VOLUME II: TECHNICAL APPENDICES
FIRST ANNUAL REPORT

Next Generation Accountable Care Organization (NGACO) Model Evaluation

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Appendix A: List of 2016 and 2017 NGACOs

Exhibit A.1. The 2016 and 2017 NGACOs

NGACO ID	ACO Organization Name	Financial Responsibility
2016 Class		
V124	Accountable Care Coalition of Southeast Texas Inc.	Y
V105	Baroma Accountable Care, LLC.	Y
V131	Beacon Health, LLC	Y
V155	Bellin Health DBA Physician Partners, Ltd. (PPL)	Y
V120	Cornerstone Health Enablement Strategic Solutions, LLC	Y
V150	Crystal Run Healthcare ACO, LLC	N§§
V111	Dartmouth-Hitchcock Health	N§§
V137	Deaconess Care Integration	Y
V133	Henry Ford Physician Accountable Care Organization	Y
V144	Iowa Health Accountable Care	Y
V127	Lifeprint Accountable Care Organization, LLC	Y
V157	MemorialCare Regional ACO, LLC	Y
V108	Mount Auburn Cambridge Independent Practice Association, Inc.	N§§
V101	OSF Healthcare System	Y
V143	Park Nicollet Health Services	Y
V119	Pioneer Valley Accountable Care, LLC	Y
V154	Regal Medical Group, Inc.	N§
V106	River Health ACO, LLC	N§
V109	RRHS ACO, Inc.	N§§
V102	Steward Integrated Care Network, Inc.	Y
V116	ThedaCare ACO LLC	Y
V156	Triad HealthCare Network, LLC	Y
V125	Trinity Health ACO Inc.	Y
V136	WakeMed Key Community Care, LLC	N§
V130	Prospect ACO CA, LLC	Y
2017 Class		
V236	Accountable Care Coalition of Chesapeake, LLC	Y
V213	Accountable Care Options, LLC	Y
V203	Allina Integrated Medical Network	Y
V239	APA ACO, Inc.	Y
V235	Arizona Care Network, LLC	Y
V204	Atrius Health, Inc.	Y
V228	Bronx Accountable Healthcare Network IPA, Inc. (Montefiore)	Y
V234	Carilion Clinic Medicare Shared Savings Company, LLC	Y
V202	Dartmouth-Hitchcock Health	Y
V220	Fairview Health Services	Y
V208	HCP ACO California, LLC	Y
V229	Hill Physicians Medical Group	Y
V227	Indiana University Health	Y
V205	Integra Community Care Network LLC	Y
V218	KentuckyOne Health Partners, LLC	Y
V201	Michigan Pioneer ACO, LLC	Y
V238	Monarch Health Plan	Y

NGACO ID	ACO Organization Name	Financial Responsibility
V245	National ACO LLC	Y
V242	Partners Community Physicians Organization	Y
V210	Physicians of Southwest Washington	Y
V217	Premier Health ACO of Ohio	Y
V225	ProHealth Solutions, LLC	Y
V221	Prospect ACO Northeast, LLC	Y
V233	RHeritage California ACO	Y
V231	Sharp HealthCare ACO - II, LLC	Y
V224	St. Luke's Clinic Coordinated Care, LTD	Y
V241	UNC Senior Alliance, LLC	Y
V211	UT Southwestern Accountable Care Network	Y

NOTES: § Participant withdrew from the model during calendar year (CY) 2016. As of September 13, 2016, a total of 3 ACOs have withdrawn from the model. In PY 2016, September 30 was the cut-off month for ACOs to withdraw from the model and not bear any financial responsibility, that is, responsible to Medicare for achieving spending and performance targets for performance year. As of PY 2017, ACOs would be subject to shared savings/losses if withdrawal occurred after February 28, 2017. §§ Participant withdrew prior to start of the model in CY 2016.

Appendix B: Glossary of Acronyms and Terms

Exhibit B.1. Glossary of Acronyms and Terms

Acronym	Definition
ACA	Patient Protection and Affordable Care Act of 2010
ACSC	ambulatory care-sensitive condition
A/D	aged and disabled
AHA	American Hospital Association
AIPBP	all-inclusive population-based payment
APM	alternative payment model
ASTC	Acute short term care hospital
AWV	annual wellness visit
BETOS	Berenson-Eggers Type of Service categories, used to analyze Medicare costs
BY	base year
CAH	critical access hospital
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CBO	community-based organization
CCR	coordinated care reward
CCW	Chronic Conditions Warehouse
CEC	Comprehensive End Stage Renal Disease Care
CY	Calendar year
DID	difference-in-differences design
DME	durable medical equipment
DRG	diagnosis-related group
E&M	evaluation and management visit (hospital outpatient and/or office visit)
ED	emergency department
EDB	enrollment data base
EHR	Electronic health record
ESRD	end-stage renal disease
FFS	Medicare Fee-For-Service
FQHC	federally qualified health center
GEM	generalized equivalence mapping
GLM	Generalized linear model
GPCI	geographic pricing cost index
GPRO	Group Practice Reporting Option
HCC	hierarchical condition category (risk score)
HHA	home health agency
HHI	Herfindahl-Hirschman Index
HICN	health insurance claims number (Medicare beneficiary identification)
HIE	health information exchange
HRR	hospital referral region
HS	hospice
ICD	international classification of diseases
IDN	integrated delivery network
IDR	Integrated Data Repository
IDS	integrated delivery (health) system
IP	inpatient
IRF	inpatient rehabilitation facility

Acronym	Definition
IT	information technology, health information technology (HIT)
LLP	Limited Liability Partnership
LTCH	long-term care hospital
MBSF	Master Beneficiary Summary File
MDE	minimum detectable effect
MDM	master data management
MD-PPAS	Medicare Data on Provider Practice and Specialty
MIP	monthly infrastructure payment
MIPAA	Medicare Improvements for Patients and Providers Act of 2008
SSP	Medicare Shared Savings Program
MU	meaningful use
NGACO	Next Generation Accountable Care Organization
NPI	national provider identifier
NPPES	National Plan and Provider Enumeration System
PAC	program analysis contractor
PB	provider-based determination
PBP	population-based payment
PBPM	per-beneficiary-per-month
PECOS	Provider Enrollment, Claim, and Ownership System
PQRS	Physician Quality Reporting System
PY	performance year
QEM	qualified evaluation and management visit
RHC	rural health clinic
RIF	Medicare Research Identifiable Files
SNF	skilled nursing facility
TIN	tax identification number
VM	value modifier payment adjustment
VRDC	virtual research data center
ZCTA	ZIP code tabulation area

Appendix C: NGACO Model Evaluation Research Questions

Exhibit C.1. NGACO Model Evaluation Research Questions

Question Number	Research Question
Features	
1	Which NGACO organizational features (e.g., 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?
1a	Organizationally, what important differences exist between ACOs participating in the Next Generation ACO Model and 1) ACOs participating in other federal/state models or Programs (e.g., Medicaid ACO, Delivery System Reform Incentive Payment program), or 2) ACOs in non-federal initiatives?
1b	Which organizational features of NGACOs are important determinants of the model features selected, and success or failure for model tracks, such as risk arrangement, payment mechanism or benefit enhancements?
1c	What important organizational adaptations were made by Next Generation ACOs between start-up and exit from the model or model close-out?
Features	
2	In what ways do ACOs undergo financial, organizational, and care delivery transformation as a result of participating in the NGACO Model?
2a	For organizations that participated in the Pioneer ACO Model or the SSP prior to the NGACO Model, in what ways has financial, organizational, and care delivery transformation in the NGACO Model differed from the changes made under the previous model or program?
2b	Which features of the NGACO Model, Pioneer ACO Model, or SSP can be linked to differences in financial, organizational, and care delivery transformation between the NGACO and earlier models?
2c	How does the NGACO Model impact care delivery practices such as care coordination and patient-centeredness?
Features	
3	What incentive and accountability structures do NGACOs use to influence the quality, cost, and utilization of health services provided to aligned beneficiary populations? In what ways do the approaches used evolve over the duration of the model?
3a	Which approaches used by NGACOs are associated with improved coordination of care relative to health care delivered in FFS Medicare or other points of comparison?
3b	What specific arrangements or features (e.g., communication protocol between providers, individualized care plan, diabetes management education) of their care management programs do NGACOs consider essential or critical for improving care and managing the utilization and cost of aligned populations? Why are these arrangements considered essential?
3c	Are there key features of NGACO care management programs that are common across one or more ACOs in the model? Are there features of ACO care management programs that are different across NGACOs?
3d	What changes in NGACO care management programs occurred over the duration of the model that affected quality, experience of care, expenditures, or beneficiary engagement and activation?

Question Number	Research Question
Features	
4	How do participating and preferred providers of NGACOs affect the likelihood of an ACO's success or failure in the model?
4a	In what ways are physicians and physician practices in NGACO provider networks different from or similar to physicians and physician practices in 1) pure FFS Medicare, or 2) ACOs in other federal models or programs?
4b	Which characteristics of physicians and physician practices in NGACOs, if any, are associated with 1) cost savings to Medicare, 2) reductions in the delivery of unnecessary health care services, 3) increases in the appropriateness and effectiveness of care delivered?
4c	Which characteristics of individual practitioners (both physicians and non-physician clinicians) and practices are associated with 1) greater beneficiary engagement in their own care, 2) significantly higher or lower rates of beneficiary de-alignment from the model?
4d	In what ways are institutional providers such as hospitals or SNFs that are participating or preferred providers in NGACOs similar to and different from institutional providers in FFS Medicare?
Impact	
5	How does the model affect the cost of health services provided to NGACO beneficiaries relative to comparable beneficiaries in FFS Medicare and points of comparison including other SSP ACOs and Medicare Advantage? What are the net savings from the model, after accounting for shared savings payments made by CMS to ACOs?
5a	What are the effects of the model on Medicare expenditures overall as well as components of expenditures (e.g., inpatient, outpatient, physician, skilled nursing facility, home health, hospice, durable medical equipment)? To what extent can observed effects be attributed to model features (e.g., risk arrangements chosen), characteristics of NGACOs, NGACO providers, aligned beneficiary populations, or other characteristics?
5b	To what extent are changes in cost attributable to changes in the delivery of unnecessary care, preventable episodes of care (e.g., readmissions due to inpatient medical errors, ambulatory care sensitive inpatient admissions)?
5c	What cost savings can be attributed to the care management features identified in questions #3a-#3d?
Impact	
6	How does the model affect utilization among model beneficiaries relative to comparable beneficiaries in FFS Medicare (non-ACO and SSP ACO), both overall and for different types of utilization (e.g., readmissions, frequency and use of post-acute care services, pattern of physician visits)?
6a	Do model effects on utilization patterns reflect changes in the quality (i.e. appropriateness of care) of care relative to FFS Medicare?
6b	Are there care management arrangements identified in questions #3a-#3d that can be attributed to reductions in utilization?
6c	Does regional variation in utilization patterns diminish over the duration of the model?
6d	How do provider referral patterns change among NGACO beneficiaries compared to FFS beneficiaries?
Impact	
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 appropriateness, effectiveness, timeliness of care, safety, patient clinical and functional outcomes, risk of hospital acquired conditions, readmissions, preventable hospitalizations, or ambulatory care sensitive condition admissions.
7a	How does the model affect the effectiveness of health services delivered to aligned beneficiaries in terms of underuse, overuse, and misuse relative to comparable beneficiaries in FFS Medicare?
7b	Does the model improve the timeliness of care delivered to beneficiaries relative to comparable beneficiaries in FFS Medicare?
7c	In what ways does the model affect the patient-centeredness of health care delivered to model beneficiaries relative to comparable beneficiaries in FFS Medicare? If the model improves the patient centeredness of treatment decisions or health care delivery in aligned populations, what features of the model, participant ACOs, model providers or other characteristics can be attributed to the improvement?
7d	Are there care management arrangements identified in questions #3a-#3d associated with improvements in the appropriateness of care, timeliness of care, or patient centeredness of care relative to comparable beneficiaries in FFS Medicare?

Question Number	Research Question
Impact	
8	How does the model affect the use of arrangements or interventions designed to improve patient engagement with their providers and management of their own medical care relative to comparable beneficiaries in FFS Medicare?
8a	In what ways do participant ACOs use the model's benefit enhancement features (including voluntary alignment) and what are the effects of these features on beneficiary engagement and adherence?
8b	How does the model impact beneficiaries' knowledge and comprehension about their health care and health? Are beneficiaries aware when they are aligned with an ACO?
Impact	
9	How does the model affect patient access to health services relative to comparable patients in FFS Medicare?
9a	In what ways do patients experience a change if any, in the accessibility of care compared to patients in FFS Medicare?
9b	How are the organizational features of NGACOs, including degree of financial risk, payment mechanism, and benefit enhancements, associated with improvements or reductions in access relative to comparable beneficiaries in FFS Medicare?
9c	How does the model affect access to health services for vulnerable subgroups of beneficiaries such as patients who are impoverished, or patients with very severe or multiple illnesses relative to comparable patients in FFS Medicare? Are these patients more likely to experience larger changes in their access to care?
Impact	
10	How does the model affect provider experience and incentives in the delivery of care?
10a	To what extent are NGACOs and their constituent physician practices using financial (such as change in compensation, bonuses, etc.) or non-financial arrangements (such as practice changes which will improve time management, etc.) with individual clinicians to create incentives for greater efficiency in the delivery of care or improvements in the quality of care?
10b	Does the model create a context for physician practices that is financially sustainable? Why or why not?
10c	What kinds of challenges does the model introduce for individual clinicians practicing medicine?
Impact	
11	What unintended behavioral responses not otherwise examined are elicited from NGACOs, hospitals, physicians, and beneficiaries given the incentives provided through the model?
11a	Is there any evidence of providers attempting to "game the system," by engaging in any of the following actions? ■ steering patients to the NGACO based on the likelihood a patient will be more compliant (i.e., cherry-picking), ■ convincing patients to seek care elsewhere (i.e., lemon-dropping), ■ convincing patients to opt for unnecessary care ■ failing to provide medically necessary care through denial of access to patients or long waiting times (i.e., stinting)
11b	Other ways that the model elicited unintended responses from stakeholders?

Question Number	Research Question
Variation/Replicability	
12	What factors are associated with the pattern of results seen?
12a	Characteristics of model features chosen by participants: i. Risk track selected by the NGACO ii. Payment mechanism iii. Benefits enhancements iv. Other model features, such as the share of beneficiaries aligned via voluntary alignment
12b	Characteristics of the NGACOs' organization and relationship with providers i. Organizational history prior to participating in the NGACO Model, including prior experience in ACO-like arrangements such as risk-based contracts, value-based reimbursement, or Medicare Advantage ii. Ownership (e.g., independent, health system), type of control (e.g., for-profit, not-for-profit, public) and organizational model (e.g., independent practice association, integrated hospital system, physician hospital organization) iii. Health information technology infrastructure, extent of interoperability, and the extent to which claims, lab results, utilization and other clinical data is readily translated into actionable information for use by NGACO staff, providers and beneficiaries iv. Characteristics of the NGACOs' arrangements with and approach to managing providers including business relationships with network physicians and physician organizations v. Characteristics of NGACO workforce, structure and relationship with parent organization
12c	Characteristics of the NGACOs' health care delivery system i. Size (i.e. number of physicians or beneficiaries), range of services included across the care continuum ii. Degree to which providers in the NGACO are vertically integrated iii. Arrangements facilitating coordination of health services by providers iv. Model-specific interventions used to implement their chosen strategies for delivering care (e.g., use of waivers under the model, care coordination interventions) v. Relationships with community-based organizations
12d	Characteristics of NGACOs' aligned patient populations i. Clinical conditions, functional status, health status ii. Socioeconomic status iii. Demographic attributes iv. Characteristics of vulnerable patient subgroup populations (impoverished patients, beneficiaries with 3 or more chronic conditions, dual eligible beneficiaries)
12e	Characteristics of the NGACOs' service area or market i. Variation in health care utilization due to small area variation and per capita spending levels within the market ii. Penetration in the market by ACOs, managed care arrangements, Medicare Advantage plans, or other CMS models and Programs iii. Degree of rurality of areas included in the ACO's market iv. Nature of competition, market structure and collaborative-ness among provider organizations in the ACO's market v. Overall market structure of insurers within the market and the extent to which that structure promotes care coordination vi. Regulatory conditions, such as state policy incentives
12f	Characteristics of the comparison group or population used in the evaluation i. Demographic, socioeconomic, and clinical characteristics of beneficiaries included in comparison populations ii. Organization and characteristics of providers in the comparison group iii. Degree to which the comparison population's market is penetrated by other federal ACO models or Programs, managed care payers, Medicare Advantage plans, or other non-ACO CMS models or Programs

Question Number	Research Question
Variation/Replicability	
13	To what degree are the observed impacts of the model replicable?
13a	What are the key factors that moderate the replicability of the model's observed impacts?
13b	Are these factors primarily considerations specific to an NGACO's patient population, its organizational characteristics, attributes of its participating providers, its market, the comparison group used or some other aspect?
13c	What are the opportunities for the NGACO model to spread other Medicare regions and patient populations?
Motivation/Challenges	
14	What were the motivating factors for participating in the NGACO Model and reasons for withdrawing from the model?
14a	What are the reasons motivating physicians and other clinicians to participate in the model?
14b	What role, if any, do the benefit enhancements available under the model play in motivating clinician participation?
14c	To what extent can the motivations of participating institutional providers be attributed to the potential for financial gains, capacity improvement, or other factors?
14d	Among NGACOs that cease to participate, what are the reasons for their decision?
14e	For physicians or institutional providers who cease to participate, what are the reasons for their decision?
Motivation/Challenges	
15	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?
15a	What are the barriers, if any, to implementation?
15b	From the NGACO's perspective, what were the primary drivers of organizational and operational change in the NGACO, specifically its approaches to contracting and management of providers, quality improvement and care management, and patient engagement and adherence?
Motivation/Challenges	
16	To what degree are challenges to success and sustainability cited by former participants in the Pioneer ACO Model or the SSP (i.e., turnover in ACO aligned beneficiary populations over time, cash flow for the ACO, the financial predictability of the prospective benchmark) also experienced in the NGACO model? Are any observed barriers resolved or mitigated? If yes, how?

Appendix D: Quantitative Methods and Analyses

In this Appendix, we provide more details on the methodology for defining the treatment and comparison groups in our claims-based analyses; the propensity score weighting method employed to balance the two groups on observed characteristics; specifying the outcomes measures of spending, utilization and quality of care; specifying the difference-in-differences (DID) models to estimate impacts for NGACO incentives on outcomes; and conducting sensitivity tests. In addition, we discuss our approach to studying the spillover, the influence of incentives and penalties from CMS value-based programs on Medicare spending in our analyses, and comparing patterns of care for the NGACO and comparison groups in the first performance year. Appendix G provides detailed results for the analyses discussed in this section.

Construction of Analytic Data Set

Definition of NGACO and Comparison Groups

In this report, our claims-based assessment of impact of the NGACO Model focused on assessing the impact of NGACO incentives on outcomes for beneficiaries attributed to providers who joined the NGACO Model. We used a comparison group of Medicare beneficiaries attributed to providers not participating in any Medicare ACO. The analysis employed a difference-in-differences (DID) design to examine changes in outcomes for the NGACO and comparison group beneficiaries in the NGACO Model's first performance year (PY1), relative to a three year baseline period (BY3, BY2, BY1) before the model's implementation, as shown in Exhibit D.1.

Exhibit D.1. Baseline and Performance Periods for 2016 NGACOs and Comparison Group

	Baseline Period			Performance Period
	CY 2013	CY 2014	CY 2015	CY 2016
NGACO 2016 Class	**BY3**	**BY2**	**BY1**	**PY1**
Comparison Group	**BY3**	**BY2**	**BY1**	**PY1**

NOTES: CY = calendar year (1/1/2013 through 12/31/2013); BY = baseline year; PY= performance year.

To construct the treatment and comparison groups, we drew on multiple data sources and followed the attribution methodology documented in the NGACO model's alignment and exclusion rules.[1] We first describe the selection of the groups, followed by a description of the alignment rules, since these apply to both the treatment and comparison groups, and finally, we provide a list of the data sources used in the construction of the treatment and comparison groups.

[1] For details on these specifications, please see Appendix A. Next Generation ACO Model Alignment Procedures, Next Generation ACO Model Benchmarking Methods December 15, Document Number: RTI.NG ACO.METHODS.BNMRK.01.00.04. Available at https://innovation.cms.gov/Files/x/nextgenaco-methodology.pdf .

Treatment Group

Beneficiaries attributed to NGACO providers. We conducted the analysis for participating providers in all 18 NGACOs with financial responsibility in 2016. Using the list of NGACO alignment-eligible participating providers in PY1, and applying the NGACO Model's alignment rules to Medicare claims, we identified beneficiaries attributed to these providers in the performance and baseline years.[2] Beneficiaries participating in other CMS ACO initiatives—the Medicare Shared Savings Program, the Pioneer ACO Model, and the Comprehensive End Stage Renal Disease Care—were excluded from the NGACO group in the performance year. Beneficiaries in the MSSP and Pioneer initiatives were retained in the baseline years.[3] Beneficiaries in other selected CMS initiatives were excluded from PY1 by the Program Analysis Contractor (PAC) as part of NGACO alignment exclusion rules, but were included in the BYs.[4] We created binary indicators for beneficiaries assigned or enrolled in these initiatives to account for them in future analyses. The evaluation team also worked with CMMI to determine the list of other CMS models overlapping with NGACO incentives, in order to identify and adjust for them in future reports.[5]

Comparison Group

The comparison group in PY1 and the BYs was defined in two steps. First, we identified non-ACO fee-for-service (FFS) Medicare beneficiaries residing in each NGACO's market area.[6] Then we applied the NGACO alignment rules to Medicare claims data and attributed these beneficiaries to alignment-eligible providers who were not affiliated with any Medicare ACOs.[7]

Definition of an NGACO's Market Area. For the purpose of this analysis, we defined the market area for 17 of the 18 NGACOs as the collection of Hospital Referral Regions (HRRs) where one percent or more of the NGACO's aligned population of beneficiaries in PY1 resided.[8] Defining the NGACO's market area in this way allowed us to draw sufficient comparison Medicare FFS beneficiaries attributed to non-ACO providers in each analytic year. HRRs have been used to define markets in prior ACO evaluations.[9]

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[2] Per the Model's alignment rules, beneficiaries who voluntarily aligned to NGACOs in PY1 were attributed to the NGACO group in PY1 and the BYs.

[3] Because many providers who joined the NGACO Model in PY1 were participants in SSP and Pioneer ACOs in the BYs, SSP/Pioneer beneficiaries were included in the NGACO BYs if they were deemed to be claims-aligned to NGACO PY1 providers in those years.

[4] These programs include Comprehensive Primary Care, Independence at Home, Financial Alignment Initiative, and Multi-payer Advance Primary Care. In future analyses, we plan to exclude beneficiaries in such programs in the BYs as well as in the comparison group, if needed.

[5] These include the Comprehensive Primary Care Plus Initiative, (Advanced) Bundled Payments for Care Improvement, Comprehensive Joint Replacement Model, Oncology Care Model, and Maryland and Vermont All-Payer Models. We will control for the impact of overlapping programs using binary indicators for beneficiary participation in our multivariate models or by explicitly excluding beneficiaries in some of these programs from our analysis.

[6] We excluded beneficiaries aligned to NG, SSP, Pioneer, and CEC ACOs in each year.

[7] We excluded NGACO participating and preferred providers, as well as providers participating in Pioneer and SSP ACOs.

[8] For an average NGACO with 10,000 aligned beneficiaries in 2016, HRRs where 500 or more of its beneficiaries resided were considered to comprise the NGACO's market. For one NGACO (Deaconess), the market area was defined as HRRs with >0.5 percent of the aligned beneficiary population in PY1, to draw a sizable comparison group.

[9] McWilliams, J. Michael, Michael E. Chernew, Bruce E. Landon, and Aaron L. Schwartz. "Performance differences in year 1 of pioneer accountable care organizations." *New England Journal of Medicine* 372, no. 20 (2015): 1927-1936. McWilliams, J.

Exhibit D.2 lists the HRRs that comprise the markets for the 18 NGACOs that started in 2016. We limited our evaluation to NGACO and comparison group beneficiaries located in the NGACO market areas. The NGACO market areas were those areas in which 94.3 percent of the beneficiaries aligned to NGACOs in PY1 resided.

Exhibit D.2. NGACO Market Areas for Evaluation of the Model

NGACO	# of HRRs Comprising Market Area	City (State) of HRRs Comprising Market Area	% of 2016 Aligned Beneficiaries in NGACO's Market Area
ACCST	2	Beaumont and Houston (TX)	97.1
Baroma	4	Fort Lauderdale, Jacksonville, Miami, and Orlando (FL)	93.2
Beacon	2	Bangor and Portland (ME)	96.7
Bellin	3	Marquette, Appleton, and Green Bay (WI)	96.8
CHESS	4	Charlotte, Greensboro, Hickory, and Winston-Salem (NC)	97.2
Deaconess	5	Evansville and Indianapolis (IN); Louisville, Owensboro, and Paducah (KY)	98.2
Henry Ford	5	Ann Arbor, Dearborn, Detroit, Pontiac, and Royal Oak (MI)	95.8
Memorial Care	3	Orange County, Los Angeles, and San Bernardino (CA)	94.6
Optum	3	Mesa, Phoenix, and Sun City (AZ)	91.6
OSF	4	Peoria, Rockford, Springfield, and Bloomington (IL)	95.4
Park Nicollet	2	Minneapolis and St. Paul (MN)	94.5
Pioneer Valley	3	Hartford (CT); Springfield and Worcester (MA)	96.3
Prospect	3	Orange County, Los Angeles, and San Bernardino (CA)	96.4
Steward	3	Boston and Worcester (MA); Providence (RI)	96.9
ThedaCare	5	Appleton, Green Bay, and Marshfield (WI); Milwaukee and Neenah (WI)	95.9
Triad	4	Durham, Greensboro, Hickory, and Winston-Salem (NC)	96.9
Trinity	12	Blue Island, Joliet, and Melrose Park (IL); Grand Rapids and Muskegon (MI); Camden, Hackensack, Morristown, New Brunswick, and Newark (NJ); Columbus (OH); Philadelphia (PA)	95.3
Unity Point	6	Peoria and Springfield (IL); Cedar Rapids, Des Moines, Sioux City, and Waterloo (IA)	95.3

Exhibit D.3 summarizes the treatment and comparison populations for the analyses.

Exhibit D.3. Summary of Treatment and Comparison Populations in Baseline and Performance Years

	Baseline Years (BY)	Performance Years (PY)
NGACO		
All NGACOs	Beneficiaries attributed to alignment eligible PY1 participating providers in respective BYs using NGACO Model alignment rules, situated in the NGACO market areas and aligned for at least 30 days in the year.	Beneficiaries attributed to alignment-eligible PY participating providers in respective PYs using NGACO Model alignment rules, situated in the NGACO market areas and aligned for at least 30 days in the year.

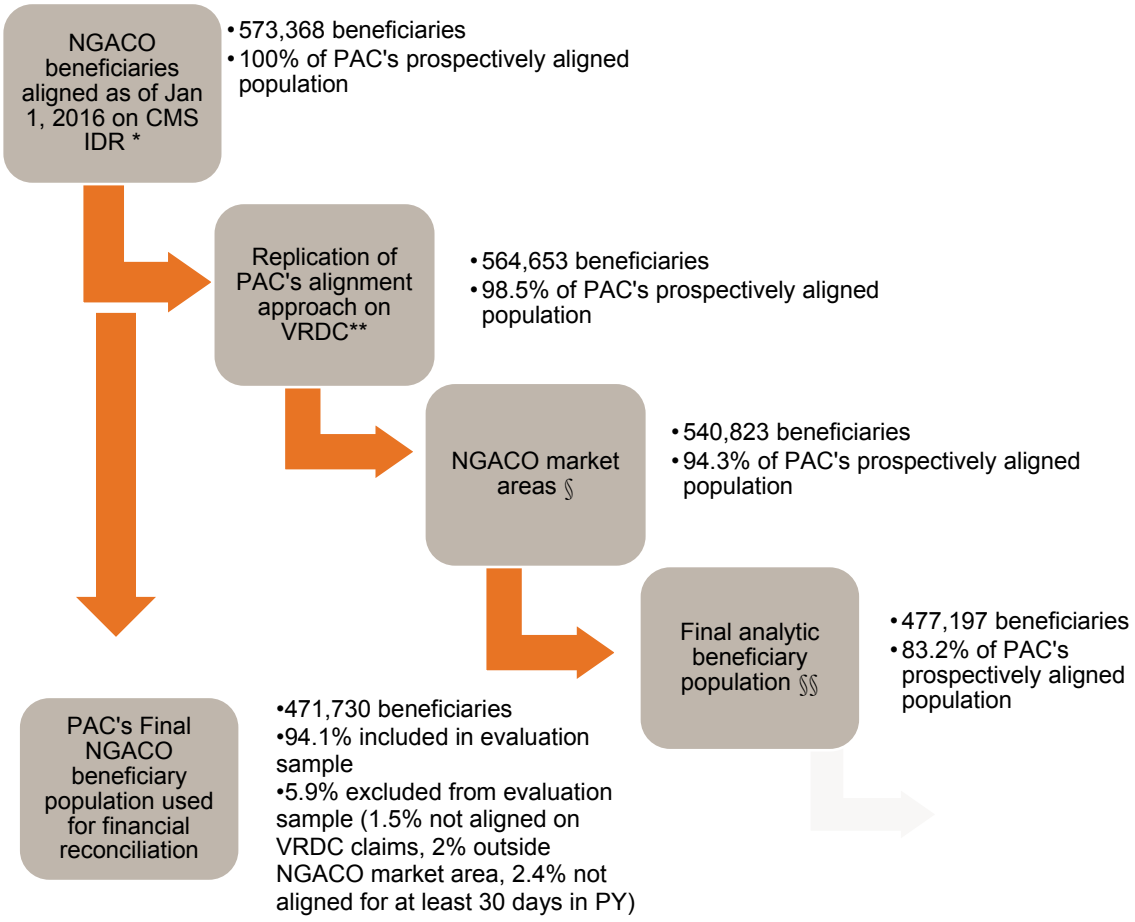
Michael, Laura A. Hatfield, Michael E. Chernew, Bruce E. Landon, and Aaron L. Schwartz. "Early performance of accountable care organizations in Medicare." *New England Journal of Medicine* 374, no. 24 (2016): 2357-2366.

	Baseline Years (BY)	Performance Years (PY)
Comparison		
Medicare FFS beneficiaries receiving usual care	Beneficiaries in NGACO market areas attributed to alignment-eligible providers not participating in any Medicare ACO in respective BYs using NGACO Model alignment rules, and aligned for at least 30 days in the year.	Beneficiaries in NGACO market areas attributed to alignment- eligible providers not participating in any Medicare ACO in respective PYs using NGACO Model alignment rules, and aligned for at least 30 days in the year.

Study Sample

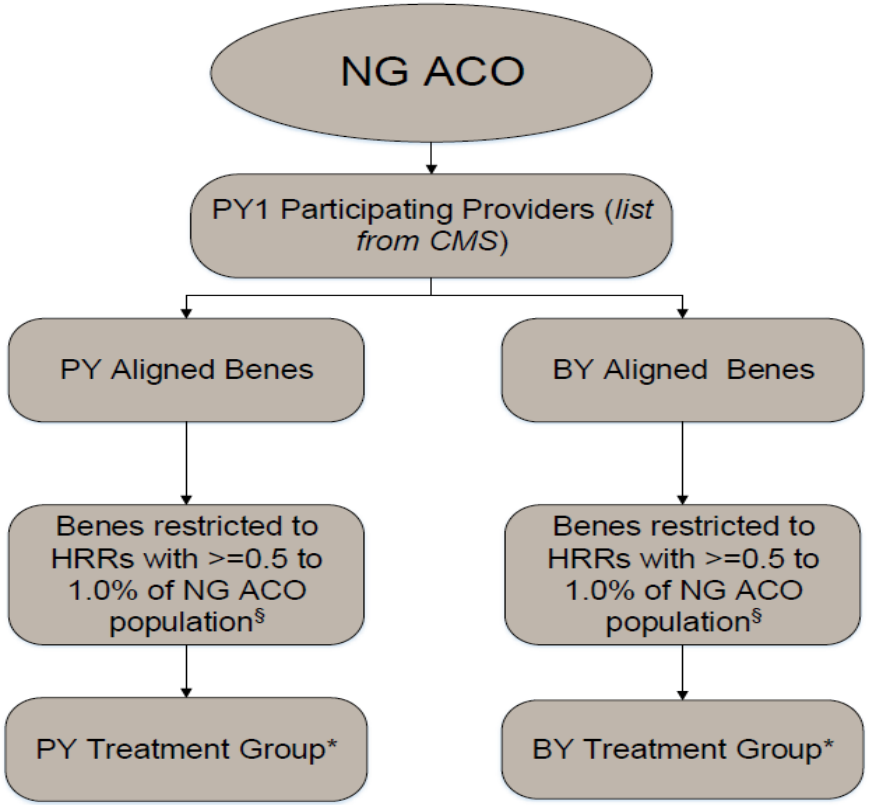
Exhibit D.4 provides a visual summary of the steps involved in deriving the evaluation's study sample of NGACO beneficiaries in PY1. Exhibits D.5 and D.6 depict the selection process described above to identify the NGACO (treatment) and comparison beneficiary populations.

Exhibit D.4. Evaluation's NGACO Study Sample in PY1 (2016)



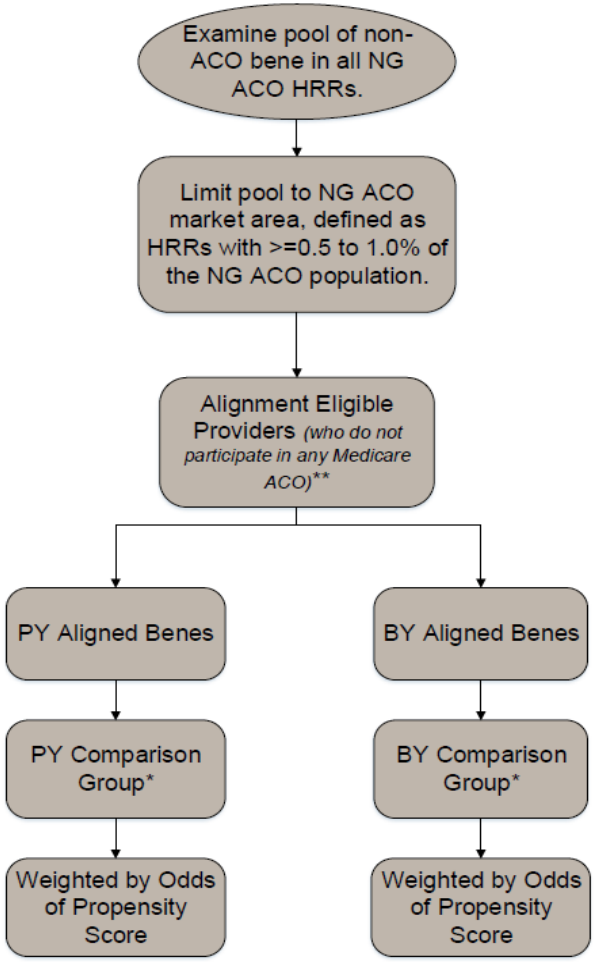
NOTES: IDR: Integrated Data Repository; PAC: Program Analysis Contractor; CCW VRDC: Chronic Condition Warehouse Virtual Research Data Center. *NGACO beneficiaries prospectively aligned to 18 NGACOs with financial responsibility in PY 2016 PAC on CMS IDR. **NGACO beneficiaries prospectively aligned by Evaluator on CMS CCW VRDC by replicating PAC's alignment approach. § Beneficiaries limited to those in NGACO market areas defined as hospital referral regions with more than 1%-0.5% of the NGACO's prospectively aligned population. §§ Beneficiaries alive and aligned to the NGACOs for at least 30 days in PY 2016. Beneficiaries excluded in this step met the following alignment exclusion reasons: 81% switched to Managed Care, 9% had Medicare as secondary payer, 7% lost Part A or Part B coverage, and 3% died.

Exhibit D.5. Construction of NGACO Treatment Group



NOTES: § The market area for 17 of the 18 NGACOs was defined as Hospital Referral Regions (HRRs) with >1.0% of their aligned beneficiary population in PY1. For one ACO (Deaconess), the market area was defined as HRRs with >0.5% of the aligned beneficiary population in PY1.
* A beneficiary was deemed aligned to the NGACO group during the PY or BY until he or she: 1) died; 2) had Medicare secondary payer during any month of PY/BY; 3) lost Part A or Part B coverage during any month of the PY/BY; 4) transitioned to Medicare Advantage or other managed care during any month of the PY/BY; 5) resided outside of the United States during any month of the PY/BY; 6) was aligned to other Medicare shared-savings programs including ACO programs during PY

Exhibit D.6. Construction of Comparison Group



NOTES: The market area for 17 of the 18 NGACOs was defined as Hospital Referral Regions (HRRs) with >1.0% of their aligned beneficiary population in PY1. For one ACO (Deaconess), the market area was defined as HRRs with >0.5% of the aligned beneficiary population in PY1.

*A beneficiary was deemed aligned to non-ACO providers during PY or BY until he or she: 1) died; 2) had Medicare as secondary payer during any month of the PY/BY; 3) Lost Part A or Part B coverage during a month of the PY/BY; 4) transitioned to Medicare Advantage or other managed care during any month of the PY/BY; 5) Resided outside of the United States during any month of the PY/BY; or 6) aligned to another Medicare ACO program during the PY/BY. **Excludes NGACO participating/preferred providers and providers participating in SSP and Pioneer ACOs.

Alignment Algorithm

We followed the NGACO Model's alignment algorithm to define NGACO and comparison groups in our analyses, as described elsewhere.[10] We provide a summary of the alignment approach below.

The alignment algorithm was run for each PY and BY, using Medicare claims from a preceding 24 month alignment period, summarized in Exhibit D.7. We used the alignment algorithm to attribute beneficiaries to an NGACO (all of its participating providers) or non-ACO providers in each analytic year, based on providers who rendered the largest share (in dollars) of the beneficiaries' qualifying evaluation and management (QEM) visits in the alignment period.[11]

Exhibit D.7. Alignment Periods for the NGACO Alignment Algorithm Across Baseline and Performance Years

	Baseline Years			Performance Year
Analytic Year	BY3 CY 2013	BY2 CY 2014	BY1 CY 2015	PY1 CY 2016
Alignment Period	**July 1, 2010 – June 30, 2012**	**July 1, 2011 – June 30, 2013**	**July 1, 2012 – June 30, 2014**	**July 1, 2013 – June 30, 2015**

NOTES: The PY1 and BY1 alignment periods were applied to the NGACO and comparison group.

We used the following seven steps to implement the alignment algorithm:

1) We identified alignment-eligible NGACO participating providers in PY1 and alignment-eligible non-ACO providers in each analytic year. Alignment-eligible providers were identified as practitioners within practices (TIN-NPI combinations), or in the case of federally qualified health centers, rural health clinics, and critical access hospitals, practitioners within these facilities (CCN-NPI combinations).[12] The alignment-eligible practitioners had selected primary care or specialist designations.[13]
2) We identified alignment-eligible beneficiaries at the beginning of each analytic year using the Enrollment Data Base (EDB). Alignment-eligible beneficiaries had to: be alive; be covered by Medicare Part A and B; not be in a Medicare Advantage or other Medicare managed care plan; not have Medicare as their secondary payer; reside in the United States; and have at least one paid claim for a QEM service during the two-year alignment period.

[10] Next Generation ACO Model Alignment Procedures, Appendix A. Next Generation ACO Model Benchmarking Methods December 15, Document Number: RTI.NG ACO.METHODS.BNMRK.01.00.04. Available at https://innovation.cms.gov/Files/x/nextgenaco-methodology.pdf .

[11] QEM codes consist of the following: 99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99304, 99305, 99306, 99307, 99308, 99309, 99310, 99315, 99316, 99318, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99339, 99340, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350, G0402, G0438, G0439.

[12] FQHCs, RHCs and CAH2s were identified based on the billing codes 77, 71, and 85, respectively on outpatient claims.

[13] Primary care practitioners included those with specialty codes 01, 08, 11, 38, 50, 97. Specialists included those with specialty codes 06, 13, 29, 39, 46, 66, 83, 86, 90, 91, 92, 98.

3) For all alignment-eligible beneficiaries in the analytic year, we used Medicare claims to determine the total allowable charges for all QEM services received from each NGACO or non-NGACO provider during the alignment period. Charges from the earliest alignment-year were weighted by one-third and those in the recent alignment year were weighted by two-thirds, to obtain the total weighted allowable charges for each alignment-eligible beneficiary.
4) We aligned each eligible beneficiary to an NGACO (all its participating practices/facilities) or non-ACO provider per the NGACO Model's alignment rules, based on the percent of the beneficiary's weighted allowable charges for QEM services over the alignment period. The alignment rules give precedence to primary care specialists over other selected specialists and use recency of the QEMs to break ties.
5) We attributed PY1 voluntarily-aligned beneficiaries to the NGACO in PY1 (0.67 percent for PY1) and BYs (0.75 percent for BY1; 1.02 percent for BY2; and 1.13 percent for BY3), if they were deemed to be alignment-eligible at the beginning of those years. Voluntary alignment took precedence over claims alignment.
6) We checked the match between our aligned beneficiaries and the NGACO PAC's list of prospectively aligned beneficiaries in PY1. For our analysis, we retained NGACO PY1 beneficiaries who matched with PAC's prospectively aligned beneficiary list in PY1. We had a match rate of over 98 percent in PY1.
7) We excluded NGACO and comparison beneficiaries based on the NGACO Model's exclusion criteria, to determine their duration of alignment to the NGACO or comparison group in each analytic year. A beneficiary was aligned to an NGACO or comparison group for all months of the year, until they met an exclusion criterion.[14] We applied these exclusion criteria on Medicare claims on the CCW. We also excluded beneficiaries identified by the PAC for exclusion from the Model on a quarterly basis under the Model's alignment rules.[15] Beneficiaries who met exclusion criteria were retained in our evaluation from the beginning of the year until the date they met an exclusion criterion.[16,17] We identified the date a beneficiary's alignment ended for the year (alignment-end date), either as his or her date of exclusion from alignment or the last day of the calendar year. For each analytic year, a beneficiary was aligned to the NGACO or comparison group from the first day of the year until the alignment-end date.

[14] **A beneficiary was deemed aligned to the NGACO group during the PY or BY until they had**: 1) died; 2) had Medicare as secondary payer during any month of PY/BY; 3) lost Medicare Part A or Part B during any month of PY/BY; 4) transitioned to MA or other managed care during any month of PY/BY; 5) resided in non-US location during any month of PY/BY; 6) aligned to another Medicare shared-savings program including ACO program in PY. Prior to financial reconciliation, the PAC excludes NGACO-aligned beneficiaries who moved outside of an NGACO's Extended Service Area (ESA) during PY or received a majority of QEM services outside of an NGACO's ESA during PY. For the evaluation, we do not apply the latter exclusions to the NGACO or comparison group in the PY or BY.

