USC Schaeffer

Leonard D. Schaeffer Center
for Health Policy & Economics

Impact of ACOs on Minority Populations with Dementia and Other Chronic Conditions

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Motivation

Racial disparities have persisted among aging populations

Relative to Whites, Blacks have

- Twice the likelihood of having ADRD
- 30% higher death rates due to heart disease
- 41% higher stroke death rates

Relative to Whites, Hispanics have

- Higher rates of uncontrolled blood pressure
- More frequent diabetes diagnoses

Several known factors are correlated with these disparities

Disparities in access and quality of care

- Lower socioeconomic status, higher uninsurance rates (e.g., Zuvekas and Taliaferro, 2003)

Disparities in environment

- Increased behavioral risks, proximity to environmental pollutants (e.g., CDC 2015; Hill et al. 2015)

Disparities in treatment and culture

- Organizational, structural, and clinical sociocultural barriers (e.g., Brach and Fraserirector, 2000; Betancourt, Green and Carillo, 2003)

Role of health care systems in reducing health disparities

Recent health reform has focused the redesigning health care systems

- Emphasis on the management of population health
- Potential to increase access to high quality care through affecting provider supply and behavior
- Key example: ACOs
  - 10% of the US population (32.7 million) is covered by an ACO (Muhlestein et al., 2018)

Accountable Care Organizations (ACOs)

Definition

- Groups of providers, collectively held accountable for the care of a defined population of patients
- Financial incentives reward quality at lower costs
  - Performance metrics focus on care coordination, preventive care, and managing the at-risk population
  - Bonuses are based on spending less than a targeted benchmark

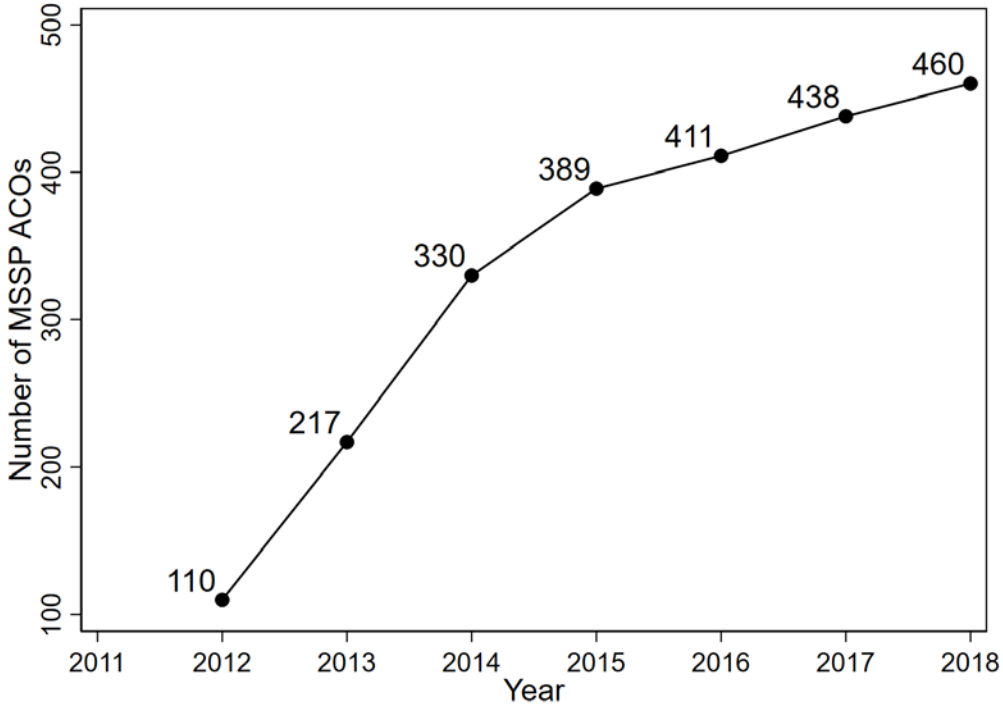
In theory, ACOs can reduce racial disparities through coordinating care for those who need it most

Research Question

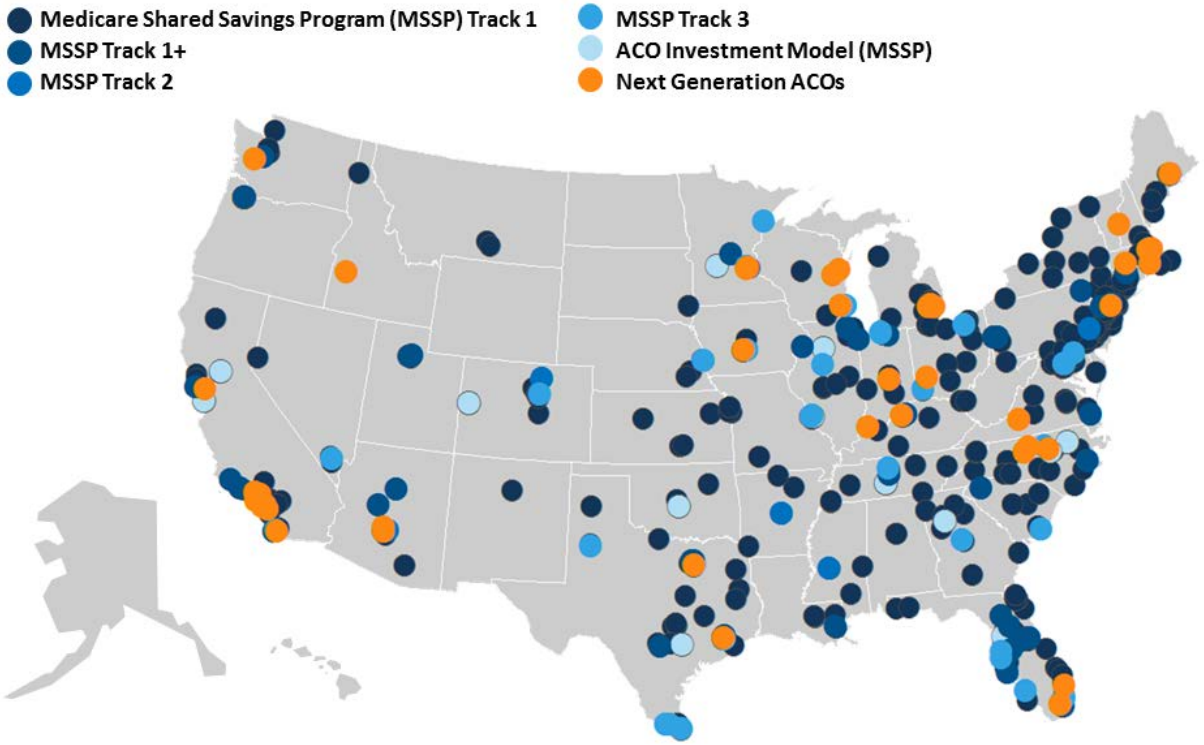
How do Medicare ACOs affect racial and ethnic health disparities, particularly among patients with ADRD and other chronic diseases?

