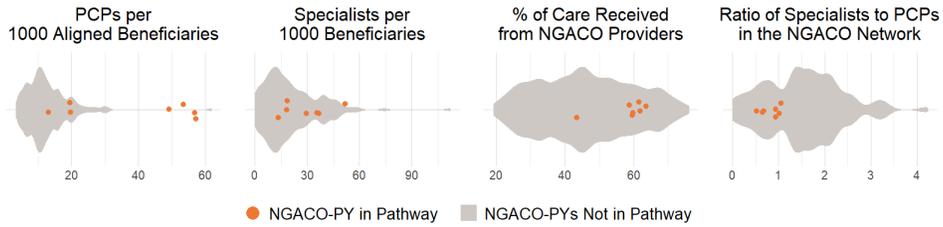
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. PCP=primary care provider.

Exhibit J.21.   Distribution of Provider Network Characteristics for NGACO-PYs In and Out of Pathway 3
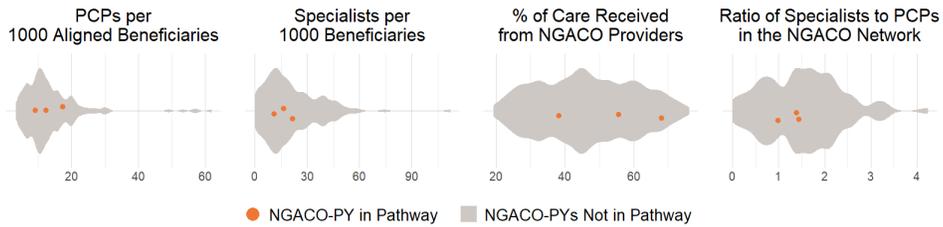
**NOTES:** Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. PCP=primary care provider.

Exhibit J.22.   Distribution of Provider Network Characteristics for NGACO-PYs In and Out of Pathway 4
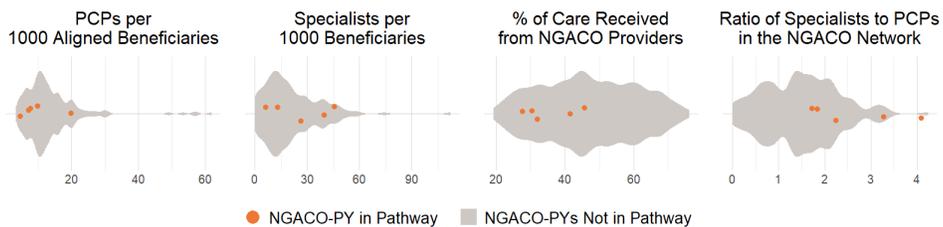
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. PCP=primary care provider.

Exhibit J.23. Distribution of Provider Network Characteristics for NGACO-PYs In and Out of Pathway 5
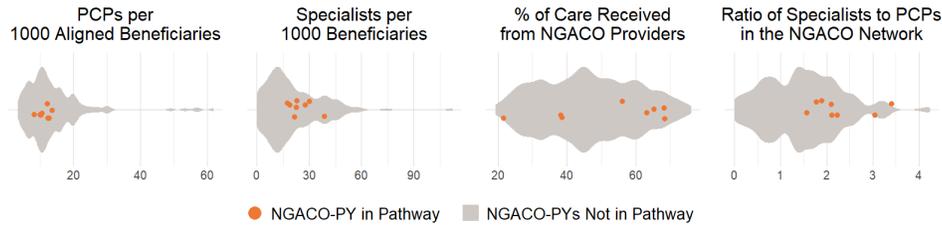
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. PCP=primary care provider.

Exhibit J.24. Distribution of Provider Network Characteristics for NGACO-PYs In and Out of Pathway 6
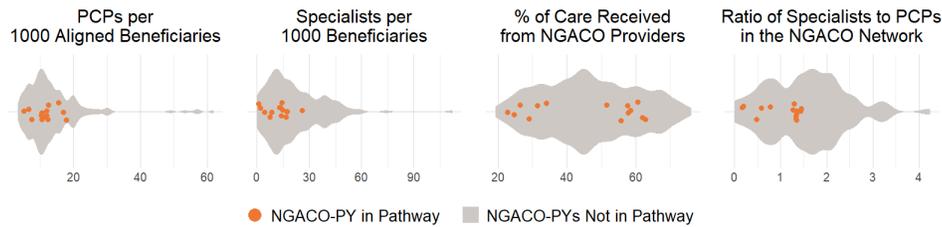
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning. PCP=primary care provider.

Exhibit J.25. Distribution of Beneficiary Characteristics for NGACO-PYs In and Out of Pathway 1
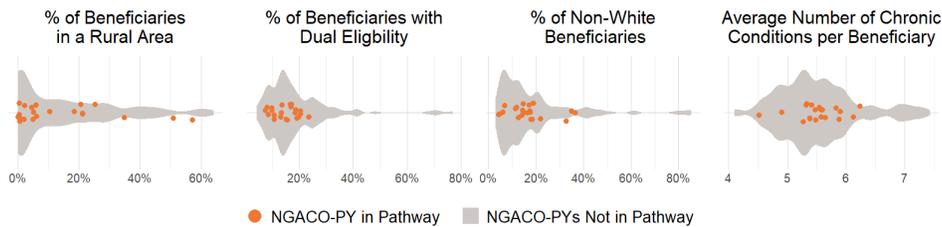
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning.

Exhibit J.26.   Distribution of Beneficiary Characteristics for NGACO-PYs In and Out of Pathway 2
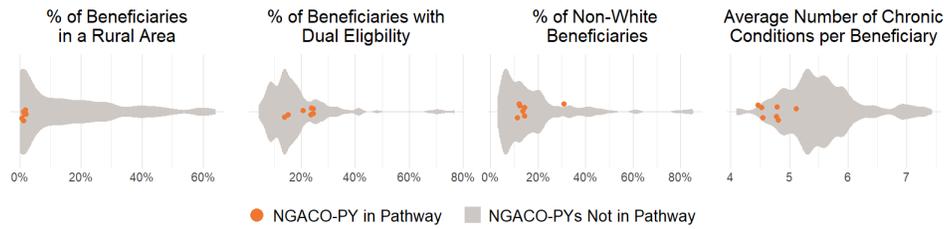
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning.

Exhibit J.27.   Distribution of Beneficiary Characteristics for NGACO-PYs In and Out of Pathway 3
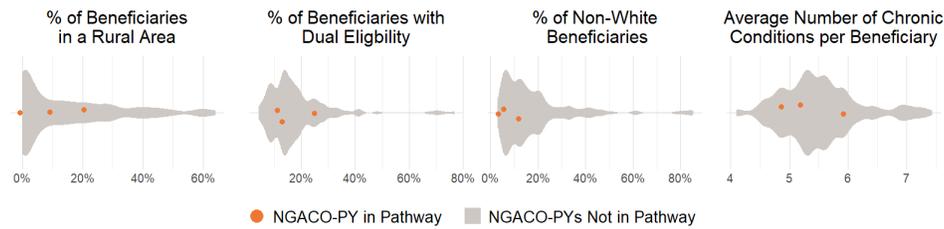
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning.

Exhibit J.28.   Distribution of Beneficiary Characteristics for NGACO-PYs In and Out of Pathway 4
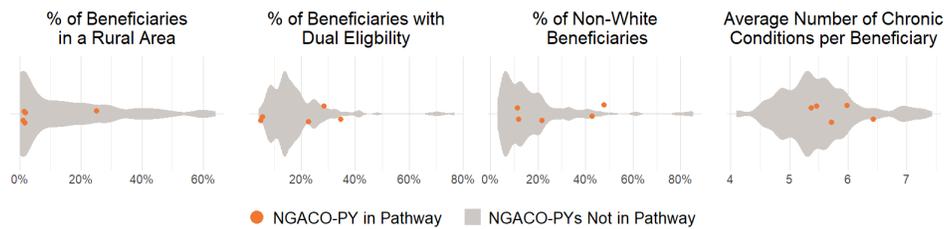
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning.

Exhibit J.29. Distribution of Beneficiary Characteristics for NGACO-PYs In and Out of Pathway 5
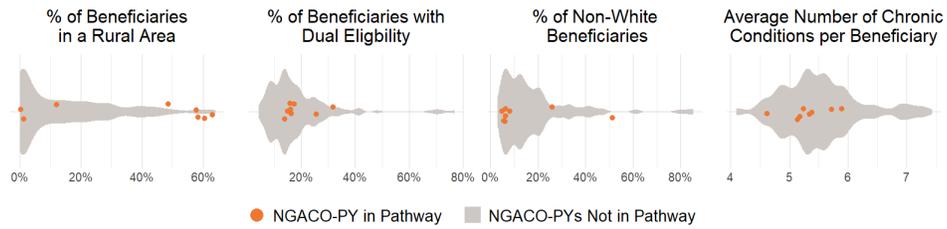
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning.

Exhibit J.30. Distribution of Beneficiary Characteristics for NGACO-PYs In and Out of Pathway 6
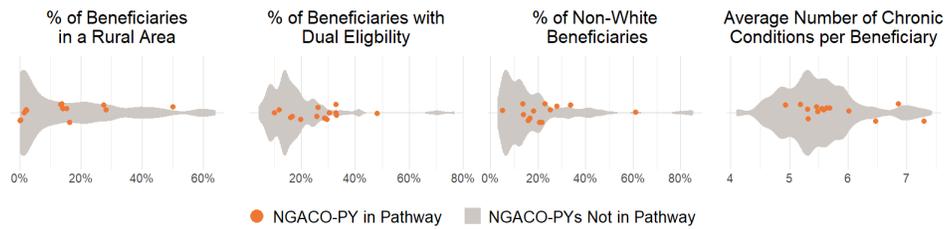
NOTES: Each orange dot represents the value of spending type in a NGACO-PY included in the pathway. The figures contrast the distribution of the NGACO-PYs in the pathway with NGACOs that are not in the pathway. The gray shaded area represents the density plot for the NGACO-PYs that are not in the pathway. To communicate the distributions visually, the portions of the density plot on both sides of the x-axis mirror each other. We jittered the dots over the y-axis for the same reason; the y-axis for the orange dots has no interpretive meaning.

Exhibit J.31. Results of Meta-Analysis Estimating the Pooled Percentage Impact Estimates on Total Medicare Spending of Cases (NGACO-PYs) in Each Pathway

Pathway	Number of NGACO years	Pooled effect estimate	95% confidence interval (lower limit)	95% confidence interval (upper limit)	P-value
Pathway 1	22	-0.32	-1.23	0.59	0.47
Pathway 2	7	1.31	-1.71	4.33	0.33
Pathway 3	3	0.84	-1.05	2.72	0.20
Pathway 4	5	0.02	-1.94	1.98	0.98
Pathway 5	8	1.70	-1.33	4.74	0.23
Pathway 6	14	-0.44	-1.67	0.78	0.45
Not in a pathway	166	-3.13	-3.69	-2.58	<0.001

Exhibit J.32. Results of Meta-Analysis Estimating the Pooled $PBPY Estimates on Total Medicare Spending of Cases (NGACO-PYs) in Each Pathway

Pathway	Number of NGACO years	Pooled $PBPY estimate	95% confidence interval (lower limit)	95% confidence interval (upper limit)	P-value
Pathway 1	22	-22.6	-145.6	100.3	0.71
Pathway 2	7	161.1	-179.8	502.0	0.29
Pathway 3	3	109.4	-104.8	323.7	0.16
Pathway 4	5	-8.98	-260.0	242.0	0.93
Pathway 5	8	205.2	-95.0	505.4	0.15
Pathway 6	14	-27.1	-184.7	130.6	0.72
Not in a pathway	166	-376.6	-449.5	-303.8	<0.001

NOTE: PBPY=per beneficiary per year.

Appendix K: Exhibits to Support Claims- Based Analyses

The exhibits in this Appendix support the findings of the claims-based analyses presented in our Sixth Evaluation Report. The exhibits comprise a set of tables that present difference-in-differences (DID) estimates model-wide and for the three cohorts in PY 6 (2019) and cumulatively, including PY 1 (2016), PY 2 (2017), PY 3 (2018), PY 4 (2019), PY 5 (2020) and PY 6. We present estimated impacts on spending, utilization, and quality of care for all 23 outcome measures studied both model-wide and for the three cohorts. We also present conditional means for the baseline years (BYs) and PYs as well as aggregate estimates.

This appendix is organized as follows:

- Model-Wide Cumulative (2016–2021) Impact on Medicare Spending, Utilization, and Quality of Care (**Exhibit K.1**)
- Model-Wide PY 6 (2021) Estimated Impact on Medicare Spending, Utilization, and Quality of Care (**Exhibit K.2**)
- Model-wide Cumulative (2016-2021) and Performance Years' Estimated Impact on Medicare Spending, Utilization, and Quality of Care, from ACOs with Parallel Pre-Trends (**Exhibit K.3**)
- Cohort-Level Cumulative (2016–2021) Impact on Medicare Spending, Utilization, and Quality of Care (**Exhibits K.4–K.6**)
- Cohort-Level PY 6 (2021) Estimated Impact on Medicare Spending, Utilization, and Quality of Care (**Exhibits K.7–K.9**)
- NGACO-Level Cumulative (2016–2021) Impact on Total Medicare Spending, (**Exhibit K.10**)
- NGACO-Level PY 6 (2021) Impact on Total Medicare Spending for (**Exhibit K.11**)
- NGACO-Level Cumulative (2016–2021) Impact on Medicare Spending Categories, Utilization, and Quality of Care
    - 2016 Cohort (**Exhibits K.12–K.17**)
    - 2017 Cohort (**Exhibits K.18–K.23**)
    - 2018 Cohort (**Exhibits K.24–K.29**)
- NGACO-Level PY 6 (2021) Impact on Medicare Spending, Utilization, and Quality of Care
    - 2016 Cohort (**Exhibits K.30–K.35**)
    - 2017 Cohort (**Exhibits K.36–K.41**)
    - 2018 Cohort (**Exhibits K.42–K.47**)

In each table, the DID estimate is the estimated relative change per beneficiary per year (PBPY) for spending or per 1,000 beneficiaries per year for utilization counts and quality of care outcomes. The "% Impact" is the percentage impact relative to expected outcome for the NGACO group in PY(s), absent the NGACO Model. The aggregate impact is the estimated relative change for all beneficiaries aligned with the NGACO in PY(s). Spending outcomes reflect Medicare paid amounts in 2019 dollars. For

providers in NGACOs that opted for population-based payments, we used the amount Medicare would have paid for the services. Medicare spending in facility settings—outpatient, acute care hospital, skilled nursing facility (SNF), and other post-acute care (PAC) facilities—excludes spending for professional services. Other PAC facilities included long-term care hospitals (LTCH) and inpatient rehabilitation facilities (IRF).

Exhibit K.1.   Model-Wide Cumulative (2016–2021) Impact on Medicare Spending, Utilization, and Quality of Care

	Baseline Years		Cumulative Model-Wide PY 1-PY 6 (2016-2021)									
			Difference-in-Differences									
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Spending ($ per beneficiary per year)												
Total gross Medicare spending (Part A and B)	14544.80	14817.90	14159.42	14702.78	-270.25	↓	↓	-329.32, -211.18	-1.87	0.000***	-1,705,482,838.57	-2,078,252,835, -1,332,712,843
Acute care hospital facility	4438.87	4461.23	4307.93	4395.43	-65.13	↓	↓	-84.95, -45.32	-1.49	0.000***	-411,043,577.37	-536,105,634, -285,981,521
SNF	1222.84	1242.41	1027.43	1086.51	-39.50	↓	↓	-49.74, -29.26	-3.70	0.000***	-249,280,869.39	-313,886,620, -184,675,119
Other PAC facility	481.09	473.28	425.94	438.00	-19.87	↓	↓	-26.14, -13.60	-4.46	0.000***	-125,394,369.49	-164,984,986, -85,803,753
Outpatient facility	2431.67	2480.73	2667.85	2759.76	-42.85	↑	↑	-70.24, -15.46	-1.58	0.002***	-270,409,688.79	-443,238,267, -97,581,110
Professional services	3448.73	3457.54	3466.22	3541.42	-66.39	↑	↑	-85.56, -47.21	-1.88	0.000***	-418,935,906.44	-539,955,160, -297,916,653
Home health	812.27	822.00	751.85	782.67	-21.09	↓	↓	-26.23, -15.95	-2.73	0.000***	-133,081,892.19	-165,524,770, -100,639,015
Hospice	391.13	408.63	415.62	464.20	-31.08	↑	↑	-36.42, -25.75	-6.96	0.000***	-196,159,391.49	-229,819,565, -162,499,218
Durable medical equipment	305.40	300.21	282.64	277.11	0.34	↓	↓	-3.00, 3.69	0.12	0.841	2,161,757.35	-18,934,507, 23,258,022
Utilization (per 1,000 beneficiaries per year)												
Acute care stays	315.83	317.22	291.33	294.35	-1.64	↓	↓	-2.76, -0.52	-0.56	0.004***	-10353.31	-17,431, -3,276
SNF stays	77.29	78.32	68.40	68.55	0.88	↓	↓	0.30, 1.47	1.31	0.003***	5578.81	1,904, 9,253
SNF days	2037.76	2084.61	1623.49	1712.50	-42.16	↓	↓	-57.91, -26.42	-2.53	0.000***	-266087.94	-365,424, -166,752
ED visits & observation stays	550.05	559.79	516.51	533.01	-6.76	↓	↓	-10.08, -3.43	-1.29	0.000***	-42638.44	-63,641, -21,636
E&M visits	13713.46	13754.29	13280.03	13556.99	-236.12	↓	↓	-287.10, -185.15	-1.75	0.000***	-1490102.42	-1,811,810, -1,168,395

	Baseline Years		Cumulative Model-Wide PY 1-PY 6 (2016-2021)									
			Difference-in-Differences									
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Procedures	9435.34	9457.28	10604.91	10747.11	-120.26	⬆	⬆	-175.13, -65.38	-1.12	0.000***	-758892.39	-1,105,175, -412,609
Tests	26823.86	27263.41	25806.50	26437.22	-191.18	⬇	⬇	-285.11, -97.25	-0.74	0.000***	-1206459.68	-1,799,215, -613,705
Imaging services	5387.72	5402.99	5128.56	5164.53	-20.70	⬇	⬇	-36.14, -5.25	-0.40	0.009***	-130608.43	-228,088, -33,129
Beneficiaries with AWV	257.16	220.71	464.99	350.35	78.19	⬆	⬆	66.61, 89.77	20.21	0.000***	493425.46	420,364, 566,487
Home health episodes	155.49	154.71	168.25	174.14	-6.66	⬆	⬆	-8.54, -4.78	-3.81	0.000***	-42030.57	-53,871, -30,190
Home health visits	3793.52	3858.53	3403.70	3574.93	-106.23	⬇	⬇	-133.47, -78.99	-3.03	0.000***	-670381.64	-842,311, -498,452
Quality of Care (per 1,000 beneficiaries per year)												
Beneficiaries with ACSC hospitalizations	42.80	42.99	35.78	36.06	-0.10	⬇	⬇	-0.43, 0.23	-0.28	0.553	-628.89	-2,706, 1,449
Beneficiaries with unplanned 30-day readmissions	153.26	153.47	148.20	148.73	-0.32	⬇	⬇	-1.47, 0.82	-0.22	0.582	-312.91	-1,427, 801
Beneficiaries with hospital readmissions from SNF	177.98	177.17	183.32	181.82	0.69	⬆	⬆	-1.60, 2.97	0.38	0.555	175.31	-407, 758

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Direction of change (difference) in impact estimates for NGACO group and for comparison groups denoted as arrow up (increase) or arrow down (decrease). Percentage impact is relative to expected average outcome for NGACO beneficiaries in PYs, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries across the PYs. "Other PAC facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. Professional services include physician, other professional, and ancillary services rendered under Part B. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. ACSC=ambulatory-case sensitive condition, AWV=annual wellness visit, ED=emergency department, E&M=evaluation and management, PAC=post-acute care, SNF=skilled nursing facility.

Exhibit K.2. Model-Wide PY 6 (2021) Impact on Medicare Spending, Utilization, and Quality of Care

	Baseline Years				Model-Wide in PY 6							
	2013–2017		2021		Difference-in-Differences							
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Spending ($ per beneficiary per year)												
Total gross Medicare spending (Part A and B)	14006.58	14245.50	13095.43	13935.93	-601.58	↓	↓	-750.12, -453.03	-4.39	0.000***	-586687734.63	-731,557,735, -441,817,734
Acute care hospital facility	4333.00	4339.86	3782.20	3963.40	-174.33	↓	↓	-226.52, -122.14	-4.41	0.000***	-170015368.90	-220,911,182, -119,119,555
SNF	1186.67	1206.42	847.98	936.18	-68.45	↓	↓	-91.46, -45.45	-7.47	0.000***	-66760155.52	-89,197,761, -44,322,550
Other PAC facility	468.30	464.78	382.34	406.73	-27.91	↓	↓	-44.82, -11.00	-6.80	0.001***	-27219502.81	-43,709,933, -10,729,072
Outpatient facility	2478.13	2499.86	2687.97	2786.26	-76.55	↑	↑	-164.60, 11.49	-2.77	0.088*	-74659904.23	-160,524,123, 11,204,314
Professional services	3347.78	3352.15	3428.22	3621.34	-188.75	↑	↑	-260.10, -117.40	-5.22	0.000***	-184078414.28	-253,666,564, -114,490,264
Home health	765.94	783.90	621.13	677.15	-38.07	↓	↓	-50.20, -25.93	-5.77	0.000***	-37123749.99	-48,961,656, -25,285,844
Hospice	384.63	400.16	401.82	466.12	-48.76	↑	↑	-63.85, -33.66	-10.82	0.000***	-47550157.13	-62,272,047, -32,828,267
Durable medical equipment	306.85	301.70	276.04	275.56	-4.68	↓	↓	-12.21, 2.85	-1.67	0.223	-4562500.31	-11,904,308, 2,779,307
Utilization (per 1,000 beneficiaries per year)												
Acute care stays	312.46	313.77	244.84	251.47	-5.32	↓	↓	-8.35, -2.28	-2.12	0.001***	-5183.68	-8,142, -2,226
SNF stays	79.12	80.16	57.89	60.92	-1.99	↓	↓	-3.34, -0.65	-3.33	0.004***	-1944.21	-3,253, -636
SNF days	2110.19	2163.05	1415.38	1564.04	-95.80	↓	↓	-134.47, -57.13	-6.34	0.000***	-93429.90	-131,144, -55,715
ED visits & observation stays	563.37	573.11	451.55	472.56	-11.27	↓	↓	-23.09, 0.56	-2.43	0.062*	-10988.41	-22,522, 545
E&M visits	13433.30	13427.06	12462.50	12937.17	-480.90	↓	↓	-662.45, -299.35	-3.72	0.000***	-468999.30	-646,053, -291,945
Procedures	9669.96	9602.98	11298.08	11611.31	-380.21	↑	↑	-514.52, -245.90	-3.26	0.000***	-370799.87	-501,786, -239,814
Tests	26117.33	26392.68	25942.82	26547.40	-329.23	↓	↑	-669.48, 11.01	-1.25	0.058*	-321086.66	-652,907, 10,734
Imaging services	5442.50	5428.07	5126.01	5175.28	-63.69	↓	↓	-104.42, -22.97	-1.23	0.002***	-62118.29	-101,831, -22,405
Beneficiaries with AWV	262.71	225.96	559.39	416.57	106.08	↑	↑	69.73, 142.43	23.40	0.000***	103453.81	68,005, 138,903
Home health episodes	146.04	146.02	195.58	216.64	-21.09	↑	↑	-28.99, -13.18	-9.73	0.000***	-20563.96	-28,270, -12,858
Home health visits	3556.51	3668.73	2660.46	2921.68	-149.00	↓	↓	-209.75, -88.25	-5.30	0.000***	-145313.16	-204,558, -86,068
Quality of Care (per 1,000 beneficiaries per year)												
Beneficiaries with ACSC hospitalizations	41.14	41.44	25.56	26.10	-0.24	↓	↓	-0.91, 0.44	-0.92	0.490	-232.11	-891, 427

| | Baseline Years | | | | Model-Wide in PY 6 | | | | | | | |
| | 2013–2017 | | 2021 | | Difference-in-Differences | | | | | | | |
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Beneficiaries with unplanned 30-day readmissions	149.93	150.27	136.27	139.32	-2.70	⬇	⬇	-5.38, -0.03	-1.95	0.048**	-347.98	-692, -3
Beneficiaries with hospital readmissions from SNF	175.61	173.85	174.10	177.26	-4.91	⬇	⬆	-11.85, 2.02	-2.74	0.165	-144.62	-349, 60

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Direction of change (difference) in impact estimates for NGACO group and for comparison groups denoted as arrow up (increase) or arrow down (decrease). Percentage impact is relative to expected average outcome for NGACO beneficiaries in PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries in PY 6. "Other PAC facility" includes inpatient rehabilitation facilities and long-term care hospital facilities. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. Professional services include physician, other professional, and ancillary services rendered under Part B. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. ACSC=ambulatory care-sensitive condition, AWV=annual wellness visit, ED=emergency department, E&M=evaluation and management, PAC=post-acute care, SNF=skilled nursing facility.

Exhibit K.3. Model-wide Cumulative (2016-2021) and Performance Year's Impact on Medicare Spending, Utilization, and Quality of Care, from ACOs with Parallel Pre-Trends

	Cumulative (PY1 to PY6)			PY6			PY5			PY4		
	DID Estimate	% Impact	# of ACO years	DID Estimate	% Impact	# of ACO years	DID Estimate	% Impact	# of ACO years	DID Estimate	% Impact	# of ACO years
Spending ($ Per Beneficiary Per Year)												
Total cost of care	-259.6***	-1.92	208	-556.6***	-4.26	32	-448.5***	-3.74	33	-245.4***	-1.77	39
Acute care hospital facility	-63.6***	-1.55	201	-150.4***	-4.18	32	-72.3***	-1.93	34	-80.3***	-1.91	37
Skilled nursing facility	-36.0***	-3.74	201	-56.6***	-7.13	32	-75.3***	-8.81	34	-30.4***	-3.14	38
Other post-acute care facility	-22.1***	-5.30	207	-29.8***	-7.59	32	-23.1***	-5.82	32	-26.7***	-6.36	39
Outpatient facility	-26.0***	-0.94	200	-45.9***	-1.65	32	-31.3*	-1.17	34	-30.8**	-1.07	36
Professional services	-70.8***	-2.09	196	-198.6***	-5.67	34	-111.3***	-3.62	31	-47.6***	-1.38	35
Home health	-19.1***	-2.88	181	-37.6***	-6.62	28	-29.5***	-5.25	29	-21.2***	-3.24	34
Hospice	-33.4***	-7.68	213	-51.3***	-11.51	34	-44.0***	-9.54	36	-30.2***	-6.78	37
Durable medical equipment	-0.3	-0.09	210	-5.3	-1.72	34	-4.8	-1.49	35	-1.8	-0.57	39
Utilization (Per 1,000 Beneficiary Per Year)												
Acute care stays	-2.3***	-0.82	199	-4.6***	-1.88	32	-4.7***	-1.86	34	-1.9*	-0.64	38
SNF stays	0.6***	0.91	194	-1.8***	-3.08	32	-1.7***	-2.82	33	1.6***	2.31	36
SNF days	-37.3***	-2.36	203	-76.1***	-5.40	32	-96.9***	-6.66	36	-32.2**	-1.91	37
ED visits & observation stays	-7.0***	-1.32	175	-9.8***	-2.11	27	-12.0***	-2.76	30	-8.1***	-1.46	34
E&M visits	-287.7***	-2.13	99	-700.9***	-5.47	14	-531.3***	-4.72	14	-265.0***	-1.98	16
Procedures	-121.1***	-1.19	188	-370.2***	-3.36	31	-256.2***	-2.87	32	-40.1	-0.38	35
Tests	-289.3***	-1.19	146	-554.7***	-2.26	25	-352.8***	-1.72	23	-127.4***	-0.52	26
Imaging services	-36.8***	-0.75	169	-91.9***	-1.78	28	-53.8***	-1.29	32	-18.6*	-0.36	33
Beneficiaries with AWV	89.2***	21.58	45	150.7***	28.61	6	152.9***	36.89	8	91.7***	20.57	6
Home health episodes	-7.4***	-4.66	192	-22.4***	-11.20	32	-16.2***	-8.60	33	-2.7***	-2.00	34
Home health visits	-114.7***	-3.71	184	-221.5***	-8.24	29	-124.6***	-5.10	30	-130.4***	-4.14	35
Quality (Per 1,000 Beneficiaries Per Year)												
Beneficiaries with ACSC hospitalizations	-0.0	-0.11	199	-0.0	-0.07	32	-0.1	-0.37	34	-0.1	-0.31	36
Beneficiaries with Unplanned 30-day readmissions	-0.5	-0.35	214	-2.8*	-2.01	35	-2.8*	-1.96	37	0.9	0.63	38
Beneficiaries with Hospital Readmissions from SNF	-0.4	-0.23	204	-7.2*	-3.95	30	-2.4	-1.28	33	3.1	1.70	40

	PY3			PY2			PY1		
	DID Estimate	% Impact	# of ACO years	DID Estimate (95% CI)	% Impact	# of ACO years	DID Estimate (95% CI)	% Impact	# of ACO years
Spending ($ Per Beneficiary Per Year)									
Total cost of care	-161.9***	-1.15	45	-75.0*	-0.53	43	-130.9*	-0.95	16
Acute care hospital facility	-23.6	-0.55	43	-12.3	-0.28	40	-54.5*	-1.27	15
Skilled nursing facility	-22.9***	-2.26	46	-13.7*	-1.27	36	-13.7	-1.23	15
Other post-acute care facility	-17.1***	-4.08	48	-19.8***	-4.62	41	-11.5	-2.36	15
Outpatient facility	-0.5	-0.02	46	-26.9**	-0.99	38	-39.1	-1.45	14
Professional services	-39.1***	-1.14	45	-14.8	-0.43	36	20.2	0.60	15
Home health	-18.3***	-2.48	39	-1.3	-0.17	36	-5.7	-0.82	15
Hospice	-27.3***	-6.20	47	-16.9***	-4.27	43	-42.7***	-10.02	16
Durable medical equipment	0.6	0.20	45	6.2**	2.34	40	5.2	1.67	17
Utilization (Per 1,000 Beneficiary Per Year)									
Acute care stays	-1.6*	-0.52	44	-0.3	-0.11	37	-0.1	-0.03	14
SNF stays	2.4***	3.19	45	1.3***	2.22	33	1.8**	2.33	15
SNF days	-16.2	-0.90	46	16.9	1.32	37	-19.1	-0.95	15
ED visits & observation stays	-10.1***	-1.80	38	-0.1	-0.02	35	4.7	0.78	11
E&M visits	-202.2***	-1.42	25	-133.3***	-0.93	21	-116.9***	-0.86	9
Procedures	-25.2	-0.25	41	13.3	0.13	35	-116.7**	-1.17	14
Tests	-370.9***	-1.47	35	-264.2***	-1.04	25	124.4*	0.51	12
Imaging services	-29.3***	-0.58	36	-29.5***	-0.59	30	55.5***	1.10	10
Beneficiaries with AWV	59.1***	15.16	13	62.9***	16.56	9	8.4***	2.43	3
Home health episodes	-0.7	-0.45	43	0.6	0.47	35	-1.2	-0.89	15
Home health visits	-110.6***	-3.15	40	-33.6*	-1.02	36	-31.8	-0.93	14
Quality (Per 1,000 Beneficiaries Per Year)									
Beneficiaries with ACSC hospitalizations	-0.3	-0.62	45	0.1	0.17	35	0.6	1.55	17
Beneficiaries with Unplanned 30-day readmissions	0.6	0.42	47	-1.5	-0.96	40	3.1	2.08	17
Beneficiaries with Hospital Readmissions from SNF	1.8	0.98	46	-3.0	-1.57	38	0.5	0.26	17

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. Results exclude ACOs that failed the parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries in PYs, absent the model. "Other post-acute care facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. Professional services include physician, other professional, and ancillary services rendered under Part B. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. AWV = annual wellness visit; ED = emergency department; E&M = evaluation and management; SNF = skilled nursing facility. ACSC = ambulatory care-sensitive conditions.

Exhibit K.4. 2016 Cohort Cumulative (2016–2021) Impact on Medicare Spending, Utilization, and Quality of Care

	Base Years				2016 Cohort in PY 1–PY 6							
	2013–2015		2016–2021		Difference-in-Differences							
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Spending ($ per beneficiary per year)												
Total gross Medicare spending (Part A and B)	13932.47	14161.82	13942.02	14257.55	-86.19	↑	↑	-193.90, 21.53	-0.61	0.117	-222027443.00	-499,511,579, 55,456,693
Acute care hospital facility	4349.67	4367.34	4163.90	4203.68	-22.11	↓	↓	-50.18, 5.96	-0.53	0.123	-56966586.38	-129,274,597, 15,341,424
SNF	1229.89	1248.62	969.77	1032.05	-43.56	↓	↓	-62.69, -24.42	-4.30	0.000***	-112205464.79	-161,498,110, -62,912,820
Other PAC facility	499.54	472.81	444.09	436.71	-19.34	↓	↓	-30.49, -8.19	-4.17	0.001***	-49818574.34	-78,546,825, -21,090,324
Outpatient facility	2455.95	2513.10	2765.17	2846.20	-23.87	↑	↑	-76.49, 28.74	-0.86	0.374	-61497139.09	-197,036,077, 74,041,799
Professional services	3229.87	3231.92	3310.05	3314.11	-2.02	↑	↑	-27.43, 23.40	-0.06	0.876	-5197621.64	-70,666,485, 60,271,242
Home health	785.76	784.66	692.66	705.18	-13.62	↓	↓	-21.33, -5.91	-1.93	0.001***	-35083459.74	-54,946,090, -15,220,829
Hospice	383.05	388.07	387.91	433.08	-40.15	↑	↑	-49.64, -30.66	-9.38	0.000***	-103428787.71	-127,880,632, -78,976,944
Durable medical equipment	331.70	323.71	298.87	284.53	6.36	↓	↓	0.91, 11.82	2.17	0.022**	16387555.99	2,335,888, 30,439,224
Utilization Per 1,000 beneficiaries per year)												
Acute care stays	332.96	332.87	303.24	303.70	-0.55	↓	↓	-2.28, 1.17	-0.18	0.529	-1428.94	-5,881, 3,023
SNF stays	82.07	83.02	72.46	71.38	2.02	↓	↓	0.87, 3.16	2.87	0.001***	5199.89	2,252, 8,148
SNF days	2170.73	2204.61	1638.16	1715.59	-43.56	↓	↓	-72.42, -14.70	-2.59	0.003***	-112215.53	-186,557, -37,874
ED visits & observation stays	564.31	573.80	546.87	562.53	-6.16	↓	↓	-12.84, 0.52	-1.11	0.071*	-15870.92	-33,082, 1,340
E&M visits	13140.82	13166.14	13152.55	13297.79	-119.93	↑	↑	-220.51, -19.35	-0.90	0.019**	-308940.47	-568,045, -49,835
Procedures	8653.50	8751.88	10027.13	10174.90	-49.39	↑	↑	-138.78, 39.99	-0.49	0.279	-127243.32	-357,506, 103,019
Tests	26475.07	26859.36	25332.97	26008.95	-291.68	↓	↓	-423.45, -159.91	-1.14	0.000***	-751393.52	-1,090,833, -411,954
Imaging services	5338.27	5381.59	5091.06	5132.87	1.51	↓	↓	-21.78, 24.81	0.03	0.899	3895.60	-56,110, 63,901
Home health episodes	211.51	187.75	488.20	353.04	111.40	↑	↑	90.48, 132.32	29.56	0.000***	286974.36	233,074, 340,875
Home health visits	156.29	154.41	153.24	154.63	-3.27	↓	↑	-5.11, -1.43	-2.09	0.001***	-8423.27	-13,170, -3,676
Beneficiaries with AWV	3778.00	3773.45	3302.14	3371.85	-74.26	↓	↓	-119.88, -28.65	-2.20	0.001***	-191306.26	-308,817, -73,796

| | Base Years | | | | 2016 Cohort in PY 1–PY 6 | | | | | | | |
| | 2013–2015 | | 2016–2021 | | Difference-in-Differences | | | | | | | |
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Quality of Care (per 1,000 beneficiaries per year)												
Beneficiaries with ACSC hospitalizations	45.76	45.77	37.76	37.86	-0.09	⬇	⬇	-0.67, 0.50	-0.23	0.771	-223.02	-1,724, 1,278
Beneficiaries with unplanned 30-day readmissions	155.63	154.37	149.14	148.96	-1.07	⬇	⬇	-2.91, 0.76	-0.71	0.252	-438.43	-1,188, 312
Beneficiaries with hospital readmissions from SNF	178.30	176.27	183.52	180.52	0.96	⬆	⬆	-2.72, 4.65	0.53	0.608	105.27	-297, 508

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Direction of change (difference) in impact estimates for NGACO group and for comparison groups denoted as arrow up (increase) or arrow down (decrease). Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 Cohort) in PYs, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2016 cohort) across the PYs. "Other PAC facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. Professional services include physician, other professional, and ancillary services rendered under Part B. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. ACSC=ambulatory care-sensitive condition, AWV=annual wellness visit, ED=emergency department, E&M=evaluation and management, PAC=post-acute care, SNF=skilled nursing facility.

Exhibit K.5. 2017 Cohort Cumulative (2016–2021) Impact on Medicare Spending, Utilization, and Quality of Care

| | Base Years | | | | 2017 Cohort in PY 2–PY 6 | | | | | | | |
| | 2014–2016 | | 2017–2021 | | Difference-in-Differences | | | | | | | |
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Spending ($ per beneficiary per year)												
Total gross Medicare spending (Part A and B)	15276.93	15618.36	14658.65	15361.29	-361.21	↓	↓	-436.01, -286.40	-2.40	0.000***	-974346983.91	-1,176,134,067, -772,559,900
Acute care hospital facility	4531.59	4553.68	4476.26	4575.70	-77.35	↓	↑	-108.21, -46.48	-1.70	0.000***	-208637775.06	-291,885,546, -125,390,004
SNF	1220.32	1246.60	1085.07	1142.61	-31.26	↓	↓	-44.25, -18.27	-2.80	0.000***	-84322640.95	-119,356,041, -49,289,241
Other PAC facility	472.85	476.75	417.14	444.13	-23.09	↓	↓	-31.78, -14.40	-5.24	0.000***	-62283983.28	-85,736,275, -38,831,692
Outpatient facility	2403.61	2448.42	2609.84	2705.39	-50.73	↑	↑	-84.38, -17.08	-1.91	0.003***	-136837680.79	-227,614,757, -46,060,605
Professional services	3613.04	3644.15	3575.82	3710.42	-103.50	↓	↑	-138.39, -68.60	-2.81	0.000***	-279180828.56	-373,317,552, -185,044,105
Home health	845.18	855.04	829.98	862.66	-22.82	↓	↑	-31.53, -14.12	-2.68	0.000***	-61563282.45	-85,044,053, -38,082,512
Hospice	394.02	423.46	434.60	487.48	-23.43	↑	↑	-30.54, -16.32	-5.12	0.000***	-63202073.64	-82,373,357, -44,030,790
Durable medical equipment	289.79	287.30	270.78	268.84	-0.54	↓	↓	-5.95, 4.87	-0.20	0.845	-1460462.45	-16,054,793, 13,133,868
Utilization (per 1,000 beneficiaries per year)												
Acute care stays	299.06	301.63	282.93	286.15	-0.65	↓	↓	-2.34, 1.03	-0.23	0.448	-1764.90	-6,321, 2,792
SNF stays	71.48	72.88	64.47	65.29	0.57	↓	↓	-0.09, 1.22	0.89	0.088*	1532.56	-230, 3,295
SNF days	1879.54	1949.57	1572.13	1670.52	-28.36	↓	↓	-48.43, -8.28	-1.77	0.006***	-76487.33	-130,630, -22,344
ED visits & observation stays	536.50	546.38	497.82	515.30	-7.62	↓	↓	-11.42, -3.81	-1.51	0.000***	-20541.85	-30,796, -10,287
E&M visits	14107.44	14176.41	13466.50	13830.69	-295.21	↓	↓	-354.18, -236.24	-2.15	0.000***	-796328.39	-955,397, -637,260
Procedures	9745.25	9763.75	10888.55	11030.24	-123.19	↑	↑	-203.00, -43.37	-1.12	0.002***	-332294.78	-547,594, -116,995
Tests	27182.21	27867.01	26243.76	27069.00	-140.44	↓	↓	-303.76, 22.89	-0.53	0.092*	-378823.10	-819,395, 61,748
Imaging services	5416.89	5432.56	5138.03	5180.63	-26.93	↓	↓	-52.32, -1.55	-0.52	0.038**	-72648.63	-141,121, -4,176
Home health episodes	269.72	231.76	423.09	335.77	49.36	↑	↑	35.57, 63.15	13.21	0.000***	133156.81	95,959, 170,355
Home health visits	153.47	151.81	179.20	185.34	-7.81	↑	↑	-11.68, -3.93	-4.17	0.000***	-21057.53	-31,505, -10,610
Beneficiaries with AWV	3858.26	3926.24	3621.02	3804.60	-115.60	↓	↓	-156.95, -74.24	-3.09	0.000***	-311823.02	-423,383, -200,263

| | Base Years | | | | 2017 Cohort in PY 2–PY 6 | | | | | | | |
| | 2014–2016 | | 2017–2021 | | Difference-in-Differences | | | | | | | |
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Quality of Care (per 1,000 beneficiaries per year)												
Beneficiaries with ACSC hospitalizations	41.07	41.50	35.31	35.59	0.15	↓	↓	-0.32, 0.63	0.43	0.530	409.89	-870, 1,690
Beneficiaries with unplanned 30-day readmissions	152.55	153.91	148.15	149.36	0.15	↓	↓	-1.50, 1.80	0.10	0.858	62.14	-618, 743
Beneficiaries with hospital readmissions from SNF	177.83	177.88	183.12	182.87	0.31	↑	↑	-3.18, 3.79	0.17	0.863	32.96	-342, 408

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Direction of change (difference) in impact estimates for NGACO group and for comparison groups denoted as arrow up (increase) or arrow down (decrease). Percentage impact is relative to expected average outcome for NGACO beneficiaries in PYs, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2017 cohort) across five PYs. "Other PAC facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. Professional services include physician, other professional, and ancillary services rendered under Part B. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. ACSC=ambulatory care-sensitive condition, AWV=annual wellness visit, ED=emergency department, E&M=evaluation and management, PAC=post-acute care, SNF=skilled nursing facility.