A beneficiary was deemed aligned to non-ACO providers during the PY or BY until they had : 1) died; 3) had Medicare as secondary payer during any month of PY/BY 2) lost Medicare Part A or Part B during any month of PY/BY; 3) transitioned to MA or other managed care during any month of PY/BY; 4) resided in non-US location during any month of PY/BY; 5) aligned to another Medicare ACO program in PY/BY.

[15] The PAC shares lists of excluded beneficiaries on a quarterly basis with NGACOs to inform them of the beneficiary population that the ACOs are responsible for, so that the ACOs can suitably target their care coordination/care management efforts. Under the Model, ACOs do not have any financial responsibility for excluded beneficiaries. Therefore beneficiaries excluded by the PAC were also excluded from the evaluation beyond their date of exclusion.

[16] In contrast, the PAC excluded such beneficiaries from financial calculations for the year.

Other Selection Considerations

In constructing the analytic data set, we included several binary indicator variables that flag certain characteristics of beneficiaries that relate to participation in Medicare initiatives in the BYs and PY. These analytic flags will be used for subgroup and sensitivity analyses in future reports and include the following:

- **Participation in non-Medicare ACOs and concurrent CMMI initiatives:** For both the comparison group and NGACO groups, we indicate whether the beneficiaries are aligned to providers who participate in non-Medicare ACOs (Medicaid or commercial ACOs) and whether these beneficiaries participate in other concurrent CMMI initiatives. In this report, we present descriptive statistics on such participation. In future reports, we plan to assess the influence of these initiatives.
- **Access to care from providers:** To ensure that comparison beneficiaries had similar access to care as did beneficiaries in the NGACO group, we defined a measure of access to providers as the number of alignment-eligible providers per 1,000 population, located within 10 miles of beneficiary's ZIP code. This variable was included in our propensity score model, discussed in the next section. In future reports, we may examine the associations of this covariate with impacts in greater detail.
- **Spillover and leakage between treatment and comparison groups:** One concern with selecting comparison beneficiaries from the same market is the consequence of spillover effects or when non-NGACO beneficiaries receive care from NGACO providers. Such care could reduce the effects of the NGACO model. Likewise, NGACO beneficiaries could also receive care from non-NGACO providers, which we consider to be leakage. We created analytic measures of spillover and leakage to study their possible effects. These concepts are described in more detail later in this appendix, after discussion of the DID methodology.
- **Churn or crossover between treatment and comparison groups:** Beneficiaries may switch between treatment and comparison groups across the BYs and PY. In future reports, we plan to identify these beneficiaries and test the sensitivity of our analysis if we examine only those beneficiaries who were continuously enrolled and whether churn has a moderating effect (interaction with continuity of enrollment).

Data Sources

Exhibit D.8 shows the data used for the construction of the treatment and comparison groups, as described above.

[17] In the last two quarters of 2016, the PAC erroneously excluded 4,627 beneficiaries from alignment to 2016 NGACOs, determining incorrectly that Medicare was their secondary payer. The evaluation did not retrospectively correct for these erroneously excluded beneficiaries for two reasons. First, because these beneficiaries were removed from the ACO alignment lists, they may not have been targeted by the ACOs' subsequent care coordination/management efforts in the year. Second, because the excluded person-months for these beneficiaries comprised less than 0.5 percent of the total number of NGACO evaluation person-months in PY1, the correction may not materially alter our results.

Exhibit D.8. Data (Years), Rationale, and Sources

Data (Years)	Rationale	Source(s)
NGACO participating and preferred provider lists (2016)	Identify the participating and preferred providers. NGACO beneficiaries were attributed to participating providers. Preferred providers were excluded from a group of non-ACO providers to which comparison beneficiaries are attributed.	CMS
NGACO attributed and excluded beneficiary lists (2016)	Identify the beneficiaries that were either aligned to an NGACO provider or identify any beneficiaries that were excluded due to model exclusion criteria in 2016.	CMS
Providers and beneficiaries in other Medicare ACO and SSPs (2013-2016)	Identify the providers and beneficiaries in other Medicare ACO or shared savings initiatives. We flagged or excluded these beneficiaries and providers from the comparison group of beneficiaries attributed to non-ACO providers.	CMS
Providers in Medicaid and Commercial ACO (2013-2016)	Identify providers belonging to ACOs classified as either Commercial and/or Medicaid ACOs. Since comparison beneficiaries can be attributed to providers in these ACOs, we identified these providers to assess spillover of care from commercial/Medicaid ACO providers to the comparison group.	IMS Quintiles SK&A data
Medicare Beneficiary Summary and Claims Files (2010-2016)	Identify the NGACO and comparison group beneficiaries, their characteristics, and outcomes including spending, utilization, and quality.	CMS
Provider Enrollment, Chain, and Ownership System (PECOS), National Plan and Provider Enumeration System (NPPES) and Medicare Data on Provider Practice and Specialty (MD-PPAS) (2013-2016)	Identify individual providers (NPIs) associated with practices (TINs) and their specialties. Also used to compute measures of provider density by zip-code and market competition (*Herfindahl-Hirschman Index (HHI)).*	CMS
American Hospital Association (AHA) Survey Data (2013-2016)	Calculate hospital competition in market (HHI).	AHA
American Community Survey (2012-2015)	Identify the socio-demographic characteristics of communities (ZIP code tabulations area) where NGACO and comparison beneficiaries reside.	Census Bureau
Dartmouth Atlas ZIP code-HRR crosswalks (2012-2015)	Identify markets (Hospital Referral Regions (HRRs)) in relation to ZIP codes where NGACO and comparison beneficiaries reside.	The Dartmouth Institute

Propensity Score Weighting to Address Selection Bias

Because beneficiaries in our evaluation were not randomized to the NGACO and comparison groups, we used propensity score methods to ensure that the beneficiaries in the two groups were similar in their observed characteristics.[18] 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/comparison group in each year (BY and PY). The observed characteristics we considered for the propensity score included beneficiaries' demographic characteristics and disease burden as well as their community (ZIP code) characteristics and market (HRR). Then we describe the empirical selection of the propensity score

[18] Austin, Peter C. "An introduction to propensity score methods for reducing the effects of confounding in observational studies." *Multivariate behavioral research* 46, no. 3 (2011): 399-424.

method that best balanced the NGACO and comparison group beneficiaries on their observed characteristics, to alleviate concerns about selection bias due to these variables.[19]

First, for each NGACO and each reference year (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 included age, gender, race/ethnicity (white, black, Hispanic, Asian, other), disability, ESRD status, Medicaid dual-eligibility, Part D coverage, number of months aligned to the NGACO/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 CCW VRDC. These included 27 common chronic conditions and 35 other chronic or potentially disabling conditions the beneficiary had in the preceding year.[20] We did not use the Hierarchical Condition Category (HCC) risk score to measure a beneficiary's disease burden, since these were deemed to be more susceptible to changes in provider coding practices than were the chronic condition indicators.[21] 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** included rurality, density of providers within 10 miles per 1,000 population, and neighborhood socioeconomic characteristics (percent below poverty line, percent with high school and college education, and median income) of the beneficiary's ZIP code.
- **Market characteristics** included indicator variables for HRRs within which beneficiaries reside.

Second, after estimating propensity scores, we empirically tested various propensity score matching (one-to-one and one-to many: both without and with replacement) and weighting methods to assess how they balanced the NGACO and comparison groups on the observed covariates, while allowing us to assess the Average Treatment Effect on the Treated.[22] Weighting the comparison beneficiaries by the odds of the propensity score offered the best covariate balance for each NGACO across PY and BYs.[23] NGACO beneficiaries were assigned a weight of one, while the comparison beneficiaries were assigned weights of

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[20] 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 .

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

[22] Stuart, Elizabeth A. "Matching methods for causal inference: A review and a look forward." *Statistical science: a review journal of the Institute of Mathematical Statistics* 25, no. 1 (2010): 1; Hirano, Keisuke, Guido W. Imbens, and Geert Ridder. "Efficient estimation of average treatment effects using the estimated propensity score." *Econometrica* 71, no. 4 (2003): 1161-1189.

[23] We assessed covariate balance by looking at standardized differences for the covariates before and after matching or weighting. The method that yielded the lowest standardized difference of means across all covariates, with standardized differences <0.2 for all covariates, was considered to offer the best covariate balance.

$PS_i/(1-PS_i)$, where PS_i is the beneficiary's propensity score. This weighting method can be consistently implemented in future PYs, where the number of comparison beneficiaries can be expected to diminish with increased uptake of Medicare ACOs.

Tables G.1-G.2 present the descriptive statistics for the NGACO and comparison groups prior to and subsequent to propensity score weighting. Prior to weighting, several differences existed between the NGACO and comparison group in the baseline and performance years. After weighting, these differences evened out and the two groups were similar in their characteristics within the baseline and performance years.

Finally, we implemented solutions to overcome two potential limitations of weighting the comparison group by odds of the propensity score. First, because comparison beneficiaries with large weights could inordinately influence our results, we affirmed that a very small proportion of comparison group beneficiaries had large weights.[24] Second, covariates in the propensity score model were included in the DID models to obtain accurate impact estimates if the former were potentially mis-specified.[25]

Measures of Spending, Utilization and Quality of Care

Exhibit D.9 specifies all the claims-based outcome measures evaluated in this report using a DID methodology.

[24] Less than 0.7 percent of the comparison beneficiaries had a weight greater than three.

[25] Bang, Heejung, and James M. Robins. "Doubly robust estimation in missing data and causal inference models." *Biometrics* 61, no. 4 (2005): 962-973.

Exhibit D.9. Claims-Based Outcome Measures Evaluated Using DID Methodology

Measure	Definition
Spending	
Total Medicare spending per beneficiary per year	Total Medicare Part A and Part B spending per beneficiary per year aligned to an NGACO or comparison group. Spending includes Medicare paid amount on Part A and B claims from the start of the year until the end of the year or until the end date for when the beneficiary remained aligned (i.e., until the s/he was excluded due to alignment exclusion criteria), for the treatment or comparison group.§
Medicare spending on *outpatient/office care* per beneficiary per year [includes spending for professional services]	Total Medicare spending on outpatient/office care (including hospital outpatient department, office, home, and ED visits) per beneficiary per year aligned to an NGACO or comparison group. Spending includes Medicare paid amount on facility and related professional claims from the start of the year until the end of the year or until the date the beneficiary remained aligned to the treatment or comparison group. § Spending on Part B professional services in acute care hospital, SNF, other post-acute care, and hospice settings are excluded.
Medicare spending on *acute care hospitalizations* per beneficiary per year [includes spending for professional services]	Total Medicare spending on acute care hospitalizations including facility and related professional services per beneficiary per year aligned to an NGACO or comparison group. Spending includes Medicare paid amount on facility and related professional 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 includes Part B professional services incurred during the days a beneficiary was in acute care hospitals.
Medicare spending on *care delivered at a skilled nursing facility (SNF)* per beneficiary per year [includes spending for professional services]	Total Medicare spending on care delivered at a SNF (excluding the index hospitalization cost) and related professional services per beneficiary per year aligned to an NGACO or comparison group. Spending includes Medicare paid amount on SNF and related professional 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 includes Part B professional services incurred during the days a beneficiary was in SNFs.
Medicare spending on *home health care* per beneficiary per year [does not include spending for professional services]	Total Medicare spending on home health care per beneficiary per year aligned to an NGACO or comparison group. Spending includes Medicare paid amount on home health care 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. § Professional services rendered in the home are not included and are reported under outpatient spending.
Medicare spending on *other post-acute care* per beneficiary per year [includes spending for professional services]	Total Medicare spending on post-acute care including inpatient and outpatient facility (long-term care hospitals, inpatient rehabilitation hospitals, swing beds for rehabilitation, comprehensive outpatient rehabilitation facilities), and related professional services per beneficiary per year aligned to an NGACO or comparison group. Spending includes Medicare paid amount on facility and related professional 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 includes Part B professional services incurred during the days a beneficiary received other post-acute care services.
Medicare spending on *hospice* per beneficiary per year [includes spending for professional services]	Total Medicare spending on hospice and related professional services per beneficiary per year aligned to an NGACO or comparison group. Spending includes Medicare paid amount on hospice claims and related professional services 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 includes all Part B professional services incurred during the days a beneficiary received hospice services

Measure	Definition
Medicare spending on *durable medical equipment (DME) supplies* per beneficiary per year	Total Medicare spending on durable medical equipment per beneficiary per year aligned to an NGACO or comparison group. Spending includes Medicare paid amount on DME 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. §
Utilization	
Acute care hospital *stays* per 1,000 beneficiaries per year	Number of acute care hospital stays per 1,000 beneficiaries per year aligned to an NGACO or comparison group. Stays that included transfers between facilities were counted as one stay. Stays that commenced after start of the year until the end of the year, or until the date the beneficiary remained aligned to the treatment or comparison group, are counted towards the measure.§§
Acute care hospital *days* per 1000 beneficiaries per year	Number of acute care hospital days per 1000 beneficiaries per year aligned to an NGACO or comparison group. Inpatient days after start of the year until the end of the year, or until the date the beneficiary remained aligned to the treatment or comparison group, are counted towards the measure. §§
Evaluation and management (E&M) visits [excluding visits in acute care hospital and ED] per 1,000 beneficiaries per year	Number of non-hospital E&M visits from primary care or specialist providers per 1,000 beneficiaries per year aligned to an 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 emergency rooms are excluded). Visits from the start of the year until the end of the year, or until the date the beneficiary remained aligned to the treatment or comparison group, are counted towards the measure. §§
Emergency Department (ED) Visits [including observation stays] per 1,000 beneficiaries per year	Number of ED visits including observational stay per 1,000 beneficiaries per year aligned to an NGACO or comparison group. Visits that included transfers between ED facilities were counted as one visit. Visits from the start of the year until the end of the year, or until the date the beneficiary remained aligned to the treatment or comparison group, are counted towards the measure. §§
Quality	
Beneficiaries with *Annual Wellness Visit* per 1,000 per year	Number with an AWV in the year per 1,000 beneficiaries aligned to an NGACO or comparison group. It measures the likelihood of beneficiaries receiving a visit. AWV codes on Medicare Part B claims include G0438 (for the initial visit) and G0439 (for subsequent visits).[26]
Beneficiaries with acute care hospitalizations for *ambulatory care-sensitive condition (ACSC)* per 1,000 per year[27,28]	Number with at least one ACSC acute care hospitalization in the year per 1,000 beneficiaries aligned to an NGACO or comparison group. The measure reflects the likelihood of beneficiaries being hospitalized for these ACSC conditions during the year. ACSC hospitalizations include 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.

[26] Centers for Medicare & Medicaid Services. MLN Matters® Article MM7079: Annual Wellness Visit (AWV), Including Personalized Prevention Plan Services (PPPS), 2016. Available at: http://www.cms.gov/MLNMattersArticles/downloads/MM7079.pdf.

[27] 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.

[28] For claims prior to October 1, 2015 with ICD-9 codes, we used Version 5.0 of PQI 90. For claims after October 1, 2015 with ICD-10 codes, we used Version 6.0 of PQI 90.

Measure	Definition
Beneficiaries with *unplanned readmissions within 30 days after hospital discharge* per 1,000 per year	Number with at least one unplanned hospital readmission within 30 days after discharge in the year per 1,000 beneficiaries aligned to an NGACO or comparison group. This measures the likelihood of such a readmission. We report this measure for beneficiaries who had at least one eligible hospitalization for the period aligned to the NGACO or comparison group during the year. We adapted CMS's risk standardized all condition readmission measure for ACOs (ACO #8) to identify the eligible hospitalization and unplanned readmissions.[29]
Beneficiaries with *unplanned hospitalizations within 30 days after discharge from SNF* per 1,000 per year	Number with at least one unplanned hospitalization within 30 days after discharge from a SNF in the year per 1,000 beneficiaries aligned to an NGACO or comparison. It measures the likelihood of such an admission. We report this measure for beneficiaries who had at least one eligible discharge from a SNF for the period aligned to the NGACO or comparison group during the year. We adapted CMS's SNF 30-day All-Cause Readmission Measure (NQF#2510) to identify eligible SNF discharges and subsequent unplanned hospitalizations.[30] Direct transfers from SNF to acute care hospitals are counted if they are unplanned.

NOTES: § All spending is expressed in 2016 dollars. For providers in ACOs that opted for population-based payments, we used the actual amount Medicare would have paid for these services absent the population-based payments. We report spending per beneficiary per month, dividing the annual measure by the average number of months of alignment in the year. §§ We report utilization per 1,000 beneficiaries per month, dividing the annual measure by the average number of months of alignment in the year.

[29] 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.

[30] RTI International. Skilled Nursing Facility Readmission Measure (SNFRM) NQF #2510: All-Cause Risk-Standardized Readmission Measure, Draft Technical Report, 2015. Available at: https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Downloads/SNFRM-Technical-Report-3252015.pdf.

Analytic Approach to Estimate Impact of NGACO Incentives

In this section, we describe the specification of our difference-in-differences (DID) regression models to assess the impact of NGACO incentives on claims-based outcomes and detail the rationale and tests we used to guide various analytic decisions.

Difference-in-Differences Estimation

Using the DID design, we assessed the impact of the NGACO Model in PY1. The design compares differences in outcomes for the NGACO and propensity-score weighted comparison beneficiaries (residing in the same markets) in PY1, against differences in outcomes for the treatment and comparison groups in three preceding baseline years (BY1, BY2, BY3). The comparison group is used to obtain an appropriate counterfactual of what would have happened to the NGACO beneficiaries in PY1, in the absence of the NGACO model. The DID models net out any time-varying differences between the NGACO and comparison groups that were unaccounted for by propensity score weighting. These models help control for unobserved time varying factors that influence the NGACO and comparison group in similar ways. Together with propensity score weights, this approach mitigates biases from unobserved differences between the NGACO and comparison group.

Equation D.1 shows the general specification of the DID model that we used to estimate impacts of NGACO incentives in PY1.

Equation D.1: DID model for estimating impact in PY1, with fixed effects for years, controlling for beneficiary, community characteristics, and HRR fixed effects

$$g\left[E(Y_{ijkt})\right] = \beta_0 + \beta_1 NGACO_j + \delta_1 BY2_t + \delta_2 BY1_t + \delta_3 PY1_t + \theta_1 NGACO_j * PY1_t + \Upsilon BENE_{ijkt} + \Lambda Community_{jkt} + \Pi HRR_k + \varepsilon_{ijkt}$$

Where

- Y is the outcome for the i^{th} 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, as discussed below.
- β_0 is the intercept.
- $NGACO_j$ is the binary indicator for being in the NGACO group in either PY or BYs. The indicator is set to the value of one if the beneficiary is aligned to an NGACO PY1 provider. The coefficient β_1 captures the difference between the NGACO and comparison group in the BYs.
- $BY2$, $BY1$, and $PY1$ are fixed effects for each year (with $BY3$ as reference) whose coefficients $(\delta_1, \delta_2, \delta_3)$ capture changes in the NGACO and comparison group over time.
- Coefficient θ_1 is the DID estimate for $NGACO_j$ * $PY1_t$ the binary indicator of being in the NGACO group in PY1 of the NGACO Model. The θ_1 coefficient is the impact of NGACO incentives on its providers' beneficiaries.
- *BENE* and *Community* are sets of beneficiary and community characteristics (used in the propensity score model) with coefficient sets Υ and Λ, respectively.

- *HRR* is a fixed effect for each HRR with coefficient vector Π, to control for time-variant differences across markets.
- ε_{ijkt} is the random error term

Our models included weights for the comparison (weight=odds of propensity score) and NGACO beneficiaries (weight= 1).

We detail below the estimation of the pooled models and models for each NGACO based on Equation D.1. All models were estimated using *Stata 14*.[31]

Pooled model: Impacts for all NGACOs were estimated as follows:

- Beneficiary-level covariates included: age, gender, race/ethnicity, disability, ESRD status, dual-eligibility, 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). We also included an interaction term (months aligned times months aligned, or the square of months aligned), because outcomes could increase non-linearly based on the number of months a beneficiary was aligned to the NGACO or comparison group in a given analytic year.
- 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 rurality for the ZIP code.
- We clustered standard errors at the NGACO for the treatment and comparison group, respectively, since outcomes could be correlated within these clusters.[32]

Model for each NGACO: Models included the beneficiary and community covariates used in the pooled model, with the exception that we used a summary variable for disease burden (number of chronic conditions out of 62) and binary variables for the 10 conditions most expensive to Medicare.[33] We examined the effects of this altered specification of chronic conditions in the pooled 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 pooled analysis by about -$0.10 *annually*, or less than -$0.01 PBPM.

In the models for each NGACO, we estimated robust standard errors.[34]

[31] StataCorp. 2015. *Stata Statistical Software: Release 14*. College Station, TX: StataCorp LP.

[32] Cameron, A. Colin, and Douglas L. Miller. *Robust inference with clustered data*. No. 10, 7. Working Papers, University of California, Department of Economics, 2010; Bertrand, Marianne, Duflo, Esther, and Sendhil Mullainathan. "How Much Should We Trust Differences-in-Differences Estimates," *The Quarterly Journal of Economics*, 119:1 (February 2004) 249-275.

[33] Erdem, Erkan, Sergio I. Prada, and Samuel C. Haffer. "Medicare payments: how much do chronic conditions matter?" *Medicare & Medicaid Research Review* 3, no. 2 (2013). We could not use indicator variables for all 62 chronic conditions, due to small cell sizes that limited estimation of the models.

[34] Wooldridge, Jeffrey M. *Econometric analysis of cross section and panel data*. MIT Press, 2010.

Modelling outcomes of spending, utilization and quality of care

Exhibit D.10 summarizes the models used for the 16 claims-based outcome measures. Outcome measures for spending and utilization were modelled as continuous variables, using generalized linear models (GLM). For outcomes where more than 20 percent of the sample had zero values, we used two-part models, with a probit model to assess the likelihood of a non-zero outcome and GLM to assess levels of the outcome for those with non-zero outcomes. For outcome variables modelled with GLM, we used a log-link and determined the appropriate distributional form for the skewed outcome measures using a modified Park test.[35] This test examined the heteroscedasticity of the error term to ascertain the distribution appropriate for the continuous outcome measure. The four quality of care measures were modelled as binary measures.[36]

Exhibit D.10. Models Used for Specific Outcome Measures

Outcome Measure	Model Used
Spending: Total Medicare Spending, Outpatient/Office spending	Generalized Linear Model (GLM) with Gamma distribution, log link
Spending: Acute care hospital spending, SNF spending, Other Post-Acute spending, Home Health spending, Hospice spending, and DME spending	Two-Part Model: First part: Probit; Second Part: GLM, Poisson distribution, log link
Utilization: E&M Visits (excluding inpatient hospital and ED)	GLM, Poisson distribution, log link
Utilization: Acute care hospital Admissions, Acute care hospital days, ED Visits including observation stays	Two-Part Model: First part: Probit; Second Part: GLM , inverse Gaussian distribution, log link
Quality of Care: Annual Wellness Visits, ACSC Hospitalizations, Unplanned 30-day Readmissions, Unplanned Hospitalizations 30-days from SNF Discharge	Logit

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

- Since we used non-linear models for the outcome variables, we employed the approach suggested by Puhani (2012) to express the DID coefficient in Equation D.1 as the estimated outcome for the treated NGACO group relative to its expected outcome absent the treatment.[37] We calculated these results using post-estimation predictions, computing the marginal effect for all treated beneficiaries and

[35] Manning, W., & Mullahy, J. Estimating log models: To transform or not to transform? Journal of Health Economics, 20 (2001): 461-494.

[36] A Medicare beneficiary is eligible for a single wellness visit annually. For ACSC hospitalizations, unplanned 30-day hospital readmissions, and unplanned hospitalizations 30-day post SNF readmissions, few beneficiaries had events (4.9 percent for ACS hospitalizations, 16.6 percent for 30-day readmissions, and 18.9 percent for 30-day post-SNF readmissions), and fewer had more than one event. We chose to model these as binary measures, whether or not the beneficiary had the event during the year. We tested that our conclusions were robust to modelling the latter three measures as counts.

[37] Puhani, P. A. The treatment effect, the cross difference, and the interaction term in nonlinear "difference-in-differences" models. Economics Letters, 115 no. 1 (2012): 85-87.

subtracting the marginal effect for these beneficiaries with the DID interaction term set to zero.[38] We computed confidence intervals using the delta method.[39]

- We expressed the estimated impact as a percent of the expected outcome for the NGACO group in PY1 absent the model. We computed the percentage change from the DID coefficient for outcomes estimated with log-linear models.[40] For outcomes estimated with two-part models, we computed the predicted level of outcomes for NGACO beneficiaries in 2016 absent NGACO incentives by summing the adjusted mean for the comparison group in 2016 and the adjusted difference between the NGACO and comparison group in the BYs.[41] 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 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 G, Exhibits G.4 to G.19 alongside the impact estimates to understand if the latter were driven by improved performance for the NGACO group or deteriorating performance for the comparison group or both.
- Finally, we expressed impact estimates for measures of spending and utilization from our annual models as per beneficiary per month and per 1,000 beneficiaries per month, respectively. We calculated the per month estimates by dividing the annual impact estimates for these measures by the average months of alignment for the NGACO beneficiaries in PY1.

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 baseline years prior to the onset of the NGACO incentives. This *assumption of parallel trends* allows the comparison group to establish a reliable counterfactual for NGACO group in the PY in the absence of the NGACO Model. We tested this assumption using Equation D.2, which extended Equation D.1 by including leading interaction terms for NGACO treatment effects in BY1 and BY2 (relative to the BY3). We assessed if the respective coefficients θ_{-1} and θ_{-2} for these leading interaction terms was significantly different from zero ($p<0.05$). If they were significantly different, the assumption of parallel trends did not hold.

Equation D.2: DID Model with Leading Interaction Terms, Controlling for Beneficiary, HRR, and Community Characteristics

$$g\left[E(Y_{ijkt})\right] = \beta_0 + \beta_1 NGACO_j + \delta_1 BY2_t + \delta_2 BY1_t + \delta_3 PY1_t + \theta_{-2}\, NGACO_j * BY2_t + \theta_{-1}\, NGACO_j * BY1_t + \theta_1\, NGACO_j * PY1_t + \Upsilon BENE_{ijkt} + \Lambda Community_{jkt} + \Pi HRR_k + \varepsilon_{ijkt}$$

[38] Karaca-Mandic, Pinar, Edward C. Norton, and Bryan Dowd. "Interaction terms in nonlinear models." *Health services research* 47, no. 1pt1 (2012): 255-274.

[39] Dowd, Bryan E., William H. Greene, and Edward C. Norton. "Computation of standard errors." *Health services research* 49, no. 2 (2014): 731-750.

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

[41] McWilliams, J. Michael, Laura A. Hatfield, Michael E. Chernew, Bruce E. Landon, and Aaron L. Schwartz. "Early performance of accountable care organizations in Medicare." *New England Journal of Medicine* 374, no. 24 (2016): 2357-2366.

For this evaluation, we determined that the DID estimate for PY1 was valid if the trends between the NGACO and comparison group were parallel between the first and last baseline year (BY1 vs. BY3) and reached statistical significance ($p<0.05$). Our assumption allowed the NGACO providers and organizations to outperform or underperform on outcomes relative to the comparison group mid-baseline (BY2 vs BY3). However, the NGACO and comparison group 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 (e.g. Ashenfelter's dip).[42] Please see Appendix G, tables G.20-G26 for the results of the parallel trends tests.

Sensitivity checks: We conducted sensitivity checks by assessing the residuals (actual versus predicted spending) in our models for Medicare spending from the annual model. As summarized in Exhibit D.11, beneficiaries in our study sample had wide variation in Medicare spending. Mean spending for our study population was in the eighth decile (70 percent of the sample spent below the mean), and the top two deciles of spenders accounted for 77 percent of Medicare spending for our population. The annual spending model underpredicted spending for these high spenders (positive residuals indicate that actual spending for these spenders was greater than the predicted spending) and overpredicted spending for the low spenders, who were 70 percent of our sample. In sensitivity analyses, we modeled Medicare spending per beneficiary per month (PBPM). This model greatly overpredicted spending for 80 percent of spenders in the lower eight deciles but performed better in predicted spending for high spenders in the top two deciles. The PBPM model had larger impact estimates for Medicare spending compared to the annual model (-25.2 PBPM vs -18.2 PBPM). We chose to report impacts from the annual model because it had lower residuals for the entire study sample (-9.5 percent vs. -20 percent of actual spending). However, our sensitivity analyses suggest that with many NGACOs focusing their care coordination approaches on high-spending Medicare beneficiaries, greater impacts for this subgroup could be expected. In future reports, we propose to use methods such as latent class or finite mixture models to more accurately predict Medicare expenditures for both low- and high-spenders in our study population.

We did not winsorize or exclude extreme values for any outcomes in our models. This decision reflects our hypothesis that approaches of NGACOs and its providers may impact high spenders and utilizers. Nonetheless, acknowledging that capping extreme values may improve model fit, we examined impacts when we capped the total spending for beneficiaries in our study sample at the 99.0, 99.5 and 99.9 percentiles. Impact estimates were robust and changed only in the first decimal place.

Exhibit D.11. Medicare Spending Deciles in Study Sample and Model Residuals by Deciles

Cost Decile	Decile contribution to Total Spending (%)	Residual as % of Actual Spending Annual Model	Residual as % of Actual Spending PBPM Model
1	0.13	-3120.4	-4,023.1
2	0.52	-904.4	-1,040.4
3	0.94	-525.6	-612.8
4	1.48	-344.5	-400.0
5	2.21	-229.8	-273.0
6	3.30	-145.4	-178.6

[42] Ashenfelter, Orley. 1978. "Estimating the Effect of Training Programs on Earnings." Review of Economics and Statistics, 60, 47-50.

Cost Decile	Decile contribution to Total Spending (%)	Residual as % of Actual Spending Annual Model	Residual as % of Actual Spending PBPM Model
7	5.16	-83.8	-105.4
8	9.21	-31.2	-41.4
9	19.12	16.2	6.9
10	57.93	42.3	17.2
Average	**100.00**	**-9.5**	**-20.0**

Analyses in forthcoming reports. In future reports, we will employ additional tests, to consider how impacts vary by performance in the pre-period and how provider participation in ACOs overlaps with other CMS models and differentially affect the NGACO and the comparison groups during the PYs. We will also assess whether there are important compositional changes in the NGACO and comparison groups between BYs and PYs, though we expect that our propensity score methods will account for changes in observed covariates between the groups. In addition, we plan to explore approaches to examine spillover and leakage from the NGACO model, whereby comparison beneficiaries receive care from NGACO providers. The next section of this report describes our initial examination of the magnitude of spillover.

Assessment of Spillover

A limitation of selecting the comparison group from the same market area as NGACOs is the likelihood of *direct spillover* effects. We define and measure direct spillover as care (E&M visits) that non-ACO comparison beneficiaries receive from providers affiliated with Medicare ACOs. We also include the E&M visits that comparison and NGACO beneficiaries receive from providers who are in commercial or Medicaid ACOs. We measure this as *indirect spillover* due to leveling-up, where motivated ACO-affiliated providers deliver high-quality care to all patients, irrespective of the patient's ACO membership or payer.[43] For example, the Pioneer ACO evaluation found that about half of physicians reported that ACO participation "influenced how they treated all of their patients, not just those aligned."[44] While we also expect *competitive spillover* to occur (where non-ACO providers who compete with ACO providers furnish better quality care), we do not currently measure it.

The widespread and growing adoption of ACO and alternative payment models makes it challenging to identify or define comparison populations and increases the difficulty of adequately accounting for participation in other models. Such spillover effects are difficult to capture and can bias results toward lower observed impact.[45] We hypothesize that direct spillover may have greater immediate impact on the non-ACO comparison population in each analytic year, compared with indirect spillover, because physicians in ACOs are more likely to have access to direct mechanisms that facilitate better care (e.g.,

[43] Phipps-Taylor, Madeline and Stephen Shortell "ACO Spillover Effects: An Opportunity Not to be Missed" NEJM Catalyst, September 21, 2016.

[44] L&M Policy Research, LLC. Pioneer ACO Final Report. Evaluation of CMMI Accountable Care Organization Initiatives. December, 2016.

[45] Pham, H., Chernow, M., Shrank W, Bleser W. Saunders, R. and McClellan M. Market Momentum, Spillover Effects, And Evidence-Based Decision Making On Payment Reform http://healthaffairs.org/blog/2017/05/24/market-momentum-spillover-effects-and-evidence-based-decision-making-on-payment-reform .

features such as care managers, enhanced health information systems, and partnerships with preferred providers). We provide descriptive statistics, as follows:

- **Direct spillover:** for the comparison group, we measure using two measures: proportion of nonhospital E&M visits furnished by NGACO providers; and proportion of nonhospital E&M visits furnished by SSP or Pioneer ACO providers.
- **Indirect spillover (leveling up):** for both treatment and comparison group, we measure as the proportion of E&M visits furnished by providers exclusively in commercial and Medicaid ACOs

Our analysis expands on previous efforts to characterize spillover by: capturing a broader range of ambulatory services; characterizing the dose or intensity of spillover through a continuous measure of services, rather than a binary measure; and incorporating available data on commercial and Medicaid ACO participation.[46]

Exhibit D.12 shows how we defined these measures of spillover using the proportion of non-hospital E&M visits received by beneficiaries in each analytic year (BY or PY), from providers in Medicare ACOs, commercial and Medicaid ACOs, or those not affiliated with an ACO.[47] We report spillover for the NGACO and comparison groups in PY1 for the entire group of 2016 NGACOs as well as for each NGACO. These results are summarized in Appendix G.27.

Exhibit D.12. Characterizing Dose and Spillover for 2016 NGACOs and Comparison Groups

Measure	NGACO Group	Comparison Group
Total E&M Visits (defined as all ambulatory Berenson-Eggers Type of Service (BETOS) codes excluding those furnished in inpatient hospital (M2A, M2B, M2C) or ED setting (M3))	*[Denominator]*	*[Denominator]*
% E&M with any NGACO/Pioneer/SSP providers	Dose of Medicare ACO care	Spillover of Medicare ACO care
% E&M with exclusively Medicaid or commercial ACO providers	Spillover of non-Medicare ACO care	Spillover of non-Medicare ACO care
% E&M with non-ACO providers	Dose of non-ACO care	Dose of non-ACO care

In subsequent reports, we will examine methods to more intensively study and adjust for both direct and leveling up (indirect spillover) effects. For example, one approach is to exclude beneficiaries with substantial spillover or leveling up from the comparison group and compare DID estimates before and after the exclusion of such beneficiaries. We may also study the variability in spillover effects as a function of ACO penetration rate—the penetration of other Medicare ACOs and NGACOs' providers in

[46] The Pioneer ACO evaluation examined spillover in two ways, as follows:

- Spending and utilization were compared for "near" and "far markets" and found some evidence of possible spillover, though they did not account for price differences in separate markets and did not have information as to whether the beneficiaries were seen by commercial ACOs.
- Spending and utilization of aligned beneficiaries were compared to those of a spillover group, defined as "beneficiaries in each ACO's market that received at least one qualified service from an ACO provider during a performance year." They found that spillover beneficiaries reported higher costs and utilization. They did not compare spending and utilization of spillover group relative to the comparison group.

[47] Because Medicare providers (participating and preferred) can participate in commercial and Medicaid ACOs, we use a hierarchy, assessing providers to mutually exclusive categories of 1) any Medicare ACO, 2) any commercial or Medicaid ACO, or 3) no ACO.

the HRRs—and the percent of total Medicare beneficiaries served by NGACO providers. While we expect NGACOs to have some spillover effects outside their HRRs, our analysis of spillover effects will be limited to NGACO markets.

Our plans also acknowledge certain data limitations. Quantifying spillover is difficult. One difficulty is the lack of up-to-date data on provider participation in Medicaid and commercial ACO models. The significant growth and change in provider participation in ACOs, as well as growth and dissolution of ACOs themselves, in both the public and private payer sector, hamper accurate information on participation. Data on ACO participation in the commercial sector is obtained through surveys conducted by IMS Health of providers, which might only be updated once a year. Data on Medicaid and Medicare ACO development and dissolution are obtained annually from CMS files and reflect ACO existence as reported at the start of the year; however, these data might also lag by a year. Nonetheless, we proceed with the best possible data at the time of analysis.

Assessment of Actual Medicare Spending and Spending without Incentives and Penalties

Incentives and Penalties

Medicare offers provider incentives and penalties that may differentially impact the spending in NGACO and comparison groups. We assessed the effect of Medicare Part B and Part A provider incentives and penalties on the Medicare payment amounts for NGACO and comparison beneficiaries in 2016. We created this list of incentives and penalties based on variables included in Version K of Medicare claims made available on the CCW from May 2017. Exhibit D.13 below summarizes our approach to computing the Medicare spending without incentives and penalties after identifying their amounts on Part B and Part A claims.

Exhibit D.13. Selected Medicare Part B and Part A Provider Incentives and Penalties

Incentives/Penalties	Effective Date	Description	Approach to computing Medicare spending without incentives/penalties
Part B			
eRX Negative Adjustment Reduction Amount	Jan 2012	Section 131 of the Medicare Improvements for Patients and Providers Act of 2008 (MIPAA) requires CMS to apply this negative payment adjustment (penalty) to any eligible professional who is not a successful e-prescriber under the eRx Incentive program.	Since the negative payment adjustment is applied to the physician fee schedule shared between Medicare (80 percent) and the beneficiary/secondary payer (20 percent), we add 80 percent of the penalty amount back to the Medicare payment amount on the carrier claim.
Ambulatory Surgical Center Quality Reporting Payment Reduction	Jan 2014	Ambulatory surgical centers that do not successfully meet the Ambulatory Surgical Center Quality Reporting Program requirements receive a negative payment adjustment.	
EHR Meaningful Use Negative Payment Adjustment	Jan 2015	Eligible professionals who are not meaningful users of certified Electronic Health Record (EHR) technology incur this penalty, as part of the Medicare EHR Incentive Program.	

Incentives/Penalties	Effective Date	Description	Approach to computing Medicare spending without incentives/penalties
PQRS Negative Payment Adjustment	Jan 2015	Eligible professionals who do not participate in the Physician Quality Reporting System (PQRS) program incur this penalty. PQRS is a quality reporting program that encourages individual eligible professionals and group practices to report information on the quality of care to Medicare.	
Value Modifier Payment Adjustment	Jan 2015	Eligible professionals who do not participate in the Physician Quality Reporting System (PQRS) program incur this penalty. Eligible professionals also earn a negative Value Modifier payment adjustment based on their performance on quality and cost measures relative to their peers.	
Value Modifier Positive Payment Adjustment	Jan 2015	Eligible professionals earn this incentive based on their performance on quality and cost measures relative to their peers.	Since the positive payment adjustment is applied to the physician fee schedule shared between Medicare (80 percent) and the beneficiary/secondary payer (20 percent), we subtract 80 percent of this penalty amount back to the Medicare payment amount on the carrier claim.
Part A Incentives/Penalties			
Hospital Readmissions Reduction Program	Oct 2012	The ACA (Section 3025) requires CMS to reduce payments to subsection (d) Inpatient Prospective Payment System (IPPS) hospitals with excess readmissions.	We add 100 percent of this penalty amount back to the Medicare payment amount on the inpatient hospital claim.
Value Based Purchasing Program	Oct 2013	Under the Hospital Value Based Purchasing (HVBP) program, an incentive or penalty adjustment is made to certain Inpatient Prospective Payment System (IPPS) hospitals based on their Total Performance Score (TPS).	We subtract 100 percent of the incentive amount from the Medicare payment amount on the inpatient hospital claim.
EHR Meaningful Use Negative Payment Adjustment	Oct 2014	Hospitals and facilities that are not meaningful users of certified Electronic Health Record (EHR) technology incur a penalty as part of the Medicare EHR Incentive Program.	We add 100 percent of this penalty amount back to the Medicare payment amount on the Part A claim.

Definition of Spending Measures

To compare the Medicare payments for NGACO and comparison group beneficiaries, we used four spending measures:

- **Actual Medicare Spending:** Total Medicare Part A and Part B spending per beneficiary per month. Includes all Part A and Part B spending on claims through alignment end date, dividing by the number of aligned months for each beneficiary. This amount includes incentives and penalties from value-based programs.
- **Medicare Spending without Incentives/Penalties:** Total Medicare Part A and Part B spending amount per beneficiary per month, subtracting the total amount of incentives and adding the total amount of penalties from value-based programs, as summarized above in Exhibit D.13. Includes all Medicare Part A and Part B spending on claims through alignment end date, minus the incentives and/or penalties incurred.

- **Total Incentives/Penalties:** Total Medicare Part A and Part B incentives and penalties per beneficiary per month. Includes all incentives/penalties incurred on claims through alignment end date, adding penalties and subtracting incentives.
- **Total Incentives/Penalties due to PQRS, MU, and VM:** Incentives and penalties related to PQRS (Part B), MU (Parts A & B), and VM (Part B) per beneficiary per month. Includes all incentives/penalties incurred on claims through alignment end date, adding penalties and subtracting incentives.

We summarize our results in Appendix Exhibits G.28 and G.29.

Patterns of Care

In this this section we describe our approach to measuring patterns of care, that is, the extent to which aligned beneficiaries receive care from NGACO providers. The three patterns of care measures are as follows:

- **Contract penetration:** The proportion of participating providers' Medicare FFS revenue (measured as total paid qualified evaluation and management visits [QEM]) generated by their aligned beneficiaries.
- **Continuity of care:** The proportion of QEM visits to aligned NGACO beneficiaries delivered by participating NGACO providers.
- **Leakage:** The extent to which beneficiaries receive care outside of the provider network of the NGACO with which they are aligned. This measure was calculated as the proportion of payments for part A and select part B services provided to NGACO beneficiaries. Services in the denominator included a broad range of services that represent a significant portion of total expenditures.