- Outcomes of interest: use of care, cost of care, health outcomes

Medicare Shared Savings Program (MSSP) ACOs



MSSP ACOs in 2018



Source: Kaiser Family Foundation. “Medicare Delivery System Reform: The Evidence Link.” (2019)

What do we know about Medicare ACOs?

On average, ACOs have improved quality and achieved savings (e.g., McWilliams et al. 2016; Muhlestein and Hall, 2014; Douven et al.,2015)

- But savings are not clearly concentrated among high-risk patients (e.g., McWilliams et al. 2017)

Unclear how ACOs affect patient-level racial disparities

- ACOs with high proportions of racial and ethnic minorities lag in performance (Lewis et al. 2017)

Who is a Medicare ACO responsible for?

1. **Eligible population: Medicare beneficiaries who have seen an ACO provider in the last year**
   - Enrolled in Parts A and B; no managed care

2. **Among eligible sample, aligned population: beneficiaries with the majority share of expenditures come from an ACO**
   - Mostly PCP administration of select evaluation and management procedures

Aligned Beneficiaries are informed through a letter mailed by CMS

Two Populations to Consider

1. **Compare eligible and ineligible patients**
   - Dependent on the formation of ACOs

2. **Among the eligible sample, compare ACO-aligned and unaligned**
   - Dependent treatment within ACOs

Data Sources

- **20% Medicare Claims Data (2008-2014)**
  - Detailed provider and patient FFS claims
    - Provider IDs, patient demographics, first date of chronic condition diagnosis, detailed procedure codes, dates of visit

- **Medicare MSSP Provider Files (VRDC)**
  - Identifies which providers are part of an ACO (2012-2014)
  - For ACOs formed in 2012, assume providers in 2013 were also providers in 2012

Summary Statistics 2008-2011: Eligible vs. Ineligible

Takeaway:

ACO-Eligible are more White and healthier

	Eligible (1)	Not Eligible (2)	Difference (%) (3)
Patient Demographics			
White	0.87	0.85	2%
Black	**0.083**	**0.095**	**-15%**
Hispanic	**0.015**	**0.019**	**-30%**
Asian	0.015	0.016	-6%
Age	71.57	72.27	-1%
Patient Chronic Conditions			
ADRD	**0.095**	**0.14**	**-52%**
Cancer	0.15	0.15	0%
COPD	0.24	0.27	-9%
Diabetes	0.36	0.35	2%
Heart Disease	0.54	0.52	3%
Kidney Disease	0.19	0.20	-7%
Stroke	**0.13**	**0.15**	**-15%**
Observations	21,207,465	59,823,600	

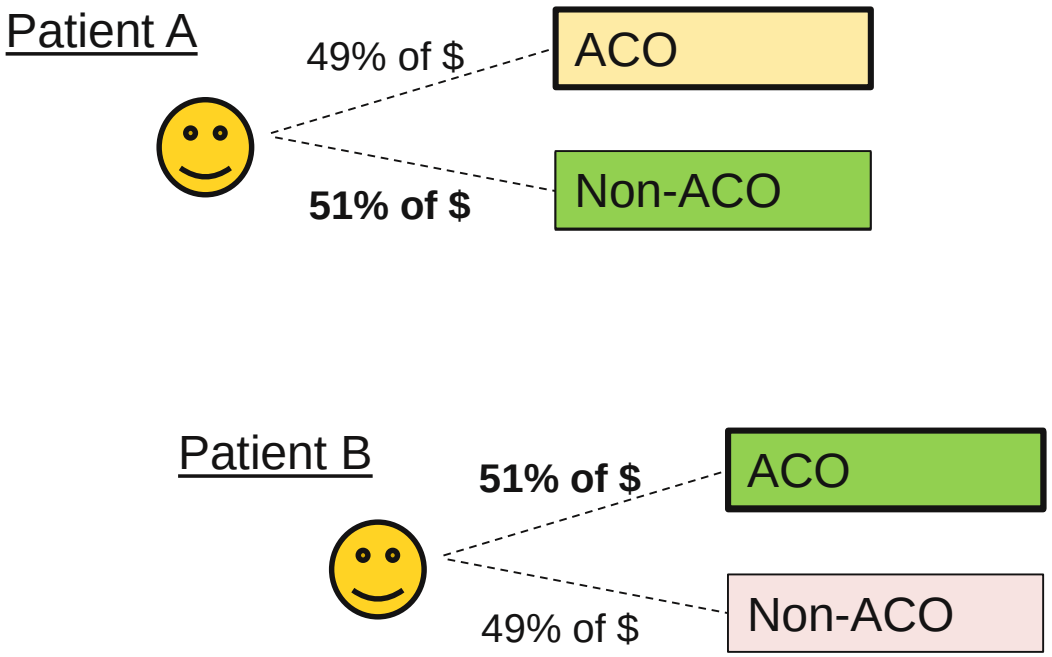
Summary Statistics 2008-2011: ACO-Aligned vs. Not

