

AGENCY FOR HEALTHCARE RESEARCH AND QUALITY

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NCEPCR

National Center for Excellence in Primary Care Research

National Center for Excellence in Primary Care Research
Presents

The Impact of Consolidation and Ownership on Primary Care

April 3, 2025

Presented by:
Amelia Bond, PhD
E. Marshall Brooks, PhD
Jane Mingjia Zhu, MD, MPP, MSHP

Moderated by:
Kevin Grumbach, MD

The views expressed in this webinar do not represent official views of the U.S. Department of Health and Human Services or the Agency for Healthcare Research and Quality.

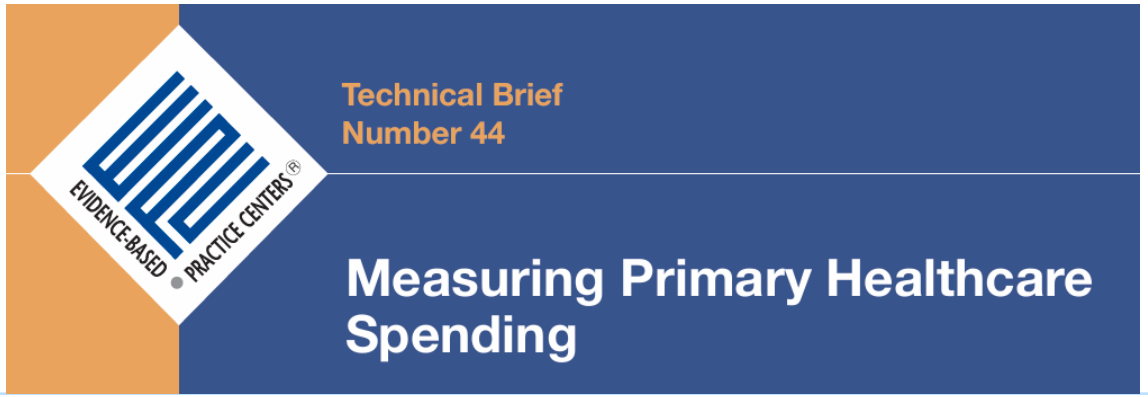
Welcome

Aimee R. Eden, PhD, MPH
Director, National Center for Excellence in Primary Care Research (NCEPCR), AHRQ

NCEPCR's Activities

AHRQ's Resources for Health Systems Research

- AHRQ's Compendium of U.S. Health Systems
  - Public resource for data on characteristics of healthcare organizations over time
  - Publishes annual files that enable users to study the changing structures of healthcare organizations
- *Measuring Primary Healthcare Spending* Technical brief



Today's Webinar Objectives

To learn about:

1. the impact of vertical integration of health systems across a range of quality, utilization, and spending outcomes and strategies that may improve the design of health systems.
2. the impact of health-system ownership on high-quality primary care and whole health care and to describe contextual factors that may impact care.
3. changes in key clinical and economic outcomes associated with private equity ownership in primary care.

Moderator

Kevin Grumbach, MD
University of California San Francisco

Today's Webinar Presenters

- **Amelia Bond, PhD** (Weill Cornell Medical College) *Health Systems and High-Need Populations: The Effect of Vertical Integration on Utilization, Spending, and Quality for Medically Complex Patients*

- **E. Marshall Brooks, PhD** (Virginia Commonwealth University) *Assessing the Impact of Health System Ownership on Fulfilling the Vision of High-Quality Primary Care and Whole Health*

- **Jane Mingjia Zhu, MD, MPP, MSHP** (Oregon Health & Science University) *Private Equity Acquisitions in Primary Care: Effects on the Medicare Program*

Presentation 1

Health System Compendium and Changes in Primary Care Setting and Practice Structure