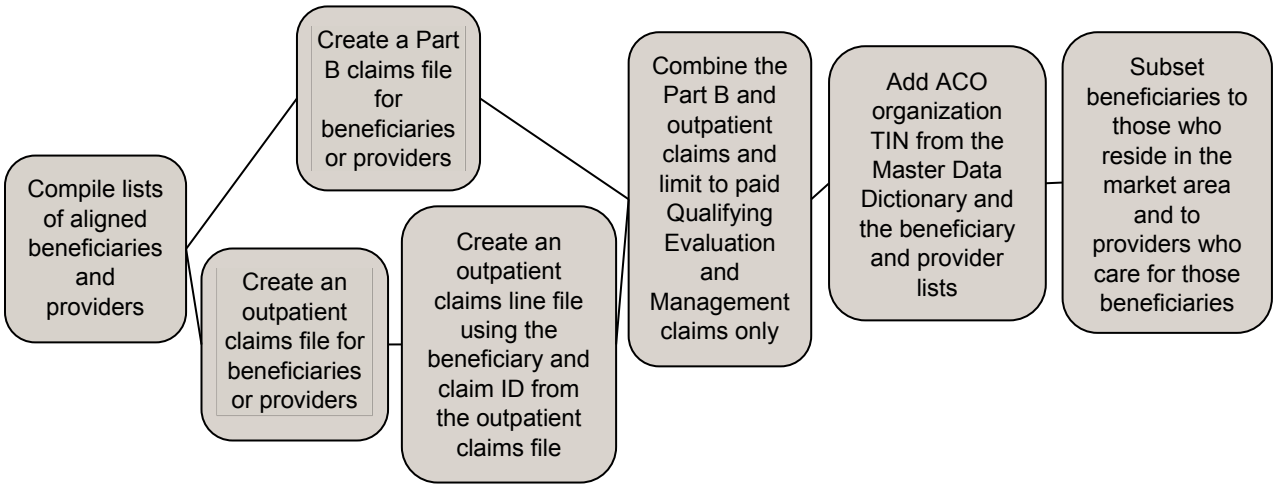
We examine three patterns of care measures to examine the extent to which aligned beneficiaries received care through their respective NGACO provider networks as observed in the first performance year of the 2016 NGACOs. For contract penetration and continuity of care, the provider network comprises all participating providers, but not preferred providers. For leakage, we have considered both participating providers and preferred providers as the NGACO provider network. The first two measures were also created for the comparison group's alignment-eligible providers and aligned beneficiaries. The remaining section details the methodology for constructing these measures of patterns of care, including data sources, analytic file creation, and calculation of the measures.

To assess patterns of care for the NGACO and comparison beneficiaries in 2016, we used 2016 carrier and Part A research identifiable files (RIF). We extracted claims based on beneficiary (beneficiary ID) and provider (TIN and Organization NPI) identifiers and used these claims to construct three separate analytic files. We created the first two files for the NGACO and comparison beneficiaries to measure patterns of care (Exhibit D.14 below) and the third file for the NGACO beneficiaries to assess leakage (Exhibit D.15 below). Beneficiaries in these analytic files were limited to those residing in NGACO market areas. These three analytic files are as follows:

1) **File for Continuity of Care for beneficiaries:** NGACO/comparison beneficiaries in 2016 who received qualifying evaluation and management (QEM)[48] services on carrier and outpatient claims in the year;
2) **File for Contract Penetration for alignment-eligible providers:** Alignment-eligible NGACO/comparison providers who were paid qualified carrier and outpatient QEM services in 2016, delivered to both NGACO/comparison and other beneficiaries; and
3) **File for Leakage for NGACO beneficiaries:** NGACO beneficiaries who had paid Part A (inpatient, outpatient, skilled nursing facility, home health, and hospice) and selected paid Part B (procedure, imaging, QEM, and chemotherapy) services in 2016.

Provider specialty on all files was determined by the claim line where possible and NPPES for claim types where the specialty was not populated (i.e. inpatient claims). Provider specialty was further categorized as primary care providers (PCP), [49] specialty providers,[50] other providers, and providers with missing specialties. Claims in the third file were classified into those from: acute short term care and critical access hospitals (ASTC and CAH), long term care, psychiatric, and rehabilitation facilities (LTC, psych, and rehab), skilled nursing facilities (SNF), home health (HH), other inpatient and hospice (other IP and HS), and federally qualified health centers, rural health clinics, and selected carriers (FQHC, RHC, and PB). We determined whether both the provider and beneficiary were aligned to the same ACO and where the beneficiary and provider were either part of different ACOs or one was not part of an ACO as non-ACO encounters.

Exhibit D.14. Creation of Analytic Files to Study Patterns of Care

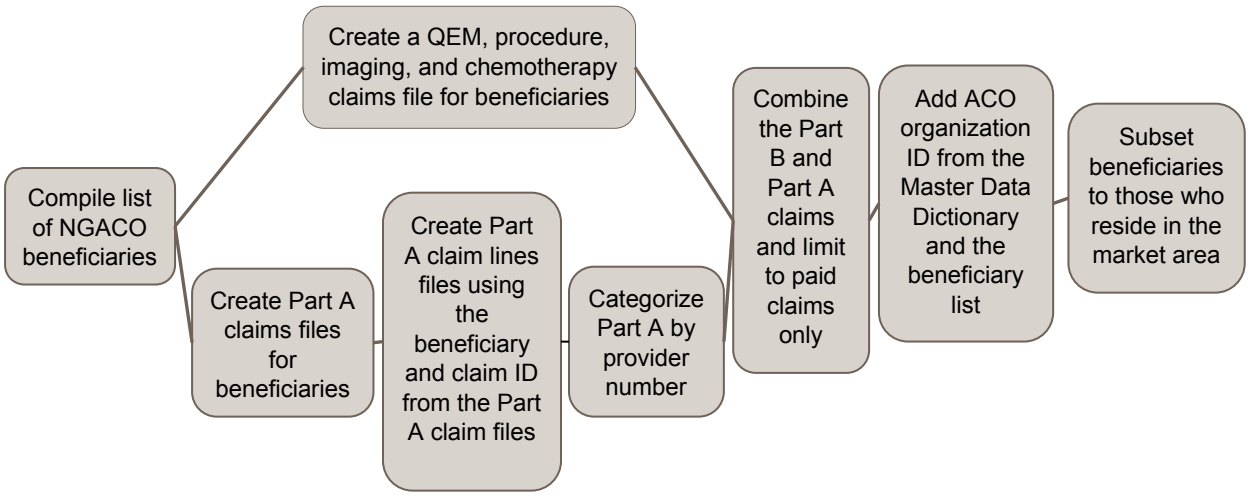


[48] Qualified QEM codes are the following: 99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99304, 99305, 99306, 99307, 99308, 99309, 99310, 99315, 99316, 99318, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99339, 99340, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350, G0402, G0438, and G0439.

[49] Primary care provider specialties: 01, 08, 11, 38, 50, 97.

[50] Specialty provider specialties: 06, 13, 29, 39, 46, 66, 83, 86, 90, 91, 92, 98.

Exhibit D.15. Creation of Analytic Files to Study Leakage



We calculated patterns of care measures to capture the extent to which prospectively aligned beneficiaries incurred claims from NGACO providers (participating providers for continuity and contract penetration). We used the first of the three analytic claims files to create a measure of continuity of care (Exhibit D.16) and the second analytic claims file to create a measure of contract penetration (Exhibit D.17). These measures were defined as follows:

- **Continuity of care for NGACO/comparison beneficiaries:** the percent of total paid QEM claims for beneficiary delivered by the NGACO/comparison provider (TIN/Org NPI) to which the beneficiary was aligned. Paid QEM claims to NGACO/comparison providers (TIN/Org NPIs) to whom a beneficiary was aligned were counted as a numerator encounter, while all paid QEM claims for the beneficiary were counted towards the denominator.
- **Contract penetration score for NGACO/comparison providers:** the percentage of total paid amounts for paid QEM claims for providers attributed to NGACO/comparison beneficiaries who were aligned to same NGACO. Paid amounts for paid QEM claims to NGACO/comparison beneficiaries were included in the numerator, while the total paid amount for paid QEM claims for all beneficiaries were included in the denominator.
- **Leakage for NGACO beneficiaries:** the percentage of paid amounts for all Part A services and selected carrier services for NGACO beneficiaries who have all claims furnished by only NGACO-affiliated providers (participating and preferred), at least 50 percent of claims furnished by NGACO-affiliated providers, at least 50 percent of claims furnished by non-NGACO providers, and all claims furnished by non-NGACO providers. The denominator of the percent is the total paid amount for the four categories.

Exhibit D.16. Calculating Measure for Continuity of Care

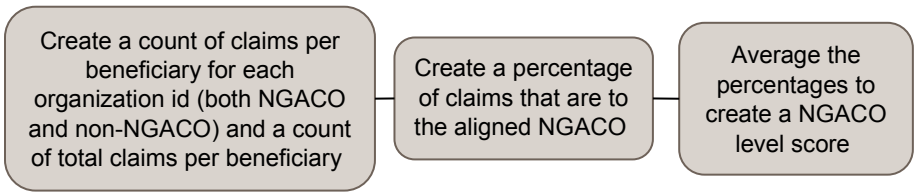


Exhibit D.17. Calculating Measure for Contract Penetration

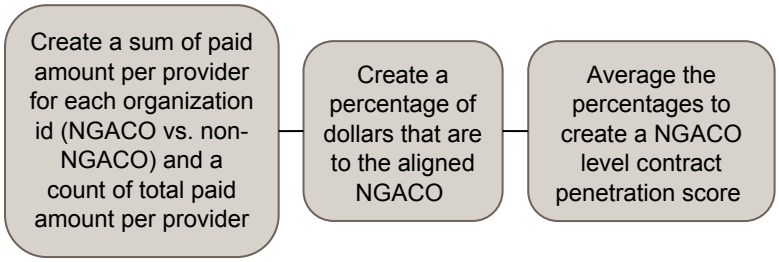
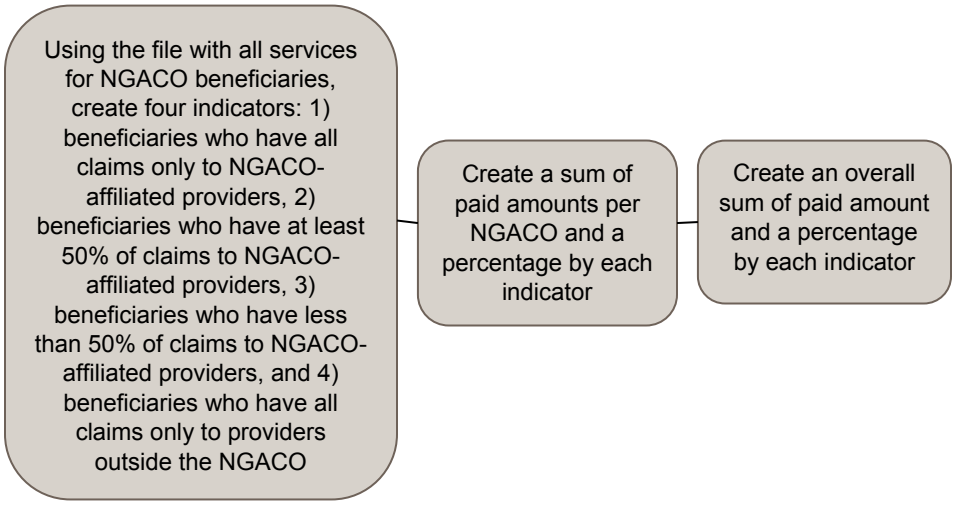


Exhibit D.18. Calculating Measure for Leakage



Appendix E: Survey Methods

Data Sources

NORC is implementing three surveys over the course of the evaluation. Each survey will include questions that address multiple constructs from the conceptual framework:

- The **Leadership Survey** includes 12 domains related to model features, implementation experience, as well as sustainability and replicability
- The **Physician Survey** includes 12 domains related to clinician motive to participate in the NGACO Model, perception of it, questions related to implementation experience, and also sustainability and replicability
- The **Beneficiary Survey** includes nine domains related to beneficiary engagement and experience with the NGACO Model

Key Measures

Exhibit E.1 provides the full list of domains and the research questions to be addressed by each, sorted according to NORC's three surveys.

Exhibit E.1. Survey Domains and Associated Research Questions

Source	Conceptual Framework	Domains	Research Questions
NGACO Leadership Survey	**Model Features**	Governance and Organizational Structure	1, 12.b.ii
		Past Experience	1.a., 2.a, 12.b.i
		Finances and Management	1.b, 9.b
		Workforce	12.b.v.
	Implementation Experience	Performance Monitoring	10.a
		Beneficiary Engagement	8, 15b
		Care Improvement Efforts	2.c, 3, 3.a, 3.b, 3.c., 3.d, 7.c, 9.c, 12.c, 12.c.i, 12.c.iii, 12.c.iv, 12.c.v, 12.d.iv
		Provider Engagement	12.b, 12.c.ii
		Health IT	12.b.iii
		Benefit Enhancement Waivers	1, 1.a, 1.b, 1.c, 2, 2.a, 2.b
	Sustainability and replicability	Benefit Enhancement Waivers - Challenges	12.a
		Other Challenges/Successes	15, 15.a, 16

Source	Conceptual Framework	Domains	Research Questions
NGACO Physician Survey	**Motivation for Participation**	Organizational Structure – Physician's Relationship to the ACO	1, 2, 2.b
		Organization Structure – Compensation and Financial Risk	10, 10.a
		Motivating Factors for ACO Participation – Physician Engagement	14, 14.a
	Clinician Perception	Awareness	3, 4.c
		Performance Data	10
		Changes since Starting Participation in the Next Generation ACO Model	7
	Clinician Implementation Experience	Health Information Technology (IT) and Data Monitoring – Current Activities	12.b.iii
		Care delivery approaches	2.c, 3, 3.a, 3.b, 3.c, 3.d
		Implementation Experience – Benefit Enhancements	1, 1.a, 1.b, 1.c, 2, 2.a, 2.b, 14.b
		Annual Wellness Visit	7
	Sustainability and Replicability	Perceptions of Impact	7, 7.a, 7.b, 7.c
		Big Picture Questions	7, 7.a, 7.b, 7.c
NGACO Beneficiary Survey	**Beneficiary Engagement**	Knowledge of ACO Alignment/Web Portal	3.a, 4.c, 8, 8.b
		Patient Activation	4.c, 8
		Annual Wellness Visit	8, 9, 9.a
		Care Transitions	8.a, 9, 9.a
		Home Health Waiver	8.a, 9, 9.a
		Skilled Nursing Facility Waiver	8.a, 9, 9.a
		Telehealth Waiver	8.a, 9, 9.a
		Chronic Conditions	8.a, 9, 9.a
		Social Determinants of Health and Health Status	8.a, 9, 9.a

A review of the applications from the 2016 NGACO starters provided the backbone for both the focus and the content of all qualitative and survey instruments, and related protocols. Using information gathered from the data reviews and also from the initial telephone interviews completed with the 2016 NGACO starters, NORC prepared draft survey questions. For example, content provided by NGACO staff during phone interviews with members of NORC's qualitative data collection team, was incorporated into the initial versions of each of the Leadership and Physician Surveys. In addition, data from other secondary sources, including high quality surveys and reports with similar goals, prompted identification of new questions and fine-tuning of existing ones.

After several rounds of internal revision, draft survey instruments were then reviewed by subject matter experts to ensure that question terminology and content were relevant to the identified target population and to the goals of the evaluation. Input was sought from practicing physicians and other seasoned health care professionals, as well as from authorities with experience and knowledge of ACOs.

Usability testing was completed after the initial computer programming was finished (more information about the programming and fielding methodology is provided below). Usability testing ensures that each question is asked in the correct order and of the right population, while validation ensures comprehensive testing of all three surveys. Key details about each survey are provided below:

NGACO Leadership Survey. This survey will be one of the key data sources for tracking the experience of each ACO's leadership team with the model and their implementation of it. It complements and builds off of the baseline leadership interviews by systematically asking ACOs to provide detailed responses to questions that may have been discussed generally in the interviews, or not asked consistently across all ACOs. It also seeks new information on topics of importance to our conceptual model of NGACO.

- **Timing.** This survey will be conducted annually for each group of NGACO starters, see Exhibit E.2 below.
- **Population.** Census of ACO leadership and administrators.
- **Mode.** Web, with emailed invitation letter. NORC and CMMI will send reminder emails and will follow up by telephone with non-respondents as necessary.
- **Length.** On average about one hour for all respondents.
- **Questionnaire sources.** American Hospital Association's Survey of Care Systems and Payment, National Survey of ACOs, qualitative research, and previous telephone interviews.
- **Special segments.** Special segments may include NGACOs that opt to implement or discontinue model features and benefit enhancements during the course of the evaluation, depending on findings from other data sources.

NGACO Physician Survey. This survey will provide insights from the perspective of model participants who are on the front line of care delivery.

- **Timing.** This survey will be conducted annually for each group of NGACO starters, see Exhibit E.2 below.
- **Population.** Sample of 10,500 participating and preferred clinicians with a target of 4,200 completes.
- **Mode.** Web, with emailed advance letter. Reminder emails and telephone follow ups with non-respondents as necessary.
- **Length.** Up to 20 minutes.
- **Questionnaire sources.** Commonwealth Fund/Kaiser Family Foundation's 2015 National Survey of Primary Care Providers
- **Special segments.** We will stratify or oversample physicians who use benefit enhancements such as telehealth services. The survey also has a set of questions for physicians who were in the model but who are no longer involved, designed to understand their reasons for discontinuing participation.

NGACO Beneficiary Survey. The Beneficiary Experience Survey will complement each ACO's Consumer Assessment of Healthcare Providers and Systems (CAHPS®) survey of a patient's experience of care.

- **Timing.** This survey will be conducted bi-annually (2018 and 2020) for each group of NGACO starters, see Exhibit E.2 below.
- **Population.** Sample of 24,500 beneficiaries from all active NGACOs with a target of 9,800 completes.
- **Mode.** Telephone, with mailed hard copy advance letter.

- **Length.** Up to 30 minutes.
- **Questionnaire sources.** Medical Expenditure Panel Survey (MEPS) and ACO CAHPS®.
- **Special segments.** We plan to produce a special segment in a future report that examines the stratification of NGACO-aligned beneficiaries across benefit enhancements, such as telehealth services. We will oversample as needed if a normal random sample does not provide enough completed surveys.

Exhibit E.2. Timing of NGACO Surveys

	2016 Starters	2017 Starters	2018 Starters
Fall 2017	Leadership Survey		
Winter 2018	Physician Survey Beneficiary Survey	Leadership Survey Physician Survey Beneficiary Survey	
Winter 2019	Leadership Survey Physician Survey	Leadership Survey Physician Survey	Leadership Survey Physician Survey Beneficiary Survey
Winter 2020	Leadership Survey Physician Survey Beneficiary Survey	Leadership Survey Physician Survey Beneficiary Survey	Leadership Survey Physician Survey Beneficiary Survey

Fielding Methods

Two of NORC's three surveys implemented during this evaluation are designed as web surveys, while the third is designed to be administered as a phone interview. All three of the surveys will be implemented using NORC's state-of-the-art Computer Aided Interviewing (CAI) system, Voxco. Voxco, a modern, standards-compliant interviewing platform, consists of two major components: Voxco Command Center (VCC) and Voxco Online (VO).

The two web-based surveys, the Leadership Survey and the Clinician Survey, will be programmed using Voxco Online. To maximize response rates and also provide an optimal level of security, respondents will be sent a unique and secure URL. The VO interface has a number of features to optimize the user experience, including buttons to advance, backup, and break-off the interview, and also to re-start the survey where a user left off.

The Beneficiary Survey, which will be administered as a phone interview, will be programmed using Voxco Command Center (VCC). VCC serves as the case management system, facilitating efficient case tracking, as well as reporting on meaningful project metrics, such as the number of break-offs, non-responders, and hours per case. Voxco's telephone survey software includes a set of functionalities that increase interviewer productivity. For examples, managers may listen to, record, and otherwise monitor calls to ensure that quality control standards are being met. The data are centralized and stocked real-time to ensure coordinated and efficient management. The system uses hybrid dialing to efficiently serve both inbound and outbound calls to the next available interviewer, thus limiting downtime and reducing hours per case.

Round 1 of the Leadership Survey. Members of leadership for the 2016 NGACO starters, identified via qualitative telephone interviews and through communication with CMMI, were invited to participate in the Leadership survey via email. The invitation included a brief description of the CMMI-sponsored evaluation, and confirmed that participation is entirely voluntary and individual responses will remain confidential. Participants were informed of the anticipated time needed to complete the survey, and were provided contact information for each of NORC's Institutional Review Board (IRB) and the evaluation project director. Finally, the email included a link to the web survey, with an access PIN which could be shared with other members of the NGACO's leadership team.

NORC's survey team routinely monitors completion rates to reduce accidental or inadvertent non-responses due to timing or distraction. Accordingly, approximately three weeks after the survey went live, NORC sent follow-up emails to sites from which there had been no response, or an incomplete response, to encourage participation. In a final effort, NORC, with agreement from CMMI, called the NGACOs directly, and CMMI also reached out to the non-responders.

Round 1 of the NGACO Leadership Survey was fielded from September 3, 2017 to November 20, 2017. Fourteen NGACOs completed the survey and one partially completed it out of the 16 NGACOs in the 2016 starter group. At the time of this writing, revisions are currently underway for the second round of the Leadership Survey, and the next iteration will be completed in late January 2018, with planned roll-out beginning in March 2018 for the 2017 NGACO starters.

Round 1 of the **Beneficiary Survey** will be fielded as a phone interview for 16 weeks with a targeted start date of February 28, 2018. A sample of beneficiaries aligned with all NGACOs active in 2018 will be selected, stratified and oversampled, as needed, to target the following segments: (1) beneficiaries aligned with NGACOs that used at least one of the available benefit enhancements (2) beneficiaries with three or more chronic conditions, (3) beneficiaries residing in "high" poverty areas. Since the sampling frame does not contain phone numbers, phone numbers will be obtained using Accurint locating services and other identifying details such as beneficiary address and Social Security Number. If Accurint cannot find a phone number, a new beneficiary with similar characteristics will be selected.

Beneficiaries will be sent an advance letter containing information about the survey and encouraging participation. After the advance letters have been sent, NORC trained telephone interviewers, fluent in either English or Spanish, will begin calling beneficiaries using the Voxco telephone survey software. The Voxco software will use predetermined calling rules so that beneficiaries will be called at different times of the day and voicemail messages will be left at controlled intervals. The survey will be conducted over the phone in either English or Spanish.

Round 1 of the **Clinician Survey** will be fielded as an online survey for six weeks with a targeted start date in early April 2018. A representative sample of participating and preferred physicians who are primary care specialists will be selected from a list of all physicians aligned with NGACOs active in 2017. Clinicians will be stratified according to the following segments: 1) SSP and Pioneer ACOs that switched to the NGACO model, and (2) NGACOs that opt to implement or discontinue model features and benefit enhancements during the course of the evaluation. Since only a subset of clinicians provide telehealth and home health visits, we will use claims data and program documents to identify and oversample this group.

Clinicians will be sent an invitation to participate in the survey by email that also includes a brief explanation of the evaluation, a secure link to the web survey, and a PIN number to access it. In the event of low response rates, NORC telephone interviewers, who are trained in refusal conversion, will contact non-responders to encourage them to complete the survey.

Analytic Methods

Recoding, Cleaning, and Imputation. The collected raw data will be recoded and cleaned to produce final analytic files. Responses flagged by the quality assurance process will be reviewed to assess their appropriateness and completeness. Depending on the extent and nature of the missing data, we will use an appropriate imputation method to create a final analytic data file with complete information on key variables. Each imputed variable will have a corresponding indicator variable identifying that its value was imputed.

Production of Sampling Weights. Post-stratification weighting and other approaches will be used to account for potential non-response bias. Survey weights will be trimmed to reduce the influence of overly influential outliers. Finally, the weights will be calibrated to match the population of interest, and we plan to oversample certain groups of beneficiaries (e.g., those using benefit enhancements, persons with three or more chronic conditions, persons residing in high poverty areas).

Cross-sectional and Multivariate Analysis. We anticipate that many of the survey variables will be used as predictors in quantitative and mixed-methods analysis; future updates to this report will include detailed descriptions of survey analyses once developed. For analyses where the dependent variable is a survey variable, we will conduct multivariate analyses of the data from the three NORC surveys—the Leadership, Physician, and Beneficiary Surveys—after linking these data to analytic files containing NGACO, provider, beneficiary, and market-level variables for multivariate adjustments.

Appendix F: Qualitative Methods

Data Sources

This report draws on two qualitative data sources related to the 2016 NGACO starters:

- Program documents, including applications, waiver requests, websites.
- Baseline telephone interviews that were conducted with members of the leadership from 16 ACOs between February and May 2017, each interview lasting approximately 90 minutes.[51] We did not conduct interviews with ACOs that had withdrawn from the model within the first performance year (WakeMed, OSF, or Prospect). The interviews informed development of the ACO leadership survey instrument.

Key Measures

Qualitative data collection focused on 14 key domains. Exhibit F.1 lists these domains, and related sub-domains, along with the associated research questions. This domain list guides the document review, interview guides, and coding of all qualitative data collected throughout the course of the evaluation.

Exhibit F.1. Qualitative Domains, Subdomains, and Associated Research Questions

Conceptual Framework	Domain	Subdomain	Research Question
ACO Context	**Market Characteristics**	Market size	12e
		Competition between ACOs	12e
		Legal/regulatory context	12e
		Medicare Managed Care penetration in area	12e
	Context: Community, State, National Partnerships/ Policies/ Resources	Relationships with community-based organizations	1, 1b; 2-2b; 12c
		Regulatory conditions; local and state policies	12e
ACO Structure	**Organizational Structure**	Location	1
		Rural counties	1
		Hospital participation	1
		Ownership – business structure	1; 12b
		Tax structure	1; 12b
		ACO legal entity	1; 12b
		ACO core organization	1, 1b; 12b
		ACO governance structure	1, 1b; 12b
		Beneficiary representation on board	1, 1b; 12b
		Payer mix	1
		Prior ACO/ACO-like experience	1, 1a; 2-2b; 12b
		Participation in other CMMI initiatives	1, 1a; 2-2b; 12b
		Length of participation in CMMI initiatives	1, 1a; 2-2b; 12b

[51] The qualitative baseline interviews were distinct from the close-ended ACO leadership survey.

Conceptual Framework	Domain	Subdomain	Research Question
	ACO Workforce	Characteristics, structure, and relation to the parent organization	1b; 12b
		Provider experiences	4-4d; 10-10d; 12b
		Provider and clinician motivation for participating in the model	4-4d; 10-10d; 12b
		Provider characteristics	4-4d; 10-10d; 12b
	Health IT Capacity	Health Information Exchange	1, 1b; 2-2b, 3b; 12b
		Infrastructure and interoperability	1, 1b; 2-2b, 3b; 12b
		All payer claims database	1, 1b; 2-2b, 3b; 12b
	Provider Arrangements	Network size & composition	1, 1b; 3; 4, 4a, 4c; 12b
		Role of primary care providers (e.g., independent vs. staff)	1, 1b; 2-2b, 3b, 3c; 4a-4d; 12b-12c
		Specialist referral arrangements (specialty neighborhood, networks, preferred networks)	1, 1b2-2b, 3b, 3c; 4-4d; 12b-12c
		Arrangements with skilled nursing facilities	1, 1b; 2-2b, 3b, 3c; 4-4d; 12b-12c
		Arrangements with home health services	1, 1b; 2-2b, 3b, 3c; 4-4d; 12b-12c
		Arrangements with emergency departments	1, 1b; 2-2b, 3b, 3c; 4-4d; 12b-12c
		Arrangements with community services	1, 1b; 2-2b, 3b, 3c; 4-4d; 12b-12c
		Practice transformation support (e.g., workflow redesign)	1, 1b; 2-2b, 3b, 3c; 4-4d; 12b-12c
		Physician engagement strategies (e.g., bonus payments tied to performance)	1, 1b; 2-2b, 3b, 3c; 4-4d; 12b-12c
		Nursing engagement strategies	1, 1b; 2-2b, 3b, 3c; 4-4d; 12b-12c
		Feedback & reporting processes	1, 1b; 2-2b, 3b, 3c; 4-4d; 12b-12c
		Use of incentives for accountability	1, 1b; 2-2b, 3, 3b; 4a
		Provider satisfaction	10
		Challenges identified	1; 10c
Providers	**Provider Structure**	Number of participating physicians, hospitals, primary care, specialty care	4, 4a, 4c
Patient Population	**Patient Population (attributed/ non-attributed)**	Demographics	1; 12d
		Morbidities/health status	1; 12d
		Demographics (Qualitative)	1; 12d
		Risk factors	1; 12d
		Approach	1; 12d
		Intervention population	1, 12a
		Vulnerable populations/subgroups	1; 9c; 12d
ACO Process	**Care Management Strategy**	Primary strategy used to enhance care	5c; 6b; 12c; 15b;
		Behavioral health integration with primary care	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Team-based approach	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Chronic disease management	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Medication management	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Preventive care	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Acute case management	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Approaches to identifying and engaging high-risk patients	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Telemedicine (Benefit Enhancement)	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Post-discharge home visits (Benefit Enhancement)	1, 1b; 2-2b, 3, 3b; 8a; 12a
		3-Day SNF rule waiver (Benefit Enhancement)	1, 1b; 2-2b, 3, 3b; 8a; 12a

Conceptual Framework	Domain	Subdomain	Research Question
		Other care improvement strategies	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Other care coordination strategies	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Home care	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Population health	1, 1b; 2-2c; 3a-3d; 5c; 6b; 7d; 12c
		Beneficiary engagement strategies (general, clinical programs)	1, 1b; 2-2c, 3b, 3c; 5c; 6b; 7c-7d; 12c
		Access to community services	1, 1b; 2-2c, 3b, 3c; 5c; 6b; 7c-7d; 12c
		Enhanced access to primary / specialty care	1, 1b; 2-2c, 3b, 3c; 5c; 6b; 7c-7d; 12c
		System for patient access to consistent / evidence-based health information	1, 1b; 2-2c, 3b, 3c; 5c; 6b; 7c-7d; 12c
		Processes and tools for patient-focused care	1, 1b; 2-2c, 3b, 3c; 5c; 6b; 7c-7d; 12c
		Health risk assessments/prospective risk assessments	1, 1b; 2-2c, 3b, 3c; 5c; 6b; 7c-7d; 12c
	Implementation	Drivers if organizational and operational change in the ACO	1
		Referral process	1, 1b; 2-2b, 3b; 6d
		Timeliness of care	1, 1b; 2-2b, 3b; 7b
		Beneficiary engagement strategies	1, 1b; 2-2b, 3b
		“Gaming the system”	1, 1b; 2-2b, 3b; 11a
		Fidelity, description of changes to plan and why the changes occurred.	1, 1c
		Sustainability	10b, 16
		Unintended behavioral responses	11
	Motivation for Participation	Overall organizational motivation for participation	14a-14e
		Organizational motivation for selecting model features/benefit enhancements	14b, 14c
		Reasons for withdrawing from the model	14d-14e
Model Features	**Financial Features**	Payment mechanism (how providers are paid)	1, 1b; 2-2b; 3; 10b, 12a
		Risk sharing	1, 1b; 2-2b; 3; 12a
		Provider Incentives	10
	Next Gen Benefit Enhancements	Medicare payment rule waivers	1, 1b; 2-2b, 3, 3b; 8a; 12a
		Telehealth expansion	1, 1b; 2-2b, 3, 3b; 8a; 12a
		Post-discharge home visits	1, 1b; 2-2b, 3, 3b; 8a; 12a
		3-Day SNF rule waiver	1, 1b; 2-2b, 3, 3b; 8a; 12a
Performance	**Beneficiary Outcomes/ Experiences**	Planned and unplanned changes in the delivery of unnecessary/ preventable care	15
		Ability to manage their own care/health	8-8b
		Perceived improvements in quality of care relative to FFS Medicare	3a
		Access to services	9-9c
		Ability to manage their own care/health	8-8b
		Perceived improvements in quality of care relative to FFS Medicare	3a
		Access to services	9-9c
Model Replicability	**Variation/Replicability**	Challenges/barriers/lessons learned	12-12f; 13-13b, 15a
		Facilitators	12-12f; 13-13b
		Replicability/Variation	12-12f; 13-13b

Data Collection

Document Review. We conducted a standardized review of the applications from the 2016 NGACO starters. We developed a standardized instrument in Excel to catalog the information that the ACOs had provided in their applications. Exhibit F.2 lists the domains and categories captured.

Exhibit F.2. Document Review Abstraction Tool with Definitions (2016 NGACOs)

Domain	Category	Definition and Inclusion Criteria
Organizational Structure	State	List of state(s) where the ACO is active
	ACO core organization	Integrated delivery/health system, network of individual group practices, medical group practices, partnership of hospital systems and medical practices, independent multispecialty groups, independent primary care physician groups, other coalitions
	Ownership: Business structure	Sole Proprietorship, Partnership, Publicly-Traded Corporation, Privately-Held Corporation, Limited Liability Company, Other
	Organization providers	Cancer or specialty hospitals; psychiatric hospital or other mental or behavioral health facility; Hospital(s) receiving disproportionate share (DSH) payments or uncompensated care payments from Medicare or Medicaid; Critical Access Hospital (CAH); Other rural hospital; Federally Qualified Health Center (FQHC); Other community health centers; Skilled nursing facility (SNF); Inpatient rehabilitation facility (IRF); Home Health Agency (HHA); Other post-acute care facility
	Beneficiary representation on Board	Yes/No
	Provider representation on board	Yes/ No
	Revenue from different payers	Medicare FFS, Medicare Advantage, Medicaid, Private, Dual Eligibles, Self-Pay Patients, Other
	Prior experience with Medicare Advantage, ACOs, risk-based contracts, or outcomes-based contracts	New Applicant, ACO Investment Model, Advance Payment ACO Model, Pioneer ACO Model, Commercial ACO contracts, Medicare Advantage, Risk-Based Contracts
		Participation in other CMMI Initiatives
Patient Population	Description of intervention population	Characteristics of intervention population
Market Characteristics	Competition	Includes competition in the market between providers
		Includes competition in the insurer market.
Financial Features	Payment Mechanisms	FFS, FFS with infrastructure payment, reduced FFS with population-based payment (PBP), all-inclusive PBP
	Planned changes in payment mechanisms	Includes whether the ACO specifies whether they plan to change to a different payment mechanism in future years.
	Risk sharing	Risk Arrangement B (100%), Risk Arrangement A (80%)
	Other	Whether the ACO specifies any other details related to payment mechanisms or risk-sharing that is not captured in the drop down lists.
Care Improvement Strategies	Behavioral health integration with primary care	Includes access to behavioral health care providers, coordination with primary care, embedding behavioral health providers in primary care (or vice versa), or integration of appropriate behavioral health, depression, and substance abuse screening tools into medical records, practice care flow, or patient care plans.
	List of team-based providers	Listing of the providers on team-based care programs
	Specific chronic diseases targeted	Listing of any specific chronic conditions that the ACO is targeting

Domain	Category	Definition and Inclusion Criteria
	Medication management	Includes components such as: reconciliation of medications, monitoring drug-drug interactions and patient adherence, optimization of generic utilization, and management of high-cost specialty medications.
	Preventative care	Identifies gaps in preventive services and provides patient and provider reminders about immunizations, diagnostic screenings, and routine visits. General health and wellness for all beneficiaries.
	Hospitalizations and care transitions	An episodic, complex care management and care transitions program coordinated with or by a primary care provider. It tracks and manages care across the continuum for patients who are at very high risk and/or are transitioning from a facility or between sites of care.
	Interventions for high-risk patients	Description of target populations
	Telemedicine	Initiatives around telemedicine undertaken by the ACO. Motivation for why the ACO is opting into the benefit enhancement can be entered into the motivation tab.
	Other care improvement strategies	Description of other care improvement strategies
	Self-management programs	Include using evidence-based programs (such as peer-to-peer chronic disease self-management support programs) to engage patients in their care and to support self-management of chronic conditions.
	Patient education regarding NGACOs	Providing patients with descriptions of the Next Generation ACO coordinated care reward, and establishing a process to solicit feedback and suggestions.
	Care plans and needs assessments	Includes individualized care plans, patient engagement processes, or patient needs assessments. Individualized care plans specify patients' preferences, functional goals, barriers to care, and self-management plans. Patient engagement processes promote patients' self-management skills and knowledge. Patient needs assessments are regularly scheduled assessments of needs in the areas of behavioral health, physical health, social support, transportation, culture, language, numeracy, and health literacy.
	Enhanced access to primary/specialty care	Open-access scheduling system that, for example, reserves space in schedules for same day appointments and additional weekday or weekend hours to optimize patients' access to care, especially for urgent needs. It also includes a direct access system that provides patients with access to nurse triage, pharmacy refills, appointment scheduling, or answers to clinical questions 24 hours a day, 7 days a week.
	Existence of patient portal	Provides information that is endorsed by clinical leaders, coordinated between patients' providers across the care continuum, and consistent with standardized clinical pathways that are developed with providers across the continuum.
	Access to Community Services	Systems or processes to connect patients with community-based services and supports, such as Meals on Wheels and respite care for family caregivers.
Provider Structure	Number of participating physicians	The total number of ACO participating physicians for whom the ACO is their primary employer. Physicians whose primary employer is a hospital or group practice directly owned by the ACO or one of its subsidiaries should be treated as physicians whose primary employer is the ACO.
	Physicians participating in multiple ACOs	The total number of ACO participating physicians for whom a non-ACO hospital (e.g. hospital that is not directly owned by the ACO or one of its subsidiaries) is their primary employer.

Domain	Category	Definition and Inclusion Criteria
	One or more ACO contracted physicians	The total number of ACO participating physicians for whom a non-ACO hospital (e.g. hospital that is not directly owned by the ACO or one of its subsidiaries) is their primary employer.
	One or more ACO contracted practices	The total number of ACO participating physicians whose primary employer is a non-ACO group practice (e.g. group practice that is not directly owned by the ACO or one of its subsidiaries)
Provider Arrangements	Specialist referral arrangements (specialty neighborhood, networks, preferred networks)	Description of specialty referral networks
	Arrangements w/ SNFs	Includes care plans, processes to avoid unnecessary ED transfers, protocols for transitions of care, medication reconciliation, medical record exchange, coordination with primary care, and SNF quality and efficiency performance monitoring to recommend SNFs for the ACO's patients.
	Arrangements w/ home health services	Includes risk assessments, education, and services delivered at home including biometric electronic monitoring, protocols for transitions of care, medication reconciliation, medical record exchange, and home health quality and efficiency performance monitoring to recommend home health agencies for the ACO's patients.
	Arrangements w/ emergency departments	Includes safe handovers between providers, rapid communication and coordination with primary care when patients present to the ED, and connectivity with ACO primary care provider assignment processes, case management, and disease management.
	Arrangements w/ community supports	Includes formal arrangements with community groups, such as those working in transportation, food, adult day activities, or support groups.
	Practice transformation support (e.g. workflow redesign)	Drives improvement in productivity, efficiency, quality, safety, and patient experience in care delivery. Processes include key stakeholders in the redesign of workflows, including primary care, specialists, and acute and post-acute care facilities. In addition, processes prioritize and evaluate improvement opportunities across the care continuum and are data-driven, including but not limited to using data from EHRs, primary care providers, and specialists.
	Physician engagement strategies	Includes clearly defining the value proposition of current or future ACO participation through regular one-on-one outreach to physicians; a strategy can also include engaging providers through co-management or professional service agreements as well as provider involvement in ACO governance and committees.
	Nursing engagement strategies	Provides inpatient and ambulatory nursing leadership education and involves nurses in strategic and operational committees to optimize the adoption of population health management strategies.
	Use of incentives for accountability	Description of how and to what extent ACO's tie shared savings or other incentives to provider performance on quality measures, utilization, and or cost.
Continuum of Care	Integrated health information technology plan across the care continuum	The result of a process that coordinates technology, clinical, and administrative strategies. Health IT plan components include data management, reporting requirements, operations-enabling technology, and the ability to work across multiple EHR systems. In addition, an integrated health IT plan identifies the requisite budget, leadership, staff, and roadmaps for ongoing operations.
	Program to standardize data capture and documentation	Includes data governance structures, an enterprise master person identifier, consistent data terminology, and standard formats for data exchange between providers.
	System to integrate payer-adjudicated claims	Integrates payer enrollment, claims, and encounter data to support ACO analytics, reporting, and clinical and administrative business intelligence needs

Domain	Category	Definition and Inclusion Criteria
	Process to analyze population attributes, risks and needs	Uses a variety of data about patients to segment populations into risk categories for appropriate interventions that address their needs. Example data sources to inform these in analyses include surveys, biometrics, medications, Hierarchical Condition Category scores, ED visits, admissions, socioeconomic status, or other risk factors.
	Real-time alerts about risks or gaps in care	Leverage technology to implement clinical decision support for established evidence-based care pathways, such as gaps in care alerts at the point of care, imminent risks of adverse events, and known social barriers to care that need to be addressed by providers.
	Process to analyze provider and efficiency performance	Uses a variety of clinical and administrative data sources (such as those from EHRs, claims, and providers) to identify opportunities for improvement and monitor performance improvement over time across inpatient, post-acute, and ambulatory settings. Analysis of provider quality and efficiency performance may be tied to incentives for providers to optimally serve the ACO's patients.
Motivation for Participation	Overall organizational motivation for participation	Includes the organizations mission or business statements regarding participating in the NGACO program.
	Organizational motivation for selection model features/ benefit Enhancements	Includes how the organizations chosen model will further their mission or business model, based on the organizations individual motivations for participation.

Baseline Telephone Interviews. We conducted 90-minute semi-structured telephone interviews with leadership from each 2016 NGACO starter. The purpose of these initial interviews was to understand ACO characteristics and the combinations of factors related to design and implementation, as well as to provide additional detail to the questions included in the NGACO implementation, beneficiary, and provider surveys. A three-person team conducted each interview. A senior member of the team led each discussion; the second person took high-level notes and confirmed that all key points were covered, and a third staff member took transcript-style notes. The interview protocol for the baseline telephone interviews was organized into modules of questions that addressed each research domain, shown below in Exhibit F.3.

Exhibit F.3. Telephone Interview Protocol

Section	Questions/Probes
Introductions	■ Introduce members of group ■ Thank you very much for your time today. ■ NORC at the University of Chicago is a not-for-profit research organization, and we are working with the Center for Medicare and Medicaid Innovation as the independent evaluator of the Next Generation ACO program. ■ I'm going to be leading this interview, but others may chime in with follow-up questions. ■ For this evaluation, we are speaking with the leadership of each ACO participating in the Next Generation ACO program to get a better understanding of how the ACO has been implemented, why decisions were made about its features and intervention strategies, and early lessons learned from your participation in the model. ■ This is considered a baseline interview, and we hope to speak with you and other colleagues annually for the next few years, including possibly an in-person site visit. As you may know from earlier communications, the evaluation also involves surveys of ACOs, clinicians, and beneficiaries, as well as analysis of claims data. ■ Just a few things before we get started. • We won't attribute anything you have to say as coming from you personally. We will keep your name confidential in any summaries or reports we make to CMMI or the public. • In general, our reports are a summary of what we've heard at a given stage by ACO. • You are also free to make comments "off record" in which case we will only consider them as background and will not even attribute them at the ACO level. Just please let us know if you'd like to make such comments. • We've scheduled this meeting to last 90 minutes. **If you need to stop for any reason**, that's fine. We know you are busy and may schedule a follow up interview or e-mail you to address any unanswered questions. We appreciate your participation. ■ We have **a member of our team from NORC taking notes** so we can write our reports, and we'd like to make an **audio recording** to help make sure we get everything. The notes and recording will only be used by NORC to write our reports. Is that ok? ■ Do you have any questions before we begin?
Organizational Structure and Governance	*We'd like to start with some general questions about your role and organization.* ■ How would you describe your professional role(s) in your NGACO? ■ Briefly, could you please describe your organization's motivation to apply? • What role, if any, did you position in your local health care market play in your decision? • What role, if any, did state-level policies or programs play in your decision? This could include regulations, Medicaid, health information exchange, other CMMI initiatives. ■ Please describe the organizational structure of your ACO. [For example, is the ACO organized around an integrated delivery system, physician independent practice association or large medical group? [*Application indicates it's a …*] • How, if at all, has your organizational structure changed since you began participating in the model? • Could you please tell us what has prompted these changes? ■ Please briefly describe your NGACO current governance structure. • How, if at all, does the current NGACO governance structure differ from previous governance models you have used? • In what ways has it been successful? • What challenges has it introduced or exacerbated?