	ACO-Aligned (1)	Not Aligned (2)	Difference (%) (3)
Patient Demographics			
White	0.88	0.85	2%
Black	**0.080**	**0.095**	**-14%**
Hispanic	**0.014**	**0.019**	**-30%**
Asian	**0.015**	**0.016**	**24%**
Age	71.64	72.27	0%
Patient Chronic Conditions			
ADRD	**0.089**	**0.12**	**-33%**
Cancer	0.14	0.15	-7%
COPD	**0.23**	**0.29**	**-23%**
Diabetes	**0.35**	**0.40**	**-13%**
Heart Disease	**0.52**	**0.59**	**-11%**
Kidney Disease	**0.18**	**0.22**	**-25%**
Stroke	**0.12**	**0.15**	**-23%**
Observations	16,876,999	4,330,466	

Takeaway:

ACO-aligned and unaligned are very different on observables

Creating Comparable Comparison Groups: A Simple Illustration



Summary Statistics 2008-2011: Within Window of Randomization

	ACO-Aligned (1)	Not Aligned (2)	Difference (%) (3)
By Race			
White	0.86	0.86	2%
Black	**0.092**	**0.092**	**-17%**
Hispanic	**0.017**	**0.017**	**-21%**
Asian	0.013	0.013	1%
Age	71.42	71.42	0%
By Chronic Condition			
ADRD	**0.11**	**0.13**	**-19%**
Cancer	0.16	0.15	2%
COPD	0.28	0.29	-5%
Diabetes	0.39	0.40	-3%
Heart Disease	0.59	0.59	1%
Kidney Disease	0.22	0.23	-1%
Stroke	0.15	0.16	-9%
Observations	2,497,446	1,134,674	

Takeaway:

ACO-aligned and unaligned are more similar within window of randomization

Empirical Design

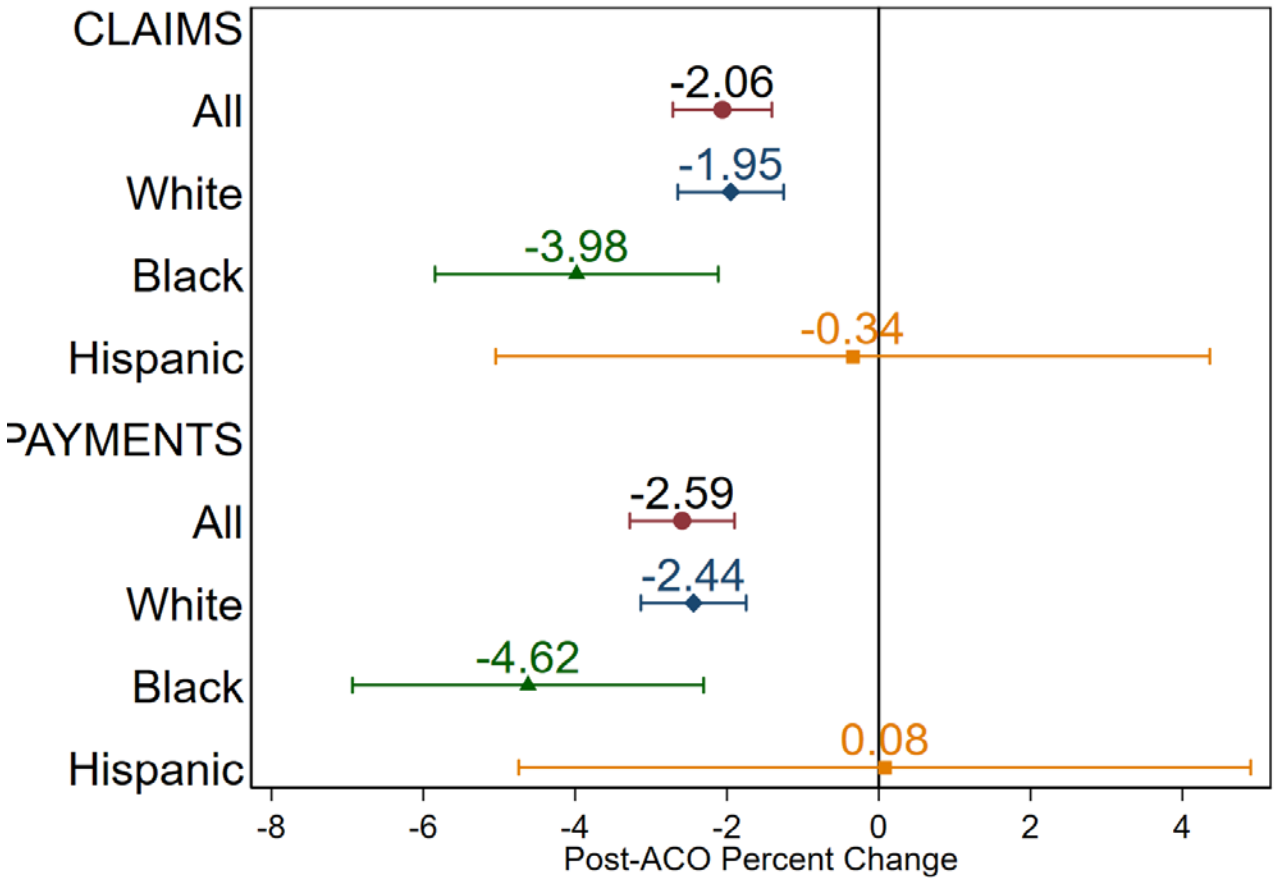
- **Difference in difference (DD) estimate**
  - "Marginally" aligned vs. "Marginally" not aligned
  - Pre vs. post
  - Take into account treatment duration and individual FE
- **Group compositions should no longer differ by race or underlying health**
  - Remaining differences can be due to:
    - Cultural differences in use of care
    - Provider differences in treatment of patients