Exhibit K.6. 2018 Cohort Cumulative (2016–2021) Impact for Medicare Spending, Utilization, and Quality of Care

	Base Years				2018 Cohort in PY 3–PY 6							
	2015–2017		2018–2021		Difference-in-Differences							
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval	% Impact	p	Aggregate	Aggregate 95% CI
Spending ($ per beneficiary per year)												
Total gross Medicare spending (Part A and B)	14161.54	14365.60	13400.96	14095.92	-490.90	↓	↓	-631.43, -350.36	-3.53	0.000***	-509108411.66	-654,854,756, -363,362,067
Acute care hospital facility	4419.24	4453.98	4227.86	4402.84	-140.24	↓	↓	-197.13, -83.34	-3.21	0.000***	-145439215.94	-204,446,658, -86,431,774
SNF	1211.84	1216.10	1020.74	1075.87	-50.87	↓	↓	-72.79, -28.95	-4.75	0.000***	-52752763.65	-75,485,978, -30,019,549
Other PAC facility	456.71	465.41	403.73	425.24	-12.82	↓	↓	-26.18, 0.55	-3.08	0.060*	-13291811.87	-27,151,630, 568,007
Outpatient facility	2444.38	2484.33	2577.01	2686.46	-69.50	↑	↑	-124.54, -14.46	-2.63	0.013**	-72074868.90	-129,157,583, -14,992,154
Professional services	3564.99	3532.61	3569.11	3666.47	-129.74	↑	↑	-167.06, -92.43	-3.51	0.000***	-134557456.24	-173,258,423, -95,856,490
Home health	792.50	828.79	695.69	767.12	-35.13	↓	↓	-45.09, -25.17	-4.81	0.000***	-36435150.00	-46,763,248, -26,107,052
Hospice	403.68	421.13	435.06	480.98	-28.47	↑	↑	-40.95, -15.99	-6.14	0.000***	-29528530.14	-42,473,665, -16,583,396
Durable medical equipment	280.68	275.40	273.18	280.20	-12.31	↓	↑	-17.98, -6.64	-4.31	0.000***	-12765336.19	-18,648,238, -6,882,435
Utilization (per 1,000 beneficiaries per year)												
Acute care stays	316.91	318.88	283.56	292.44	-6.90	↓	↓	-9.88, -3.93	-2.38	0.000***	-7159.46	-10,244, -4,075
SNF stays	80.51	80.82	68.56	69.97	-1.11	↓	↓	-2.37, 0.15	-1.60	0.083*	-1153.64	-2,460, 152
SNF days	2119.02	2137.76	1720.63	1813.99	-74.62	↓	↓	-110.82, -38.42	-4.16	0.000***	-77385.07	-114,929, -39,841
ED visits & observation stays	549.87	559.85	489.73	505.72	-6.00	↓	↓	-12.08, 0.08	-1.21	0.053*	-6225.68	-12,531, 79
E&M visits	14111.13	14117.29	13111.71	13488.94	-371.07	↓	↓	-472.46, -269.67	-2.75	0.000***	-384833.57	-489,987, -279,680
Procedures	10571.31	10412.33	11302.37	11432.03	-288.65	↑	↑	-426.83, -150.46	-2.49	0.000***	-299354.29	-442,662, -156,046
Tests	26758.19	26697.05	25845.40	25857.78	-73.52	↓	↓	-271.21, 124.18	-0.28	0.466	-76243.06	-281,270, 128,784
Imaging services	5434.70	5379.23	5197.08	5201.25	-59.64	↓	↓	-93.23, -26.06	-1.13	0.000***	-61855.39	-96,685, -27,026
Home health episodes	337.87	273.85	516.32	381.62	70.67	↑	↑	39.44, 101.90	15.86	0.000***	73294.29	40,906, 105,683
Home health visits	158.73	163.04	177.08	193.49	-12.10	↑	↑	-14.91, -9.29	-6.40	0.000***	-12549.78	-15,467, -9,633
Beneficiaries with AWV	3663.68	3893.72	3090.71	3482.02	-161.27	↓	↓	-216.71, -105.83	-4.96	0.000***	-167252.36	-224,745, -109,759
Quality of Care (per 1,000 beneficiaries per year)												
Beneficiaries with ACSC hospitalizations	39.95	39.94	32.07	32.84	-0.79	↓	↓	-1.41, -0.16	-2.39	0.014**	-815.75	-1,467, -164
Beneficiaries with unplanned 30-day readmissions	148.85	149.88	145.78	146.40	0.42	↓	↓	-2.63, 3.46	0.29	0.789	63.38	-401, 528

| | Base Years | | | | 2018 Cohort in PY 3–PY 6 | | | | | | | |
| | 2015–2017 | | 2018–2021 | | Difference-in-Differences | | | | | | | |
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval	% Impact	p	Aggregate	Aggregate 95% CI
Beneficiaries with hospital readmissions from SNF	177.52	177.74	183.31	182.57	0.97	⬆	⬆	-4.02, 5.96	0.53	0.703	37.08	-154, 228

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Direction of change (difference) in impact estimates for NGACO group and for comparison groups denoted as arrow up (increase) or arrow down (decrease). Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 Cohort) in PYs, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2018 cohort) across four PYs. "Other PAC facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. Professional services include physician, other professional, and ancillary services rendered under Part B. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. ACSC=ambulatory care-sensitive condition, AWV=annual wellness visit, ED=emergency department, E&M=evaluation and management, PAC=post-acute care, SNF=skilled nursing facility.

Exhibit K.7. 2016 Cohort PY 6 (2021) Impact on Medicare Spending, Utilization, and Quality of Care

| | Baseline Years: | | 2016 Cohort in PY 6 | | | | | | | | | |
| | 2013–2015 | | 2021 | | Difference-in-Differences | | | | | | | |
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Spending ($ per beneficiary per year)												
Total gross Medicare spending (Part A and B)	13346.22	13521.84	13247.71	13724.59	-301.26**	↓	↑	-582.50, -20.01	-2.33	0.036	-101,497,471**	-196,253,890, -6,741,053
Acute care hospital facility	4291.23	4285.40	3628.66	3778.92	-156.08***	↓	↓	-247.24, -64.92	-4.12	0.001	-52,585,492***	-83,299,681, -21,871,303
SNF	1169.52	1201.87	756.69	861.25	-72.21***	↓	↓	-114.73, -29.69	-8.71	0.001	-24,328,276***	-38,652,846, -10,003,705
Other PAC facility	467.53	450.84	373.16	391.00	-34.53*	↓	↓	-73.46, 4.39	-8.47	0.082	-11,635,128*	-24,750,387, 1,480,130
Outpatient facility	2543.98	2541.18	2919.04	2969.61	-53.38	↑	↑	-232.89, 126.14	-1.79	0.560	-17,982,793	-78,463,976, 42,498,391
Professional services	3032.83	3053.21	3219.91	3293.29	-53.00	↑	↑	-139.28, 33.29	-1.70	0.229	-17,855,639	-46,925,833, 11,214,555
Home health	721.35	721.11	537.46	565.67	-28.45** §	↓	↓	-50.73, -6.17	-5.02	0.012	-9,584,974** §	-17,091,347, -2,078,601
Hospice	371.62	365.48	353.26	418.68	-71.56***	↓	↑	-102.72, -40.40	-16.8	0.000	-24,110,068***	-34,608,544, -13,611,593
Durable medical equipment	339.89	332.50	306.22	283.80	15.04**	↓	↓	1.69, 28.39	5.164	0.027	5,065,861**	567,836, 9,563,886
Utilization (per 1,000 beneficiaries per year)												
Acute care stays	332.94	331.96	256.76	258.68	-2.90	↓	↓	-8.90, 3.11	-1.11	0.345	-975	-2,998, 1,047
SNF stays	83.15	84.33	61.13	62.39	-0.08	↓	↓	-2.80, 2.63	-0.13	0.951	-28	-943, 886
SNF days	2205.41	2261.23	1369.92	1525.74	-100.00***	↓	↓	-170.66, -29.33	-6.80	0.006	-33,691***	-57,498, -9,883
ED visits & observation stays	582.43	589.92	472.59	495.33	-15.24	↓	↓	-44.75, 14.28	-3.12	0.312	-5,133	-15,077, 4,811
E&M visits	12812.72	12716.10	12287.29	12516.34	-325.67 §	↓	↓	-776.19, 124.86	-2.70	0.157	-109,722 §	-261,510, 42,066
Procedures	8798.91	8775.93	10442.46	10676.82	-257.33**	↑	↑	-464.62, -50.04	-2.40	0.015	-86,698**	-156,537, -16,860
Tests	25528.31	25784.11	24938.21	25924.26	-730.26** §	↓	↑	-1361.80, -98.71	-2.97	0.023	-246,034** §	-458,811, -33,256
Imaging services	5516.84	5529.51	5080.81	5134.10	-40.62	↓	↓	-119.41, 38.18	-0.79	0.312	-13,684	-40,230, 12,862
Beneficiaries with AWV	202.58	184.75	662.09	454.23	190.03***	↑	↑	120.76, 259.29	40.25	0.000	64,023***	40,687, 87,358
Home health episodes	145.52	143.72	164.31	174.67	-12.16*** §	↑	↑	-20.17, -4.14	-6.88	0.003	-4,095*** §	-6,796, -1,395
Home health visits	3406.71	3425.05	2438.52	2566.99	-110.12*	↓	↓	-237.05, 16.82	-4.32	0.089	-37,100*	-79,866, 5,666
Quality of Care (per 1,000 beneficiaries per year)												
Beneficiaries with ACSC hospitalizations	45.14	44.77	27.37	27.38	-0.38	↓	↓	-1.79, 1.04	-1.35	0.603	-127	-605, 351

| | Baseline Years: | | | | 2016 Cohort in PY 6 | | | | | | | |
| | 2013–2015 | | 2021 | | Difference-in-Differences | | | | | | | |
	NGACO mean	Comparison mean	NGACO mean	Compariso n mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Beneficiaries with unplanned 30-day readmissions	153.99	152.36	139.16	142.89	-5.36*	⬇	⬇	-10.79, 0.07	-3.70	0.053	-245*	-494, 3
Beneficiaries with hospital readmissions from SNF	177.80	174.52	177.96	181.50	-6.82	⬆	⬆	-19.01, 5.37	-3.69	0.273	-75	-209, 59

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Direction of change (difference) in impact estimates for NGACO group and for comparison groups denoted as arrow up (increase) or arrow down (decrease). Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 Cohort) in PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2016 Cohort) in PY 6. "Other PAC facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. Professional services include physician, other professional, and ancillary services rendered under Part B. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. ACSC=ambulatory care-sensitive condition, AWV=annual wellness visit, ED=emergency department, E&M=evaluation and management, PAC=post-acute care, SNF=skilled nursing facility.

Exhibit K.8. 2017 Cohort PY 6 (2021) Impact on Medicare Spending, Utilization, and Quality of Care

| | Baseline Years: | | 2017 Cohort in PY 6 | | | | | | | | | |
| | 2014–2016 | | 2021 | | Difference-in-Differences | | | | | | | |
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Spending ($ per beneficiary per year)												
Total gross Medicare spending (Part A and B)	14505.39	14797.63	13090.69	14121.86	-738.93***	↓	↓	-936.7, -541.14	-5.32	0.000	-292,914,816***	-371,317,032, -214,512,599
Acute care hospital facility	4204.91	4199.28	3717.79	3900.59	-188.42***	↓	↓	-253.60, -123.25	-4.82	0.000	-74,691,597***	-100,526,687, -48,856,507
SNF	1146.63	1161.44	845.58	914.03	-53.64*** §	↓	↓	-85.34, -21.94	-5.96	0.001	-21,261,715*** §	-33,827,577, -8,695,852
Other PAC facility	470.74	471.87	389.79	423.75	-32.83***	↓	↓	-51.47, -14.19	-7.76	0.001	-13,013,922***	-20,402,488, -5,625,357
Outpatient facility	2420.29	2455.49	2568.34	2667.00	-63.46	↑	↑	-192.68, 65.76	-2.41	0.336	-25,155,490	-76,380,518, 26,069,537
Professional services	3462.39	3472.74	3449.78	3725.56	-265.43***	↓	↑	-417.08, -113.79	-7.17	0.001	-105,218,448***	-165,331,548, -45,105,349
Home health	768.30	787.21	665.23	726.25	-42.12*** §	↓	↓	-61.32, -22.92	-5.95	0.000	-16,695,256*** §	-24,306,770, -9,083,742
Hospice	392.15	426.94	436.37	508.60	-37.44***	↑	↑	-57.94, -16.94	-7.90	0.000	-14,841,270***	-22,968,413, -6,714,127
Durable medical equipment	297.96	292.32	261.11	268.12	-12.66**	↓	↓	-24.11, -1.21	-4.62	0.030	-5,017,804**	-9,555,682, -479,925
Utilization (per 1,000 beneficiaries per year)												
Acute care stays	291.12	292.99	226.60	233.97	-5.50***	↓	↓	-9.24, -1.75	-2.36	0.004	-2,179***	-3,664, -693
SNF stays	74.60	75.70	53.83	57.24	-2.30***	↓	↓	-3.88, -0.73	-4.10	0.004	-913***	-1,538, -289
SNF days	1982.02	2049.39	1339.69	1468.28	-61.23**	↓	↓	-113.65, -8.81	-4.37	0.022	-24,271**	-45,050, -3,492
ED visits & observation stays	557.98	569.48	436.37	452.54	-4.67	↓	↓	-16.28, 6.94	-1.05	0.431	-1,851	-6,452, 2,751
E&M visits	13473.20	13551.05	12346.08	12939.52	-515.59*** §	↓	↓	-700.97, -330.21	-4.10	0.000	-204,383*** §	-277,869, -130,897
Procedures	9240.51	9213.79	10969.32	11307.29	-364.69***	↑	↑	-564.67, -164.72	-3.21	0.000	-144,567***	-223,838, -65,296
Tests	26229.20	26697.70	26298.44	26776.80	-9.86	↑	↑	-587.95, 568.23	-0.04	0.973	-3,908	-233,065, 225,250
Imaging services	5229.25	5209.14	4971.39	4976.50	-25.21	↓	↓	-79.47, 29.05	-0.50	0.362	-9,994	-31,503, 11,515
Beneficiaries with AWV	265.84	232.00	477.36	385.61	57.92**	↑	↑	9.29, 106.55	13.80	0.020	22,960**	3,682, 42,238
Home health episodes	136.65	135.05	211.89	237.67	-27.38***	↑	↑	-45.01, -9.75	-11.4	0.002	-10,853***	-17,842, -3,864

| | Baseline Years: | | | | 2017 Cohort in PY 6 | | | | | | | |
| | 2014–2016 | | 2021 | | Difference-in-Differences | | | | | | | |
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Home health visits	3548.80	3658.50	2749.07	3013.83	-155.06*** §	⬇	⬇	-233.36, -76.76	-5.34	0.000	-61,467*** §	-92,507, -30,427
Quality of Care (per 1,000 beneficiaries per year)												
Beneficiaries with ACSC hospitalizations	39.59	40.21	24.06	24.61	0.06	⬇	⬇	-0.80, 0.92	0.255	0.889	24	-318, 366
Beneficiaries with unplanned 30-day readmissions	147.47	148.73	130.79	135.45	-3.39*	⬇	⬇	-6.80, 0.01	-2.52	0.051	-172*	-345, 1
Beneficiaries with hospital readmissions from SNF	173.35	171.91	169.67	172.93	-4.70	⬇	⬆	-15.50, 6.09	-2.69	0.393	-52	-173, 68

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Direction of change (difference) in impact estimates for NGACO group and for comparison groups denoted as arrow up (increase) or arrow down (decrease). Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 Cohort) in PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2017 Cohort) in PY 6. "Other PAC facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. Professional services include physician, other professional, and ancillary services rendered under Part B. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. ACSC=ambulatory care-sensitive condition, AWV=annual wellness visit, ED=emergency department, E&M=evaluation and management, PAC=post-acute care, SNF=skilled nursing facility.

Exhibit K.9. 2018 Cohort PY 6 (2021) Impact on Medicare Spending, Utilization, and Quality of Care

	Baseline Years:		2018 Cohort in PY 6									
	2015–2017		2021		Difference-in-Differences							
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Spending ($ per beneficiary per year)												
Total Gross Medicare spending (Part A and B)	14108.88	14348.60	12891.12	13925.59	-794.75***	↓	↓	-1111.21, -478.29	-5.97	0.000	-192,275,450***	-268,836,569, -115,714,33
Acute care hospital facility	4601.05	4646.03	4101.57	4323.21	-176.65***	↓	↓	-306.02, -47.29	-4.12	0.007	-42,738,280***	-74,036,331, -11,440,229
SNF	1276.17	1286.44	979.05	1076.83	-87.50***	↓	↓	-136.47, -38.54	-8.20	0.000	-21,170,167***	-33,017,162, -9,323,172
Other PAC facility	465.37	472.58	382.90	400.73	-10.62	↓	↓	-38.45, 17.21	-2.70	0.454	-2,570,453	-9,303,444, 4,162,538
Outpatient facility	2481.20	2515.03	2562.20	2726.32	-130.29*	↑	↑	-266.80, 6.22	-4.83	0.061	-31,521,620*	-64,547,006, 1,503,765
Professional services	3598.61	3570.87	3683.00	3907.41	-252.15***	↑	↑	-333.14, -171.17	-6.69	0.000	-61,004,321***	-80,596,028, -41,412,614
Home health	824.18	865.90	665.41	751.96	-44.82***	↓	↓	-65.84, -23.80	-6.31	0.000	-10,843,520***	-15,928,301, -5,758,738
Hospice	390.41	404.58	412.85	462.57	-35.54***	↑	↑	-61.84, -9.25	-7.92	0.008	-8,598,819***	-14,960,056, -2,237,581
Durable medical equipment	275.42	274.17	258.49	276.29	-19.06**	↓	↑	-34.00, -4.11	-6.86	0.012	-4,610,558**	-8,226,839, -994,277
Utilization (per 1,000 beneficiaries per year)												
Acute care stays	318.92	322.50	258.14	270.10	-8.39**	↓	↓	-14.86, -1.92	-3.14	0.011	-2,030**	-3,596, -464
SNF stays	80.92	81.67	60.02	64.91	-4.14***	↓	↓	-7.02, -1.26	-6.45	0.005	-1,002***	-1,699, -305
SNF days	2187.58	2212.56	1602.69	1774.28	-146.61*** §	↓	↓	-231.70, -61.52	-8.38	0.001	-35,469*** §	-56,055, -14,883
ED visits & observation stays	545.65	555.63	447.11	473.64	-16.55**	↓	↓	-31.43, -1.67	-3.57	0.029	-4,005**	-7,604, -405
E&M visits	14232.15	14214.00	12897.27	13519.36	-640.24*** §	↓	↓	-863.15, -417.33	-4.91	0.000	-154,894*** §	-208,823, -100,965
Procedures	11586.65	11392.42	13028.30	13410.82	-576.75***	↑	↑	-896.81, -256.69	-4.23	0.000	-139,534***	-216,968, -62,101
Tests	26754.31	26740.41	26759.16	27039.33	-294.07	↑	↑	-752.81, 164.67	-1.15	0.209	-71,145	-182,128, 39,838
Imaging services	5688.37	5645.53	5442.30	5558.34	-158.89***	↓	↓	-242.56, -75.22	-2.83	0.000	-38,440***	-58,683, -18,197
Beneficiaries with AWV	341.32	273.46	550.77	414.84	68.08* §	↑	↑	-8.18, 144.35	14.10	0.080	16,471* §	-1,980, 34,923
Home health episodes	162.16	167.18	212.41	240.64	-23.21***	↑	↑	-30.66, -15.76	-9.85	0.000	-5,616***	-7,418, -3,814
Home health visits	3777.77	4024.85	2824.34	3264.64	-193.22***	↓	↓	-303.94, -82.50	-6.40	0.001	-46,747***	-73,534, -19,959

| | Baseline Years: | | 2018 Cohort in PY 6 | | | | | | | | | |
| | 2015–2017 | | 2021 | | Difference-in-Differences | | | | | | | |
	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID Estimate	NGACO Diff.	Comp. Diff.	95% Confidence Interval (CI)	% Impact	p	Aggregate	Aggregate 95% CI
Quality of Care (per 1,000 beneficiaries per year)												
Beneficiaries with ACSC hospitalizations	38.09	38.82	25.49	26.75	-0.54	↓	↓	-1.77, 0.70	-2.06	0.394	-130	-428, 169
Beneficiaries with unplanned 30-day readmissions	148.05	149.74	140.81	140.34	2.16	↓	↓	-2.94, 7.26	1.559	0.406	70	-95, 234
Beneficiaries with hospital readmissions from SNF	175.75	175.81	175.06	177.49	-2.37	↓	↑	-15.56, 10.82	-1.33	0.725	-17	-114, 79

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Direction of change (difference) in impact estimates for NGACO group and for comparison groups denoted as arrow up (increase) or arrow down (decrease). Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 Cohort) in PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2018 Cohort) in PY 6. "Other PAC facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. Professional services include physician, other professional, and ancillary services rendered under Part B. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. ACSC=ambulatory care-sensitive condition, AWV=annual wellness visit, ED=emergency department, E&M=evaluation and management, PAC=post-acute care, SNF=skilled nursing facility.

Exhibit K.10. NGACO-Level Cumulative (2016–2021) Impact on Total Medicare Spending

NGACO Name	# aligned beneficiaries	Baseline Years: BY 3–BY 1 NGACO mean	Comparison mean	As of PY 6 (2021) NGACO mean	Comparison mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact	p	Aggregate	Aggregate 95% CI
2016 Cohort													
ACCST	85542	16500.97	18201.29	15650.53	18049.08	-698.24***	↓	↓	-985.35, -411.13	-4.33	0.00	-59,728,636 ***	-24,560,804, 24,559,406
Bellin	66494	10602.61	11218.29	10815.78	11065.93	365.54***	↑	↓	109.03, 622.04	3.78	0.01	24,305,916 ***	-17,055,516, 17,056,246
CHESS	133688	12640.30	12803.47	13724.83	13945.70	-57.70 §	↑	↑	-294.43, 179.03	-0.47	0.63	-7,713,901 §	-31,647,984, 31,647,868
Deaconess	160267	13036.96	13176.31	13253.91	13679.07	-285.80*	↑	↑	-574.38, 2.77	-2.15	0.05	-45,805,036 *	-46,248,916, 46,248,344
Henry Ford	137450	16417.93	15738.82	16566.59	15370.53	516.95*** §	↑	↓	260.96, 772.93	3.53	0.00	71,054,144 *** §	-35,184,656, 35,185,688
Park Nicollet	95210	12291.98	13035.92	12829.78	13398.80	174.93	↑	↑	-96.29, 446.14	1.44	0.21	16,654,991	-25,822,290, 25,822,640
Pioneer Valley	224917	14442.19	14568.53	13413.61	13547.06	-7.11	↓	↓	-244.13, 229.92	-0.05	0.95	-1,598,495	-53,311,496, 53,311,484
ThedaCare	87614	10939.68	11433.23	10264.84	11076.65	-318.26*	↓	↓	-637.56, 1.04	-2.93	0.05	-27,883,824 *	-27,975,394, 27,974,758
Triad	166404	12126.96	12716.53	12831.61	13051.51	369.66**	↑	↑	34.77, 704.56	3.29	0.03	61,513,680 **	-55,728,148, 55,728,888
Trinity	431120	14189.99	14303.90	13804.63	14154.73	-236.19***	↓	↓	-366.07, -106.32	-1.73	0.00	-101,828,376 ***	-55,992,188, 55,991,716
UnityPoint	502886	11689.16	11679.72	11720.20	12071.80	-361.05***	↑	↑	-484.67, -237.43	-3.14	0.00	-181,564,592 ***	-62,167,044, 62,166,320
2017 Cohort													
APA	131500	19775.30	21279.25	19331.82	21714.63	-878.86***	↓	↑	-1,201.96, -555.76	-4.62	0.00	-115,569,968 ***	-42,488,964, 42,487,204
Arizona	144820	13666.66	14102.80	13008.91	13737.75	-292.71*** §	↓	↓	-490.40, -95.01	-2.29	0.00	-42,389,988 *** §	-28,630,612, 28,630,026
Atrius	172542	14003.98	14943.41	12673.72	14017.67	-404.52***	↓	↓	-624.47, -184.57	-3.08	0.00	-69,796,672 ***	-37,950,248, 37,949,436
Carillion	234320	11268.44	11525.28	11724.82	12282.28	-300.63***	↑	↑	-455.94, -145.33	-2.75	0.00	-70,443,936 ***	-36,391,308, 36,390,708
Indiana U	266270	14280.89	14092.58	13440.16	13945.02	-693.17*** §	↓	↓	-961.56, -424.79	-5.04	0.00	-184,570,944 *** §	-71,463,112, 71,461,728
ProHealth	76472	12059.72	12186.05	11588.33	12536.79	-822.14*** §	↓	↑	-1,118.08, -526.19	-6.78	0.00	-62,870,336 *** §	-22,632,334, 22,630,690
ProspectNE	66566	14987.17	15191.97	14442.23	15135.13	-488.10***	↓	↓	-771.35, -204.85	-3.43	0.00	-32,490,982 ***	-18,855,286, 18,854,310
PSW	69896	12033.13	12062.33	9932.18	10526.03	-564.65***	↓	↓	-862.52, -266.77	-5.13	0.00	-39,466,600 ***	-20,820,694, 20,819,564
St. Luke's	141206	11718.24	11724.34	11280.88	11810.25	-523.28***	↓	↑	-761.41, -285.14	-4.63	0.00	-73,889,672 ***	-33,626,256, 33,625,212
UNC	130190	12334.25	12461.82	11355.69	11841.33	-358.07***	↓	↓	-595.32, -120.82	-3.03	0.00	-46,617,496 ***	-30,887,706, 30,886,990
UTSW	419475	15947.44	16207.02	14859.39	15641.94	-522.97***	↓	↓	-681.80, -364.14	-3.38	0.00	-219,373,184 ***	-66,625,972, 66,624,924
2018 Cohort													
ACC of TN	92941	11182.40	11228.08	10496.26	11082.20	-540.26***	↓	↓	-742.98, -337.53	-5.23	0.00	-50,211,928 ***	-18,841,830, 18,840,750

NGACO Name	# aligned beneficiaries	Baseline Years: BY 3–BY 1		As of PY 6 (2021)		Total Spending Cumulatively as of PY 6 Difference-in-Differences							
		NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact	p	Aggregate	Aggregate 95% CI
Best Care Collab	65871	13564.46	13136.86	13018.97	13339.81	-748.44***	⬇	⬆	-1,024.14, -472.74	-5.89	0.00	-49,300,732 ***	-18,161,362, 18,159,864
CareMount	96270	13984.17	13544.40	13718.08	13779.81	-501.51*** §	⬇	⬆	-772.99, -230.02	-3.69	0.00	-48,279,980 *** §	-26,136,378, 26,135,376
Central Utah	58459	12343.26	12744.71	12110.47	13181.27	-669.34***	⬇	⬆	-1,103.63, -235.05	-5.42	0.00	-39,129,040 ***	-25,388,658, 25,387,318
Franciscan	88412	13035.94	14330.68	12175.40	13887.55	-417.41***	⬇	⬇	-702.16, -132.67	-3.39	0.00	-36,904,260 ***	-25,175,106, 25,174,272
Mary Washington	51381	13208.09	12768.51	12903.19	13082.16	-618.54***	⬇	⬆	-977.90, -259.19	-4.77	0.00	-31,781,396 ***	-18,464,776, 18,463,540
NEQCA	122303	16271.07	16370.42	15775.75	16189.63	-314.52**	⬇	⬇	-574.73, -54.32	-2.07	0.02	-38,467,336 **	-31,824,020, 31,823,392
Primary Care Alliance	49801	13482.79	14437.52	12649.96	14310.85	-706.16***	⬇	⬇	-996.36, -415.96	-5.61	0.00	-35,167,616 ***	-14,453,042, 14,451,629
Primaria	103468	13873.28	14132.55	12855.07	14279.97	-1,165.62***	⬇	⬆	-1,541.57, -789.67	-8.73	0.00	-120,604,760 ***	-38,900,076, 38,897,744
Reliance	45428	15362.85	16697.56	15034.83	16087.79	281.76*	⬇	⬇	-52.00, 615.52	2.10	0.10	12,799,789 *	-15,161,688, 15,162,252
Reliant	41935	14998.04	17054.90	14015.01	16216.53	-144.66	⬇	⬇	-679.18, 389.86	-1.04	0.60	-6,066,457	-22,415,278, 22,414,990
Torrance	45654	17707.69	17649.95	14723.15	15978.35	-1,312.94***	⬇	⬇	-1,743.14, -882.75	-7.91	0.00	-59,941,132 ***	-19,641,514, 19,638,888
UW Health	102648	11611.96	11100.70	10582.20	10251.14	-180.21	⬇	⬇	-429.08, 68.67	-1.72	0.16	-18,497,730	-25,546,922, 25,546,560

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Direction of change (difference) in impact estimates for NGACO group and for comparison groups denoted as arrow up (increase) or arrow down (decrease). Percentage impact is relative to expected average outcome for NGACO beneficiaries in PYs, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries across the four PYs.

Exhibit K.11. NGACO-Level PY 6 (2021) Impact on Total Medicare Parts A & B Spending

NGACO Name	# aligned beneficiaries	Baseline Years: BY 3–BY 1		2019		Total Spending in PY 6 Difference-in-Differences							
		NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact	p	Aggregate	Aggregate 95% CI
2016 Cohort													
ACCST	9092	18528.36	19903.07	15885.69	19259.66	-1999.26***	-2642.67	-643.41	-2,935, -1,063	-10.5164	0.000	-1.8E+07	-26,686,764, -9,667,772
Bellin	12589	10357.72	10997.88	10539.04	11026.48	152.72	181.3203	28.60059	-514, 819	1.595019	0.653	1922552	-6,466,972, 10,312,076
CHESS	25879	12757.45	12829.07	14171.34	14269.99	-27.02	1413.89	1440.92	-655, 601	-0.21656	0.933	-699342	-16,949,370, 15,550,686
Deaconess	13826	13133.83	12934.64	12003.58	13120.61	-1316.21**	-1130.25	185.9707	-2,426, -206	-9.2002	0.020	-1.8E+07	-33,545,409, -2,850,519
Henry Ford	21007	16323.72	15798.16	16101.17	15045.53	530.07*	-222.55	-752.63	-93, 1,153	3.82569	0.096	11135214	-1,959,180, 24,229,608
Park Nicollet	20243	12245.54	12983.76	12777.42	13152.04	363.60	531.8799	168.2803	-195, 922	3.00075	0.202	7360264	-3,951,676, 18,672,204
Pioneer Valley	32267	14156.81	14489.9	12911.12	13209.46	34.75	-1245.69	-1280.44	-631, 701	0.270992	0.919	1121314	-20,366,585, 22,609,213
ThedaCare	14215	10693.58	11182.69	10512.55	11056.78	-55.11	-181.03	-125.91	-904, 793	-0.52079	0.899	-783415	-12,845,621, 11,278,791
Triad	26021	12020.39	12656.03	13192.78	13504.14	324.29	1172.391	848.1094	-641, 1,289	2.815964	0.510	8438268	-16,671,101, 33,547,637
Trinity	66247	14141.6	14298.53	13175.42	14034.9	-702.55***	-966.18	-263.63	-1,063, -342	-5.08307	0.000	-4.7E+07	-70,424,370, -22,659,550
UnityPoint	95528	11649.71	11511.08	11852.81	12264.75	-550.57***	203.0996	753.6699	-876, -225	-4.65449	0.001	-5.3E+07	-83,695,514, -21,494,478
2017 Cohort													
APA	25645	19547.68	20844.99	17233.52	19917.72	-1386.89***	-2314.16	-927.27	-2,077, -696	-7.3498	0.000	-3.6E+07	-53,276,435, -17,857,013
Arizona	31644	13704.53	14208.25	12737.35	13589	-347.92 §	-967.181	-619.25	-796, 100	-2.70092	0.128	-1.1E+07	-25,182,189, 3,162,721
Atrius	30502	13833.38	14975.69	12468.58	13832.92	-222.02	-1364.8	-1142.77	-781, 337	-1.68831	0.436	-6772060	-23,816,391, 10,272,271
Carillion	44086	11271.25	11483.09	11327.79	12111.4	-571.78***	56.54004	628.3105	-935, -209	-5.2097	0.002	-2.5E+07	-41,204,352, -9,210,468
Indiana U	55151	13996.91	13921.19	12883.27	14183.94	-1376.39*** §	-1113.64	262.75	-1,998, -755	-9.74508	0.000	-7.6E+07	-110,176,352, -41,641,680
ProHealth	14723	12001.67	12253.11	11906.88	12825.96	-667.64*	-94.79	572.8496	-1,452, 117	-5.47645	0.095	-9829710	-21,385,123, 1,725,703
ProspectNE	12878	14834.34	15236.1	14363.93	15457.42	-691.73*	-470.41	221.3203	-1,386, 3	-4.89647	0.051	-8908106	-17,848,834, 32,622
PSW	26819	12036.47	12257.6	9778.63	10490.64	-490.88**	-2257.84	-1766.96	-958, -23	-4.49238	0.040	-1.3E+07	-25,700,207, -629,717
St. Luke's	28833	11712.87	11706.75	10963.07	11322.74	-365.79	-749.8	-384.01	-904, 173	-3.35178	0.183	-1.1E+07	-26,071,866, 4,978,460
UNC	28773	12245.18	12413.86	10613.17	11472.78	-690.94***	-1632.01	-941.08	-1,201, -181	-5.7867	0.008	-2E+07	-34,562,821, -5,198,119
UTSW	97352	15750.79	15912.15	14140.74	15097.58	-795.48***	-1610.05	-814.57	-1,143, -448	-5.11672	0.000	-7.7E+07	-111,303,067, -43,580,197
2018 Cohort													
ACC of TN	29210	11178.31	11247.02	10591.86	11088.34	-427.76**	-586.449	-158.68	-806, -50	-4.17752	0.027	-1.2E+07	-23,540,897, -1,448,805
Best Care Collab	17256	13106.6	13008.25	12884.31	13334.39	-548.43*	-222.29	326.1396	-1,106, 9	-4.43949	0.054	-9463682	-19,086,164, 158,800
CareMount	25838	13883.73	13495.95	13035.63	14021.55	-1373.69***	-848.101	525.5996	-1,866, -882	-9.52888	0.000	-3.5E+07	-48,204,319, -22,782,425

| | | Baseline Years: | | | Total Spending in PY 6 | | | | | | | |
| | | BY 3–BY 1 | | 2019 | | Difference-in-Differences | | | | | | | |
NGACO Name	# aligned beneficiaries	NGACO mean	Comparison mean	NGACO mean	Comparison mean	DID estimate	NGACO diff.	Comp. diff.	95% confidence interval (CI)	% impact	p	Aggregate	Aggregate 95% CI
Central Utah	14769	12363.41	12787.98	12034.33	13264.27	-805.36*	-329.08	476.2891	-1,654, 43	-6.48114	0.063	-1.2E+07	-24,429,429, 640,683
Franciscan	22143	13301.81	14387.8	11946.65	13424.68	-392.03	-1355.16	-963.12	-979, 195	-3.10009	0.191	-8680708	-21,687,010, 4,325,594
Mary Washington	10019	13368.95	12935.91	12658.89	13351.06	-1125.20***	-710.061	415.1494	-1,923, -327	-8.32616	0.006	-1.1E+07	-19,268,507, -3,278,345
NEQCA	28219	15841.95	16074.66	14512.92	15603.94	-858.30***	-1329.03	-470.72	-1,385, -332	-5.6856	0.001	-2.4E+07	-39,070,226, -9,370,686
Primary Care Alliance	12607	13315.34	14302.94	12442.96	14612.12	-1181.56***	-872.38	309.1797	-1,825, -538	-9.27651	0.000	-1.5E+07	-23,010,941, -6,781,023
Primaria	24424	14102.4	14304.68	12633.74	14349.87	-1513.85***	-1468.66	45.19043	-2,641, -387	-10.857	0.008	-3.7E+07	-64,506,181, -9,442,307
Reliance	10430	15303.33	16755.24	14660.7	15384.51	728.10*	-642.63	-1370.73	-33, 1,489	5.536971	0.061	7594106	-341,334, 15,529,546
Reliant	10742	15038.06	16819.55	13248.98	16124.84	-1094.37*	-1789.08	-694.711	-2,197, 8	-7.54133	0.052	-1.2E+07	-23,595,364, 83,902
Torrance	11363	17880.82	17510	14365.02	15745.89	-1751.70***	-3515.8	-1764.11	-2,715, -789	-9.95555	0.000	-2E+07	-30,848,068, -8,961,004
UW Health	24912	11695.55	11225.38	10022.99	10026.46	-473.64*	-1672.56	-1198.92	-996, 48	-4.33905	0.075	-1.2E+07	-24,800,794, 1,202,348

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Direction of change (difference) in impact estimates for NGACO group and for comparison groups denoted as arrow up (increase) or arrow down (decrease). Percentage impact is relative to expected average outcome for NGACO beneficiaries in PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries in PY 6.

Exhibit K.12. NGACO-Level Cumulative (2016–2021) Impact on Select Spending Categories (Acute Care Hospital, SNF, Other PAC, and Outpatient Facility), 2016 Cohort

| | # of NGACO beneficiaries as of PY6 | Spending ($ PBPY) | | | | | | | | | | | |
| | | Acute care hospital facility | | | SNF | | | Other PAC facility | | | Outpatient facility | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	85542	-157.10***	-264.91, -49.28	-3.71	-17.56	-54.90, 19.78	-2.52	-54.39*	-114.58, 5.80	-4.69	-174.27*** §	-240.27, -108.26	-6.51
Bellin	66494	-117.94**	-221.95, -13.93	-4.31	113.05***	66.73, 159.37	16.69	-56.09***	-79.23, -32.96	-31.86	83.51	-23.02, 190.05	2.66
CHESS	133688	24.65 §	-63.92, 113.21	0.71	-2.76	-32.65, 27.13	-0.37	-49.08***	-79.27, -18.89	-16.73	230.92***	158.55, 303.30	8.80
Deaconess	160267	-30.38 §	-127.67, 66.92	-0.85	-50.58* §	-101.79, 0.62	-4.08	-20.31	-59.07, 18.44	-3.63	-55.91	-144.53, 32.71	-1.76
Henry Ford	137450	-100.46*	-205.80, 4.88	-1.80	-37.82** §	-73.73, -1.91	-3.21	-3.55	-33.22, 26.11	-0.81	342.66***	269.96, 415.35	9.85
Park Nicollet	95210	83.55 §	-31.94, 199.05	2.10	7.40	-37.90, 52.70	0.76	-5.40	-26.72, 15.92	-5.04	-161.94***	-251.20, -72.69	-5.74
Pioneer Valley	224917	21.33	-90.34, 133.00	0.45	-126.35*** §	-166.20, -86.50	-12.87	18.28	-9.97, 46.54	4.74	6.33	-74.14, 86.80	0.22
ThedaCare	87614	-102.58	-237.87, 32.71	-3.20	90.42***	30.44, 150.40	11.01	-44.40*	-92.29, 3.49	-24.94	33.81 §	-100.62, 168.25	1.09
Triad	166404	80.43	-51.10, 211.95	2.29	-36.39	-83.69, 10.90	-5.31	-25.05	-63.70, 13.59	-10.30	316.84***	195.71, 437.96	12.97
Trinity	431120	-97.54***	-156.17, -38.91	-2.12	-107.68***	-129.97, -85.39	-9.20	-19.02* §	-38.28, 0.24	-4.53	-59.12***	-96.41, -21.83	-2.16
UnityPoint	502886	-24.22	-72.99, 24.55	-0.74	-64.83***	-86.79, -42.87	-8.28	-18.86** §	-34.32, -3.41	-7.39	-167.20*** §	-205.09, -129.31	-5.89

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2016 cohort) as of PY 6. "Other post-acute care facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. PAC=post-acute care, PBPY=per beneficiary per year, SNF=skilled nursing facility.

Exhibit K.13. NGACO-Level Cumulative (2016–2021) Impact on Select Spending Categories (Professional Services, Home Health, Hospice, and Durable Medical Equipment), 2016 Cohort

	# of NGACO beneficiaries as of PY 6	Spending ($ PBPY)											
		Professional services			Home health			Hospice			Durable medical equipment		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	85542	-55.70 §	-123.85, 12.45	-1.26	-100.60***	-127.14, -74.06	-8.84	-78.02***	-110.67, -45.36	-16.82	10.20	-16.53, 36.92	2.78
Bellin	66494	254.60***	207.40, 301.80	13.17	-3.72 §	-19.07, 11.64	-1.25	-77.74***	-116.13, -39.35	-19.18	-7.68	-31.64, 16.28	-2.81
CHESS	133688	-317.67*** §	-369.36, -265.97	-10.12	-26.17***	-40.33, -12.01	-4.67	-57.77***	-84.49, -31.06	-12.13	14.54	-3.40, 32.48	4.02
Deaconess	160267	-141.34***	-208.69, -74.00	-5.08	-14.82*	-32.26, 2.62	-2.87	-40.17**	-72.80, -7.54	-11.56	-9.88 §	-25.30, 5.53	-3.17
Henry Ford	137450	-43.79* §	-93.82, 6.23	-1.60	34.89*** §	19.17, 50.62	4.37	-22.43**	-44.72, -0.14	-6.26	68.02***	47.42, 88.62	21.35
Park Nicollet	95210	181.90***	117.55, 246.25	5.97	-2.63	-16.52, 11.26	-0.68	3.86	-26.87, 34.60	0.96	-4.21	-27.83, 19.40	-1.46
Pioneer Valley	224917	-36.49**	-65.38, -7.61	-1.32	6.44 §	-12.62, 25.51	0.91	-19.11	-47.99, 9.76	-5.85	-11.89	-31.16, 7.37	-3.84
ThedaCare	87614	-44.24	-109.47, 20.98	-1.82	-44.04*** §	-64.68, -23.40	-11.50	-158.41***	-218.52, -98.31	-25.88	1.41	-25.56, 28.39	0.48
Triad	166404	4.32	-50.74, 59.37	0.15	-23.93** §	-46.86, -1.00	-4.63	-54.27***	-94.21, -14.32	-11.54	7.54	-16.79, 31.87	2.37
Trinity	431120	-33.15**	-64.44, -1.86	-0.94	-19.69***	-28.80, -10.58	-2.92	-23.89***	-37.59, -10.19	-6.42	2.76	-5.62, 11.15	1.02
UnityPoint	502886	51.85***	18.27, 85.44	1.87	-19.99***	-26.38, -13.60	-6.31	-47.42*** §	-59.57, -35.28	-14.80	3.87	-6.05, 13.80	1.22

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2016 cohort) as of PY 6. Professional services include physician, other professional, and ancillary services rendered under Part B. PBPY=per beneficiary per year.