Section	Questions/Probes

Previous Experience/ Building Capacity	Now we'd like to discuss your previous experience as an ACO and changes since joining Next Gen.
	■ Based on your application, we understand that you participated in …. How similar or different has your experience with the implementation of NGACO been compared with your experiences in these other outcomes-based payment models? How has your early performance in NGACO compared?
	  • What have been the most important differences between NGACO and other CMS-based initiatives your organization has participated in?
	  • What have been the most important differences between NGACO and other non-CMS based initiatives your organization has participated in, including any commercial ACOs you have participated in?
	  • How have you incorporated lessons learned from these other models into the design and operation of your NGACO?
	■ What changes were made specifically for the NGACO model with regard to organization, staffing, data analytics, consultants, and health IT?
	  • What was your ACO seeking to accomplish through these changes?
	  • How did your ACO decide what to prioritize in terms of changes?
	  • Have you been able to implement the changes as planned, or have you had to change course since starting NGACO?
	[Ask if anyone else has questions before moving on.]

Financial Modeling	The next few questions are about your financial model.
	■ **Please describe the process by which you decided upon your current risk-sharing arrangement and the rationale behind your decisio**n (Application says you chose … in your first year).
	■ **Please describe the payment mechanisms you are using under NGACO** (Application indicates ….)
	  • If you are retaining FFS, what is your rationale?
	  • How will you decide whether to change to other payment mechanisms?
	■ **Did you make any changes to either the risk level or payment mechanism between performance year 1 and now 2?**
	■ **Have you been able to accurately forecast medical expenses for your aligned population under the NGACO model?**
	  • What has made it easier or more difficult for you to predict those costs and budget accordingly?
	  • What proportion of the total medical costs for your aligned population do you believe can be influenced by actions taken by your ACO and its providers? ["Actions taken by your ACO" could be care management interventions, care coordination activities, improvement in clinical processes, participating or preferred providers included in the ACO's network, and other ACO-driven mechanisms? As an example an ACO might say that up to 10% of total medical costs could be saved.]
	  • **What factors are most likely to impact costs?**
	  • **What factors do you believe are out of your control with regard to beneficiaries' medical costs?**

Section	Questions/Probes
Activities related to clinician relationships, support and clinical process improvement	**Now, we'd like to turn toward provider engagement.** *Include brief summary of some key strategies for clinician engagement, describe in the application as either being under another program, like SSP, or are currently being used. For example, in Pioneer Valley we said:* **We understand that under the Medicare Shared Saving Program you implemented a number of activities to foster clinician relationships and influence provider performance – including allocating shared savings among physicians, allowing providers to compare their performance, and physician coaching.** ■ Have you implemented any new efforts or process to influence provider performance since you moved to the Next Gen model? • For those efforts already in place, what, if any, notable changes did you make to these activities for the NGACO model? ■ Of the various strategies for influencing provider performance that you currently have in place, which do you think have been most effective? Why? ■ What have been the biggest challenges with respect to engaging providers?

Activities related to managing care for beneficiaries, including beneficiary engagement	■ Have you made any notable changes in your approach to beneficiary engagement since moving to the Next Gen model?
	  • Have you implemented any new activities or strategies to engage beneficiaries and influence beneficiaries' health maintenance behaviors under Next Gen?
	  • Do you distinguish between aligned and unaligned beneficiaries with respect to these strategies?
	■ Have you extended any existing services to new populations because of Next Gen? For example, by offering care management services previously provided only to Medicare Advantage patients to Medicare FFS patients?
	  • What have been some of the key facilitators of—and barriers to—this expansion?
	■ Of the various strategies for engaging beneficiaries, which have been most effective with the populations you're serving? Why?
	■ Could you please describe anything your organization has done to promote voluntary alignment among beneficiaries?
	  • If not encouraging voluntary alignment, why not?
	  • If so, have your initiatives to increase voluntary alignment been successful or unsuccessful? Please describe why they have or haven't been successful.
	  • At this stage, have you seen any relationship between voluntary alignment process and patient engagement or activation in preventive behaviors, and ultimately your ACO's overall performance (i.e., cost, and quality)?
	■ Have you observed any important changes in the economic or demographic trends among your ACO's beneficiaries in your first performance year, and how has this affected your NGACO model of care?

Benefit Enhancements	An important component of the Next Gen model is the benefit enhancements, and understanding the effects of the benefit enhancements is an important piece of the evaluation. We'd like to discuss your experience implementing them to date. We understand it may be early on, but would like to get you thoughts on impacts at this time.
	■ For each of the benefit enhancements you are currently implementing– indicate which ones from application or ACO communication:
	  • To date, has the implementation been consistent with your plans? If not, how has it changed? What prompted those changes?
	  • What have been its major effects with respect to the patient population? Overall spending? Quality outcomes? Your ACO's day-to-day operations?
	  • Has implementation of the benefit been consistent with your ACO's expectations in terms of its utilization by patients, cost savings (e.g., from averted ED visits), other indications of improvements in the delivery of care?
	■ Can please explain why you decided not to implement (indicate whichever ones not participating in)?
	■ To the extent that there have been some surprises, please provide some examples.
	■ Do you plan to make any changes to the benefit enhancement options in Year 2?

Section	Questions/Probes

Closing	Thank you so much for all of the insights and knowledge you shared with us. In closing, we have just a few overarching questions about your experience as a Next Gen ACO in your first performance year.
	■ Has your NGACO's performance with shared savings or cost-containment met your expectations? Has your NGACO's performance in quality improvement met your expectations?
	  • How are you assessing performance in these areas?
	■ What do you see as the key drivers of your performance thus far related to cost-containment?
	■ What do you see as the key drivers of your performance thus far related to quality improvement?
	■ What's the one thing you are doing under the Next Gen Model that you believe is critical for you to succeed?
	■ What are your general thoughts on how sustainable the NGACO Model will be for your organization moving forward?
	■ In closing, do you have any lessons learned or recommendations from the first year of implementing Next Gen related to:
	  • Your care models and patient engagement?
	  • Motivating physician behaviors
	  • Data analytics
	  • Risk stratification
	
	Thank you for your time!

Analytic Methods

Analysis of qualitative data uses a thematic approach. We coded data into categories based on the key evaluation domains—the features of participant ACOs and their providers, the impacts of the model, variations in model impacts, and motivation and challenges in implementation. Our coding and analysis focused on identifying existing and emergent themes. Existing themes are topics derived from the study's research questions and categories, and emergent themes arise out of discussions with ACO leaders, staff, and beneficiaries. For example, under a code for organizational features, we may create emergent sub-codes of approaches to care, transitions with varying workforce models, or beneficiary engagement methods. A thorough qualitative understanding of the financial, organizational, and programmatic features of the NGACOs will help to identify key variables for quantitative analysis, and contribute to mixed-methods analysis of NGACO performance.

Coding Approach and Analysis. Our evaluation team started with the systematic review of the NGACO applications and program documents. Using the review, a senior team member prepared an initial codebook—including the categories and themes (i.e. codes), their definitions, an example of the code being applied, and source—to guide coding of data from interviews.

We used NVivo software (QSR International Pty Ltd., Melbourne, Australia) to code the interviews. Our approach to coding is both inductive and deductive from the outset, including the following steps:

1) Develop and define analytic categories, based on our research question and the salient analytic dimensions (e.g., NGACO-funded infrastructure and personnel).

2) Operationalize the research question and model-based analytic dimensions in the codebook, which provide clear and concise guidelines for categorizing all qualitative data collected.

3) Qualitative team refinements to the initial version of the codebook to ensure strong inter-coder reliability. Testing of intercoder reliability involved multiple staff coding samples of the same text using an initial codebook. We have revised the codebook and refined code definitions as needed to assure consistency across staff coding styles. The codebook will be routinely reviewed and refined at the outset of the coding of newly collected data, to take into account the complexity of the data and changes to the NGACO Model and implementation experience.

4) We developed a quality assurance protocol following best practices in qualitative research data analysis. Qualitative team staff collectively reviewed coded results and revised the codebook on an iterative basis. For example, during review, a general code for care coordination could be broken down into sub-codes for separating non-clinical needs and care transitions. Similarly, we may start with specific codes for perceptions of program effectiveness (e.g., emergency room [ER] visits, readmissions, costs) but find too much overlap between the codes to make a meaningful distinction. Evaluation team members, which included technical advisors at the University of Minnesota, assisted in reviewing and coding data to enhance the analysis and concordance of the results.

Over the span of the evaluation, the team will use the most current version of the codebook to code the collected data. Team members will continue to flag coding ambiguities and develop new codes as needed. The team will regularly meet to address such issues and to continue to refine the codebook. A senior team member will also monitor inter-coder reliability to validate the qualitative results. Using NVivo's Compare query tool, inter-rater reliability will be calculated as the percent agreement between the first and second coder on coded text segments.

Finally, interpretation of qualitative data findings for each question is an ongoing process. Beginning with the analysis for this report, a team of qualitative experts evaluated coded data to identify emerging themes. In this way, and going forward, we will interpret qualitative data findings in a systematically iterative manner by exploring themes across ACOs. Analysis will involve reviewing findings by codes and across codes to qualitatively describe the interrelationship between organizational characteristics, history, implementation, and performance.

Appendix G: Comprehensive Quantitative Results

This section contains the results described in Appendix D above. The tables presented are as follows:

- Exhibits G.1 and G.2: Descriptive Characteristics of NGACO and Comparison Beneficiaries, Baseline and Performance Period, Before (G.1) and After (G.2) Weighting
- Exhibit G.3: Detailed Impact Tables for Spending, Utilization, and Outcomes for 2016 NGACOs
- Exhibits G.4 through G.19: Detailed Impact Tables for Spending, Utilization, and Outcomes for each NGACO
- Exhibits G.20 through G.26: Parallel Trend Results, First and Last Base Year, Medicare Spending, Utilization and Quality
- Exhibit G.27: Spillover: E&M Visits to Providers, by ACO Participation in 2016
- Exhibit G.28: Results of Comparison of Actual Medicare Payment and Medicare Payment without Penalties/Incentives, 2016
- Exhibit G.29: Average Penalties/Incentives, Total and Due to PQRS, MU, and VM, NGACO and Comparison Groups, 2016

NOTE: Data shown here for the 2016 Comparison group (PY1 only) include approximately 2.5 percent of beneficiaries who were in Shared Savings Program ACOs. These SSP ACO aligned beneficiaries were not able to be excluded until after data analysis had been completed, as data on SSP final alignment was not available prior analytic file creation. Future reports will remove final aligned beneficiaries.

Exhibit G.1. Descriptive Characteristics of 2016 NGACO and Un-Weighted Comparison Beneficiaries, Baseline and Performance Periods

	Baseline Period (2013-2015)		Performance Period (2016)		Relative Change
	NGACO	Comparison	NGACO	Comparison	
Number of beneficiaries	1,258,004	16,273,628	477,197	4,438,301	-
Total person-months	14,432,542	1.9e+08	5,491,979	52,135,185	-
Variables Included in Propensity Score Models					
Mean months of alignment (± SD)	11.5 ± 2.0	11.7 ± 1.4	11.5 ± 1.9	11.7 ± 1.4	0.0***
Mean age (years ± SD)	73.2 ± 12.3	73.4 ± 12.3	73.2 ± 12.0	73.3 ± 12.2	0.1***
Gender (%)					
Male	42.2	42.4	42.5	43.0	-0.3***
Race/Ethnicity (%)					
White	84.2	80.7	84.6	79.4	1.7***
Black	6.9	8.5	6.7	8.5	-0.3***
Hispanic	5.8	6.0	5.1	6.5	-1.2***
Asian	1.7	3.1	1.6	3.3	-0.2***
Other	1.4	1.7	1.9	2.3	-0.1***
Disability/ESRD (%)					
Disability	14.6	14.5	14.1	14.2	-0.3***
ESRD	1.1	1.1	1.0	1.0	0.0
Coverage (%)					
Any dual eligibility	21.5	24.3	19.9	23.6	-1.0***

	Baseline Period (2013-2015)		Performance Period (2016)		Relative Change
	NGACO	Comparison	NGACO	Comparison	
Any Part D coverage	71.3	73.0	74.9	76.0	0.6***
Chronic Conditions					
Mean number of chronic conditions (± SD)	5.0 ± 3.5	5.4 ± 3.7	5.2 ± 3.6	5.5 ± 3.9	0.0
Alzheimer's/dementia (%)	8.9	11.0	8.5	10.9	-0.3***
Chronic kidney disease (%)	17.1	17.1	19.6	19.7	-0.1*
COPD (%)	11.3	12.4	11.3	12.4	0.1
Congestive heart failure (%)	12.9	15.4	12.5	14.5	0.4***
Diabetes (%)	28.8	31.4	28.0	31.2	-0.5***
Ischemic heart disease (%)	28.1	33.0	26.6	31.1	0.5***
Depression (%)	18.1	17.5	19.1	18.6	-0.1
RA/OA (%)	32.2	34.9	32.8	35.8	-0.3***
Stroke/TIA (%)	3.8	4.1	3.6	4.1	0.0
Cancer (%)	9.1	9.2	9.1	9.1	0.1
Mortality (%)					
Death in reference period	4.1	4.6	4.0	4.5	-0.1
Community Characteristics					
Median income ($ ± SD)	58,291 ± 22,348	58,505 ± 23,398	59,559 ± 23,022	59,668 ± 24,296	105.5*
Below poverty line (% ± SD)	13.4 ± 8.7	14.0 ± 8.7	13.4 ± 8.6	14.2 ± 8.7	-0.2***
Bachelor's degree or higher (% ± SD)	29.0 ± 15.5	28.9 ± 16.6	30.1 ± 15.7	30.0 ± 16.8	0.0
Rurality (%)	19.3	21.8	19.1	20.1	1.5***
Alignment-eligible providers (per 1,000 population ± SD)	1.7 ± 1.0	1.6 ± 1.0	1.9 ± 1.1	1.8 ± 1.1	0.0***
HRR Characteristics					
ACO penetration rate (% ± SD)	34.9 ± 20.3	22.3 ± 14.7	56.6 ± 16.5	44.2 ± 14.4	-0.2***
Medicare Advantage penetration rate (% ± SD)	31.1 ± 15.0	32.2 ± 13.6	34.7 ± 15.2	37.8 ± 13.3	-2.0***
Hospital HHI (± SD)	2,604 ± 1,838	1,786 ± 1,146	2,966 ± 2,095	1,945 ± 1,299	202.1***
Practice HHI (± SD)	436 ± 419	265 ± 393	487 ± 427	296 ± 414	20.3***
Hospital beds (per 1,000 ± SD)	2.7 ± 0.5	2.7 ± 0.5	2.6 ± 0.5	2.6 ± 0.5	0.0***
Alignment-eligible providers (per 1,000 ± SD)	1.4 ± 0.3	1.3 ± 0.3	1.5 ± 0.4	1.4 ± 0.4	0.0***
Variables Excluded from Propensity Score Models					
Participation in Medicare ACOs (%)					
NGACO	0.0	0.0	100.0	0.0	-
Pioneer/SSP ACO	62.6	0.0	0.0	2.7	-
Comprehensive ESRD Care	0.0	0.0	0.0	0.0	-

NOTES: p<0.2+, p<0.1* p<0.05**, p<0.01***. COPD = chronic obstructive pulmonary disease; ESRD = end-stage renal disease; HHI = Herfindahl-Hirschman Index; HRR = hospital referral region; SSP = Medicare Shared Savings Program; OA = osteoarthritis; RA = rheumatoid arthritis; SD = standard deviation; TIA = transient ischemic attack.

Exhibit G.2. Descriptive Characteristics of 2016 NGACO and Weighted Comparison Beneficiaries, Baseline and Performance Periods

	Baseline Period		Performance Period		Relative Change
	NGACO	Comparison	NGACO	Comparison	
Number of beneficiaries	1,258,004	1,239,476	477,197	471,712	-
Total person-months	14,432,542	14,384,819	5,491,979	5,479,500	-
Variables Included in Propensity Score Models					
Mean months of alignment (± SD)	11.5 ± 2.0	11.6 ± 1.8	11.5 ± 1.9	11.6 ± 1.8	0.0***
Mean Age (years ± SD)	73.2 ± 12.3	73.2 ± 12.3	73.2 ± 12.0	73.2 ± 12.1	0.0
Gender (%)					
Male	42.2	42.2	42.5	42.4	0.1
Race/Ethnicity (%)					
White	84.2	84.6	84.6	84.8	0.2**
Black	6.9	6.8	6.7	6.7	-0.1
Hispanic	5.8	5.5	5.1	5.0	-0.1**
Asian	1.7	1.7	1.6	1.7	0.0
Other	1.4	1.4	1.9	1.9	0.0
Disability/ESRD (%)					
Disability	14.6	14.5	14.1	14.2	-0.2
ESRD	1.1	1.1	1.0	1.0	0.0
Coverage (%)					
Any dual eligibility	21.5	21.8	19.9	20.5	-0.4***
Any Part D coverage	71.3	71.8	74.9	75.8	-0.4***
Chronic Conditions					
Mean number of chronic conditions (± SD)	5.0 ± 3.5	5.4 ± 3.7	5.2 ± 3.6	5.5 ± 3.9	0.0
Alzheimer's/dementia (%)	8.9	9.3	8.5	8.9	0.0
Chronic kidney disease (%)	17.1	17.3	19.6	19.8	0.0
COPD (%)	11.3	11.4	11.3	11.4	0.0
Congestive heart failure (%)	12.9	13.2	12.5	12.8	0.0
Diabetes (%)	28.8	28.7	28.0	28.0	0.0
Ischemic heart disease (%)	28.1	28.2	26.6	26.7	0.0
Depression (%)	18.1	18.3	19.1	19.3	0.0
RA/OA (%)	32.2	32.4	32.8	33.0	0.0
Stroke/TIA (%)	3.8	3.8	3.6	3.7	0.0
Cancer (%)	9.1	9.2	9.1	9.2	-0.1
Mortality (%)					
Death in reference period	4.1	4.9	4.0	4.8	0.0
Community Characteristics					
Median income ($ ± SD)	58,291 ± 22,348	58,605 ± 23,574	59,559 ± 23,022	59,717 ± 24,192	156.9**
Below poverty line (% ± SD)	13.4 ± 8.7	13.2 ± 8.6	13.4 ± 8.6	13.3 ± 8.6	-0.1**
Bachelor's degree or higher (% ± SD)	29.0 ± 15.5	29.1 ± 16.1	30.1 ± 15.7	30.1 ± 16.2	0.1
Rurality (%)	19.3	19.4	19.1	19.3	-0.1
Alignment-eligible providers (per 1,000 population ± SD)	1.7 ± 1.0	1.7 ± 1.0	1.9 ± 1.1	1.9 ± 1.2	0.0

	Baseline Period		Performance Period		Relative Change
	NGACO	Comparison	NGACO	Comparison	
HRR Characteristics					
ACO penetration rate (% ± SD)	34.9 ± 20.3	35.0 ± 20.4	56.6 ± 16.5	56.7 ± 16.6	0.0
MA penetration rate (% ± SD)	31.1 ± 15.0	31.2 ± 15.0	34.7 ± 15.2	34.9 ± 15.2	-0.1*
Hospital HHI (± SD)	2,604 ± 1,838	2,634 ± 1,862	2,966 ± 2,095	3,024 ± 2,142	-28.4***
Practice HHI (± SD)	436 ± 419	437 ± 419	487 ± 427	490 ± 429	-1.6
Hospital beds (per 1,000 ± SD)	2.7 ± 0.5	2.7 ± 0.5	2.6 ± 0.5	2.6 ± 0.5	0.0
Alignment-eligible providers (per 1,000 ± SD)	1.4 ± 0.3	1.4 ± 0.3	1.5 ± 0.4	1.5 ± 0.4	0.0
Participation in Medicare ACOs (%)					
NGACO	0.0	0.0	100.0	0.0	-
Pioneer/SSP ACO	62.6	0.0	0.0	2.5	-
Comprehensive ESRD Care	0.0	0.0	0.0	0.0	-

NOTES: p<0.2+, p<0.1* p<0.05**, p<0.01***. COPD = chronic obstructive pulmonary disease; ESRD = end-stage renal disease; HHI = Herfindahl-Hirschman Index; HRR = hospital referral region; SSP = Medicare Shared Savings Program; OA = osteoarthritis; RA = rheumatoid arthritis; SD = standard deviation; TIA = transient ischemic attack.

Exhibit G.3. Impact of NGACO Model on Spending, Utilization, and Quality of Care, 2016 NGACOs

	Baseline Years (2013-2015)			PY1 (2016)			Difference-in-Differences					
	NGACO	Comparison	Diff.	NGACO	Comparison	Diff.	Annual Estimate	95% CI	Aggregate Impact	95% CI	p	Impact
Spending												
Total Part A and B Spending ($)	12343.7	12223.5	120.2	12180.5	12270.1	-89.5	-209.7	-381.7, -37.8	-100,088,326	-182,152,102, -18,024,551	0.017	-1.7%
Outpatient/Office ($)	4424.0	4420.4	3.6	4581.3	4609.6	-28.3	-31.9	-95.6, 31.8	-15,226,982	-45,628,743, 15,174,778	0.326	-0.7%
Acute Care Hospital Setting ($)	4456.7	4354.8	101.9	4326.1	4269.6	56.5	-45.4	-109.8, 19.0	-21,658,529	-52,377,462,9,060,403	0.167	-1.0%
SNF Setting ($)	1220.2	1173.4	46.9	1089.9	1077.8	12.1	-34.8	-67.2, -2.4	-16,609,600	-32,063,169, -1,156,032	0.035	-3.1%
DME ($)	290.1	279.5	10.6	258.6	242.3	16.3	5.7	-2.7, 14.1	2,719,430	-1,303,743,6,742,603	0.185	2.3%
Home Health ($) §	724.0	703.4	20.5	671.2	664.0	7.2	*-13.3*	*-28.5, 1.9*	*-6,339,068*	*-13,600,980, 922,844*	*0.087*	-1.9%
Hospice Setting ($) §	368.9	376.9	-8.0	369.2	403.5	-34.4	-26.4	-43.7, -9.1	-12,608,469	-20,853,797, -4,363,142	0.003	-6.7%
Other Post-Acute Care Setting($)	546.5	498.4	48.0	501.8	476.4	25.3	-22.7	-61.7, 16.4	-10,815,451	-29,444,379,7,813,477	0.255	-4.3%
Utilization (per 1,000 beneficiaries per year)												
Inpatient Admissions	331.7	322.4	9.3	319.9	312.5	7.4	-1.9	-5.3, 1.5	-899	-2,516, 717	0.276	-0.6%
Inpatient Days	1648.3	1628.2	20.1	1542.5	1542.4	0.1	-20.0	-39.8, -0.3	-9,566	-19,001, -131	0.047	-1.3%
ED Visits §	545.1	546.5	-1.4	573.8	573.4	0.4	1.8	-5.0, 8.6	864	-2,386,4,114	0.602	0.3%
E&M Visits	12501.6	12439.8	61.9	12394.0	12511.5	-117.5	-179.4	-319.5, -39.3	-85,619	-152,486, -18,752	0.012	-1.4%
Quality (beneficiaries per 1,000 per year)												
ACSC Admissions	45.0	44.4	0.5	42.9	41.6	1.3	0.8	-0.2, 1.8	396	-79,870	0.102	1.9%
30-Day Readmissions	164.8	166.9	-2.2	160.0	160.8	-0.8	1.4	-1.9, 4.8	684	-920,2,288	0.403	0.9%
30-day post-SNF Readmissions	188.5	190.4	-1.9	188.6	189.2	-0.6	1.3	-3.0, 5.6	625	-1,435, 2,685	0.552	0.7%
Annual Wellness Visit	211.2	181.6	29.6	287.6	237.6	50.0	20.4	1.9, 39.0	9,756	904, 18,608	0.031	7.6%

NOTES: Aggregate impact is the estimated relative change for 5,491,979 beneficiary-months (477,197 beneficiaries) of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per beneficiary per year (for spending), per 1,000 beneficiaries per year (for utilization), or beneficiaries per 1,000 per year (for quality). We report percentage impact relative to expected outcome for the NGACO group in 2016, absent the NGACO Model. ACSC = ambulatory care-sensitive condition; ED = emergency department; E&M = evaluation and management (outpatient) visit; SNF = skilled nursing facility; DME= durable medical equipment. LTCH= long term care hospital; IRF=inpatient rehabilitation hospital; CORF= comprehensive outpatient rehabilitation facility. Outpatient/office spending includes Part B facility and professional services for outpatient hospital care (including ED visits that do not result in acute care hospital stays), as well as professional services in office and home. Spending in acute care hospital setting includes facility and professional services rendered in acute care hospital stays. Spending in skilled nursing facility setting includes facility and professional services rendered during SNF stays. Spending in other post-acute care setting includes spending in long-term care hospitals, inpatient rehabilitation hospitals, and swing beds for rehabilitation, comprehensive outpatient rehabilitation facilities, and professional services rendered during days of other post-acute care use. Home health spending includes spending for home health services. Spending in hospice setting includes facility and professional services rendered during days of hospice use. Durable medical equipment spending includes Medicare Part B spending for DME supplies.

§Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.4. Impact for Total Medicare Spending (Parts A and B) (by NGACO)

	Baseline Years (2013-2015)			PY1 (2016)			Difference in Difference Impact					DID PBPM Impact			
	NG ACO	Comparison	Difference	NG ACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact ($)	95% CI ($)	p-value	Average # of months	Estimate PBPM	95% CI	Impact (%)
ACCST	$13,825.1	$14,928.0	-$1,102.9	$13,328.6	$14,465.9	-$1,137.4	-$34.5	-626.5, 557.6	-$461,390.0	-8,389,373, 7,466,592	0.909	11.6	-$3.0	-54.0, 48.1	-0.3
Baroma§	$17,256.4	$16,720.7	$535.7	$15,851.4	$15,361.6	$489.7	-$46.0	-546.8, 454.8	-$1,262,665.0	-15,010,138, 12,484,808	0.857	11.3	-$4.1	-48.4, 40.2	0.0
Beacon	$10,590.5	$10,618.9	-$28.4	$10,812.9	$10,391.3	$421.6	$450.0	-90.8, 990.8	$6,621,396.0	-1,335,545, 14,578,338	0.103	11.6	$38.8	-7.8, 85.4	4.3
Bellin	$9,103.4	$9,568.0	-$464.5	$9,354.4	$9,416.7	-$62.3	$402.2	-182.1, 986.5	$3,332,607.0	-1,508,673, 8,173,888	0.177	11.5	$35.0	-15.8, 85.8	4.5
CHESS§	$10,417.0	$10,551.6	-$134.5	$9,767.1	$10,250.5	-$483.4	-$348.9	-828.7, 130.8	-$4,634,231.0	-11,005,460, 1,736,998	0.154	11.5	-$30.3	-72.1, 11.4	-3.4
Deaconess	$11,353.5	$10,960.4	$393.1	$11,553.5	$11,647.8	-$94.3	-$487.4	-1075.4, 100.5	-$15,326,259.0	-33,811,623, 3,159,104	0.104	11.5	-$42.4	-93.5, 8.7	-4.1
Henry Ford	$14,060.5	$12,925.8	$1,134.7	$13,147.2	$12,262.4	$884.8	-$249.9	-789.4, 289.5	-$5,245,769.0	-16,567,131, 6,075,594	0.364	11.3	-$22.1	-69.9, 25.6	-1.8
MemorialCare	$14,912.1	$14,105.0	$807.1	$13,244.4	$13,085.7	$158.6	-$648.5	-1234.1, -62.8	-$12,614,739.0	-24,007,749, -1,221,730	0.030	11.3	-$57.4	-109.2, -5.6	-4.3
Optum	$11,149.9	$11,303.9	-$154.0	$10,674.0	$11,230.7	-$556.7	-$402.7	-764.1, -41.2	-$11,947,601.0	-22,672,460, -1,222,742	0.029	11.6	-$34.7	-65.9, -3.6	-3.6
OSF	$10,147.4	$10,604.1	-$456.7	$10,478.6	$10,908.2	-$429.7	$27.0	-463.9, 517.8	$989,026.0	-17,008,749, 18,986,801	0.914	11.6	$2.3	-40.0, 44.6	0.3
Park Nicollet	$10,530.8	$10,897.5	-$366.7	$10,793.0	$11,504.7	-$711.7	-$345.0	-1024.0, 334.0	-$4,977,395.0	-14,774,154, 4,819,365	0.319	11.4	-$30.3	-89.8, 29.3	-3.1
Pioneer Valley	$11,845.9	$11,380.7	$465.2	$11,885.6	$11,485.7	$399.9	-$65.3	-539.8, 409.1	-$2,214,680.0	-18,300,653, 13,871,293	0.787	11.6	-$5.6	-46.5, 35.3	-0.5
Prospect	$19,352.4	$18,952.9	$399.5	$18,049.5	$18,272.8	-$223.3	-$622.8	-1474.8, 229.2	-$8,594,089.0	-20,351,266, 3,163,088	0.152	11.3	-$55.1	-130.5, 20.3	-3.2
Steward	$13,820.3	$13,355.4	$464.9	$13,905.4	$13,381.1	$524.3	$59.4	-360.9, 479.6	$2,164,448.0	-13,157,871, 17,486,767	0.782	11.6	$5.1	-31.1, 41.3	0.4
ThedaCare	$9,056.3	$9,615.3	-$559.0	$8,571.4	$9,623.3	-$1,051.9	-$492.9	-1059.3, 73.5	-$7,815,695.0	-16,797,268, 1,165,878	0.088	11.4	-$43.2	-92.9, 6.4	-5.2
Triad	$10,156.5	$9,865.9	$290.6	$9,949.2	$10,571.7	-$622.5	-$913.1	-1740.2, -86.0	-$26,511,707.0	-50,526,507, -2,496,907	0.030	11.5	-$79.4	-151.3, -7.5	-8.4
Trinity	$11,392.5	$11,310.9	$81.6	$11,343.2	$11,444.4	-$101.1	-$182.7	-451.3, 85.9	-$9,661,942.0	-23,867,246, 4,543,361	0.183	11.5	-$15.9	-39.2, 7.5	-1.6
UnityPoint	$9,862.6	$9,806.0	$56.5	$9,775.0	$9,745.9	$29.1	-$27.4	-280.1, 225.4	-$1,793,234.0	-18,345,384, 14,758,916	0.832	11.6	-$2.4	-24.1, 19.4	-0.3

NOTES: Aggregate impact is the estimated relative change for all beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per beneficiary per year (PY1). PBPM estimate is the estimated relative change per beneficiary per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model.
§Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.5. Impact for Outpatient/Office Spending (Facility and Professional Services) (by NGACO)

	Baseline Years (2013-2015)			PY1 (2016)			Difference in Difference Impact					DID PBPM Impact		
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Average # of months	Estimate PBPM	95% CI
ACCST	$4,923.0	$4,942.0	-$19.0	$5,188.0	$5,200.5	-$12.5	$6.5	-191.9, 204.9	$87,125.0	-2,569,599, 2,743,848	0.949	11.6	$0.6	-16.5, 17.7
Baroma	$5,619.6	$5,590.2	$29.4	$5,482.6	$5,443.5	$39.1	$9.7	-164.9, 184.3	$265,930.0	-4,526,143, 5,058,003	0.913	11.3	$0.9	-14.6, 16.3
Beacon	$4,501.3	$4,518.9	-$17.6	$4,677.4	$4,576.7	$100.7	$118.3	-99.1, 335.8	$1,741,353.0	-1,458,848, 4,941,554	0.286	11.6	$10.2	-8.5, 28.9
Bellin	$3,820.8	$3,948.0	-$127.2	$4,096.5	$4,074.9	$21.6	$148.8	-100.4, 398.1	$1,233,357.0	-831,795, 3,298,509	0.242	11.5	$12.9	-8.7, 34.6
CHESS	$4,114.9	$4,024.2	$90.8	$4,178.5	$4,190.1	-$11.6	-$102.4	-308.8, 104.0	-$1,359,785.0	-4,101,283, 1,381,713	0.331	11.5	-$8.9	-26.9, 9.0
Deaconess	$3,877.0	$3,909.1	-$32.1	$4,004.4	$4,222.3	-$217.9	-$185.8	-396.2, 24.6	-$5,841,951.0	-12,457,554, 773,653	0.083	11.5	-$16.2	-34.5, 2.1
Henry Ford	$4,462.9	$4,108.3	$354.6	$4,665.0	$4,187.9	$477.1	$122.5	-35.9, 280.8	$2,570,035.0	-753,532, 5,893,603	0.130	11.3	$10.8	-3.2, 24.8
MemorialCare	$5,979.0	$5,623.6	$355.5	$5,782.9	$5,465.0	$317.9	-$37.6	-251.3, 176.2	-$730,462.0	-4,889,137, 3,428,213	0.731	11.3	-$3.3	-22.2, 15.6
Optum§	$5,073.8	$4,993.1	$80.7	$5,237.4	$5,230.2	$7.3	-$73.4	-229.8, 83.1	-$2,176,369.0	-6,819,135, 2,466,398	0.358	11.6	-$6.3	-19.8, 7.2
OSF	$3,687.5	$3,971.6	-$284.1	$3,949.7	$4,180.1	-$230.4	$53.7	-100.6, 207.9	$1,968,424.0	-3,688,201, 7,625,049	0.495	11.6	$4.6	-8.7, 17.9
Park Nicollet	$3,904.0	$3,881.5	$22.4	$3,967.2	$4,085.3	-$118.1	-$140.5	-363.6, 82.5	-$2,027,672.0	-5,246,121, 1,190,776	0.217	11.4	-$12.3	-31.9, 7.2
Pioneer Valley	$4,119.2	$4,119.0	$0.2	$4,283.3	$4,383.7	-$100.4	-$100.6	-248.8, 47.6	-$3,409,539.0	-8,434,211, 1,615,133	0.184	11.6	-$8.7	-21.4, 4.1
Prospect	$5,538.7	$5,473.2	$65.4	$5,900.2	$5,740.4	$159.7	$94.3	-150.5, 339.1	$1,300,790.0	-2,077,280, 4,678,861	0.450	11.3	$8.3	-13.3, 30.0
Steward	$4,428.5	$4,415.9	$12.7	$4,595.7	$4,584.4	$11.3	-$1.4	-110.5, 107.6	-$52,679.0	-4,027,742, 3,922,384	0.979	11.6	-$0.1	-9.5, 9.3
ThedaCare	$3,621.9	$3,917.0	-$95.0	$3,683.0	$4,179.1	-$496.1	-$201.1	-435.2, 33.0	-$3,188,917.0	-6,901,034, 523,200	0.092	11.4	-$17.6	-38.2, 2.9
Triad§	$3,996.1	$3,788.8	$207.2	$4,126.2	$4,205.2	-$79.0	-$286.2	-700.9, 128.5	-$8,310,967.0	-20,351,522, 3,729,588	0.176	11.5	-$24.9	-60.9, 11.2
Trinity	$4,327.2	$4,333.8	-$6.6	$4,443.4	$4,468.0	-$24.6	-$18.0	-107.2, 71.2	-$951,193.0	-5,667,736, 3,765,349	0.693	11.5	-$1.6	-9.3, 6.2
UnityPoint	$3,929.2	$3,999.1	-$69.9	$4,095.7	$4,085.2	$10.5	$80.4	-10.8, 171.6	$5,265,836.0	-707,120, 11,238,792	0.084	11.6	$6.9	-0.9, 14.8

NOTES: Outpatient/office spending includes Part B facility and professional services for outpatient hospital care (including ED visits that do not result in acute care hospital stays), as well as professional services in office and home. Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per beneficiary per year. PBPM estimate is the estimated relative change per beneficiary per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model.

§Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.6. Impact for Spending in the Acute Care Hospital Setting (Facility and Professional Services) (by NGACO)

	Baseline Years (2013-2015)			PY1 (2016)			Difference in Difference Impact					DID PBPM Impact		
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Average # of months	Estimate PBPM	95% CI
ACCST	$4,086.3	$4,664.2	-$577.9	$4,038.0	$4,476.4	-$438.4	$139.5	-138.6, 417.5	$1,867,815.0	-1,855,564, 5,591,194	0.326	11.6	$12.0	-11.9, 36.0
Baroma§	$4,546.8	$4,272.5	$274.3	$4,498.3	$4,253.8	$244.5	-$29.8	-229.7, 170.1	-$817,838.0	-6,304,806, 4,669,130	0.770	11.3	-$2.6	-20.3, 15.1
Beacon	$3,313.2	$3,326.8	-$13.6	$3,396.5	$3,252.7	$143.8	$157.4	-96.9, 411.6	$2,315,313.0	-1,425,688, 6,056,314	0.225	11.6	$13.6	-8.4, 35.5
Bellin	$3,207.0	$3,364.3	-$157.3	$2,913.0	$3,263.2	-$350.1	-$192.8	-521.4, 135.9	-$1,597,249.0	-4,320,683, 1,126,186	0.250	11.5	-$16.8	-45.3, 11.8
CHESS	$3,094.9	$3,227.8	-$132.8	$2,899.7	$3,035.6	-$135.8	-$3.0	-197.0, 190.9	-$40,466.0	-2,616,667, 2,535,735	0.975	11.5	-$0.3	-17.1, 16.6
Deaconess§	$3,686.8	$3,639.0	$47.8	$3,651.8	$3,637.6	$14.1	-$33.7	-265.9, 198.6	-$1,058,254.0	-8,360,421, 6,243,914	0.776	11.5	-$2.9	-23.1, 17.3
Henry Ford	$6,016.8	$5,303.4	$713.3	$5,360.5	$5,077.9	$282.6	-$430.7	-714.0, -147.5	-$9,040,412.0	-14,985,397, -3,095,427	0.003	11.3	-$38.1	-63.2, -13.1
MemorialCare	$5,941.9	$5,563.4	$378.5	$5,867.9	$5,708.6	$159.3	-$219.2	-577.5, 139.0	-$4,264,512.0	-11,233,389, 2,704,364	0.230	11.3	-$19.4	-51.1, 12.3
Optum	$3,648.7	$3,702.2	-$53.5	$3,367.7	$3,608.7	-$241.0	-$187.5	-364.0, -11.0	-$5,563,423.0	-10,801,568, -325,278	0.037	11.6	-$16.2	-31.4, -0.9
OSF	$3,638.2	$3,596.9	$41.3	$3,576.4	$3,582.9	-$6.5	-$47.8	-318.5, 222.9	-$1,752,236.0	-11,678,822, 8,174,351	0.729	11.6	-$4.1	-27.5, 19.2
Park Nicollet	$3,896.5	$4,183.0	-$286.6	$4,008.2	$4,316.5	-$308.3	-$21.7	-346.4, 303.0	-$313,157.0	-4,997,732, 4,371,418	0.896	11.4	-$1.9	-30.4, 26.6
Pioneer Valley	$4,764.9	$4,309.0	$455.9	$4,638.4	$4,216.5	$421.9	-$34.0	-284.5, 216.5	-$1,152,096.0	-9,645,401, 7,341,209	0.790	11.6	-$2.9	-24.5, 18.7
Prospect	$5,575.2	$5,670.1	-$94.9	$6,102.2	$5,879.5	$222.6	$317.5	-43.4, 678.4	$4,381,475.0	-598,740, 9,361,690	0.085	11.3	$28.1	-3.8, 60.0
Steward	$5,067.9	$4,799.7	$268.2	$5,021.4	$4,684.0	$337.4	$69.2	-139.4, 277.8	$2,523,793.0	-5,082,804, 10,130,391	0.516	11.6	$6.0	-12.0, 23.9
ThedaCare	$3,426.3	$3,807.4	-$381.0	$3,171.0	$3,712.2	-$541.1	-$160.1	-467.6, 147.4	-$2,538,583.0	-7,415,062, 2,337,896	0.308	11.4	-$14.0	-41.0, 12.9
Triad	$3,628.6	$3,539.5	$89.1	$3,332.1	$3,418.9	-$86.8	-$175.9	-469.0, 117.2	-$5,107,312.0	-13,616,685, 3,402,062	0.239	11.5	-$15.3	-40.8, 10.2
Trinity	$4,636.5	$4,561.4	$75.1	$4,428.4	$4,396.5	$31.9	-$43.2	-194.6, 108.3	-$2,282,511.0	-10,291,893, 5,726,871	0.576	11.5	-$3.8	-16.9, 9.4
Unity Point	$3,424.9	$3,349.3	$75.6	$3,259.9	$3,187.0	$72.9	-$2.7	-132.5, 127.1	-$177,753.0	-8,679,099, 8,323,592	0.967	11.6	-$0.2	-11.4, 11.0

NOTES: Spending in acute care hospital setting includes facility and professional services rendered during acute care hospital stays. Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per beneficiary per year. PBPM estimate is the estimated relative change per beneficiary per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.7. Impact for SNF Setting Spending (Facility and Professional Services) (by NGACO)