Results

Percent Change in Use and Cost of Care

Takeaway:

ACOs reduce use and cost, particularly for Blacks

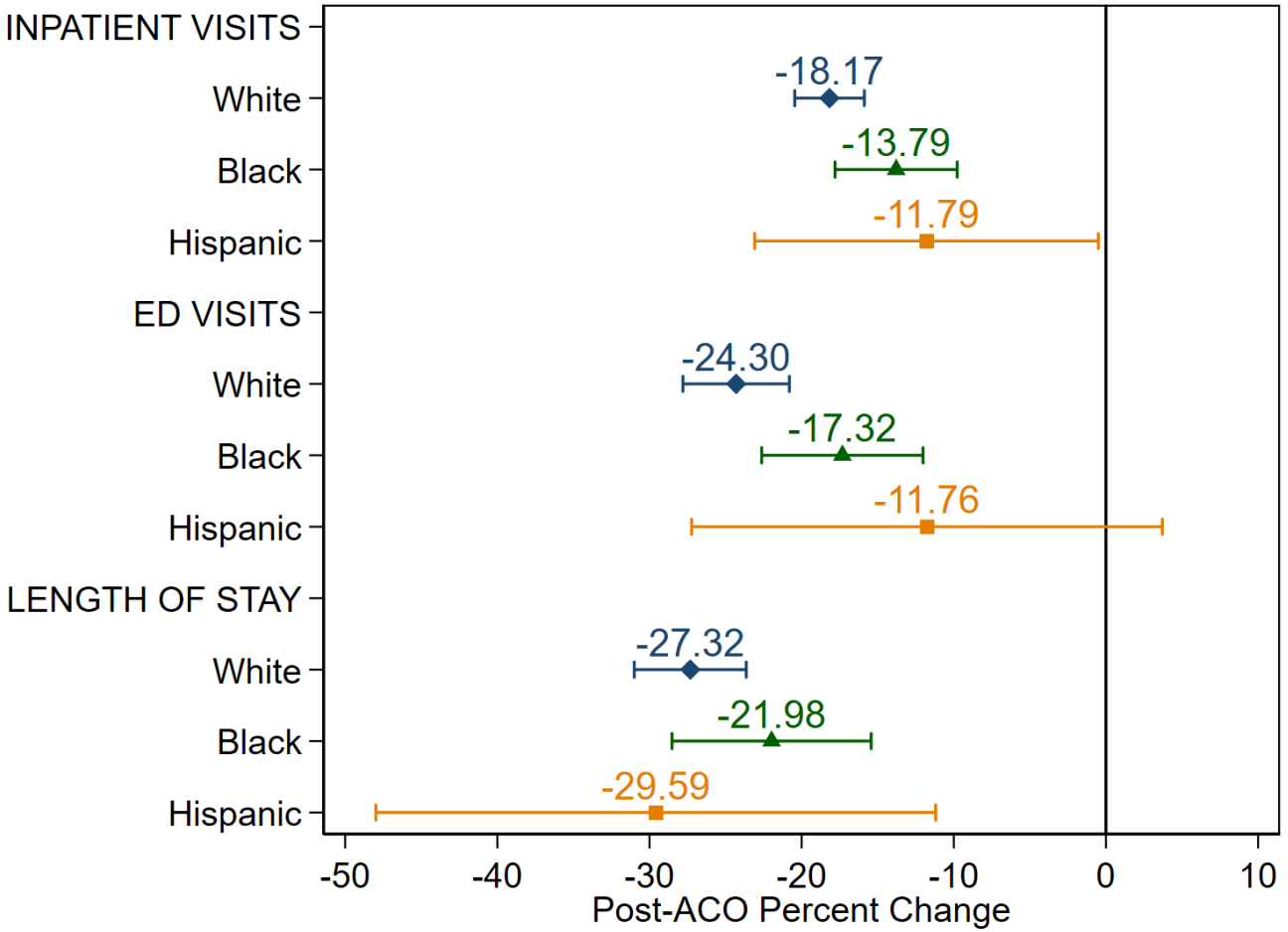


Results

Percent Change in Health Outcomes

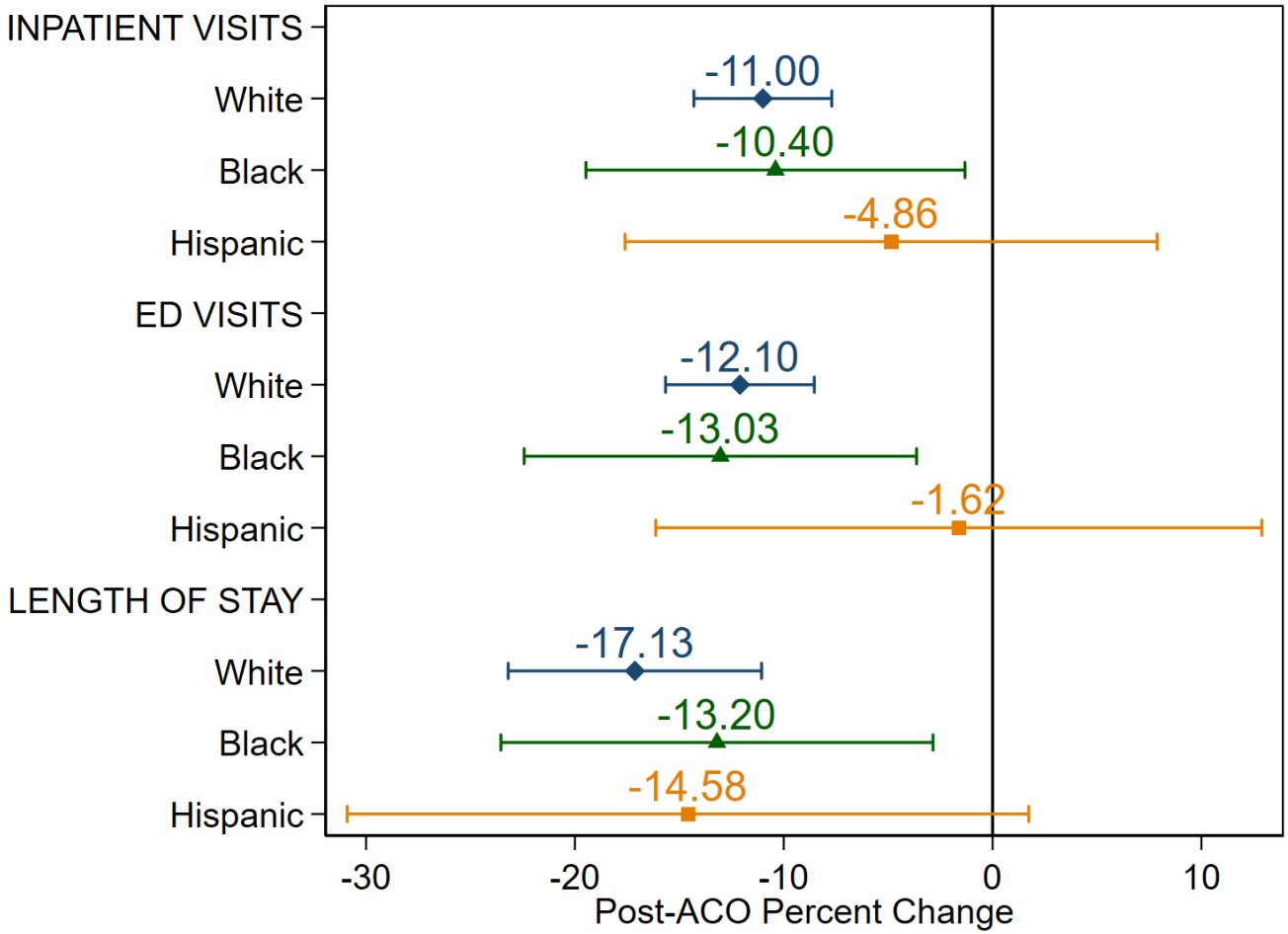
Takeaway:

Health outcomes improve, more so among Whites (but not statistically different)



