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Longitudinal Participation in Delivery and Payment Reform Programs among US Primary Care Organizations

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ABSTRACT

Objective: To assess longitudinal primary care organization participation patterns in large-scale reform programs and identify organizational characteristics associated with multi-program participation.

Data Sources: Secondary data analysis of national program participation data over an eight-year period (2009-2016)

Study Design: We conducted a retrospective, observational study by creating a unique set of data linkages (including Medicare and Medicaid Meaningful Use and Medicare Shared Savings Program Accountable Care Organization (MSSP ACO) participation from CMS, Patient

Centered Medical Home (PCMH) participation from the National Committee for Quality Assurance, and organizational characteristics) to measure longitudinal participation and identify what types of organizations participate in one or more of these reform programs. We used multivariate models to identify organizational characteristics that differentiate those that participate in none, one, or two-to-three programs.

Data Extraction Methods: We used Medicare claims to identify organizations that delivered primary care services (n=56,287) and then linked organizations to program participation data and characteristics.

Principal Findings: No program achieved more than 50% participation across the 56,287 organizations in a given year and participation levels flattened or decreased in later years. 36% of organizations did not participate in any program over the eight-year study period; 50% participated in one; 13% in two; and 1% in all three. 14.31% of organizations participated in five or more years of Meaningful Use while 3.84% of organizations participated in five years of the MSSP ACO Program and 0.64% participated in at least five years of PCMH. Larger organizations, those with younger providers, those with more primary care providers, and those with larger Medicare patient panels were more likely to participate in more programs.

Conclusions and Relevance: Primary care transformation via use of voluntary programs, each with their own participation requirements and approach to incentives, has failed to broadly engage primary care organizations. Those that have chosen to participate in multiple programs are likely those already providing high-quality care.

Keywords: Primary Care, National Health Policy, Healthcare Reform

What is known/what this study adds:

A. What is known

- Prior studies have examined primary care participation in individual programs, most of which have used cross-sectional data and measured physician-level participation
- These studies reveal moderate levels of participation, with structural features such as size and health system ownership associated with participation

B. What this study adds

- By examining 8 years of participation data across three large-scale programs, our measures more robustly assess national levels of participation, revealing that a minority of organizations have engaged in multiple programs
- Overall levels and trends were moderate, with no program achieving more than 50% participation across organizations in a given year and flat or decreasing participation in later years
- Policymakers should consider reform approaches that explicitly integrate program requirements across different emphasis areas – health IT, primary care transformation, value-based payment – in order to gain broader uptake

Introduction

To address persistently high spending and variable population health outcomes, U.S. policymakers have experimented with different approaches to care delivery and payment.[1] Over the past decade, the pace and breadth of experimentation has intensified, with an emphasis on primary care as the foundation for a high-performing health system.[2] Specifically, policymakers have pursued large-scale delivery system reform and payment reform strategies in parallel[3] under the assumption that simultaneous improvement is required in primary care infrastructure and processes alongside payment incentives that reward organizations providing high-quality primary care.[4-7] Key delivery system reform infrastructure improvements promoted by the Medicare and Medicaid Electronic Health Record (EHR) Incentive Programs ("Meaningful Use" [MU]) include the adoption and use of EHRs. Key delivery system reform process improvements include a shift to team-based care, more systematic care coordination, and greater patient access to and engagement with providers as operationalized by the Patient-Centered Medical Home (PCMH) model. Payment reform strategies align incentives to reward quality and spending outcomes,[8,9] with Accountable Care Organizations (ACOs) as the primary model.

Across these delivery system and payment reform efforts, advances in one area should facilitate advances in another. For example, key dimensions of the PCMH model, such as systematic tracking and follow-up of lab test results, are more likely to be effective when done using an EHR versus performed manually. Moreover, effective use of new infrastructure and processes will likely be intensified by increased financial rewards for better outcomes. However, because each program is distinct, with its own requirements and participation costs as well as incentive structure, organizations may choose not to participate in multiple programs, failing to achieve the intended synergies. This may be particularly true among small organizations that have limited resources to devote to major organizational changes[10-12] as well as organizations that treat a more complex population and may struggle to adhere to multiple program requirements.[13-15]