	Base Years (2013-2015)			PY1 (2016)			Difference in Difference Impact					DID PBPM Impact		
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Average # of months	Estimate PBPM	95% CI
ACCST	$897.0	$1,003.1	-$106.2	$817.8	$844.1	-$26.3	$79.9	-19.3, 179.1	$1,069,967.0	-258,626, 2,398,561	0.114	11.6	$6.9	-1.7, 15.4
Baroma	$1,071.1	$1,021.8	$49.3	$1,038.4	$985.7	$52.7	$3.4	-72.6, 79.4	$94,266.0	-1,991,800, 2,180,332	0.929	11.3	$0.3	-6.4, 7.0
Beacon	$792.4	$841.8	-$49.5	$718.3	$732.1	-$13.8	$35.7	-50.7, 122.1	$525,147.0	-745,634, 1,795,927	0.418	11.6	$3.1	-4.4, 10.5
Bellin	$789.5	$859.1	-$69.5	$887.9	$775.0	$112.9	$182.4	60.9, 304.0	$1,511,777.0	504,938, 2,518,617	0.003	11.5	$15.9	5.3, 26.4
CHESS	$703.2	$735.7	-$32.5	$560.0	$674.8	-$114.8	-$82.3	-152.4, -12.2	-$1,092,796.0	-2,023,471, -162,121	0.021	11.5	-$7.2	-13.3, -1.1
Deaconess	$1,315.3	$1,152.8	$162.5	$1,145.4	$1,144.9	$0.5	-$162.0	-281.9, -42.2	-$5,094,946.0	-8,863,318, -1,326,573	0.008	11.5	-$14.1	-24.5, -3.7
Henry Ford§	$1,395.0	$1,205.7	$189.3	$1,299.1	$1,121.8	$177.2	-$12.1	-118.2, 94.0	-$253,977.0	-2,480,312, 1,972,358	0.823	11.3	-$1.1	-10.5, 8.3
MemorialCare	$1,697.5	$1,606.0	$91.5	$1,572.3	$1,565.9	$6.4	-$85.1	-241.2, 71.1	-$1,654,725.0	-4,691,964, 1,382,513	0.286	11.3	-$7.5	-21.3, 6.3
Optum	$590.3	$564.8	$25.5	$562.2	$550.7	$11.5	-$14.0	-67.7, 39.7	-$415,205.0	-2,008,749, 1,178,338	0.610	11.6	-$1.2	-5.8, 3.4
OSF§	$1,094.3	$1,097.8	-$3.5	$1,064.9	$1,042.8	$22.1	$25.6	-78.5, 129.8	$939,119.0	-2,880,047, 4,758,286	0.630	11.6	$2.2	-6.8, 11.2
Park Nicollet	$983.8	$955.3	$28.4	$953.9	$897.3	$56.6	$28.2	-85.9, 142.3	$407,181.0	-1,238,664, 2,053,026	0.628	11.4	$2.5	-7.5, 12.5
Pioneer Valley§	$1,262.6	$1,216.9	$45.6	$1,043.6	$1,067.2	-$23.7	-$69.3	-161.9, 23.3	-$2,350,298.0	-5,489,810, 789,213	0.142	11.6	-$6.0	-14.0, 2.0
Prospect	$1,824.2	$1,770.3	$54.0	$1,744.8	$1,806.3	-$61.4	-$115.4	-271.0, 40.1	-$1,592,809.0	-3,739,637, 554,019	0.146	11.3	-$10.2	-24.0, 3.5
Steward	$1,424.3	$1,288.4	$135.9	$1,295.4	$1,182.3	$113.0	-$22.9	-100.8, 55.0	-$836,052.0	-3,676,881, 2,004,778	0.564	11.6	-$2.0	-8.7, 4.7
ThedaCare	$941.2	$966.2	-$25.0	$909.6	$835.0	$74.6	$99.6	-32.6, 231.8	$1,579,300.0	-517,723, 3,676,322	0.140	11.4	$8.7	-2.9, 20.3
Triad	$901.6	$822.0	$79.6	$754.4	$809.6	-$55.1	-$134.7	-259.9, -9.5	-$3,910,165.0	-7,545,005, -275,325	0.035	11.5	-$11.7	-22.6, -0.8
Trinity	$1,355.3	$1,287.5	$67.7	$1,159.9	$1,128.6	$31.3	-$36.4	-98.9, 26.1	-$1,924,240.0	-5,230,344, 1,381,864	0.254	11.5	-$3.2	-8.6, 2.3
Unity Point	$897.4	$948.6	-$51.2	$751.8	$849.6	-$97.8	-$46.6	-99.9, 6.8	-$3,048,517.0	-6,542,697, 445,663	0.087	11.6	-$4.0	-8.6, 0.6

NOTES: Spending in skilled nursing facility setting includes facility and professional services rendered during SNF stays. Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per beneficiary per year. PBPM estimate is the estimated relative change per beneficiary per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.8. Impact for Durable Medical Equipment Spending (by NGACO)

	Baseline Years (2013-2015)			PY1 (2016)			Difference in Difference Impact					DID PBPM Impact		
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Average # of months	Estimate PBPM	95% CI
ACCST	$377.3	$395.3	-$18.0	$371.0	$374.7	-$3.6	$14.4	-75.4, 104.2	$192,634.0	-1,009,870, 1,395,139	0.754	11.6	$1.2	-6.5, 9.0
Baroma	$342.8	$282.8	$60.0	$285.5	$247.5	$38.0	-$22.0	-52.6, 8.6	-$602,883.0	-1,442,518, 236,752	0.159	11.3	-$1.9	-4.7, 0.8
Beacon§	$258.5	$266.3	-$7.8	$233.9	$202.4	$31.5	$39.3	4.1, 74.4	$577,641.0	60,271, 1,095,012	0.029	11.6	$3.4	0.4, 6.4
Bellin	$254.1	$263.8	-$9.7	$225.4	$234.7	-$9.3	$0.4	-70.6, 71.5	$3,705.0	-585,126, 592,535	0.990	11.5	$0.0	-6.1, 6.2
CHESS	$320.2	$329.9	-$9.7	$265.3	$269.8	-$4.5	$5.2	-38.5, 49.0	$69,638.0	-510,920, 650,197	0.814	11.5	$0.5	-3.3, 4.3
Deaconess	$332.9	$324.5	$8.4	$288.9	$281.2	$7.8	-$0.6	-35.5, 34.3	-$17,877.0	-1,115,083, 1,079,330	0.975	11.5	-$0.1	-3.1, 3.0
Henry Ford	$300.0	$270.7	$29.4	$290.0	$235.0	$55.1	$25.7	-22.0, 73.4	$539,777.0	-461,135, 1,540,690	0.291	11.3	$2.3	-1.9, 6.5
MemorialCare	$293.3	$288.8	$4.4	$284.4	$274.4	$10.0	$5.6	-47.6, 58.8	$108,995.0	-925,258, 1,143,247	0.836	11.3	$0.5	-4.2, 5.2
Optum	$223.2	$259.0	-$35.7	$234.7	$246.1	-$11.4	$24.3	-12.2, 60.9	$721,815.0	-362,387, 1,806,017	0.192	11.6	$2.1	-1.1, 5.2
OSF	$311.0	$317.7	-$6.7	$286.8	$267.8	$19.0	$25.7	-23.2, 74.6	$942,151.0	-849,308, 2,733,610	0.303	11.6	$2.2	-2.0, 6.4
Park Nicollet	$261.0	$288.7	-$27.7	$215.8	$266.2	-$50.4	-$22.7	-78.6, 33.1	-$327,903.0	-1,133,987, 478,182	0.425	11.4	-$2.0	-6.9, 2.9
Pioneer Valley	$287.6	$250.2	$37.4	$263.2	$224.5	$38.7	$1.3	-41.3, 43.9	$45,208.0	-1,399,450, 1,489,866	0.951	11.6	$0.1	-3.6, 3.8
Prospect	$262.5	$268.4	-$5.9	$256.2	$255.8	$0.4	$6.3	-36.7, 49.3	$87,266.0	-506,077, 680,609	0.773	11.3	$0.6	-3.2, 4.4
Steward	$228.9	$198.0	$30.9	$203.4	$170.1	$33.4	$2.5	-19.3, 24.4	$92,533.0	-702,911, 887,977	0.820	11.6	$0.2	-1.7, 2.1
ThedaCare	$234.6	$217.0	$17.6	$203.2	$193.5	$9.7	-$7.9	-49.2, 33.5	-$124,954.0	-780,655, 530,747	0.709	11.4	-$0.7	-4.3, 2.9
Triad	$335.1	$331.7	$3.4	$305.4	$282.2	$23.2	$19.8	-40.3, 79.9	$575,763.0	-1,168,980, 2,320,507	0.518	11.5	$1.7	-3.5, 6.9
Trinity	$273.0	$258.3	$14.7	$242.7	$220.3	$22.4	$7.7	-17.1, 32.5	$407,037.0	-903,832, 1,717,906	0.543	11.5	$0.7	-1.5, 2.8
Unity Point	$299.9	$284.0	$15.9	$241.7	$230.8	$10.9	-$5.0	-24.5, 14.5	-$324,641.0	-1,601,538, 952,256	0.618	11.6	-$0.4	-2.1, 1.2

NOTES: Durable medical equipment spending includes Medicare Part B spending for DME supplies. Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per beneficiary per year. PBPM estimate is the estimated relative change per beneficiary per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.9. Impact for Home Health Spending (by NGACO)

	Base Years (2013-2015)			Performance Year (2016)			Difference in Difference Impact					DID PBPM Impact		
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Average # of months	Estimate PBPM	95% CI
ACCST	$1,302.6	$1,353.0	-$50.5	$1,104.9	$1,157.4	-$52.5	-$2.0	-69.9, 66.0	-$26,432.0	-936,283, 883,419	0.955	11.6	-$0.2	-6.0, 5.7
Baroma	$1,410.2	$1,391.8	$18.4	$950.1	$917.3	$32.8	$14.4	-17.5, 46.3	$394,465.0	-480,628, 1,269,557	0.377	11.3	$1.3	-1.5, 4.1
Beacon	$419.0	$421.9	-$2.9	$476.3	$416.5	$59.8	$62.7	24.1, 101.2	$922,300.0	355,163, 1,489,436	0.001	11.6	$5.4	2.1, 8.7
Bellin	$292.8	$316.2	-$23.4	$273.1	$306.9	-$33.8	-$10.4	-49.5, 28.8	-$85,880.0	-410,078, 238,317	0.604	11.5	-$0.9	-4.3, 2.5
CHESS	$418.8	$421.6	-$2.8	$439.4	$458.6	-$19.2	-$16.4	-51.9, 19.2	-$217,624.0	-689,831, 254,583	0.366	11.5	-$1.4	-4.5, 1.7
Deaconess§	$491.2	$461.9	$29.3	$484.8	$479.9	$4.9	-$24.4	-66.0, 17.2	-$767,163.0	-2,075,651, 541,324	0.251	11.5	-$2.1	-5.7, 1.5
Henry Ford	$890.7	$955.1	-$64.5	$799.4	$856.0	-$56.7	$7.8	-33.2, 48.9	$164,692.0	-696,745, 1,026,128	0.708	11.3	$0.7	-2.9, 4.3
MemorialCare	$1,008.5	$1,040.3	-$31.8	$1,002.2	$1,064.9	-$62.7	-$30.9	-90.6, 28.8	-$601,094.0	-1,761,535, 559,347	0.310	11.3	-$2.7	-8.0, 2.5
Optum	$310.2	$325.8	-$15.6	$338.5	$363.5	-$25.0	-$9.4	-33.2, 14.4	-$279,023.0	-985,923, 427,878	0.439	11.6	-$0.8	-2.9, 1.2
OSF§	$395.5	$365.0	$30.5	$356.6	$340.2	$16.4	-$14.1	-44.6, 16.5	-$516,800.0	-1,637,213, 603,612	0.366	11.6	-$1.2	-3.8, 1.4
Park Nicollet	$292.2	$305.8	-$13.6	$320.7	$339.0	-$18.2	-$4.6	-39.4, 30.1	-$67,034.0	-568,488, 434,419	0.793	11.4	-$0.4	-3.5, 2.6
Pioneer Valley	$635.9	$548.8	$87.1	$656.3	$591.0	$65.3	-$21.8	-63.5, 19.8	-$740,731.0	-2,153,950, 672,488	0.304	11.6	-$1.9	-5.5, 1.7
Prospect§	$1,016.5	$1,035.1	-$18.6	$944.6	$1,082.7	-$138.1	-$119.5	-179.5, -59.4	-$1,648,752.0	-2,477,338, -820,166	0.000	11.3	-$10.6	-15.9, -5.3
Steward	$736.5	$725.0	$11.5	$774.9	$757.1	$17.8	$6.3	-27.1, 39.8	$230,691.0	-988,877, 1,450,258	0.711	11.6	$0.5	-2.3, 3.4
ThedaCare§	$301.1	$304.1	-$3.1	$305.7	$360.3	-$54.6	-$51.5	-95.4, -7.6	-$816,011.0	-1,511,994, -120,028	0.022	11.4	-$4.5	-8.4, -0.7
Triad	$452.4	$460.8	-$8.5	$434.0	$503.5	-$69.5	-$61.0	-110.6, -11.3	-$1,770,796.0	-3,212,439, -329,153	0.016	11.5	-$5.3	-9.6, -1.0
Trinity§	$607.7	$570.5	$37.2	$553.7	$515.9	$37.8	$0.6	-20.7, 21.9	$32,618.0	-1,092,837, 1,158,073	0.955	11.5	$0.1	-1.8, 1.9
Unity Point	$337.9	$276.9	$61.0	$287.4	$238.4	$49.1	-$11.9	-28.4, 4.7	-$776,242.0	-1,857,351, 304,868	0.159	11.6	-$1.0	-2.4, 0.4

NOTES: Home health spending includes spending for home health services. Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per beneficiary per year. PBPM estimate is the estimated relative change per beneficiary per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.10. Impact for Hospice Setting Spending (Facility and Professional Services) (by NGACO)

	Base Years (2013-2015)			Performance Year (2016)			Difference in Difference Impact					DID PBPM Impact		
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Average # of months	Estimate PBPM	95% CI
ACCST	$379.1	$441.5	-$62.4	$352.3	$429.7	-$77.5	-$15.1	-84.5, 54.2	-$202,641.0	-1,131,050, 725,768	0.669	11.6	-$1.3	-7.3, 4.7
Baroma	$562.1	$579.7	-$17.7	$537.6	$581.6	-$44.0	-$26.3	-83.1, 30.5	-$721,599.0	-2,281,440, 838,241	0.365	11.3	-$2.3	-7.4, 2.7
Beacon	$253.6	$274.3	-$20.7	$281.9	$326.4	-$44.5	-$23.8	-93.1, 45.5	-$350,019.0	-1,369,865, 669,827	0.501	11.6	-$2.1	-8.0, 3.9
Bellin	$376.9	$344.5	$32.4	$358.8	$333.6	$25.2	-$7.2	-89.2, 74.9	-$59,459.0	-739,193, 620,275	0.864	11.5	-$0.6	-7.8, 6.5
CHESS	$311.5	$353.8	-$42.2	$290.5	$352.4	-$61.8	-$19.6	-73.4, 34.2	-$260,737.0	-975,302, 453,827	0.475	11.5	-$1.7	-6.4, 3.0
Deaconess	$340.4	$243.1	$97.3	$318.9	$290.3	$28.6	-$68.7	-144.6, 7.3	-$2,159,488.0	-4,547,220, 228,245	0.076	11.5	-$6.0	-12.6, 0.6
Henry Ford§	$307.1	$350.2	-$43.1	$348.3	$364.4	-$16.1	$27.0	-23.0, 76.9	$566,001.0	-481,866, 1,613,868	0.290	11.3	$2.4	-2.0, 6.8
MemorialCare	$393.4	$437.5	-$44.1	$406.3	$462.6	-$56.3	-$12.2	-76.3, 51.9	-$237,635.0	-1,484,758, 1,009,488	0.709	11.3	-$1.1	-6.8, 4.6
Optum	$430.6	$489.8	-$59.3	$362.5	$460.6	-$98.1	-$38.8	-83.1, 5.5	-$1,151,772.0	-2,466,972, 163,428	0.086	11.6	-$3.3	-7.2, 0.5
OSF	$289.1	$282.4	$6.7	$257.2	$366.7	-$109.5	-$116.2	-181.6, -50.8	-$4,260,440.0	-6,657,323, -1,863,558	0.000	11.6	-$10.0	-15.7, -4.4
Park Nicollet	$364.3	$386.5	-$22.2	$445.6	$428.4	$17.2	$39.4	-40.9, 119.7	$568,142.0	-590,514, 1,726,797	0.337	11.4	$3.5	-3.6, 10.5
Pioneer Valley	$251.4	$271.3	-$19.9	$268.4	$268.4	$0.0	$19.9	-21.8, 61.6	$674,190.0	-740,025, 2,088,405	0.350	11.6	$1.7	-1.9, 5.3
Prospect§	$379.5	$436.6	-$57.1	$416.1	$484.1	-$68.0	-$10.9	-78.5, 56.7	-$150,695.0	-1,083,785, 782,396	0.752	11.3	-$1.0	-6.9, 5.0
Steward	$277.2	$395.1	-$117.9	$357.1	$472.4	-$115.3	$2.6	-38.6, 43.9	$96,302.0	-1,408,496, 1,601,101	0.900	11.6	$0.2	-3.3, 3.8
ThedaCare	$499.0	$396.0	$103.1	$419.4	$433.9	-$14.4	-$117.5	-226.5, -8.5	-$1,863,537.0	-3,592,365, -134,709	0.035	11.4	-$10.3	-19.9, -0.7
Triad	$405.5	$440.9	-$35.4	$384.6	$483.6	-$99.0	-$63.6	-147.8, 20.5	-$1,847,854.0	-4,291,478, 595,771	0.138	11.5	-$5.5	-12.9, 1.8
Trinity	$334.9	$353.4	-$18.4	$294.2	$323.1	-$28.8	-$10.4	-39.0, 18.2	-$548,611.0	-2,060,497, 963,276	0.477	11.5	-$0.9	-3.4, 1.6
Unity Point§	$269.2	$261.4	$7.7	$278.7	$278.2	$0.5	-$7.2	-32.4, 18.0	-$471,694.0	-2,124,347, 1,180,959	0.576	11.6	-$0.6	-2.8, 1.6

NOTES: Spending in hospice setting includes facility and professional services rendered during days of hospice use. Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per beneficiary per year. PBPM estimate is the estimated relative change per beneficiary per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.11. Impact for Other Post-Acute Care Setting Spending (IRF/LTCH/ Swing bed/CORF Facility and Professional Services) (by NGACO)

	Base Years (2013-2015)			Performance Year (2016)			Difference in Difference Impact					DID PBPM Impact		
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Average # of months	Estimate PBPM	95% CI
ACCST	$1,517.2	$1,562.0	-$44.8	$1,390.0	$1,392.7	-$2.7	$42.1	-145.7, 229.8	$563,340.0	-1,950,520, 3,077,200	0.661	11.6	$3.6	-12.6, 19.8
Baroma	$508.2	$492.6	$15.6	$551.1	$533.1	$18.0	$2.4	-66.1, 70.9	$65,681.0	-1,815,013, 1,946,375	0.945	11.3	$0.2	-5.8, 6.3
Beacon	$301.8	$245.7	$56.1	$202.2	$219.7	-$17.5	-$73.6	-143.8, -3.5	-$1,083,335.0	-2,115,292, -51,378	0.040	11.6	-$6.3	-12.4, -0.3
Bellin	$202.6	$150.0	$52.6	$136.4	$126.9	$9.6	-$43.0	-95.5, 9.6	-$355,907.0	-791,562, 79,749	0.109	11.5	-$3.7	-8.3, 0.8
CHESS	$376.0	$260.5	$115.5	$294.1	$234.3	$59.8	-$55.7	-132.9, 21.4	-$739,784.0	-1,764,391, 284,823	0.157	11.5	-$4.8	-11.6, 1.9
Deaconess	$528.0	$375.9	$152.1	$527.1	$390.3	$136.9	-$15.2	-106.3, 75.8	-$479,381.0	-3,341,211, 2,382,449	0.743	11.5	-$1.3	-9.2, 6.6
Henry Ford	$519.6	$532.3	-$12.7	$447.7	$466.4	-$18.7	-$6.0	-93.0, 81.1	-$125,300.0	-1,951,756, 1,701,157	0.893	11.3	-$0.5	-8.2, 7.2
MemorialCare	$915.6	$799.6	$116.0	$819.4	$742.8	$76.6	-$39.4	-216.6, 137.8	-$766,742.0	-4,213,564, 2,680,079	0.663	11.3	-$3.5	-19.2, 12.2
Optum§	$370.6	$396.3	-$25.7	$358.4	$410.5	-$52.1	-$26.4	-88.2, 35.4	-$783,565.0	-2,618,058, 1,050,927	0.403	11.6	-$2.3	-7.6, 3.1
OSF	$220.6	$235.0	-$14.4	$200.0	$191.8	$8.2	$22.6	-18.7, 64.0	$830,503.0	-685,138, 2,346,144	0.283	11.6	$1.9	-1.6, 5.5
Park Nicollet	$103.3	$138.5	-$35.3	$113.4	$182.4	-$69.1	-$33.8	-94.5, 26.9	-$487,681.0	-1,363,363, 388,002	0.275	11.4	-$3.0	-8.3, 2.4
Pioneer Valley	$442.5	$372.5	$70.0	$371.3	$307.5	$63.8	-$6.2	-68.0, 55.6	-$209,917.0	-2,305,790, 1,885,955	0.844	11.6	-$0.5	-5.9, 4.8
Prospect	$1,357.6	$713.1	$644.5	$1,057.2	$620.3	$436.9	-$207.6	-375.4, -39.8	-$2,865,083.0	-5,180,450, -549,717	0.015	11.3	-$18.4	-33.2, -3.5
Steward	$490.6	$473.4	$17.2	$480.1	$434.3	$45.8	$28.6	-29.1, 86.3	$1,042,969.0	-1,062,254, 3,148,193	0.332	11.6	$2.5	-2.5, 7.4
ThedaCare	$178.4	$188.9	-$10.5	$169.1	$182.2	-$13.1	-$2.6	-106.5, 101.3	-$41,231.0	-1,688,135, 1,605,672	0.961	11.4	-$0.2	-9.3, 8.9
Triad	$264.3	$260.1	$4.1	$209.8	$282.1	-$72.3	-$76.4	-184.3, 31.5	-$2,219,487.0	-5,352,248, 913,275	0.165	11.5	-$6.6	-16.0, 2.7
Trinity§	$473.3	$461.8	$11.5	$430.6	$435.6	-$4.9	-$16.4	-73.4, 40.6	-$865,584.0	-3,879,552, 2,148,383	0.574	11.5	-$1.4	-6.4, 3.5
UnityPoint§	$244.8	$192.8	$52.0	$215.1	$182.3	$32.8	-$19.2	-57.6, 19.3	-$1,254,190.0	-3,771,065, 1,262,685	0.329	11.6	-$1.7	-5.0, 1.7

NOTES: Spending in other post-acute care setting includes facility spending in long-term care hospitals, inpatient rehabilitation hospitals, and swing beds for rehabilitation, and comprehensive outpatient rehabilitation facilities; and spending on professional services rendered during days of other post-acute care use. Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per beneficiary per year. PBPM estimate is the estimated relative change per beneficiary per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.12. Impact for Acute Care Hospital Admissions (by NGACO)

	Base Years (2013-2015)			Performance Year (2016)			Difference in Difference Impact					DID PBPM Impact			
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Average # of months	Estimate PBPM	95% CI	Impact (%)
ACCST	315.9	346.4	-30.4	301.1	329.2	-28.0	2.4	-12.3, 17.0	32.0	-165, 228	0.752	11.6	0.2	-1.1, 1.5	0.8
Baroma§	369.6	345.6	24.0	384.2	347.8	36.4	12.4	0.1, 24.7	340.0	2, 677	0.048	11.3	1.1	0.0, 2.2	3.3
Beacon	265.9	272.8	-6.9	258.8	257.1	1.6	8.5	-5.6, 22.5	125.0	-82, 331	0.237	11.6	0.7	-0.5, 1.9	3.4
Bellin	255.8	272.1	-16.3	227.9	255.7	-27.8	-11.5	-27.6, 4.6	-95.0	-229, 38	0.162	11.5	-1.0	-2.4, 0.4	-4.8
CHESS§	267.1	275.0	-7.9	256.3	262.4	-6.1	1.8	-11.0, 14.5	23.0	-146, 193	0.786	11.5	0.2	-1.0, 1.3	0.7
Deaconess§	334.5	324.4	10.2	328.0	321.4	6.6	-3.6	-19.3, 12.0	-114.0	-606, 379	0.651	11.5	-0.3	-1.7, 1.0	-1.1
Henry Ford	453.5	414.9	38.6	424.9	400.0	24.9	-13.7	-29.8, 2.5	-287.0	-625, 52	0.097	11.3	-1.2	-2.6, 0.2	-3.1
Memorial Care	340.7	325.1	15.6	351.6	328.5	23.1	7.5	-7.0, 22.0	146.0	-137, 429	0.312	11.3	0.7	-0.6, 1.9	2.2
Optum	259.2	259.6	-0.4	232.0	245.6	-13.6	-13.2	-22.5, -3.9	-392.0	-668, -115	0.005	11.6	-1.1	-1.9, -0.3	-5.4
OSF	312.2	315.6	-3.5	304.4	303.2	1.2	4.7	-9.4, 18.7	171.0	-346, 687	0.517	11.6	0.4	-0.8, 1.6	1.6
Park Nicollet	302.8	301.5	1.2	303.3	297.3	5.9	4.7	-12.4, 21.8	67.0	-179, 314	0.592	11.4	0.4	-1.1, 1.9	1.6
Pioneer Valley	313.8	279.6	34.2	317.6	287.2	30.4	-3.8	-17.4, 9.8	-128.0	-590, 333	0.586	11.6	-0.3	-1.5, 0.8	-1.2
Prospect	329.0	334.2	-5.2	334.5	337.3	-2.8	2.4	-12.0, 16.7	33.0	-165, 230	0.747	11.3	0.2	-1.1, 1.5	0.7
Steward	336.8	324.9	12.0	332.7	318.8	13.9	1.9	-8.4, 12.1	68.0	-307, 443	0.722	11.6	0.2	-0.7, 1.0	0.6
ThedaCare	303.0	308.9	-6.0	290.5	304.7	-14.3	-8.3	-27.5, 10.8	-132.0	-435, 171	0.393	11.4	-0.7	-2.4, 0.9	-2.8
Triad	319.2	300.7	18.5	300.9	299.0	1.9	-16.6	-37.4, 4.2	-481.0	-1,085, 123	0.118	11.5	-1.4	-3.3, 0.4	-5.2
Trinity	343.2	328.4	14.8	318.7	309.5	9.2	-5.6	-13.5, 2.2	-298.0	-712, 116	0.158	11.5	-0.5	-1.2, 0.2	-1.7
Unity Point	299.0	290.6	8.4	274.4	270.4	4.0	-4.4	-12.2, 3.4	-286.0	-798, 226	0.273	11.6	-0.4	-1.1, 0.3	-1.6

NOTES: Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per 1,000 beneficiaries per year. PBPM estimate is the estimated relative change per 1,000 beneficiaries per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.13. Impact for Acute Care Hospital Days (by NGACO)

	Base Years (2013-2015)			Performance Year (2016)			Difference in Difference Impact					DID PBPM Impact			
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Average # of months	Estimate PBPM	95% CI	Impact (%)
ACCST	1,647.7	1,910.9	-263.2	1,482.2	1,746.6	-264.4	-1.2	-102.1, 99.7	-16.0	-1,367, 1,335	0.981	11.6	-0.1	-8.8, 8.6	-0.1
Baroma§	1,876.2	1,796.1	80.1	1,844.3	1,744.3	100.0	19.9	-62.4, 102.2	546.0	-1,714, 2,805	0.636	11.3	1.8	-5.5, 9.0	1.1
Beacon	1,310.7	1,356.5	-45.7	1,274.5	1,273.3	1.2	46.9	-46.9, 140.8	691.0	-690, 2,071	0.327	11.6	4.0	-4.0, 12.1	3.8
Bellin	1,065.3	1,153.1	-87.8	896.3	1,047.7	-151.3	-63.5	-156.6, 29.7	-526.0	-1,297, 246	0.182	11.5	-5.5	-13.6, 2.6	-6.6
CHESS	1,313.7	1,358.2	-44.6	1,177.4	1,255.2	-77.8	-33.2	-114.9, 48.4	-441.0	-1,526, 643	0.425	11.5	-2.9	-10.0, 4.2	-2.7
Deaconess	1,607.7	1,498.6	109.2	1,529.1	1,423.9	105.3	-3.9	-95.9, 88.0	-123.0	-3,015, 2,768	0.933	11.5	-0.3	-8.3, 7.7	-0.3
Henry Ford	2,351.8	2,146.6	205.1	2,049.9	2,005.8	44.1	-161.0	-274.8, -47.3	-3,380.0	-5,768, -992	0.006	11.3	-14.2	-24.3, -4.2	-7.3
MemorialCare	1,852.4	1,758.8	93.6	1,783.5	1,728.8	54.6	-39.0	-150.7, 72.6	-759.0	-2,932, 1,413	0.493	11.3	-3.5	-13.3, 6.4	-2.1
Optum	1,170.3	1,177.7	-7.4	1,082.5	1,134.9	-52.4	-45.0	-105.1, 15.1	-1,335.0	-3,119, 448	0.142	11.6	-3.9	-9.1, 1.3	-4.0
OSF	1,365.5	1,448.8	-83.3	1,301.1	1,366.6	-65.5	17.8	-63.4, 98.9	652.0	-2,323, 3,626	0.668	11.6	1.5	-5.5, 8.5	1.4
Park Nicollet	1,355.8	1,404.3	-48.5	1,419.6	1,445.8	-26.2	22.3	-91.2, 135.8	322.0	-1,315, 1,960	0.700	11.4	2.0	-8.0, 11.9	1.6
Pioneer Valley§	1,591.1	1,395.0	196.1	1,519.7	1,411.4	108.3	-87.8	-179.9, 4.3	-2,977.0	-6,099, 145	0.062	11.6	-7.6	-15.5, 0.4	-5.5
Prospect	1,671.8	1,795.3	-123.6	1,766.9	1,800.9	-34.0	89.6	-18.1, 197.2	1,236.0	-249, 2,721	0.103	11.3	7.9	-1.6, 17.5	5.3
Steward	1,667.7	1,619.2	48.5	1,614.0	1,578.0	36.0	-12.5	-80.5, 55.6	-455.0	-2,936, 2,027	0.719	11.6	-1.1	-6.9, 4.8	-0.8
ThedaCare	1,325.9	1,395.1	-69.2	1,199.1	1,343.9	-144.8	-75.6	-189.6, 38.4	-1,199.0	-3,006, 608	0.193	11.4	-6.6	-16.6, 3.4	-5.9
Triad	1,500.1	1,476.4	23.7	1,368.8	1,390.3	-21.5	-45.2	-177.5, 87.1	-1,312.0	-5,153, 2,529	0.503	11.5	-3.9	-15.4, 7.6	-3.2
Trinity	1,763.0	1,734.0	29.0	1,593.2	1,587.4	5.7	-23.3	-80.7, 34.2	-1,230.0	-4,269, 1,810	0.428	11.5	-2.0	-7.0, 3.0	-1.4
UnityPoint	1,384.7	1,375.7	8.9	1,235.6	1,257.8	-22.2	-31.1	-81.4, 19.2	-2,037.0	-5,333, 1,260	0.226	11.6	-2.7	-7.0, 1.7	-2.5

NOTES: Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per 1,000 beneficiaries per year. PBPM estimate is the estimated relative change per 1,000 beneficiaries per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.14. Impact for Emergency Department Visits (Including Observation Stays) (by NGACO)

	Base Years (2013-2015)			Performance Year (2016)			Difference in Difference Impact					DID PBPM Impact			
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Average # of months	Estimate PBPM	95% CI	Impact (%)
ACCST	499.1	538.9	-39.8	521.8	553.9	-32.1	7.7	-15.6, 31.0	103.0	-209, 416	0.518	11.6	0.7	-1.3, 2.7	1.5
Baroma§	493.9	472.6	21.3	544.9	503.9	40.9	19.6	1.1, 38.0	537.0	29, 1,044	0.038	11.3	1.7	0.1, 3.4	3.7
Beacon	706.5	700.9	5.6	774.4	721.7	52.7	47.1	14.6, 79.7	693.0	214, 1,172	0.005	11.6	4.1	1.3, 6.9	6.5
Bellin	619.3	588.3	31.0	609.2	594.1	15.2	-15.8	-52.9, 21.4	-131.0	-439, 177	0.405	11.5	-1.4	-4.6, 1.9	-2.5
CHESS	510.9	603.2	-92.3	545.8	629.6	-83.9	8.4	-18.1, 34.8	111.0	-240, 463	0.534	11.5	0.7	-1.6, 3.0	1.6
Deaconess§	698.5	713.8	-15.3	712.6	726.8	-14.2	1.1	-28.3, 30.6	36.0	-890, 962	0.939	11.5	0.1	-2.5, 2.7	0.2
Henry Ford§	716.4	575.3	141.1	708.2	571.4	136.8	-4.3	-30.3, 21.7	-91.0	-636, 455	0.744	11.3	-0.4	-2.7, 1.9	-0.6
MemorialCare§	446.8	441.4	5.3	437.8	433.1	4.7	-0.6	-19.3, 18.2	-11.0	-376, 353	0.953	11.3	-0.1	-1.7, 1.6	-0.1
Optum§	475.5	504.9	-29.4	549.5	563.4	-13.9	15.5	-4.0, 35.0	461.0	-118, 1,040	0.118	11.6	1.3	-0.3, 3.0	2.9
OSF	597.1	591.5	5.6	640.9	614.9	26.1	20.5	-4.9, 45.9	753.0	-179, 1,685	0.113	11.6	1.8	-0.4, 4.0	3.3
Park Nicollet	588.9	611.0	-22.1	642.3	690.5	-48.2	-26.1	-63.4, 11.1	-377.0	-914, 160	0.169	11.4	-2.3	-5.6, 1.0	-3.9
Pioneer Valley	576.2	588.0	-11.8	583.3	617.1	-33.8	-22.0	-45.8, 1.8	-745.0	-1,552, 62	0.070	11.6	-1.9	-3.9, 0.2	-3.6
Prospect	418.5	408.9	9.6	419.0	445.4	-26.4	-36.0	-57.7, -14.4	-497.0	-796, -199	0.001	11.3	-3.2	-5.1, -1.3	-7.9
Steward§	639.2	633.3	5.9	638.5	625.4	13.1	7.2	-12.3, 26.7	263.0	-449, 975	0.469	11.6	0.6	-1.1, 2.3	1.1
ThedaCare§	589.8	595.8	-6.0	627.5	637.8	-10.4	-4.4	-40.1, 31.4	-70.0	-636, 497	0.810	11.4	-0.4	-3.5, 2.8	-0.7
Triad	592.7	663.9	-71.2	661.6	718.9	-57.3	13.9	-27.1, 54.9	404.0	-787, 1,595	0.506	11.5	1.2	-2.4, 4.8	2.1
Trinity	526.5	527.5	-0.9	552.6	553.4	-0.7	0.2	-13.0, 13.4	10.0	-688, 708	0.978	11.5	0.0	-1.1, 1.2	0.0
Unity Point	537.7	532.3	5.3	561.8	560.6	1.2	-4.1	-18.9, 10.8	-267.0	-1,240, 707	0.591	11.6	-0.4	-1.6, 0.9	-0.7
Triad	592.7	663.9	-71.2	661.6	718.9	-57.3	13.9	-27.1, 54.9	404.0	-787, 1,595	0.506	11.5	1.2	-2.4, 4.8	2.1

NOTES: Emergency department visits and observation stays measure includes ED visits that did not result in acute care hospitalizations, as well as observation stays in acute care hospitals. Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per 1,000 beneficiaries per year. PBPM estimate is the estimated relative change per 1,000 beneficiaries per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.15. Impact for Nonhospital Evaluation and Management Visits (by NGACO)

	Baseline Years (2013-2015)			PY1 (2016)			Difference in Difference Impact					DID PBPM Impact			
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Average # of months	Estimate PBPM	95% CI	Impact (%)
ACCST§	12,573.4	12,780.0	-206.7	12,902.3	12,997.3	-95.1	111.6	-83.6, 306.8	1,494.0	-1,119, 4,108	0.262	11.6	9.6	-7.2, 26.4	0.9
Baroma	15,742.5	16,090.9	-348.4	15,380.5	15,750.1	-369.5	-21.1	-190.6, 148.3	-580.0	-5,231, 4,071	0.807	11.3	-1.9	-16.9, 13.1	-0.1
Beacon§	13,278.7	12,275.6	1,003.1	11,104.0	11,046.2	57.8	-945.3	-1,157.0, -733.6	-13,909.0	-17,024, -10,794	0.000	11.6	-81.5	-99.7, -63.2	-8.5
Bellin§	10,021.5	9,811.4	210.1	10,759.0	10,251.9	507.1	297.0	38.5, 555.5	2,461.0	319, 4,603	0.024	11.5	25.8	3.3, 48.3	2.9
CHESS§	12,878.4	12,606.5	271.9	12,787.6	12,785.8	1.8	-270.1	-482.4, -57.9	-3,588.0	-6,407, -769	0.013	11.5	-23.5	-41.9, -5.0	-2.2
Deaconess	10,750.9	10,459.7	291.2	10,659.4	10,765.8	-106.4	-397.6	-578.2, -217.0	-12,502.0	-18,181, -6,823	0.000	11.5	-34.6	-50.3, -18.9	-3.7
Henry Ford§	12,287.9	12,025.1	262.8	11,178.8	11,706.9	-528.0	-790.8	-962.2, -619.4	-16,598.0	-20,196, -13,001	0.000	11.3	-70.0	-85.2, -54.8	-7.0
MemorialCare§	14,889.3	14,722.4	166.9	14,656.8	14,338.8	318.0	151.1	-49.9, 352.2	2,940.0	-970, 6,850	0.141	11.3	13.4	-4.4, 31.2	1.0
Optum	14,687.4	14,314.2	373.2	14,643.3	14,388.9	254.4	-118.8	-305.8, 68.1	-3,526.0	-9,072, 2,020	0.213	11.6	-10.2	-26.4, 5.9	-0.8
OSF	10,911.4	10,888.9	22.6	11,092.4	11,446.1	-353.7	-376.3	-562.0, -190.6	-13,799.0	-20,609, -6,989	0.000	11.6	-32.4	-48.4, -16.4	-3.3
Park Nicollet§	11,041.6	11,321.6	-280.0	11,019.9	11,147.2	-127.3	152.7	-92.2, 397.6	2,203.0	-1,330, 5,736	0.222	11.4	13.4	-8.1, 34.9	1.5
Pioneer Valley§	13,836.6	13,418.7	417.9	13,328.8	13,285.0	43.9	-374.0	-563.5, -184.4	-12,678.0	-19,105, -6,251	0.000	11.6	-32.2	-48.6, -15.9	-2.9
Prospect	15,130.4	14,854.4	276.0	14,858.8	14,684.3	174.5	-101.5	-330.7, 127.6	-1,401.0	-4,563, 1,761	0.385	11.3	-9.0	-29.3, 11.3	-0.7
Steward§	13,566.6	14,068.3	-501.7	14,054.1	14,481.0	-426.9	74.8	-73.9, 223.6	2,728.0	-2,696, 8,152	0.324	11.6	6.4	-6.4, 19.3	0.6
ThedaCare	9,344.0	9,716.0	-372.0	9,380.4	10,004.6	-624.3	-252.3	-475.6, -29.1	-4,001.0	-7,541, -462	0.027	11.4	-22.1	-41.7, -2.6	-2.6
Triad	12,048.8	11,777.3	271.5	11,559.6	11,778.8	-219.2	-490.7	-762.3, -219.1	-14,247.0	-22,134, -6,360	0.000	11.5	-42.7	-66.3, -19.1	-4.2
Trinity§	12,654.0	12,476.2	177.8	12,564.4	12,618.1	-53.7	-231.5	-340.8, -122.1	-12,241.0	-18,023, -6,460	0.000	11.5	-20.1	-29.6, -10.6	-1.8
UnityPoint§	10,698.8	10,938.5	-239.7	11,067.9	11,175.3	-107.4	132.3	27.7, 236.8	8,661.0	1,816, 15,507	0.013	11.6	11.4	2.4, 20.4	1.3

NOTES: Nonhospital evaluation and management visits excludes E&M visits rendered in the acute care hospital and ED setting. Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change per 1,000 beneficiaries per year. PBPM estimate is the estimated relative change per 1,000 beneficiaries per month, obtained by dividing the annual estimate by the average # of months of alignment for the NGACO group in PY1.We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.16. Impact for Ambulatory Care-Sensitive Conditions Admissions (by NGACO)

	Baseline Years (2013-2015)			PY (2016)			Difference in Difference Impact					
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Impact (%)
ACCST	42.3	49.6	-7.3	42.1	45.5	-3.4	3.9	0.0, 7.8	52.0	1, 104	0.047	12.1
Baroma§	58.1	54.8	3.3	60.3	53.8	6.5	3.2	-0.3, 6.7	88.0	-9, 185	0.075	6.6
Beacon	47.1	49.1	-2.0	43.4	41.8	1.6	3.6	-0.8, 8.1	54.0	-12, 119	0.107	11.2
Bellin	34.7	34.1	0.6	21.9	27.2	-5.3	-5.9	-10.5, -1.2	-48.0	-87, -10	0.014	-20.6
CHESS	42.8	46.1	-3.3	41.6	42.6	-1.1	2.2	-1.8, 6.1	29.0	-23, 81	0.276	6.9
Deaconess	58.9	58.1	0.8	53.7	55.4	-1.7	-2.5	-7.4, 2.5	-78.0	-234, 78	0.326	-5.2
Henry Ford	52.6	46.8	5.8	52.0	45.9	6.1	0.3	-3.5, 4.1	6.0	-74, 87	0.878	0.7
MemorialCare	30.6	30.1	0.5	32.0	28.9	3.1	2.6	-0.6, 5.7	50.0	-11, 111	0.107	10.0
Optum	29.5	31.4	-2.0	23.8	26.6	-2.8	-0.8	-3.2, 1.6	-23.0	-94, 47	0.516	-3.6
OSF	44.3	47.9	-3.6	42.7	44.8	-2.1	1.5	-2.2, 5.1	53.0	-81, 187	0.435	4.3
Park Nicollet	36.6	38.0	-1.3	38.9	35.7	3.3	4.6	0.5, 8.8	67.0	7, 126	0.028	17.3
Pioneer Valley§	48.5	40.7	7.8	43.9	38.2	5.7	-2.1	-5.9, 1.7	-71.0	-199, 57	0.279	-5.3
Prospect	52.7	52.3	0.4	50.5	49.1	1.3	0.9	-3.4, 5.2	12.0	-46, 71	0.677	2.1
Steward	54.7	52.0	2.7	55.5	50.5	5.1	2.4	-0.6, 5.4	88.0	-21, 197	0.115	5.7
ThedaCare	36.7	35.0	1.6	31.9	32.0	-0.2	-1.8	-6.6, 3.0	-29.0	-105, 47	0.458	-6.0
Triad	43.2	44.2	-1.1	42.8	42.3	0.5	1.6	-3.6, 6.8	46.0	-105, 197	0.550	4.8
Trinity	39.3	38.0	1.4	40.0	37.1	3.0	1.6	-0.3, 3.6	86.0	-16, 188	0.098	5.2
UnityPoint	43.3	44.0	-0.8	38.7	40.4	-1.7	-0.9	-3.2, 1.3	-61.0	-207, 85	0.413	-2.8

NOTES: Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change for beneficiaries per 1,000 per year. We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.17. Impact for Unplanned 30-day Readmissions (by NGACO)