Exhibit K.14. NGACO-Level Cumulative (2016–2021) Impact for Select Utilization Outcomes (Acute Care Stays, SNF Stays, SNF Days, and ED Visits and Observation Stays), 2016 Cohort

| | # of NGACO beneficiaries as of PY 6 | Utilization (per 1,000 beneficiaries per year) | | | | | | | | | | | |
| | | Acute care stays | | | SNF stays | | | SNF days | | | ED visits & observation stays | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	85542	-10.22***	-15.62, -4.82	-3.57	-1.87*	-4.06, 0.32	-4.11	-20.35	-88.73, 48.02	-1.70	-17.82*** §	-27.18, -8.47	-3.51
Bellin	66494	-10.71***	-16.52, -4.91	-5.21	8.80***	5.85, 11.76	18.16	194.75***	106.68, 282.82	15.63	8.70	-4.98, 22.38	1.62
CHESS	133688	0.49 §	-4.39, 5.38	0.18	1.60	-0.54, 3.73	2.68	-4.00	-64.03, 56.03	-0.27	11.68** §	1.79, 21.58	2.06
Deaconess	160267	-1.87 §	-8.32, 4.58	-0.62	2.38	-0.74, 5.51	3.00	-55.90 §	-151.60, 39.79	-2.55	4.54 §	-7.43, 16.50	0.71
Henry Ford	137450	-3.16	-9.01, 2.68	-0.77	1.39 §	-1.44, 4.22	1.47	-28.54 §	-98.92, 41.84	-1.32	12.30** §	2.48, 22.12	1.86
Park Nicollet	95210	9.62*** §	3.56, 15.68	3.45	5.48***	2.61, 8.34	7.97	51.54	-17.05, 120.13	3.58	-13.92**	-27.07, -0.78	-2.33
Pioneer Valley	224917	-0.61	-6.59, 5.37	-0.20	-4.33*** §	-7.26, -1.39	-5.38	-208.33*** §	-277.00, -139.66	-13.12	8.33*	-1.33, 17.99	1.49
ThedaCare	87614	-6.70	-14.77, 1.38	-2.46	5.94***	2.24, 9.65	10.45	211.67***	101.29, 322.04	15.40	-4.44 §	-19.64, 10.76	-0.73
Triad	166404	2.67	-5.85, 11.20	0.97	1.81	-1.49, 5.11	3.44	-41.31	-135.85, 53.22	-3.10	28.93***	11.44, 46.42	4.88
Trinity	431120	-3.78**	-6.74, -0.82	-1.20	-1.72** §	-3.14, -0.30	-2.21	-176.28*** §	-214.38, -138.19	-9.33	-6.00** §	-11.23, -0.77	-1.15
UnityPoint	502886	-2.48*	-5.33, 0.37	-0.97	3.98*** §	2.57, 5.40	6.38	-23.43	-60.34, 13.47	-1.77	-47.66***	-53.18, -42.14	-9.00

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2016 cohort) as of PY 6. ED=emergency department, SNF=skilled nursing facility.

Exhibit K.15. NGACO-Level Cumulative (2016–2021) Impact for Select Utilization Outcomes (E&M Visits, Procedures, Tests, and Imaging Services), 2016 Cohort

| | # of NGACO beneficiaries as of PY 6 | Utilization (per 1,000 beneficiaries per year) | | | | | | | | | | | |
| | | E&M visits | | | Procedures | | | Tests | | | Imaging services | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	85542	-244.26***	-325.42, -163.11	-1.94	126.27**	2.04, 250.51	1.43	-339.46***	-569.74, -109.18	-1.24	-167.74***	-225.12, -110.36	-2.99
Bellin	66494	905.66*** §	797.00, 1,014.33	8.93	446.45***	276.87, 616.03	5.62	932.38***	692.48, 1,172.29	4.92	128.37***	66.79, 189.95	3.18
CHESS	133688	-337.83*** §	-424.55, -251.11	-2.64	-450.56*** §	-563.57, -337.55	-5.45	-534.71*** §	-734.98, -334.44	-2.24	-15.39 §	-66.67, 35.88	-0.32
Deaconess	160267	-161.29*** §	-248.30, -74.27	-1.38	-315.63***	-467.07, -164.19	-3.44	-478.37*** §	-723.32, -233.42	-2.18	35.59 §	-27.53, 98.71	0.70
Henry Ford	137450	33.61 §	-51.78, 119.00	0.23	138.46** §	11.19, 265.73	1.48	1,053.26*** §	869.07, 1,237.46	4.57	193.94*** §	146.05, 241.84	3.98
Park Nicollet	95210	101.09** §	6.46, 195.72	0.94	-549.41***	-678.74, -420.08	-6.68	-240.61*	-491.89, 10.66	-1.10	-117.67***	-173.89, -61.45	-2.66
Pioneer Valley	224917	-491.41*** §	-582.64, -400.18	-3.49	221.89*** §	114.97, 328.80	2.88	-118.99 §	-316.15, 78.17	-0.50	35.54 §	-12.35, 83.43	0.80
ThedaCare	87614	-440.34*** §	-545.63, -335.06	-4.51	-215.62**	-426.80, -4.44	-2.44	40.50 §	-303.78, 384.79	0.17	-99.96*** §	-174.24, -25.68	-2.32
Triad	166404	-166.78** §	-311.87, -21.69	-1.38	-40.28	-230.22, 149.67	-0.47	-649.97***	-962.97, -336.98	-2.85	-2.13	-84.76, 80.50	-0.05
Trinity	431120	-293.71*** §	-339.73, -247.70	-2.14	79.45*	-8.56, 167.46	0.73	-595.79*** §	-698.89, -492.69	-2.48	-33.05**	-61.88, -4.22	-0.66
UnityPoint	502886	215.74*** §	172.14, 259.34	1.99	-323.71*** §	-402.09, -245.33	-3.46	-384.48*** §	-499.37, -269.59	-1.75	-16.17	-43.61, 11.27	-0.36

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2016 cohort) as of PY 6. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. E&M=evaluation and management.

Exhibit K.16. NGACO-Level Cumulative (2016–2021) Impact for Select Utilization Outcomes (Beneficiaries with AWV, Home Health Episodes, and Home Health Visits), 2016 Cohort

| | # of NGACO beneficiaries as of PY 6 | Utilization (per 1,000 beneficiaries per year) | | | | | | | | |
| | | Beneficiaries with AWV | | | Home health episodes | | | Home health visits | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	85542	135.51*** §	131.61, 139.41	29.20	-17.68***	-22.13, -13.23	-9.87	-568.62***	-724.58, -412.65	-9.86
Bellin	66494	186.78*** §	181.14, 192.41	35.83	-0.87 §	-5.19, 3.45	-1.01	-30.48 §	-117.23, 56.27	-2.10
CHESS	133688	150.61*** §	146.38, 154.83	30.38	-8.00*** §	-11.89, -4.12	-5.14	-186.61***	-260.87, -112.35	-6.91
Deaconess	160267	100.58*** §	96.40, 104.76	42.74	-1.33 §	-5.07, 2.41	-1.18	-49.57	-152.58, 53.43	-1.84
Henry Ford	137450	60.99*** §	57.73, 64.25	19.39	8.99*** §	4.85, 13.13	3.97	228.60*** §	146.16, 311.05	6.28
Park Nicollet	95210	244.27*** §	240.07, 248.47	67.26	-3.10*	-6.39, 0.19	-3.01	-13.10	-84.81, 58.62	-0.78
Pioneer Valley	224917	68.01*** §	64.09, 71.93	19.27	4.22** §	0.05, 8.38	2.44	-16.21 §	-123.39, 90.97	-0.49
ThedaCare	87614	45.29*** §	40.33, 50.24	6.78	-9.51***	-15.38, -3.64	-8.35	-164.15*** §	-275.82, -52.48	-9.34
Triad	166404	57.01*** §	49.52, 64.49	12.66	-4.55	-10.71, 1.61	-3.25	-172.62*** §	-293.95, -51.29	-6.99
Trinity	431120	174.28*** §	172.42, 176.15	54.17	-5.47*** §	-7.58, -3.37	-3.38	-127.88*** §	-172.91, -82.84	-4.45
UnityPoint	502886	189.02*** §	186.51, 191.53	49.53	-4.17***	-6.02, -2.33	-4.62	-107.63***	-148.10, -67.16	-6.50

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2016 cohort) as of PY 6. AWV=annual wellness visit.

Exhibit K.17. NGACO-Level Cumulative (2016–2021) Impact for Quality of Care Outcomes, 2016 Cohort

	# of NGACO beneficiaries as of PY 6	Quality of Care (per 1,000 beneficiaries per year)								
		Beneficiaries with ACSC hospitalizations			Beneficiaries with unplanned 30-day readmissions			Beneficiaries with hospital readmissions from SNF		
		DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	85542	-1.34* §	-2.75, 0.06	-3.78	0.95	-6.20, 8.11	0.63	-1.07	-20.99, 18.84	-0.52
Bellin	66494	-4.03***	-5.72, -2.33	-16.50	-10.22**	-19.59, -0.86	-8.72	-5.64	-24.60, 13.32	-3.93
CHESS	133688	1.91***	0.52, 3.30	5.29	-6.69*	-14.00, 0.62	-4.48	-10.86	-26.14, 4.42	-6.01
Deaconess	160267	-2.08** §	-4.03, -0.13	-4.32	-2.60 §	-10.41, 5.21	-1.74	10.04	-5.14, 25.22	6.04
Henry Ford	137450	-1.09	-2.43, 0.24	-2.37	1.37	-4.58, 7.32	0.75	-5.29	-18.15, 7.56	-2.28
Park Nicollet	95210	3.19***	1.78, 4.60	11.16	2.50	-5.54, 10.54	1.74	-9.51	-25.51, 6.49	-5.68
Pioneer Valley	224917	-2.51***	-4.18, -0.85	-5.85	-6.78*	-14.74, 1.18	-4.00	2.74	-13.29, 18.78	1.36
ThedaCare	87614	-0.51	-2.41, 1.38	-1.93	-3.99	-14.25, 6.28	-3.49	-10.22 §	-31.09, 10.66	-7.67
Triad	166404	1.30	-0.93, 3.54	3.57	3.08	-7.53, 13.68	2.17	24.55**	4.53, 44.57	15.77
Trinity	431120	0.81**	0.14, 1.48	2.36	-2.07 §	-5.57, 1.44	-1.41	0.12	-7.05, 7.28	0.06
UnityPoint	502886	-1.96*** §	-2.74, -1.19	-5.88	-2.42	-6.37, 1.54	-1.76	-7.93*	-15.96, 0.10	-4.63

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2016 cohort) as of PY 6. ACSC=ambulatory care-sensitive condition, SNF=skilled nursing facility.

Exhibit K.18. NGACO-Level Cumulative (2016–2021) Impact on Select Spending Categories (Acute Care Hospital, SNF, Other PAC, and Outpatient Facility), 2017 Cohort

	# of NGACO beneficiaries as of PY 6	Spending ($ PBPY)											
		Acute care hospital facility			SNF			Other PAC facility			Outpatient facility		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	131500	-235.24***	-336.98, -133.50	-4.75	-72.75***	-119.38, -26.11	-4.90	-67.49***	-103.61, -31.36	-9.92	-41.02	-106.63, 24.60	-1.71
Arizona	144820	-77.59** §	-151.39, -3.78	-2.38	-52.19***	-73.59, -30.79	-9.75	19.17	-6.90, 45.24	5.18	-157.35*** §	-209.22, -105.49	-8.40
Atrius	172542	-114.58** §	-214.05, -15.12	-2.59	-16.84 §	-47.78, 14.11	-1.92	-11.24	-34.94, 12.47	-3.51	-58.75*	-121.05, 3.55	-2.20
Carillion	234320	-115.02***	-182.06, -47.99	-3.30	-42.75***	-67.66, -17.84	-5.14	-9.30	-23.60, 5.01	-4.63	-71.49***	-118.38, -24.60	-2.74
Indiana U	266270	-35.34	-112.68, 42.00	-0.91	-38.40**	-70.89, -5.90	-3.43	-16.09 §	-35.70, 3.51	-5.58	-28.34 §	-98.51, 41.84	-0.91
ProHealth	76472	-306.27*** §	-424.19, -188.36	-8.82	-4.32 §	-45.35, 36.72	-0.66	36.85 §	-8.98, 82.67	7.74	-90.02*	-195.61, 15.56	-2.84
ProspectNE	66566	-48.31	-169.21, 72.59	-1.02	-147.76***	-195.84, -99.68	-11.20	11.16	-8.80, 31.13	7.65	-388.13***	-464.16, -312.09	-13.51
PSW	69896	-192.81***	-317.04, -68.58	-5.97	-96.84***	-159.94, -33.73	-11.61	8.15	-12.90, 29.20	12.99	-58.72	-174.49, 57.04	-2.03
St. Luke's	141206	-162.11***	-261.93, -62.29	-5.28	-69.09***	-105.88, -32.30	-12.99	-14.56	-46.19, 17.07	-6.98	-93.12*	-194.33, 8.09	-2.50
UNC	130190	-71.56	-169.24, 26.12	-1.92	-37.31**	-70.71, -3.91	-4.82	-6.94	-32.24, 18.35	-3.22	-168.31***	-253.45, -83.18	-6.01
UTSW	419475	-114.15***	-171.52, -56.78	-2.78	-20.06* §	-42.16, 2.03	-2.18	-89.58***	-118.15, -61.01	-9.25	89.15***	47.95, 130.34	3.72

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2017 cohort) as of PY 6. "Other PAC facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. PAC=post-acute care, PBPY=per beneficiary per year, SNF=skilled nursing facility.

Exhibit K.19. NGACO-Level Cumulative (2016–2021) Impact on Select Spending Categories (Professional Services, Home Health, Hospice, and Durable Medical Equipment), 2017 Cohort

	# of NGACO beneficiaries as of PY 6	Spending ($ PBPY)											
		Professional services			Home health			Hospice			Durable medical equipment		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	131500	-45.70* §	-93.99, 2.58	-1.09	-154.41***	-181.17, -127.65	-8.18	-16.56	-57.25, 24.13	-2.32	-0.50 §	-12.03, 11.04	-0.23
Arizona	144820	-73.50**	-144.93, -2.07	-1.52	-22.82***	-33.68, -11.97	-5.68	-10.92	-37.84, 15.99	-2.08	12.34	-3.01, 27.69	4.63
Atrius	172542	-49.75***	-87.16, -12.33	-1.56	-3.55 §	-19.51, 12.40	-0.47	-26.62*	-53.27, 0.03	-6.41	-26.86***	-45.67, -8.05	-11.40
Carillion	234320	2.04	-33.59, 37.67	0.08	-9.40	-21.16, 2.35	-1.81	8.66	-11.63, 28.95	2.52	-23.37***	-39.46, -7.29	-7.28
Indiana U	266270	-364.61***	-448.35, -280.86	-12.35	-24.63***	-35.25, -14.01	-5.66	-34.94***	-58.17, -11.72	-8.49	10.66	-3.70, 25.01	3.00
ProHealth	76472	-82.12*** §	-124.76, -39.49	-3.14	-8.74 §	-25.15, 7.68	-2.38	-52.68*** §	-86.74, -18.62	-12.45	-20.82	-52.01, 10.37	-7.92
ProspectNE	66566	66.51**	14.42, 118.61	1.96	-4.28	-27.51, 18.95	-0.51	-30.55**	-60.68, -0.42	-7.25	8.66 §	-8.90, 26.23	3.52
PSW	69896	-215.92***	-287.54, -144.30	-7.38	0.80 §	-16.69, 18.29	0.24	3.71	-30.28, 37.71	1.39	-3.52	-18.81, 11.77	-1.53
St. Luke's	141206	-187.97***	-233.90, -142.04	-8.63	-36.67***	-56.73, -16.61	-7.05	-58.55***	-101.37, -15.73	-10.47	-18.50	-48.65, 11.64	-5.24
UNC	130190	-178.96*** §	-255.70, -102.21	-5.74	15.58**	0.82, 30.33	3.10	-32.09**	-60.63, -3.56	-7.07	-39.11***	-61.55, -16.67	-10.82
UTSW	419475	-205.36***	-249.97, -160.74	-4.64	-97.99*** §	-111.88, -84.10	-8.79	-45.94*** §	-64.95, -26.93	-8.01	6.71	-7.79, 21.21	1.84

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2017 cohort) as of PY 6. Professional services include physician, other professional, and ancillary services rendered under Part B. PBPY=per beneficiary per year.

Exhibit K.20. NGACO-Level Cumulative (2016–2021) Impact on Select Utilization Outcomes (Acute Care Stays, SNF Stays, SNF Days, and ED Visits and Observation Stays), 2017 Cohort

| | # of NGACO beneficiaries as of PY 6 | Utilization (per 1,000 beneficiaries per year) | | | | | | | | | | | |
| | | Acute care stays | | | SNF stays | | | SNF days | | | ED visits & observation stays | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	131500	-6.42***	-10.64, -2.20	-2.40	-0.58 §	-2.55, 1.38	-0.93	-39.67 §	-102.68, 23.33	-2.12	-0.69	-7.87, 6.48	-0.19
Arizona	144820	-1.59 §	-5.45, 2.26	-0.72	-2.46***	-4.01, -0.91	-6.00	-76.11***	-112.08, -40.14	-8.87	-6.02 §	-13.71, 1.67	-1.27
Atrius	172542	2.85	-2.04, 7.73	1.01	0.93	-1.30, 3.16	1.31	-5.75 §	-55.47, 43.96	-0.44	-15.36***	-23.40, -7.33	-3.18
Carillion	234320	-3.83*	-7.68, 0.02	-1.44	-1.70* §	-3.52, 0.13	-2.60	-31.21	-83.82, 21.39	-1.87	4.17 §	-3.77, 12.11	0.74
Indiana U	266270	3.78*	-0.39, 7.95	1.33	-0.53	-2.70, 1.63	-0.69	-52.74*	-115.09, 9.61	-2.65	-26.53*** §	-35.23, -17.84	-4.26
ProHealth	76472	-6.79* §	-13.72, 0.15	-2.48	3.81*** §	0.96, 6.65	7.99	19.17	-57.48, 95.82	1.73	-24.34***	-38.15, -10.54	-4.26
ProspectNE	66566	-7.13**	-13.51, -0.75	-2.32	-2.30	-5.59, 0.98	-2.53	-154.37***	-233.87, -74.87	-7.61	-48.89***	-59.72, -38.05	-8.46
PSW	69896	-11.30***	-17.15, -5.46	-5.71	-3.97*** §	-6.66, -1.27	-8.53	-159.85***	-238.73, -80.98	-13.37	-43.16***	-55.02, -31.30	-8.71
St. Luke's	141206	-4.31	-9.93, 1.31	-2.02	-0.46	-2.89, 1.98	-1.14	-87.57***	-142.70, -32.43	-10.73	3.32 §	-6.70, 13.35	0.72
UNC	130190	-5.72**	-11.22, -0.21	-2.04	0.35	-1.96, 2.65	0.61	-56.79*	-123.53, 9.96	-3.92	0.74 §	-10.14, 11.61	0.13
UTSW	419475	-4.84***	-7.94, -1.74	-1.66	0.77	-0.60, 2.14	1.27	-13.86	-55.23, 27.52	-0.87	1.03	-4.64, 6.69	0.19

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2017 cohort) as of PY 6. ED=emergency department, SNF=skilled nursing facility.

Exhibit K.21. NGACO-Level Cumulative (2016–2021) Impact on Select Utilization Outcomes (E&M Visits, Procedures, Tests, and Imaging Services), 2017 Cohort

	# of NGACO beneficiaries as of PY 6	Utilization (per 1,000 beneficiaries per year)											
		E&M visits			Procedures			Tests			Imaging services		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	131500	-128.05*** §	-198.81, -57.28	-0.92	-33.04 §	-195.74, 129.66	-0.28	1,326.51*** §	1,143.62, 1,509.40	4.84	-107.46*** §	-152.92, -62.00	-2.15
Arizona	144820	-422.06*** §	-497.90, -346.21	-3.10	-241.67*** §	-423.64, -59.70	-1.70	4.14	-171.55, 179.82	0.02	-139.08*** §	-187.76, -90.40	-2.53
Atrius	172542	-691.67*** §	-769.47, -613.87	-5.26	-151.74**	-277.84, -25.63	-1.58	-332.80*** §	-526.88, -138.71	-1.38	-59.72*** §	-104.94, -14.49	-1.25
Carillion	234320	-226.18*** §	-284.87, -167.49	-1.93	-112.53***	-198.15, -26.91	-1.49	357.36*** §	234.12, 480.61	1.80	-25.49	-62.25, 11.28	-0.60
Indiana U	266270	-415.57*** §	-476.65, -354.49	-3.50	-238.79*** §	-345.25, -132.32	-2.61	-353.26*** §	-506.24, -200.28	-1.56	102.64*** §	60.08, 145.19	2.16
ProHealth	76472	199.77*** §	95.11, 304.43	1.84	-782.81*** §	-987.75, -577.88	-7.68	-864.71*** §	-1,140.74, -588.68	-3.63	-44.75 §	-109.73, 20.24	-0.99
ProspectNE	66566	-414.00*** §	-514.09, -313.91	-2.99	-26.70	-205.09, 151.69	-0.25	-705.76***	-943.56, -467.96	-2.65	-92.74***	-151.08, -34.40	-1.91
PSW	69896	-385.42*** §	-481.15, -289.69	-3.77	-455.84***	-638.43, -273.24	-4.99	-1,254.97***	-1,527.50, -982.44	-6.35	-161.91***	-221.83, -101.98	-3.99
St. Luke's	141206	-640.85***	-759.22, -522.48	-4.61	-580.43***	-748.60, -412.26	-6.12	-274.36***	-471.53, -77.20	-1.44	-174.99***	-229.28, -120.70	-4.28
UNC	130190	-701.79***	-786.47, -617.11	-5.43	-454.48*** §	-591.73, -317.23	-4.72	-1,166.29*** §	-1,357.40, -975.17	-4.94	-35.70	-89.22, 17.82	-0.75
UTSW	419475	-369.15*** §	-417.83, -320.48	-2.76	-24.01	-106.23, 58.20	-0.23	-70.30 §	-192.74, 52.15	-0.26	-32.75* §	-66.56, 1.07	-0.58

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2017 cohort) as of PY 6. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. E&M=evaluation and management.

Exhibit K.22. NGACO-Level Cumulative (2016–2021) Impact on Select Utilization Outcomes (Beneficiaries with AWV, Home Health Episodes, and Home Health Visits), 2017 Cohort

| | # of NGACO beneficiaries as of PY 6 | Utilization (per 1,000 beneficiaries per year): | | | | | | | | |
| | | Beneficiaries with AWV | | | Home health episodes | | | Home health visits | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	131500	108.36*** §	104.78, 111.94	26.90	-37.75***	-42.24, -33.27	-11.41	-575.05***	-701.08, -449.01	-7.59
Arizona	144820	51.37*** §	47.82, 54.91	11.51	-6.52***	-9.27, -3.78	-5.98	-127.20***	-182.90, -71.51	-7.20
Atrius	172542	10.69*** §	7.20, 14.17	2.12	-1.26	-4.91, 2.40	-0.67	10.52 §	-67.37, 88.41	0.34
Carillion	234320	37.48*** §	34.35, 40.62	10.27	0.56	-2.48, 3.60	0.40	-60.45	-139.60, 18.69	-2.07
Indiana U	266270	46.56*** §	44.16, 48.95	22.56	-6.04***	-8.73, -3.35	-5.28	-158.87***	-218.48, -99.26	-7.55
ProHealth	76472	93.89*** §	88.74, 99.05	17.04	2.27	-2.13, 6.67	2.28	-174.71*** §	-271.25, -78.17	-9.69
ProspectNE	66566	138.54*** §	134.08, 143.00	29.67	-0.81	-5.66, 4.04	-0.42	-2.48	-136.36, 131.40	-0.06
PSW	69896	107.27*** §	102.16, 112.38	35.51	2.17 §	-2.12, 6.47	2.57	-20.44 §	-91.73, 50.85	-1.67
St. Luke's	141206	120.14***	115.04, 125.24	23.02	-11.98***	-17.01, -6.96	-9.10	-241.43***	-362.95, -119.91	-8.73
UNC	130190	14.10*** §	9.94, 18.26	3.76	6.27***	2.32, 10.22	4.46	44.78	-33.34, 122.89	1.95
UTSW	419475	11.60*** §	9.28, 13.91	3.22	-34.71*** §	-37.90, -31.51	-15.15	-539.61*** §	-624.83, -454.39	-9.60

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2017 cohort) as of PY 6. AWV=annual wellness visit.

Exhibit K.23. NGACO-Level Cumulative (2016–2021) Impact on Quality of Care Outcomes, 2017 Cohort

	# of NGACO beneficiaries as of PY 6	Quality of Care (per 1,000 beneficiaries per year)								
		Beneficiaries with ACSC hospitalizations			Beneficiaries with unplanned 30-day readmissions			Beneficiaries with hospital readmissions from SNF		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	131500	-1.24** §	-2.42, -0.05	-3.29	-1.36 §	-7.79, 5.06	-0.79	2.68	-10.70, 16.06	1.24
Arizona	144820	-0.04	-0.99, 0.92	-0.16	2.83	-3.09, 8.76	2.25	-1.01	-17.29, 15.27	-0.57
Atrius	172542	0.28	-0.86, 1.41	0.86	-1.08	-7.25, 5.08	-0.73	-10.45	-23.06, 2.17	-5.78
Carillion	234320	0.94* §	-0.02, 1.90	2.79	7.46***	2.32, 12.59	5.38	3.21	-7.89, 14.31	1.81
Indiana U	266270	0.90 §	-0.22, 2.03	2.39	-2.71	-8.28, 2.85	-1.85	1.48 §	-9.36, 12.32	0.85
ProHealth	76472	0.71 §	-0.95, 2.38	2.26	1.95	-6.71, 10.61	1.41	3.15 §	-16.95, 23.26	1.76
ProspectNE	66566	-2.11**	-3.84, -0.39	-4.86	0.18	-7.89, 8.25	0.11	-14.16*	-28.86, 0.54	-7.04
PSW	69896	-1.68*	-3.36, 0.00	-8.58	1.25	-8.66, 11.16	1.12	6.02	-17.01, 29.04	4.02
St. Luke's	141206	1.55**	0.04, 3.06	7.04	-6.35	-15.29, 2.58	-5.58	-12.33 §	-32.85, 8.18	-8.89
UNC	130190	-0.84	-2.18, 0.51	-2.71	0.63	-6.53, 7.79	0.48	10.97	-5.03, 26.96	6.50
UTSW	419475	-0.94** §	-1.70, -0.19	-2.82	-3.31*	-7.21, 0.59	-2.28	-6.38	-15.88, 3.12	-3.43

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2017 cohort) as of PY 6. ACSC=ambulatory care-sensitive condition, SNF=skilled nursing facility.

Exhibit K.24. NGACO-Level Cumulative (2016–2021) Impact on Select Spending Categories (Acute Care Hospital, SNF, Other PAC, and Outpatient Facility), 2018 Cohort

	# of NGACO beneficiaries as of PY 6	Spending ($ PBPY)											
		Acute care hospital facility			SNF			Other PAC facility			Outpatient facility		
		DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACC of TN	92941	-67.47*	-137.30, 2.37	-2.55	-47.77***	-75.18, -20.35	-8.25	-24.86**	-48.63, -1.10	-11.88	-75.55** §	-138.74, -12.37	-3.68
Best Care Collab	65871	-156.18***	-261.70, -50.66	-4.82	-26.45	-67.58, 14.67	-3.22	-49.31**	-91.59, -7.03	-16.51	-45.45 §	-113.63, 22.74	-2.15
CareMount	96270	-339.82*** §	-501.31, -178.32	-5.97	-186.32*** §	-260.77, -111.87	-10.22	-37.25**	-68.99, -5.51	-11.36	-49.95	-135.02, 35.11	-1.86
Central Utah	58459	-129.31	-293.58, 34.97	-3.88	-110.24***	-183.50, -36.99	-13.16	22.42	-59.95, 104.80	4.01	-78.19	-199.48, 43.11	-3.32
Franciscan	88412	-42.28	-149.92, 65.37	-1.27	-2.04	-56.55, 52.46	-0.24	6.14	-47.02, 59.29	0.82	-50.77	-155.97, 54.43	-1.97
Mary Washington	51381	-157.68**	-288.51, -26.86	-4.27	-32.13	-76.76, 12.50	-4.43	-48.95**	-91.17, -6.74	-9.74	-77.88	-175.60, 19.84	-3.70
NEQCA	122303	-71.52	-182.75, 39.71	-1.50	-23.95	-58.25, 10.35	-2.29	-16.49	-47.65, 14.67	-3.86	-96.77***	-167.71, -25.82	-3.24
Primary Care Alliance	49801	-303.05***	-427.42, -178.67	-9.08	-23.50	-71.70, 24.70	-2.70	-21.78	-56.88, 13.33	-8.77	-6.80	-85.34, 71.74	-0.39
Primaria	103468	-390.36***	-531.86, -248.86	-9.99	-209.59***	-256.25, -162.94	-20.06	-9.18 §	-53.56, 35.19	-1.96	-202.95*** §	-325.33, -80.58	-6.45
Reliance	45428	73.15	-53.29, 199.59	1.71	-35.47*	-73.40, 2.46	-4.30	14.46 §	-26.74, 55.65	4.25	100.31** §	13.03, 187.58	4.31
Reliant	41935	-33.08	-269.63, 203.46	-0.74	77.59** §	2.24, 152.93	8.80	-50.41**	-100.67, -0.15	-12.46	6.83	-117.81, 131.46	0.28
Torrance	45654	-418.02***	-626.57, -209.46	-7.54	17.73	-71.94, 107.40	1.20	-132.05***	-203.17, -60.94	-23.14	-533.86***	-695.74, -371.98	-16.15
UW Health	102648	39.55	-72.67, 151.77	1.14	13.42	-28.01, 54.86	1.85	28.41 §	-7.50, 64.32	11.27	68.50	-36.16, 173.17	2.01

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2018 cohort) as of PY 6. "Other post-acute care facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. PAC=post-acute care, PBPY=per beneficiary per year, SNF=skilled nursing facility.

Exhibit K.25. NGACO-Level Cumulative (2016–2021) Impact on Select Spending Categories (Professional Services, Home Health, Hospice, and Durable Medical Equipment), 2018 Cohort

	# of NGACO beneficiaries as of PY 6	Spending ($ PBPY)											
		Professional services			Home health			Hospice			Durable medical equipment		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACC of TN	92941	-129.10***	-221.15, -37.04	-3.53	-36.17*** §	-53.73, -18.62	-6.47	-44.83***	-77.13, -12.53	-11.02	-41.50***	-68.18, -14.83	-10.20
Best Care Collab	65871	-425.74***	-537.80, -313.69	-8.43	-30.63***	-52.70, -8.55	-4.37	-51.95**	-94.10, -9.80	-8.56	-2.89 §	-25.39, 19.61	-0.96
CareMount	96270	5.26	-60.77, 71.29	0.13	-24.00***	-40.05, -7.95	-4.48	30.11***	7.59, 52.63	12.68	-7.31	-26.38, 11.76	-2.80
Central Utah	58459	-112.15*	-240.95, 16.65	-3.11	-158.76***	-205.79, -111.72	-15.67	-100.63***	-166.45, -34.81	-15.04	-42.63***	-70.61, -14.65	-9.59
Franciscan	88412	-105.50***	-168.70, -42.30	-3.30	-78.27***	-103.53, -53.02	-9.16	-49.49***	-82.88, -16.10	-9.98	-10.58	-36.67, 15.52	-3.01
Mary Washington	51381	-78.38	-200.21, 43.44	-1.85	-21.52*	-44.52, 1.47	-3.65	-82.22***	-119.18, -45.26	-19.27	0.46	-17.30, 18.22	0.19
NEQCA	122303	-90.55***	-128.13, -52.97	-2.80	-8.78	-25.59, 8.02	-1.14	-18.71	-44.84, 7.42	-4.46	-5.25	-20.91, 10.42	-2.31
Primary Care Alliance	49801	-240.81***	-349.00, -132.61	-4.79	-62.91*** §	-83.22, -42.59	-10.05	-6.68	-57.20, 43.83	-1.28	-20.48*	-41.66, 0.71	-7.00
Primaria	103468	-191.09***	-292.33, -89.86	-6.78	-43.44*** §	-60.71, -26.17	-8.37	-38.24***	-66.48, -10.00	-10.11	-7.04	-29.69, 15.62	-1.95
Reliance	45428	-4.00	-70.75, 62.75	-0.11	-11.76	-29.94, 6.43	-2.01	-34.31**	-65.47, -3.16	-9.68	-10.87 §	-35.92, 14.19	-3.35
Reliant	41935	-4.84 §	-83.46, 73.77	-0.16	5.98	-30.81, 42.77	0.83	-37.18	-99.05, 24.68	-8.75	-21.43	-55.39, 12.53	-8.06
Torrance	45654	-421.49***	-533.41, -309.57	-8.32	2.21	-43.43, 47.85	0.16	-15.27 §	-66.93, 36.38	-2.72	-48.58***	-77.25, -19.90	-14.78
UW Health	102648	-117.64***	-158.08, -77.20	-6.15	1.83	-13.05, 16.72	0.55	-25.05	-68.28, 18.17	-3.92	8.03	-7.26, 23.32	3.40

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2018 cohort) as of PY 6. Professional services include physician, other professional, and ancillary services rendered under Part B. PBPY=per beneficiary per year.

Exhibit K.26. NGACO-Level Cumulative (2016–2021) Impact on Select Utilization Outcomes (Acute Care Stays, SNF Stays, SNF Days, and ED Visits and Observation Stays), 2018 Cohort

	# of NGACO beneficiaries as of PY 6	Utilization (per 1,000 beneficiaries per year)											
		Acute care stays			SNF stays			SNF days			ED visits & observation stays		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACC of TN	92941	-6.99***	-12.19, -1.80	-2.86	-0.53	-2.85, 1.79	-1.01	-102.20***	-172.50, -31.90	-7.49	-12.05***	-20.82, -3.29	-2.93
Best Care Collab	65871	-15.48***	-22.55, -8.40	-5.45	1.21 §	-2.00, 4.42	1.85	-6.54	-92.31, 79.22	-0.41	13.10**	2.20, 23.99	3.31
CareMount	96270	-24.76*** §	-30.91, -18.61	-7.60	-8.43*** §	-11.64, -5.22	-9.51	-255.26*** §	-368.97, -141.54	-9.55	14.53*** §	4.22, 24.83	3.08
Central Utah	58459	-13.04***	-22.72, -3.35	-5.55	-5.89***	-10.20, -1.59	-10.38	-150.30**	-269.00, -31.60	-10.81	-3.13 §	-22.32, 16.06	-0.61
Franciscan	88412	2.28	-4.71, 9.27	0.85	0.24	-3.03, 3.51	0.40	44.65	-75.95, 165.25	2.44	21.89***	8.72, 35.06	4.09
Mary Washington	51381	0.34	-7.23, 7.92	0.12	1.22	-1.71, 4.16	2.53	-35.75	-122.34, 50.84	-2.76	-41.36***	-55.14, -27.58	-8.02
NEQCA	122303	-0.71	-5.95, 4.53	-0.24	-0.72	-3.13, 1.68	-0.92	-28.13	-86.23, 29.98	-1.66	-26.24*** §	-35.82, -16.66	-4.90
Primary Care Alliance	49801	-28.13***	-36.04, -20.21	-9.95	-0.24	-3.76, 3.28	-0.37	-23.01	-131.42, 85.40	-1.29	30.51*** §	17.13, 43.89	7.18
Primaria	103468	-14.31***	-21.05, -7.57	-5.01	-6.92*** §	-10.05, -3.79	-9.71	-378.63***	-468.17, -289.09	-19.90	-45.34***	-58.23, -32.44	-7.65
Reliance	45428	-3.08	-10.60, 4.45	-0.93	0.45	-3.16, 4.06	0.59	-84.33**	-160.11, -8.55	-5.32	11.14* §	-1.60, 23.89	2.19
Reliant	41935	0.90	-10.15, 11.95	0.35	7.93*** §	2.74, 13.12	11.85	99.10 §	-34.43, 232.64	6.78	12.36	-8.89, 33.61	2.39
Torrance	45654	3.86	-4.93, 12.65	1.25	0.55	-3.67, 4.78	0.73	39.34	-96.32, 174.99	1.91	-9.58	-24.92, 5.75	-2.00
UW Health	102648	6.54**	0.22, 12.86	2.70	2.36 §	-0.49, 5.20	4.44	16.35	-65.92, 98.63	1.21	-0.06	-12.46, 12.35	-0.01

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2018 cohort) as of PY 6. ED=emergency department, SNF=skilled nursing facility.

Exhibit K.27. NGACO-Level Cumulative (2016–2021) Impact on Select Utilization Outcomes (E&M Visits, Procedures, Tests, and Imaging Services), 2018 Cohort

| | # of NGACO beneficiaries as of PY 6 | Utilization (per 1,000 beneficiaries per year) | | | | | | | | | | | |
| | | E&M visits | | | Procedures | | | Tests | | | Imaging services | | |
		DID estimate	95% confidence interval (CI)	% Impact	DID Estimate	95% CI	% Impact	DID Estimate	95% CI	% Impact	DID Estimate	95% CI	% Impact
ACC of TN	92941	-326.15*** §	-414.68, -237.61	-2.71	125.06	-73.25, 323.38	1.11	518.45*** §	328.38, 708.52	2.21	-57.47**	-110.86, -4.09	-1.20
Best Care Collab	65871	-378.22***	-492.53, -263.91	-2.74	-959.28***	-1,175.16, -743.40	-7.53	-1,012.58*** §	-1,270.65, -754.51	-4.10	-199.01***	-273.24, -124.77	-3.45
CareMount	96270	-302.65*** §	-393.70, -211.59	-2.23	-558.92***	-784.77, -333.07	-3.92	190.32*	-36.13, 416.76	0.69	-93.54***	-149.32, -37.77	-1.79
Central Utah	58459	-611.69*** §	-767.05, -456.34	-5.76	-73.98	-422.02, 274.06	-0.65	-1,353.01***	-1,682.97, -1,023.05	-7.03	-153.61*** §	-243.52, -63.70	-3.71
Franciscan	88412	-879.88*** §	-984.69, -775.08	-6.76	-359.79***	-584.90, -134.69	-3.22	-20.59	-249.43, 208.26	-0.09	-65.72*	-131.79, 0.35	-1.28
Mary Washington	51381	-95.98*	-205.08, 13.12	-0.81	48.16	-212.68, 309.00	0.43	617.88***	336.42, 899.35	2.60	-85.83**	-162.50, -9.17	-1.70
NEQCA	122303	-391.12***	-482.50, -299.73	-2.67	-133.93*	-270.57, 2.70	-1.38	42.47 §	-177.91, 262.84	0.16	-61.92**	-112.26, -11.57	-1.26
Primary Care Alliance	49801	-368.56*** §	-512.29, -224.82	-2.44	-292.12**	-546.05, -38.20	-2.25	-169.66	-478.47, 139.14	-0.58	-295.81*** §	-384.09, -207.53	-5.14
Primaria	103468	-488.67*** §	-588.71, -388.63	-4.17	-817.10*** §	-973.69, -660.51	-9.19	-420.41***	-613.23, -227.59	-2.18	-112.29***	-172.87, -51.71	-2.38
Reliance	45428	12.92 §	-113.15, 138.99	0.09	158.14 §	-75.05, 391.33	1.42	-247.49* §	-500.65, 5.68	-0.96	-40.02	-110.29, 30.26	-0.77
Reliant	41935	-469.74*** §	-646.27, -293.22	-3.83	82.68	-175.12, 340.48	0.99	157.68 §	-263.50, 578.86	0.66	-46.67	-160.48, 67.14	-0.96
Torrance	45654	-534.24*** §	-665.08, -403.40	-3.62	-1,012.31***	-1,295.58, -729.05	-6.77	389.65**	71.96, 707.34	1.32	-171.69***	-241.85, -101.52	-3.39
UW Health	102648	31.24 §	-69.72, 132.21	0.28	104.35	-46.38, 255.09	1.31	73.86 §	-172.89, 320.62	0.36	75.97*** §	20.13, 131.81	1.89

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2018 cohort) as of PY 6. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. E&M = evaluation and management.

Exhibit K.28. NGACO-Level Cumulative (2016–2021) Impact on Select Utilization Outcomes (Beneficiaries with AWV, Home Health Episodes, and Home Health Visits), 2018 Cohort

| | # of NGACO beneficiaries as of PY 6 | Utilization (per 1,000 beneficiaries per year): | | | | | | | | |
| | | Beneficiaries with AWV | | | Home health episodes | | | Home health visits | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACC of TN	92941	9.58*** §	6.22, 12.94	1.18	-14.34***	-19.62, -9.07	-8.53	-219.88*** §	-332.50, -107.26	-7.02
Best Care Collab	65871	61.27*** §	55.58, 66.95	12.47	-9.65***	-15.87, -3.42	-4.70	-171.22***	-295.47, -46.98	-4.94
CareMount	96270	252.59*** §	248.44, 256.75	57.20	-11.08***	-14.89, -7.27	-8.10	-185.43***	-264.48, -106.38	-8.44
Central Utah	58459	146.21*** §	138.07, 154.35	29.44	-37.87***	-49.95, -25.80	-16.85	-1,015.37***	-1,352.32, -678.43	-17.68
Franciscan	88412	22.65*** §	17.21, 28.08	7.48	-23.70***	-30.84, -16.56	-10.54	-337.00***	-492.97, -181.03	-7.33
Mary Washington	51381	258.02*** §	252.06, 263.98	64.62	-9.05***	-14.77, -3.33	-5.89	30.43	-87.03, 147.89	1.21
NEQCA	122303	60.42*** §	56.64, 64.20	14.26	-5.43***	-9.41, -1.46	-2.84	-3.59	-89.59, 82.40	-0.11
Primary Care Alliance	49801	-118.01*** §	-124.62, -111.39	-35.15	-25.10*** §	-31.61, -18.59	-13.04	-281.91*** §	-392.01, -171.81	-9.43
Primaria	103468	173.51*** §	168.02, 179.00	33.81	-10.30*** §	-14.75, -5.84	-7.96	-282.09***	-377.99, -186.20	-11.71
Reliance	45428	52.54*** §	47.23, 57.86	11.62	-4.16	-9.57, 1.25	-2.31	-43.10	-133.66, 47.45	-1.69
Reliant	41935	34.98*** §	26.60, 43.37	6.72	-5.50	-17.42, 6.43	-2.74	112.63	-76.29, 301.55	3.76
Torrance	45654	-47.39*** §	-52.83, -41.95	-8.23	-16.52***	-26.04, -7.01	-5.37	112.23	-99.08, 323.54	2.09
UW Health	102648	-7.34*** §	-10.36, -4.32	-4.61	-3.58*	-7.65, 0.48	-3.81	43.17	-40.94, 127.28	2.87

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2018 cohort) as of PY 6. AWV=annual wellness visit.