We therefore created the first longitudinal, national dataset to measure patterns of participation among primary care organizations in delivery system reforms (MU and PCMH) and payment reform (ACOs), and determine whether patterns vary by organizational characteristics. These three programs have existed for many years (10 years for MU, 12 years for PCMH, and 9 years for ACOs) and have also influenced subsequent programs that are being implemented currently.[16] Specifically, we sought to address the following research questions: (1) What proportion of practices participates in each program and in any program, and how has this changed over time? (2) What proportion of practices participates in none, one, or multiple programs over time and how does this differ by practice characteristics? (3) Is there a dominant sequence in which multi-program participation occurs? Our work extends recent studies examining participation in multiple programs using cross-sectional data and focusing on dichotomous measures of participation in any program.[17] Our results therefore add valuable new insights into the extent to which the current policy strategy of having multiple, distinct, voluntary programs is likely to drive widespread primary care transformation.

Methods

Study Sample: Our sample is all provider organizations (as defined by Taxpayer Identification Numbers - TINs) that provide primary care to Medicare beneficiaries. We used TINs as our unit

of analysis for two reasons. First, MSSP ACO participation is at the TIN level, and even though MU and PCMH attestation occurs at the National Provider Identifier (NPI) level, both programs require substantial infrastructure investment such that individual NPI-level participation within larger organizations is rare. Further, since we stratify results by organization size, we are able to examine participation for solo and small practices. Second, to identify organizations that provide primary care to Medicare beneficiaries, we sought to replicate an existing definition based on Medicare claims that captures organizations that provide a plurality of primary care services to a group of Medicare beneficiaries over multiple years. Since individual NPIs can switch organizations from year-to-year, this definition is logically operationalized at the TIN level. Specifically, we replicated the MSSP ACO methodology[18] for primary care attribution using the Medicare fee-for-service claims files (the same as those used by the MSSP ACO program). We identified beneficiaries insured by fee-for-service Medicare who received at least one primary care service from an eligible provider and their associated TIN. Beneficiaries are then attributed to the TIN that provided the plurality of their primary care during that calendar year (where plurality is defined as the highest average costs). We repeated this process for the four years (2009, 2010, 2015, 2016) for which we had Medicare claims files (for the Medicare 20% sample). We then limited our sample to the 56,287 TINs that had attributed beneficiaries in all four years to reflect the subset of organizations that were continuously eligible to participate in primary care reform programs. Under this approach, organizations in our sample may have a single or multiple practice site locations, and deliver primary care only or multispecialty services including primary care.

Study Outcomes: Participation in Primary Care Reforms. We measured participation in reform efforts by obtaining Meaningful Use Program participation data from CMS Medicare attestation public use files and Medicaid attestation files from the Office of the National Coordinator, PCMH recognition data from the National Committee for Quality Assurance (NCQA), and ACO participation data from the CMS MSSP ACO Provider-level Research Identifiable File. For each year (2009-2016), we determined organization-level participation in a given reform effort, as applicable. To measure PCMH participation, we used NPI-level data from NCQA on date of first recognition. The first year in which a provider could receive recognition

was 2009. In a given year, we classified an organization as participating in PCMH if more than half of the primary care providers assigned to a given TIN had active PCMH recognition. (See Technical Appendix for details. Few organizations were near this threshold, such that assignment would not have changed at lower or higher thresholds.) We used the annual Medicare Data on Provider Practice and Specialty (MD-PPAS) file that contains NPIs along with their TIN to link NPIs to TINs.

For participation in Medicare and Medicaid Meaningful Use, we used annual data on the NPIs of providers who attested along with their attestation date, beginning in the first year of the program (2011). Again, we used 50% as the cutoff for the TIN to be considered as participating in MU. (See Technical Appendix for details. Again, few organizations were close to this cutoff.) Finally, we used annual data on TIN participation in the Medicare Shared Savings ACO program from the CMS Provider-level Research Identifiable File, which commenced in 2012. The resulting data set contained TIN level participation in each of the three programs at the calendar-year level.

Since the ACO data also reports NPI-level participation, we generated supplementary tables with NPI-level participation in each of the three programs over time that were not limited to the practices in our sample and provide a useful comparison to other studies that report provider-level participation patterns. (Appendix Figure/Table A1)

Organizational Characteristics Data and Measures: We created measures of organizational characteristics and characteristics of the county in which organizations were located using MD-PPAS data along with data from the Area Health Resource File (AHRF) and the American Community Survey. We selected characteristics that have been shown in prior work to be related to participation in individual primary care practice transformation efforts.[19-21] These variables included organizations size (both number of providers and number of Medicare beneficiaries per provider), proportion of primary care specialties of providers in the

organization, and provider age (See Appendix Table A2 for details on these measures). Community characteristics sought to capture patient population demographics and included socioeconomic measures such as per capita income, households without computer/internet, and percent dual-eligibles (measured as whether or not the community was in the highest quartile of the given characteristic since we did not expect a continuous linear relationship). Community characteristics also included measures of geography type (e.g., metropolitan/micropolitan, region, and population size).