	Base Years (2013-2015)			PY1 (2016)			Difference in Difference Impact					
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Impact (%)
ACCST	166.2	166.9	-0.7	160.5	159.8	0.7	1.4	-15.6, 18.3	18.0	-208, 245	0.874	1.0
Baroma	176.9	173.8	3.1	173.7	168.8	4.9	1.8	-10.6, 14.1	49.0	-290, 387	0.779	1.3
Beacon§	167.9	165.7	2.3	149.1	145.7	3.4	1.1	-20.7, 22.9	16.0	-304, 337	0.920	0.9
Bellin	157.2	146.6	10.6	154.4	139.1	15.3	4.7	-26.0, 35.4	39.0	-215, 293	0.764	3.8
CHESS	177.5	176.5	0.9	157.9	166.4	-8.6	-9.5	-28.0, 9.1	-126.0	-372, 121	0.318	-6.5
Deaconess	151.5	152.2	-0.8	145.5	145.7	-0.3	0.5	-21.0, 21.9	14.0	-661, 690	0.966	0.4
Henry Ford	153.0	155.3	-2.3	149.9	147.0	2.9	5.2	-11.4, 21.7	109.0	-239, 456	0.540	4.4
MemorialCare	143.0	150.4	-7.4	139.8	148.8	-8.9	-1.5	-20.1, 17.0	-30.0	-390, 330	0.870	-1.3
Optum	153.3	165.5	-12.2	148.0	157.0	-9.0	3.2	-12.5, 18.8	94.0	-370, 558	0.690	2.4
OSF	172.4	175.3	-2.8	173.9	174.3	-0.4	2.4	-14.8, 19.7	90.0	-544, 723	0.781	1.7
Park Nicollet	159.9	154.6	5.3	153.0	156.1	-3.1	-8.4	-35.8, 19.1	-121.0	-517, 276	0.551	-5.9
Pioneer Valley	171.2	177.3	-6.1	170.2	165.2	5.1	11.2	-3.7, 26.0	379.0	-124, 882	0.140	8.4
Prospect	165.2	164.3	0.9	147.1	150.8	-3.7	-4.6	-23.1, 14.0	-63.0	-319, 193	0.630	-3.5
Steward	174.1	175.5	-1.4	171.6	178.0	-6.5	-5.1	-17.3, 7.1	-185.0	-629, 260	0.415	-3.4
ThedaCare	164.2	177.2	-13.0	183.7	174.7	9.0	22.0	0.9, 43.1	348.0	14, 683	0.041	17.8
Triad	156.8	158.9	-2.1	142.8	155.8	-13.0	-10.9	-44.1, 22.2	-317.0	-1,279, 645	0.519	-8.2
Trinity	170.6	169.9	0.7	163.4	164.4	-1.0	-1.7	-10.9, 7.5	-91.0	-578, 396	0.715	-1.2
UnityPoint	153.7	155.3	-1.6	142.6	139.5	3.1	4.7	-7.7, 17.0	305.0	-504, 1,114	0.460	3.9

NOTES: Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change for beneficiaries per 1,000 per year. We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

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Exhibit G.18. Impact for Unplanned 30-day Hospitalizations after SNF Discharge (by NGACO)

	Baseline Years (2013-2015)			PY1 (2016)			Difference in Difference Impact					
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Impact (%)
ACCST§	166.8	182.6	-15.9	174.1	184.0	-10.0	5.9	-24.5, 36.2	79.0	-328, 485	0.705	4.4
Baroma	195.5	191.1	4.3	187.3	180.9	6.3	2.0	-20.7, 24.7	55.0	-568, 679	0.862	1.4
Beacon	191.4	199.7	-8.4	174.0	182.0	-8.1	0.3	-52.4, 53.1	5.0	-771, 781	0.990	0.3
Bellin	185.1	207.7	-22.7	303.9	245.6	58.3	81.0	-10.2, 172.2	671.0	-85, 1,427	0.082	60.6
CHESS	185.7	201.4	-15.7	158.2	179.0	-20.8	-5.1	-36.6, 26.4	-68.0	-486, 350	0.751	-3.8
Deaconess	189.2	201.4	-12.2	177.5	197.3	-19.8	-7.6	-67.2, 51.9	-240.0	-2,112, 1,632	0.801	-4.9
Henry Ford	178.3	196.4	-18.1	180.3	188.6	-8.3	9.8	-32.6, 52.3	207.0	-685, 1,098	0.650	7.5
MemorialCare	181.4	192.2	-10.7	194.7	193.9	0.8	11.5	-44.3, 67.3	224.0	-862, 1,310	0.686	8.0
Optum	184.5	182.3	2.2	208.3	199.0	9.3	7.1	-33.6, 47.8	209.0	-998, 1,417	0.734	4.0
OSF	183.0	188.4	-5.5	185.2	200.8	-15.6	-10.1	-41.6, 21.5	-370.0	-1,526, 787	0.531	-6.2
Park Nicollet	194.0	188.2	5.8	173.1	200.0	-26.9	-32.7	-107.6, 42.2	-472.0	-1,552, 609	0.393	-17.5
Pioneer Valley	192.7	189.1	3.6	180.9	176.8	4.2	0.6	-27.6, 28.7	20.0	-935, 974	0.968	0.4
Prospect	188.8	202.4	-13.6	222.7	205.4	17.3	30.9	-14.3, 76.1	426.0	-198, 1,050	0.181	22.9
Steward	190.5	186.8	3.7	190.0	187.2	2.8	-0.9	-22.1, 20.4	-32.0	-806, 743	0.936	-0.6
ThedaCare	187.0	184.3	2.8	200.5	179.6	20.9	18.1	-24.0, 60.2	286.0	-381, 954	0.400	12.9
Triad	192.6	205.8	-13.3	196.5	202.1	-5.7	7.6	-78.5, 93.7	220.0	-2,280, 2,721	0.863	5.0
Trinity	190.2	188.2	2.0	194.8	189.6	5.2	3.2	-14.9, 21.3	171.0	-787, 1,128	0.727	2.2
UnityPoint	201.6	190.3	11.3	190.0	187.9	2.1	-9.2	-44.8, 26.5	-600.0	-2,933, 1,734	0.615	-5.8

NOTES: Unplanned 30-day hospitalizations after skilled nursing facility discharge includes unplanned direct transfers from SNFs to acute inpatient hospitals Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change for beneficiaries per 1,000 per year. We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Exhibit G.19. Impact for Number of Annual Wellness Visits (by NGACO)

	Baseline Years (2013-2015)			PY1 (2016)			Difference in Difference Impact					
	NGACO	Comparison	Difference	NGACO	Comparison	Difference	Estimate Annual	95% CI	Aggregate Impact	95% CI	p-value	Impact (%)
ACCST§	330.9	173.6	157.3	467.4	250.6	216.8	59.5	49.5, 69.5	797.0	663, 930	0.000	29.8
Baroma§	166.1	168.9	-2.7	242.9	240.1	2.8	5.5	-1.5, 12.5	152.0	-40, 344	0.121	3.0
Beacon§	267.0	200.1	66.9	245.5	235.8	9.8	-57.1	-68.1, -46.2	-841.0	-1,001, -680	0.000	-24.7
Bellin§	422.3	247.4	174.9	563.9	353.0	210.8	35.9	22.4, 49.4	297.0	185, 409	0.000	17.8
CHESS§	299.3	222.2	77.1	401.7	312.6	89.1	12.0	0.9, 23.2	160.0	12, 308	0.034	5.5
Deaconess§	127.7	137.4	-9.7	244.5	161.6	82.9	92.6	84.6, 100.5	2,910.0	2,661, 3,160	0.000	116.2
Henry Ford§	150.3	199.1	-48.8	292.1	290.6	1.5	50.3	42.4, 58.1	1,055.0	890, 1,220	0.000	32.5
MemorialCare§	194.2	184.1	10.2	207.4	202.2	5.2	-5.0	-12.5, 2.6	-97.0	-243, 50	0.195	-3.0
Optum§	334.3	220.8	113.4	380.9	278.6	102.2	-11.2	-19.5, -2.9	-332.0	-580, -85	0.009	-4.8
OSF§	36.7	74.6	-37.8	21.4	84.0	-62.6	-24.8	-28.9, -20.7	-909.0	-1,060, -759	0.000	-43.6
Park Nicollet§	48.8	170.4	-121.6	104.6	189.0	-84.4	37.2	31.4, 43.1	537.0	452, 621	0.000	86.3
Pioneer Valley§	260.8	224.4	36.4	370.9	286.4	84.5	48.1	39.4, 56.7	1,629.0	1,336, 1,923	0.000	26.1
Prospect§	167.9	136.6	31.2	183.2	167.8	15.4	-15.8	-24.0, -7.6	-218.0	-332, -104	0.000	-9.4
Steward	373.8	262.2	111.6	493.8	352.6	141.2	29.6	22.7, 36.5	1,081.0	829, 1,332	0.000	13.9
ThedaCare§	428.1	336.6	91.6	526.0	451.6	74.4	-17.2	-29.0, -5.4	-273.0	-460, -85	0.004	-8.1
Triad§	299.6	212.1	87.5	369.5	283.3	86.2	-1.3	-17.5, 14.9	-37.0	-507, 433	0.878	-0.6
Trinity	117.1	199.1	-82.0	201.1	257.9	-56.8	25.2	20.9, 29.6	1,335.0	1,106, 1,564	0.000	19.9
Unity Point§	169.7	113.1	56.6	259.9	160.5	99.4	42.8	37.1, 48.6	2,804.0	2,427, 3,180	0.000	31.3

NOTES: Aggregate impact is the estimated relative change for beneficiary-months of alignment to NGACOs in PY1 (2016). Annual estimate is the estimated relative change for beneficiaries per 1,000 per year. We report percentage impact relative to expected outcome for the NGACO group in 2016 absent the NGACO Model. §Failed assumption of parallel trends between the first and last baseline year.

Parallel Trends Test Results

Exhibits G.20 to G.23 depict the adjusted parallel trends results for each BY and PY, for total Medicare spending, home health spending, hospice spending, and ED visits. The § symbol at BY1 indicates a significant difference in the change between 2013 and 2015 in the outcome between the NGACO and comparison group, indicating a failure of the assumption of no difference in the pre-period trend. This assumption passes for total Medicare spending, but fails for home health spending, hospice spending, and ED visits. Additionally, an asterisk (*) at PY1 indicates that the NGACO group had a relatively lower trend for total spending, hospice spending, and home health spending, relative to the pooled base years ($p<0.10$). However, due to the failure of the parallel trends test for hospice and home health spending, the significant relative reductions observed may not be attributable to the NGACO incentives alone.

Exhibit G.20. Adjusted Total Medicare Spending, 2013 to 2016, NGACO and Comparison Groups

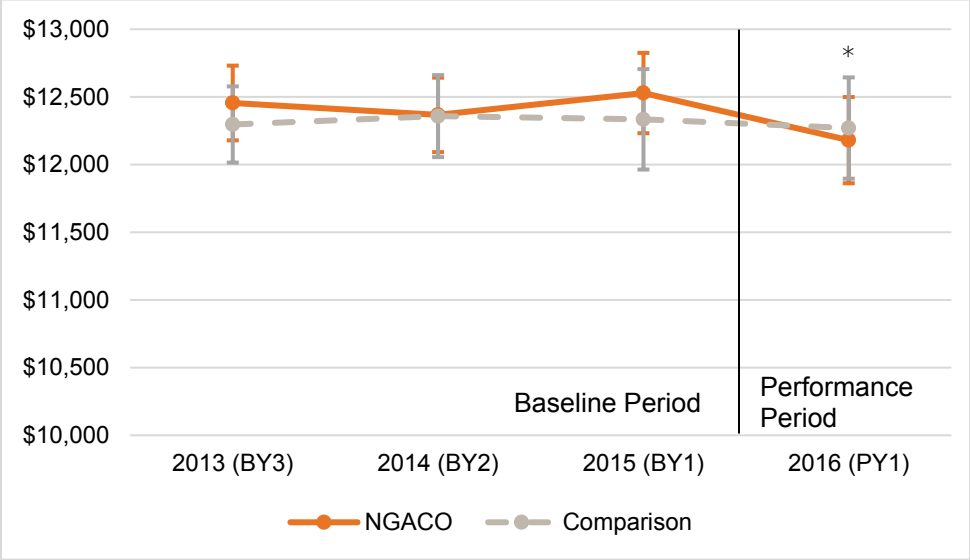


Exhibit G.21. Adjusted Home Health Spending, 2013 to 2016, NGACO and Comparison Groups

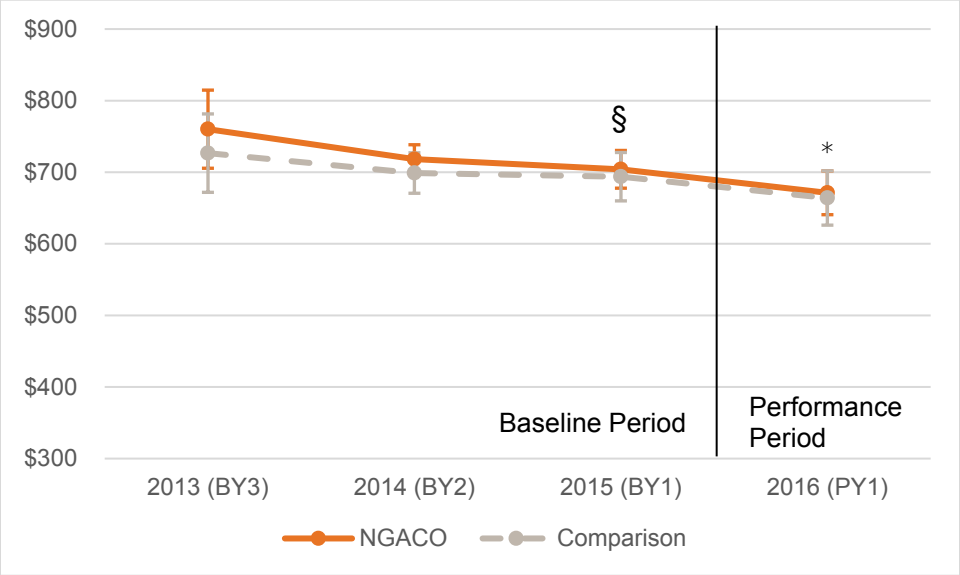


Exhibit G.22. Adjusted Hospice Spending, 2013 to 2016, NGACO and Comparison Groups

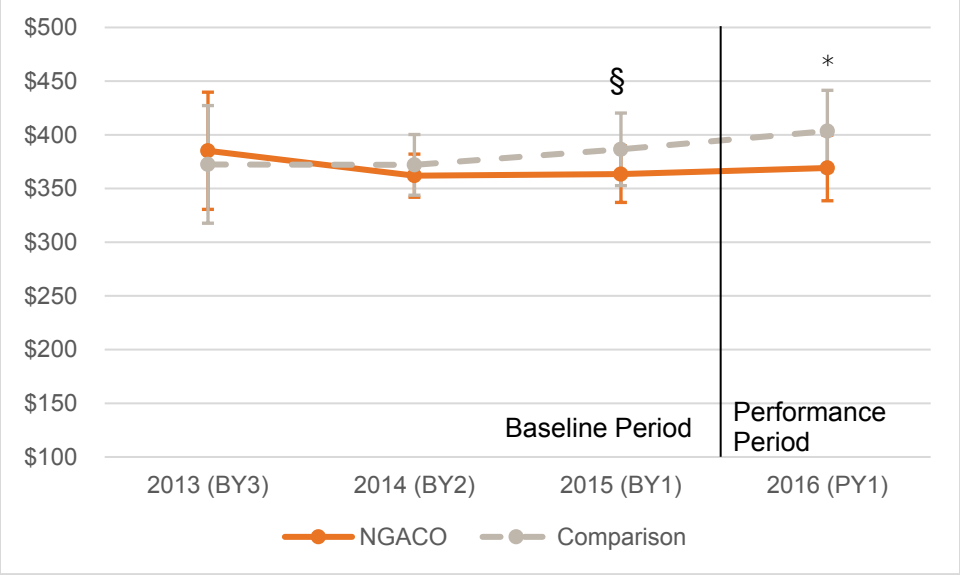
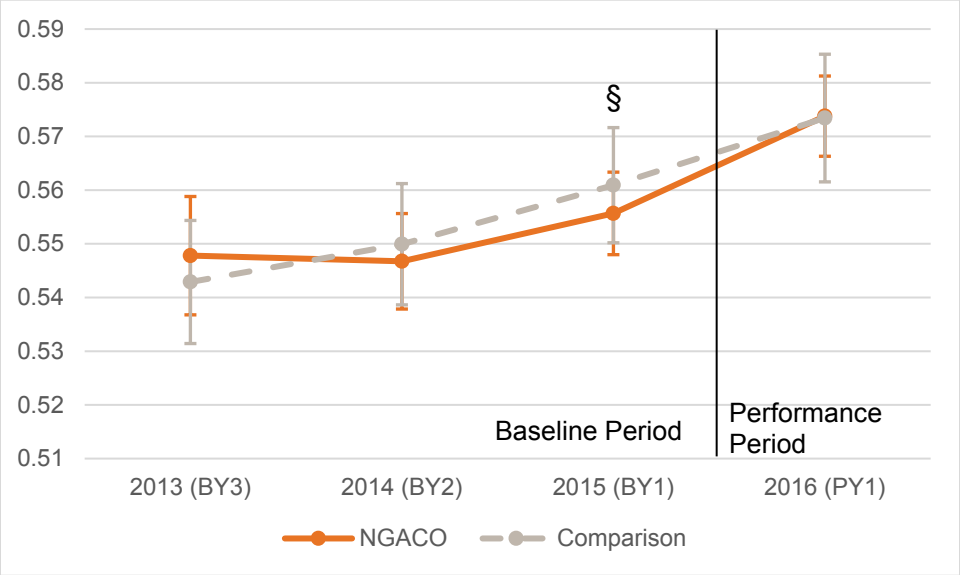


Exhibit G.23. Adjusted ED Visits, 2013 to 2016, NGACO and Comparison Groups



The next set of three tables (G.24 to G.27) present results of the DID models predicting differences between the first and last baseline year (2013 to 2015), between the NGACO and comparison group, with leading interaction terms. Spending is the DID estimate in dollars, utilization is presented as the impact per 1,000 beneficiaries and quality of care is presented as the impact per 1,000 beneficiaries. Results asterisked (**) below indicate a significant difference in the change between 2013 and 2015 in the outcome between the NGACO and comparison group, indicating a failure of the assumption of no difference in the pre-period trend. In the report, we consider any such finding as not attributable to the impact of NGACO incentives.

Exhibit G.24. Results of Parallel Trend Test, First and Last Baseline Years, Medicare Spending Categories, Average Per Month Estimates (By NGACO)

	Total Medicare Spending (Part A&B)	Outpatient/ Office Spending	Acute Care Hospital Spending	SNF Spending	DME Spending	Home Health Spending	Hospice Spending	Other Post-Acute Spending
2016 Class	0.27	0.34	0.36	-0.02	-0.02	-0.18**	-0.27**	-0.03
ACCST	3.85	1.08	0.99	-0.60	0.41	-0.03	0.39	-0.24
Baroma	5.62**	0.95	2.86**	0.40	-0.01	0.11	-0.08	0.30
Beacon	-0.74	-0.27	-0.82	0.40	0.43**	-0.13	0.0.09	0.19
Bellin	1.68	0.74	1.64	-0.01	0.04	-0.31	-0.21	-0.43
CHESS	-6.05**	-1.81	-2.42	-0.06	-0.15	-0.21	0.13	0.28
Deaconess	3.41	0.60	2.36**	0.51	0.18	-0.51**	-0.45	-0.15
Henry Ford	-5.63	-1.77	0.77	-1.21**	0.0.2	-0.34	-0.52**	-0.31
MemorialCare	-5.00	0.16	-1.92	-0.85	-0.01	-0.31	-0.51	-0.10
Optum	1.23	2.07**	-1.47	0.24	-0.31	-0.04	-0.49	-0.70**
OSF	-0.18	0.04	-0.54	1.06**	-0.45	-0.32**	-0.29	-0.08
Park Nicollet	2.76	0.94	2.61	0.48	-0.20	0.12	-0.26	-0.39
Pioneer Valley	-3.20	-0.72	-0.97	-2.45**	-0.08	-0.36	-0.15	-0.20
Prospect	-5.79	0.81	-1.93	-1.05	-0.04	-0.97**	-0.80**	1.51

	Total Medicare Spending (Part A&B)	Outpatient/ Office Spending	Acute Care Hospital Spending	SNF Spending	DME Spending	Home Health Spending	Hospice Spending	Other Post-Acute Spending
Steward	-0.52	-0.97	1.51	0.27	0.10	0.17	-0.15	0.18
ThedaCare	-4.58	-0.84	-1.83	-0.84	-0.07	-0.43**	0.0.3	0.15
Triad	4.94	3.21**	2.29	1.06	0.24	-0.24	-0.15	0.37
Trinity	1.50	-0.02	-0.38	0.29	0.05	0.24**	-0.01	0.58**
UnityPoint	-0.89	0.50	-0.21	0.16	-0.00	-0.07	-0.35**	-0.51**

NOTES: ** Indicates a difference significant at p< .05 level between the NGACO and comparison group, between the first and last baseline year. The values reported represent the estimated relative change between the treatment and comparison groups for each NGACO from the first to last baseline year.

Exhibit G.25. Results of Parallel Trend Test for Utilization Measures, Average Per Month Estimates (By NGACO)

	Inpatient Admissions	Acute Care Hospital Days	ED Visits including Observation Stays	Nonhospital E&M Visits
2016 Class	0.02	-0.02	-0.08**	-1.83
ACCST	0.07	0.50	-0.12	3.80**
Baroma	0.24**	0.91**	0.16**	-0.52
Beacon	0.00	-0.09	0.01	-28.75**
Bellin	0.07	0.16	-0.14	2.93**
CHESS	-0.15**	-0.99	-0.23	3.20**
Deaconess	0.26**	0.79	-0.32**	0.14
Henry Ford	-0.09	0.15	-0.42**	-28.74**
MemorialCare	-0.04	-0.31	-0.23**	3.11**
Optum	-0.10	0.02	0.19**	-0.77
OSF	0.01	-0.11	0.03	-0.48
Park Nicollet	0.11	0.47	-0.12	5.75**
Pioneer Valley	-0.12	-1.05**	-0.09	-6.67**
Prospect	-0.11	-0.80	-0.03	0.26
Steward	0.00	-0.02	-0.27**	2.17**
ThedaCare	-0.09	-0.51	-0.52**	0.45
Triad	0.13	0.15	0.12	0.76
Trinity	-0.03	-0.11	-0.02	-1.42**
UnityPoint	0.02	-0.06	0.05	1.68**

NOTES: ** Indicates a difference significant at p< .05 level between the NGACO and comparison group between the first and last baseline year. The values reported represent the estimated relative change between the treatment and comparison groups for each NGACO from the first to last baseline year.

Exhibit G.26. Results of Parallel Trends for Quality Measures, Per 1,000 Beneficiaries Estimates (By NGACO)

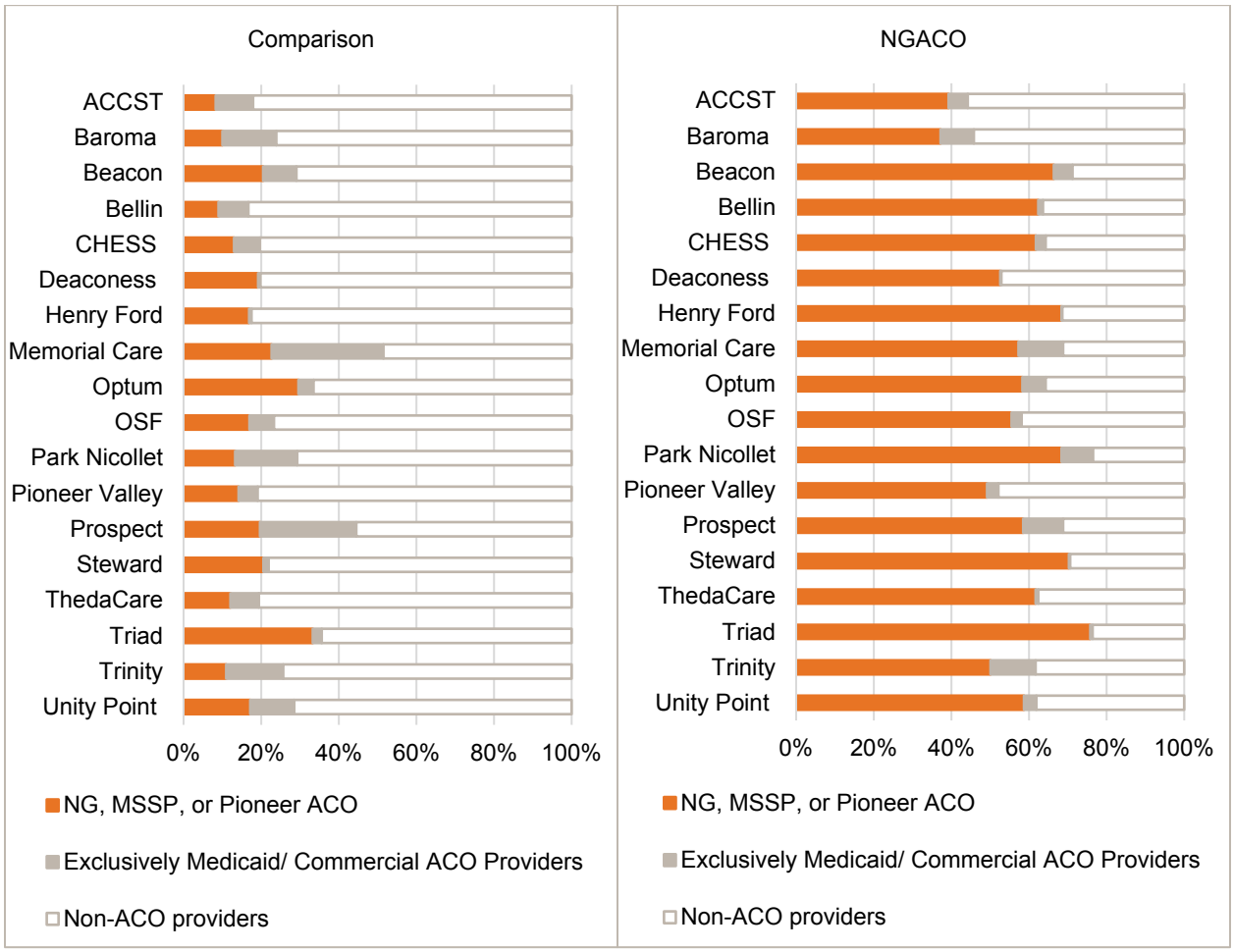
	ACSC Hospitalizations	Unplanned 30-day Readmissions	Unplanned 30-day Hospitalizations after SNF Discharge	Annual Wellness Visit
2016 Class	0.20	-0.60	-0.60	107.00
ACCST	4.20	0.60	-42.70**	229.70**
Baroma	5.20**	-2.70	6.80	52.80**
Beacon	-1.30	31.00**	-10.10	-81.10**
Bellin	0.60	-30.60	-97.60	-45.80**
Chess	-3.00	6.10	13.40	-37.00**
Deaconess	1.30	-9.60	-16.30	86.00**
Henry Ford	0.20	-6.60	-28.60	58.00**
Memorial Care	-0.20	-0.40	13.60	11.10**
Optum	-1.50	7.10	28.30	-26.70**
OSF	-1.20	-15.40	-2.20	-6.60**
Park Nicollet	0.80	-8.60	-69.30	-35.10**
Pioneer Valley	-5.20**	5.80	22.90	13.70**
Prospect	1.20	3.30	-27.80	10.50**
Steward	-0.70	-6.10	10.20	3.70
ThedaCare	-2.00	-5.30	-30.10	-88.00**
Triad	3.10	31.10	15.00	19.00**
Trinity	1.10	3.00	1.40	-1.50
Unity Point	0.60	-7.70	-14.70	-12.30**

NOTES: ** Indicates a difference significant at p<.05 level between the NGACO and comparison group between the first and last baseline year. The values reported represent the estimated relative change between the treatment and comparison groups for each NGACO from the first to last baseline year.

Spillover Results

In Exhibit G.27 below, we present the results of our spillover assessment for 2016, as measured by E&M visits delivered by providers in any Medicare ACO (SSP, Pioneer, and NGACOs), by providers in any commercial or Medicaid ACO but not in any Medicare ACO, and by providers not in any ACO.

Exhibit G.27. Spillover: E&M Visits to Providers, by NGACO Participation in PY1 (2016)



Exhibits G.28 and G.29 present the results from a comparison of the actual Medicare payment (including penalties and incentives) and the Medicare payment without penalties and incentives, for the overall 2016 NGACO class and for each ACO individually. We see that the difference between these two measures is very small (<1 percent of actual Medicare payment) for all ACOs, and correspondingly the impact of the penalties/incentives is small. Penalties/incentives from the physician quality reporting system (PQRS), meaningful use (MU), and value modifier payment adjustment (VM), overall, make up a smaller percentage of actual Medicare payment compared to total penalties/incentives.

Exhibit G.28. Results of Comparison of Actual Medicare Payment and Medicare Payment without Penalties/Incentives (2016)

		Actual Medicare Payment		Medicare Payment without Penalties/Incentives		
		$ PBPM		$ PBPM		% of Actual Medicare Payment
		Mean	*SD*	*Mean*	*SD*	
2016 Class	NGACO Group	1035.65	2637.66	1038.40	2644.29	100.27
	Comparison Group	1164.45	3323.65	1167.87	3333.16	100.29
OSF	NGACO Group	909.76	2373.24	911.92	2378.86	100.24
	Comparison Group	1063.12	3212.72	1066.46	3223.06	100.31
Steward	NGACO Group	1225.79	2965.86	1229.56	2975.53	100.31
	Comparison Group	1293.26	3421.55	1296.83	3430.35	100.28
Baroma	NGACO Group	1441.39	3294.11	1447.89	3306.30	100.45
	Comparison Group	1659.16	4360.09	1666.90	4379.57	100.47
ThedaCare	NGACO Group	806.28	1945.95	806.79	1946.07	100.06
	Comparison Group	999.03	2708.64	999.49	2709.22	100.05
Pioneer Valley	NGACO Group	1017.27	2545.29	1019.39	2548.03	100.21
	Comparison Group	1077.37	2915.44	1080.18	2920.55	100.26
CHESS	NGACO Group	890.44	2140.17	892.26	2144.90	100.20
	Comparison Group	1026.80	2676.05	1028.82	2681.44	100.20
ACCST	NGACO Group	1176.33	3060.67	1179.46	3066.89	100.27
	Comparison Group	1346.19	3923.36	1350.19	3932.63	100.30
Trinity	NGACO Group	1018.09	2647.69	1021.43	2656.80	100.33
	Comparison Group	1144.18	3394.75	1148.51	3408.32	100.38
Optum	NGACO Group	963.96	2323.11	966.36	2327.47	100.25
	Comparison Group	1099.56	2887.64	1102.22	2892.74	100.24
Prospect	NG ACO Group	1682.36	4574.10	1688.70	4585.76	100.38
	Comparison Group	1867.56	5540.55	1874.85	5558.37	100.39
Beacon	NGACO Group	932.13	2143.74	934.48	2148.17	100.25
	Comparison Group	1011.34	3081.57	1013.94	3088.52	100.26
Henry Ford	NGACO Group	1139.55	3054.21	1143.95	3068.85	100.39
	Comparison Group	1258.42	3691.17	1264.50	3710.18	100.48
Deaconess	NGACO Group	1006.47	2364.61	1010.25	2373.85	100.38
	Comparison Group	1145.16	2980.50	1150.16	2995.47	100.44
Park Nicollet	NGACO Group	931.29	2206.24	930.23	2202.15	99.89
	Comparison Group	1123.77	3148.17	1124.09	3148.36	100.03
UnityPoint	NGACO Group	874.21	2227.08	875.94	2230.77	100.20
	Comparison Group	967.40	2616.55	969.55	2621.65	100.22
Bellin	NGACO Group	813.50	1916.24	813.32	1914.58	99.98
	Comparison Group	953.51	2957.51	953.39	2955.30	99.99
Triad	NGACO Group	884.61	2034.19	884.93	2033.54	100.04
	Comparison Group	1036.70	2733.45	1037.57	2733.97	100.08
MemorialCare	NGACO Group	1217.90	3261.40	1222.37	3269.61	100.37
	Comparison Group	1391.67	4367.51	1396.57	4378.30	100.35

NOTES: Data are unadjusted total Medicare payment amounts (Part A and B) in PY1 (2016) for NGACO and a propensity weighted comparison group. Actual Medicare Payment amount includes provider incentives and penalties. Medicare payment without Penalties/Incentives excludes provider penalties/incentives on Part B claims (PQRS negative adjustment, MU, VM, Value Modifier positive adjustment, eRX negative adjustment, Ambulatory Surgical Center negative payment adjustment) and Part A claims (Hospital Readmission Reduction negative adjustment, Meaningful Use negative adjustment, Value Based Payment positive and negative adjustment).

Exhibit G.29. Results of Average Penalties/Incentives, Total and Due to Physician Quality Reporting System, Meaningful Use, and Value Modifier, NGACO and Comparison Groups (2016)

		Total Penalties/Incentives			Total Penalties/Incentives Due to PQRS, MU, and VM**		
		$ PBPM		% of True Medicare Payment	$ PBPM		% of True Medicare Payment
		Mean	*SD*		*Mean*	*SD*	
2016 Class	NGACO Group	2.76	11.46	0.2665	1.52	4.89	0.1468
	Comparison Group	3.42	15.82	0.2937	1.96	6.36	0.1683
OSF	NGACO Group	2.16	10.85	0.2374	0.96	5.86	0.1055
	Comparison Group	3.34	16.48	0.3142	1.48	7.06	0.1392
Steward	NGACO Group	3.77	13.44	0.3076	1.37	2.69	0.1118
	Comparison Group	3.57	13.73	0.2760	1.75	4.24	0.1353
Baroma	NGACO Group	6.50	20.31	0.4510	3.12	9.92	0.2165
	Comparison Group	7.75	26.95	0.4671	4.29	11.71	0.2586
ThedaCare	NGACO Group	0.52	3.59	0.0645	0.66	2.23	0.0819
	Comparison Group	0.46	6.67	0.0460	0.75	3.70	0.0751
Pioneer Valley	NGACO Group	2.13	6.10	0.2094	1.45	2.58	0.1425
	Comparison Group	2.82	9.47	0.2617	1.82	3.95	0.1689
CHESS	NGACO Group	1.82	7.82	0.2044	0.88	2.16	0.0988
	Comparison Group	2.02	11.93	0.1967	1.23	3.16	0.1198
ACCST	NGACO Group	3.13	8.61	0.2661	2.49	5.50	0.2117
	Comparison Group	3.99	13.18	0.2964	2.91	7.38	0.2162
Trinity	NGACO Group	3.34	13.78	0.3281	1.39	4.59	0.1365
	Comparison Group	4.33	20.50	0.3784	2.09	6.30	0.1827
Optum	NGACO Group	2.40	8.06	0.2490	1.89	4.08	0.1961
	Comparison Group	2.66	11.94	0.2419	2.30	5.09	0.2092
Prospect	NGACO Group	6.34	15.95	0.3769	4.83	9.34	0.2871
	Comparison Group	7.29	25.17	0.3903	5.07	13.08	0.2715
Beacon	NGACO Group	2.34	7.24	0.2510	1.36	4.31	0.1459
	Comparison Group	2.60	10.17	0.2571	1.67	7.79	0.1651
Henry Ford	NGACO Group	4.40	17.01	0.3861	1.23	4.77	0.1079
	Comparison Group	6.08	22.54	0.4831	2.30	7.00	0.1828
Deaconess	NGACO Group	3.78	13.82	0.3756	1.26	2.37	0.1252
	Comparison Group	5.00	20.05	0.4366	1.57	3.19	0.1371
Park Nicollet	NGACO Group	-1.06	7.89	0.1138	0.10	4.80	0.0107
	Comparison Group	0.31	7.94	0.0276	1.01	5.61	0.0899
UnityPoint	NGACO Group	1.74	6.73	0.1990	0.94	2.21	0.1075
	Comparison Group	2.15	8.89	0.2222	1.23	3.35	0.1271
Bellin	NGACO Group	-0.18	5.62	0.0221	0.90	2.27	0.1106
	Comparison Group	-0.12	8.83	0.0126	0.75	2.95	0.0787
Triad	NGACO Group	0.32	4.54	0.0362	0.75	1.75	0.0848
	Comparison Group	0.87	7.86	0.0839	1.04	2.91	0.1003
MemorialCare	NGACO Group	4.46	11.78	0.3662	3.81	8.62	0.3128
	Comparison Group	4.90	16.33	0.3521	3.84	10.35	0.2759

NOTES: MU= Meaningful Use. PQRS = Physician Quality Reporting System. VM= Value Modifier Payment Adjustment. ** Total Penalties/Incentives due to PQRS (Part B), Meaningful Use (Part A & B) and VM (Part B)

Appendix H: Survey Frequency Tables

Exhibit H.1. NGACO Survey Frequency Tables (as of 12/29/2017)

1. What type of organization is your Next Gen ACO? *Select all that apply*	Frequency	Count
Physician-only ACO	6.3%	1
Physician-only ACO; LLC model	6.3%	1
LLC model	43.8%	7
Nonprofit tax-exempt corporation	18.8%	3
Nonprofit tax-exempt corporation; LLC model	6.3%	1
For-profit corporation	12.5%	2
Hospital Division or Single-member LLC	6.3%	1
Missing		0

1. What type of organization is your Next Gen ACO? *Physician-only ACO*	Frequency	Count
Yes	12.5%	2
No	87.5%	14

1. What type of organization is your Next Gen ACO? *Nonprofit tax-exempt corporation*	Frequency	Count
Yes	25.0%	4
No	75.0%	12

1. What type of organization is your Next Gen ACO? *For-profit corporation*	Frequency	Count
Yes	12.5%	2
No	87.5%	14

1. What type of organization is your Next Gen ACO? *LLC model*	Frequency	Count
Yes	56.3%	9
No	43.8%	7

1. What type of organization is your Next Gen ACO? *Hospital Division or Single-member LLC*	Frequency	Count
Yes	6.3%	1
No	93.8%	15

2. Which of the following best describes the structure of your Next Gen ACO? *Choose only one*	Frequency	Count
Group Practice	6.3%	1
Hospital System	12.5%	2
Integrated-Delivery System	43.8%	7
Network of Physicians or Independent Physician Association	18.8%	3
Physician-Hospital Organization	18.8%	3
Missing		0

3. Please tell us about the composition of your Next Gen ACO's governing board. How many members of your Next Gen ACO's governing board belong to the following categories?	Frequency	Count
Patients/Consumers		
0	0.0%	0
1	78.6%	11
2	21.4%	3
Missing		2
Physicians		
0	7.1%	1
1	0.0%	0
2	7.1%	1
3	7.1%	1
4	7.1%	1
5	7.1%	1
6	7.1%	1
7	21.4%	3
8	7.1%	1
9	14.3%	2
10	0.0%	0
11	0.0%	0
12	7.1%	1
13	0.0%	0
14	7.1%	1
Missing		2
Hospital Representatives/Executives		
0	21.4%	3
1	7.1%	1
2	21.4%	3
3	21.4%	3
4	7.1%	1
5	21.4%	3
Missing		2
Community Service Providers		
0	71.4%	10
1	28.6%	4
Missing		2
Other		
0	71.4%	10
1 (Administrative)	7.1%	1
2 (ACO Administration, Patient Advocate Finance Member)	14.3%	2
3 (ACO Participant Designated Representative)	7.1%	1
5 (Unspecified)	0.0%	0
Missing		2

4. Please tell us about the activities performed by members of your Next Gen ACO's governing board. In which of the following activities are members of your Next Gen ACO's governing board involved? (*Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Selecting the CEO	46.7%	7
Defining mission	86.6%	13
Overseeing management of ACO staff	73.3%	11
Overseeing ACO finances	100.0%	15
Overseeing ACO data analytics on beneficiary costs, utilization, and quality	100.0%	15
Designing provider networks and maintaining contracts	46.7%	7
Overseeing ethics and regulatory compliance	86.6%	13
Maintaining government contracts	26.7%	4
Building community relationships	40.0%	6
Other: Peer to peer reviews with providers who are not fully engaged in supporting the care coordination team and management of beneficiaries. As well, they review peer to peer with acute facilities.	6.7%	1
Missing		1

5. Do physicians hold equity positions in your Next Gen ACO?	**Frequency**	**Count**
Yes, all hold equity positions	13.3%	2
Yes, some hold equity positions	0.0%	0
No, none hold equity positions	53.3%	8
Not applicable	26.7%	4
Don't know	6.7%	1
Missing		1

Q6. Does your Next Gen ACO currently participate in any <u>non-Medicare</u> value-based savings programs? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Medicaid ACO Program	16.7%	2
Dual Medicare-Medicaid ACO Program	8.3%	1
Commercial shared savings contracts	58.3%	7
No	25.0%	3
Other: Colleague Health Plan	8.3%	1
Other: Medicare Advantage	8.3%	1
Don't know	8.3%	1
Missing		4

7. How many years of experience did your organization have as any type of ACO (commercial, Medicare, or other) prior to participating in the Next Gen model?	**Frequency**	**Count**
0 years	13.3%	2
1 years	0.0%	0
2 years	6.7%	1
3 years	33.3%	5
4 years	13.3%	2
5 years	6.7%	1
6 years	6.7%	1
7 years	6.7%	1
8 years	0.0%	0
9 years	6.7%	1
10 years	0.0%	0
11 years	6.7%	1
Missing		1

8. What year did your organization first enter value-based contract arrangements?	Frequency	Count
1997	14.3%	2
2008	7.1%	1
2009	7.1%	1
2010	7.1%	1
2011	7.1%	1
2012	28.6.%	4
2013	14.3%	2
2016	14.3%	2
Missing		2

9. Which of the following processes does your Next Gen ACO use to manage financial risk? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
A process for verifying patient eligibility and benefits	60.0%	9
Information systems to track utilization	80.0%	12
Risk adjustment methodology to determine required reimbursement levels	60.0%	9
Process to conduct ongoing monitoring of services rendered and the cost for those services compared to the revenue received	40.0%	6
Stop-loss or reinsurance provisions	46.7%	7
Financial strength requirements to accept risk (e.g., solvency requirements)	46.7%	7
Other	0.0%	0
None of the above	0.0%	0
Missing		1

10. Are you passing on financial risk to any of the following providers? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
Hospitals	40.0%	6
Participating providers	40.0%	6
Preferred providers	0.0%	0
SNFs	13.3%	2
Other	0.0%	0
None of the above	46.7%	7
Missing		1

11. What kinds of data does your Next Gen ACO use to evaluate/track your performance? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
Financial measures	93.3%	14
Utilization measures in claims data	93.3%	14
Patient satisfaction measures (e.g., CAHPS)	100.0%	15
Clinic/Practice level quality measures	93.3%	14
Physician level quality measures	60.0%	9
Clinical data on the health status of your Next Gen ACO population	66.7%	10
Health indicators across the entire geographic area served	40.0%	6
Other	0.0%	0
Missing		1

12. How frequently do you monitor these performance measures? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
Financial measures		
Weekly	0.0%	0
Monthly	92.9%	13
Quarterly	21.4%	3
Annually	14.3%	2
Valid Skip		1
Missing		1
Utilization measures		
Weekly	14.3%	2
Monthly	57.1%	8
Quarterly	35.7%	5
Annually	7.1%	1
Valid Skip		1
Missing		1
Patient satisfaction measures		
Weekly	0.0%	0
Monthly	20.0%	3
Quarterly	26.7%	4
Annually	60.0%	9
Valid Skip		0
Missing		1
Clinic/Practice level quality measures		
Weekly	14.3%	2
Monthly	64.3%	9
Quarterly	35.7%	5
Annually	14.3%	2
Valid Skip		1
Missing		1
Physician level quality measures		
Weekly	22.2%	2
Monthly	77.8%	7
Quarterly	33.3%	3
Annually	11.1%	1
Valid Skip		6
Missing		1
Clinical data on the health status of your Next Gen ACO population		
Weekly	22.2%	2
Monthly	77.8%	7
Quarterly	22.2%	2
Annually	22.2%	2
Valid Skip		5
Missing		2
Health indicators across the entire geographic area served		
Weekly	0.0%	0
Monthly	33.3%	2
Quarterly	33.3%	2
Annually	50.0%	3
Valid Skip		9
Missing		1