Results

Percent Change in Health Outcomes, Among ADRD Patients

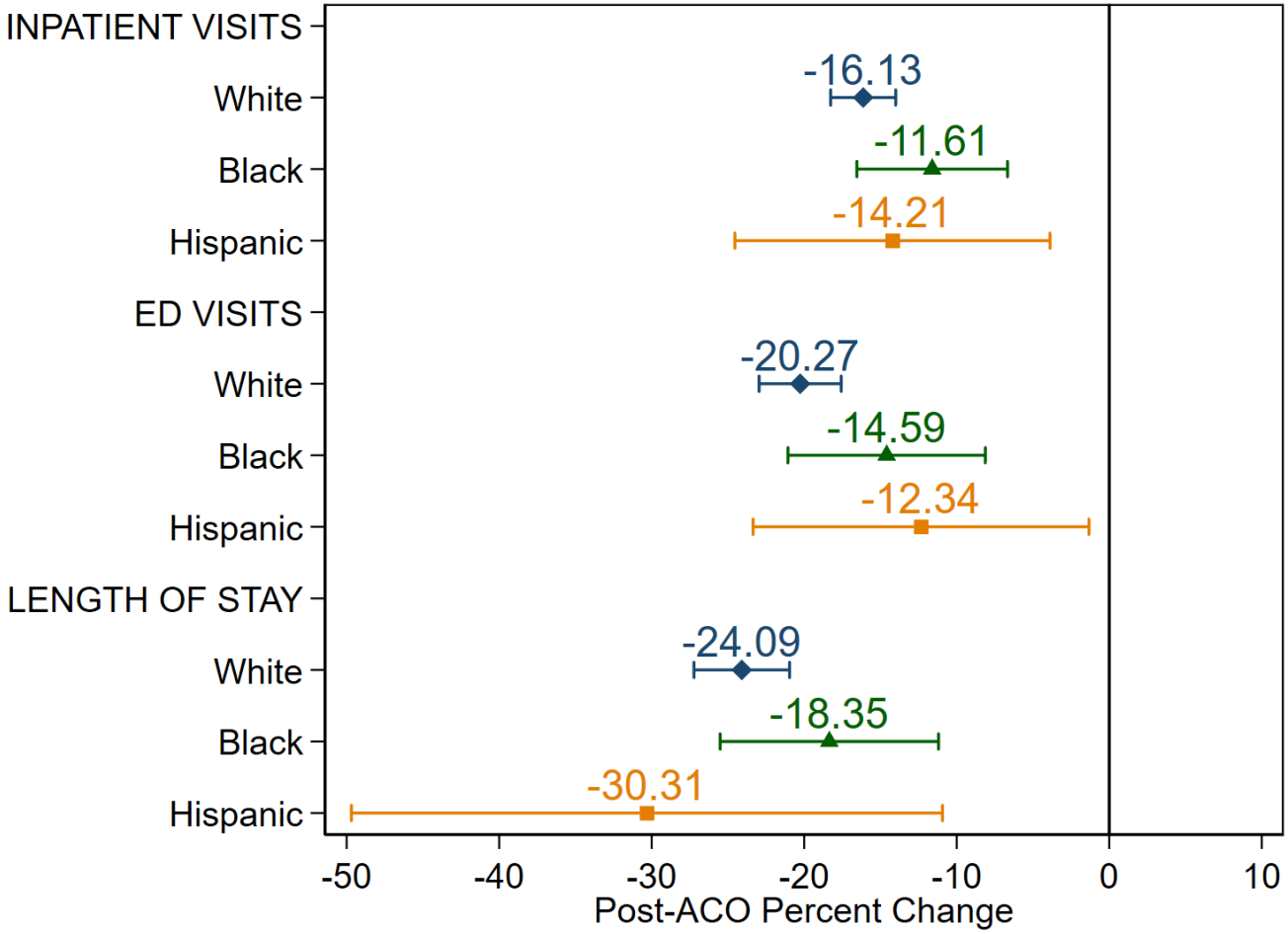


Takeaway:

No race-specific differences in ADRD management

Results

Percent Change in Health Outcomes, Among Heart-Disease Patients



Takeaway:

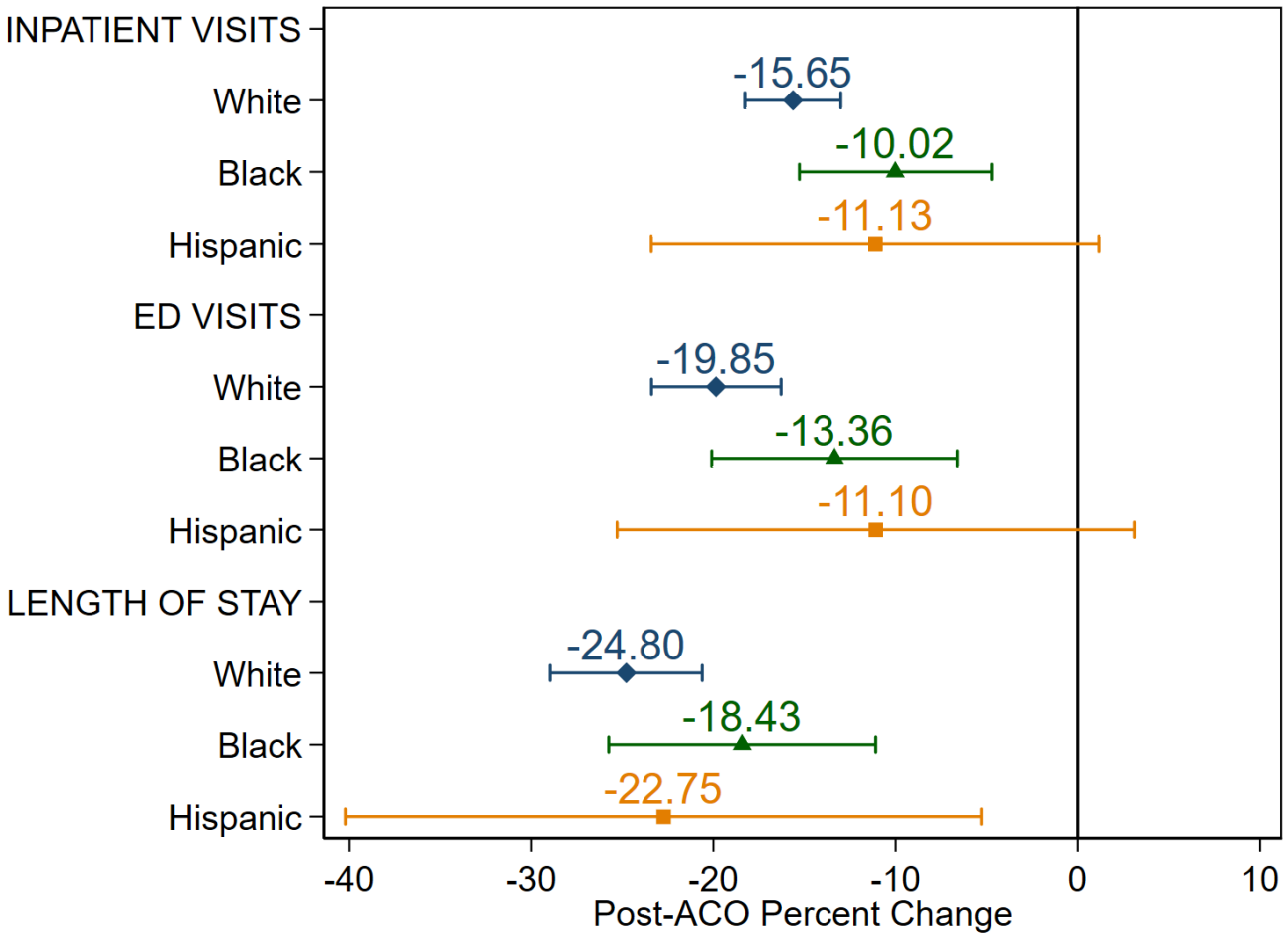
No race-specific differences in heart-disease management

Results

Percent Change in Health Outcomes, Among Diabetes Patients

Takeaway:

No race-specific differences in diabetes management



Conclusion

Summary

- **ACO providers have fewer Blacks and Hispanics and see relatively healthier patients** (less incidence of chronic conditions, particularly ADRD)

- **ACOs improve the management of chronic conditions across all race/ethnicities** (without differences in provider bias or culture-specific use of care)

- **ACOs worsen population racial disparities due to differences in ACO-eligibility**

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Thank you!