Exhibit K.29. NGACO-Level Cumulative (2016–2021) Impact on Quality of Care Outcomes, 2018 Cohort

	# of NGACO beneficiaries as of PY 6	Quality of Care (per 1,000 beneficiaries per year)								
		Beneficiaries with ACSC hospitalizations			Beneficiaries with unplanned 30-day readmissions			Beneficiaries with hospital readmissions from SNF		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACC of TN	92941	-2.25*** §	-3.59, -0.91	-8.38	-3.13	-11.07, 4.81	-2.31	3.03 §	-14.02, 20.08	1.82
Best Care Collab	65871	-0.51	-2.25, 1.23	-1.67	-8.61*	-18.37, 1.15	-5.89	-19.18* §	-40.98, 2.63	-10.55
CareMount	96270	-2.68*** §	-3.92, -1.44	-9.26	-9.08**	-16.70, -1.45	-6.34	8.54	-6.85, 23.92	4.89
Central Utah	58459	-3.13** §	-5.81, -0.46	-15.15	-4.26	-16.51, 7.98	-4.41	5.32	-19.97, 30.61	4.82
Franciscan	88412	1.05	-0.55, 2.66	3.72	6.24	-2.57, 15.05	4.77	1.84	-22.51, 26.18	1.06
Mary Washington	51381	-1.17	-3.47, 1.14	-2.62	12.70**	2.37, 23.04	8.09	5.38	-20.56, 31.32	2.64
NEQCA	122303	-0.24	-1.68, 1.20	-0.56	-1.16	-7.90, 5.58	-0.69	6.56	-6.74, 19.85	3.30
Primary Care Alliance	49801	-5.43***	-7.49, -3.37	-16.99	-21.57***	-31.87, -11.26	-15.98	-5.52	-29.00, 17.95	-3.22
Primaria	103468	-0.19	-1.99, 1.60	-0.49	0.17	-8.42, 8.77	0.12	-12.98	-32.22, 6.27	-6.77
Reliance	45428	-2.32**	-4.30, -0.34	-5.13	3.03	-5.74, 11.79	1.75	-3.80	-23.79, 16.19	-1.66
Reliant	41935	1.02	-1.65, 3.68	3.29	10.36	-3.71, 24.43	7.01	4.86	-25.55, 35.27	2.57
Torrance	45654	0.21	-1.54, 1.95	0.86	7.52	-2.95, 18.00	5.28	-1.95 §	-25.36, 21.47	-1.07
UW Health	102648	1.90***	0.55, 3.26	8.80	9.69**	0.49, 18.89	7.19	-6.58	-25.47, 12.31	-4.05

NOTES: Cumulative difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) as of PY 6, absent the model. Aggregate estimate is the cumulative DID impact estimate for all beneficiaries (2018 cohort) as of PY 6. ACSC=ambulatory care-sensitive condition, SNF=skilled nursing facility.

Exhibit K.30. NGACO-Level PY 6 (2021) Impact on Select Spending Categories (Acute Care Hospital, SNF, Other PAC, and Outpatient Facility), 2016 Cohort

	# of NGACO beneficiaries in PY 6	Spending ($ PBPY)												
		Acute care hospital facility			SNF			Other PAC facility			Outpatient facility		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	9092	-683.11***	-1,010.63, -355.59	-15.2815	-97.72**	-190.88, -4.56	-19.2751	-152.65*	-30.57, 5.26	-13.5727	-347.56***	-552.99, -142.13	-12.2737
Bellin	12589	31.57	-215.57, 278.71	1.377946	-1.52	-117.70, 114.66	-0.25922	-82.72**	-147.39, -18.05	-48.5171	67.09	-223.44, 357.63	2.128821
CHESS	25879	-117.25	-341.23, 106.73	-3.4814	-0.01	-77.19, 77.18	-0.00105	-84.03**	-167.03, -1.03	-31.5693	474.83***	286.01, 663.65	17.58954
Deaconess	13826	-370.51* §	-773.54, 32.52	-10.9411	-196.44** §	-366.81, -26.08	-16.5384	-192.04*	-396.15, 12.07	-24.0948	-79.94	-497.31, 337.44	-2.3639
Henry Ford	21007	-22.16	-277.98, 233.66	-0.45462	-21.80	-93.75, 50.14	-2.47498	-39.69	-101.50, 22.13	-10.3387	201.21**	17.18, 385.25	6.143621
Park Nicollet	20243	198.15	-51.30, 447.61	5.630708	-18.83	-103.19, 65.53	-2.18561	-29.10	-69.73, 11.53	-30.8555	-147.75	-339.03, 43.53	-5.88888
Pioneer Valley	32267	78.87	-227.48, 385.23	1.911979	-124.22** §	-229.08, -19.37	-14.1885	16.12	-49.33, 81.57	4.976716	72.92	-168.13, 313.97	2.537299
ThedaCare	14215	-39.06	-427.60, 349.48	-1.46531	66.75	-70.90, 204.39	10.25014	-18.10	-156.20, 120.01	-10.2347	314.03	-101.77, 729.84	9.344934
Triad	26021	-301.08	-715.60, 113.45	-8.60572	-44.11	-173.46, 85.24	-7.34388	24.18	-49.47, 97.82	11.39076	397.87**	64.43, 731.31	16.41199
Trinity	66247	-297.81***	-464.09, -131.54	-6.73322	-172.93***	-228.44, -117.42	-16.5096	-29.82	-79.26, 19.62	-7.54356	-184.67***	-290.06, -79.28	-6.61572
UnityPoint	95528	-105.73*	-223.30, 11.84	-3.54553	-55.52**	-105.51, -5.53	-8.02274	-14.05	-52.35, 24.25	-5.48462	-206.28***	-316.73, -95.82	-6.41307

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) in PY 6, absent the model. "Other PAC facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. PAC=post-acute care, PBPY=per beneficiary per year, SNF=skilled nursing facility.

Exhibit K.31. NGACO-Level PY 6 (2021) Impact on Select Spending Categories (Professional Services, Home Health, Hospice, and Durable Medical Equipment), 2016 Cohort

	# of NGACO beneficiaries in PY 6	Spending ($ PBPY)											
		Professional services			Home health			Hospice			Durable medical equipment		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	9092	-231.63** §	-458.80, -4.47	-4.54538	-146.33***	-211.14, -81.53	-15.5156	-45.28	-143.83, 53.27	-7.98682	-24.18	-78.04, 29.69	-6.57674
Bellin	12589	210.27***	108.24, 312.30	10.43474	27.78 §	-12.79, 68.34	10.3705	-203.15***	-315.98, -90.31	-40.922	12.31	-34.91, 59.53	4.947778
CHESS	25879	-466.32***	-609.12, -323.52	-13.9625	-13.62	-48.40, 21.16	-2.64483	-135.75***	-204.50, -66.99	-25.6134	26.58	-21.28, 74.43	7.300393
Deaconess	13826	-125.12	-332.76, 82.53	-4.29274	-55.18**	-107.85, -2.51	-12.121	-67.67	-153.83, 18.50	-21.5561	-3.04	-44.52, 38.44	-1.07339
Henry Ford	21007	-119.41	-261.72, 22.91	-4.17921	111.00*** §	74.83, 147.16	18.10382	-68.63***	-116.70, -20.56	-18.0509	76.64***	29.39, 123.90	25.72141
Park Nicollet	20243	126.25*	-23.86, 276.37	3.723261	14.78	-13.00, 42.55	3.888133	-48.13	-111.48, 15.22	-11.8882	20.16	-34.31, 74.64	6.892312
Pioneer Valley	32267	27.24	-52.68, 107.17	0.997077	17.12 §	-27.47, 61.72	2.91485	14.19	-44.92, 73.29	5.49893	-22.99	-80.48, 34.51	-6.83532
ThedaCare	14215	-101.60	-266.41, 63.21	-4.12814	-19.45	-81.81, 42.91	-5.16945	-286.18***	-471.87, -100.49	-39.0066	22.51	-77.17, 122.19	6.22835
Triad	26021	-51.79	-226.24, 122.65	-1.645	-54.55	-125.16, 16.06	-11.1516	-56.48	-160.44, 47.47	-11.7011	31.44	-23.50, 86.39	11.05027
Trinity	66247	-116.73***	-203.15, -30.32	-3.20779	-57.28***	-82.13, -32.43	-8.60426	-37.95**	-73.39, -2.50	-10.0198	-0.17	-25.28, 24.95	-0.06405
UnityPoint	95528	-7.52	-95.77, 80.74	-0.25854	-36.60***	-51.02, -22.18	-12.7293	-76.46***	-104.84, -48.07	-23.8638	25.87**	0.72, 51.02	8.022599

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) in PY 6, absent the model. Professional services include physician, other professional, and ancillary services rendered under Part B. PBPY=per beneficiary per year.

Exhibit K.32. NGACO-Level PY 6 (2021) Impact on Select Utilization Outcomes (Acute Care Stays, SNF Stays, SNF Days, and ED Visits and Observation Stays), 2016 Cohort

| | # of NGACO beneficiaries in PY 6 | Utilization (per 1,000 beneficiaries per year): | | | | | | | | | | | |
| | | Acute care stays | | | SNF stays | | | SNF days | | | ED visits & observation stays | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	9092	-22.13***	-36.53, -7.74	-8.54085	-9.02***	-14.69, -3.35	-24.1026	-175.49**	-344.61, -6.37	-20.1721	-33.06**	-61.82, -4.31	-6.80349
Bellin	12589	-5.69	-19.54, 8.16	-3.45498	-0.56	-8.21, 7.08	-1.31025	-20.94	-251.22, 209.35	-1.88341	3.71	-32.34, 39.76	0.751076
CHESS	25879	-4.71	-17.20, 7.77	-1.90809	0.40	-5.07, 5.87	0.721358	2.16	-154.23, 158.55	0.152694	16.56	-8.53, 41.65	3.272226
Deaconess	13826	-7.63 §	-32.60, 17.33	-2.66376	-6.13	-16.59, 4.32	-8.04023	-233.17 §	-557.70, 91.37	-10.9121	44.83** §	9.82, 79.85	9.98139
Henry Ford	21007	2.69	-10.81, 16.19	0.77059	3.55	-2.45, 9.55	4.781839	26.30	-120.04, 172.65	1.564072	-1.76	-23.65, 20.14	-0.33201
Park Nicollet	20243	23.29***	11.27, 35.31	9.688201	3.85	-1.65, 9.34	6.092478	-2.28	-141.90, 137.34	-0.16614	-29.41**	-55.23, -3.60	-5.77311
Pioneer Valley	32267	19.50***	4.79, 34.21	7.46552	-2.09	-9.50, 5.33	-2.84783	-216.13** §	-411.88, -20.39	-13.6949	18.47	-4.04, 40.99	3.978707
ThedaCare	14215	-4.15	-24.21, 15.92	-1.91734	8.68*	-0.24, 17.60	20.01468	244.14*	-32.01, 520.28	22.73757	-15.72 §	-56.19, 24.74	-2.82534
Triad	26021	-12.88	-36.97, 11.22	-5.29504	-1.40	-10.25, 7.44	-2.96487	-31.09	-289.24, 227.07	-2.55467	39.93*	-2.47, 82.33	9.375735
Trinity	66247	-8.07**	-15.87, -0.27	-2.88025	-4.91***	-8.57, -1.24	-6.95862	-271.73***	-370.25, -173.21	-15.4562	0.42 §	-14.24, 15.07	0.090258
UnityPoint	95528	-9.36***	-16.19, -2.53	-4.16406	1.82	-1.70, 5.34	3.158223	-78.90*	-172.20, 14.41	-6.17295	-70.63***	-83.98, -57.28	-14.3126

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) in PY 6, absent the model. ED=emergency department, SNF=skilled nursing facility.

Exhibit K.33. NGACO-Level PY 6 (2021) Impact on Select Utilization Outcomes (E&M Visits, Procedures, Tests, and Imaging Services), 2016 Cohort

	# of NGACO beneficiaries in PY 6	Utilization (per 1,000 beneficiaries per year)											
		E&M visits			Procedures			Tests			Imaging services		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID dstimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	9092	-503.65***	-737.73, -269.57	-3.90781	-194.74	-559.39, 169.92	-1.97811	-555.51	-1,260.04, 149.03	-1.80617	-489.84***	-650.27, -329.41	-8.17382
Bellin	12589	279.10** §	8.13, 550.08	2.802916	219.29	-230.45, 669.02	2.431205	872.60***	252.95, 1,492.25	4.395539	14.56	-144.55, 173.67	0.340755
CHESS	25879	-462.48*** §	-690.45, -234.51	-3.74927	-531.58***	-829.44, -233.72	-5.9789	-1224.87***	-1,791.86, -657.88	-4.62264	1.87	-131.42, 135.15	0.03706
Deaconess	13826	-1118.30***	-1,451.87, -784.73	-9.45384	-562.31*	-1,196.42, 71.79	-5.68642	-543.73	-1,278.32, 190.86	-2.47769	-155.81	-372.40, 60.79	-3.0126
Henry Ford	21007	-465.59*** §	-676.55, -254.62	-3.29262	-11.67	-371.89, 348.55	-0.09982	1733.73*** §	1,258.40, 2,209.06	7.456684	186.01*** §	61.00, 311.02	3.250566
Park Nicollet	20243	824.25*** §	619.29, 1,029.22	7.817808	-649.93***	-916.63, -383.22	-7.36127	-837.62***	-1,356.13, -319.10	-3.60706	-179.04***	-293.34, -64.74	-3.70982
Pioneer Valley	32267	-517.89*** §	-765.81, -269.97	-3.75478	445.76*** §	150.39, 741.13	5.373181	292.72	-228.04, 813.47	1.236131	198.87*** §	71.84, 325.90	4.331089
ThedaCare	14215	-434.31***	-720.66, -147.95	-4.58473	-222.05	-923.10, 478.99	-2.15827	-298.00	-1,314.04, 718.04	-1.24852	-95.70 §	-300.45, 109.05	-2.03789
Triad	26021	-411.28* §	-897.01, 74.44	-3.32455	-379.35	-978.41, 219.71	-4.01033	-2688.12***	-3,805.06, -1,571.17	-10.4425	-233.19*	-480.21, 13.83	-4.84163
Trinity	66247	-1022.02*** §	-1,149.37, -894.68	-7.41795	-265.58*	-546.55, 15.39	-2.04055	-1166.51*** §	-1,470.92, -862.11	-4.68702	-93.92**	-177.33, -10.52	-1.7111
UnityPoint	95528	271.42*** §	164.69, 378.14	2.554325	-398.40***	-605.91, -190.89	-3.86303	-1043.77*** §	-1,329.96, -757.58	-4.50039	-16.92	-84.32, 50.48	-0.36049

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) in PY 6, absent the model. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. E&M=evaluation and management.

Exhibit K.34. NGACO-Level PY 6 (2021) Impact on Select Utilization Outcomes (Beneficiaries with AWV, Home Health Episodes, and Home Health Visits), 2016 Cohort

| | # of NGACO beneficiaries in PY 6 | Utilization (per 1,000 beneficiaries per year) | | | | | | | | |
| | | Beneficiaries with AWV | | | Home health episodes | | | Home health visits | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	9092	85.36*** §	73.81, 96.92	17.26017	-49.38***	-70.12, -28.64	-16.22	-683.60***	-1,050.02, -317.18	-15.2253
Bellin	12589	182.04*** §	166.70, 197.37	31.82066	4.17 §	-9.86, 18.21	4.119173	198.09* §	-12.54, 408.72	16.06771
CHESS	25879	188.31***	177.31, 199.32	35.89679	-7.75	-19.64, 4.15	-4.13278	-126.11	-295.83, 43.62	-5.46479
Deaconess	13826	151.98***	134.59, 169.36	37.54429	-12.87	-30.82, 5.07	-8.54425	-295.08**	-569.94, -20.22	-13.3063
Henry Ford	21007	77.96*** §	69.33, 86.59	20.25103	31.55*** §	19.32, 43.78	14.04124	656.83*** §	463.73, 849.93	23.10446
Park Nicollet	20243	337.83*** §	326.60, 349.06	61.29619	-0.32	-8.47, 7.83	-0.2588	170.47**	22.98, 317.96	10.26662
Pioneer Valley	32267	109.96*** §	99.16, 120.76	23.60525	5.69	-8.05, 19.44	2.849956	66.76 §	-170.31, 303.84	2.559867
ThedaCare	14215	56.75*** §	44.52, 68.97	7.444476	-15.37	-36.72, 5.98	-10.6212	68.35	-241.97, 378.68	4.163424
Triad	26021	83.68*** §	62.33, 105.02	16.48476	-16.85	-39.30, 5.61	-10.065	-437.33**	-819.66, -54.99	-19.169
Trinity	66247	280.34*** §	274.98, 285.70	66.53593	-26.54***	-33.95, -19.13	-12.6938	-204.50***	-315.99, -93.00	-7.75207
UnityPoint	95528	265.83*** §	259.69, 271.97	57.10212	-15.33***	-20.59, -10.07	-14.7785	-174.56***	-261.59, -87.53	-11.6628

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) in PY 6, absent the model. AWV = annual wellness visit.

Exhibit K.35. NGACO-Level PY 6 (2021) Impact on Quality of Care Outcomes, 2016 Cohort

	# of NGACO beneficiaries in PY 6	Quality of Care (per 1,000 beneficiaries per year)								
		Beneficiaries with ACSC hospitalizations			Beneficiaries with unplanned 30-day readmissions			Beneficiaries with hospital readmissions from SNF		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACCST	9092	-0.87	-5.06, 3.33	-2.72905	-3.70	-25.43, 18.03	-2.43526	-34.00	-100.63, 32.64	-15.9861
Bellin	12589	-3.61*	-7.66, 0.44	-19.7577	-5.70	-32.51, 21.12	-4.9996	-2.48	-63.29, 58.33	-1.61311
CHESS	25879	0.29	-3.16, 3.74	1.008035	-13.08	-34.32, 8.17	-8.31531	-13.03	-55.79, 29.72	-6.94322
Deaconess	13826	0.57 §	-5.63, 6.76	1.455531	-1.84	-28.79, 25.10	-1.28974	-14.84	-74.55, 44.88	-8.29688
Henry Ford	21007	-1.19	-4.18, 1.80	-3.20411	3.74	-11.77, 19.25	2.053713	-17.10	-52.64, 18.44	-7.08662
Park Nicollet	20243	2.74**	0.17, 5.32	12.52769	12.17	-4.56, 28.90	8.977958	-1.88	-35.24, 31.48	-1.19871
Pioneer Valley	32267	1.35	-2.68, 5.39	3.897687	-17.06	-39.05, 4.94	-10.2398	-4.30	-52.22, 43.62	-1.89765
ThedaCare	14215	1.07	-3.14, 5.27	6.056501	6.56	-21.46, 34.59	6.19421	-10.01	-81.71, 61.69	-6.41909
Triad	26021	-3.63	-10.49, 3.23	-12.8949	-5.88	-37.75, 25.98	-3.9973	-2.12	-70.96, 66.72	-1.19132
Trinity	66247	0.82	-0.77, 2.42	3.155792	-0.31	-10.06, 9.44	-0.21895	7.06	-14.80, 28.92	3.682136
UnityPoint	95528	-2.06** §	-3.80, -0.31	-7.80174	-11.95**	-22.38, -1.52	-8.862	-22.85**	-43.99, -1.71	-13.6523

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2016 cohort) in PY 6, absent the model.
ACSC=ambulatory care-sensitive conditions, SNF=skilled nursing facility.

Exhibit K.36. NGACO-Level PY 6 (2021) Impact on Select Spending Categories (Acute Care Hospital, SNF, Other PAC, and Outpatient Facility), 2017 Cohort

	# of NGACO beneficiaries in PY 6	Spending ($ PBPY)											
		Acute care hospital facility			SNF			Other PAC facility			Outpatient facility		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	25645	-394.56***	-628.29, -160.83	-8.27139	-222.43***	-336.95, -107.91	-14.879	-69.99	-159.87, 19.88	-10.0632	-11.23	-189.40, 166.93	-0.46414
Arizona	31644	-92.92 §	-257.49, 71.65	-3.13521	-33.95	-82.40, 14.50	-6.59525	35.51	-15.39, 86.41	11.83435	-167.95*** §	-283.35, -52.55	-9.17942
Atrius	30502	-78.43	-332.47, 175.62	-1.84121	-4.07	-77.75, 69.61	-0.5173	17.47	-45.67, 80.62	5.966436	-79.99	-244.65 , 84.67	-2.85777
Carillion	44086	-183.16**	-340.08, -26.23	-5.83002	-40.88	-96.15, 14.39	-5.58658	-22.39	-53.69, 8.90	-11.1607	-15.51	-132.13, 101.11	-0.59124
Indiana U	55151	-71.20	-263.85, 121.45	-1.95789	-90.90**	-167.01, -14.79	-8.54547	-24.93 §	-65.57, 15.71	-9.54781	-146.37*	-313.25, 20.51	-4.90759
ProHealth	14723	-390.08***	-677.94, -102.21	-12.4565	130.19**	30.69, 229.68	27.57424	-31.51 §	-160.59, 97.57	-6.70776	67.72	-208.93, 344.37	2.1469
ProspectNE	12878	-245.92*	-513.01, 21.17	-5.65359	-129.88**	-233.62, -26.15	-11.0879	22.77	-30.40, 75.93	14.56039	-440.12***	-637.36, -242.88	-15.6005
PSW	26819	-182.50*	-365.85, 0.86	-6.38912	-47.09	-160.10, 65.92	-6.47639	7.65	-20.37, 35.68	22.5662	120.72	-52.37, 293.81	4.176117
St. Luke's	28833	-103.16	-320.30, 113.97	-3.9785	-3.99	-78.93, 70.94	-0.95171	20.98	-42.11, 84.07	11.88653	80.13	-163.36, 323.62	2.145203
UNC	28773	-212.88*	-429.14, 3.37	-5.98406	-128.69***	-195.35, -62.02	-18.4895	-12.75	-82.26, 56.75	-5.10645	-249.31**	-447.65, -50.97	-9.20056
UTSW	97352	-192.26***	-322.97, -61.56	-4.96613	-5.69	-48.30, 36.92	-0.75493	-105.28***	-168.94, -41.63	-11.059	77.44*	-9.68, 164.57	3.493531

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) in PY 6, absent the model. "Other PAC facility" includes inpatient rehabilitation facilities and long-term care hospitals. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. PAC=post-acute care, PBPY=per beneficiary per year, SNF=skilled nursing facility.

Exhibit K.37. NGACO-Level PY 6 (2021) Impact on Select Spending Categories (Professional Services, Home Health, Hospice, and Durable Medical Equipment), 2017 Cohort

	# of NGACO beneficiaries in PY 6	Spending ($ PBPY)											
		Professional services			Home health			Hospice			Durable medical equipment		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	25645	-141.16**	-276.98, -5.34	-3.3854	-170.78***	-232.01, -109.55	-8.50554	-60.52	-157.90, 36.86	-7.25004	6.72	-20.50, 33.93	3.597066
Arizona	31644	-235.60***	-401.21, -69.98	-4.46482	-26.20**	-48.05, -4.36	-7.58039	-15.30	-71.26, 40.66	-3.03932	-1.42	-30.92, 28.08	-0.54667
Atrius	30502	-100.92**	-199.60, -2.24	-2.98887	-2.91	-40.65, 34.82	-0.42717	-45.21	-109.47, 19.05	-11.0436	-45.36*	-94.69, 3.96	-19.0644
Carillion	44086	-124.96***	-216.73, -33.18	-4.4552	-23.36*	-50.06, 3.33	-4.87698	11.99	-34.32, 58.31	3.329655	-42.50**	-83.08, -1.92	-13.0144
Indiana U	55151	-698.16***	-926.07, -470.25	-20.9376	-24.42**	-47.71, -1.14	-6.35694	-31.42	-87.46, 24.63	-7.39211	14.45	-18.24, 47.13	4.15619
ProHealth	14723	34.25	-73.02, 141.53	1.318302	50.15** §	7.46, 92.83	16.20164	-35.26	-113.57, 43.05	-8.23889	-42.14	-155.30, 71.01	-14.6001
ProspectNE	12878	69.54	-42.47, 181.56	2.076699	-28.81	-76.46, 18.84	-3.82642	-78.04**	-147.73, -8.34	-14.8242	4.98	-43.28, 53.23	2.021243
PSW	26819	-294.45***	-411.84, -177.05	-10.1714	12.51	-15.48, 40.50	3.94189	-25.24	-70.12, 19.64	-9.66839	-8.15	-39.20, 22.89	-3.31097
St. Luke's	28833	-256.87***	-390.30, -123.44	-10.9973	-21.24	-63.50, 21.02	-4.85201	-78.09*	-168.12, 11.95	-14.261	-30.12	-111.31, 51.08	-8.19522
UNC	28773	-245.35***	-371.00, -119.70	-7.53667	-16.87	-49.08, 15.33	-3.59278	-90.24***	-150.21, -30.27	-18.7116	-12.61	-64.85, 39.63	-3.73266
UTSW	97352	-289.21***	-393.50, -184.92	-6.15091	-122.55*** §	-150.67, -94.44	-13.1621	-34.59*	-73.82, 4.64	-6.12623	-11.75	-43.99, 20.50	-3.3932

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) in PY 6, absent the model. Professional services include physician, other professional, and ancillary services rendered under Part B. PBPY=per beneficiary per year.

Exhibit K.38. NGACO-Level PY 6 (2021) Impact on Select Utilization Outcomes (Acute Care Stays, SNF Stays, SNF Days, and ED Visits and Observation Stays), NGACOs in 2017 Cohort

	# of unique NGACO beneficiaries in PY 6	Utilization (per 1,000 beneficiaries per year):											
		Acute care stays			SNF stays			SNF days			ED visits & observation stays		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	25645	-14.38***	-23.31, -5.45	-6.20165	-7.76***	-12.20, -3.32	-12.7316	-233.67***	-383.32, -84.01	-12.4508	-7.29	-21.45, 6.86	-2.46453
Arizona	31644	-4.78	-13.18, 3.62	-2.35863	-2.56	-6.09, 0.96	-6.51011	-47.06	-131.22, 37.09	-5.64335	2.80	-13.61, 19.21	0.673963
Atrius	30502	2.87	-9.75, 15.49	1.061373	-0.82	-6.40, 4.76	-1.23388	17.11	-111.69, 145.92	1.355689	-0.42	-20.82, 19.97	-0.09393
Carillion	44086	-12.74***	-21.07, -4.40	-5.74581	-2.58	-6.58, 1.41	-4.3838	-47.54	-167.60, 72.52	-3.07565	26.38***	7.67, 45.09	5.367394
Indiana U	55151	4.75	-4.86, 14.36	1.876718	-4.24	-9.49, 1.00	-5.6895	-98.89	-242.56, 44.78	-5.19958	-49.57*** §	-69.05, -30.09	-8.85028
ProHealth	14723	-1.81 §	-19.12, 15.50	-0.76637	11.09***	3.72, 18.45	28.2659	227.72**	27.21, 428.22	25.48772	2.66	-34.66, 39.98	0.502711
ProspectNE	12878	-16.09**	-30.38, -1.79	-5.76306	-5.81	-13.33, 1.72	-6.64386	-133.26	-320.73, 54.21	-6.77257	-31.03**	-55.65, -6.42	-6.06701
PSW	26819	-13.93***	-22.20, -5.65	-8.16997	-3.57*	-7.19, 0.05	-9.71973	-159.32***	-273.67, -44.98	-16.3628	-9.06	-28.08, 9.96	-1.89918
St. Luke's	28833	-7.94	-19.73, 3.85	-4.65048	0.71	-4.41, 5.83	2.231399	-55.92	-178.09, 66.26	-8.13182	20.00*	-1.91, 41.92	4.838928
UNC	28773	-12.19**	-24.05, -0.33	-4.90981	-6.73***	-11.25, -2.20	-13.3534	-207.93***	-349.36, -66.50	-15.3683	3.48 §	-18.42, 25.38	0.730898
UTSW	97352	-1.30	-7.88, 5.27	-0.51277	-0.49	-3.34, 2.35	-0.9037	24.99	-60.53, 110.51	1.813279	-9.82	-21.54, 1.91	-2.08659

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) in PY 6, absent the model. ED=emergency department, SNF=skilled nursing facility.

Exhibit K.39. NGACO-Level PY 6 (2021) Impact on Select Utilization Outcomes (E&M Visits, Procedures, Tests, and Imaging Services), NGACOs in 2017 Cohort

| | # of NGACO beneficiaries in PY 6 | Utilization (per 1,000 beneficiaries per year) | | | | | | | | | | | |
| | | E&M visits | | | Procedures | | | Tests | | | Imaging services | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	25645	-431.11*** §	-590.48, -271.73	-3.18743	-518.01*** §	-831.53, -204.48	-4.84187	1993.23*** §	1,573.85, 2,412.60	7.162344	-173.64***	-270.49, -76.79	-3.31614
Arizona	31644	-704.68*** §	-880.54, -528.82	-5.03372	-221.85	-614.92, 171.22	-1.55035	-115.43	-516.27, 285.40	-0.42869	-188.21*** §	-292.35, -84.06	-3.35248
Atrius	30502	-1081.67***	-1,287.65, -875.70	-8.1226	76.95	-239.33, 393.24	0.757152	1095.30***	574.19, 1,616.42	4.311239	-15.64 §	-132.02, 100.74	-0.30088
Carillion	44086	-124.97* §	-263.26, 13.33	-1.09339	-117.20	-337.26, 102.86	-1.36234	632.85*** §	333.20, 932.50	3.029436	62.56	-25.20, 150.32	1.354748
Indiana U	55151	-614.92*** §	-756.55, -473.29	-5.21058	-609.34***	-877.27, -341.40	-6.22499	-1025.84***	-1,402.40, -649.27	-4.29394	86.95* §	-7.92, 181.82	1.754521
ProHealth	14723	774.75*** §	508.08, 1,041.42	7.239305	-882.01***	-1,410.39, -353.62	-9.00955	133.33 §	-594.47, 861.12	0.537425	145.38*	-27.69, 318.44	3.234572
ProspectNE	12878	-718.28*** §	-954.22, -482.35	-5.17534	222.73	-206.47, 651.94	2.127118	-412.15	-1,011.99, 187.70	-1.5199	-67.08	-203.14, 68.98	-1.33564
PSW	26819	-422.07*** §	-568.58, -275.56	-4.2767	-641.84***	-900.38, -383.31	-7.2628	-849.25***	-1,294.26, -404.23	-4.2231	-116.65**	-208.94, -24.35	-2.83151
St. Luke's	28833	-920.15***	-1,190.98, -649.32	-6.91785	-826.05***	-1,275.35, -376.75	-7.63204	-81.51	-564.42, 401.41	-0.40711	-52.66	-169.96, 64.64	-1.3263
UNC	28773	-812.66***	-1,003.81, -621.51	-6.44567	-559.78*** §	-841.84, -277.73	-5.82359	-1704.01***	-2,132.47, -1,275.55	-6.87624	-128.22**	-248.78, -7.66	-2.48832
UTSW	97352	-476.19*** §	-584.71, -367.68	-3.54055	-159.52*	-348.67, 29.63	-1.47016	392.23*** §	115.48, 668.98	1.393445	-26.70	-101.74, 48.35	-0.44698

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) in PY 6, absent the model. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. E&M=evaluation and management.

Exhibit K.40. NGACO-Level PY 6 (2021) Impact on Select Utilization Outcomes (Number of Beneficiaries with AWV, Home Health Episodes, and Home Health Visits), 2017 Cohort

| | # of NGACO beneficiaries in PY 6 | Utilization (per 1,000 beneficiaries per year) | | | | | | | | |
| | | Beneficiaries with AWV | | | Home health episodes | | | Home health visits | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	25645	104.41*** §	96.37, 112.45	24.68989	-65.41***	-79.60, -51.22	-13.4108	-574.30***	-824.25, -324.36	-7.99898
Arizona	31644	79.33*** §	71.33, 87.32	16.08873	-11.34***	-18.41, -4.27	-9.38051	-143.60***	-249.85, -37.36	-9.73465
Atrius	30502	80.05*** §	71.23, 88.87	15.15154	-9.44*	-20.58, 1.70	-4.37041	101.97 §	-76.81, 280.75	3.913028
Carillion	44086	-18.20*** §	-25.83, -10.56	-3.81542	-6.21	-15.54, 3.12	-3.47661	-78.78	-254.60, 97.04	-3.00124
Indiana U	55151	123.77*** §	118.08, 129.47	46.47358	-9.54**	-17.20, -1.88	-7.08303	-127.16**	-247.90, -6.43	-7.13433
ProHealth	14723	60.53***	47.27, 73.78	9.831861	10.41	-3.35, 24.18	9.354769	149.78 §	-92.24, 391.80	9.716124
ProspectNE	12878	185.48*** §	174.89, 196.07	35.93881	-6.91	-20.19, 6.38	-3.11534	-199.59	-452.46, 53.28	-5.78314
PSW	26819	97.93*** §	90.09, 105.78	33.95077	4.09	-3.85, 12.02	4.02242	37.43	-70.33, 145.19	3.391836
St. Luke's	28833	113.68***	102.29, 125.07	19.24913	-15.14**	-29.77, -0.52	-9.64452	-169.64	-416.62, 77.35	-7.65013
UNC	28773	-6.17 §	-15.49, 3.16	-1.66466	-3.18	-13.70, 7.34	-2.00646	-63.35	-233.34, 106.64	-3.01367
UTSW	97352	-0.52 §	-5.78, 4.75	-0.12745	-75.35***	-84.74, -65.95	-23.1573	-547.45***	-709.60, -385.30	-12.8068

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) in PY 6, absent the model. AWV=annual wellness visit.

Exhibit K.41. NGACO-Level PY 6 (2021) Impact on Quality of Care Outcomes, 2017 Cohort

	# of NGACO beneficiaries in PY 6	Quality of Care (per 1,000 beneficiaries per year)								
		Beneficiaries with ACSC hospitalizations			Beneficiaries with unplanned 30-day readmissions			Beneficiaries with hospital readmissions from SNF		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
APA	25645	-2.75**	-4.87, -0.63	-11.7228	-3.76	-18.77, 11.25	-2.41856	5.59	-28.67, 39.85	2.638264
Arizona	31644	0.22	-1.63, 2.07	1.266232	-8.05	-21.91, 5.81	-6.77883	-6.14	-42.83, 30.55	-3.9102
Atrius	30502	0.68	-2.06, 3.42	2.636153	8.70	-7.45, 24.84	5.989772	-5.32	-41.89, 31.24	-2.87163
Carillion	44086	0.04	-1.85, 1.92	0.155038	0.65	-11.37, 12.67	0.531398	-4.15	-31.61, 23.32	-2.59025
Indiana U	55151	1.10	-1.39, 3.60	3.554403	1.30	-12.43, 15.03	0.893174	10.23 §	-17.14, 37.61	5.897799
ProHealth	14723	4.64**	0.74, 8.55	17.77951	0.51	-23.07, 24.09	0.364247	-20.73	-79.05, 37.59	-11.32
ProspectNE	12878	-2.94	-6.55, 0.67	-8.02695	-10.33	-29.54, 8.88	-6.3571	-23.35	-60.79, 14.09	-12.1401
PSW	26819	-2.78**	-4.92, -0.65	-17.5459	-4.18	-19.15, 10.79	-4.10565	-0.18	-34.81, 34.44	-0.15168
St. Luke's	28833	1.51	-1.62, 4.64	9.731769	-9.14	-32.27, 13.99	-8.21393	12.67 §	-36.46, 61.80	9.709501
UNC	28773	-1.49	-4.33, 1.35	-5.98487	-8.41	-25.68, 8.87	-6.56942	10.25	-27.38, 47.87	6.247978
UTSW	97352	0.60	-0.84, 2.04	2.448632	-5.48	-14.36, 3.40	-4.02915	-21.14*	-44.94, 2.66	-11.0923

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2017 cohort) in PY 6, absent the model.
ACSC=ambulatory care-sensitive condition, SNF=skilled nursing facility.

Exhibit K.42. NGACO-Level PY 6 (2021) Impact on Select Spending Categories (Acute Care Hospital, SNF, Other PAC, and Outpatient Facility), 2018 Cohort

| | # of NGACO beneficiaries in PY 6 | Spending ($ PBPY) | | | | | | | | | | | |
| | | Acute care hospital facility | | | SNF | | | Other PAC facility | | | Outpatient facility | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACC of TN	29210	-27.08	-155.45, 101.29	-1.10723	-80.11***	-130.78, -29.43	-15.1272	-36.69	-82.14, 8.76	-18.4205	9.77	-109.97, 129.50	0.487556
Best Care Collab	17256	-1.59	-212.75, 209.57	-0.05463	-21.94	-96.29, 52.41	-3.17483	1.32	-76.78, 79.43	0.485587	-84.57	-221.35, 52.21	-4.20305
CareMount	25838	-935.54***	-1,257.46, -613.61	-14.844	-427.29***	-590.22, -264.35	-19.785	-111.02***	-184.12, -37.93	-26.3512	-117.07	-290.67, 56.54	-4.1441
Central Utah	14769	-107.49	-475.68, 260.69	-3.40085	-194.93**	-351.83, -38.03	-25.1762	-4.49	-169.64, 160.66	-0.81904	-154.52	-374.82, 65.77	-6.61905
Franciscan	22143	-10.82	-228.23, 206.58	-0.35301	26.41	-78.15, 130.97	3.62287	-4.98	-113.73, 103.78	-0.66963	138.41	-84.74, 361.56	5.571134
Mary Washington	10019	-196.85	-480.54, 86.83	-5.84658	-25.47	-125.85, 74.92	-3.5535	-19.66	-111.05, 71.73	-4.22289	-59.99	-301.31, 181.33	-3.03363
NEQCA	28219	-131.26	-369.31, 106.78	-2.8445	-17.54	-88.37, 53.28	-1.74564	4.60	-53.00, 62.19	1.269488	-270.88***	-429.75, -112.01	-8.87732
Primary Care Alliance	12607	-200.97	-483.08, 81.14	-6.61593	-67.60	-174.65, 39.44	-7.95378	44.58	-19.79, 108.95	28.96178	-160.21	-378.46, 58.04	-8.70518
Primaria	24424	-441.73**	-798.11, -85.36	-11.6599	-175.26***	-270.18, -80.33	-18.4356	-8.52	-100.17, 83.13	-1.80782	-340.25**	-645.16, -35.33	-10.8318
Reliance	10430	148.57	-115.37, 412.51	3.87231	9.05	-62.80, 80.90	1.40873	-3.71	-84.46, 77.04	-1.17617	140.37	-87.99, 368.73	6.201572
Reliant	10742	-300.68	-775.33, 173.98	-6.87819	-36.83	-201.08, 127.42	-3.88044	-33.42	-122.44, 55.60	-10.2484	-440.33***	-709.62, -171.04	-16.6872
Torrance	11363	-735.23***	-1,164.00, -306.46	-14.1253	-78.23	-265.28, 108.83	-5.76061	-179.35***	-312.42, -46.28	-37.8036	-588.74***	-973.18, -204.30	-18.1198
UW Health	24912	115.06	-117.34, 347.46	3.525819	-48.56	-131.97, 34.84	-7.3481	51.24	-16.46, 118.94	22.46454	-69.63	-318.68, 179.43	-1.98137

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) in PY 6, absent the model. "Other post-acute care facility" includes inpatient rehabilitation facilities and long-term care hospital facilities. Outpatient facility includes hospital outpatient, ED, and comprehensive outpatient rehabilitation facilities. PAC=post-acute care, PBPY=per beneficiary per year, SNF=skilled nursing facility.

Exhibit K.43. NGACO-Level PY 6 (2021) Impact on Select Spending Categories (Professional Services, Home Health, Hospice, and Durable Medical Equipment), NGACOs in 2018 Cohort

	# of NGACO beneficiaries in PY 6	Spending ($ PBPY)											
		Professional services			Home health			Hospice			Durable medical equipment		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACC of TN	29210	-180.97*	-363.08, 1.13	-4.76586	-53.99***	-87.43, -20.55	-9.88573	-49.18	-109.80, 11.44	-11.8658	-43.56*	-92.61, 5.48	-11.3588
Best Care Collab	17256	-446.48***	-683.22, -209.74	-8.93162	-29.92	-68.01, 8.16	-5.12974	-12.11	-77.38, 53.15	-2.51927	-1.00	-46.67, 44.66	-0.33065
CareMount	25838	-142.13**	-252.40, -31.86	-3.27571	-40.79**	-72.88, -8.70	-6.91672	80.82***	33.44, 128.21	33.06733	-15.30	-51.17, 20.58	-6.37038
Central Utah	14769	-288.39**	-550.56, -26.22	-7.11396	-151.15***	-264.38, -37.93	-15.3172	-157.49**	-289.33, -25.65	-22.1601	-70.48**	-126.84, -14.11	-15.4029
Franciscan	22143	-209.50***	-365.53, -53.46	-5.96708	-80.68***	-133.18, -28.17	-9.89932	-55.51	-123.43, 12.42	-10.7475	-21.12	-82.87, 40.64	-6.0436
Mary Washington	10019	-614.26***	-911.92, -316.61	-12.8367	-73.01***	-123.67, -22.35	-12.7668	-81.32**	-160.14, -2.49	-20.5019	-0.46	-34.37, 33.46	-0.20939
NEQCA	28219	-173.14***	-266.93, -79.34	-5.08579	-44.68**	-79.44, -9.91	-5.98798	-74.35**	-132.07, -16.62	-16.8901	-4.94	-43.59, 33.72	-2.18196
Primary Care Alliance	12607	-532.18***	-781.00, -283.36	-10.3169	-59.49***	-103.30, -15.68	-10.9197	-41.34	-161.49, 78.80	-7.57788	-40.03*	-85.95, 5.88	-14.8547
Primaria	24424	-340.82*	-712.58, 30.93	-11.047	-26.99	-60.71, 6.73	-5.87886	-29.43	-86.33, 27.46	-8.56494	29.61	-12.01, 71.23	8.553844
Reliance	10430	38.34	-105.67, 182.34	1.011658	27.32	-8.56, 63.19	5.823713	-75.94**	-136.01, -15.86	-21.8093	11.33	-45.35, 68.00	3.703902
Reliant	10742	-28.61	-218.78, 161.55	-0.88047	-23.81	-92.93, 45.30	-3.68239	-48.29	-160.90, 64.32	-12.4188	-63.20	-150.64, 24.24	-21.0943
Torrance	11363	-526.29***	-771.39, -281.19	-9.75944	18.57	-74.36, 111.51	1.384816	-35.19	-140.51, 70.13	-6.10026	-83.25***	-138.76, -27.75	-27.3313
UW Health	24912	-224.51***	-318.34, -130.68	-10.7201	12.21	-18.51, 42.93	3.83692	-43.64	-128.35, 41.06	-7.41886	-12.82	-44.95, 19.31	-5.19514

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) in PY 6, absent the model. Professional services include physician, other professional, and ancillary services rendered under Part B. PBPY=per beneficiary per year.