Analytic Approach: First, we assessed the cross-sectional level of participation in each calendar year during the study period across organizations - for each program individually (e.g., % of TINs participating in MU) and for any of the three programs (e.g., % of TINs participating in PCMH, MU, and/or MSSP ACO). We then calculated the number of years of participation in each program (e.g., % of TINs participating in one, two, three, four, or five or more years of PCMH). Next, we calculated descriptive statistics for the organizational characteristics based on participation in none, one, two, or three programs at any point during the study period (i.e., ignoring calendar year and total number of years of participation). For this measure, we did not require simultaneous participation in a given calendar year to count as participating in multiple programs.

To more robustly assess differences in organizational characteristics, we used multivariate models to examine differences between organizations that participated in one program versus no programs and between organizations that participated in two or three programs versus no programs. We combined the two and three categories because the latter was very small. We used multinomial regression (as opposed to a count model) because the dependent variable is the number of "treatments" implemented by the organizations in the sample. This is not a count in the conventional sense and instead represents a number of discrete categories, as in studies with multiple treatments that are modeled as either ordinal or nominal (that is, modeling the treatment assignment). In our study, as in the multiple treatment effects literature, the treatments themselves are discrete, and adding them generates additional discrete categories. We also considered ordered logit regression but several variables violated the parallel lines assumption,

while generalized ordered logit models (which adjust for parallel lines) produced results that were problematic for interpretation because of how categories are compared.

Finally, given that we find the greatest participation in MU and MSSP ACO, we examined the temporal sequencing of participation among the 7,943 organizations that participated in both. Specifically, we assessed the start year of MU participation in relation to the start year of ACO participation (i.e., started both in the same year, started MU X years before ACO or X years after ACO). We also performed this assessment for the organizations that started MU in 2012 or later (n=5,698 TINs), given that 2012 was the first year eligible for ACO participation. We studied these relationships in order to understand whether one program appeared to be an entry point for the other, or whether organizations may have been motivated by simultaneous participation, consistent with the idea of synergies between delivery and payment reforms.

All data management and analyses were conducted using Stata 15 (StataCorp. 2017. *Stata Statistical Software: Release 15*. College Station, TX: StataCorp LLC.). Our study was approved by the University of California, San Francisco IRB.

Results

No program achieved more than 50% participation across organizations in a given year and, for MU and MSSP ACO participation, levels flattened or decreased in later years. (Figure 1) Specifically, NCQA PCMH participation was low overall but grew substantially (on a relative basis) over time: 0.11% of organizations participated in 2009 and this rose steadily to 2.17% in 2016 (Figure 1 & Appendix A3). Medicaid and Medicare MU participation started at 14.29% in 2011 (the first year of the program), peaked at 41.40% in 2013, and then declined to 29.00% by 2016. MSSP ACO participation started at 5.39% in 2012 (first year) and then grew to 14.56% in 2015 and finally dipped slightly to 13.56% in 2016. Sixteen percent of ACOs were hospital-led; 45% were physician-led; and 39% were jointly-led, mirroring national trends. (Appendix A4)

Few organizations participated in five or more years of any program. (Appendix A5) For example, 11.65% of organizations participated in one year of MU, 11.93% in two years, 11.17% in three years, 10.35% in four years, and 14.31% in five or more years. Distributions were similar for the other two programs, although only 3.84% of organizations participated in five years of the MSSP ACO Program and 0.64% participated in five or more years of PCMH.

Across the three programs, 36% of organizations did not participate in any program; 50% participated in one; 13% in two; 1% in all three (Table 1). Of the 50% of organizations that participated in only one program, MU was dominant (90.8%) followed by ACO (8.9%). Organizations not participating in any programs were predominantly small (74%), located in the South (38%), and located in metropolitan areas (85%). Table 1 contains a full set of descriptive characteristics.