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https://healthpolicy.usc.edu/project/minority-aging-and-health-economics-research-center

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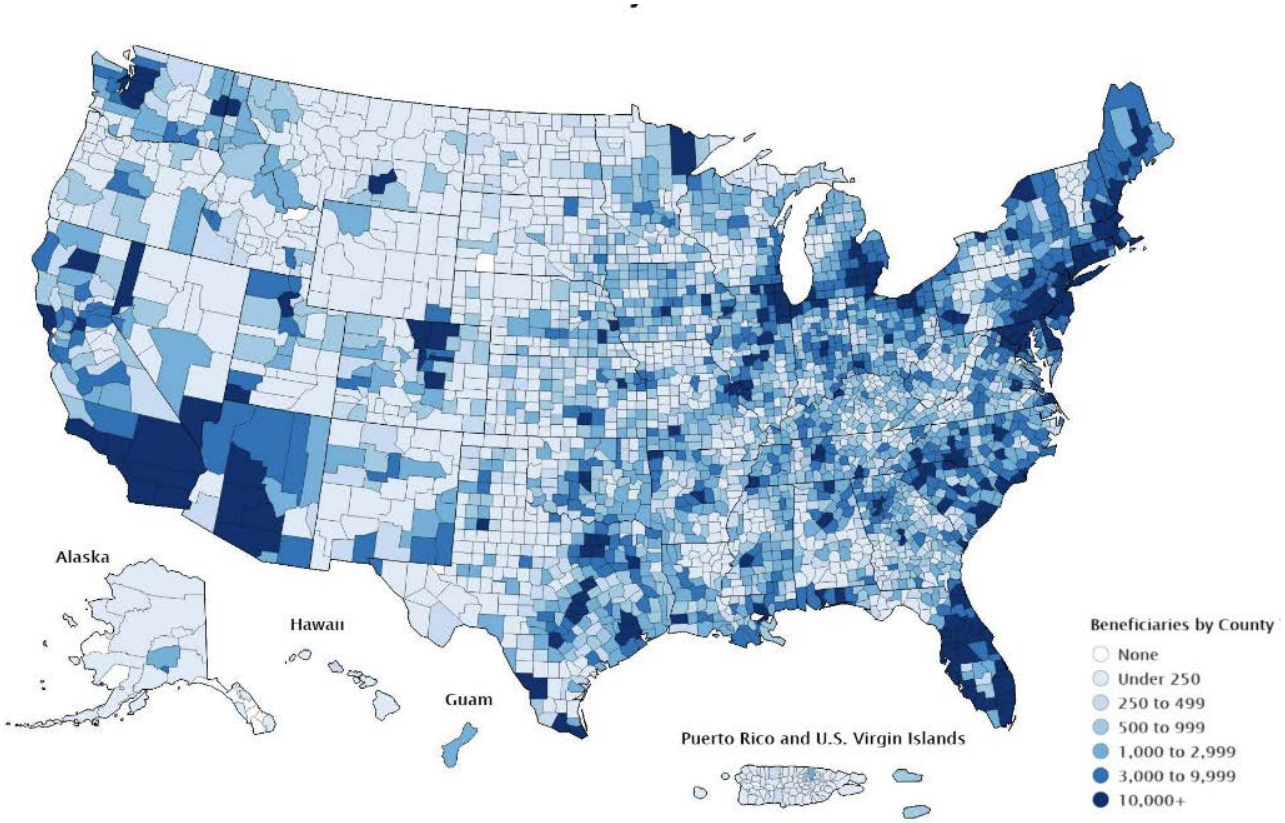
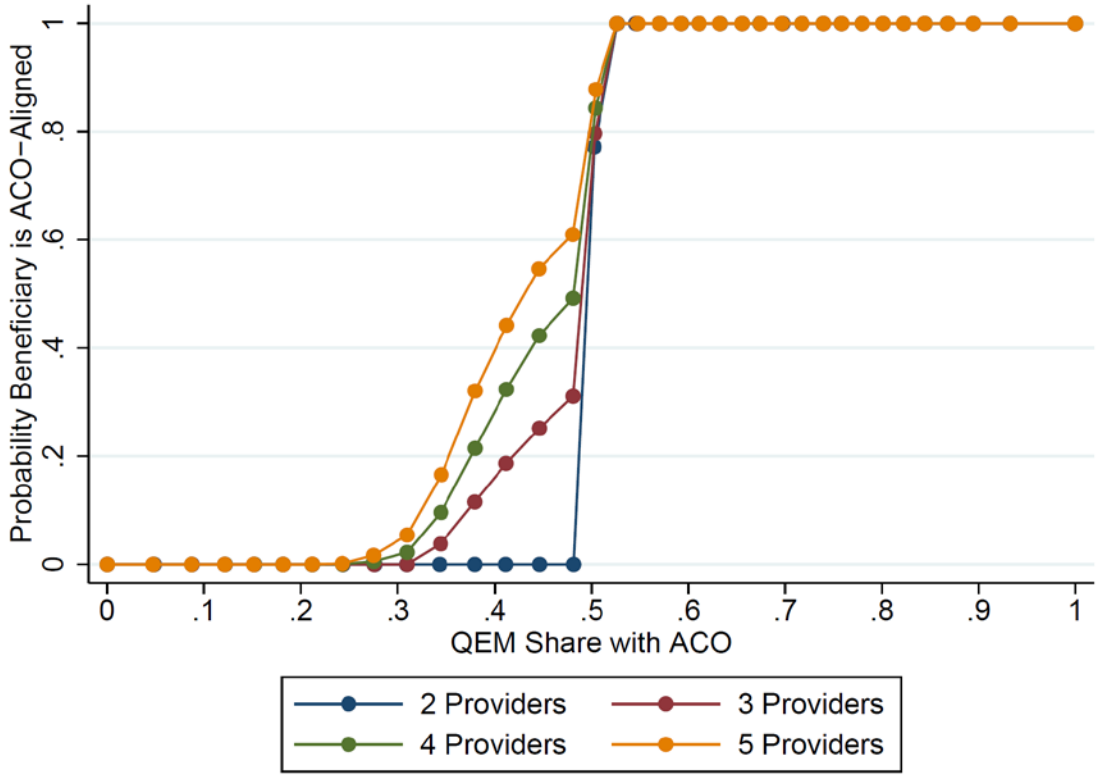
MSSP ACO-Assigned Beneficiary Population in 2018