Exhibit K.44. NGACO-Level PY 6 (2021) Impact on Select Utilization Outcomes (Acute Care Stays, SNF Stays, SNF Days, and ED Visits and Observation Stays), 2018 Cohort

	# of NGACO beneficiaries in PY 6	Utilization (per 1,000 beneficiaries per year)											
		Acute care stays			SNF stays			SNF days			ED visits & observation stays		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACC of TN	29210	-2.76	-12.06, 6.54	-1.25855	-4.63**	-8.76, -0.49	-9.65075	-166.92**	-301.44, -32.39	-13.0115	-14.69*	-30.12, 0.74	-4.23339
Best Care Collab	17256	-7.38	-20.77, 6.02	-2.98906	-0.95	-7.12, 5.21	-1.61646	14.58	-143.47, 172.62	1.086379	8.07	-13.27, 29.41	2.15679
CareMount	25838	-42.42***	-53.94, -30.90	-13.2597	-19.35***	-25.31, -13.40	-21.5827	-651.23***	-882.93, -419.53	-21.8394	13.84	-4.86, 32.54	3.322207
Central Utah	14769	-19.01	-42.24, 4.22	-8.49651	-13.28***	-23.16, -3.40	-24.9546	-286.23**	-551.64, -20.81	-21.6495	-55.03**	-106.12, -3.94	-10.1145
Franciscan	22143	4.58	-9.36, 18.52	1.878379	0.02	-6.72, 6.76	0.039107	46.06	-200.29, 292.41	2.698713	43.47***	17.41, 69.52	8.851495
Mary Washington	10019	-9.40	-25.93, 7.12	-3.67497	1.79	-4.32, 7.90	4.151803	-23.39	-218.47, 171.69	-1.86192	-69.89***	-99.70, -40.09	-14.8291
NEQCA	28219	-2.53	-13.20, 8.13	-0.9039	-0.63	-5.47, 4.22	-0.8554	11.81	-110.10, 133.73	0.728973	-62.89***	-81.60, -44.18	-12.2973
Primary Care Alliance	12607	-17.22*	-35.71, 1.27	-6.59235	-5.01	-13.05, 3.03	-7.73463	-161.64	-409.55, 86.27	-9.04531	2.54	-25.49, 30.58	0.624771
Primaria	24424	-9.32	-23.40, 4.77	-3.55549	-5.72*	-12.03, 0.59	-8.8971	-331.66***	-515.41, -147.91	-19.1239	-52.11***	-79.95, -24.26	-9.72786
Reliance	10430	4.99	-10.00, 19.99	1.703501	-0.13	-6.78, 6.53	-0.20395	-14.71	-158.38, 128.95	-1.20416	4.35	-21.63, 30.32	0.962547
Reliant	10742	-14.34	-38.31, 9.63	-5.70679	5.49	-4.81, 15.78	8.707625	-80.88	-359.16, 197.40	-5.23811	-11.43	-56.12, 33.27	-2.33151
Torrance	11363	-14.88*	-32.13, 2.38	-5.31408	-5.36	-13.92, 3.20	-7.7768	-98.37	-377.48, 180.74	-5.39265	1.36	-31.04, 33.75	0.311783
UW Health	24912	5.32	-7.42, 18.05	2.418317	-1.08	-6.71, 4.54	-2.24253	-90.26	-260.11, 79.59	-7.08191	1.77	-23.58, 27.12	0.314706

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) in PY 6, absent the model. ED=emergency department, SNF=skilled nursing facility.

Exhibit K.45. NGACO-Level PY 6 (2021) Impact on Select Utilization Outcomes (E&M Visits, Procedures, Tests, and Imaging Services), 2018 Cohort

| | # of NGACO beneficiaries in PY 6 | Utilization (per 1,000 beneficiaries per year) | | | | | | | | | | | |
| | | E&M visits | | | Procedures | | | Tests | | | Imaging services | | |
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACC of TN	29210	-376.71***	-545.46, -207.95	-3.09125	-65.62	-441.67, 310.42	-0.55966	474.78**	107.12, 842.45	1.956997	-87.22*	-185.94, 11.50	-1.70067
Best Care Collab	17256	-785.77***	-1,028.70, -542.83	-5.60615	-1453.68***	-1,888.99, -1,018.37	-10.3247	-885.37***	-1,395.79, -374.94	-3.58751	-296.34***	-448.05, -144.62	-4.70147
CareMount	25838	-367.85***	-544.41, -191.30	-2.6219	-1062.25***	-1,574.95, -549.55	-5.8094	-353.87	-801.68, 93.95	-1.17452	-258.35***	-370.18, -146.51	-4.04624
Central Utah	14769	-927.48***	-1,366.94, -488.03	-8.31973	-164.13	-1,009.73, 681.46	-1.2749	-1668.08***	-2,464.97, -871.19	-8.05929	-206.21*	-420.26, 7.85	-4.09908
Franciscan	22143	-1149.31***	-1,364.60, -934.02	-8.68746	-290.44	-764.37, 183.48	-2.46192	-152.46	-632.10, 327.19	-0.63233	-37.91	-167.47, 91.64	-0.68832
Mary Washington	10019	-232.08*	-476.16, 11.99	-1.95943	-843.31***	-1,451.82, -234.80	-6.79656	276.92	-400.45, 954.29	1.076238	-291.14***	-457.23, -125.06	-5.41106
NEQCA	28219	-932.64***	-1,123.95, -741.33	-6.23575	-219.83	-504.61, 64.95	-2.13035	-902.89***	-1,353.04, -452.75	-3.27688	-203.16***	-303.16, -103.17	-3.93159
Primary Care Alliance	12607	-923.88***	-1,241.26, -606.49	-6.22183	-1194.97***	-1,716.86, -673.07	-9.06859	-1352.51***	-2,049.64, -655.38	-4.51393	-371.04***	-554.11, -187.96	-6.37829
Primaria	24424	-525.58***	-738.53, -312.63	-4.44858	-869.33***	-1,197.37, -541.30	-9.50571	-299.82	-715.05, 115.41	-1.48624	-246.43***	-368.85, -124.02	-5.01584
Reliance	10430	123.88	-131.94, 379.70	0.898596	261.53	-197.92, 720.97	2.361352	-141.97	-667.27, 383.34	-0.54952	-79.11	-220.56, 62.33	-1.46246
Reliant	10742	-1333.43***	-1,710.17, -956.68	-10.2167	-672.09**	-1,190.49, -153.69	-7.22573	-789.87*	-1,662.53, 82.80	-3.09134	-181.40	-408.12, 45.33	-3.40081
Torrance	11363	-650.07***	-924.36, -375.77	-4.32475	-1201.54***	-1,814.31, -588.76	-7.2805	436.94	-217.83, 1,091.72	1.404342	-270.30***	-415.10, -125.51	-4.69846
UW Health	24912	-189.40*	-384.00, 5.20	-1.73105	160.22	-200.18, 520.61	1.774731	201.46	-322.14, 725.05	0.918733	100.55	-23.88, 224.98	2.088709

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) in PY 6, absent the model. Procedures, Tests, and Imaging Services include counts of services rendered by professionals and outpatient facilities. E&M=evaluation and management.

Exhibit K.46. NGACO-Level PY 6 (2021) Impact on Select Utilization Outcomes (Beneficiaries with AWV, Home Health Episodes, and Home Health Visits), NGACOs in 2018 Cohort

	# of NGACO beneficiaries in PY 6	Utilization (per 1,000 beneficiaries per year)								
		Beneficiaries with AWV			Home health episodes			Home health visits		
		DID estimate	95% confidence interval (CI)	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACC of TN	29210	15.96***	9.83, 22.09	1.913565	-22.51***	-34.61, -10.40	-10.4343	-327.08***	-539.73, -114.43	-10.8288
Best Care Collab	17256	11.93**	0.23, 23.63	2.293576	-15.51**	-29.53, -1.49	-7.00759	-188.79*	-406.86, 29.27	-6.43466
CareMount	25838	297.86***	290.26, 305.46	62.41533	-20.92***	-29.50, -12.34	-12.4709	-264.48***	-412.95, -116.00	-11.5139
Central Utah	14769	159.79***	141.03, 178.56	29.63595	-48.85***	-83.07, -14.64	-16.565	-963.09**	-1,751.42, -174.77	-17.516
Franciscan	22143	27.85***	16.56, 39.14	8.25616	-44.96***	-64.40, -25.53	-14.0357	-311.68**	-595.08, -28.27	-7.78346
Mary Washington	10019	246.20***	232.06, 260.34	56.17299	-24.70***	-40.25, -9.14	-13.4939	-136.02	-389.32, 117.27	-5.69744
NEQCA	28219	87.84***	80.05, 95.62	19.34167	-18.11***	-28.20, -8.01	-7.99543	-151.51*	-318.08, 15.06	-5.25769
Primary Care Alliance	12607	-162.32***	-177.78, -146.86	-45.1581	-41.51***	-58.67, -24.35	-19.0201	-179.48*	-392.76, 33.81	-7.5064
Primaria	24424	167.85***	156.66, 179.04	31.39095	-11.16*	-22.34, 0.02	-7.25972	-227.28**	-413.01, -41.55	-10.883
Reliance	10430	70.72***	59.80, 81.64	14.33743	5.03	-7.73, 17.79	2.742031	141.19	-34.92, 317.30	7.007697
Reliant	10742	58.03***	40.97, 75.09	11.02238	-19.74	-51.10, 11.62	-8.37919	-84.22	-424.51, 256.07	-3.2183
Torrance	11363	-51.55***	-61.87, -41.24	-8.49589	-38.88***	-62.87, -14.88	-9.84146	205.46	-206.58, 617.50	4.293477
UW Health	24912	-68.57***	-75.78, -61.35	-35.5684	-6.72	-16.89, 3.46	-5.92251	102.03	-80.65, 284.72	6.897983

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) in PY 6, absent the model. AWV=annual wellness visit.

Exhibit K.47. NGACO-Level PY 6 (2021) Impact on Quality of Care Outcomes, 2018 Cohort

	# of NGACO beneficiaries in PY 6	Quality of Care (per 1,000 beneficiaries per year)								
		Beneficiaries with ACSC hospitalizations			Beneficiaries with unplanned 30-day readmissions			Beneficiaries with hospital readmissions from SNF		
		DID estimate	95% CI	% impact	DID estimate	95% CI	% impact	DID estimate	95% CI	% impact
ACC of TN	29210	-0.42	-2.70, 1.86	-1.92245	3.13	-12.45, 18.70	2.345538	-1.04	-34.29, 32.20	-0.65112
Best Care Collab	17256	0.59	-2.65, 3.83	2.343498	-12.17	-31.92, 7.59	-9.33881	-65.63**	-116.84, -14.43	-34.6956
CareMount	25838	-4.03***	-6.17, -1.90	-16.7517	-13.63*	-27.97, 0.70	-9.84286	4.71	-26.09, 35.52	2.649395
Central Utah	14769	-4.13	-11.16, 2.90	-24.3936	10.98	-13.14, 35.10	12.20415	23.55	-36.21, 83.31	18.75241
Franciscan	22143	1.42	-1.44, 4.28	6.718523	5.15	-13.63, 23.93	3.942706	3.16	-49.19, 55.52	1.874229
Mary Washington	10019	-2.82	-7.79, 2.15	-7.07223	2.91	-21.49, 27.32	1.83768	-9.97	-69.36, 49.42	-5.26869
NEQCA	28219	-0.03	-2.65, 2.58	-0.0977	-1.91	-15.42, 11.59	-1.24105	6.34	-21.35, 34.03	3.499676
Primary Care Alliance	12607	-4.80**	-9.54, -0.06	-16.5508	-7.19	-30.69, 16.31	-5.74221	-37.19	-99.62, 25.24	-19.2903
Primaria	24424	1.20	-2.37, 4.76	3.514414	7.42	-11.83, 26.66	4.758686	-21.08	-67.26, 25.10	-10.6384
Reliance	10430	0.69	-3.19, 4.57	1.850385	12.19	-6.84, 31.23	7.385437	3.76	-43.63, 51.15	1.6313
Reliant	10742	-1.49	-6.35, 3.36	-6.02226	8.34	-22.00, 38.68	5.732752	63.02*	-3.17, 129.20	30.95498
Torrance	11363	-0.64	-3.90, 2.61	-3.27534	-1.26	-23.23, 20.70	-0.96128	8.87	-46.08, 63.82	4.832967
UW Health	24912	2.21*	-0.34, 4.77	12.69648	14.56	-4.84, 33.95	10.87309	-12.95	-50.65, 24.74	-9.05422

NOTES: Difference-in-differences (DID) impact estimates significant at *p<0.1, **p<0.05, and ***p<0.01. § denotes uninterpretable impact estimate due to failure of parallel trends assumption across baseline years. Percentage impact is relative to expected average outcome for NGACO beneficiaries (2018 cohort) in PY 6, absent the model.
ACSC=ambulatory care-sensitive conditions, SNF=skilled nursing facility.

Appendix L: 2021 Leadership Survey Exhibits

This appendix presents summary tables of responses from the 2021 ACO Leadership Survey, overall and by NGACO organization type. The exhibits support the findings of survey-based analyses presented in our sixth evaluation report. They comprise a set of tables that present summary findings for all NGACOs that were active and that responded to the 2021 ACO Leadership Survey (n=35).

The appendix is organized as follows:

- 2021 Leadership Survey questions and response options (**Exhibit L.1**)
- Financial and population health management findings (**Exhibits L.2–L.9**)
- Care delivery and management findings (**Exhibits L.10–L.19**)
- Post-acute care findings (**Exhibits L.20–L.21**)
- Quality improvement findings (**Exhibits L.22–L.25)**

Exhibit L.1. 2021 Leadership Survey Questions and Response Options

Question number	Main question	Sub-questions	Response options
1	For beneficiaries aligned to the Next Gen ACO, to what extent is your Next Gen ACO able to:	Integrate multiple data sources (for example, electronic health records [EHRs], claims, and Admissions, Discharges, Transfer [ADT] data) to analyze utilization Forecast shared savings and losses attributable to the Next Gen model If you responded "not at all" or "very little," please share additional details. (Optional)	-To a great extent -Somewhat -Very little -Not at all -Don't know Open-ended
2	Which of the following does your Next Gen ACO use to stratify beneficiaries by risk level?	In-house developed proprietary analytic model Vendor-developed proprietary analytic model Module in the health system's EHR Separate, commercial population health software package Vendor or contractor provided lists of beneficiaries stratified by risk level Other, please specify:	-Yes -No -Don't know -N/A
3	To what extent does your NGACO rely on vendors or contractors to perform data analytics to support population health management?		-To a great extent -Somewhat -Very little -Not at all -Don't know
4	In order to manage your ACO's attributed beneficiary population, to what extent does your NGACO…	…know when aligned beneficiaries are registered in an emergency department (ED) or admitted to a hospital? …provide primary care team with real-time data on aligned beneficiary hospitalizations? …navigate aligned beneficiaries to the right post-acute care (PAC) setting? …track aligned beneficiaries at risk for readmission to the hospital? …identify gaps in aligned beneficiary care?	-To a great extent -Somewhat -Very little -Not at all

Question number	Main question	Sub-questions	Response options
		…educate aligned beneficiaries, families, and caregivers to make informed, shared decisions?	
		If you responded "not at all" or "very little", please use this space to provide an explanation. (Optional)	Open-ended
5	Compared to when your organization joined the NGACO Model, how would you describe your organization's tools and infrastructure to track and manage your population of aligned beneficiaries?		-A lot better -Somewhat better -A little better -No different -Don't know
6	How does your NGACO handle financial rewards related to your participation in the NGACO Model?	The NGACO retains all financial rewards to offset overhead and infrastructure investments or for other purposes All financial rewards are allocated to the NGACO's providers Most financial rewards are allocated to the NGACO's providers Most financial rewards are retained by the NGACO	-Yes -No -Don't know -N/A
7	With which of the following providers does your NGACO share savings directly?	Employed practitioners Affiliated practices/TINs/groups Independent or sole practitioners Acute care hospitals Skilled nursing facilities (SNFs) Home health agencies LTCH/IRFs Other providers or facilities, please specify:	-Yes -No -Don't know -N/A
8	With which of the following providers does your NGACO share downside financial risk (or losses) directly?	Employed practitioners Affiliated practices/TINs/groups Independent or sole practitioners Acute care hospitals SNF	-Yes -No -Don't know -N/A

Question number	Main question	Sub-questions	Response options
		Home health agencies LTCH/IRFs Other providers or facilities, please specify:	
9	For each of the following care settings, please indicate where your NGACO provides care management.	Primary care offices or practices Specialty offices or practices Inpatient hospital ED SNF Other	-Centralized care managers -Embedded care managers -Both centralized and embedded -We do not provide direct care management services -Other -N/A
10	What is the CURRENT level of priority for the following NGACO strategies and initiatives?	Reducing avoidable ED visits Reducing avoidable inpatient admissions Preventing readmissions Managing PAC spending and quality Increasing annual wellness visits among aligned beneficiaries Managing specialty care utilization (e.g., oncology, orthopedics, cardiology) Addressing mental or behavioral health needs Addressing social needs, such as housing and food security Collecting patient data on race, ethnicity, and preferred language Closing gaps in use of preventative care Reducing repeated or unnecessary imaging and/or testing Improving use of palliative care and hospice services	-High Priority -Medium Priority -Low Priority -Not a priority -N/A

Question number	Main question	Sub-questions	Response options
11	What is the status of implementation of strategies or initiatives to address the following priorities?	Reducing avoidable ED visits Reducing avoidable inpatient admissions Preventing readmissions Managing PAC spending and quality Increasing annual wellness visits among aligned beneficiaries Managing specialty care utilization (e.g., oncology, orthopedics, cardiology) Addressing mental or behavioral health needs Addressing social needs, such as housing and food security Collecting or improving the collection of patient data on race, ethnicity and preferred language Closing gaps in use of preventative care Reducing repeated or unnecessary imaging and/or testing Improving use of palliative care and hospice services	-Fully implemented and operational -In the process of implementing -Planning to implement -Considering implementing -Not planning to implement -Don't Know -N/A
12	Which, if any, of the following actions did your organization take to address the priorities listed above?	Expanded our provider network Designed and implemented a dedicated NGACO initiative Collaborated with the health system, practice, or provider organization on an initiative Fostered partnerships with social service or community-based organizations Hired new staff to focus on a priority initiative Employed non-traditional providers such as community health workers or peer navigators Invested or expanded infrastructure, e.g., health information technology (HIT) or data analytic capacity	-Yes -No -Don't know

Question number	Main question	Sub-questions	Response options
13	To what extent are the following processes standardized or applied in a consistent way across the providers in your NGACO? Please provide your overall assessment, across both facilities internal and external to your ACO or health system network.	Physician compensation Performance management of primary care physicians Primary care processes and team structure Care management processes and staff Hospital discharge planning Hospital notification and follow up Training on health disparities and/or health equity Provider training on delivering culturally competent care	-Fully standardized across the NGACO -Mostly standardized across the NGACO -Somewhat standardized across the NGACO -Not standardized -Don't Know -N/A
14	For each of the following care management programs, please indicate what proportion of aligned beneficiaries offered care management services elect to participate.	High risk or complex care management Transition from PAC to home Rising risk, chronic conditions, or ambulatory care management Beneficiaries with behavioral health or social needs Palliative care or advanced illness care management Other, please specify:	-All -Most -Some -None -We do not offer -Don't Know -N/A
15	Does your NGACO provider network include safety-net provider organization(s)?		-Yes -No -Don't know
16	Does your NGACO conduct in-person home visits for aligned NGACO beneficiaries?		-Yes -No -Don't know
17	Which of the following staff complete home visits with NGACO aligned beneficiaries?	Advanced practice nurse Registered nurse (RN) care manager/care coordinator Community health worker/care navigator Social worker Other, please specify:	-Yes -No -Don't know -N/A

Question number	Main question	Sub-questions	Response options
18	Please indicate which of the following reasons is a reason your NGACO would provide a home visit to an aligned beneficiary.	As a routine part of transition follow-up after an inpatient hospitalization	-Yes -No -Don't know -N/A
		As a routine part of transition follow-up after a SNF or other PAC stay	
		As a routine part of care management for aligned beneficiaries within certain risk levels	
		To address a specific need identified by a physician or care manager	
		To assess the beneficiary's home setting for safety and other reasons	
		To determine or re-determine eligibility for Medicare home health benefits	
		To provide a beneficiary with transportation to or from a medical visit	
19a	Which of the following strategies has your NGACO EVER used? - SNF	Established an ongoing workgroup or collaborative to facilitate peer-to-peer learning between the NGACO and its PAC partners	-Yes -N/A
		Alert NGACO care managers when an attributed beneficiary is admitted to PAC	
		Develop resources to highlight high-performing facilities for beneficiaries and clinicians	
		Embed NGACO staff in PAC facilities, i.e., care managers, physicians, or SNFists	
		Establish regular phone communications with most PAC providers	
		Give NGACO and PAC providers access to EHRs for information exchange (NGACO, integrated delivery systems, hospital, or physician)	
		Share performance data or a scorecard	
		Other, please specify:	
	Which of the following strategies has your NGACO EVER used? – LTCH or IRF	Established an ongoing workgroup or collaborative to facilitate peer-to-peer learning between the NGACO and its PAC partners	
		Alert NGACO care managers when an attributed beneficiary is admitted to PAC	
		Develop resources to highlight high-performing facilities for beneficiaries and clinicians	
		Embed NGACO staff in PAC facilities, i.e., care managers, physicians, or SNFists	
		Establish regular phone communications with most PAC providers	

Question number	Main question	Sub-questions	Response options
	Which of the following strategies has your NGACO EVER used? – Home health	Give NGACO and PAC providers access to EHRs for information exchange (NGACO, integrated delivery systems, hospital, or physician)	
		Share performance data or a scorecard	
		Other, please specify:	
		Established an ongoing workgroup or collaborative to facilitate peer-to-peer learning between the NGACO and its PAC partners	
		Alert NGACO care managers when an attributed beneficiary is admitted to PAC	
		Develop resources to highlight high-performing facilities for beneficiaries and clinicians	
		Embed NGACO staff in PAC facilities, i.e., care managers, physicians, or SNFists	
		Establish regular phone communications with most PAC providers	
		Give NGACO and PAC providers access to EHRs for information exchange (NGACO, integrated delivery systems, hospital, or physician)	
		Share performance data or a scorecard	
		Other, please specify:	
19b	Compared to before your organization entered the NGACO Model, how would you describe your organization's ability to track, coordinate, and manage the care of aligned beneficiaries admitted to PAC settings?		-A lot better -Somewhat better -A little better -No different -Don't know
20	Which of the following performance improvement strategies have EVER been a priority for your NGACO?	Completing close to real-time assessments of expected performance relative to NGACO quality benchmarks	-Yes -No -Don't know
		Developing in-house capacity to conduct quality analysis and reporting	
		Aligning performance metrics across NGACO and other ACO contracts	
		Developing workflows informed by data analytics and clinical staff input	
		Undertaking educational initiatives to improve providers' coding and quality reporting practices	
		Use Choosing Wisely	

Question number	Main question	Sub-questions	Response options
21	How important have each of the following approaches been to your NGACO's management of individual provider performance?	Using financial incentives tied to performance	-Very important -Moderately important -Not important
		Sharing performance measures on quality	
		Sharing performance measures on cost	
		Providing one-on-one review and feedback of performance and quality data	
		Providing one-on-one review and feedback of cost data	
		Establishing real-time physician access to performance and quality data or reports	
		Establishing real-time physician access to cost data or reports	
		Non-financial awards or recognition tied to performance	
		Conducting regular meetings with participating physician practices	
23	Compared to before your organization entered the NGACO Model, how would you describe your organization's ability to share performance, quality and cost data with individual practitioners and providers?		-A lot better -Somewhat better -A little better -No different -Don't know
24	What role has the NGACO Model played in efforts to address social determinants of health (SDOH). Which of the following strategies has your organization ever used to understand and address beneficiaries' SDOH-related needs?	Standardized screening for SDOH	-Yes -No -Don't know
		Documentation of SDOH in the EHR	
		Care team with differentiated roles for social services	
		Referrals for social services	
		Initiated relationships with social services or community-based organizations	

Question number	Main question	Sub-questions	Response options
		Established formal partnerships with social services or community-based organizations	
		Evaluation of return on investment to inform which SDOH-related strategies to pursue	
		Analysis and reporting of beneficiary data stratified by individual social determinants, e.g., food insecurity, housing, or transportation	
25	Reflecting back on your experiences in the NGACO Model, what are the 2--most significant changes that have resulted in clinical or operational improvements?		Open-ended
26	Reflecting back on your experiences in the NGACO Model, what have been the 2--biggest challenges for your ACO?		Open-ended
27	What are the 2--most significant changes your NGACO made in response to or because of the COVID-19 pandemic, such as providing additional services to address patient needs or cutting back programs or services?		Open-ended

Exhibit L.2. Summary Table for Survey Question #1: For beneficiaries aligned to the NGACO, to what extent is your NGACO able to…?

For beneficiaries aligned to the NGACO, to what extent is your NGACO able to:	Organization type	To a great extent		Somewhat		Very little		Not at all		Don't know		Total (n)
		n	%	n	%	n	%	n	%	n	%	
Integrate multiple data sources (for example, electronic health records [EHRs], claims, and Admissions, Discharges Transfer [ADT] data) to analyze utilization	**Overall**	**24**	**68.6%**	**10**	**28.6%**	**1**	**2.9%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	9	64.3%	4	28.6%	1	7.1%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	8	80%	2	20%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	7	63.6%	4	36.4%	0	0.0%	0	0.0%	0	0.0%	11
Forecast shared savings and losses attributable to the Next Gen model	**Overall**	**18**	**51.4%**	**9**	**25.7%**	**8**	**22.9%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	5	35.7%	3	21.4%	6	42.9%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	5	50%	4	40%	1	10%	0	0.0%	0	0.0%	10
	Physician Practice	8	72.7%	2	18.2%	1	9.1%	0	0.0%	0	0.0%	11

Exhibit L.3. Summary Table for Question #2: Which of the following does your NGACO use to stratify beneficiaries by risk level?

Which of the following does your NGACO use to stratify beneficiaries by risk level?	Organization type	Yes		No		Don't know		N/A		Total (n)
		n	%	n	%	n	%	n	%	
In-house developed proprietary analytic model	**Overall**	**23**	**65.7%**	**10**	**28.6%**	**0**	**0.0%**	**2**	**5.7%**	**35**
	IDS/Hospital System	9	64.3%	4	28.6%	0	0.0%	1	7.1%	14
	Physician Hospital Partnership	4	40%	6	60%	0	0.0%	0	0.0%	10
	Physician Practice	10	90.9%	0	0%	0	0.0%	1	9.1%	11
Vendor-developed proprietary analytic model	**Overall**	**21**	**60.0%**	**12**	**34.3%**	**0**	**0.0%**	**2**	**5.7%**	**35**
	IDS/Hospital System	6	42.9%	8	57.1%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	9	90%	1	10%	0	0.0%	0	0.0%	10
	Physician Practice	6	54.5%	3	27.3%	0	0.0%	2	18.2%	11
Module in the health system's EHR	**Overall**	**18**	**51.4%**	**13**	**37.1%**	**1**	**2.9%**	**3**	**8.6%**	**35**
	IDS/Hospital System	11	78.6%	3	21.4%	0	0.0%	0	0 0%	14
	Physician Hospital Partnership	5	50%	4	40%	0	0.0%	1	10%	10
	Physician Practice	2	18.2%	6	54.5%	1	9.1%	2	18.2%	11

Which of the following does your NGACO use to stratify beneficiaries by risk level?	Organization type	Yes		No		Don't know		N/A		Total (n)
		n	%	n	%	n	%	n	%	
Separate, commercial population health software package	**Overall**	**12**	**34.3%**	**18**	**51.4%**	**1**	**2.9%**	**4**	**11.4%**	**35**
	IDS/Hospital System	4	28.6%	9	64.3%	0	0.0%	1	7.1%	14
	Physician Hospital Partnership	5	50%	3	30%	1	10%	1	10%	10
	Physician Practice	3	27.3%	6	54.5%	0	0.0%	2	18.2%	11
Vendor or contractor provided lists of beneficiaries stratified by risk level	**Overall**	**9**	**25.7%**	**21**	**60%**	**0**	**0.0%**	**5**	**14.3%**	**35**
	IDS/Hospital System	4	28.6%	10	71.4%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	4	40%	4	40%	0	0.0%	2	20%	10
	Physician Practice	1	9.1%	7	63.6%	0	0.0%	3	27.3%	11
Other	**Overall**	**0**	**0.0%**	**2**	**5.7%**	**0**	**0.0%**	**33**	**94.3%**	**35**
	IDS/Hospital System	0	0.0%	1	7.1%	0	0.0%	13	92.8%	14
	Physician Hospital Partnership	0	0.0%	1	10%	0	0.0%	9	90%	10
	Physician Practice	0	0.0%	0	0.0%	0	0.0%	11	100%	11

Exhibit L.4. Summary Table for Survey Question #3: To what extent does your NGACO rely on vendors or contractors to perform data analytics to support population health management?

To what extent does your NGACO rely on vendors or contractors to perform data analytics to support population health management?	Organization type	To a great extent		Somewhat		Very little		Not at all		Don't know		Total (n)
		n	%	n	%	n	%	n	%	n	%	
	Overall	5	14.3%	16	45.7%	7	20.0%	7	20.0%	0	0.0%	**35**
	IDS/Hospital System	3	21.4%	6	42.9%	3	21.4%	2	14.3%	0	0.0%	14
	Physician Hospital Partnership	2	20%	5	50%	1	10%	2	20%	0	0.0%	10
	Physician Practice	0	0%	5	45.5%	3	27.3%	3	27.3%	0	0.0%	11

Exhibit L.5. Summary Table for Survey Question #4: In order to manage your ACO's attributed beneficiary population, to what extent does your NGACO…?

In order to manage your ACO's attributed beneficiary population, to what extent does your NGACO?	Organization type	To a great extent		Somewhat		Very little		Not at all		Total (n)
		n	%	n	%	n	%	n	%	
Know when aligned beneficiaries are registered in an emergency department (ED) or admitted to a hospital	**Overall**	**24**	**68.6%**	**9**	**25.7%**	**1**	**2.9%**	**1**	**2.9%**	**35**
	IDS/Hospital System	10	71.4%	3	21.4%	0	0.0%	1	7.1%	14
	Physician Hospital Partnership	7	70%	3	30%	0	0.0%	0	0.0%	10
	Physician Practice	7	63.6%	3	27.3%	1	9.1%	0	0.0%	11
Provide primary care team with real-time data on aligned beneficiary hospitalizations	**Overall**	**20**	**57.1%**	**12**	**34.3%**	**2**	**5.7%**	**1**	**2.9%**	**35**
	IDS/Hospital System	7	50%	6	42.9%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	6	60%	3	30%	0	0.0%	1	10%	10
	Physician Practice	7	63.6%	3	27.3%	1	9.1%	0	0.0%	11
Navigate aligned beneficiaries to the right post-acute care (PAC) setting	**Overall**	**14**	**40.0%**	**18**	**51.4%**	**2**	**5.7%**	**1**	**2.9%**	**35**
	IDS/Hospital System	6	42.9%	7	50%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	4	40%	6	60%	0	0.0%	0	0.0%	10
	Physician Practice	4	36.4%	5	45.5%	1	9.1%	1	9.1%	11
Track aligned beneficiaries at risk for readmission to the hospital	**Overall**	**23**	**65.7%**	**10**	**28.6%**	**1**	**2.9%**	**1**	**2.9%**	**35**
	IDS/Hospital System	10	71.4%	4	28.6%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	6	60%	3	30%	1	10%	0	0.0%	10
	Physician Practice	7	63.6%	3	27.3%	0	0.0%	1	9.1%	11
Identify gaps in aligned beneficiary care	**Overall**	**23**	**65.7%**	**12**	**34.3%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	11	78.6%	3	21.4%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	4	40%	6	60%	0	0.0%	0	0.0%	10
	Physician Practice	8	72.7%	3	27.3%	0	0.0%	0	0.0%	11
Educate aligned beneficiaries, families, and caregivers to make informed, shared decisions	**Overall**	**13**	**37.1%**	**20**	**57.1%**	**2**	**5.7%**	**0**	**0.0%**	**35**
	IDS/Hospital System	5	35.7%	9	64.3%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	4	40%	6	60%	0	0.0%	0	0.0%	10
	Physician Practice	4	36.4%	5	45.5%	2	18.2%	0	0.0%	11

Exhibit L.6. Summary Table for Survey Question #5: Compared to when your organization joined the NGACO Model, how would you describe your organization's tools and infrastructure to track and manage your population of aligned beneficiaries?

Compared to when your organization joined the NGACO Model, how would you describe your organization's tools and infrastructure to track and manage your population of aligned beneficiaries?	Organization type	A lot better		Somewhat better		A little better		No different		Don't know		Total (n)
		n	%	n	%	n	%	n	%	n	%	
	Overall	23	65.7%	10	28.6%	1	2.9%	1	2.9%	0	0.0%	35
	IDS/Hospital System	11	78.6%	0	0.0%	2	14.3%	1	7.10%	0	0.0%	14
	Physician Hospital Partnership	6	60%	0	0.0%	4	40%	0	0.0%	0	0.0%	10
	Physician Practice	6	54.5%	1	9.1%	4	36.4%	0	0.0%	0	0.0%	11

Exhibit L.7. Summary Table for Question #6: How does your NGACO handle financial rewards related to your participation in the NGACO Model?

How does your NGACO handle financial rewards related to your participation in the NGACO Model?	Organization type	Yes		No		Don't know		N/A		Total (n)
		n	%	n	%	n	%	n	%	
All financial rewards are retained by NGACO to offset overhead and infrastructure investments or for other purposes	Overall	4	11.4%	31	88.6%	0	0.0%	0	0.0%	35
	IDS/Hospital System	2	14.3%	12	85.7%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	0	0.0%	10	100%	0	0.0%	0	0.0%	10
	Physician Practice	2	18.2%	9	81.8%	0	0.0%	0	0.0%	11
All financial rewards are allocated to the NGACO's providers	Overall	4	11.4%	32	91.4%	0	0.0%	0	0.0%	35
	IDS/Hospital System	2	14.3%	12	85.7%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	1	10%	9	90%	0	0.0%	0	0.0%	10
	Physician Practice	0	0.0%	11	100%	0	0.0%	0	0.0%	11
Most financial rewards are retained by the NGACO	Overall	3	8.6%	30	85.7%	0	0.0%	2	5.7%	35
	IDS/Hospital System	1	7.1%	13	92.9%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	1	10%	7	70%	0	0.0%	2	20%	10
	Physician Practice	1	9.1%	10	90.9%	0	0.0%	0	0.0%	11
Most financial rewards are allocated to the NGACO's providers	Overall	26	74.3%	9	25.7%	0	0.0%	0	0.0%	35
	IDS/Hospital System	9	64.3%	5	35.7%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	9	90%	1	10%	0	0.0%	0	0.0%	10
	Physician Practice	8	72.7%	3	27.3%	0	0.0%	0	0.0%	11

Exhibit L.8. Summary Table for Question # 7: With which of the following providers does your NGACO share savings directly?

With which of the following providers does your NGACO share savings directly?	Organization type	Yes		No		Don't know		N/A		Total
		n	%	n	%	n	%	n	%	(n)
Employed practitioners	**Overall**	**20**	**57.1%**	**14**	**40%**	**0**	**0.0%**	**1**	**2.9%**	**35**
	IDS/Hospital System	10	71.4%	4	28.6%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	5	50%	5	50%	0	0.0%	0	0.0%	10
	Physician Practice	5	45.5%	5	45.5%	0	0.0%	1	9.1%	11
Affiliated practices / TINs / groups	**Overall**	**27**	**77.1%**	**8**	**22.9%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	11	78.6%	3	21.4%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	10	100%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	6	54.5%	5	45.5%	0	0.0%	0	0.0%	11
Independent or sole practitioners	**Overall**	**23**	**65.7%**	**12**	**34.3%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	10	71.4%	4	28.6%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	8	80%	2	20%	0	0.0%	0	0.0%	10
	Physician Practice	5	45.5%	6	54.5%	0	0.0%	0	0.0%	11
Acute care hospitals	**Overall**	**17**	**48.6%**	**18**	**51.4%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	8	57.1%	6	42.9%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	6	60%	4	40%	0	0.0%	0	0.0%	10
	Physician Practice	3	27.3%	8	72.7%	0	0.0%	0	0.0%	11
Skilled nursing facilities (SNFs)	**Overall**	**7**	**20.0%**	**28**	**80.0%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	2	14.3%	12	85.7%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	2	20%	8	80%	0	0.0%	0	0.0%	10
	Physician Practice	3	27.3%	8	72.7%	0	0.0%	0	0.0%	11
Home health agencies	**Overall**	**7**	**20.0%**	**27**	**77.1%**	**1**	**2.9%**	**0**	**0.0%**	**35**
	IDS/Hospital System	2	14.3%	11	78.6%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	2	20%	8	80%	0	0.0%	0	0.0%	10
	Physician Practice	3	27.3%	8	72.7%	0	0.0%	0	0.0%	11

With which of the following providers does your NGACO share savings directly?	Organization type	Yes		No		Don't know		N/A		Total
		n	%	n	%	n	%	n	%	(n)
Long-term care hospital (LTCH) / inpatient rehabilitation facilities (IRFs)	**Overall**	**1**	**2.9%**	**33**	**94.3%**	**1**	**2.9%**	**0**	**0.0%**	**35**
	IDS/Hospital System	1	7.1%	12	85.7%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	0	0.0%	10	100%	0	0.0%	0	0.0%	10
	Physician Practice	0	0.0%	11	100%	0	0.0%	0	0.0%	11
Other providers or facilities	**Overall**	**0**	**0.0%**	**14**	**40%**	**1**	**2.9%**	**20**	**57.1%**	**35**
	IDS/Hospital System	0	0.0%	5	45.5%	0	0.0%	9	64.3%	14
	Physician Hospital Partnership	0	0.0%	4	40%	1	10%	5	50%	10
	Physician Practice	0	0.0%	5	45.5%	0	0.0%	6	54.5%	11

Exhibit L.9. Summary Table for Question #8: With which of the following providers does your NGACO share downside financial risk (or losses) directly?

With which of the following providers does your NGACO share savings directly?	Organization type	Yes		No		Don't know		N/A		Total
		n	%	n	%	n	%	n	%	(n)
Employed practitioners	**Overall**	**13**	**37.1%**	**22**	**62.9%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	8	57.1%	6	42.9%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	2	20%	8	80%	0	0.0%	0	0.0%	10
	Physician Practice	3	27.3%	8	72.7%	0	0.0%	0	0.0%	11
Affiliated practices / TINs / groups	**Overall**	**17**	**48.6%**	**18**	**51.4%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	9	64.3%	5	35.7%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	6	60%	4	40%	0	0.0%	0	0.0%	10
	Physician Practice	2	18.2%	9	81.8%	0	0.0%	0	0.0%	11
Independent or sole practitioners	**Overall**	**11**	**31.4%**	**24**	**68.6%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	7	50%	7	50%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	4	40%	6	60%	0	0.0%	0	0.0%	10
	Physician Practice	0	0.0%	11	100%	0	0.0%	0	0.0%	11
Acute care hospitals	**Overall**	**16**	**45.7%**	**19**	**54.3%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	8	57.1%	6	42.9%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	6	60%	4	40%	0	0.0%	0	0.0%	10
	Physician Practice	2	18.2%	9	81.8%	0	0.0%	0	0.0%	11

With which of the following providers does your NGACO share savings directly?	Organization type	Yes		No		Don't know		N/A		Total (n)
		n	%	n	%	n	%	n	%	
Skilled nursing facilities (SNFs)	Overall	4	11.4%	31	88.6%	0	0.0%	0	0.0%	35
	IDS/Hospital System	2	14.3%	12	85.7%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	0	0.0%	10	100%	0	0.0%	0	0.0%	10
	Physician Practice	2	18.2%	9	81.8%	0	0.0%	0	0.0%	11
Home health agencies	Overall	6	17.1%	28	80.0%	1	2.9%	0	0.0%	35
	IDS/Hospital System	2	14.3%	11	78.6%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	2	20%	8	80%	0	0.0%	0	0.0%	10
	Physician Practice	2	18.2%	9	81.8%	0	0.0%	0	0.0%	11
Long-term care hospital (LTCH) / inpatient rehabilitation facilities (IRFs)	Overall	1	2.9%	33	94.3%	1	2.9%	0	0.0%	35
	IDS/Hospital System	1	7.1%	12	85.7%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	0	0.0%	10	100%	0	0.0%	0	0.0%	10
	Physician Practice	0	0.0%	11	100%	0	0.0%	0	0.0%	11
Other providers or facilities	Overall	1	2.9%	17	48.6%	1	2.9%	16	45.7%	35
	IDS/Hospital System	1	14.3%	6	42.9%	0	0.0%	7	50%	14
	Physician Hospital Partnership	0	0.0%	5	50%	1	10%	4	40%	10
	Physician Practice	0	0.0%	6	54.5%	0	0.0%	5	45.5%	11

Exhibit L.10. Summary Table for Survey Question # 9: For each of the following care settings, please indicate where your NGACO provides care management

For each of the following care settings, please indicate where your NGACO provides care management:	Organization Type	Centralized care managers		Embedded care managers		Both centralized and embedded		We do not provide direct care management services		Other		N/A		Total (n)
		n	%	n	%	n	%	n	%	n	%	n	%	
Primary care offices or practices	Overall	9	25.7%	3	8.6%	21	60.0%	2	5.7%	0	0.0%	0	0.0%	35
	IDS/Hospital System	3	21.4%	0	0.0%	10	71.4%	1	7.1%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	1	10%	2	20%	7	70%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	5	45.5%	1	9.1%	4	36.4%	1	9.1%	0	0.0%	0	0.0%	11
Specialty offices or practices	Overall	15	42.9%	1	2.9%	8	22.9%	10	28.6%	0	0.0%	1	2.9%	35
	IDS/Hospital System	7	50%	1	7.1%	2	14.3%	3	21.4%	0	0.0%	1	7.1%	14
	Physician Hospital Partnership	2	20%	0	0.0%	4	40%	4	40%	0	0.0%	0	0.0%	10
	Physician Practice	6	54.5%	0	0.0%	2	18.2%	3	27.3%	0	0.0%	0	0.0%	11
Inpatient hospital	Overall	8	22.9%	3	8.6%	16	45.7%	7	20.0%	1	2.9%	0	0.0%	35
	IDS/Hospital System	2	14.3%	3	21.4%	7	50%	2	14.3%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	2	20%	0	0.0%	4	40%	3	30%	1	10%	0	0.0%	10
	Physician Practice	4	36.4%	0	0.0%	5	45.5%	2	18.2%	0	0.0%	0	0.0%	11
ED	Overall	9	25.7%	4	11.4%	12	34.3%	10	28.6%	0	0.0%	0	0.0%	35
	IDS/Hospital System	3	21.4%	2	14.3%	7	50%	2	14.3%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	1	10%	2	20%	2	20%	5	50%	0	0.0%	0	0.0%	10
	Physician Practice	5	45.5%	0	0.0%	3	27.3%	3	27.3%	0	0.0%	0	0.0%	11
SNF	Overall	12	34.3%	1	2.9%	14	40.0%	8	22.9%	0	0.0%	0	0.0%	35
	IDS/Hospital System	5	35.7%	0	0.0%	5	35.7%	4	28.6%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	4	40%	0	0.0%	4	40%	2	20%	0	0.0%	0	0.0%	10
	Physician Practice	3	27.3%	1	9.1%	5	45.5%	2	18.2%	0	0.0%	0	0.0%	11

For each of the following care settings, please indicate where your NGACO provides care management:	Organization Type	Centralized care managers		Embedded care managers		Both centralized and embedded		We do not provide direct care management services		Other		N/A		Total (n)
		n	%	n	%	n	%	n	%	n	%	n	%	
Other	**Overall**	**4**	**11.4%**	**0**	**0.0%**	**1**	**2.9%**	**2**	**5.7%**	**0**	**0.0%**	**28**	**80.0%**	**35**
	IDS/Hospital System	1	7.1%	0	0.0%	0	0.0%	1	7.1%	0	0.0%	12	85.7%	14
	Physician Hospital Partnership	2	20%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	8	80%	10
	Physician Practice	1	9.1%	0	0.0%	1	9.1%	1	9.1%	0	0.0%	7	63.6%	11

Exhibit L.11. Summary Table for Survey Question #10: What is the CURRENT level of priority for the following NGACO strategies and initiatives?