13. For which care settings do you track data on the following types of performance indicators? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
Financial measures		
Hospitals	85.7%	12
Physician Practices	92.9%	13
Individual Physicians	71.4%	10
Skilled Nursing Facilities	71.4%	10
Home Health Agencies	57.1%	8
Valid Skip		1
Missing		1
Utilization measures		
Hospitals	71.4%	10
Physician Practices	92.9%	13
Individual Physicians	78.6%	11
Skilled Nursing Facilities	71.4%	10
Home Health Agencies	71.4%	10
Valid Skip		1
Missing		1
Patient satisfaction measures		
Hospitals	60.0%	9
Physician Practices	93.3%	14
Individual Physicians	80.0%	12
Skilled Nursing Facilities	13.3%	2
Home Health Agencies	13.3%	2
Valid Skip		0
Missing		1
Clinic/Practice level quality measures		
Hospitals	35.7%	5
Physician Practices	92.9%	13
Individual Physicians	92.9%	13
Skilled Nursing Facilities	28.6%	4
Home Health Agencies	14.3%	2
Valid Skip		1
Missing		1
Physician level quality measures		
Hospitals	22.2%	2
Physician Practices	77.8%	7
Individual Physicians	88.9%	8
Skilled Nursing Facilities	11.1%	1
Home Health Agencies	0.0%	0
Valid Skip		6
Missing		1
Clinical data on the health status of your Next Gen ACO population		
Hospitals	88.9%	8
Physician Practices	100.0%	9
Individual Physicians	88.9%	8
Skilled Nursing Facilities	44.4%	4
Home Health Agencies	44.4%	4
Valid Skip		5
Missing		2
Health indicators across the entire geographic area served		
Hospitals	100.0%	3
Physician Practices	100.0%	3
Individual Physicians	66.7%	2
Skilled Nursing Facilities	33.3%	1
Home Health Agencies	100.0%	3
Valid Skip		9
Missing		4

14. What is the nature of your Next Gen ACO's relationship with its primary care providers?	Frequency	Count
All are employees of the ACO	13.3%	2
All are independent contractors to the ACO	33.3%	5
Some are employees and some are contractors	46.7%	7
Don't know	0.0%	0
Not applicable	6.7%	1
Missing		1

15. Approximately how many primary care providers are employed by your Next Gen ACO?	Frequency	Count
Fewer than one quarter	14.3%	1
At least one quarter but fewer than half	28.6%	2
At least half but fewer than three quarters	28.6%	2
Three quarters or more	28.6%	2
Don't know	0.0%	0
Valid Skip		8
Missing		1

16. What is the nature of your Next Gen ACO's relationship with its specialty care providers?	Frequency	Count
All are employees of the ACO	6.7%	1
All are independent contractors to the ACO	33.3%	5
Some are employees and some are contractors	46.7%	7
Don't know	0.0%	0
Not applicable	13.3%	2
Missing		1

17. Approximately how many specialty care providers are employed by your Next Gen ACO?	Frequency	Count
Fewer than one quarter	28.6%	2
At least one quarter but fewer than half	28.6%	2
At least half but fewer than three quarters	28.6%	2
Three quarters or more	14.3%	1
Don't know	0.0%	0
Valid Skip		8
Missing		1

18. Please provide the number of staff in each category directly employed by your ACO.	Frequency	Count
Administrative/ Management		
1	7.7%	1
2	7.7%	1
3	23.1%	3
4	7.7%	1
5	15.4%	2
7	15.4%	2
10	15.4%	2
20	7.7%	1
Missing		3
Care Management		
0	23.1%	3
2	7.7%	1
5	7.7%	1
7	7.7%	1
10	7.7%	1
12	7.7%	1
15	7.7%	1
36	7.7%	1
37	7.7%	1
47	7.7%	1
50	7.7%	1
Missing		3
Information Technology/ Data Analytic		
0	7.7%	1
1	14.3%	2
2	21.4%	3
4	14.3%	2
5	14.3%	2
6	7.1%	1
7	7.1%	1
9	7.1%	1
Missing		3
Behavioral Health (non-MD)		
0	84.6%	11
1	15.4%	2
Missing		3
Patient Education		
0	61.5%	8
1	23.1%	3
3	7.7%	1
11	7.7%	1
Missing		3
Pharmacy Services		
0	61.5%	8
1	23.1%	3
2	7.7%	1
4	7.7%	1
Missing		3
Other		
No Other Staff	69.2%	9
3 (Government Relations, Legal, Compliance)	7.7%	1
5 (Provider Relations Staff)	7.7%	1
5 (2 Hospital Case Managers, 2 Hospitalists, 1 NP)	7.7%	1
9 (Accounting Secretarial Member Services Contracting)	7.7%	1
Missing		3

19. Approximately, how many of each of these types of staff were hired specifically to fulfill each of the following requirements of the Next Gen ACO model?	Frequency	Count
Administrative/ Management		
0	23.1%	3
1	15.4%	2
2	23.1%	3
3	7.7%	1
4	7.7%	1
5	15.4%	2
7	7.7%	1
Missing		3
Care Management		
2	20.0%	2
5	30.0%	3
7	10.0%	1
12	10.0%	1
14	10.0%	1
15	10.0%	1
18	10.0%	1
Valid Skip		3
Missing		3
Information Technology/ Data Analytic		
0	25.0%	3
1	16.7%	2
2	16.7%	2
3	8.3%	1
4	16.7%	2
5	16.7%	2
Valid Skip		1
Missing		3
Behavioral Health (non-MD)		
1	100.0%	2
Valid Skip		11
Missing		3
Patient Education		
0	60.0%	3
1	20.0%	1
11	20.0%	1
Valid Skip		8
Missing		3
Pharmaceutical Services		
0	50.0%	2
1	50.0%	2
Valid Skip		8
Missing		4
Other		
0 (Accounting Secretarial Member Services Contracting)	25.0%	1
0 (Government Relations, Legal, Compliance)	25.0%	1
5 (Provider Relations Staff)	25.0%	1
5 (Hospital Case Managers, Hospitalists, NP)	25.0%	1
Valid Skip		9
Missing		3

20. Does your Next Gen ACO contract staff for any of the following functions?	Frequency	Count
Administrative/ Management		
Yes	6.7%	1
No	93.3%	14
Missing		1
Care Management		
Yes	13.3%	2
No	86.7%	13
Missing		1
Information Technology/ Data Analytic		
Yes	26.7%	4
No	73.3%	11
Missing		1
Behavioral Health (non-MD)		
Yes	6.7%	1
No	93.3%	14
Missing		1
Patient Education		
Yes	14.3%	2
No	85.7%	12
Missing		2
Pharmaceutical Services		
Yes	14.3%	2
No	85.7%	12
Missing		2
Other		
Yes	0.0%	0
No	100.0%	4
Valid Skip		9
Missing		3

21. Do you use any of the following strategies to encourage patients to stay within your Next Gen ACO network? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
Interactive Voice Response (IVR) system calls	0.0%	0
Live calls	33.3%	5
Emails	0.0%	0
Mailings	60.0%	9
At face-to-face provider visits	60.0%	9
Town meeting	0.0%	0
Patient web portal	20.0%	3
Other: Providing leakage data to encourage specialists to expand access	6.7%	1
None of the above	13.3%	2
Missing		1

22. Does your Next Gen ACO encourage providers to schedule annual wellness visits?	Frequency	Count
Yes	100.0%	15
No	0.0%	0
Plan to implement this in the future	0.0%	0
Missing		1

23. Does your Next Gen ACO use any of the following strategies to encourage providers to schedule annual wellness visits with their patients? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
Providing written materials such as letters or pamphlets about the annual wellness visit for the providers to mail or handout to patients	60.0%	9
Encouraging providers to talk to patients about the annual wellness visit when they are in the office for another appointment	93.3%	14
Encouraging providers to call patients about the annual wellness visit to schedule appointments	73.3%	11
Missing		1

24. Does your Next Gen ACO have a centralized approach to care management?	Frequency	Count
Yes	86.7%	13
No	13.3%	2
Missing		1

25. Are your Next Gen ACO's care management staff embedded within practices?	Frequency	Count
Yes	41.7%	5
No	58.3%	7
Valid Skip		3
Missing		1

26. Which types of care coordination/ care management activities is your Next Gen ACO currently implementing? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
Medication reconciliation	100.0%	15
Developing care plans and sharing among providers	100.0%	15
Working with community service providers	86.7%	13
Disease management/ chronic care programs	100.0%	15
Standardized care management processes	100.0%	15
Interdisciplinary care teams	86.7%	13
Care navigator/ manager who is consistent point of contact for patients and physicians	93.3%	14
Communication protocols between providers and care managers	93.3%	14
Patient activation	40.0%	6
Other: Discuss care gaps	6.7%	1
Missing		1

27. Which of the following patient populations is your Next Gen ACO targeting for care management services? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
Patients with past patterns of high utilization	86.7%	13
Patients with recent inpatient stays	100.0%	15
Patients with frequent Emergency Department visits	100.0%	15
Patients referred by providers	93.3%	14
Patients predicted to have high spending	73.3%	11
Patients with past patterns of high spending	60.0%	9
Patients at-risk for hospitalization	93.3%	14
Patients with chronic conditions	100.0%	15
Patients with specific health risk factors such as smoking, obesity, lab results	46.7%	7
Patients with poorly controlled psychiatric illness	40.0%	6
Low risk or healthy patients	20.0%	3
Other: ESRD, COPD, Palliative	6.7%	1
Other: patients with care gaps	13.3%	2
Missing		1

28. What type of staff are involved in administering any of these care management activities? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
Physicians	80.0%	12
Registered Nurses	100.0%	15
Advanced Practice Providers (NPs or PAs)	80.0%	12
Behavioral health specialists	60.0%	9
Social workers	86.7%	13
Pharmacists	80.0%	12
Community health workers	53.3%	8
Medical assistants (unlicensed)	26.7%	4
Certified Health Educators	13.3%	2
Other: Care Coordinators	6.7%	1
Other: Community paramedics, Home Care, Telehealth	6.7%	1
Missing		1

29. Which types of activities is your Next Gen ACO currently implementing to support patients with self-management? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Patient support groups	14.3%	2
Scheduled patient education	35.7%	5
System to encourage self-tracking of health	50.0%	7
Contacting patients for annual wellness visits	92.9%	13
Other: Scheduled calls with case managers for ongoing care coordination	7.1%	1
Missing		2

30. What subgroups of patients is your Next Gen ACO targeting for these self-management activities? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Patients with the past patterns of high utilization	66.7%	8
Patients with recent inpatient stays	75.0%	9
Patients with frequent ED visits	75.0%	9
Patients referred by providers	83.3%	10
Patients predicted to have high spending	66.7%	8
Patients with past patterns of high spending	58.3%	7
Patients at-risk for hospitalization	75.0%	9
Patients with chronic conditions	91.7%	11
Patients with specific health risk factors such as smoking, obesity, lab results	33.3%	4
Patients with poorly controlled psychiatric illness	25.0%	3
Low risk or healthy patients	50.0%	6
Other	0.0%	0
Missing		4

31. What type of staff are involved in administering any of these self-management activities? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Physicians	50.0%	7
Registered Nurses	92.9%	13
Advanced Practice Providers (NPs or PAs)	64.3%	9
Behavioral health specialists	42.9%	6
Social workers	78.6%	11
Pharmacists	50.0%	7
Community health workers	28.6%	4
Medical assistants (unlicensed)	42.9%	6
Certified Health Educators	42.9%	6
Other: Clinical staff in participant practices	7.1%	1
Other: Care coordinators/ navigators	14.3%	2
Other: Community paramedic	7.1%	1
Missing		2

32. Which types of activities is your Next Gen ACO currently implementing to improve care transitions? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Use of established transition protocol (e.g., Coleman model, Project RED, Project BOOST)	60.0%	9
Meeting in-person with patient prior to discharge	80.0%	12
Include social workers on discharge planning team	80.0%	12
Educate and engage families and caregivers for things to look for in the transition	73.3%	11
Contact patients by phone within 72 hours after discharge	86.7%	13
Ensure appointments with primary care providers are set within 5 days after discharge	73.3%	11
Track specialist referrals to ensure appointments completed	40.0%	6
Conduct post-discharge home visits	66.7%	10
Perform medication reconciliation post-discharge	93.3%	14
Monitor beneficiaries for a defined period post-discharge	80.0%	12
Utilize telehealth application for beneficiaries	20.0%	3
Improve handoffs to skilled nursing facilities	100.0%	15
Communicate with home health nurses (e.g., to assess transition to home setting)	73.3%	11
Coordinate delivery of health services (e.g. medical equipment, occupational or physical therapy, pharmacy)	73.3%	11
Coordinate delivery of human services (e.g., senior centers, meals program, transportation, home modifications, assistance with activities of daily living, financial services)	80.0%	12
Event notification	26.7%	4
Other activities: Ortho case management through the continuum	6.7%	1
Other activities: Conducts case management care coordination huddles daily with hospitalized patients	6.7%	1
None of these	0.0%	0
Missing		1

33. What type of staff are involved in administering any of these care transition activities? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Physicians	60.0%	9
Registered Nurses	100.0%	15
Advanced Practice Providers (NPs or PAs)	73.3%	11
Behavioral health specialists	46.7%	7
Social workers	86.7%	13
Pharmacists	53.3%	8
Community health workers	46.7%	7
Medical assistants (unlicensed)	33.3%	5
Certified Health Educators	26.7%	4
Personal care providers	13.3%	2
Home health providers	60.0%	9
Other: Care coordinators or navigators	13.3%	2
Other: Community paramedic	6.7%	1
Other: Palliative	6.7%	1
Missing		1

34. Which types of activities is your Next Gen ACO currently implementing to support end-of-life care? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Staff training about advance care planning	80.0%	12
Patient and/or caregiver education about advance care planning	80.0%	12
One-time completion of advance directive	60.0%	9
Ongoing consultation with patient about advance directive	66.7%	10
Referral of patient to palliative care and/or hospice service	73.3%	11
Conversion of treatment plan into medical orders that are portable and accessible	33.3%	5
Conversion of treatment plan into Physician Orders for Life-Sustaining Treatment (POLST) form	40.0%	6
Document advance care plan in patient medical record	80.0%	12
Home-based palliative care	46.7%	7
Other: EMR Advanced care planning module implementation including discussions about prognosis. Physician training regarding patient conversations	6.7%	1
Other: Outpatient Palliative Care clinics	6.7%	1
Missing		1

35. What type of staff are involved in administering any of these end-of-life services? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Physicians	93.3%	14
Registered Nurses	86.7%	13
Advanced Practice Providers (NPs or PAs)	80.0%	12
Behavioral health specialists	6.7%	1
Social workers	53.3%	8
Pharmacists	20.0%	3
Community health workers	6.7%	1
Medical assistants (unlicensed)	0.0%	0
Certified Health Educators	6.7%	1
Other: Home Care, Hospice	6.7%	1
Other: Certified Palliative care RNs, MDs, SWs	6.7%	1
Missing		1

36. Which types of activities is your Next Gen ACO currently implementing to address social determinants of health among beneficiaries? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Referrals to in-house social work departments	53.3%	8
Co-location of social workers in physician practices	53.3%	8
In-house interventions to address transportation, housing, food security, crisis management	80.0%	12
Partnering with community based organizations, including faith based organizations	80.0%	12
Partnering with local businesses, such as taxi and ride share companies or grocery stores	26.7%	4
Referrals to community mental health providers	46.7%	7
Collaborating with public health agencies	53.3%	8
Referrals with housing services	40.0%	6
Other: Home visits for at-risk patients	6.7%	1
Other: Emergency shelter; Fiscal planning; ADRC	6.7%	1
Not addressing social determinants of health among beneficiaries	0.0%	0
Missing		1

37. Among your patient population, to what extent do any of the following present a challenge to your Next Gen ACO's efforts to improve patients' health outcomes?		Extremely challenging	Somewhat challenging	Not very challenging	Not at all challenging	Not applicable	Missing
Financial stability	Frequency	21.4%	71.4%	7.1%	0.0%	0.0%	
	Count	3	10	1	0	0	2
Housing (availability and/or quality)	Frequency	14.3%	50.0%	28.6%	7.1%	0.0%	
	Count	2	7	4	1	0	2
Food security	Frequency	21.4%	57.1%	14.3%	7.1%	0.0%	
	Count	3	8	2	1	0	2
Transportation	Frequency	50.0%	50.0%	0.0%	0.0%	0.0%	
	Count	7	7	0	0	0	2
Support for family caregivers	Frequency	7.1%	85.7%	7.1%	0.0%	0.0%	
	Count	1	12	1	0	0	2
Domestic violence	Frequency	7.7%	46.2%	38.5%	0.0%	7.7%	
	Count	1	6	5	0	1	3
Community violence	Frequency	15.4%	23.1%	46.2%	7.7%	7.7%	
	Count	2	3	6	1	1	3
Substance abuse	Frequency	38.5%	38.5%	7.7%	7.7%	7.7%	
	Count	5	5	1	1	1	3

38. What is the biggest barrier for your Next Gen ACO in its attempt to address patients' social needs?	Frequency	Count
Lack of funding	42.9%	6
Lack of staff/ time	14.3%	2
Lack of provider expertise	21.4%	3
Lack of community support	21.4%	3
Lack of willing partners	0.0%	0
Missing		2

39. Which of the following strategies does your Next Gen ACO use to engage providers? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Financial incentives (compensation / bonuses / penalties) linked to outcomes (e.g., quality improvement, patient satisfaction)	86.7%	13
Financial incentives (compensation / bonuses / penalties) linked to participation in ACO-wide activities (e.g., participating in meetings/forums, teaching others, organizational management activities, recruiting new members to the network, collaborating with care coordinators)	60.0%	9
Resources to support care management (e.g., tools and infrastructure to support care coordination)	93.3%	14
Resources to support clinical decision making (e.g., health information technology and population health management tools)	80.0%	12
In-person communication between ACO leaders (e.g., medical director, board members) and individual providers	93.3%	14
Peer-to-peer communication, including selecting or recognizing physicians to serve as champions or role models and forums to share best practices	86.7%	13
Provider performance feedback (with or without provider identities revealed)	73.3%	11
Training and educational activities (e.g., webinars, newsletters, email, in-person meetings) around clinical care improvements and operations	100.0%	15
Clearly stated expectations / formal requirements for provider performance	86.7%	13
Provider participation in governance	93.3%	14
Recruiting providers with experience in value-based arrangements	53.3%	8
Missing		1

40. How important are the following strategies to engage providers in your Next Gen ACO's goals?		Extremely important	Somewhat important	Not very important	Not at all important	Too soon to tell	Valid Skip	Missing
Financial incentives linked to outcomes	Freq.	75.0%	25.0%	0.0%	0.0%	0.0%		
	Count	9	3	0	0	0	2	2
Financial incentives linked to participation in ACO-wide activities	Freq.	62.5%	37.5%	0.0%	0.0%	0.0%		
	Count	5	3	0	0	0	6	2
Resources to support care management	Freq.	92.3%	7.7%	0.0%	0.0%	0.0%		
	Count	12	1	0	0	0	1	2
Resources to support clinical decision making	Freq.	58.3%	33.3%	8.3%	0.0%	0.0%		
	Count	7	4	1	0	0	2	2
In-person communication between ACO leaders and individual providers	Freq.	61.5%	38.5%	0.0%	0.0%	0.0%		
	Count	8	5	0	0	0	1	2
Peer-to-peer communication, including selecting or recognizing physicians to serve as champions or role models and forums to share best practices	Freq.	66.7%	33.3%	0.0%	0.0%	0.0%		
	Count	8	4	0	0	0	2	2
Provider performance feedback	Freq.	80.0%	20.0%	0.0%	0.0%	0.0%		
	Count	8	2	0	0	0	4	2
Training and educational activities around clinical care improvements and operations	Freq.	57.1%	35.7%	7.1%	0.0%	0.0%		
	Count	8	5	1	0	0	0	2
Clearly stated expectations / formal requirements for provider performance	Freq.	58.3%	41.7%	0.0%	0.0%	0.0%		
	Count	7	5	0	0	0	2	2
Provider participation in governance and decision-making	Freq.	100.0%	0.0%	0.0%	0.0%	0.0%		
	Count	13	0	0	0	0	1	2
Recruiting providers with experience in value-based arrangements	Freq.	28.6%	42.9%	28.6%	0.0%	0.0%		
	Count	2	3	2	0	0	7	2

41. Which of the following types of performance indicators does your Next Gen ACO currently share with all providers? *(Respondents were allowed to choose multiples responses)*	Frequency	Count
Financial measures	85.7%	12
Utilization measures in claims data	78.6%	11
Patient satisfaction measures (e.g. CAHPS)	78.6%	11
Clinic/Practice level quality measures	78.6%	11
Physician level quality measures	71.4%	10
Clinical data on the health status of your Next Gen ACO population	50.0%	7
Health indicators across the entire geographic area served	21.4%	3
Other: AWV dates, risk scores, last practice visit	7.1%	1
None of this information is shared with ALL providers	7.1%	1
Missing		2

42. Of the performance indicators your Next Gen ACO shares with all providers, how is this information presented? ***(Respondents were allowed to choose multiple responses)***	**Frequency**	**Count**
Each individual provider is given their own data	53.8%	7
Each individual practice is given their own data	53.8%	7
At an aggregate level by provider type	30.8%	4
At an aggregate level for the Next Gen ACO	76.9%	10
Valid skip		1
Missing		2

43. Does your Next Gen ACO give the individual provider comparison data to other similar providers?	**Frequency**	**Count**
Yes	71.4%	5
No	28.6%	2
Valid skip		7
Missing		2

44. Does your Next Gen ACO give the individual practice comparison data to other similar practices?	**Frequency**	**Count**
Yes	85.7%	6
No	14.3%	1
Valid skip		7
Missing		2

45. What health IT components can providers in your Next Gen ACO use to support accountable care activities? ***(Respondents were allowed to choose multiple responses)***	**Frequency**	**Count**
Electronic health records (EHR)	100.0%	14
Disease registry	64.3%	9
Data warehouse	64.3%	9
Clinical decision support system (CDSS)	50.0%	7
Health information exchange (HIE)	78.6%	11
Care management software	35.7%	5
Analytics software	57.1%	8
Secure messaging	50.0%	7
Referral management	28.6%	4
Telemedicine (phone-based)	42.9%	6
Master patient index (MPI)	14.3%	2
Revenue cycle management system	14.3%	2
Telemedicine (video-based)	28.6%	4
Customer Relationship Management System (CRMS)	0.0%	0
Record locator service (RLS)	0.0%	0
Missing		2

46. What consumer-facing health IT tools can your Next Gen ACO beneficiaries use? ***(Respondents were allowed to choose multiple responses)***	**Frequency**	**Count**
Patient web portal	92.3%	12
Personal health record	69.2%	9
ePrescribing	76.9%	10
Patient notifications and reminders	84.6%	11
Self-service appointment scheduling	61.5%	8
Phone based telemedicine	38.5%	5
Video based telemedicine	30.8%	4
Remote monitoring devices	46.2%	6
Smartphone apps	23.1%	3
Missing		3

47. Which of the following types of data does your Next Gen ACO use to support accountable care activities? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Electronic clinical data	92.9%	13
Post-adjudicated claims-data	100.0%	14
Pre-adjudicated administrative, billing or financial data	42.9%	6
State or disease registry information	64.3%	9
Remote monitoring devices and/or sensors	21.4%	3
Patient reported data	57.1%	8
Missing		2

48. Please indicate if your Next Gen ACO participates in any of the following types of Health Information Exchange (HIE). *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
State/public-operated HIE	77.8%	7
Community-based HIE	22.2%	2
Private/enterprise HIE	55.6%	5
Hybrid HIE (combination of private/public)	11.1%	1
Other: National- Care Quality	11.1%	1
Missing		7

49. Does your Next Gen ACO integrate any of the following types of data for analysis? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Primary care	85.7%	12
Laboratory/ diagnostics	78.6%	11
Specialty care	71.4%	10
Behavioral health	50.0%	7
Palliative/ Hospice	50.0%	7
Home Health	64.3%	9
Pharmacy	85.7%	12
Medicare claims	92.9%	13
Private insurer claims	57.1%	8
Medicaid claims	14.3%	2
Not applicable	0.0%	0
Missing		2

50. Please indicate to what extent health IT has improved the following at your Next Gen ACO							
		Very large extent	Moderate extent	Small extent	Not at all	Not applicable	Missing
Preventive screenings/ vaccinations	Freq.	42.9%	50.0%	7.1%	0.0%	0.0%	
	Count	6	7	1	0	0	2
Chronic disease management	Freq.	50.0%	42.9%	7.1%	0.0%	0.0%	
	Count	7	6	1	0	0	2
Care coordination	Freq.	50.0%	35.7%	14.3%	0.0%	0.0%	
	Count	7	5	2	0	0	2
Patient safety	Freq.	15.4%	69.2%	7.7%	7.7%	0.0%	
	Count	2	9	1	1	0	3
Patient satisfaction	Freq.	7.7%	61.5%	30.8%	0.0%	0.0%	
	Count	1	8	4	0	0	3
Healthcare utilization	Freq.	35.7%	35.7%	28.6%	0.0%	0.0%	
	Count	5	5	4	0	0	2
Hospital readmissions	Freq.	35.7%	28.6%	35.7%	0.0%	0.0%	
	Count	5	4	5	0	0	2
ER visits	Freq.	28.6%	35.7%	28.6%	7.1%	0.0%	
	Count	4	5	4	1	0	2
Hospital admissions	Freq.	42.9%	21.4%	35.7%	0.0%	0.0%	
	Count	6	3	5	0	0	2
Cost savings	Freq.	28.6%	21.4%	50.0%	0.0%	0.0%	
	Count	4	3	7	0	0	2
Efficiency	Freq.	35.7%	35.7%	21.4%	7.1%	0.0%	
	Count	5	5	3	1	0	2

51. Thinking about your Next Gen ACO staffing, which of the following is the most accurate statement?	Frequency	Count
We have sufficient staff for data collection and processing, but need to employ consultants and/or third party organizations to assist with analytics	23.1%	3
We have sufficient staff for data analytics, but need to employ consultants and/or third party organizations to assist with data collection and processing	7.7%	1
We try to hire more trained candidates for our full time staff to meet our data needs	38.5%	5
Senior leadership hasn't prioritized data analytics as a critical area for staffing needs	0.0%	0
We have sufficient staff to handle our current data collection, processing, and analytic needs	30.8%	4
Missing		3

52. Does your Next Gen ACO use health IT to support any of the following activities or programs? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Identify gaps in care	100.0%	14
Identify outliers in cost-utilization	92.9%	13
Compare clinician performance	78.6%	11
Measure / report on quality	100.0%	14
Prospectively identify high risk beneficiaries	92.9%	13
Inform programs to address specific high cost/high utilization patient populations	78.6%	11
Manage care transitions	100.0%	14
Coordinate care	92.9%	13
Inform disease management programs	64.3%	9
Post-discharge programs	100.0%	14
Track adherence to evidence-based clinical care guidelines	57.1%	8
Inform medication management programs	64.3%	9
Missing		2

53. How many electronic health record systems are used within your ACO?	**Frequency**	**Count**
One	21.4%	3
Two	7.1%	1
Five	14.3%	2
Eight	7.1%	1
Nine or more	50.0%	7
Missing		2

54. How challenging has each of the following been to achieving your Next Gen ACO's goals?							
		Extremely challenging	Somewhat challenging	Not very challenging	Not at all challenging	Not applicable	Missing
Access to data outside my organization/ network	Freq.	50.0%	42.9%	7.1%	0.0%	0.0%	
	Count	7	6	1	0	0	2
Cost of new health information technology	Freq.	50.0%	28.6%	7.1%	0.0%	14.3%	
	Count	7	4	1	0	2	2
Lack of existing health IT infrastructure	Freq.	21.4%	42.9%	28.6%	0.0%	7.1%	
	Count	3	6	4	0	1	2
Interoperability of health IT systems across NGACO providers	Freq.	42.9%	28.6%	21.4%	0.0%	7.1%	
	Count	6	4	3	0	1	2
Access to data from providers within the ACO or network	Freq.	7.1%	71.4%	14.3%	0.0%	7.1%	
	Count	1	10	2	0	1	2
Integrating and blending data from disparate sources	Freq.	35.7%	35.7%	21.4%	0.0%	7.1%	
	Count	5	5	3	0	1	2
Integrating technology into Clinical workflows	Freq.	14.3%	57.1%	28.6%	0.0%	0.0%	
	Count	2	8	4	0	0	2
Integrating information from analytics into clinical workflows	Freq.	28.6%	57.1%	14.3%	0.0%	0.0%	
	Count	4	8	2	0	0	2

55. Do you know in real time or near real-time when your Next Gen ACO-aligned beneficiaries are admitted to an inpatient facility?	Frequency	Count
We do not have this information for any of our beneficiaries in real time	7.7%	1
We have this information for at least half of aligned population admissions	92.3%	12
We have this information for less than half of aligned population admissions	0.0%	0
Missing		3

56. Approximately how many providers within your Next Gen ACO are able to electronically exchange health information with each other?	Frequency	Count
All	21.4%	3
Three-quarters	42.9%	6
Half	28.6%	4
One-quarter	0.0%	0
None	0.0%	0
Don't know	7.1%	1
Missing		2

57. Approximately how many providers within your Next Gen ACO are able to electronically exchange health information with providers outside your Next Gen ACO?	Frequency	Count
All	14.3%	2
Three-quarters	7.1%	1
Half	28.6%	4
One-quarter	7.1%	1
None	0.0%	0
Don't know	42.9%	6
Missing		2

58. At what stage of implementation is your Next Gen ACO for each of the benefit enhancements?						
		Fully implemented & operational	In the process of implementing	Planning to implement	Not planning to implement	Missing
3-Day SNF Risk Waiver	Freq.	71.4%	7.1%	14.3%	7.1%	
	Count	10	1	2	1	2
Post-Discharge Home Visits	Freq.	14.3%	21.4%	50.0%	14.3%	
	Count	2	3	7	2	2
Telehealth Expansion	Freq.	7.1%	14.3%	64.3%	14.3%	
	Count	1	2	9	2	2

59. Which of the following activities is your Next Gen ACO currently engaging in to implement the 3-Day SNF Risk Waiver? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
Establishing committees and/or leadership teams to oversee implementation	50.0%	5
Establishing management and/or self-monitoring plans including standards and protocols	100.0%	10
Establishing systems to assess aligned beneficiary eligibility	80.0%	8
Educating beneficiaries about the benefit enhancement	70.0%	7
Establishing a system to handle potential beneficiary complaints	60.0%	6
Providing education and/or technical assistance to participating and preferred providers	100.0%	10
Ensuring compliance with Federal and state laws regarding the privacy and security of beneficiary data and communications	90.0%	9
Establishing data analytics capability to monitor performance	70.0%	7
Developing partnerships with skilled nursing facilities	100.0%	10
Valid Skip		3
Missing		3

60. Which of the following activities is your Next Gen ACO currently engaging in to implement the Post-Discharge Home Visits? *(Respondents were allowed to choose multiple responses)*	Frequency	Count
Establishing committees and/or leadership teams to oversee implementation	80.0%	4
Establishing management and/or self-monitoring plans including standards and protocols	100.0%	5
Establishing systems to assess aligned beneficiary eligibility	80.0%	4
Educating beneficiaries about the benefit enhancement	60.0%	3
Establishing a system to handle potential beneficiary complaints	60.0%	3
Providing education and/or technical assistance to participating and preferred providers	80.0%	4
Ensuring compliance with Federal and state laws regarding the privacy and security of beneficiary data and communications	100.0%	5
Establishing data analytics capability to monitor performance	100.0%	5
Valid Skip		9
Missing		2

61. Which of the following activities is your Next Gen ACO currently engaging in to implement the Telehealth Expansion? *(Respondents were allowed to choose multiple responses)*	**Frequency**	**Count**
Establishing committees and/or leadership teams to oversee implementation	100.0%	3
Establishing management and/or self-monitoring plans including standards and protocols	100.0%	3
Establishing systems to assess aligned beneficiary eligibility	66.7%	2
Educating beneficiaries about the benefit enhancement	66.7%	2
Establishing a system to handle potential beneficiary complaints	100.0%	3
Providing education and/or technical assistance to participating and preferred providers	100.0%	3
Ensuring compliance with Federal and state laws regarding the privacy and security of beneficiary data and communications	100.0%	3
Establishing data analytics capability to monitor performance	100.0%	3
Valid Skip		11
Missing		2

62. Who provides oversight of SNF admissions?	**Frequency**	**Count**
Dedicated Waiver Care Coordinator	27.3%	3
Physician	18.2%	2
Inpatient care coordinator	27.3%	3
ACO care coordinator	9.1%	1
Other: Manager of Post-Acute Network	9.1%	1
Other: ACO Management Team and Care Transformation work stream	9.1%	1
Valid skip		3
Missing		2

63. To what extent is each of the following a challenge to implementing the 3-Day SNF Risk Waiver?								
		Extremely challenging	Somewhat challenging	Not very challenging	Not at all challenging	Not applicable	Valid Skip	Missing
Documentation required is too burdensome	Freq.	0.0%	27.3%	72.7%	0.0%	0.0%		
	Count	0	3	8	0	0	3	2
Patient eligibility rules are too limiting	Freq.	0.0%	20.0%	80.0%	0.0%	0.0%		
	Count	0	2	8	0	0	3	3
Lack of efficient referral system	Freq.	0.0%	36.4%	63.6%	0.0%	0.0%		
	Count	0	4	7	0	0	3	2
Lack of necessary IT infrastructure	Freq.	9.1%	27.3%	63.6%	0.0%	0.0%		
	Count	1	3	7	0	0	3	2
Patients are required to pay copays to participate	Freq.	0.0%	20.0%	40.0%	20.0%	20.0%		
	Count	0	2	4	2	2	3	3
Next Gen ACO cannot contract or hire enough qualified personnel to coordinate transitions to and from SNFs	Freq.	0.0%	18.2%	72.7%	0.0%	9.1%		
	Count	0	2	8	0	1	3	2
Other: Monitoring star ratings and managing multiple SNFs	Freq.	0.0%	50.0%	0.0%	0.0%	50.0%		
	Count	0	1	0	0	1	3	11

64. To what extent is each of the following a challenge to implementing the Post-Discharge Home Visits?								
		Extremely challenging	Somewhat challenging	Not very challenging	Not at all challenging	Not applicable	Valid Skip	Missing
Documentation required is too burdensome	Freq.	20.0%	60.0%	20.0%	0.0%	0.0%		
	Count	1	3	1	0	0	9	2
Patient eligibility rules are too limiting	Freq.	0.0%	40.0%	60.0%	0.0%	0.0%		
	Count	0	2	3	0	0	9	2
Lack of efficient referral system	Freq.	20.0%	40.0%	40.0%	0.0%	0.0%		
	Count	1	2	2	0	0	9	2
Lack of necessary IT infrastructure	Freq.	100.0%	0.0%	0.0%	0.0%	0.0%		
	Count	5	0	0	0	0	9	2
Patients are required to pay copays to participate	Freq.	0.0%	80.0%	20.0%	0.0%	0.0%		
	Count	0	4	1	0	0	9	2
Next Gen ACO cannot contract or hire enough qualified personnel to coordinate transitions to and from SNFs	Freq.	0.0%	60.0%	40.0%	0.0%	0.0%		
	Count	0	3	2	0	0	9	2
Other: 2 visit time limitations	Freq.	100.0%	0.0%	0.0%	0.0%	0.0%		
	Count	1	0	0	0	0	9	6

65. To what extent is each of the following a challenge to implementing Telehealth Expansion?		Extremely challenging	Somewhat challenging	Not very challenging	Not at all challenging	Not applicable	Valid Skip	Missing
Documentation required is too burdensome	Freq.	0.0%	100.0%	0.0%	0.0%	0.0%		
	Count	0	3	0	0	0	11	2
Patient eligibility rules are too limiting	Freq.	33.3%	33.3%	33.3%	0.0%	0.0%		
	Count	1	1	1	0	0	11	2
Lack of efficient referral system	Freq.	0.0%	33.3%	66.7%	0.0%	0.0%		
	Count	0	1	2	0	0	11	2
Lack of necessary IT infrastructure	Freq.	33.3%	66.7%	0.0%	0.0%	0.0%		
	Count	1	2	0	0	0	11	2
Patients are required to pay copays to participate	Freq.	0.0%	66.7%	33.3%	0.0%	0.0%		
	Count	0	2	1	0	0	11	2
Next Gen ACO cannot contract or hire enough qualified personnel to coordinate transitions to and from SNFs	Freq.	33.3%	33.3%	33.3%	0.0%	0.0%		
	Count	1	1	1	0	0	11	2
Other: rules more restrictive than rural health telemedicine	Freq.	100.0%	0.0%	0.0%	0.0%	0.0%		
	Count	1	0	0	0	0	11	4

66. How would you rate your performance as a Next Gen ACO?	Frequency	Count
We are a very high performing ACO	64.3%	9
We are a moderately performing ACO	35.7%	5
We are not performing very well as an ACO	0.0%	0
Missing		2

67. How challenging has each of the following been to achieving your Next Gen ACO's goals?							
		Extremely challenging	Somewhat challenging	Not very challenging	Not at all challenging	Not applicable	Missing
Giving incentives to providers to reduce costs while preserving quality	Freq.	21.4%	57.1%	14.3%	0.0%	7.1%	
	Count	3	8	2	0	1	2
Developing and maintaining a shared vision between practitioners and ACO leadership	Freq.	21.4%	42.9%	28.6%	7.1%	0.0%	
	Count	3	6	4	1	0	2
Accessing capital for infrastructure development	Freq.	42.9%	28.6%	14.3%	7.1%	7.1%	
	Count	6	4	2	1	1	2
Selecting the provider network	Freq.	0.0%	35.7%	50.0%	14.3%	0.0%	
	Count	0	5	7	2	0	2
Changes in provider network over time	Freq.	7.1%	50.0%	35.7%	7.1%	0.0%	
	Count	1	7	5	1	0	2
Motivating providers to participate in care management strategies	Freq.	0.0%	85.7%	7.1%	7.1%	0.0%	
	Count	0	12	1	1	0	2
Developing physician leadership	Freq.	0.0%	28.6%	64.3%	7.1%	0.0%	
	Count	0	4	9	1	0	2
Resolving issues between primary and specialty physicians	Freq.	0.0%	28.6%	64.3%	7.1%	0.0%	
	Count	0	4	9	1	0	2
Developing a workable governance structure (e.g., agreeing on the number of physicians and hospital representatives to sit on the board)	Freq.	0.0%	7.1%	50.0%	42.9%	0.0%	
	Count	0	1	7	6	0	2
Health information system Inter-operability	Freq.	28.6%	64.3%	7.1%	0.0%	0.0%	
	Count	4	9	1	0	0	2
Data analytics	Freq.	35.7%	64.3%	0.0%	0.0%	0.0%	
	Count	5	9	0	0	0	2
Turnover in aligned beneficiary over time	Freq.	28.6%	50.0%	7.1%	14.3%	0.0%	
	Count	4	7	1	2	0	2
Making changes to existing workflow design in clinical settings	Freq.	14.3%	64.3%	21.4%	0.0%	0.0%	
	Count	2	9	3	0	0	2

68. Which of the following do you find to be the most helpful feature of the model in terms of achieving your Next Gen ACO's goals?	Frequency	Count
Prospective alignment	50.0%	7
Benefit enhancements	0.0%	0
Flexibility in risk and payment options	14.3%	2
Upfront infrastructure payments	0.0%	0
Learning system and opportunity to learn from other ACOs	7.1%	1
Potential shared savings	14.3%	2
CMMI	14.3%	2
Missing		2

Appendix J: Exhibits to Support Chapter 2

Characteristics of NGACO Organizations

Exhibit J.1. Number of Aligned Beneficiaries and Percent of Medicare Population, 2016 NGACOs

ACO Organization Name	Number of Aligned 2016 NGACO Beneficiaries (N)	Percent of Medicare Population in Market Covered by NGACO (%)
ACCST	13,391	2
Baroma	27,449	1
Beacon	14,714	5
Bellin	8,286	4
CHESS	13,281	2
Deaconess	31,442	19
Henry Ford	20,988	2
MemorialCare§	19,453	1
Optum	29,671	4
OSF	36,668	8
Park Nicollet	14,428	2
Pioneer Valley	33,903	6
Prospect§	13,799	1
Steward	36,463	3
ThedaCare	15,857	2
Triad	29,035	4
Trinity	52,882	2
Unity Point	65,487	11
Total	**477,197**	**3**
IDS NGACO Average	**28,486**	**2**
Non-IDS NGACO Average	**23,407**	**3**

NOTES: §MemorialCare and Prospect share the same market. Each NGACO market is defined as one or more hospital referral regions (HRRs); each HRR includes at least one percent of the aligned beneficiaries of that NGACO. Averages are unweighted.

Characteristics of Providers and Facilities

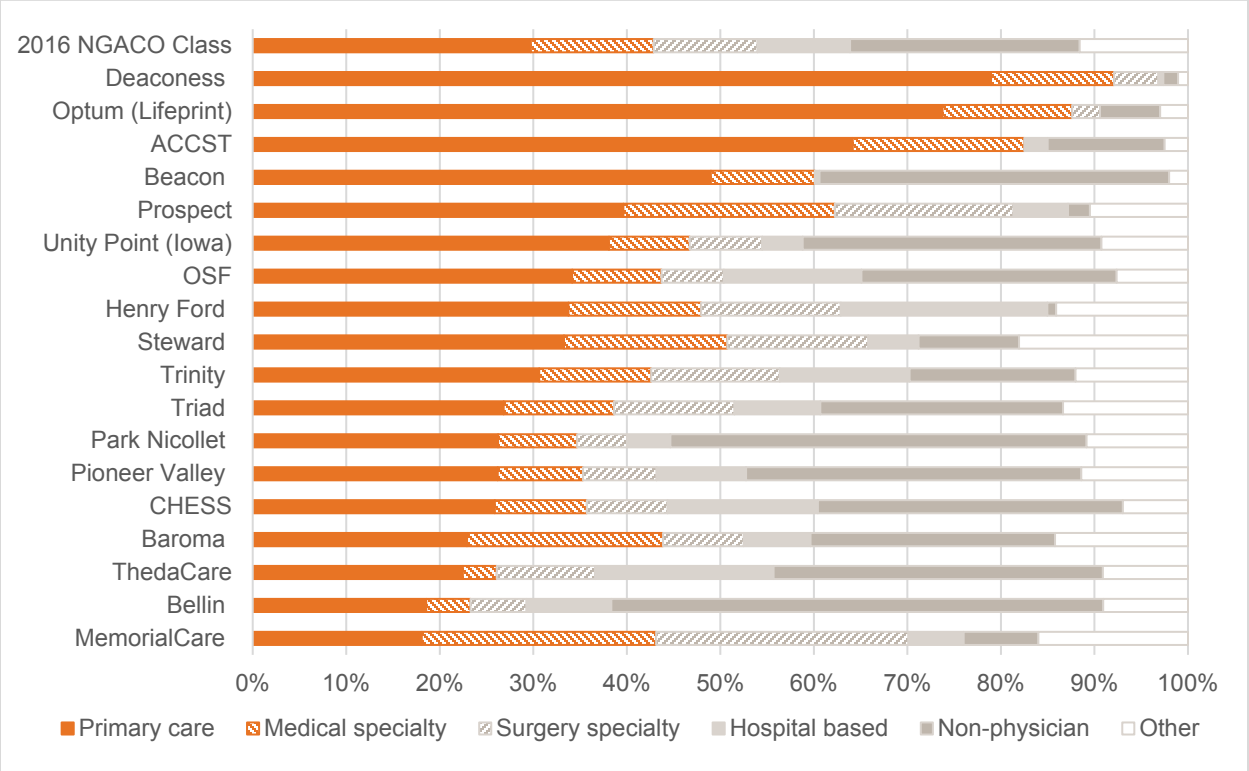
Exhibits J.2 lists the categories of provider practice and specialty (based on MD-PPAS), clustered into meaningful groups used in the evaluation, including Primary Care Providers (Primary Care Specialist) and Non-Primary Care Providers (Specialist Physicians).