Source: CMS (2018)

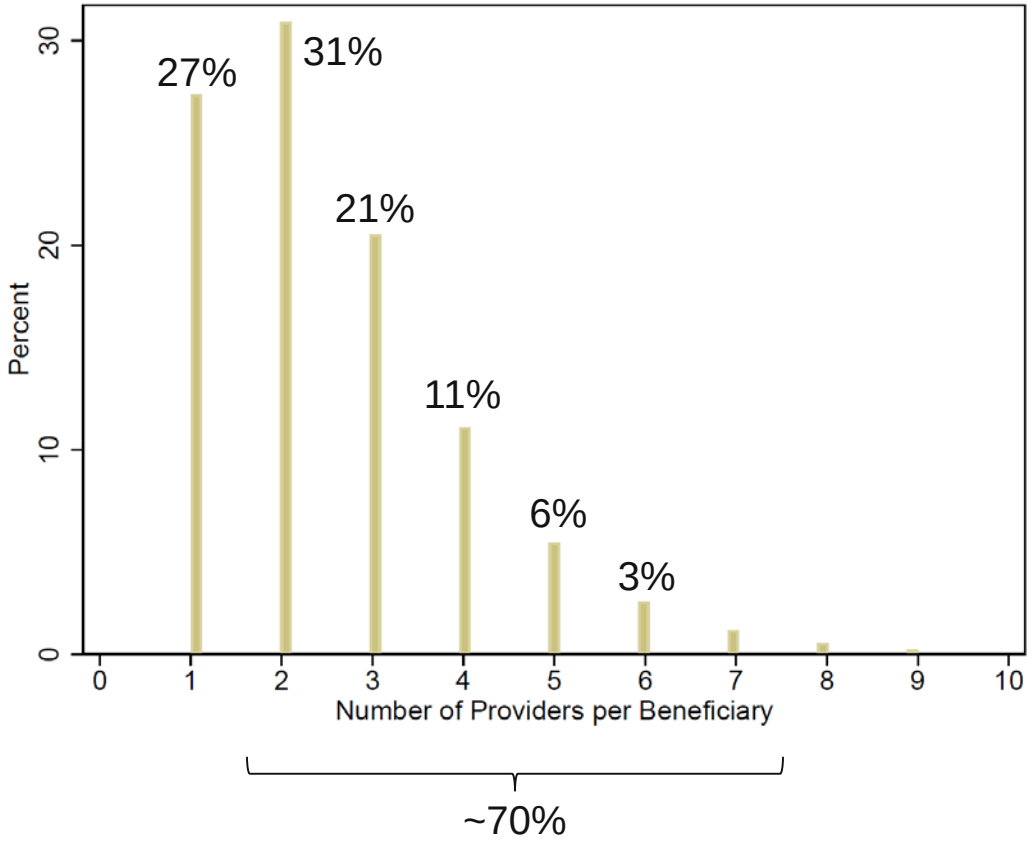
Results

Probability of ACO Alignment, Among Eligible Beneficiaries



All Providers

Number of TINs per Beneficiary



All Providers

Transition Matrix of Aligned Beneficiaries

	2012	2013	2014
2012 cohort	483,654	347,652	238,795
2013 cohort		911,367	577,733
2014 cohort			1,298,623

<1% are in 2012, 2014, but not 2013

Regression Model for Those Aligned

- **Regression Discontinuity**
  - Marginally aligned to ACOs matched to marginally not-aligned (0.15-0.55 QEM share)
  - Pre-post formation of ACO

- **Estimated for different races and chronic condition subgroups**

- **For patient *i*, assigned to ACO j, in year-quarter *t***

$$Y_{it} = \beta_1 1(\text{TreatDuration}) \times 1(\text{Post}_{it}) + \beta_2 1(\text{TreatDuration})_{it} + \beta_3(\text{Post}_{it}) + \alpha_{j(i)} + \epsilon_{ijt}.$$

  - Treatment duration = number of years aligned
  - Post = equals 1 when beneficiary is first aligned