What is the CURRENT level of priority for the following NGACO strategies and initiatives?	Organization Type	High Priority		Medium Priority		Low Priority		Not a priority		N/A		Total (n)
		n	%	n	%	n	%	n	%	n	%	
Preventing readmissions	**Overall**	**32**	**91.4%**	**3**	**8.6%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	13	92.9%	1	7.1%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	9	90%	1	10%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	10	90.9%	1	9.1%	0	0.0%	0	0.0%	0	0.0%	11
Reducing avoidable inpatient admissions	**Overall**	**30**	**85.7%**	**4**	**11.4%**	**0**	**0.0%**	**0**	**0.0%**	**1**	**2.9%**	**35**
	IDS/Hospital System	13	92.9%	1	7.1%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	8	80%	2	20%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	9	81.8%	1	9.1%	0	0.0%	0	0.0%	1	9.1%	11
Reducing avoidable ED visits	**Overall**	**27**	**77.1%**	**7**	**20.0%**	**1**	**2.9%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	11	78.6%	3	21.4%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	7	70%	2	20%	1	10%	0	0.0%	0	0.0%	10
	Physician Practice	9	81.8%	2	18.2%	0	0.0%	0	0.0%	0	0.0%	11

What is the CURRENT level of priority for the following NGACO strategies and initiatives?	Organization Type	High Priority		Medium Priority		Low Priority		Not a priority		N/A		Total (n)
		n	%	n	%	n	%	n	%	n	%	
Closing gaps in use of preventative care	Overall	28	80.0%	7	20.0%	0	0.0%	0	0.0%	0	0.0%	35
	IDS/Hospital System	12	85.7%	2	14.3%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	9	90%	1	10%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	7	63.6%	4	36.4%	0	0.0%	0	0.0%	0	0.0%	11
Managing PAC spending and quality	Overall	20	57.1%	12	34.3%	3	8.6%	0	0.0%	0	0.0%	35
	IDS/Hospital System	10	71.4%	4	28.6%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	5	50%	3	30%	2	20%	0	0.0%	0	0.0%	10
	Physician Practice	5	45.5%	5	45.5%	1	9.1%	0	0.0%	0	0.0%	11
Increasing annual wellness visits among aligned beneficiaries	Overall	22	62.9%	10	28.6%	2	5.7%	1	2.9%	0	0.0%	35
	IDS/Hospital System	10	71.4%	4	28.6%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	7	70%	2	20%	0	0.0%	1	10%	0	0.0%	10
	Physician Practice	5	45.5%	4	36.4%	2	18.2%	0	0.0%	0	0.0%	11
Managing specialty care utilization (e.g., oncology, orthopedics, cardiology)	Overall	2	5.7%	19	54.3%	12	34.3%	1	2.9%	1	2.9%	35
	IDS/Hospital System	0	0.0%	8	57.1%	6	42.9%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	1	10%	5	50%	4	40%	0	0.0%	0	0.0%	10
	Physician Practice	1	9.1%	6	54.5%	2	18.2%	1	9.1%	1	9.1%	11
Addressing social needs, such as housing and food security	Overall	12	34.3%	18	51.4%	5	14.3%	0	0.0%	0	0.0%	35
	IDS/Hospital System	5	35.7%	8	57.1%	1	7.1%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	5	50%	4	40%	1	10%	0	0.0%	0	0.0%	10
	Physician Practice	2	18.2%	6	54.5%	3	27.3%	0	0.0%	0	0.0%	11
Addressing mental or behavioral health needs	Overall	10	28.6%	17	48.6%	8	22.9%	0	0.0%	0	0.0%	35
	IDS/Hospital System	4	28.6%	6	42.9%	4	28.6%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	3	30%	4	40%	3	30%	0	0.0%	0	0.0%	10
	Physician Practice	3	27.3%	7	63.6%	1	9.1%	0	0.0%	0	0.0%	11

What is the CURRENT level of priority for the following NGACO strategies and initiatives?	Organization Type	High Priority		Medium Priority		Low Priority		Not a priority		N/A		Total (n)
		n	%	n	%	n	%	n	%	n	%	
Collecting patient data on race, ethnicity, and preferred language	**Overall**	**7**	**20.0%**	**11**	**31.4%**	**12**	**34.3%**	**5**	**14.3%**	**0**	**0.0%**	**35**
	IDS/Hospital System	3	21.4%	5	35.7%	5	35.7%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	3	30%	3	30%	3	30%	1	10%	0	0.0%	10
	Physician Practice	1	9.1%	3	27.3%	4	36.4%	3	27.3%	0	0.0%	11
Improving use of palliative care and hospice services	**Overall**	**14**	**40.0%**	**13**	**37.1%**	**6**	**17.1%**	**2**	**5.7%**	**0**	**0.0%**	**35**
	IDS/Hospital System	4	28.6%	6	42.9%	3	21.4%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	6	60%	3	30%	1	10%	0	0.0%	0	0.0%	10
	Physician Practice	4	36.4%	4	36.4%	2	18.2%	1	9.1%	0	0.0%	11
Reducing repeated or unnecessary imaging and/or testing	**Overall**	**7**	**20.0%**	**10**	**28.6%**	**16**	**45.7%**	**2**	**5.7%**	**0**	**0.0%**	**35**
	IDS/Hospital System	4	28.6%	3	21.4%	6	42.9%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	2	20%	3	30%	5	50%	0	0.0%	0	0.0%	10
	Physician Practice	1	9.1%	4	36.4%	5	45.5%	1	9.1%	0	0.0%	11

Exhibit L.12. Summary Table for Survey Question #11: What is the status of implementation of strategies or initiatives to address the following priorities?

What is the status of implementation of strategies or initiatives to address the following priorities?	Organization Type	Fully implemented and operational		In the process of implementing		Planning to implement		Considering implementing		Not planning to implement		Don't Know		N/A		Total (n)
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	
Reducing avoidable ED visits	Overall	27	77.1%	7	20%	0	0.0%	1	2.9%	0	0.0%	0	0.0%	0	0.0%	35
	IDS/Hospital System	11	78.6%	3	21.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	6	60%	3	30%	0	0.0%	1	10%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	11	78.6%	2	14.3%	1	7.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	11
Reducing avoidable inpatient admissions	Overall	25	71.4%	9	25.7%	1	2.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	35
	IDS/Hospital System	11	78.6%	2	14.3%	1	7.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	7	70%	3	30%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	7	63.6%	4	36.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	11
Preventing readmissions	Overall	28	80%	7	20%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	35
	IDS/Hospital System	11	78.6%	3	21.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	8	80%	2	20%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	9	81.8%	2	18.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	11
Managing PAC spending and quality	Overall	21	60%	9	25.7%	3	8.6%	0	0.0%	2	5.7%	0	0.0%	0	0.0%	35
	IDS/Hospital System	11	78.6%	2	14.3%	1	7.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	5	50%	3	30%	1	10%	0	0.0%	1	10%	0	0.0%	0	0.0%	10
	Physician Practice	5	45.5%	4	36.4%	1	9.1%	0	0.0%	1	9.1%	0	0.0%	0	0.0%	11
Increasing annual wellness visits among aligned beneficiaries	Overall	23	65.7%	6	17.1%	2	5.7%	1	2.9%	2	5.7%	0	0.0%	1	2.9%	35
	IDS/Hospital System	10	71.4%	2	14.3%	1	7.1%	0	0.0%	0	0.0%	0	0.0%	1	7.1%	14
	Physician Hospital Partnership	5	50%	3	30%	0	0.0%	1	10%	1	10%	0	0.0%	0	0.0%	10
	Physician Practice	8	72.7%	1	9.1%	1	9.1%	0	0.0%	1	9.1%	0	0.0%	0	0.0%	11

What is the status of implementation of strategies or initiatives to address the following priorities?	Organization Type	Fully implemented and operational		In the process of implementing		Planning to implement		Considering implementing		Not planning to implement		Don't Know		N/A		Total (n)
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	
Managing specialty care utilization (e.g., oncology, orthopedics, cardiology)	**Overall**	**6**	**17.1%**	**8**	**22.9%**	**7**	**20%**	**8**	**22.9%**	**4**	**11.4%**	**2**	**5.7%**	**0**	**0.0%**	**35**
	IDS/Hospital System	4	28.6%	3	21.4%	4	28.6%	2	14.3%	0	0.0%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	0	0.0%	3	30%	1	10%	4	40%	2	20%	0	0.0%	0	0.0%	10
	Physician Practice	2	18.2%	2	18.2%	2	18.2%	2	18.2%	2	18.2%	1	9.1%	0	0.0%	11
Addressing mental or behavioral health needs	**Overall**	**9**	**25.7%**	**13**	**37.1%**	**4**	**11.4%**	**7**	**20.0%**	**2**	**5.7%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	5	35.7%	6	42.9%	1	7.1%	1	7.1%	1	7.1%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	2	20%	3	30%	1	10%	3	30%	1	10%	0	0.0%	0	0.0%	10
	Physician Practice	2	18.2%	4	36.4%	2	18.2%	3	27.3%	0	0.0%	0	0.0%	0	0.0%	11
Addressing social needs, such as housing and food security	**Overall**	**12**	**34.3%**	**13**	**37.1%**	**4**	**11.4%**	**4**	**11.4%**	**2**	**5.7%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	6	42.9%	6	42.9%	0	0.0%	1	7.1%	1	7.1%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	4	40%	3	30%	3	30%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	2	18.2%	4	36.4%	1	9.1%	3	27.3%	1	9.1%	0	0.0%	0	0.0%	11
Collecting or improving the collection of patient data on race, ethnicity and preferred language	**Overall**	**5**	**14.3%**	**9**	**25.7%**	**5**	**14.3%**	**9**	**25.7%**	**6**	**17.1%**	**1**	**2.9%**	**0**	**0.0%**	**35**
	IDS/Hospital System	3	21.4%	3	21.4%	2	14.3%	4	28.6%	1	7.1%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	1	10%	3	30%	1	10%	3	30%	2	20%	0	0.0%	0	0.0%	10
	Physician Practice	1	9.1%	3	27.3%	2	18.2%	2	18.2%	3	27.3%	0	0.0%	0	0.0%	11
Closing gaps in use of preventative care	**Overall**	**31**	**88.6%**	**3**	**8.6%**	**0**	**0.0%**	**0**	**0.0%**	**1**	**2.9%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	13	92.9%	0	0.0%	0	0.0%	0	0.0%	1	7.1%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	9	90%	1	10%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	9	81.8%	2	18.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	11

What is the status of implementation of strategies or initiatives to address the following priorities?	Organization Type	Fully implemented and operational		In the process of implementing		Planning to implement		Considering implementing		Not planning to implement		Don't Know		N/A		Total (n)
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	
Reducing repeated or unnecessary imaging and/or testing	Overall	11	31.4%	4	11.4%	5	14.3%	7	20.0%	6	17.1%	2	5.7%	0	0.0%	35
	IDS/Hospital System	5	35.7%	3	21.4%	1	7.1%	2	14.3%	2	14.3%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	3	30%	1	10%	1	10%	2	20%	2	20%	1	10%	0	0.0%	10
	Physician Practice	3	27.3%	0	0.0%	3	27.3%	3	27.3%	2	18.2%	0	0.0%	0	0.0%	11
Improving use of palliative care and hospice services	Overall	12	34.3%	11	31.4%	4	11.4%	6	17.1%	1	2.9%	1	2.9%	0	0.0%	35
	IDS/Hospital System	4	28.6%	5	35.7%	2	14.3%	1	7.1%	1	7.1%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	6	60%	2	20%	1	10%	1	10%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	2	18.2%	4	36.4%	1	9.1%	4	36.4%	0	0.0%	0	0.0%	0	0.0%	11

Exhibit L.13. Summary Table for Question #12: Which, if any, of the following actions did your organization take to address the priorities listed above?

Which, if any, of the following actions did your organization take to address the priorities listed above?	Organization Type	Yes		No		Don't know		Total
		n	%	n	%	n	%	(n)
Expanded our provider network	Overall	19	54.3%	16	45.7%	0	0.0%	35
	IDS/Hospital System	7	50%	7	50%	0	0.0%	14
	Physician Hospital Partnership	6	60%	4	40%	0	0.0%	10
	Physician Practice	6	54.5%	5	45.5%	0	0.0%	11
Designed and implemented a dedicated NGACO initiative	Overall	26	74.3%	9	25.7%	0	0.0%	35
	IDS/Hospital System	11	78.6%	3	21.4%	0	0.0%	14
	Physician Hospital Partnership	8	80%	2	20%	0	0.0%	10
	Physician Practice	7	63.6%	4	36.4%	0	0.0%	11
Collaborated with the health system, practice, or provider organization on an initiative	Overall	33	94.3%	2	5.7%	0	0.0%	35
	IDS/Hospital System	14	100%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	10	100%	0	0.0%	0	0.0%	10
	Physician Practice	9	81.8%	2	18.2%	0	0.0%	11
Fostered partnerships with social service or community-based organizations	Overall	25	71.4%	8	22.9%	2	5.7%	35
	IDS/Hospital System	12	85.7%	1	7.1%	1	7.1%	14
	Physician Hospital Partnership	7	70%	3	30%	0	0.0%	10
	Physician Practice	6	54.5%	4	36.4%	1	9.1%	11
Hired new staff to focus on a priority initiative	Overall	27	77.1%	8	22.9%	0	0.0%	35
	IDS/Hospital System	11	78.6%	3	21.4%	0	0.0%	14
	Physician Hospital Partnership	7	70%	3	30%	0	0.0%	10
	Physician Practice	9	81.8%	2	18.2%	0	0.0%	11
Employed non-traditional providers such as community health workers or peer navigators	Overall	24	68.6%	10	28.6%	1	2.9%	35
	IDS/Hospital System	10	71.4%	3	21.4%	1	7.1%	14
	Physician Hospital Partnership	8	80%	2	20%	0	0.0%	10
	Physician Practice	6	54.5%	5	45.5%	0	0.0%	11
Invested or expanded infrastructure, e.g., health information technology (HIT) or data analytic capacity	Overall	32	91.4%	2	5.7%	1	2.9%	35
	IDS/Hospital System	12	85.7%	1	7.1%	1	7.1%	14
	Physician Hospital Partnership	9	90%	1	10%	0	0.0%	10
	Physician Practice	11	100%	0	0.0%	0	0.0%	11

Exhibit L.14. Summary Table for Survey Question #13: To what extent are the following processes standardized or applied in a consistent way across the providers in your NGACO?

To what extent are the following processes standardized or applied in a consistent way across the providers in your NGACO?	Organization Type	Fully standardized across the NGACO		Mostly standardized across the NGACO		Somewhat standardized across the NGACO		Not standardized		Don't Know		N/A		Total (n)
		n	%	n	%	n	%	n	%	n	%	n	%	
Physician compensation	Overall	14	40%	10	28.6%	2	5.7%	7	20.0%	2	5.7%	0	0.0%	35
	IDS/Hospital System	5	35.7%	3	21.4%	2	14.3%	3	21.4%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	2	20%	4	40%	0	0.0%	4	40%	0	0.0%	0	0.0%	10
	Physician Practice	7	63.6%	3	27.3%	0	0.0%	0	0.0%	1	9.1%	0	0.0%	11
Performance management of primary care physicians	Overall	20	57.1%	9	25.7%	2	5.7%	3	8.6%	0	0.0%	1	2.9%	35
	IDS/Hospital System	8	57.1%	5	35.7%	0	0.0%	1	7.1%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	4	40%	2	20%	2	20%	2	20%	0	0.0%	0	0.0%	10
	Physician Practice	8	72.7%	2	18.2%	0	0.0%	0	0.0%	0	0.0%	1	9.1%	11
Primary care processes and team structure	Overall	12	34.3%	11	31.4%	8	22.9%	4	11.4%	0	0.0%	0	0.0%	35
	IDS/Hospital System	4	28.6%	6	42.9%	2	14.3%	2	14.3%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	3	30%	2	20%	3	30%	2	20%	0	0.0%	0	0.0%	10
	Physician Practice	5	45.5%	3	27.3%	3	27.3%	0	0.0%	0	0.0%	0	0.0%	11
Care management processes and staff	Overall	24	68.6%	7	20.0%	3	8.6%	1	2.9%	0	0.0%	0	0.0%	35
	IDS/Hospital System	11	78.6%	1	7.1%	1	7.1%	1	7.1%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	5	50%	3	30%	2	20%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	8	72.7%	3	27.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	11
Hospital discharge planning	Overall	16	45.7%	12	34.3%	4	11.4%	3	8.6%	0	0.0%	0	0.0%	35
	IDS/Hospital System	7	50%	5	35.7%	0	0.0%	2	14.3%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	2	20%	5	50%	3	30%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	7	63.6%	2	18.2%	1	9.1%	1	9.1%	0	0.0%	0	0.0%	11
Hospital notification and follow up	Overall	15	42.9%	13	37.1%	5	14.3%	2	5.7%	0	0.0%	0	0.0%	35
	IDS/Hospital System	5	35.7%	6	42.9%	1	7.1%	2	14.3%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	3	30%	5	50%	2	20%	0	0.0%	0	0.0%	0	0.0%	10
	Physician Practice	7	63.6%	2	18.2%	2	18.2%	0	0.0%	0	0.0%	0	0.0%	11

To what extent are the following processes standardized or applied in a consistent way across the providers in your NGACO?	Organization Type	Fully standardized across the NGACO		Mostly standardized across the NGACO		Somewhat standardized across the NGACO		Not standardized		Don't Know		N/A		Total (n)
		n	%	n	%	n	%	n	%	n	%	n	%	
Training on health disparities and/or health equity	**Overall**	**8**	**22.9%**	**9**	**25.7%**	**9**	**25.7%**	**9**	**25.7%**	**0**	**0.0%**	**0**	**0.0%**	**35**
	IDS/Hospital System	4	28.6%	2	14.3%	5	35.7%	3	21.4%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	1	10%	4	40%	2	20%	3	30%	0	0.0%	0	0.0%	10
	Physician Practice	3	27.3%	3	27.3%	2	18.2%	3	27.3%	0	0.0%	0	0.0%	11
Provider training on delivering culturally competent care	**Overall**	**10**	**28.6%**	**5**	**14.3%**	**6**	**17.1%**	**12**	**34.3%**	**2**	**5.7%**	**0**	**0.0%**	**35**
	IDS/Hospital System	5	35.7%	2	14.3%	2	14.3%	4	28.6%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	2	20%	1	10%	2	20%	5	50%	0	0.0%	0	0.0%	10
	Physician Practice	3	27.3%	2	18.2%	2	18.2%	3	27.3%	1	9.1%	0	0.0%	11

Exhibit L.15. Summary Table for Survey Question #14: For each of the following care management programs, please indicate what proportion of aligned beneficiaries who were offered care management services elected to participate?

For each of the following care management programs, please indicate what proportion of aligned beneficiaries offered care management services elect to participate	Organization Type	All		Most		Some		None		We do not offer		Don't Know		N/A		Total (n)
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	
High risk or complex care management	Overall	6	17.1%	20	57.1%	7	20.0%	0	0.0%	0	0.0%	2	5.7%	0	0.0%	35
	IDS/Hospital System	4	28.6%	7	50%	2	14.3%	0	0.0%	0	0.0%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	1	10%	5	50%	3	30%	0	0.0%	0	0.0%	1	10%	0	0.0%	10
	Physician Practice	1	9.1%	8	72.7%	2	18.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	11
Transition from PAC to home	Overall	7	20.0%	17	48.6%	7	20.0%	0	0.0%	1	2.9%	3	8.6%	0	0.0%	35
	IDS/Hospital System	5	35.7%	4	28.6%	4	28.6%	0	0.0%	0	0.0%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	0	0.0%	5	50%	3	30%	0	0.0%	0	0.0%	2	20%	0	0.0%	10
	Physician Practice	2	18.2%	8	72.7%	0	0.0%	0	0.0%	1	9.1%	0	0.0%	0	0.0%	11
Rising risk, chronic conditions, or ambulatory care management	Overall	6	17.1%	16	45.7%	10	28.6%	1	2.9%	0	0.0%	2	5.7%	0	0.0%	35
	IDS/Hospital System	3	21.4%	6	42.9%	3	21.4%	1	7.1%	0	0.0%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	1	10%	4	40%	4	40%	0	0.0%	0	0.0%	1	10%	0	0.0%	10
	Physician Practice	2	18.2%	6	54.5%	3	27.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	11
Beneficiaries with behavioral health or social needs	Overall	2	5.7%	12	34.3%	15	42.9%	1	2.9%	2	5.7%	3	8.6%	0	0.0%	35
	IDS/Hospital System	2	14.3%	5	35.7%	6	42.9%	0	0.0%	0	0.0%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	0	0.0%	3	30%	4	40%	0	0.0%	1	10%	2	20%	0	0.0%	10
	Physician Practice	0	0.0%	4	36.4%	5	45.5%	1	9.1%	1	9.1%	0	0.0%	0	0.0%	11
Palliative care or advanced illness care management	Overall	3	8.6%	13	37.1%	13	37.1%	1	2.9%	2	5.7%	3	8.6%	0	0.0%	35
	IDS/Hospital System	3	21.4%	4	28.6%	6	42.9%	0	0.0%	0	0.0%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	0	0.0%	4	40%	3	30%	0	0.0%	1	10%	2	20%	0	0.0%	10
	Physician Practice	0	0.0%	5	45.5%	4	36.4%	1	9.1%	1	9.1%	0	0.0%	0	0.0%	11
Other	Overall	0	0.0%	0	0.0%	0	0.0%	1	2.9%	0	0.0%	3	8.6%	31	88.6%	35
	IDS/Hospital System	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	7.1%	13	92.9%	14
	Physician Hospital Partnership	0	0.0%	0	0.0%	0	0.0%	1	10%	0	0.0%	2	20%	7	70%	10
	Physician Practice	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	11	100%	11

Exhibit L.16. Summary Table for Question #15: Does your NGACO provider network include safety-net provider organization(s)?

Does your NGACO provider network include safety-net provider organization(s)?	Organization Type	Yes		No		Don't know		Total (n)
		n	%	n	%	n	%	
	Overall	16	45.7%	16	45.7%	3	8.6%	35
	IDS/Hospital System	8	57.1%	4	28.6%	2	14.3%	14
	Physician Hospital Partnership	6	60.0%	3	30.0%	1	10.0%	10
	Physician Practice	2	18.2%	9	81.8%	0	0.0%	11

Exhibit L.17. Summary Table for Question #16: Does your NGACO conduct in-person home visits for aligned NGACO beneficiaries?

Does your NGACO conduct in-person home visits for aligned NGACO beneficiaries?	Organization Type	Yes		No		Don't know		Total (n)
		n	%	n	%	n	%	
	Overall	20	57.1%	13	37.1%	2	5.7%	35
	IDS/Hospital System	9	64.3%	3	21.4%	2	14.3%	14
	Physician Hospital Partnership	5	50.0%	5	50.0%	0	0.0%	10
	Physician Practice	6	54.5%	5	45.5%	0	0.0%	11

Exhibit L.18. Summary Table for Question #17: Which of the following staff complete home visits with NGACO aligned beneficiaries?

Which of the following staff complete home visits with NGACO aligned beneficiaries?	Organization Type	Yes		No		Don't know		N/A		Total (n)
		n	%	n	%	n	%	n	%	
Advanced practice nurse	Overall	16	45.7%	4	11.4%	0	0.0%	15	42.9%	35
	IDS/Hospital System	6	42.9%	3	21.4%	0	0.0%	5	35.7%	14
	Physician Hospital Partnership	5	50.0%	0	0.0%	0	0.0%	5	50.0%	10
	Physician Practice	5	45.5%	1	9.1%	0	0.0%	5	45.5%	11
Registered nurse (RN) care manager/care coordinator	Overall	15	42.9%	5	14.3%	0	0.0%	15	42.9%	35
	IDS/Hospital System	8	57.1%	1	7.1%	0	0.0%	5	35.7%	14
	Physician Hospital Partnership	3	30.0%	2	20.0%	0	0.0%	5	50.0%	10
	Physician Practice	4	36.4%	2	18.2%	0	0.0%	5	45.5%	11
Community health worker/care navigator	Overall	12	34.3%	7	20.0%	1	2.9%	15	42.9%	35
	IDS/Hospital System	5	35.7%	3	21.4%	1	7.1%	5	35.7%	14
	Physician Hospital Partnership	2	20.0%	3	30.0%	0	0.0%	5	50.0%	10
	Physician Practice	5	45.5%	1	9.1%	0	0.0%	5	45.5%	11
Social worker	Overall	13	37.1%	6	17.1%	1	2.9%	15	42.9%	35
	IDS/Hospital System	5	35.7%	3	21.4%	1	7.1%	5	35.7%	14
	Physician Hospital Partnership	3	30.0%	2	20.0%	0	0.0%	5	50.0%	10
	Physician Practice	5	45.5%	1	9.1%	0	0.0%	5	45.5%	11
Other	Overall	3	8.6%	0	0.0%	1	2.9%	31	88.6%	35
	IDS/Hospital System	1	7.1%	0	0.0%	0	0.0%	13	92.9%	14
	Physician Hospital Partnership	0	0.0%	0	0.0%	1	10.0%	9	90.0%	10
	Physician Practice	2	18.2%	0	0.0%	0	0.0%	9	81.8%	11

Exhibit L.19. Summary Table for Question #18: Please indicate which of the following reasons is a reason your NGACO would provide a home visit to an aligned beneficiary

Please indicate which of the following reasons is a reason your NGACO would provide a home visit to an aligned beneficiary	Organization Type	Yes		No		Don't know		N/A		Total (n)
		n	%	n	%	n	%	n	%	
As a routine part of transition follow-up after an inpatient hospitalization	Overall	12	34.3%	8	22.9%	0	0.0%	15	42.9%	35
	IDS/Hospital System	5	35.7%	4	44.4%	0	0.0%	5	35.7%	14
	Physician Hospital Partnership	4	40%	1	10%	0	0.0%	5	50%	10
	Physician Practice	3	27.3%	3	27.3%	0	0.0%	5	45.5%	11
As a routine part of transition follow-up after a SNF or other PAC stay	Overall	10	28.6%	9	25.7%	1	2.9%	15	42.9%	35
	IDS/Hospital System	3	33.3%	5	35.7%	1	11.1%	5	35.7%	14
	Physician Hospital Partnership	4	40%	1	10%	0	0.0%	5	50%	10
	Physician Practice	3	27.3%	3	27.3%	0	0.0%	5	45.5%	11
As a routine part of care management for aligned beneficiaries within certain risk levels	Overall	15	42.9%	5	14.3%	0	0.0%	15	42.9%	35
	IDS/Hospital System	8	88.9%	1	11.1%	0	0.0%	5	35.7%	14
	Physician Hospital Partnership	3	30%	2	20%	0	0.0%	5	50%	10
	Physician Practice	4	36.4%	2	18.2%	0	0.0%	5	45.5%	11
To address a specific need identified by a physician or care manager	Overall	16	45.7%	3	8.6%	1	2.9%	15	42.9%	35
	IDS/Hospital System	7	77.8%	1	11.1%	1	11.1%	5	35.7%	14
	Physician Hospital Partnership	4	40%	1	10%	0	0.0%	5	50%	10
	Physician Practice	5	45.5%	1	9.1%	0	0.0%	5	45.5%	11
To assess the beneficiary's home setting for safety and other reasons	Overall	15	42.9%	5	14.3%	0	0.0%	15	42.9%	35
	IDS/Hospital System	7	77.8%	2	22.2%	0	0.0%	5	35.7%	14
	Physician Hospital Partnership	3	30%	2	20%	0	0.0%	5	50%	10
	Physician Practice	5	45.5%	1	9.1%	0	0.0%	5	45.5%	11
To determine or re-determine eligibility for Medicare home health benefits	Overall	7	20.0%	13	37.1%	0	0.0%	15	42.9%	35
	IDS/Hospital System	2	22.2%	7	77.8%	0	0.0%	5	35.7%	14
	Physician Hospital Partnership	1	10%	4	40%	0	0.0%	5	50%	10
	Physician Practice	4	36.4%	2	18.2%	0	0.0%	5	45.5%	11
To provide a beneficiary with transportation to or from a medical visit	Overall	6	17.1%	13	37.1%	0	0.0%	16	45.7%	35
	IDS/Hospital System	2	22.2%	7	77.8%	0	0.0%	5	35.7%	14
	Physician Hospital Partnership	1	10%	4	40%	0	0.0%	5	50%	10
	Physician Practice	3	27.3%	3	27.3%	0	0.0%	5	45.5%	11

Exhibit L.20. Summary Table for Question #19a: Which of the following strategies has your NGACO EVER used?

Which of the following strategies has your NGACO EVER used?	Organization Type	SNF					LTCH or IRF					Home Health				
		Yes		N/A		Total (n)	Yes		N/A		Total (n)	Yes		N/A		Total (n)
		n	%	n	%		n	%	n	%		n	%	n	%	
Established an ongoing workgroup or collaborative to facilitate peer-to-peer learning between the NGACO and its PAC partners	Overall	31	88.6%	4	11.4%	35	11	31.4%	24	68.6%	35	23	65.7%	12	34.3%	35
	IDS/Hospital System	13	92.9%	1	7.1%	14	4	28.6%	10	71.4%	14	8	57.1%	6	42.9%	14
	Physician Hospital Partnership	7	70%	3	30%	10	3	30%	7	70%	10	5	50%	5	50%	10
	Physician Practice	11	100%	0	0.0%	11	4	36.4%	7	63.6%	11	10	90.9%	1	9.1%	11
Alert NGACO care managers when an attributed beneficiary is admitted to PAC	Overall	31	88.6%	4	11.4%	35	13	37.1%	22	62.9%	35	15	42.9%	20	57.1%	35
	IDS/Hospital System	13	92.9%	1	7.1%	14	5	35.7%	9	64.3%	14	5	35.7%	9	64.3%	14
	Physician Hospital Partnership	9	90%	1	10%	10	5	50%	5	50%	10	4	40%	6	60%	10
	Physician Practice	9	81.8%	2	18.2%	11	3	27.3%	8	72.7%	11	6	54.5%	5	45.5%	11
Develop resources to highlight high-performing facilities for beneficiaries and clinicians	Overall	29	82.9%	6	17.1%	35	8	22.9%	27	77.1%	35	19	54.3%	16	45.7%	35
	IDS/Hospital System	11	78.6%	3	21.4%	14	4	28.6%	10	71.4%	14	6	42.9%	8	57.1%	14
	Physician Hospital Partnership	9	90%	1	10%	10	2	20%	8	80%	10	5	50%	5	50%	10
	Physician Practice	9	81.8%	2	18.2%	11	2	18.2%	9	81.8%	11	8	72.7%	3	27.3%	11
Embed NGACO staff in PAC facilities, i.e., care managers, physicians, or SNFists	Overall	18	51.4%	17	48.6%	35	7	20.0%	28	80.0%	35	6	17.1%	29	82.9%	35
	IDS/Hospital System	9	64.3%	5	35.7%	14	4	28.6%	10	71.4%	14	3	21.4%	11	78.6%	14
	Physician Hospital Partnership	4	40%	6	60%	10	1	10%	9	90%	10	1	10%	9	90%	10
	Physician Practice	5	45.5%	6	54.5%	11	2	18.2%	9	81.8%	11	2	18.2%	9	81.8%	11
Establish regular phone communications with most PAC providers	Overall	31	88.6%	4	11.4%	35	12	34.3%	23	65.7%	35	17	48.6%	18	51.4%	35
	IDS/Hospital System	12	85.7%	2	14.3%	14	7	50%	7	50%	14	8	57.1%	6	42.9%	14
	Physician Hospital Partnership	8	80%	2	20%	10	3	30%	7	70%	10	4	40%	6	60%	10
	Physician Practice	11	100%	0	0.0%	11	2	18.2%	9	81.8%	11	5	45.5%	6	54.5%	11

Which of the following strategies has your NGACO EVER used?	Organization Type	SNF					LTCH or IRF					Home Health				
		Yes		N/A		Total (n)	Yes		N/A		Total (n)	Yes		N/A		Total (n)
		n	%	n	%		n	%	n	%		n	%	n	%	
Give NGACO and PAC providers access to EHRs for information exchange (NGACO, integrated delivery systems, hospital, or physician)	Overall	25	71.4%	10	28.6%	35	9	25.7%	26	74.3%	35	15	42.9%	20	57.1%	35
	IDS/Hospital System	13	92.9%	1	7.1%	14	4	28.6%	10	71.4%	14	7	50%	7	50%	14
	Physician Hospital Partnership	6	60%	4	40%	10	3	30%	7	70%	10	4	40%	6	60%	10
	Physician Practice	6	54.5%	5	45.5%	11	2	18.2%	9	81.8%	11	4	36.4%	7	63.6%	11
Share performance data or a scorecard	Overall	29	82.9%	6	17.1%	35	9	25.7%	26	74.3%	35	19	54.3%	16	45.7%	35
	IDS/Hospital System	12	85.7%	2	14.3%	14	5	35.7%	9	64.3%	14	8	57.1%	6	42.9%	14
	Physician Hospital Partnership	7	70%	3	30%	10	3	30%	7	70%	10	3	30%	7	70%	10
	Physician Practice	10	90.9%	1	9.1%	11	1	9.1%	10	90.9%	11	8	72.7%	3	27.3%	11
Other	Overall	1	2.9%	34	97.1%	35	0	0.0%	35	100%	35	0	0.0%	35	100%	35
	IDS/Hospital System	0	0.0%	14	100%	14	0	0.0%	14	100%	14	0	0.0%	14	100%	14
	Physician Hospital Partnership	0	0.0%	10	100%	10	0	0.0%	10	100%	10	0	0.0%	10	100%	10
	Physician Practice	1	9.1%	10	90.9%	11	0	0.0%	11	100%	11	0	0.0%	11	100%	11

Exhibit L.21. Summary Table for Survey Question #19b: Compared to before your organization entered the NGACO Model, how would you describe your organization's ability to track, coordinate, and manage the care of aligned beneficiaries admitted to PAC settings?

Compared to before your organization entered the NGACO Model, how would you describe your organization's ability to track, coordinate, and manage the care of aligned beneficiaries admitted to PAC settings?	Organization Type	A lot better		Somewhat better		A little better		No different		Don't know		Total (n)
		n	%	n	%	n	%	n	%	n	%	
	Overall	23	65.7%	7	20%	3	8.6%	2	5.7%	0	0.0%	35
	IDS/Hospital System	12	85.7%	0	0.0%	2	14.3%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	7	70.0%	2	20.0%	0	0.0%	1	10.0%	0	0.0%	10
	Physician Practice	4	36.4%	5	45.5%	1	9.1%	1	9.1%	0	0.0%	11

Exhibit L.22. Summary Table for Question #20: Which of the following performance improvement strategies have EVER been a priority for your NGACO?

Which of the following performance improvement strategies have EVER been a priority for your NGACO?	Organization Type	Yes		No		Don't know		Total (n)
		n	%	n	%	n	%	
Completing close to real-time assessments of expected performance relative to NGACO quality benchmarks	Overall	27	77.1%	8	22.9%	0	0.0%	35
	IDS/Hospital System	10	71.4%	4	28.6%	0	0.0%	14
	Physician Hospital Partnership	7	70.0%	3	30.0%	0	0.0%	10
	Physician Practice	10	90.9%	1	9.1%	0	0.0%	11
Developing in-house capacity to conduct quality analysis and reporting	Overall	33	94.3%	2	5.7%	0	0.0%	35
	IDS/Hospital System	13	92.9%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	9	90.0%	1	10.0%	0	0.0%	10
	Physician Practice	11	100.0%	0	0.0%	0	0.0%	11
Aligning performance metrics across NGACO and other ACO contracts	Overall	31	88.6%	4	11.4%	0	0.0%	35
	IDS/Hospital System	14	100.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	9	90.0%	1	10.0%	0	0.0%	10
	Physician Practice	8	72.7%	3	27.3%	0	0.0%	11
Developing workflows informed by data analytics and clinical staff input	Overall	34	97.1%	1	2.9%	0	0.0%	35
	IDS/Hospital System	14	100.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	9	90.0%	1	10.0%	0	0.0%	10
	Physician Practice	11	100.0%	0	0.0%	0	0.0%	11
Undertaking educational initiatives to improve providers' coding and quality reporting practices	Overall	35	100.0%	0	0.0%	0	0.0%	35
	IDS/Hospital System	14	100.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	10	100.0%	0	0.0%	0	0.0%	10
	Physician Practice	11	100.0%	0	0.0%	0	0.0%	11
Use Choosing Wisely	Overall	15	42.9%	11	31.4%	9	25.7%	35
	IDS/Hospital System	8	57.1%	1	7.1%	5	35.7%	14
	Physician Hospital Partnership	4	40.0%	4	40.0%	2	20.0%	10
	Physician Practice	3	27.3%	6	54.5%	2	18.2%	11

Exhibit L.23. Summary Table for Question #21: How important have each of the following approaches been to your NGACO's management of individual provider performance?

How important have each of the following approaches been to your NGACO's management of individual provider performance?	Organization Type	Very important		Moderately important		Not important		N/A		Total (n)
		n	%	n	%	n	%	n	%	
Using financial incentives tied to performance	**Overall**	**21**	**60.0%**	**10**	**28.6%**	**4**	**11.4%**	**0**	**0.0%**	**35**
	IDS/Hospital System	8	57.1%	5	35.7%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	7	70%	2	20%	1	10%	0	0.0%	10
	Physician Practice	6	54.5%	3	27.3%	2	18.2%	0	0.0%	11
Non-financial awards or recognition tied to performance	**Overall**	**12**	**34.3%**	**13**	**37.1%**	**8**	**22.9%**	**2**	**5.7%**	**35**
	IDS/Hospital System	6	42.9%	5	35.7%	2	14.3%	1	7.1%	14
	Physician Hospital Partnership	4	40%	3	30%	2	20%	1	10%	10
	Physician Practice	2	18.2%	5	45.5%	4	36.4%	0	0.0%	11
Sharing performance measures on quality	**Overall**	**32**	**91.4%**	**2**	**5.7%**	**1**	**2.9%**	**0**	**0.0%**	**35**
	IDS/Hospital System	14	100%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	9	90%	1	10%	0	0.0%	0	0.0%	10
	Physician Practice	9	81.8%	1	9.1%	1	9.1%	0	0.0%	11
Sharing performance measures on cost	**Overall**	**22**	**62.9%**	**12**	**34.3%**	**1**	**2.9%**	**0**	**0.0%**	**35**
	IDS/Hospital System	9	64.3%	5	35.7%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	5	50%	5	50%	0	0.0%	0	0.0%	10
	Physician Practice	8	72.7%	2	18.2%	1	9.1%	0	0.0%	11
Providing one-on-one review and feedback of performance and quality data	**Overall**	**27**	**77.1%**	**5**	**14.3%**	**1**	**2.9%**	**2**	**5.7%**	**35**
	IDS/Hospital System	11	78.6%	2	14.3%	1	7.1%	0	0.0%	14
	Physician Hospital Partnership	7	70%	2	20%	0	0.0%	1	10%	10
	Physician Practice	9	81.8%	1	9.1%	0	0.0%	1	9.1%	11
Providing one-on-one review and feedback of cost data	**Overall**	**17**	**48.6%**	**11**	**31.4%**	**6**	**17.1%**	**1**	**2.9%**	**35**
	IDS/Hospital System	6	42.9%	6	42.9%	2	14.3%	0	0.0%	14
	Physician Hospital Partnership	4	40%	3	30%	2	20%	1	10%	10
	Physician Practice	7	63.6%	2	18.2%	2	18.2%	0	0.0%	11
Establishing real-time physician access to performance and quality data or reports	**Overall**	**26**	**74.3%**	**4**	**11.4%**	**4**	**11.4%**	**1**	**2.9%**	**35**
	IDS/Hospital System	13	92.9%	1	7.1%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	4	40%	3	30%	2	20%	1	10%	10
	Physician Practice	9	81.8%	0	0.0%	2	18.2%	0	0.0%	11
Establishing real-time physician access to cost data or reports	**Overall**	**15**	**42.9%**	**9**	**25.7%**	**10**	**28.6%**	**1**	**2.9%**	**35**
	IDS/Hospital System	7	50%	5	35.7%	2	14.3%	0	0.0%	14
	Physician Hospital Partnership	2	20%	2	20%	5	50%	1	10%	10
	Physician Practice	6	54.5%	2	18.2%	3	27.3%	0	0.0%	11
Conducting regular meetings with participating physician practices	**Overall**	**27**	**77.1%**	**6**	**17.1%**	**1**	**2.9%**	**1**	**2.9%**	**35**
	IDS/Hospital System	13	92.9%	1	7.1%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	7	70%	2	20%	0	0.0%	1	10%	10
	Physician Practice	7	63.6%	3	27.3%	1	9.1%	0	0.0%	11

Exhibit L.24. Summary Table for Survey Question #22: Compared to before your organization entered the NGACO Model, how would you describe your organization's ability to share performance, quality and cost data with individual practitioners and providers?