Amelia M. Bond, PhD
Weill Cornell Medical College

Team

Weill Cornell

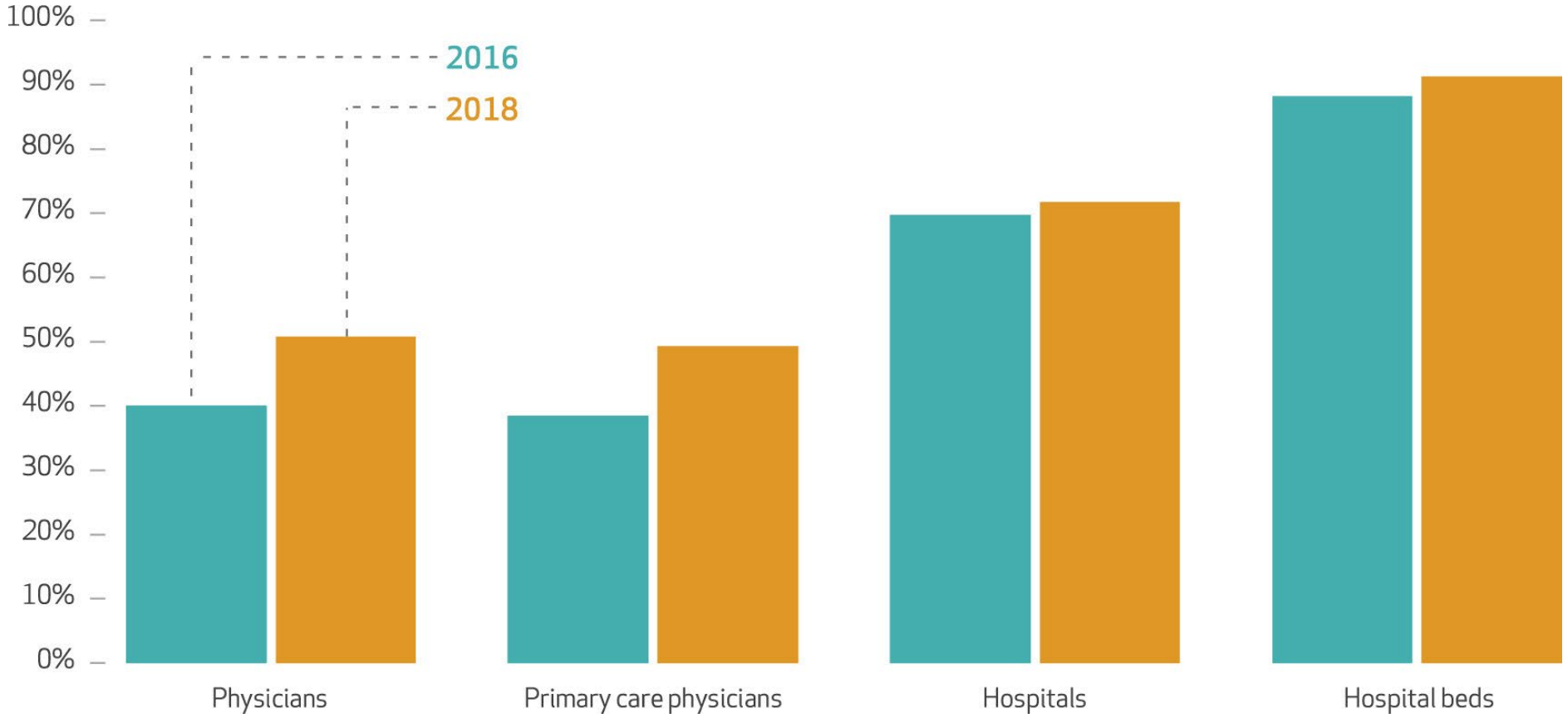
- Dhruv Khullar, mPI
- William Schpero
- Yasin Civelek
- Kayla Tormohlen
- Lawrence Casalino
- Manyao Zhang
- Reekarl Pierre
- Masters and undergraduate Ras
  - Yuting Fan, Pedro Da Silveria, Amelia Bennet, Samir Reddy

Mathematica

- David Jones
- Sandi Nelson

Motivation: Health systems are large and growing

Percent of physicians, PC physicians, hospitals, and hospital beds affiliated with vertically integrated health systems, 2016 and 2018