Exhibit J.2. Provider Specialty Documentation

MD_PPAS Broad specialties	CMS Designations			NG Alignment Eligibility	
Category	Practitioner category	PECOS code	Description	Primary Care	Non-primary care specialists
Primary care	Physician	1	General Practice	X	
Primary care	Physician	8	Family Practice	X	
Primary care	Physician	11	Internal Medicine	X	
Primary care	Physician	38	Geriatric Medicine	X	
Non-physician	Non-physician	50	Nurse Practitioner	X	
Non-physician	Non-physician	97	Physician Assistant	X	
Medical specialty	Physician	6	Cardiovascular Disease (Cardiology)		X
Medical specialty	Physician	13	Neurology		X
Medical specialty	Physician	29	Pulmonary Disease		X
Medical specialty	Physician	39	Nephrology		X
Medical specialty	Physician	46	Endocrinology		X
Medical specialty	Physician	66	Rheumatology		X
Medical specialty	Physician	83	Hematology/Oncology		X
Medical specialty	Physician	90	Medical Oncology		X
Surgery specialty	Physician	91	Surgical Oncology		X
Obstetrics-Gynecology	Physician	98	Gynecological/Oncology		X
Hospital based	Physician	92	Radiation Oncology		X
Psychiatry	Physician	86	Neuropsychiatry		X
Primary care	Physician	12	Osteopathic Manipulative Medicine		
Primary care	Physician	17	Hospice And Palliative Care		
Primary care	Physician	37	Pediatric Medicine		
Primary care	Physician	84	Preventative Medicine		
Medical specialty	Physician	3	Allergy/Immunology		
Medical specialty	Physician	C3	Interventional Cardiology		
Medical specialty	Physician	7	Dermatology		
Medical specialty	Physician	10	Gastroenterology		
Medical specialty	Physician	21	Cardiac Electrophysiology		
Medical specialty	Physician	44	Infectious Disease		
Medical specialty	Physician	79	Addiction Medicine		
Medical specialty	Physician	82	Hematology		
Medical specialty	Physician	CO	Sleep Medicine		
Surgery specialty	Physician	2	General Surgery		
Surgery specialty	Physician	4	Otolaryngology		
Surgery specialty	Physician	14	Neurosurgery		
Surgery specialty	Physician	18	Ophthalmology		
Surgery specialty	Physician	20	Orthopedic Surgery		
Surgery specialty	Physician	23	Sports Medicine		
Surgery specialty	Physician	24	Plastic And Reconstructive Surgery		
Surgery specialty	Physician	28	Colorectal Surgery		

MD_PPAS Broad specialties	CMS Designations			NG Alignment Eligibility	
Category	Practitioner category	PECOS code	Description	Primary Care	Non-primary care specialists
Surgery specialty	Physician	33	Thoracic Surgery		
Surgery specialty	Physician	34	Urology		
Surgery specialty	Physician	40	Hand Surgery		
Surgery specialty	Physician	76	Peripheral Vascular Disease		
Surgery specialty	Physician	77	Vascular Surgery		
Surgery specialty	Physician	78	Cardiac Surgery		
Obstetrics-Gynecology	Physician	16	Obstetrics/Gynecology		
Hospital based	Physician	5	Anesthesiology		
Hospital based	Physician	9	Interventional Pain Management		
Hospital based	Physician	25	Physical Medicine And Rehabilitation		
Hospital based	Physician	30	Diagnostic Radiology		
Hospital based	Physician	36	Nuclear Medicine		
Hospital based	Physician	72	Pain Management		
Hospital based	Physician	81	Critical Care (Intensivists)		
Hospital based	Physician	93	Emergency Medicine		
Hospital based	Physician	94	Interventional Radiology		
Hospital based	Physician	22	Pathology		
Psychiatry	Physician	26	Psychiatry		
Psychiatry	Physician	27	Geriatric Psychiatry		
Other	Physician	99	Undefined Physician Type		
Non-physician	LLP	19	Oral Surgery (Dentists Only)		
Non-physician	LLP	35	Chiropractic		
Non-physician	LLP	41	Optometry		
Non-physician	LLP	48	Podiatry		
Non-physician	LLP	85	Maxillofacial Surgery		
Non-physician	Non-physician	15	Speech Language Pathologist		
Non-physician	Non-physician	32	Anesthesiology Assistant		
Non-physician	Non-physician	42	Certified Nurse Midwife		
Non-physician	Non-physician	43	Certified Registered Nurse Anesthetist		
Non-physician	Non-physician	62	Psychologist Billing Independently		
Non-physician	Non-physician	64	Audiologist		
Non-physician	Non-physician	65	Physical Therapist		
Non-physician	Non-physician	67	Occupational Therapist		
Non-physician	Non-physician	68	Clinical Psychologist		
Non-physician	Non-physician	71	Registered Dietitian Or Nutrition Prof		
Non-physician	Non-physician	73	Mass Immunization Roster Biller		
Non-physician	Non-physician	80	Clinical Social Worker		
Non-physician	Non-physician	88	Undefined Non-Physician Type		
Non-physician	Non-physician	89	Clinical Nurse Specialist		

Exhibit J.3. Participating Providers by Broad Specialty, 2016 NGACOs



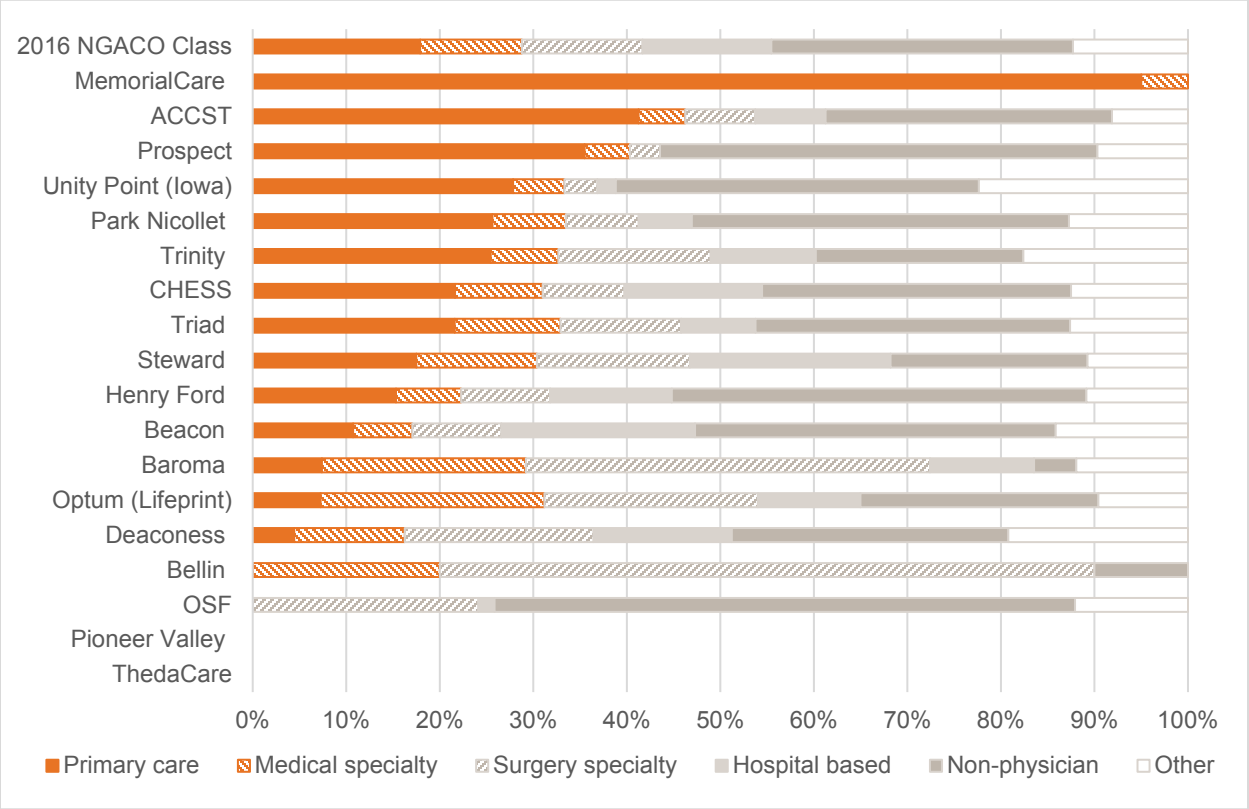
NOTES: The "other" category includes broad specialties in Obstetrics-Gynecology, Psychiatry, and Other (specialty codes in Exhibit J.2). Detailed breakdowns are presented in Exhibit J.4.
SOURCE: Multiple data sources were used to summarize the provider characteristics. Participating and preferred providers are registered with CMS using their taxpayer identification number, national provider identifiers, and/or their CMS Certification Number at the beginning of each performance year. For the participating and preferred providers in the NGACO Model, data were obtained from CMS, as compiled by the NGACO Program Analysis Contractor, and supplemented with additional participating provider information on the master data management provider files on the CCW VRDC. We linked these data on participating and preferred providers to multiple CMS provider datasets, including the MD-PPAS and CMS Provider of Services data, and summarized broad specialty (specialty codes in Exhibit J.2)

Exhibit J.4. Participating Providers, Individual Practitioners, 2016 NGACOs

ACO	Org Type	TIN	NPI		Broad Specialty (MD-PPAS) (%)							
			IND	ORG	Primary care	Medical specialty	Surgery specialty	OBGYN	Hospital Based	Psychiatry	Non-physician	Other
ACCST	Other	42	120	0	64.2	18.3	N/A	N/A	2.5	N/A	12.5	2.5
Baroma	Other	336	2243	52	22.9	21.0	8.6	3.3	7.1	5.3	26.1	5.5
Beacon	Other	6	198	10	49.0	11.1	N/A	N/A	0.5	0.5	37.4	1.5
Bellin	IDS	33	485	72	18.6	4.7	6.0	3.5	9.1	3.5	52.6	2.1
CHESS	Other	1	417	86	25.9	9.8	8.6	2.6	16.1	2.6	32.6	1.7
Deaconess	Other	36	190	57	78.9	13.2	4.7	N/A	0.5	1.1	1.6	N/A
Henry Ford	IDS	8	951	0	33.8	14.2	14.9	4.1	22.1	6.2	0.9	3.8
MemorialCare	IDS	545	1101	446	18.1	25.1	27.0	0.4	5.9	6.1	8.0	9.5
Optum (Lifeprint)	Other	78	202	70	73.8	13.9	3.0	N/A	N/A	1.5	6.4	1.5
OSF	IDS	23	931	66	34.2	9.6	6.7	1.2	14.7	3.3	27.3	3.1
Park Nicollet	IDS	1	1254	4	26.2	8.5	5.3	4.1	4.6	2.4	44.5	4.4
Pioneer Valley	Other	18	1359	4	26.2	9.1	7.9	3.8	9.6	3.5	35.8	4.0
Prospect	IDS	227	429	0	39.6	22.6	19.1	1.9	5.8	1.2	2.3	7.5
Steward	IDS	124	670	69	33.3	17.5	15.1	6.9	5.4	5.2	10.7	6.0
ThedaCare	IDS	76	912	67	22.5	3.6	10.5	2.5	19.1	2.4	35.2	4.2
Triad	IDS	67	1025	137	26.8	11.8	12.9	5.0	9.2	4.1	26.0	4.3
Trinity	IDS	171	2638	129	30.6	12.0	13.8	3.9	13.9	3.9	17.7	4.3
Unity Point (Iowa)	IDS	29	1318	59	38.1	8.6	7.7	3.4	4.3	3.1	31.9	2.7

NOTES: IDS = Integrated Delivery System; TIN = Taxpayer Identification Number; NPI = National Provider Identifier; IND = Individual NPI; ORG = Organization NPI.
SOURCE: Multiple data sources were used to summarize the provider characteristics. Participating and preferred providers are registered with CMS using their taxpayer identification number, national provider identifiers, and/or their CMS Certification Number at the beginning of each performance year. For the participating and preferred providers in the NGACO Model, data were obtained from CMS, as compiled by the NGACO PAC, and supplemented with additional participating provider information on the master data management provider files on the CCW VRDC. We linked these data on participating and preferred providers to multiple CMS provider datasets, including the MD-PPAS and CMS Provider of Services data, and summarized broad specialty (specialty codes in Exhibit J.2).

Exhibit J.5. Preferred Providers by Broad Specialty, 2016 NGACOs



NOTES: The category "other" includes broad specialties in Obstetrics-Gynecology, Psychiatry, and Other (specialty codes in Exhibit J.2). Detailed breakdowns are presented in Exhibit J.6.
SOURCE: Multiple data sources were used to summarize the provider characteristics. Participating and preferred providers are registered with CMS using their taxpayer identification number, national provider identifiers, and/or their CMS Certification Number at the beginning of each performance year. For the participating and preferred providers in the NGACO Model, data were obtained from CMS, as compiled by the NGACO PAC, and supplemented with additional participating provider information on the master data management provider files on the CCW VRD. We linked these data on participating and preferred providers to multiple CMS provider datasets, including the MD-PPAS and CMS Provider of Services data, and summarized broad specialty (specialty codes in Exhibit J.2).

Exhibit J.6. Preferred Providers: Individual Practitioners, 2016 NGACOs

ACO Organization Name	Org Type	TIN	NPI		Broad Specialty (MD-PPAS) (%)							
			IND	ORG	Primary care	Medical specialty	Surgery specialty	OBGYN	Hospital Based	Psychiatry	Non-physician	Other
ACCST	Other	75	320	81	41.3	5.0	7.5	N/A	7.5	3.1	30.6	5.0
Baroma	Other	155	243	178	7.4	21.8	43.2	2.1	11.1	4.1	4.5	5.8
Beacon	Other	40	1816	63	10.7	6.3	9.5	2.5	20.7	2.3	38.5	9.4
Bellin	IDS	11	20	11	N/A	20.0	70.0	N/A	N/A	N/A	10.0	N/A
CHESS	Other	46	3296	136	21.6	9.4	8.7	2.9	14.7	4.3	33.0	5.3
Deaconess	Other	15	203	21	4.4	11.8	20.2	N/A	14.8	2.5	29.6	16.7
Henry Ford	IDS	261	1638	64	15.3	7.0	9.5	2.7	13.0	2.8	44.3	5.3
MemorialCare	IDS	7	20	9	95.0	5.0	N/A	N/A	N/A	N/A	N/A	N/A
Optum (Lifeprint)	Other	341	1805	380	7.3	23.9	22.8	1.7	11.0	2.5	25.4	5.3
OSF	IDS	31	58	24	N/A	N/A	24.1	N/A	1.7	N/A	62.1	12.1
Park Nicollet	IDS	4	1478	10	25.6	7.8	7.8	3.6	5.7	4.2	40.3	4.9
Pioneer Valley	Other	17	0	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Prospect	IDS	21	62	1	35.5	4.8	3.2	N/A	N/A	3.2	46.8	6.5
Steward	IDS	494	2047	2	17.5	12.9	16.4	2.4	21.4	3.3	21.1	5.0
ThedaCare	IDS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Triad	IDS	72	690	88	21.6	11.3	12.9	4.8	8.0	3.0	33.6	4.8
Trinity	IDS	203	676	235	25.4	7.2	16.3	7.8	11.2	1.9	22.2	7.8
Unity Point (Iowa)	IDS	64	255	79	27.8	5.5	3.5	2.0	2.0	11.0	38.8	9.4

NOTES: IDS = Integrated Delivery System; TIN = Taxpayer Identification Number; NPI = National Provider Identifier; IND = Individual NPI; ORG = Organization NPI.
SOURCE: Multiple data sources were used to summarize the provider characteristics. Participating and preferred providers are registered with CMS using their taxpayer identification number, national provider identifiers, and/or their CMS Certification Number at the beginning of each PY. For the participating and preferred providers in the NGACO Model, data were obtained from CMS, as compiled by the NGACO PAC, and supplemented with additional participating provider information on the master data management provider files on the CCW VRDC. We linked these data on participating and preferred providers to multiple CMS provider datasets, including the MD-PPAS and CMS Provider of Services data, and summarized broad specialty (specialty codes in Exhibit J.2).

Exhibit J.7. Participating and Preferred Providers: Facilities, 2016 NGACOs

ACO	Organization Type	CCN (N)	CAH	RHC	FQHC	AcuteH	LTH	SNF	Hospice	HHA	Other
Participating Providers: Facilities (N)											
ACCST	Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Baroma	Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beacon	Other	10	0	3	0	6	0	1	0	0	0
Bellin	IDS	2	2	0	0	0	0	0	0	0	0
CHESS	Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Deaconess	Other	4	0	0	0	4	0	0	0	0	0
Henry Ford	IDS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MemorialCare	IDS	2	0	0	0	2	0	0	0	0	0
Optum (Lifeprint)	Other	4	0	0	0	0	0	4	0	0	0
OSF	IDS	24	1	6	0	7	0	1	3	5	1
Park Nicollet	IDS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pioneer Valley	Other	4	0	0	0	4	0	0	0	0	0
Prospect	IDS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Steward	IDS	66	0	0	4	16	1	42	1	1	1
ThedaCare	IDS	5	5	0	0	0	0	0	0	0	0
Triad	IDS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trinity	IDS	7	0	0	0	6	0	0	0	0	1
UnityPoint (Iowa)	IDS	59	1	32	3	7	0	2	6	7	1
2016 Class		**187**	**9**	**41**	**7**	**52**	**1**	**50**	**10**	**13**	**4**
Preferred Providers: Facilities (N)											
ACCST	Other	20	0	0	0	4	1	13	0	1	1
Baroma	Other	91	1	0	0	19	3	43	4	17	4
Beacon	Other	31	8	5	0	0	0	12	1	4	1
Bellin	IDS	6	0	0	0	0	0	6	0	0	0
CHESS	Other	31	0	0	0	0	0	25	0	6	0
Deaconess	Other	7	0	0	0	0	0	7	0	0	0
Henry Ford	IDS	51	0	0	0	4	0	46	0	0	1
MemorialCare	IDS	1	0	0	0	0	0	1	0	0	0
Optum (Lifeprint)	Other	36	0	0	0	10	0	20	0	6	0
OSF	IDS	24	1	1	0	0	0	22	0	0	0
Park Nicollet	IDS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pioneer Valley	Other	18	0	0	0	0	0	18	0	0	0
Prospect	IDS	1	0	0	0	1	0	0	0	0	0
Steward	IDS	2	0	0	1	0	0	1	0	0	0
ThedaCare	IDS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Triad	IDS	28	0	0	0	0	0	28	0	0	0
Trinity	IDS	167	0	0	0	13	1	109	6	35	3
UnityPoint (Iowa)	IDS	74	4	13	1	0	0	50	3	3	0
2016 Class		**588**	**14**	**19**	**2**	**51**	**5**	**401**	**14**	**72**	**10**

NOTES: N/A= ACO did not have this facility type among its preferred providers.
CCN = CMS Certification Number; CAH = critical access hospitals; FQHC= Federally Qualified Health Center; RHC= Regional Health Center; LTCH= Long-term Care Hospital; SNF= skilled nursing facility; HHA = Home Health Agency; Others include End Stage Renal Disease (ESRD) Facility, Hospitals (Acute or Long-term unknown), Community Mental Health Center (CMHC), or Unknowns.
SOURCE: NGACO provider files from PAC, linked to CMS Provider of Service File.

Appendix K: Exhibits to Support Chapter 3

Market Areas and Population Characteristics

Exhibit K.1. Market Areas and Population Characteristics, 2016 NGACOs

ACO	HRR number(s)	Population Characteristics			
		Percent of Population in Rural Areas (%)	Disease Burden (HCC Score)	Racial/Ethnic Minority Medicare Beneficiaries (%)	Medicaid Eligible Medicare Beneficiaries (%)
ACCST	386, 397	9.4	1.08	29	15
Baroma	118, 123, 127, 130	3.8	1.14	28	22
Beacon	221, 222	48.3	0.93	4	34
Bellin	240, 446, 447	53.2	0.92	6	19
CHESS	311, 313, 315, 320	20.2	1.01	19	22
Deaconess	179 207	50.1	0.98	5	21
Henry Ford	232, 233, 234, 244, 245	2.5	1.12	24	17
MemorialCare	23, 56, 79	1.0	1.12	41	27
Optum	11, 12, 14	9.1	0.93	16	10
OSF	170, 171, 172, 175	41.4	0.95	7	16
Park Nicollet	251, 256	21.1	0.96	11	26
Pioneer Valley	110, 230, 231	9.4	1.02	14	29
Prospect	23, 56, 79	1.0	1.12	41	27
Steward	227, 231, 364	0.8	1.02	14	26
ThedaCare	446, 447, 450, 451, 452	22.1	0.98	13	20
Triad	312, 313, 315, 320	35.3	1.03	22	24
Trinity	155, 164, 166, 236, 242, 283, 284, 285, 288, 289, 329, 356	8.5	1.04	21	18
Unity Point	170, 172, 190, 192, 196, 197	42.3	0.93	5	16
All NGACO Markets		-	1.04	22	21
Non-NGACO Markets		-	0.99	20	20

NOTES: Each NGACO market is defined as one or more hospital referral regions (HRRs); each HRR includes at least one percent of the aligned beneficiaries of that NGACO. Averages are weighted by number of Medicare beneficiaries residing in each HRR. The CMS hierarchical condition category (HCC) score represents the case-mix of the Medicare beneficiary population residing in a market area. The average risk score is set at one (1.0); beneficiaries with scores greater than that are expected to have above-average spending, while those with scores below the average are likely to have lower-than-average spending.
SOURCES: CMS Public Use File HRR Tables 2014; American Community Survey, 2011-2015, 5-Year Estimates.

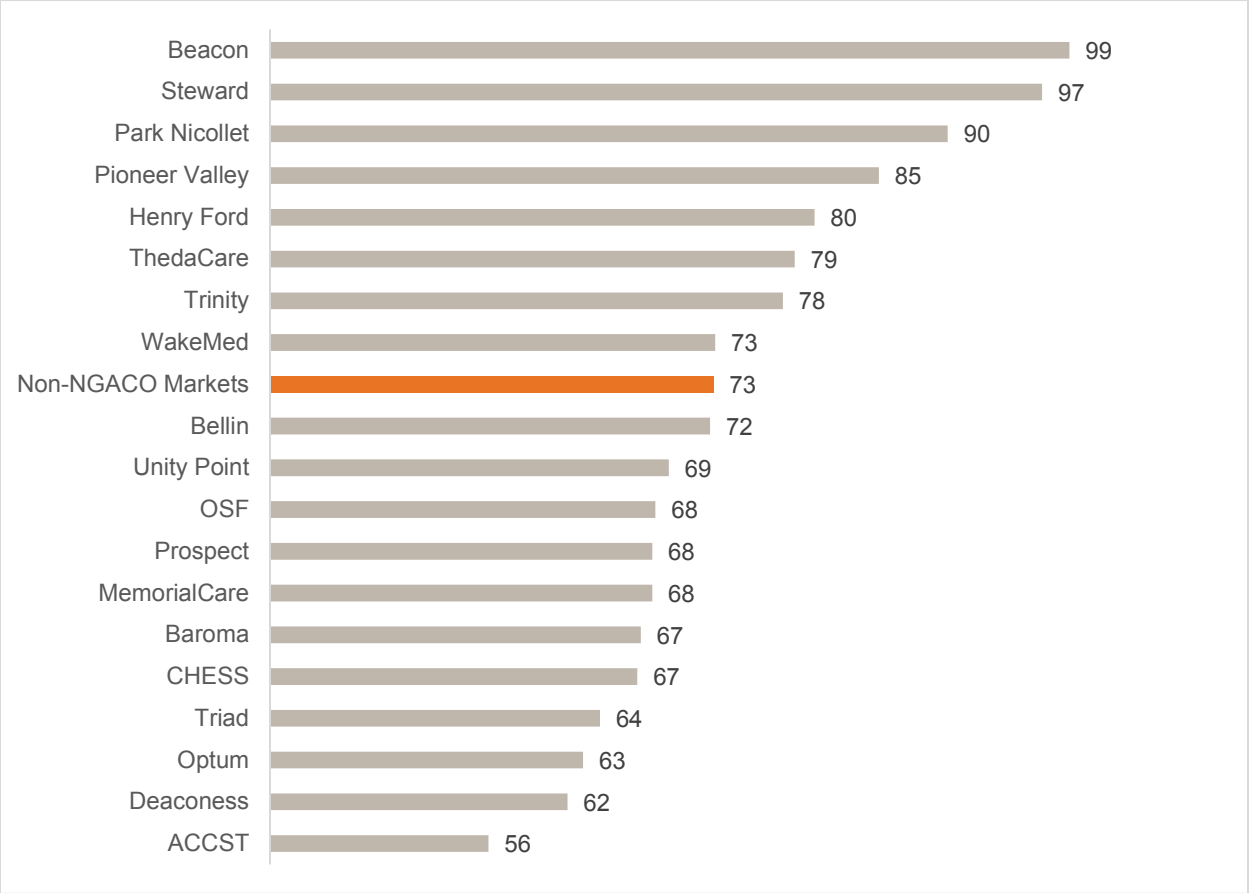
Characteristics of Healthcare Provider Markets

Exhibit K.2. Healthcare Provider Market Characteristics, 2016 NGACOs

ACO	Healthcare Provider Market Characteristics		
	Primary Care Physicians per 1,000 Individuals, 2014	Hospital HHI, 2014	Standardized risk-adjusted, per-capita Medicare spending ($)
ACCST	56	1304	10,659
Baroma	67	1691	10,550
Beacon	99	2408	8,819
Bellin	72	3062	8,788
CHESS	67	3966	9,478
Deaconess	62	3221	10,135
Henry Ford	80	2869	10,126
MemorialCare	68	644	9,014
Optum	63	2905	9,919
OSF	68	2666	9,628
Park Nicollet	90	1765	8,556
Pioneer Valley	85	3393	8,979
Prospect	68	644	9,014
Steward	97	1630	9,254
ThedaCare	79	2239	9,078
Triad	64	3218	9,177
Trinity	78	2010	9,759
Unity Point	69	3116	9,556
All NGACO Markets	75	3039	9,638
Non-NGACO Markets	73	3286	9,519

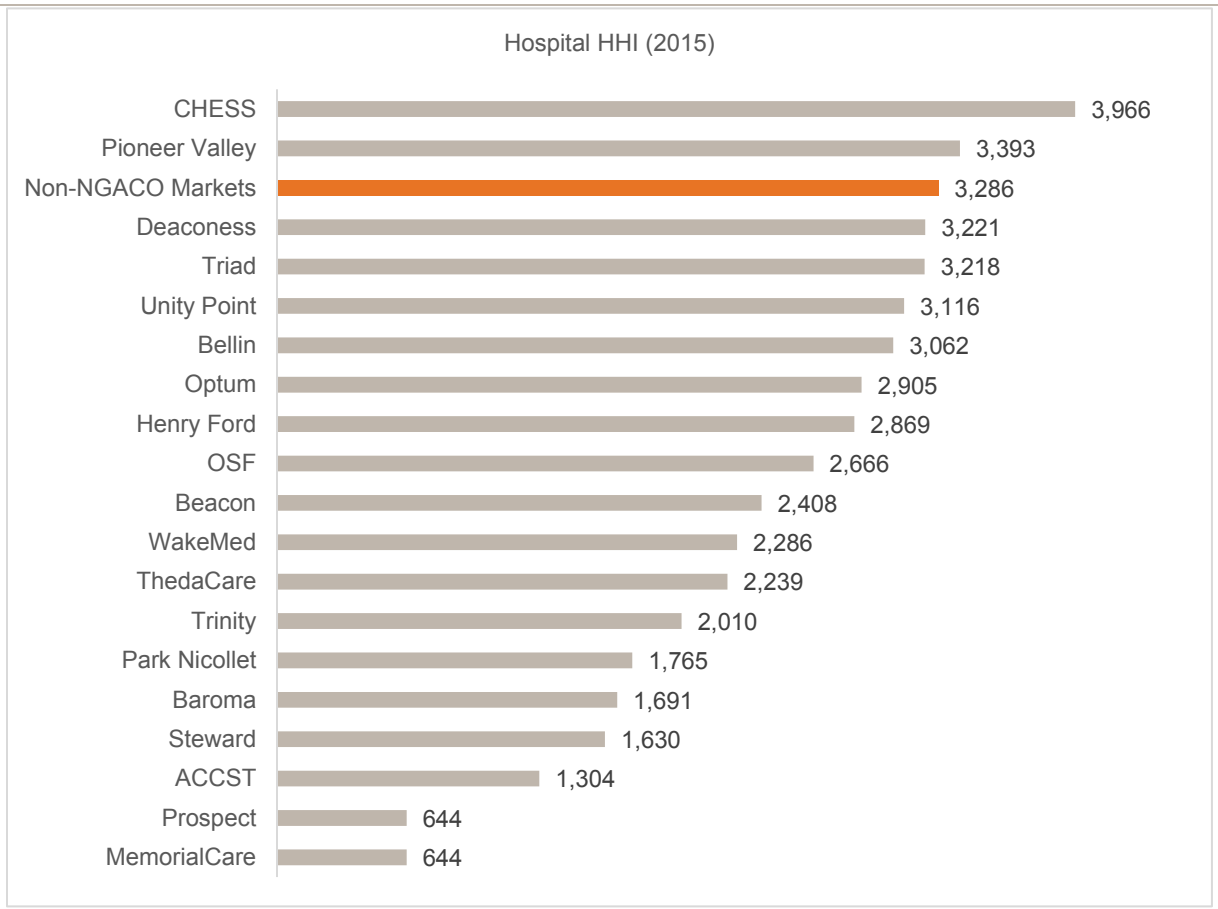
NOTES: Each NGACO market is defined as one or more hospital referral regions (HRRs); each HRR includes at least one percent of the aligned beneficiaries of that NGACO. Averages are weighted by number of Medicare beneficiaries residing in each HRR. HHI stands for Herfindahl-Hirschman Index, a commonly accepted measure of market concentration; it ranges from 0 to 10,000, where a smaller value suggests a more competitive market and a larger value suggest a more concentrated market. As a general rule, we consider a market with an HHI ≤ 1,500 to be competitive, an HHI of 1,500 to 2,500 to be moderately concentrated, and an HHI ≥ 2,500 to be highly concentrated.
SOURCES: American Hospital Survey, 2014; Medicare Data on Provider Practice and Specialty Version 2.1, 2014; Dartmouth Atlas hospital and physician capacity measures; CMS Public Use File HRR Tables, 2014.

Exhibit K.3. Distribution of Primary Care Physicians per 1,000 Beneficiaries across Market Areas (2012), 2016 NGACOs



NOTES: Each NGACO market is defined as one or more hospital referral regions (HRRs); Each HRR in the NGACO market includes at least one percent of all beneficiaries aligned to the NGACO. Averages are weighted by number of Medicare beneficiaries residing in each HRR.
SOURCE: Dartmouth Atlas hospital and physician capacity measures.

Exhibit K.4. Competitiveness of Hospital Market Areas (2015), 2016 NGACOs



NOTES: Each NGACO market is defined as one or more hospital referral regions (HRRs); Each HRR in the NGACO market includes at least one percent of all beneficiaries aligned to the NGACO. Averages are weighted by number of Medicare beneficiaries residing in each HRR. HHI = Herfindahl-Hirschman Index, a commonly accepted measure of market concentration; it ranges from 0 to 10,000, where a smaller value suggests a more competitive market and a larger value suggest a more concentrated market. As a general rule, we consider a market with an HHI ≤ 1,500 to be competitive, an HHI of 1,500 to 2,500 to be moderately concentrated, and an HHI ≥ 2,500 to be highly concentrated.
SOURCE: American Hospital Survey, 2014; CMS Public Use File HRR Tables, 2014.

Characteristics of Healthcare Insurance Markets

Exhibit K.5. Healthcare Insurance Market Characteristics, 2016 NGACOs

ACO Organization Name	Healthcare Insurance Market Characteristics			
	Medicare Advantage Penetration Rate (%)	SSP / Pioneer ACO Penetration Rate (%)	Number of commercial ACO Initiatives	Number of Medicaid ACO initiatives
ACCST	41	22	3	0
Baroma	47	20	13	0
Beacon	23	45	7	0
Bellin	47	16	0	0
CHESS	40	23	8	0
Deaconess	20	42	0	0
Henry Ford	38	36	0	0
MemorialCare	60	17	32	0
Optum	41	29	13	0
OSF	25	38	3	1
Park Nicollet	58	19	5	1
Pioneer Valley	32	37	8	0
Prospect	60	17	32	0
Steward	26	47	5	0
ThedaCare	42	15	1	0
Triad	42	29	6	0
Trinity	29	32	22	1
UnityPoint	20	45	6	1
All NGACO Markets	39	28	124	4
Non-NGACO Markets	33	22	157	20

NOTES: Each NGACO market is defined as one or more hospital referral regions (HRRs); each HRR includes at least 1 percent of the aligned beneficiaries of that NGACO. Averages are weighted by number of Medicare beneficiaries residing in each HRR.
SOURCES: Medicare Advantage and SSP/ Pioneer ACO Penetration Rates from CMS Public Use File HRR Tables, 2015; Number of commercial and Medicaid ACO initiatives from IMS Health SK&A Healthcare Database, 2015.

Appendix L: Exhibits to Support Chapter 4

Annual Wellness Visit and Coordinated Care Reward

Exhibit L.1. Impact of 2016 NGACOs on Number of Annual Wellness Visits

ACO Organization Name	Difference-in-Differences Aggregate Impact (# of AWVs)	95% CI	P value
ACCST	797	663, 930	0.000***
Beacon	-841	-1,001, -680	0.000***
Bellin	297	185, 409	0.000***
Deaconess	2,910	2,661, 3,160	0.000***
Henry Ford	1,055	890, 1,220	0.000***
OSF	-909	-1,060, -759	0.000***
Park Nicollet	537	452, 621	0.000***
Pioneer	1,629	1,336, 1,923	0.000***
Prospect	-218	-332, -104	0.000***
Steward	1,081	829, 1,332	0.000***
Trinity	1,335	1,106, 1,564	0.000***
UnityPoint	2,804	2,427, 3,180	0.000***
Optum (Lifeprint)	-332	-580, -85	0.009***
ThedaCare	-273	-460, -85	0.004***
CHESS	160	12, 308	0.034**
Baroma	152	-40, +344	0.121
MemorialCare	-97	-243, +50	0.195
Triad	-37	-507, +433	0.878

NOTES: CI = confidence interval. *p<0.1; ** p<0.05; ***p<0.01 .

Patterns of Care

Exhibit L.2. Patterns of Care: Continuity, 2016 NGACOs

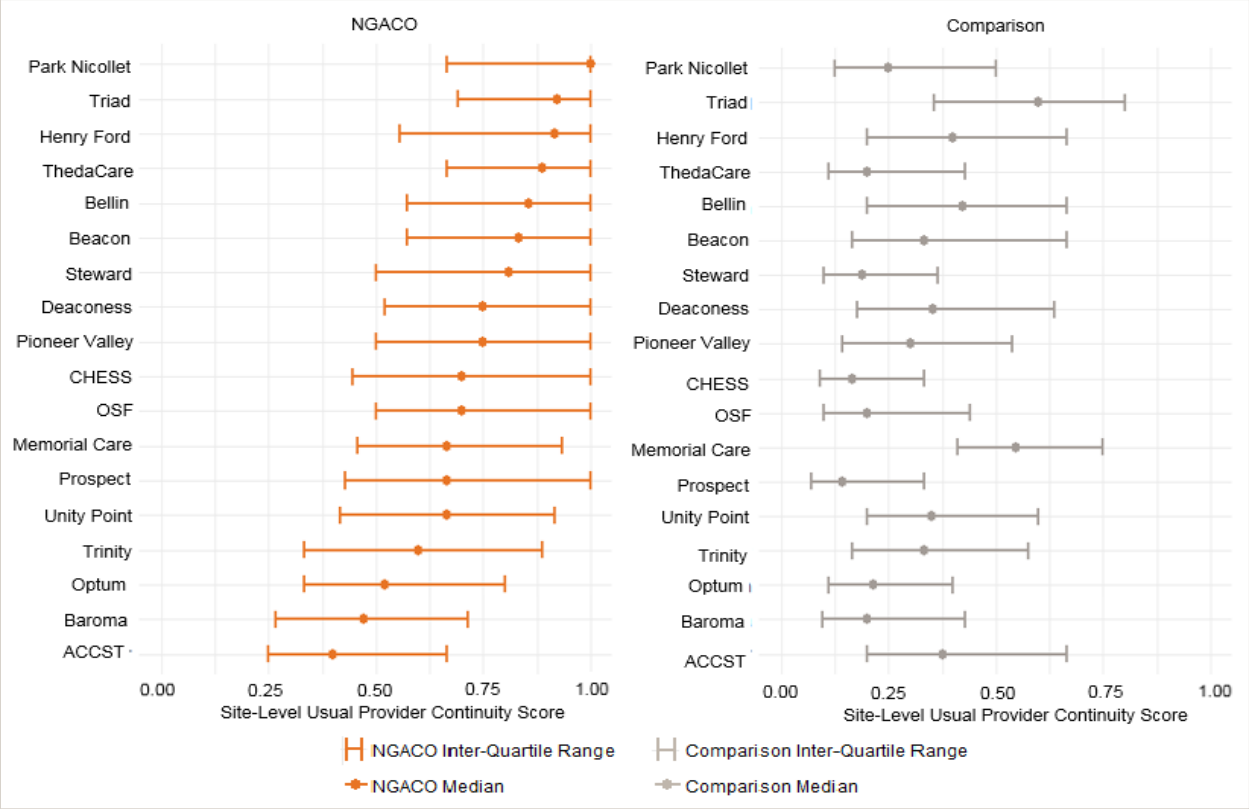


Exhibit L.3. Patterns of Care: Leakage, 2016 NGACOs

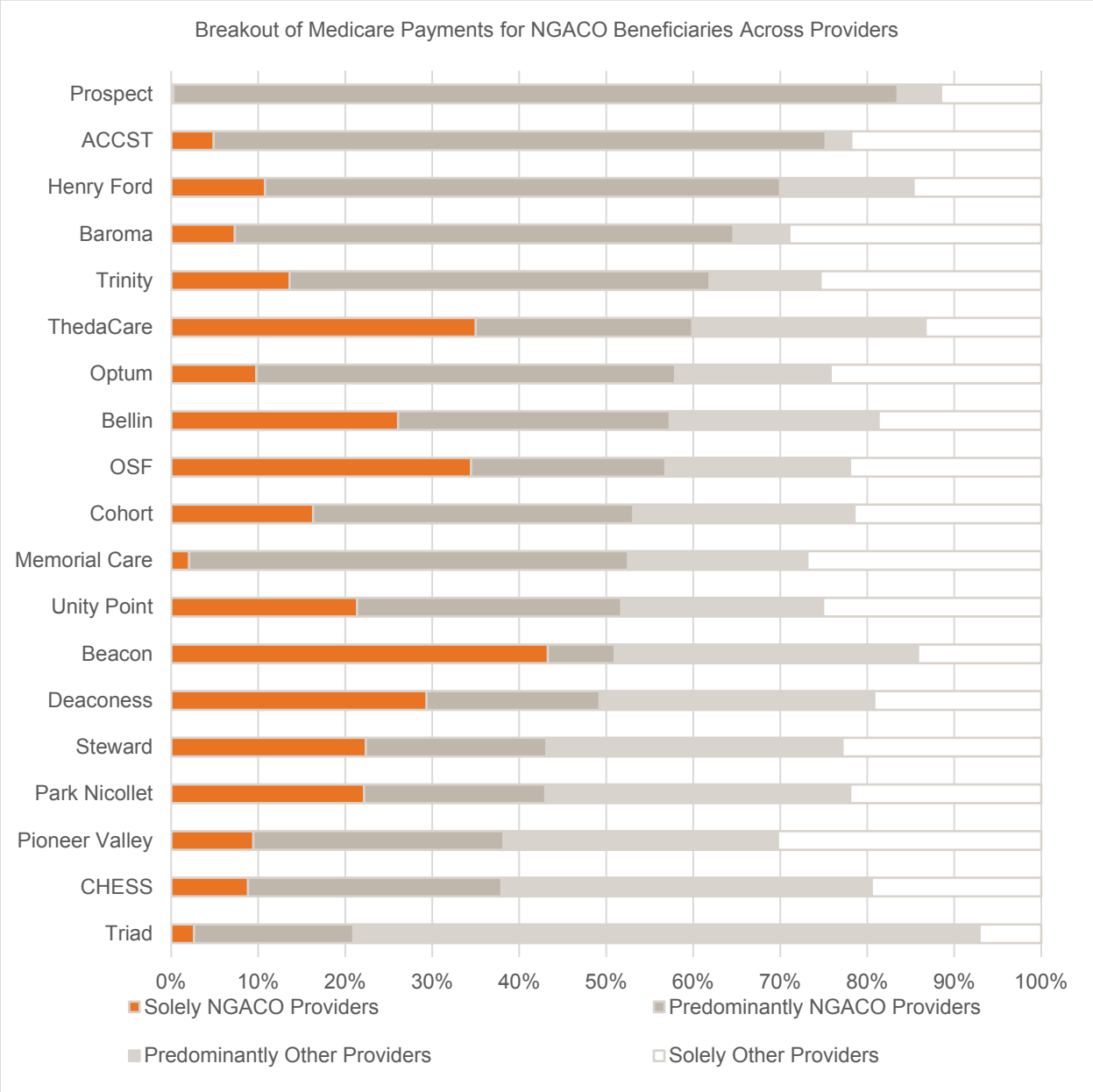


Exhibit L.4. Patterns of Care: Contract Penetration, 2016 NGACOs