In adjusted results, larger organizations – both in terms of number of providers and Medicare beneficiaries per provider - were more likely to participate in one or more programs versus none (Figure 2 and Appendix A6). Organizations participating in more programs were also more likely to have a higher proportion of primary care providers, with a notably higher relative risk ratio for those participating in multiple programs as compared to those participating in one program. These organizations were also more likely to have younger providers.

When we examined characteristics of the county in which the organization was located, we did not observe differences by urbanicity but did find regional differences (Figure 3). For example, compared to organizations in the Northeast, those in the South were more likely to participate in one program but less likely to participate in multiple programs. The same result held for the West. Organizations in counties in the highest quartile of population size, per capita income, and non-Hispanic whites, blacks, and Hispanics were more likely to participate in multiple programs; these relationships did not hold for participation in one program. Organizations in counties in the highest quartile of households without computers or internet were less likely to participate in

multiple programs; the relationship was similar but not statistically significant for participation in a single program.

When we examined sequencing of participation in MU and MSSP ACO programs, the largest group of organizations started ACO participation the year following MU participation (25%), with the second largest group starting both programs the same year (19%), followed by ACO participation 2 years after starting MU (18%) (Figure 4). Overall, two-thirds of organizations (67%) initiated ACO participation after initiating MU participation. In the subset of organizations that started MU in 2012 or later, the results were similar. (Appendix A8) The largest group started both programs the same year (27%), with the second largest group starting ACO participation in the year following MU participation (22%). Overall, more than half of organizations (55%) initiated ACO participation after initiating MU participation.

Discussion

In the first national, longitudinal study to assess levels of primary care organization participation in large-scale, voluntary delivery and payment reform programs over an eight-year period, we found that few organizations participated in multiple programs. There was also a decline in later years of participation in two of the three programs (the two largest ones – MU and MSSP ACO). We also found strong relationships between the types of organizations that were more likely to participate in a single program, as well as those more likely to participate in multiple programs. In particular, those with younger providers, those with more primary care providers, and those with larger Medicare patient panels were more likely to participate in more programs. Organizations in larger, wealthier counties were also more likely to participate while those in counties in the top quartile of residents with no internet/computers were less likely to participate. These findings suggest that continued reliance on multiple, varied, national programs is failing to broadly engage the majority of primary care organizations. This approach also potentially favors organizations already likely to be providing high-quality care, which could increase the risk of disparities in the quality of care for the patients served by those organizations.

With only 14% of organizations participating in multiple programs, our findings raise the question of why the current policy strategy – that envisions organizational participation in multiple delivery system reform and payment reform programs in parallel - is not occurring at scale. We suspect that this is due to the experimental nature of the programs (particularly MU and ACO that were novel in their design and focus, and the complex requirements of each program, which necessitate a large investment to understand and then enact.[22-24] The varied approaches to financial incentives associated with each program may also contribute. It is therefore not surprising that characteristics associated with organizational environments that have more resources were predictive of organizations that participated in multiple programs. For policymakers, our findings suggest the need to simplify program requirements and to more explicitly bring them into alignment with each other. In particular, there was a notable decrease in MU participation over time within our practice cohort. While our study does not reveal the underlying causes, we suspect that they are multi-factorial. First, the financial incentives decreased over time, making participation less valuable. Second, the criteria got more difficult and while EHRs were certified to meet the criteria, providers could have found the adherence to be onerous. Third, practices got less support from Regional Extension Centers over time, which could have made sustained participation challenging, particularly for small and less well-resourced practices that relied in these Centers more heavily.[25]

As delivery and payment reforms have evolved and expanded, there continues to be a focus on the programs we examined.[26] Specifically, health IT use has become part of the Advancing Care Information score within the Merit-based Incentive Payment System (MIPS) while primary care transformation has expanded into varied models including Comprehensive Primary Care Plus, Primary Care First, and Direct Contracting.[27] ACOs have also persisted and expanded under Pathways to Success and Next Generation ACO models. While CMS and others continue to experiment with different designs, our results suggest that there may be ongoing challenges. Specifically, the programs and their components remain balkanized, and are not integrated from a programmatic or operational perspective. For example, at the programmatic level, the CMMI Innovation models have one category for Accountable Care and another for Primary Care