Compared to before your organization entered the NGACO Model, how would you describe your organization's ability to share performance, quality and cost data with individual practitioners and providers?	Organization Type	A lot better		Somewhat better		A little better		No different		Don't know		Total (n)
		n	%	n	%	n	%	n	%	n	%	
	Overall	**21**	**60%**	**12**	**34.3%**	**1**	**2.9%**	**1**	**2.9%**	**0**	**0.0%**	**35**
	IDS/Hospital System	10	71.4%	4	28.6%	0	0.0%	0	0.0%	0	0.0%	14
	Physician Hospital Partnership	6	60%	3	30%	1	10%	0	0.0%	0	0.0%	10
	Physician Practice	5	45.5%	5	45.5%	0	0.0%	1	9.1%	0	0.0%	11

Exhibit L.25. Summary Table for Question #23: What role has the NGACO Model played in efforts to address social determinants of health (SDOH). Which of the following strategies has your organization ever used to understand and address beneficiaries' SDOH-related needs?

Which of the following strategies has your organization ever used to understand and address beneficiaries' SDOH-related needs?	Organization Type	Yes		No		Don't know		Total (n)
		n	%	n	%	n	%	
Standardized screening for SDOH	**Overall**	**25**	**71.4%**	**7**	**20.0%**	**3**	**8.6%**	**35**
	IDS/Hospital System	10	71.4%	2	14.3%	2	14.3%	14
	Physician Hospital Partnership	8	80.0%	2	20.0%	0	0.0%	10
	Physician Practice	7	63.6%	3	27.3%	1	9.1%	11
Documentation of SDOH in the EHR	**Overall**	**27**	**77.1%**	**6**	**17.1%**	**2**	**5.7%**	**35**
	IDS/Hospital System	11	78.6%	1	7.1%	2	14.3%	14
	Physician Hospital Partnership	8	80.0%	2	20.0%	0	0.0%	10
	Physician Practice	8	72.7%	3	27.3%	0	0.0%	11
Care team with differentiated roles for social services	**Overall**	**24**	**68.6%**	**8**	**22.9%**	**3**	**8.6%**	**35**
	IDS/Hospital System	11	78.6%	1	7.1%	2	14.3%	14
	Physician Hospital Partnership	7	70.0%	3	30.0%	0	0.0%	10
	Physician Practice	6	54.5%	4	36.4%	1	9.1%	11
Referrals for social services	**Overall**	**33**	**94.3%**	**1**	**2.9%**	**1**	**2.9%**	**35**
	IDS/Hospital System	13	92.9%	0	0.0%	1	7.1%	14
	Physician Hospital Partnership	10	100.0%	0	0.0%	0	0.0%	10
	Physician Practice	10	90.9%	1	9.1%	0	0.0%	11
Initiated relationships with social services or community-based organizations	**Overall**	**25**	**71.4%**	**6**	**17.1%**	**4**	**11.4%**	**35**
	IDS/Hospital System	12	85.7%	0	0.0%	2	14.3%	14
	Physician Hospital Partnership	7	70.0%	2	20.0%	1	10.0%	10
	Physician Practice	6	54.5%	4	36.4%	1	9.1%	11
Established formal partnerships with social services or community-based organizations	**Overall**	**19**	**54.3%**	**13**	**37.1%**	**3**	**8.6%**	**35**
	IDS/Hospital System	10	71.4%	2	14.3%	2	14.3%	14
	Physician Hospital Partnership	3	30.0%	7	70.0%	0	0.0%	10
	Physician Practice	6	54.5%	4	36.4%	1	9.1%	11

Which of the following strategies has your organization ever used to understand and address beneficiaries' SDOH-related needs?	Organization Type	Yes		No		Don't know		Total (n)
		n	%	n	%	n	%	
Evaluation of return on investment to inform which SDOH-related strategies to pursue	**Overall**	**12**	**34.3%**	**19**	**54.3%**	**4**	**11.4%**	**35**
	IDS/Hospital System	7	50.0%	4	28.6%	3	21.4%	14
	Physician Hospital Partnership	2	20.0%	8	80.0%	0	0.0%	10
	Physician Practice	3	27.3%	7	63.6%	1	9.1%	11
Analysis and reporting of beneficiary data stratified by individual social determinants, e.g., food insecurity, housing, or transportation	**Overall**	**15**	**42.9%**	**17**	**48.6%**	**3**	**8.6%**	**35**
	IDS/Hospital System	7	50.0%	5	35.7%	2	14.3%	14
	Physician Hospital Partnership	3	30.0%	7	70.0%	0	0.0%	10
	Physician Practice	5	45.5%	5	45.5%	1	9.1%	11

Appendix M: Supplemental Analyses

In this appendix, we summarize three supplemental analyses conducted to further understand quality improvements under the NGACO Model, as follows:

- Association between years of NGACO participation in the model and model-reported quality measures

- Association between provider engagement strategies and spending and utilization outcomes

- Descriptive and multivariate analyses of the association between NGACOs' relationships with SNFs and utilization, spending, and quality outcomes

Appendix Section M1. Summary Analysis of NGACOs' Model-Reported Quality Measures

As described in Chapter 2, we conducted a summary analysis to assess whether NGACOs' performance on model-reported quality measures varied by the number of years of participation in the NGACO Model. We hypothesized that performance improvements would increase with increasing years of model participation, with the potential for a plateau or decline in performance during the COVID-19 public health emergency (PHE).

Data and Methods

Publicly reported NGACO quality measures data were used to produce average quality measure rates for all 62 NGACOs that ever participated in the model, grouped by the number of years of participation (1, 2, 3, 4, and 5+) in the NGACO Model. To ensure that our findings were robust to NGACO attrition, we also produced results for the 35 NGACOs that remained in the model as of performance year (PY) 6. The average quality measure rates presented are weighted for the different numbers of beneficiaries served by each NGACO in a given PY.

Results

Exhibit M.1. shows the average rates for selected quality measures broken out by the number of years of participation in the NGACO Model.

Patient Experience and Care domain:

- For **ACO1. Getting Timely Care, Appointments, and Information**, NGACOs experienced quality improvements (for the 62 NGACOs: 82.47, 84.54, 85.92; and for the 35 NGACOs: 83.33, 84.16, 85.84) during the first three PYs but slight declines in their fourth and fifth+ years in the model (for the 62 NGACOs: 85.84, 83.34; and for the 35 NGACOs: 85.53, 83.34).

- **For ACO2. How Well Your Providers Communicate,** NGACOs also experienced improvement during the first three PYs (for the 62 NGACOs: 93.39, 93.74, 94.19; and for the 35 NGACOs: 93.53, 93.77, 94.18) but declines in their fourth and fifth+ years in the model (for the 62 NGACOs: 93.95, 93.51; and for the 35 NGACOs: 93.84, 93.51)

- **ACO3. Patient's Rating of Provider** was more stable but experienced a slight decrease during the model's third, fourth, and fifth+ year.

- There was a general decrease in the rates for **ACO4. Access to Specialists**, especially during the third, fourth, and fifth+ years in the model, which may reflect the COVID-19 PHE.

- There was a general increase in the rates for **ACO5. Health Promotion and Education** despite a slightly decline during the fourth year (for the 62 NGACOS: 61.75, 61.38, 60.86, 60.79, 61.60; and for the 35 NGACOS: 60.94, 60.97, 61.28, 60.71,61.60).

- Rates for **ACO6. Shared Decision Making** experienced an overall decline despite a slight increase during the fifth+ year in the model (for the 62 NGACOS: 72.62, 65.52, 62.70, 60.70, 61.78; and for the 35 NGACOS: 71.75, 66.22, 63.07, 60.77, 61.78).

The Prevention and Screening domain saw improvement in some of the key quality measure rates by the number of years in the model.

- Rates for **ACO13. Screening for Future Fall Risk** improved among the group of 62 NGACOs (75.14 [first year] vs. 91.04 [five+ years]) and for the subset of 35 NGACOs that remained in the model in PY 6 (76.96 [first year] vs. 91.04 [five+ years].

- Rates also improved for **ACO18. Screening for Clinical Depression and Follow-up** (for the 62 NGACOs: 62.01 [first year] vs. 77.83 [five+ years]; and for the 35 NGACOs: 65.29 [first year] vs. 77.83 [five+ years]), **ACO19. Colorectal Cancer Screening** (for the 62 NGACOs: 70.56 [first year] vs. 77.69 [five+ years]; and for the 35 NGACOs: 72.51 [first year] vs. 77.69 [five+ years]), and **ACO20. Breast Cancer Screening** (for the 62 NGACOs: 74.61 [first year] vs. 81.40 [five+ years]; and for the 35 NGACOs: 74.88 [first year] vs. 81.40 [five+ years]).

The NGACOs saw an improvement in key quality measure rates under the Chronic Disease Management domain.

- There was consistent improvement overall in **ACO27. Diabetes Mellitus: Hemoglobin A1c to Poor Control** by years in the model despite a slight decline in quality measure rates between the third and fourth year (for the 62 NGACOs: 11.55 vs. 12.17; and for the 35 NGACOs: 11.83 vs. 12.04).

- NGACOs also experienced an improvement in quality rates for **ACO28. Hypertension (HTN): Controlling High Blood Pressure** in general over the years.

- There was a small but steady improvement as years of participation increased in **ACO40. Depression Remission at Twelve Months** (for the 62 NGACOs: 5.52, 7.65, 11.61, 11.81, and 10.15 for years one through five+, respectively; and for the 35 NGACOs: 6.99, 8.10, 12.26, 10.11, and 10.15 for years one through five+, respectively), and **ACO42. Statin Therapy for the**

Prevention and Treatment of Cardiovascular Disease (for the 62 NGACOs: 81.70, 80.32, 82.42, 83.29, and 84.53 for years one through five+, respectively; and for the 35 NGACOs: 82.35, 82.17, 82.41, 83.20, and 84.53 for years one through five+, respectively).

Exhibit M.1. Changes in Key Quality Measures by Number of Years in the NGACO Model

	First Year	Second Year	Third Year	Fourth Year	Five+ Years
Patient Experience & Care					
ACO1. Getting Timely Care, Appointments, and Info					
62 ACOs	82.47	84.54	85.92	85.84	83.34
35 ACOs	83.33	84.16	85.84	85.53	83.34
ACO2. How Well Your Providers Communicate					
62 ACOs	93.39	93.74	94.19	93.95	93.51
35 ACOs	93.53	93.77	94.18	93.84	93.51
ACO3. Patient's Rating of Provider					
62 ACOs	92.59	92.77	92.64	92.49	92.43
35 ACOs	92.78	92.75	92.55	92.38	92.43
ACO4. Access to Specialists					
62 ACOs	82.76	82.08	80.83	79.84	78.30
35 ACOs	82.47	82.20	80.39	79.60	78.30
ACO5. Health Promotion and Education					
62 ACOs	61.75	61.38	60.86	60.79	61.60
35 ACOs	60.94	60.97	61.28	60.71	61.60
ACO6. Shared Decision Making					
62 ACOs	72.62	65.52	62.70	60.70	61.78
35 ACOs	71.75	66.22	63.07	60.77	61.78
ACO7. Health Status/ Functional Status					
62 ACOs	73.83	73.77	74.14	74.61	74.59
35 ACOs	73.92	73.80	74.22	74.50	74.59
Prevention & Screening					
ACO13. Screening for the Future Fall Risk					
62 ACOs	75.14	82.91	88.32	88.42	91.04
35 ACOs	76.96	85.10	88.65	88.94	91.04
ACO18. Screening for Clinical Depression and Follow-up					
62 ACOs	62.01	69.38	72.29	73.30	77.83

	First Year	Second Year	Third Year	Fourth Year	Five+ Years
35 ACOs	65.29	73.70	75.27	74.66	77.83
ACO19. Colorectal Cancer Screening					
62 ACOs	70.56	73.13	77.44	75.54	77.69
35 ACOs	72.51	74.43	76.82	75.75	77.69
ACO20. Breast Cancer Screening					
62 ACOs	74.61	74.64	78.97	78.13	81.40
35 ACOs	74.88	76.73	78.21	78.59	81.40
Chronic Disease Management					
ACO27. Diabetes Mellitus: Hemoglobin A1c to Poor Control*					
62 ACOs	14.53	15.04	11.55	12.17	11.04
35 ACOs	12.75	12.65	11.83	12.04	11.04
ACO28. Hypertension (HTN): Controlling High Blood Pressure					
62 ACOs	73.70	75.37	78.50	76.62	77.83
35 ACOs	73.94	76.46	77.59	76.12	77.83
ACO40. Depression Remission at Twelve Months					
62 ACOs	5.52	7.65	11.61	11.81	10.15
35 ACOs	6.99	8.10	12.26	10.11	10.15
ACO42. Statin Therapy for the Prevention and Treatment of Cardiovascular Disease					
62 ACOs	81.70	80.32	82.42	83.29	84.53
35 ACOs	82.35	82.17	82.41	83.20	84.53

NOTE: *Lower rate indicates better quality.

Appendix Section M2. Association Between Provider Engagement Strategies and Cumulative Spending, Utilization, and Quality

We analyzed the associations between different financial and nonfinancial provider engagement strategies and cumulative spending, utilization, and quality outcomes as of PY 6. This analysis focused on employed practitioners, independent or sole practitioners, and affiliated practices/taxpayer identification number (TIN)s/groups. Provider engagement strategies were reported on the 2021 NGACO Leadership Survey. One set of questions asked whether NGACOs shared upside risk and downside risk with multiple provider types. The analysis focused on three associations, related to: 1) sharing savings (with or without sharing downside risk); 2) sharing savings and downside risk; and 3) sharing savings without sharing downside risk. All NGACOs that shared downside risk also shared savings with a provider group. When an NGACO did not respond to a question, their answer was re-coded to 'No,' so as not to exclude the NGACO from analysis.

Another set of questions asked NGACO leadership about the importance of financial and nonfinancial incentives and different methods of sharing quality and cost data with individual providers. For each item, the response options were recoded into a dichotomous variable, comparing those who said each was "very important" with those who said each strategy was "moderately" or "not important." To assess the effect of presence of any data sharing strategies, we created two dichotomous variables: if the response to any of the three strategies for sharing data on cost was 'very important,' any cost data sharing was set to the value 1; if the response to any of the three strategies for sharing data on quality was 'very important,' any quality data sharing was set to the value 1. To assess the effect of dose of data sharing strategies on outcomes, we created two count variables on a scale of 0-3, counting the number of quality and cost strategies reported as 'very important.' For both cost quality, strategies included in the count were: 1) sharing the relevant performance measures; 2) providing one-on-one review and feedback of the relevant data; and 3) establishing real-time physician access to the relevant data or reports.

We used NGACO level data across the six PYs to conduct multivariable linear regressions relating the outcomes listed in **Exhibit M.2.1** with provider engagement strategies indicated by the NGACOs in the annual ACO survey. The analysis was limited to those NGACOs that completed the 2021 NGACO Leadership Survey (n=35), including all NGACOs that remained in the model's final year. The outcomes reflect an NGACO's cumulative weighted average across all PYs in the model. For each outcome, separate multivariable linear regression models were estimated to examine the association between each outcome and each strategy. We controlled for ACO type (physician practice, physician hospital partnership, integrated delivery system [IDS]/hospital), ACO size (using average number of aligned beneficiaries over PY 1–PY 6), and the weighted average of baseline spending over PY 1–PY 6.

For total spending, the multivariable analysis controlled for ACO type and ACO size, excluding weighted average of baseline spending. Each cell within **Exhibit M.2.2** represents a separate

regression model. Coefficient estimates (βs) in the Exhibits are the average change in percent impact in the outcome for ACOs that reported the listed response for that row, compared with ACOs that reported a different response (that is, the reference group), holding other variables constant.

Exhibit M.2.1. Association between Provider Engagement Strategies and Select Cumulative Quality Outcomes

	ACSC hospitalizations (%)	Unplanned 30-day hospital readmission (%)	ED visits and observation stays (%)	E&M visits (%)	Procedures (%)	Tests (%)	Imaging (%)	Annual wellness visits (%)
Employed practitioners								
Share savings with employed practitioners (n=20)	**-4.93 ± 2.08****	-2.54 ± 1.60	0.75 ± 1.52	0.60 ± 1.02	0.93 ± 1.25	1.27 ± 0.98	0.03 ± 0.72	2.44 ± 8.05
Share savings and downside risk with employed practitioners (n=13)	-3.23 ± 2.34	-1.29 ± 1.75	0.55 ± 1.61	-0.00 ± 1.09	-0.09 ± 1.34	1.36 ± 1.04	0.40 ± 0.76	-4.51 ± 8.51
Share savings only with employed practitioners (n=7)	-3.12 ± 2.75	-2.12 ± 2.01	0.39 ± 1.88	0.92 ± 1.25	1.53 ± 1.54	0.09 ± 1.24	-0.50 ± 0.88	9.82 ± 9.78
Independent or sole practitioners								
Share savings with independent practitioners (n=23)	**-6.96 ± 2.15****	-2.68 ± 1.77	0.56 ± 1.68	1.33 ± 1.10	1.60 ± 1.36	0.01 ± 1.11	-0.65 ± 0.78	-4.45 ± 8.85
Share savings and downside risk with independent practitioners (n=11)	**-4.81 ± 2.53***	-1.42 ± 1.94	0.03 ± 1.80	0.39 ± 1.21	-0.25 ± 1.49	0.10 ± 1.19	0.10 ± 0.85	-9.47 ± 9.34
Share savings only with independent practitioners (n=12)	-2.50 ± 2.34	1.31 ± 1.73	0.48 ± 1.60	0.90 ± 1.06	1.65 ± 1.29	-0.07 ± 1.06	-0.67 ± 0.74	3.49 ± 8.45
Affiliated practices/TINs/groups								
Share savings with affiliated practices / TINs / groups (n=27)	-4.47 ± 2.92 (p=0.136)	**-3.83 ± 2.11***	-0.26 ± 2.03	1.56 ± 1.34	0.13 ± 1.69	-0.56 ± 1.34	-0.57 ± 0.95	-7.35 ± 10.67
Share savings and downside risk with affiliated practices / TINs / groups (n=17)	-0.60 ± 2.39	-1.54 ± 1.73	-0.36 ± 1.60	-0.20 ± 1.08	-1.86 ± 1.29	-0.22 ± 1.06	0.12 ± 0.76	-11.98 ± 8.19

	ACSC hospitalizations (%)	Unplanned 30-day hospital readmission (%)	ED visits and observation stays (%)	E&M visits (%)	Procedures (%)	Tests (%)	Imaging (%)	Annual wellness visits (%)
Share savings only with affiliated practices / TINs/groups (n=10)	-2.54 ± 2.54	-0.98 ± 1.99	0.23 ± 1.73	1.36 ± 1.14	2.26 ± 1.37	-0.15 ± 1.15	-0.56 ± 0.81	8.60 ± 9.01
Each of the following is very important to provider management								
Financial incentives (n=21)	**-6.60 ± 1.91****	**-3.20 ± 1.56****	-0.88 ± 1.51	0.39 ± 1.02	0.79 ± 1.26	-1.23 ± 1.01	-0.99 ± 0.69	0.97 ± 8.05
Nonfinancial incentives (n=12)	-2.45 ± 2.34	-1.54 ± 1.72	-0.83 ± 1.59	1.04 ± 1.05	0.31 ± 1.32	-1.16 ± 1.03	-0.50 ± 0.74	-1.56 ± 8.43
Number of strategies for sharing quality data (count of 'very important')	-1.32 ± 1.40	-1.08 ± 1.02	-0.62 ± 0.94	-0.20 ± 0.64	-1.10 ± 0.76	-0.71 ± 0.62	-0.55 ± 0.44	2.43 ± 5.01
Number of strategies for sharing cost data (count of 'very important')	**-1.73 ± 0.85***	-0.02 ± 0.66	-0.76 ± 0.59	0.47 ± 0.40	0.62 ± 0.49	-0.07 ± 0.40	0.00 ± 0.29	**5.60 ± 3.04***
Any cost data sharing is very important (n=24)	**-4.68 ± 2.24****	-1.63 ± 1.73	-0.62 ± 1.61	1.06 ± 1.07	0.77 ± 1.33	-1.04 ± 1.05	-1.00 ± 0.76	11.26 ± 8.27

NOTE: * $p<0.1$, ** $p<0.05$. Bold font indicates findings that reach statistical significance. Share savings indicates those that shared savings with or without sharing downside risk. Outcomes are cumulative impact estimates from difference-in-differences (DID) models standardized as the percent impact relative to counterfactual comparison (that is, NGACO trends absent the model). Each cell corresponds to a separate regression model, controlling for ACO type, ACO size, and baseline spending. ACSC = ambulatory care-sensitive conditions, ED = emergency department, E&M = evaluation & management.

Exhibit M.2.2. Associations between Provider Engagement Strategies and Cumulative Spending

	Total spending (%)	Inpatient cost (%)	Outpatient cost (%)	Part B spending (%)
Employed practitioners				
Share savings with employed practitioners (n=20)	-0.94 ± 1.10	-1.65 ± 1.07	0.49 ± 2.10	0.70 ± 1.69
Share savings and downside risk with employed practitioners (n=13)	-1.17 ± 1.16	-1.71 ± 1.14	0.08 ± 2.23	-0.86 ± 1.79
Share savings only with employed practitioners (n=7)	0.16 ± 1.36	-0.19 ± 1.37	0.64 ± 2.59	2.24 ± 2.05
Independent practitioners				
Share savings with independent practitioners (n=23)	-0.27 ± 1.18	-1.38 ± 1.20	-0.64 ± 2.32	1.81 ± 1.84
Share savings and downside risk with independent practitioners (n=11)	-0.54 ± 1.30	**-2.35 ± 1.24***	-0.30 ± 2.48	0.48 ± 2.00
Share savings only with independent practitioners (n=12)	0.17 ± 1.16	0.61 ± 1.16	-0.34 ± 2.21	1.26 ± 1.77
Affiliated practices/ TINs/groups				
Share savings with affiliated practices/ TINs/groups (n=27)	-0.30 ± 1.40	-1.98 ± 1.44	1.77 ± 2.79	0.11 ± 2.26
Share savings and downside risk with affiliated practices/TINs/ groups (n=17)	-1.08 ± 1.16	**-1.90 ± 1.12*** (p=0.099)	1.10 ± 2.21	-2.50 ± 1.73
Share savings only with affiliated practices/TINs/groups (n=10)	0.95 ± 1.21	0.77 ± 1.25	0.01 ± 2.39	2.98 ± 1.85
Each of the following is very important to provider management				
Financial incentives (n=21)	-1.25 ± 1.09	-1.46 ± 1.08	-3.20 ± 2.02	0.23 ± 1.69
Nonfinancial incentives (n=12)	-0.73 ± 1.15	-1.09 ± 1.14	0.22 ± 2.87	0.10 ± 1.77
Number of strategies for sharing cost data (count of 'very important')	0.38 ± 0.44	0.29 ± 0.44	-0.88 ± 0.82	**1.38 ± 0.63****
Number of strategies for sharing quality data (count of 'very important')	-0.72 ± 0.67	-0.96 ± 0.67	-1.85 ± 1.27	-0.36 ± 1.06
Any cost data sharing is very important (n=24)	1.35 ± 1.15	0.56 ± 1.17	0.79 ± 2.19	1.97 ± 1.76

NOTE: * p<0.1, ** p<0.05. Bold font indicates findings that reach statistical significance. Share savings indicates those that shared savings with or without sharing downside risk. Outcomes are cumulative impact estimates from difference-in-differences (DID) models standardized as the percent impact relative to counterfactual comparison (that is, NGACO trends absent the model). For inpatient cost, outpatient cost, and Part B spending, each cell corresponds to a separate regression model, controlling for ACO type, ACO size, and baseline spending. Regression models for total spending controlled only for ACO type and ACO size.

Appendix Section M3. Association between Features of NGACOs' Relationships with SNFs and Utilization, Spending, and Quality Outcomes in the NGACO Model

Our exploratory analyses assessed whether five NGACO strategies to engage SNFs were associated with greater improvements in SNF outcomes among NGACO model participants (that is, whether cumulative SNF spending and quality improved if an NGACO engaged in these activities, based on their responses to the 2021 Leadership Survey). The five strategies were: 1) notification/coordination; 2) financial and performance-based incentives; 3) NGACO-employed/affiliated staff; 4) standardized care management; and 5) NGACO prioritization of post-acute care (PAC) spending and quality.

Reductions in PAC spending were a key contributor to gross cost savings under the NGACO Model, accounting for between a fifth to nearly a third of the model's Part A and B spending decline during its first five PYs. Evaluation findings for PY 3 through PY 5 identified significant PAC spending reductions ranging from $42.20 to $96.80 per beneficiary per year (PBPY). In PY 3, SNF spending reductions of 3.6% and 2.0% were observed for the 2016 and 2017 cohorts, respectively;[82] similarly, in PY 4, SNF spending reductions of 5.3% and 3.5% were observed for the 2016 and 2017 cohorts, with cumulative decreases of 1.4% and 3.5%, respectively.[83] The NGACOs undertook a range of efforts to enhance coordination with SNFs to reduce length of stay and improve quality of care; some of the observed reductions may be associated with specific strategies that NGACOs pursued.

To understand the strategies that NGACOs used to coordinate beneficiary care with SNFs, NORC surveyed leaders of the 35 NGACOs that remained in the NGACO Model in PY 6 (2021). Survey items[84] were grouped into several domains, as follows:

- **Notification/coordination.** Items reflected communication between NGACOs and SNFs and communication surrounding care transitions.

- **Financial and performance-based incentives.** Financial incentives included one- or two-sided risk. Performance-based incentives included sharing information on SNF performance (for example, a performance report card).

- **Standardized care management.** Standard approaches to care processes and staff, especially those supporting care transitions.

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[82] NORC at the University of Chicago. Third Evaluation Report: Next Generation Accountable Care Organization Model Evaluation. 2020. https://innovation.cms.gov/data-and-reports/2020/nextgenaco-thirdevalrpt-fullreport

[83] NORC at the University of Chicago. Fourth Evaluation Report: Next Generation Accountable Care Organization Model Evaluation. 2021. https://innovation.cms.gov/data-and-reports/2021/nextgenaco-fourthevalrpt

[84] Survey items are provided in each exhibit by domain.

- **NGACO-employed/affiliated staff.** Employed staff were defined as staff working onsite in partner SNFs. Affiliated staff were defined as staff employed by/affiliated with the NGACO who communicated with SNFs to coordinate care for aligned beneficiaries.[85]

- **Focus on managing SNF spending and quality.** Defined as prioritizing reducing SNF spending while maintaining or improving quality of care.

We hypothesized that NGACOs engaging in the strategies, as reported in the survey, would have greater improvements in SNF outcomes, relative to all NGACO Model participants.

Data and Methods

Items from the 2021 NGACO Leadership Survey were used to create 17 key independent variables. Survey items were recoded to binary variables, defined as 1 for the top-box response (for example, fully standardized, or to a great extent) and 0 if otherwise.

Covariates for multivariable models were selected based on a literature review and prior analyses conducted for the NGACO Model evaluation. The NGACO-level covariates included characteristics of NGACO-aligned beneficiary populations (mean number of chronic conditions among aligned beneficiaries), organization type (integrated delivery system [IDS]/hospital system, physician practice, or physician-hospital partnership), and market efficiency (adjusted total Medicare Parts A and B spending).[86]

Dependent variables were cumulative impact estimates from difference-in-difference (DID) models of rates of SNF days per 1,000 beneficiaries (utilization), Medicare spending on SNFs per beneficiary (spending), and number of beneficiaries with one or more unplanned rehospitalizations within 30 days of SNF admission per 1,000 beneficiaries (quality, referred to as "SNF readmissions"). Each dependent variable was standardized as the percent impact relative to counterfactual comparison (that is, NGACO trends absent the model). We excluded the first year of NGACO Model participation for each NGACO, to allow a transition period for implementation of coordination strategies with SNFs.

Descriptive statistics were calculated for all NGACO-level variables (survey items, covariates, and SNF outcomes) used in analyses. **Exhibit M.3.1** includes the mean and standard deviation for all continuous variables in the model and the percentage for all binary and categorical variables included in the model. We conducted T-tests to examine differences in average outcomes among NGACOs by level of binary survey items (**Exhibit M.3.2**).

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[85] One NGACO reported having only embedded staff and not centralized staff. For this reason, we created two independent variables—one identifying NGACOs with centralized staff only and one identifying NGACOs with embedded or embedded and centralized staff.

[86] For detailed information on how each model covariate was defined, refer to the Next Generation ACO Model Fourth Evaluation Report Technical Appendices, available at: https://innovation.cms.gov/data-and-reports/2021/nextgenaco-fourthevalrpt-techapp.

Three models were run for each NGACO engagement strategy-dependent variable pair. For each outcome, separate multivariable linear regression models were estimated to examine the association between each outcome and each survey item, controlling for covariates (that is, number of chronic conditions, organization type, and total Medicare Parts A and B spending) (**Exhibit M.3.3**). Coefficient estimates (βs) are the average percentage point change in the outcome for ACOs that reported the top-box response, compared with ACOs that did not (that is, the reference group), holding other variables constant.

We conducted a sensitivity analysis, running multivariable regressions using dependent variables for PY 6 instead of dependent variables for cumulative results as of PY 6, excluding the first year of participation for each NGACO (**Exhibit M.3.4**).

Since SNF network quality may confound the relationship between NGACO strategies and SNF outcomes, we used descriptive analyses to explore average SNF quality among each NGACO's SNF network.[87] For the analysis, we used publicly available data for three measures reported on Care Compare as part of the SNF Quality Reporting Program (QRP):

- Discharge to community (DTC) (percentage of successful discharges to the community from a SNF, with successful discharges including those with no unplanned rehospitalizations or death in the 31 days following discharge;[88] higher rates are better)

- Potentially preventable 30-day post-discharge readmission (PPR) (percentage of rehospitalizations following SNF discharge that are potentially preventable, based on inadequate management of chronic conditions, infections, or other unplanned events or inadequate injury prevention;[89] lower rates are better)

- Medicare spending per beneficiary ratio (MSPB) (whether Medicare spends more, less, or about the same on an episode of care for a Medicare resident treated in a specific SNF, compared with how much Medicare spends on an episode of care across all SNFs nationally).[90]

Results are provided in **Exhibits M.3.5–M.3.7.**

To define NGACO SNF network quality, we calculated the standardized quality measure rate (z-score) for each SNF in the NGACO's network, based on the national distribution of rates among all SNFs, for each measure. Then, we created a composite z-score by summing the z-scores for each quality measure rate for each NGACO-SNF pair, multiplying rates by -1 if lower rates indicated better performance before summing, so that the composite score accurately reflected performance. The average composite z-score within each NGACO SNF network was considered representative of NGACO SNF network quality for the analyses. The SNF quality measure rates included in the

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[87] An NGACO's SNF network includes any SNFs designated as Participant or Preferred Providers for that NGACO.

[88] For additional information, refer to: https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/ltch-quality-reporting/downloads/faq-for-discharge-to-community-post-acute-care-measures.pdf.

[89] For additional information, refer to: https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Downloads/Measure-Specifications-for-FY17-SNF-QRP-Final-Rule.pdf.

[90] For additional information, refer to: https://data.cms.gov/provider-data/topics/nursing-homes/quality-of-resident-care.

composite quality score were from the October 2022 annual file, available from the Provider Data Catalog. Due to the COVID-19 public health emergency (PHE), claims-based measures were created using 1.5 years of data (July–December 2019 and July 2020–June 2021), excluding data from January–June 2020.[91]

To assess whether underlying SNF network quality influenced our analyses of NGACO engagement strategies, for each SNF outcome (that is, SNF days, SNF spending, and SNF readmissions), we conducted a sensitivity analysis where we ran separate multivariable linear regression models that controlled for NGACO SNF network quality, in addition to number of chronic conditions, organization type, and total Medicare Parts A and B spending (**Exhibit M.3.8**).

We conducted additional descriptive and multivariable analyses to assess differences in quality between NGACO-affiliated (Participant and Preferred Provider SNFs) and non-affiliated SNFs in the first and second halves of the model's performance period. We included all NGACOs that ever participated in the model and for the group of non-affiliated SNFs, included only SNFs that were in NGACO hospital referral regions (HRRs) where NGACOs did not elect to partner with the SNF. Descriptive statistics were calculated for the following:

- Selected SNF structural and organizational characteristics (ownership [for-profit vs. not-for-profit], number of beds, occupancy rate, and number of staffing hours per resident per day for registered nurses [RNs], licensed practical nurses [LPNs], and certified nurse aides [CNAs])
- Quality characteristics (quality measure rates for DTC and PPR and the MSPB ratio)

The analysis was stratified by NGACO-affiliated and non-affiliated SNFs in the first and second halves of the NGACO Model. The SNF characteristics for the first half of the NGACO Model were derived from provider characteristics during 2018; claims-based quality measures were created from two FYs of data (October 2016 – September 2018). The SNF characteristics for the second half of the NGACO Model were from 2021; due to the COVID-19 PHE, claims-based quality measures were created using 1.5 years of data (July–December 2019 and July 2020–June 2021), excluding data from January–June 2020. **Exhibit M.3.9** includes the mean and standard deviation for all continuous variables in the model and the percentage for all binary and categorical variables included in the model.

We conducted T-tests to examine differences in average outcomes among NGACO-affiliated and non-affiliated SNFs (**Exhibit M.3.10**). Separate multivariable linear regression models with HRR fixed effects were used to assess the relationship between NGACO affiliation for SNFs and SNF quality in the first and second halves of the model's performance period. They were also used to assess the relationship over time, compared with non-affiliated SNFs (**Exhibit M.3.11**). We used Huber-White robust standard errors to address heteroskedasticity in observations for the same SNF over time. Wald tests were used to determine whether the linear combinations of coefficients on NGACO affiliation and the interaction between NGACO affiliation and the time dummy variable were equal to 0.

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[91] Most recent data available at time of draft.

Results

Exhibit M.3.1 presents descriptive statistics of NGACO-SNF coordination strategies.

- **Notification/coordination domain.** Most NGACOs engaged in coordination activities with SNFs, with over 70% of NGACOs having shared access to electronic health records (EHRs) with SNFs. Almost 90% of NGACOs: 1) established regular phone communication with SNFs; 2) alerted NGACO care managers when aligned beneficiaries were admitted to SNFs; and 3) established SNF collaboratives. Fewer NGACOs reported: 1) tracking aligned beneficiaries at risk for rehospitalization; 2) knowing when aligned beneficiaries were registered in an ED or admitted to a hospital; or 3) providing primary care teams with real-time data on aligned beneficiary hospitalizations (again, "to a great extent"). However, the majority of NGACOs reported engaging in these practices (65.7%, 68.6%, and 57.1%, respectively).

- **Financial and performance-based incentives domain.** Most NGACOs reported sharing performance data with SNFs (almost 83%), while only 20% of NGACOs shared savings with SNFs and only 11.4% shared savings and losses.

- **NGACO-employed/affiliated staff domain.** Roughly 77% of NGACOs reported having embedded care managers in SNFs (2.9%), centralized care management (34.3%), or embedded and centralized care management in SNFs (40%).

- **Standardized care management domain.** A majority of NGACOs reported having fully standardized care management processes and staff (68.6%) and that managing PAC spending and quality was a high priority (57.1%). Fewer NGACOs reported having fully standardized hospital discharge planning (45.7%) and hospital notification and follow-up for aligned beneficiaries (42.9%).

Exhibit M.3.1. Descriptive Statistics for NGACO Characteristics in PY 6 (N=35)

Variable	Mean±Standard Deviation (SD) / %
Outcomes	
Percent impact on SNF days per 1,000 beneficiaries	-3.9%±7.7%
Percent impact on Medicare spending on SNFs per beneficiary	-5.3%±7.5%
Percent impact on hospital readmissions from SNFs per 1,000 beneficiaries	0.4%±6.6%
Notification/coordination domain	
NGACOs have regular phone communication with SNFs	88.6%
NGACO care managers are alerted when aligned beneficiaries are admitted to SNFs	88.6%
NGACOs have an established SNF collaborative	88.6%
NGACOs use EHRs for information exchange between NGACOs and SNFs	71.4%
NGACOs know when aligned beneficiaries are registered in an ED or admitted to a hospital	68.6%
NGACOs track aligned beneficiaries at risk for hospital readmissions	65.7%

Variable	Mean±Standard Deviation (SD) / %
NGACOs provide primary care team with real-time data on aligned beneficiary hospitalizations	57.1%
Financial and performance-based incentives domain	
NGACOs share performance data with SNFs	82.9%
NGACOs share savings with SNFs	20.0%
NGACOs share savings and losses with SNFs	11.4%
NGACO-employed/affiliated staff domain	
NGACOs have embedded care management or embedded and centralized care management in SNFs	42.9%
NGACOs have centralized care management only in SNFs	34.3%
Standardized care management domain	
NGACOs have fully standardized care management processes and staff	68.6%
NGACOs have fully standardized hospital discharge planning	45.7%
NGACOs have fully standardized hospital notification and follow-up	42.9%
Focus on managing PAC spending and quality domain	
NGACOs prioritize managing PAC spending and quality	57.1%
Covariates	
Mean number of chronic conditions among aligned beneficiaries	5.4±0.6
Adjusted total Medicare Parts A and B spending	-$619.2±$647.7

Organization type
    IDS/Hospital System
    Physician Practice
    Physician-Hospital Practice
	
	40.0%
	31.4%
	28.6%

NOTES: SNF outcomes are cumulative impact estimates from difference-in-differences (DID) models standardized as the percent impact relative to counterfactual comparison (that is, NGACO trends absent the model). ED = emergency department; EHR = electronic health record; SNF = skilled nursing facility; PAC = post-acute care; IDS = integrated delivery system.

T-tests showed significant differences ($p < 0.05$) in average outcomes for several survey items; see **Exhibit M.3.2.** Percentage point differences in SNF days and SNF spending were seen in NGACOs that reported reducing PAC spending and quality as a high priority (SNF days, 6.3 percentage points; SNF spending, 6.3 percentage points). Different NGACO activities were associated with improvements in SNF readmissions. Percentage point improvements in SNF readmissions were observed in NGACOs that: 1) knew when beneficiaries were registered in an ED or a hospital (5.7 percentage points) and 2) had NGACO-employed/affiliated staff on-site in SNFs (5.6 percentage points).

Exhibit M.3.2. T-test Comparison of Average Percent Impact for SNF Days, SNF Spending, and Hospital Readmissions from SNFs by NGACO-SNF Coordination Strategies (N=35)

Variable	Level	Percentage impact on:		
		SNF days per 1,000 beneficiaries	SNF spending per beneficiary	Hospital readmissions within 30 days of SNF admission per 1,000 beneficiaries
Notification/coordination domain				
NGACOs have regular phone communication with SNFs	No Yes	4.5±7.7 **-5.0±7.1***	1.1±7.8 -6.1±7.1	-2.7±3.7 -0.1±6.8
NGACO care managers are alerted when aligned beneficiaries are admitted to SNFs	No Yes	-1.1±13.4 -4.3±7.0	-3.5±12.0 -5.5±7.0	2.3±3.9 -0.7±6.8
NGACOs have an established SNF collaborative	No Yes	3.1±9.6 -4.8±7.1	1.2±7.6 -6.1±7.2	-1.8±3.6 -0.2±6.9
NGACOs use EHRs for information exchange between NGACOs and SNFs	No Yes	-6.5±6.5 -2.9±8.0	-6.7±5.9 -4.7±8.0	1.4±4.1 -1.1±7.3
NGACOs know when aligned beneficiaries are registered in an ED or admitted to a hospital	No Yes	-4.6±8.2 -3.6±7.6	-6.6±7.0 -4.7±7.7	3.5±6.6 **-2.2±5.8***
NGACOs track aligned beneficiaries at risk for hospital readmissions	No Yes	-3.5±10.6 -4.1±6.0	-5.5±10.2 -5.1±5.8	1.6±8.1 -1.4±5.6
NGACOs provide primary care team with real-time data on aligned beneficiary hospitalizations	No Yes	-3.0±8.7 -4.5±7.1	-4.6±8.5 -5.7±6.8	-0.1±4.6 -0.6±7.9
Financial and performance-based incentives domain				
NGACOs share performance data with SNFs	No Yes	2.5±6.9 **-5.2±7.3***	0.1±6.6 -6.4±7.2	-3.0±3.1 0.2±7.0
NGACOs share savings with SNFs	No Yes	-2.9±7.4 -7.9±8.4	-4.3±7.2 -9.1±7.7	0.1±6.8 -2.2±5.7
NGACOs share savings and losses with SNFs	No Yes	-3.1±7.3 -9.8±9.8	-4.4±7.1 -11.7±8.2	0.1±6.5 -4.3±6.7
NGACO-employed/affiliated staff domain				
NGACOs have embedded care management or embedded and centralized care management in SNFs	No Yes	-2.8±8.6 -5.4±6.3	-4.1±8.0 -6.8±6.7	2.0±5.9 **-3.6±6.2***
NGACOs have centralized care management in SNFs	No Yes	-4.5±7.6 -2.8±8.2	-6.1±7.3 -3.7±7.9	-2.5±6.0 **3.8±5.7***
Standardized care management domain				
NGACOs have fully standardized care management processes and staff	No Yes	-0.1±9.4 **-5.6±6.3***	-1.7±2.8 -6.9±1.2	0.2±4.2 -0.6±7.5
NGACOs have fully standardized hospital discharge planning	No Yes	-2.9±8.4 -5.1±7.0	-4.4±8.1 -6.3±6.8	0.5±6.4 -1.4±6.8
NGACOs have fully standardized hospital notification and follow-up that is fully standardized	No Yes	-2.0±7.5 -6.5±7.4	-3.7±7.4 -7.3±7.3	0.1±7.6 -1.0±5.1

		Percentage impact on:		
Focus on managing PAC spending and quality domain				
NGACOs prioritize managing PAC spending and quality	No	-0.3±6.3	-1.7±5.9	0.1±4.9
	Yes	**-6.6±7.7***	**-8.0±7.5***	-0.8±7.7

NOTES: *P≤0.05. Bold font indicates findings that reach statistical significance. SNF outcomes are cumulative impact estimates from difference-in-differences (DID) models standardized as the percent impact relative to counterfactual comparison (that is, NGACO trends absent the model). ED = emergency department; EHR = electronic health record; SNF = skilled nursing facility; PAC = post-acute care.