Transformation along with several others. Even within MIPS, the health IT component is separated from the other components of the score. The initial vision for the Health Information Technology for Economic and Clinical Health (HITECH) Act and Meaningful Use programs was that they would directly enable other delivery and payment transformations.[28] For example, to support comprehensive primary care, "in the wired health system envisioned in HITECH, a treating provider will be able to privately and securely query all of a patient's health records—from all of his or her points of care—and obtain a synthesized health record including all points of contact."[28] As a second example, to promote shared savings models such as ACOs, the vision was that "electronic reporting through electronic health records may permit improved cost accounting and the rapid assessment of quality and its incorporation into payment."[28] However, subsequent program designs continue to separate the uses of technology from the processes involved in primary care transformation and accountable care. If we continue without more explicit effort to synchronize EHR capabilities with the activities needed to deliver high-quality, low-cost primary care, it will likely be difficult for practices to undertake multi-program participation (given the varied criteria) and to be able to realize the synergies even if they do. Nonetheless, data from 2017 MIPS participation suggests that the majority of clinicians are able to participate in at least two of the three required activity domains.[29]

Our results also raise potential concerns about disparities in patient outcomes if certain types of organizations are not able to comparably engage in the varied delivery and payment reform efforts.[30] With participation favoring organizations with characteristics associated with the provision of high-quality care, which has also been found in other recent studies along with additional characteristics such as health system ownership favoring multiple program participation[17], the increasingly heterogeneity and options for delivery and payment reform models may be increasing the risk of disparities as the strong organizations are able to participate in multiple programs and likely realize associated improvements, while the weaker organizations fail to achieve comparable gains (which could in turn result in fewer financial resources to invest in ongoing improvements). Explicit strategies to help ensure broad participation in reform programs may include reliance on third-party entities, such as provider organizations,[31] regional extension centers, or primary care practice collectives. These entities can achieve economies of

scale in helping organizations successfully engage in change management to meet program requirements.[32,33]

Limitations. Our study has important limitations. First and foremost, we only were able to include participation data from three programs, thereby missing other programs, such as Pioneer ACOs and PCMH recognition by entities other than NCQA. However, these other programs are either small or state-specific, and this limitation would disproportionately impact our results related to levels of participation (and not characteristics associated with participation). Indeed, when we assessed NCQA PCMH recognition in states known to have high penetration of other PCMH programs, levels of participation in NCQA PCMH were only slightly lower (see Technical Appendix). Relatedly, it is possible that organizations that did not participate or stopped participating in a given program continued to meet the requirements. While we think this is unlikely given the resulting reduced revenue or financial penalties, it would also understate levels of participation. We were also limited to examining organizational characteristics that were available in national data and so we could not examine all potential characteristics of interest. The results of our sequencing analysis may also have been impacted by the differing starting years of each program, which led us to undertake the sensitivity analysis that was limited to practices that started programs in 2012 or later when all were available; however these differences could have impacted participation and sequencing patterns in other ways. Finally, our approach to identifying primary care organizations relied on four years of data: 2009, 2010, 2015, and 2016. It is possible that some organizations would not have met our definition of a primary care organization in the intervening years (2011-2014), though we suspect this is rare.

In summary, we created a novel set of data linkages to characterize national, longitudinal primary care organization participation in three large-scale delivery and payment reform programs. We examined an eight-year period in which policymakers introduced these programs with the hope of driving widespread engagement and primary care transformation. Our results suggest that a minority of organizations have embraced multi-program participation, such that policymakers need to simplify and align programs. If not, there is a potential risk of increasing

disparities in outcomes across organization types and falling short of goals to achieve a high-performing health system via transformed primary care.

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Table 1. Number of Programs in which Organization Participated (2009-2016) by Characteristics

	NUMBER OF PROGRAMS			
	NONE	**ONE**	**TWO**	**THREE**
Number of Organizations (TINs)	20,209 (36%)	28,059 (50%)	7,243 (13%)	776 (1%)
Organization Size	% of orgs	% of orgs	% of orgs	% of orgs
1-2	73.7	63.4	61.6	52.5
3-7	14.8	21.9	21.3	26.3
8-12	3.4	5.8	5.8	7.5
13-19	2.1	3.1	3.2	5.0
20-99	4.2	4.5	5.8	7.2
100+	1.7	1.4	2.3	1.6
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Beneficiaries per Provider	367.7 (348.9)	443.0 (379.1)	381.6 (306.1)	272.3 (181.4)

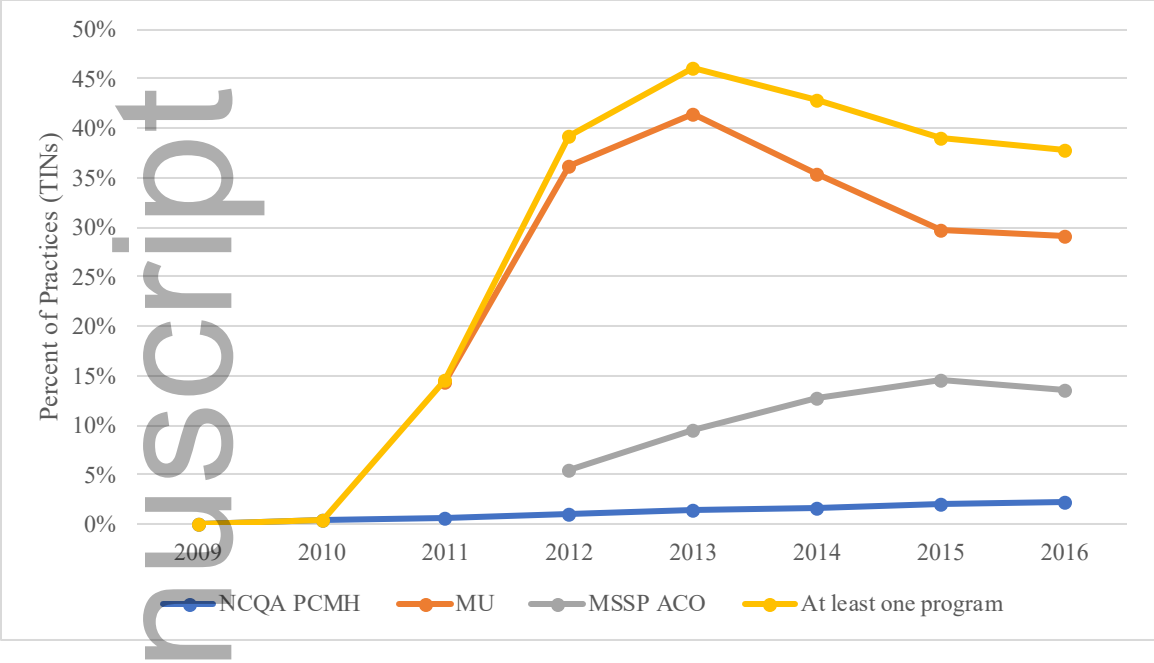
Specialty Mix	Mean (SD) % of providers in org	Mean (SD) % of providers in org	Mean (SD) % of providers in org	Mean (SD) % of providers in org
Primary care specialty	41.4 (46.6)	39.1 (45.4)	61.8 (42.6)	79.6 (25.7)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Provider Age	58.9 (10.5)	54.6 (8.9)	54.1 (8.4)	51.9 (7.6)
Community (CBSA) Characteristics				
Geography (CBSA) Type	Mean (SD) % of providers in org	Mean (SD) % of providers in org	Mean (SD) % of providers in org	Mean (SD) % of providers in org
Metropolitan area	85.8 (34.7)	87.0 (33.5)	90.7 (28.8)	88.7 (31.7)
Micropolitan area	9.4 (29.1)	8.9 (28.4)	6.0 (23.6)	6.3 (24.3)
Non-CBSA	4.6 (20.7)	3.9 (19.3)	3.2 (17.4)	4.9 (21.5)
County (CBSA) Characteristics	% of orgs in highest quartile CBSA	% of orgs in highest quartile CBSA	% of orgs in highest quartile CBSA	% of orgs in highest quartile CBSA
Population size	93.2	93.3	95.8	96.6
Per capita income	72.3	70.7	78.4	82.2
Dual eligible	32.8	31.7	33.6	46.5
Households with no internet/computers	19.5	20.4	15.8	14.9
Non-Hispanic Whites	17.0	16.8	18.9	15.5
Blacks	61.8	62.0	70.3	78.7
Hispanics	68.4	68.4	73.6	74.6
Non-English speakers	74.3	74.5	79.3	75.7

Less than high school education	41.6	40.3	42.2	39.8
Region	% of orgs	% of orgs	% of orgs	% of orgs
Northeast	21.1	18.3	24.4	48.6
Midwest	17.5	17.1	21.7	13.3
South	38.5	41.4	36.9	32.9
West	22.9	23.2	17.0	5.3

Notes: CBSA=core-based statistical area; SD=standard deviation; TIN=taxpayer identification number

Source: Authors' analysis of program participation data from Centers for Medicare and Medicaid Services, Office of the National Coordinator for Health IT, and National Committee for Quality Assurance