Exhibit M.3.3 presents results of multivariable regression analyses relating NGACO SNF coordination activities with cumulative outcomes, controlling for NGACO characteristics. Regression results were consistent with unadjusted findings and showed that sharing performance data with SNFs (β=-8.4 percentage points), prioritizing PAC spending and quality (β=-7.6 percentage points), and having fully standardized care management processes and staff in place (β=-6.8 percentage points) were associated with larger reductions in SNF days per 1,000 beneficiaries (p<0.05), compared with NGACOs that did not attest to engaging in such activities. Prioritizing PAC spending and quality was associated with a 7.2 percentage point decline in SNF spending per beneficiary and having fully standardized care management processes and staff was associated with a 5.9 percentage point decline in spending (p<0.05), compared to NGACOs that did not report adopting these strategies.

For SNF readmissions, greater declines were associated (p<0.05) with: 1) knowing when beneficiaries were registered in an emergency department (ED) or a hospital (β=-5.7 percentage points); and 2) having NGACO-employed/affiliated staff in SNFs (β=-6.5 percentage points). Findings were relative to NGACOs that did not attest to engaging in such activities.

Exhibit M.3.3. Association between NGACO-SNF Coordination Strategies and Percent Cumulative Impact on SNF Days PBPY, SNF Spending PBPY, and SNF Readmissions per 1,000 BPY (N=35)

Independent variable	SNF days per 1,000 beneficiaries (percentage points)	SNF spending per beneficiary (percentage points)	Hospital readmissions within 30 days of SNF admission per 1,000 beneficiaries (percentage points)
Notification/coordination domain			
NGACOs have regular phone communication with SNFs	-8.3	-5.8	3.4
NGACO care managers are alerted when aligned beneficiaries are admitted to SNFs	-4.2	-2.4	-2.1
NGACOs have an established SNF collaborative	-8.1	-6.9	4.2
NGACOs use EHRs for information exchange between NGACOs and SNFs	3.4	2.1	-1.4

Independent variable	SNF days per 1,000 beneficiaries (percentage points)	SNF spending per beneficiary (percentage points)	Hospital readmissions within 30 days of SNF admission per 1,000 beneficiaries (percentage points)
NGACOs know when aligned beneficiaries are registered in an ED or admitted to a hospital	0.5	1.8	**-5.7***
NGACOs track aligned beneficiaries at risk for hospital readmissions	-0.9	0.3	-2.7
NGACOs provide primary care team with real-time data on aligned beneficiary hospitalizations	-1.1	-0.9	-0.7
Financial and performance-based incentives domain			
NGACOs share performance data with SNFs	**-8.4***	-6.7	3.9
NGACOs share savings with SNFs	-3.5	-3.6	-3.0
NGACOs share savings and losses with SNFs	-6.1	-6.5	-3.7
NGACO-employed/affiliated staff domain			
NGACOs have embedded care management or embedded and centralized care management in SNFs	-1.3	-1.7	**-6.5***
NGACOs have centralized care management only in SNFs	0.6	1.4	**6.4***
Standardized care management domain			
NGACOs have fully standardized care management processes and staff	**-6.8***	**-5.9***	0.9
NGACOs have fully standardized hospital discharge planning	-1.8	-1.2	-0.6
NGACOs have fully standardized hospital notification and follow-up	-4.5	-3.6	-0.8
Focus on managing PAC spending and quality domain			
NGACOs prioritize managing PAC spending and quality	**-7.6****	**-7.2****	-0.0

NOTES: *P≤0.05, **P≤0.005. Bold font indicates findings that reach statistical significance. Models controlled for mean number of chronic conditions among aligned beneficiaries, adjusted total Medicare Parts A and B spending, and organization type (IDS/hospital system, physician practice, physician-hospital partnership). ED = emergency department; EHR = electronic health record; SNF = skilled nursing facility; PAC = post-acute care; IDS = integrated delivery system.

Sensitivity analysis results are provided in **Exhibit M.3.4.** Regression results using dependent outcomes in PY 6 (instead of cumulative outcomes as of PY 6) were largely consistent with main analyses. Prioritizing PAC spending and quality was associated with declines of 10.1 percentage points and 9.0 percentage points in SNF days per 1,000 beneficiaries and SNF spending per beneficiary, respectively (p<0.05). Additionally, having established a SNF collaborative was associated with an 11.1

percentage point decrease in SNF days per 1,000 beneficiaries (p<0.05). For SNF readmissions, no results were statistically significant.

Exhibit M.3.4. Association between NGACO-SNF Coordination Strategies and Percent Impact on SNF Days PBPY, SNF Spending PBPY, and SNF Readmissions per 1,000 BPY in PY 6 (N=35)

Independent variable	SNF days per 1,000 beneficiaries	SNF spending per beneficiary	Hospital readmissions within 30 days of SNF admission per 1,000 beneficiaries
Notification/coordination domain			
NGACOs have regular phone communication with SNFs	-8.6	-6.1	2.2
NGACO care managers are alerted when aligned beneficiaries are admitted to SNFs	-4.6	-0.2	-3.2
NGACOs have an established SNF collaborative	**-11.1***	-8.0	-1.2
NGACOs use EHRs for information exchange between NGACOs and SNFs	3.9	1.2	-1.4
NGACOs know when aligned beneficiaries are registered in an ED or admitted to a hospital	3.4	**7.4***	0.7
NGACOs track aligned beneficiaries at risk for hospital readmissions	1.8	4.5	1.6
NGACOs provide primary care team with real-time data on aligned beneficiary hospitalizations	2.5	3.7	1.8
Financial and performance-based incentives domain			
NGACOs share performance data with SNFs	-8.1	-6.7	1.5
NGACOs share savings with SNFs	-3.5	-1.2	-3.3
NGACOs share savings and losses with SNFs	-4.3	-3.4	-8.8
NGACO-employed/affiliated staff domain			
NGACOs have embedded care management or embedded and centralized care management in SNFs	-0.1	-0.5	-5.1
NGACOs have centralized care management only in SNFs	-1.3	0.1	1.1
Standardized care management domain			
NGACOs have fully standardized care management processes and staff	-3.4	-2.9	-0.8
NGACOs have fully standardized hospital discharge planning	0.2	0.1	-3.3
NGACOs have fully standardized hospital notification and follow-up	-5.2	-4.6	3.4

Independent variable	SNF days per 1,000 beneficiaries	SNF spending per beneficiary	Hospital readmissions within 30 days of SNF admission per 1,000 beneficiaries
Focus on managing PAC spending and quality domain			
NGACOs prioritize managing PAC spending and quality	**-10.1*[a]**	**-9.0*[a]**	-3.6

NOTES: *P≤0.05, **P≤0.005. Bold font indicates statistically significant findings. Models controlled for mean number of chronic conditions among aligned beneficiaries, adjusted total Medicare Parts A and B spending, and organization type (IDS/hospital system, physician practice, physician-hospital partnership). [a]Heteroskedasticity-robust standard errors used based on results of Breusch-Pagan test. ED = emergency department; EHR = electronic health record; SNF = skilled nursing facility; PAC = post-acute care; IDS = integrated delivery system.

Results of the descriptive NGACO SNF network analysis are in **Exhibits M.3.5.-M.3.7.** In the first half of the model (October 2016–September 2018; **Exhibit M.3.5.**), almost all NGACO SNF networks performed better, on average, on the DTC measure than the national average measure rate (49.2%). Results were mixed for the PPR measure: 18 NGACO SNF networks' average performance was worse than the national average (7.3%), while 12 NGACO SNF networks had better average performance than the national average. Based on the MSPB ratio, Medicare spending per episode in 11 (31.4%) NGACO SNF networks was higher than the national average (1.01%).

Exhibit M.3.5. Average SNF Quality Measures for DTC Rate, PPR Rate, and MSPB Ratio Among NGACOs' PY 6 Participant and Preferred Provider SNFs, 2016–2018 (N=30)

ACO_ID	# SNFs in Network	Discharge to Community (DTC) Rate (national average = 49.17%)		Potentially Preventable Readmissions (PPR) Rate (national average = 7.27%)		Medicare Spending per Beneficiary (MSPB) Ratio (national average = 1.01%)	
		Mean±SD	Min, Max	Mean±SD	Min, Max	Mean±SD	Min, Max
V116	2	61.82±13.84	52.03, 71.6	7.17±0.49	6.82, 7.51	0.85±0.1	0.78, 0.92
V120	26	59.02±7.38	45.06, 74.36	7.14±0.6	5.95, 8.32	0.97±0.21	0.6, 1.52
V124	116	47.69±12.59	12.49, 78.88	7.38±0.54	6.36, 9.54	1.2±0.19	0.89, 1.74
V125	34	61.33±10.12	27.64, 76.46	7.57±0.54	6.37, 8.84	0.96±0.21	0.47, 1.42
V133	24	60.13±10.23	41.56, 78.48	7.81±0.84	6.41, 9.19	1±0.15	0.81, 1.51
V137	19	56.89±9.4	36.62, 75.25	7.17±0.36	6.44, 7.81	1.07±0.23	0.62, 1.47
V143	10	65.82±6.34	53.27, 74.92	7.13±0.38	6.63, 7.66	0.8±0.09	0.68, 0.96
V144	89	51.19±10.49	22.11, 75.39	7.09±0.48	6.04, 8.78	0.79±0.16	0.43, 1.26
V155	11	60.29±10.01	41.56, 74.85	6.96±0.44	6.05, 7.45	0.92±0.18	0.76, 1.35
V156	23	57.37±7.11	45.18, 74.29	7.22±0.44	6.51, 8.21	0.92±0.2	0.6, 1.43
V204	27	62.43±4.88	45.96, 69.98	7.95±0.81	6.87, 9.8	0.8±0.09	0.62, 0.94
V210	24	56.73±8.05	43.03, 72.82	7.05±0.55	5.97, 7.89	0.98±0.17	0.71, 1.32
V211	160	51.84±12.46	22.02, 78.02	7.35±0.51	6.31, 9.15	1.19±0.2	0.67, 1.78

ACO_ID	# SNFs in Network	Discharge to Community (DTC) Rate (national average = 49.17%)		Potentially Preventable Readmissions (PPR) Rate (national average = 7.27%)		Medicare Spending per Beneficiary (MSPB) Ratio (national average = 1.01%)	
		Mean±SD	Min, Max	Mean±SD	Min, Max	Mean±SD	Min, Max
V221	21	59.26±8.39	38.86, 72.66	7.5±0.58	6.51, 8.43	0.87±0.1	0.72, 1.05
V225	11	60.48±6.02	52.93, 73.14	7.29±0.3	6.99, 7.97	0.83±0.11	0.72, 1.06
V227	58	58.35±9.69	32.5, 79.29	7.05±0.48	5.83, 8.14	1.08±0.17	0.8, 1.53
V235	29	66.69±9.89	32.07, 76.52	7.59±0.54	6.7, 8.72	0.92±0.19	0.66, 1.52
V239	58	37.91±14.22	11.07, 71.08	7.39±0.68	6.52, 10.31	1.28±0.27	0.61, 1.82
V241	14	59.54±8.89	38.65, 74.29	7.42±0.69	6.68, 8.77	0.99±0.19	0.64, 1.21
V300	7	64.41±7.48	51.55, 72.5	7.03±0.4	6.27, 7.58	0.87±0.07	0.82, 1.01
V301	12	64.25±6.42	53.92, 74.93	7.3±0.59	6.26, 8.24	0.78±0.1	0.62, 0.95
V303	16	60.84±13.44	27.43, 78.48	7.52±0.97	6.38, 9.01	0.98±0.15	0.76, 1.37
V304	105	47.97±13.99	16.83, 81.12	7.41±0.56	6.32, 9.19	1.16±0.17	0.82, 1.62
V307	5	63.17±3.6	59.62, 67.95	6.76±0.43	6.36, 7.49	0.98±0.09	0.88, 1.09
V310	24	54.14±12.27	18.28, 71.32	7.29±0.56	6.42, 8.66	1.01±0.17	0.55, 1.41
V315	27	60.82±7.24	45.92, 72.15	7.15±0.55	6.14, 8.53	1.11±0.14	0.78, 1.42
V321	10	64.09±4.55	56.92, 71.65	7.44±0.88	5.46, 8.62	1.02±0.17	0.78, 1.29
V323	20	56.57±6.82	37.16, 66.53	7.8±0.65	6.73, 9.01	1.05±0.2	0.77, 1.52
V324	6	55.77±16.72	26.02, 72.19	7.9±1.01	6.89, 9.64	1.14±0.23	0.83, 1.47
V325	32	61.21±6.77	40, 72.45	7.71±0.92	6.26, 9.8	0.87±0.13	0.67, 1.18

NOTES: SD = standard deviation; SNF = skilled nursing facility. SNF quality measure rates were from the October 2019 annual file, available from the Provider Data Catalog. Claims-based measures were created using data from two fiscal years (FYs), October 2016–September 2018.

In the second half of the model (July 2019–December 2019 and July 2020–June 2021; **Exhibit M.3.6**), almost all NGACO SNF networks had better performance, on average, on the DTC measure, compared with the national average (52.7%). Results were mixed for the PPR measure, with 17 NGACO SNF networks having worse average performance than the national average (7.8%). Medicare spending per episode in six NGACO SNF networks was higher than the national average (1.03%).

Exhibit M.3.6. Average SNF Quality Measures for DTC Rate, PPR Rate, and MSPB Ratio among NGACOs' PY 6 Participant and Preferred Provider SNFs, 2019–2021 (N=30)

ACO ID	# SNFs in Network	Discharge to Community (DTC) (national average = 52.66%)		Potentially Preventable Readmissions (PPR) (national average = 7.82%)		Medicare Spending per Beneficiary (MSPB) (national average = 1.03%)	
		Mean±SD	Min, Max	Mean±SD	Min, Max	Mean±SD	Min, Max
V116	2	59.28±10.42	51.91, 66.64	7.71±0.34	7.47, 7.95	0.85±0.1	0.78, 0.92
V120	26	53.78±7.56	39.62, 64.42	7.76±0.4	6.96, 8.76	0.93±0.17	0.68, 1.21
V124	116	53.66±7.07	37.9, 75.69	7.93±0.45	6.81, 9.05	1.13±0.18	0.77, 1.73
V125	34	59.86±8.11	35.85, 75.8	7.97±0.55	7.17, 9.66	0.92±0.15	0.55, 1.22
V133	24	55.18±7.45	42.48, 66.74	8.58±0.79	7.26, 10.48	0.96±0.1	0.81, 1.28
V137	19	57.3±6.3	41.76, 65.69	7.46±0.39	6.8, 8.19	1.02±0.17	0.66, 1.25
V143	10	62.25±8.5	41.06, 69.36	7.73±0.39	7.01, 8.26	0.84±0.06	0.72, 0.91
V144	89	53.78±7.64	31.1, 68.93	7.8±0.39	7.05, 8.95	0.79±0.14	0.52, 1.13
V155	11	64.97±3.72	59.12, 69.9	7.7±0.45	6.9, 8.46	0.91±0.11	0.69, 1.07
V156	23	52.84±5.99	40.52, 64.03	7.87±0.49	7.19, 9.26	0.93±0.2	0.68, 1.65
V204	27	61.3±6.86	35.89, 68.54	8.04±0.56	7.06, 9.37	0.82±0.11	0.62, 1.03
V210	24	56.76±8	39, 71.06	7.49±0.32	6.87, 8.07	0.97±0.13	0.75, 1.33
V211	160	54.17±7.63	31.84, 71.3	7.92±0.44	6.81, 9.14	1.13±0.17	0.77, 1.56
V221	21	58.39±6.21	44.69, 68.33	7.91±0.4	7.16, 8.72	0.91±0.12	0.63, 1.14
V225	11	56.85±5.12	45.74, 64.68	7.98±0.4	7.35, 8.6	0.88±0.11	0.76, 1.11
V227	58	58.53±6.26	43.1, 70.64	7.74±0.35	7.04, 8.57	1.02±0.14	0.74, 1.45
V235	29	63.44±6.47	50.56, 73.33	8.06±0.51	6.97, 9.05	0.98±0.22	0.7, 1.74
V239	58	43.42±8.23	25.31, 62.33	7.96±0.41	7.36, 9.07	1.36±0.22	0.66, 1.89
V241	14	57.13±5.25	48.9, 67.32	7.74±0.5	6.94, 8.61	0.94±0.15	0.74, 1.13
V300	7	65.1±7.14	55.57, 74.52	7.36±0.32	6.91, 7.93	0.87±0.1	0.76, 1.02
V301	12	61.7±5.77	51.03, 69.49	7.77±0.5	6.59, 8.49	0.85±0.11	0.67, 1.1
V303	16	58.5±8.26	36.62, 67.67	8.48±0.84	7.14, 10.16	0.97±0.12	0.81, 1.27
V304	105	50.76±8.88	32.45, 71.74	7.94±0.5	6.8, 9.69	1.08±0.15	0.8, 1.57
V307	5	62.18±3.71	58.01, 67.29	7.6±0.44	7.04, 8.17	0.94±0.12	0.76, 1.07
V310	24	53.46±10.23	36.92, 67.55	7.85±0.48	7.08, 9.19	1.15±0.27	0.48, 1.7
V315	27	58.82±6.33	46.16, 71.01	7.62±0.41	6.78, 8.64	1.02±0.13	0.82, 1.31
V321	10	63.24±5.46	55.12, 69.76	8.09±0.72	7.29, 9.49	0.97±0.1	0.82, 1.09
V323	20	57.3±7.88	40.56, 70.46	8.16±0.55	7.19, 9.27	1.01±0.15	0.72, 1.46
V324	6	53.69±9.11	42.61, 65.92	8.2±0.46	7.61, 8.96	1.27±0.19	0.97, 1.5
V325	32	61.41±5.32	42.9, 68.16	8.02±0.59	6.59, 9.37	0.89±0.12	0.65, 1.13

NOTES: SD = standard deviation; SNF = skilled nursing facility. SNF quality measure rates were from the October 2022 annual file, available from the Provider Data Catalog. Due to the COVID-19 PHE, claims-based measures were created using 1.5 years of data, July–December 2019 and July 2020–June 2021, excluding data from January–June 2020.

Comparing the first and second time periods (**Exhibit M.3.7**), NGACO SNF network performance generally worsened for all three measures: the DTC rates decreased for 21 NGACO SNF networks, PPR rates increased for all but one NGACO SNF network, and the MSPB ratio increased in 10 NGACO SNF networks.

Exhibit M.3.7. Absolute and Relative Change Over Time in Average SNF Quality Measure Rates for DTC Rate, PPR Rate, and MSPB Ratio Among NGACOs' PY 6 Participant and Preferred Provider SNFs (N=30)

ACO ID	Discharge to Community (DTC) Rate		Potentially Preventable Readmissions (PPR) Rate		Medicare Spending per Beneficiary (MSPB) Ratio	
	Absolute Change	Relative Change	Absolute Change	Relative Change	Absolute Change	Relative Change
National Average	3.49	7.00%	0.55	8.00%	0.02	2.00%
V116	-2.54	-4.00%	0.55	8.00%	0.00	0.00%
V120	-5.24	-9.00%	0.63	9.00%	-0.05	-5.00%
V124	5.97	13.00%	0.55	7.00%	-0.07	-6.00%
V125	-1.47	-2.00%	0.40	5.00%	-0.04	-4.00%
V133	-4.95	-8.00%	0.77	10.00%	-0.04	-4.00%
V137	0.41	1.00%	0.29	4.00%	-0.05	-5.00%
V143	-3.57	-5.00%	0.61	9.00%	0.03	4.00%
V144	2.58	5.00%	0.72	10.00%	0.00	0.00%
V155	4.68	8.00%	0.74	11.00%	-0.01	-1.00%
V156	-4.53	-8.00%	0.66	9.00%	0.00	0.00%
V204	-1.13	-2.00%	0.09	1.00%	0.01	1.00%
V210	0.03	0.00%	0.44	6.00%	-0.02	-2.00%
V211	2.33	4.00%	0.57	8.00%	-0.06	-5.00%
V221	-0.87	-1.00%	0.42	6.00%	0.04	5.00%
V225	-3.63	-6.00%	0.69	9.00%	0.05	6.00%
V227	0.17	0.00%	0.69	10.00%	-0.07	-6.00%
V239	-3.24	-5.00%	0.47	6.00%	0.06	7.00%
V241	5.51	15.00%	0.57	8.00%	0.08	6.00%
V300	-2.41	-4.00%	0.32	4.00%	-0.05	-5.00%
V301	0.69	1.00%	0.34	5.00%	0.00	0.00%
V303	-2.54	-4.00%	0.48	7.00%	0.07	9.00%
V304	-2.34	-4.00%	0.96	13.00%	-0.01	-1.00%
V307	2.79	6.00%	0.53	7.00%	-0.08	-7.00%

	Discharge to Community (DTC) Rate		Potentially Preventable Readmissions (PPR) Rate		Medicare Spending per Beneficiary (MSPB) Ratio	
V310	-0.99	-2.00%	0.84	12.00%	-0.04	-4.00%
V315	-0.68	-1.00%	0.56	8.00%	0.15	15.00%
V321	-2.00	-3.00%	0.48	7.00%	-0.09	-8.00%
V323	-0.85	-1.00%	0.65	9.00%	-0.05	-5.00%
V324	0.73	1.00%	0.36	5.00%	-0.05	-5.00%
V325	-2.08	-4.00%	0.30	4.00%	0.14	12.00%

In **Exhibit M.3.8**, we present the results of a sensitivity analysis on NGACO-SNF engagement strategies and outcomes, controlling for composite NGACO SNF network quality. Similar to main analyses, prioritizing PAC spending and quality was associated with declines of 6.7 percentage points and 6.4 percentage points in SNF days per 1,000 beneficiaries and SNF spending per beneficiary, respectively ($p<0.05$). Additionally, knowing when aligned beneficiaries are registered in an ED or admitted to a hospital and having embedded care management or embedded and centralized care management was associated with declines of 6.1 percentage points and 7.6 percentage points in hospital readmissions within 30 days of SNF admission per 1,000 beneficiaries ($p<0.05$). Having centralized care management only was associated with a 6.9 percentage point increase in the same outcome ($p<0.05$).

Exhibit M.3.8. Association between NGACO-SNF Coordination Strategies and Percent Impact on SNF Days PBPY, SNF Spending PBPY, and SNF Readmissions per 1,000 BPY, Controlling for NGACO SNF Network Quality (N=31)

Independent variable	SNF days per 1,000 beneficiaries	SNF spending per beneficiary	Hospital readmissions within 30 days of SNF admission per 1,000 beneficiaries
Notification/coordination domain			
NGACOs have regular phone communication with SNFs	-6.5	-3.6	4.9
NGACO care managers are alerted when aligned beneficiaries are admitted to SNFs	-1.7	0.6	-2.5
NGACOs have an established SNF collaborative	-5.7	-4.5	5.8
NGACOs use EHRs for information exchange between NGACOs and SNFs	3.4	1.9	-1.7
NGACOs know when aligned beneficiaries are registered in an ED or admitted to a hospital	1.9	3.2	**-6.1***

Independent variable	SNF days per 1,000 beneficiaries	SNF spending per beneficiary	Hospital readmissions within 30 days of SNF admission per 1,000 beneficiaries
NGACOs track aligned beneficiaries at risk for hospital readmissions	-0.1	1.3	-3.1
NGACOs provide primary care team with real-time data on aligned beneficiary hospitalizations	-1.8	-1.3	-2.0
Financial and performance-based incentives domain			
NGACOs share performance data with SNFs	-7.0	-5.4	4.7
NGACOs share savings with SNFs	-4.9	-4.9	-4.3
NGACOs share savings and losses with SNFs	-6.9	-7.3	-4.0
NGACO-employed/affiliated staff domain			
NGACOs have embedded care management or embedded and centralized care management in SNFs	0.0	-0.6	**-7.6***
NGACOs have centralized care management only in SNFs	-1.9	-0.4	**6.9***
Standardized care management domain			
NGACOs have fully standardized care management processes and staff	-5.3	-4.3	1.4
NGACOs have fully standardized hospital discharge planning	-3.2	-2.5	-1.1
NGACOs have fully standardized hospital notification and follow-up	-5.7	-4.6	-1.2
Focus on managing PAC spending and quality domain			
NGACOs prioritize managing PAC spending and quality	**-6.7***	**-6.4***	0.5

NOTES: *P≤0.05. Bold font indicates statistically significant findings. Models controlled for mean number of chronic conditions among aligned beneficiaries, adjusted total Medicare Parts A and B spending, organization type (IDS/hospital system, physician practice, physician-hospital partnership), and composite NGACO SNF network quality. SNF quality measure rates used in the composite quality score were from the October 2022 annual file, available from the Provider Data Catalog. Due to the COVID-19 PHE, claims-based measures were created using 1.5 years of data, July–December 2019 and July 2020–June 2021, excluding data from January–June 2020. ED=emergency department, EHR=electronic health record, SNF=skilled nursing facility, PAC=post-acute care, IDS=integrated delivery system.

Exhibit M.3.9 presents results of the analysis examining quality differences between NGACO-affiliated (Participant and Preferred Provider SNFs) and non-affiliated SNFs in the first and second halves of the

NGACO Model performance period. The proportion of SNFs with for-profit ownership was similar across NGACO-affiliated and non-affiliated SNFs in the first and second halves of the performance period, with a slightly larger increase in the proportion of for-profit facilities in non-affiliated SNFs. Over time, the proportion of SNFs with a change in ownership in the prior 12 months decreased among both NGACO-affiliated and non-affiliated SNFs. NGACO-affiliated SNFs had a slightly higher number of beds and occupancy rate than non-affiliated SNFs in both the first and second halves of the performance period. Staffing hours per resident per day for registered nurses (RNs), licensed practical nurses (LPNs), and certified nursing assistants (CNAs) were similar between NGACO-affiliated and non-affiliated SNFs in both the first and second halves of the model's performance period.

With respect to SNF quality measures, NGACO-affiliated SNFs demonstrated better quality performance on the DTC measure (higher rates) and had lower Medicare spending per beneficiary in the first and second halves of the model than non-affiliated SNFs. However, NGACO-affiliated SNFs had slightly worse performance (higher rates) on the PPR measure than non-affiliated SNFs in the first and second halves of the model.

Exhibit M.3.9. Descriptive Characteristics of SNFs in the First and Second Halves of the NGACO Model Performance Period, by SNF NGACO Affiliation

Variable/Period	2016-2018		2019-2021	
	NGACO-affiliated SNFs (n<=855)	Non-affiliated SNFs (n<=5,171)	NGACO-affiliated SNFs (n<=886)	Non-affiliated SNFs (n<=5,175)
For-profit ownership	71.23%	71.11%	71.43%	72.68%
Change in ownership	2.11%	2.90%	1.81%	1.62%
Number of beds	116.18±48.48	110.89±66.86	113.54±49.18	110.59±66.05
Occupancy rate (%)	81.18±13.89	79.97±14.77	71.09±15.86	70.38±15.91
RN hours per resident per day	0.67±0.43	0.70±0.48	0.76±0.52	0.75±0.51
LPN hours per resident per day	0.90±0.31	0.86±0.35	0.95±0.36	0.89±0.38
CNA hours per resident per day	2.22±0.50	2.29±0.55	2.15±0.54	2.22±0.58
DTC rate (%)	54.69±12.48	49.57±14.13	56.15±8.40	53.76±8.80
PPR rate (%)	7.36±0.64	7.28±0.52	7.90±0.52	7.84±0.46
MSPB ratio	1.03±0.23	1.05±0.25	1.02±0.21	1.08±0.24

NOTES: Findings presented either as percentage (%) for binary and categorical variables or as mean±standard deviation for continuous variables. Measure data from October 2016–September 2018 and provider characteristics from 2018 were used to characterize the first half of the model. Measure data from July–December 2019 and July 2020–June 2021 and provider characteristics from 2021 were used to characterize the second half of the model. SNF=skilled nursing facility, RN=registered nurse, LPN=licensed practical nurse, CAN=certified nurse aide, DTC=discharge to community rate, PPR=potentially preventable 30-day post-discharge readmission rate, MSPB=Medicare spending per beneficiary ratio.

T-test results are provided in **Exhibit M.3.10.** Our findings are consistent with unadjusted analyses: NGACO-affiliated SNFs had slightly worse performance than non-affiliated SNFs on the PPR measure in both the first (7.36 vs. 7.28; p<0.001) and second (7.9 vs. 7.84; p<0.001) half of the model's

performance period, with a similar difference between NGACO-affiliated and non-affiliated SNFs over time. Compared with non-affiliated SNFs, NGACO-affiliated SNFs had lower Medicare spending per beneficiary in both the first (1.03 vs. 1.05; p<0.05) and second halves (1.02 vs. 1.08; p<0.001) of the model, with the difference in MSPB ratio between NGACO-affiliated and non-affiliated SNFs increasing from the first to the second half of the performance period. For the DTC measure, NGACO-affiliated SNFs had better performance than non-affiliated SNFs in the first (54.69 vs. 49.57; P<0.001) and second (56.15 vs. 53.76; P<0.001) half of the model; overall performance on the DTC measure increased over the course of the model, and the gap between NGACO-affiliated and non-affiliated SNFs decreased slightly.

Exhibit M.3.10.   Average SNF PPR Rate, MSPB Ratio, and DTC Rate by NGACO Affiliation in the First (2016–2018) and Second (2019–2021) Halves of the NGACO Model

	2016–2018 mean±standard deviation (n)	2019–2021 mean±standard deviation (n)
PPR rate (%)		
Non-affiliated SNFs	7.28±0.52 (4,659)	7.84±0.46 (4,063)
NGACO-affiliated SNFs	7.36±0.64 (834)***	7.90±0.52 (804)***
MSPR ratio (%)		
Non-affiliated SNFs	1.05±0.25 (4,899)	1.08±0.24 (4,446)
NGACO-affiliated SNFs	1.03±0.23 (851)*	1.02±0.21 (843)***
DTC rate (%)		
Non-affiliated SNFs	49.57±14.13 (4,792)	53.76±8.80 (3,443)
NGACO-affiliated SNFs	54.69±12.48 (845)***	56.15±8.40 (742)***

NOTES: *P≤0.05, **P≤0.01, ***P≤0.001. For each measure, NGACO-affiliated SNFs are compared with non-affiliated SNFs by period (2016–2018 vs. 2019–2021). SNF=skilled nursing facility, PPR-potentially preventable 30-date readmission rate; MSPB=Medicare spending per beneficiary ratio; DTC=discharge to community rate.

Results of multivariate models (**Exhibit M.3.11.**) were generally consistent with bivariate results:

- For the PPR rate, NGACO-affiliated SNFs saw worse performance than non-affiliated SNFs during 2016–2018 (0.08 percentage points higher rate; p<0.05) and 2019–2021 (0.08 percentage points higher rate; p<0.001).

- For the MSPB ratio, NGACO-affiliated SNFs had lower Medicare spending per beneficiary compared with non-affiliated SNFs, during 2016–2018 (MSPB ratio 0.02 lower; p<0.05) and during 2019–2021 (MSPB ratio 0.05 lower; p<0.001).

- For the DTC rate, NGACO-affiliated SNFs had better performance than non-affiliated SNFs in the first half (5.41 percentage points higher; p<0.001) and in the second half (2.56 percentage points higher; p<0.001) of the model.

Comparing the first half of the model performance period (2016–2018) with the second half (2019–2021):

- Differences in the PPR rate over time for NGACO-affiliated and non-affiliated SNFs was negligible and not statistically significant (p>0.05).

- The difference between NGACO-affiliated and non-affiliated SNFs in the MSPB ratio increased by 0.03 (p<0.05).

- For the DTC rate, the difference between NGACO-affiliated and non-affiliated SNFs decreased by 2.85 percentage points (p<0.001).

Exhibit M.3.11. Association between SNF NGACO Model Affiliation and PPR Rate, MSPB Ratio, and DTC Rate

Measure/Period	2016–2018	2019–2021	2019–2021 rate minus 2016–2018 rate
PPR rate (%, n=10,360)			
Non-affiliated SNFs	--	--	--
NGACO-affiliated SNFs	0.08*	0.08***	0.00
MSPB ratio (n=11,039)			
Non-affiliated SNFs	--	--	--
NGACO-affiliated SNFs	-0.02*	-0.05***	-0.03*
DTC rate (%, n=9,822)			
Non-affiliated SNFs	--	--	--
NGACO-affiliated SNFs	5.41***	2.56***	-2.85***

NOTES: SNF=skilled nursing facility. *P≤0.05, **P≤0.01, ***P≤0.001. Results shown are from ordinary least squares regression models with county fixed effects controlling for for-profit ownership, number of beds, occupancy rate, and registered nurse, licensed practical nurse, and certified nurse aide hours per resident per day. The reference group was non-affiliated. In the 2016–2018 and 2019–2021 columns, a positive value indicates that the rate/ratio was higher in NGACO-affiliated SNFs, compared with non-affiliated SNFs (reference group); a negative value indicates that the rate/ratio was lower in ACO-affiliated SNFs, compared with non-affiliated SNFs. The column labelled "2019–2021 rate minus 2016–2018 rate" represents the full model performance period—a positive value indicated that the rate/ratio increased during the study period, and a negative value that the rate/ratio decreased during the study period.

Conclusions

Associations between NGACO SNF coordination strategies and outcomes were similar for SNF utilization and spending but not for SNF quality. The findings may reflect differences in key processes used to improve network SNF quality, compared with approaches to SNF utilization and spending. For example, coordination strategies to reduce SNF length of stay (LOS) might have been observed as decreases in SNF days and, subsequently, SNF spending; however, if SNF residents were discharged too early and without adequate post-discharge care continuity, hospital readmissions within 30 days of SNF admission may have increased. Reducing SNF LOS might be a viable option to decrease SNF spending and overall spending if beneficiaries could be treated in lower-acuity settings without compromising care.

The NGACOs that focused on performance-based incentives, standardized care management, and managing PAC spending and quality may have had better engagement with their network facilities and the NGACO Model; each may have taken different approaches to operationalizing coordination strategies. Improved outcomes were associated with answers to survey items that captured whether NGACOs prioritized managing PAC spending and quality and whether care management processes and staff were fully standardized. However, one limitation of our analysis was that there was no standard definition of "high priority" or "fully standardized." Results of chi-square tests of independence showed statistically significant (p<0.05) relationships as follows:

- Deeming PAC spending and quality a high priority, sharing performance data with SNFs, and having fully standardized care management processes and staff
- Having fully standardized care management processes and staff and: 1) having regular phone communication with SNFs, 2) sharing performance data, 3) having centralized care management, 4) knowing when aligned beneficiaries are registered in an ED or admitted to a hospital, and 5) tracking aligned beneficiaries at risk for hospital readmissions

Another limitation of our analysis is that the survey items may capture unmeasured NGACO attributes and may not reflect additional practices that responding NGACOs may have in place. Unmeasured coordination strategies and NGACO attributes may have modified the association between strategies and outcomes, and certain coordination strategies adopted in combination may have had a synergistic relationship with outcomes.

Within NGACO networks, SNF quality was inconsistent, which could reflect the fact that some NGACOs may have had more influence over certain SNF care processes than others. For example, the DTC rate may have been more readily influenced by NGACO-SNF coordination strategies than the PPR rate. Some NGACO organizational types, such as IDS NGACOs, or partnership structures (for example, hospital-owned SNFs) may have been better able to encourage improvements in SNF care. Additionally, because the second half of the model performance period encompassed differences in care processes during the COVID-19 PHE, we caution against making policy inferences based on these data alone.

Appendix N: Research Questions and Prior Report Findings

In **Exhibit N.1**, we note the research questions addressed in the final report. **Exhibit N.2** lists the major hypotheses (both broad and specific) explored across the evaluation, along with findings from subgroup analyses and qualitative comparative analysis (QCA), when applicable.

Exhibit N.1. Evaluation Research Questions

Features
1   Which NGACO organizational features (for example, approaches to governance, delivery structure, ACO-provider relationships and types of provider contracts, care management approach, characteristics of infrastructure) are important determinants of participation in the model, selection of model features, and eventual success or failure in the model? How do the organizational features of NGACOs affect the likelihood of success or failure?
2   Using the data on hand, in what ways do accountable care organizations (ACOs) undergo financial, organizational, and care delivery transformation as a result of participating in the NGACO Model?
3   What activities or programs do NGACOs use to influence the quality, cost, and utilization of health services provided to aligned beneficiary populations? How do the activities used by ACOs evolve after joining the model?
4   How do Participant and Preferred Providers of NGACOs affect the likelihood of an ACO's success or failure in the model?
Impact
5   How does the model affect the cost of health services borne by the Medicare program provided to NGACO beneficiaries relative to comparable beneficiaries in fee-for-service (FFS) Medicare or other points of comparison?

6   How does the model affect utilization among model beneficiaries relative to comparable beneficiaries in FFS Medicare, both overall and for different types of utilization (for example, readmissions, frequency and use of post-acute care services, pattern of physician visits)?

7   How does the model impact the quality of care experienced by patients relative to comparable patients in FFS Medicare? Quality of care may include but is not limited to measures reflecting hospital readmissions and ambulatory care sensitive condition admissions.

8   What unintended behavioral responses not otherwise examined are elicited from NGACOs, hospitals, physicians, and beneficiaries given the incentives provided through the model?

Variation/Replicability

9   Using available qualitative or quantitative data, what factors are associated with the pattern of results seen in questions 5, 6, and 7? For example, is variation in the estimated impact of the model related to the following factors?

Motivation/Challenges

10   Reasons for withdrawing from the model

11   To what degree did NGACOs implement interventions as planned, and what important challenges or opportunities did ACOs face that resulted in a change from their original plans?

Exhibit N.2. NGACO Hypotheses and Prior Year Report Findings

Broad Hypotheses	Specific Hypotheses	Findings - Subgroup Analysis	Findings - QCA
Model features: NGACOs select model features to optimize their performance / outcomes in the model subject to their market contexts and organizational capacity to take on different levels of risk or payment mechanisms.	Financial risk: NGACOs electing 100% risk and higher risk caps may have scope for greater per beneficiary per year (PBPY) Medicare spending reductions.	NGACOs with 100% risk and over 5% cap had highest spending reductions.	Higher levels of financial risk were not required to reduce spending.
	Payment mechanism: NGACOs electing population-based payments (PBP) may have scope for greater PBPY Medicare spending reductions.	NGACOs with PBP / all-inclusive PBP (AIPBP) had higher spending reductions than those with fee-for-service (FFS)-based payments.	
Context: Market conditions, or characteristics of the external environment in which the NGACO is forming and operating, can influence its performance / outcomes directly or indirectly by influencing its structure (for example, its organizational type, resources available, provider networks) and its choice of model features.	Per capita FFS Medicare spending level: NGACOs in markets with higher per capita spending at baseline have scope for greater Medicare spending reductions.	Highest quintile NGACOs had substantially larger spending reductions than other quintiles.	Spending reductions were more common in inefficient markets.
	Provider competition: Physician practice-affiliated NGACOs in competitive hospital markets may have greater scope for reducing Medicare spending.	Spending reductions were largely similar for NGACOs in markets with varying hospital concentrations. Physician practice-affiliated ACOs in markets with lower hospital concentration were associated with significantly larger average spending reductions than their counterparts in markets with higher hospital concentration.	Among NGACOs that reduced spending, the physician practice-affiliated NGACOs tended to operate in moderately concentrated or competitive hospital markets, while the hospital-affiliated NGACOs operated in highly concentrated hospital markets.

Broad Hypotheses	Specific Hypotheses	Findings - Subgroup Analysis	Findings - QCA
Structure: Organizational characteristics of ACOs, including their affiliation (with health systems, hospitals and physician practices) and capabilities (for example, health information technology [IT] infrastructure), their provider networks, and characteristics of their beneficiary populations, influence its performance / outcomes directly or indirectly by influencing the ACOs' care management approaches and choice of model features.	Organization type: NGACOs can reduce Medicare spending irrespective of their organization type. NGACOs will reduce Medicare spending by cutting costs of other providers, rather than by reducing their own costs.	Spending reductions similar across organizational types, but hospital-affiliated NGACOs reduced outpatient and physician-affiliated NGACOs reduced inpatient spending	Both physician practice- and hospital-affiliated NGACOs tended to reduce inefficiencies in utilization and spending outside their direct services; smaller physician practices reduced spending in all years while hospital-affiliated reduced spending in later years
	Prior Medicare ACO experience: NGACOs with prior Medicare ACO experience and success (those with more years of experience as Medicare ACOs) may be better positioned to reduce Medicare spending.	Having five or more years of prior ACO experience was associated with greater spending reductions.	Spending reductions were more common in NGACOs with more years of Medicare ACO experience; more experience means ACOs could address the needs of more complex beneficiaries.
	Practitioners' Medicare ACO experience: NGACOs with practitioners having more years of prior Medicare ACO experience may have scope for greater Medicare spending reductions.	Having practitioners with three or more years of Medicare ACO experience was associated with larger reductions, though differences were not significant. Low R^2	N/A
	Disease burden: NGACOs serving populations with a higher disease burden may have scope for greater Medicare spending reductions.	Highest tertile of NGACOs had greatest spending reductions, but low R^2. Subgroup analysis at beneficiary level showed highest spending reductions in beneficiaries with 8+ chronic conditions	Spending reductions were more common in NGACOs serving populations with high chronic disease burden.
	Vulnerability: NGACOs serving populations with fewer dually eligible and disabled beneficiaries may have scope for greater Medicare spending reductions.	Lowest tertile of NGACOs for dual eligible and disability had the greatest spending reductions.	Spending reductions were more common in NGACOs with fewer dual eligibles.