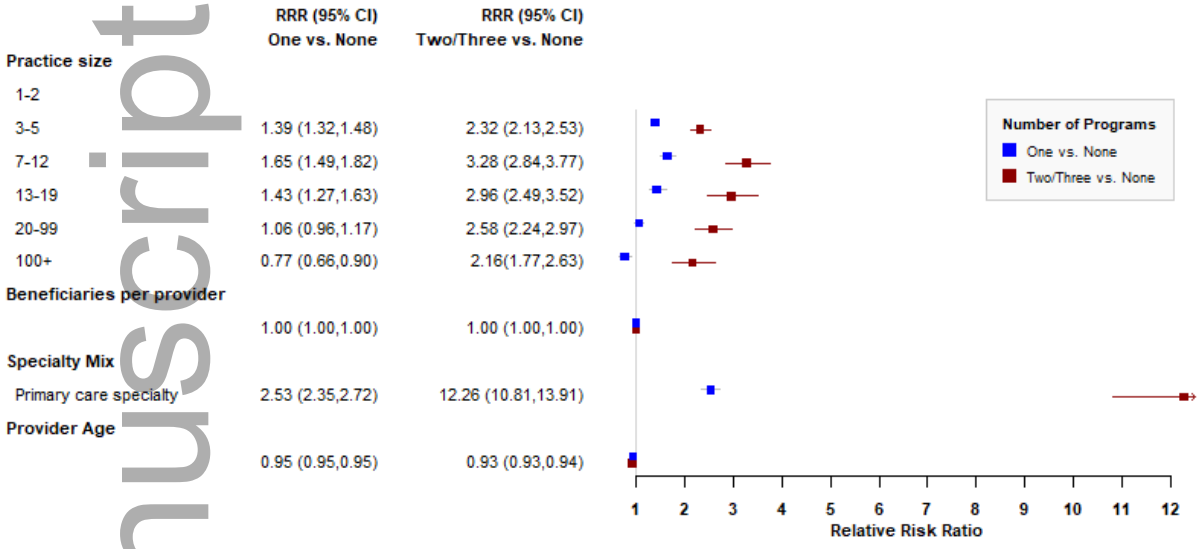
Figure 1. Primary Care Organization Participation in Three National Delivery and Payment Reform Programs (2009-2016)



Notes: N= 56,287 Taxpayer Identification Numbers (TINs) with attributed primary care patients in 2009, 2010, 2015, and 2016; MU=Medicare and Medicaid Meaningful Use Program; MSSP ACO=Medicare Shared Savings Program Accountable Care Organization; NCQA PCMH=National Committee for Quality Assurance Patient Centered Medical Home

Source: Authors' analysis of program participation data from Centers for Medicare and Medicaid Services, Office of the National Coordinator for Health IT, and National Committee for Quality Assurance

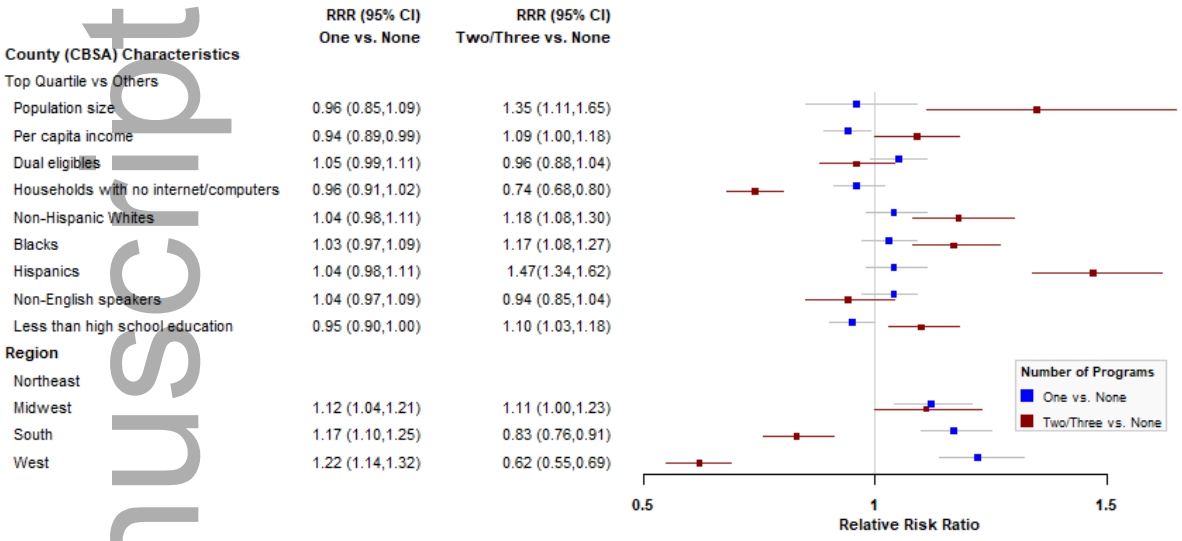
Figure 2. Adjusted Relationships between Organizational Characteristics and Program Participation (Relative Risk Ratios and Confidence Intervals from Multinomial Logit Models)



Notes: RRR=Relative Risk Ratios and CI= Confidence Intervals

Source: Authors' analysis of program participation data from Centers for Medicare and Medicaid Services, Office of the National Coordinator for Health IT, and National Committee for Quality Assurance

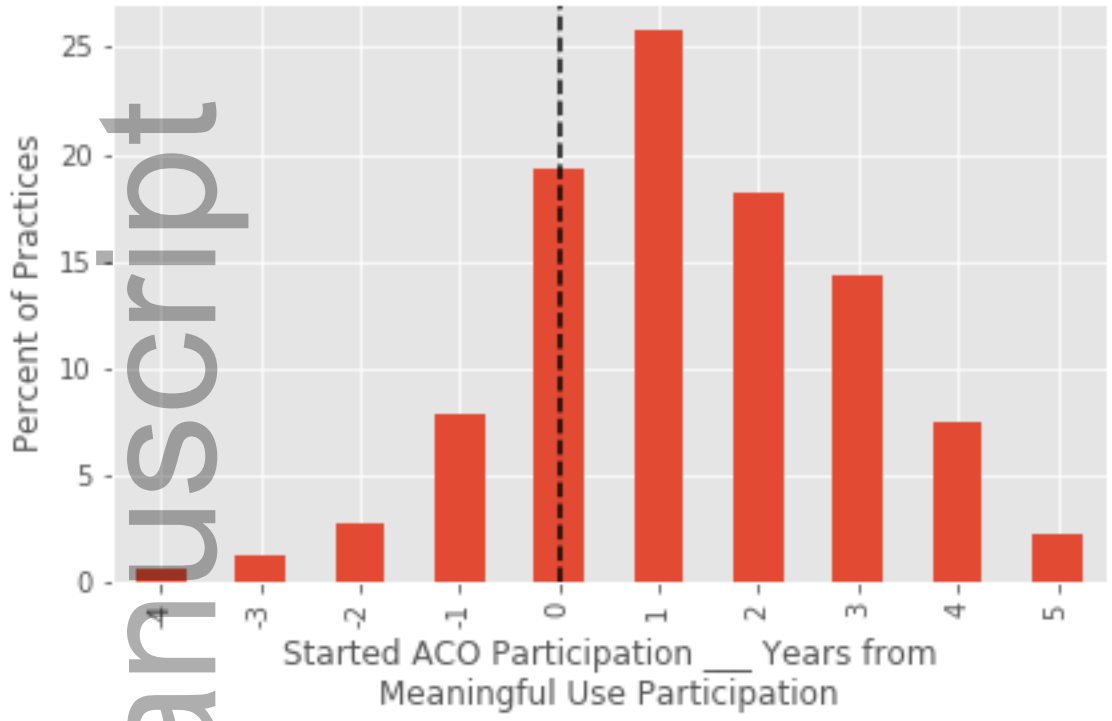
Figure 3. Adjusted Relationships between County Characteristics and Program Participation (Relative Risk Ratios and Confidence Intervals from Multinomial Logit Models)



Notes: Removed core-based statistical area (CBSA) type due to large confidence intervals. See Appendix Figure A7 for plot with these variables included. RRR=Relative Risk Ratios and CI= Confidence Intervals

Source: Authors' analysis of program participation data from Centers for Medicare and Medicaid Services, Office of the National Coordinator for Health IT, and National Committee for Quality Assurance

Figure 4. Sequencing of MSSP ACO Participation in Relation to MU Start Year



Notes: N= 7,943 TINs that participated in Medicare or Medicaid Meaningful Use (MU) and Medicare Shared Savings Program Accountable Care Organization (MSSP ACO)

Source: Authors' analysis of program participation data from CMS and ONC