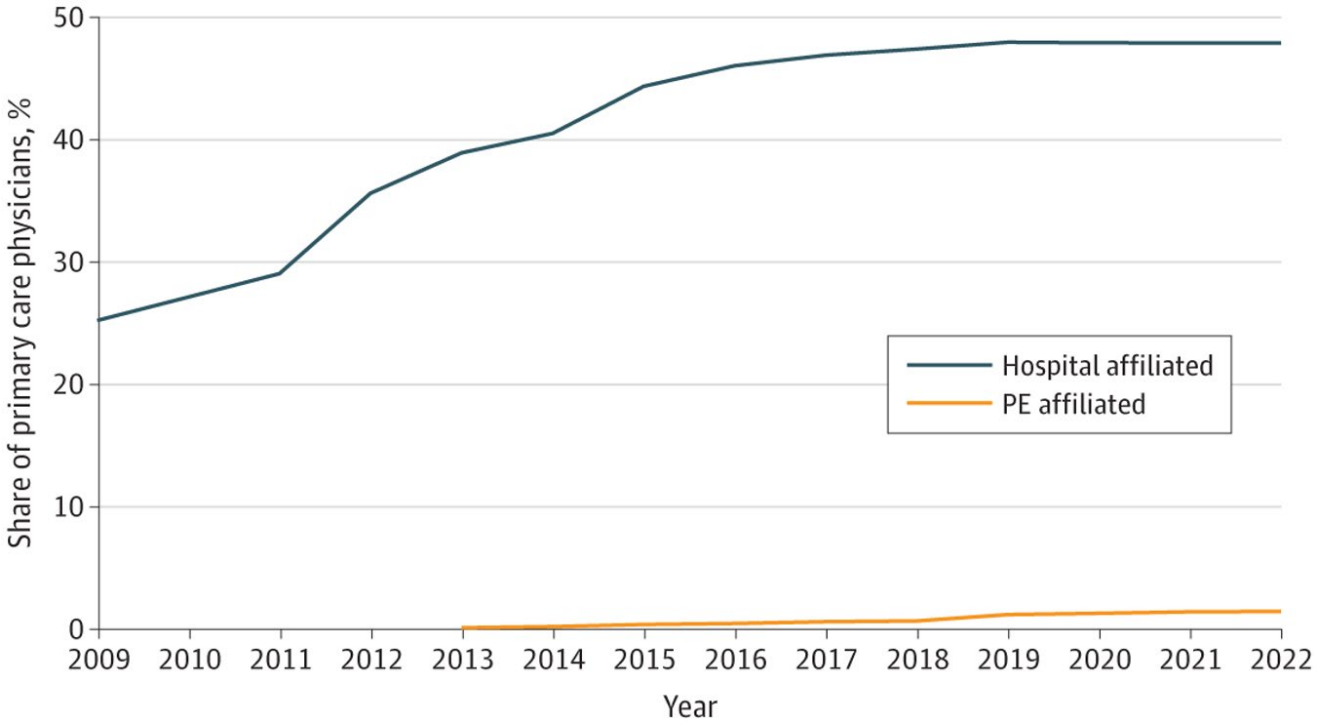


Source: Furukawa et al. (2020)

Motivation: Health systems employ ~ 50% of PC physicians

- Prior work suggests upon acquisition of practices prices increase
  [Capps et al. (2018); Baker et al. (2014); Neprash et al. (2015)]
- Less clear how delivery patterns and quality change
  [Koch et al. (2017); Scott et al. (2017); Saghafian et al. (2023)]
- Medically complex patients may be most impacted by delivery pattern changes
- Primary care (PC) physicians play a special role

Percent of PC physicians affiliated with hospitals and private equity, 2009 to 2022



Source: Singh et al. (2025)

This grant

Question: Whether and how health systems change the delivery and quality of care for medically complex Medicare beneficiaries, with a focus on patients in acquired primary care practices?

This presentation

- Describe expansion of **Compendium of US Health Systems 2012-2019**
- Present findings on the **change in primary care setting and practice type** for Traditional Medicare beneficiaries 2012-2022

Compendium of US Health Systems

- Publicly available data created by Mathematica through AHRQ's Comparative Health System Performance Initiative

Compendium of US Health Systems

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- Files include:
  - List of health systems
  - List hospitals linked with systems
  - List of group practices (TINs) linked with systems
  - New for 2020 on:
    - Outpatient, Nursing Home, and Home Health Care Organization

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  - New for 2020 on:
    - Outpatient, Nursing Home, and Home Health Care Organization
- Available 2016, 2018, 2020-2023

Compendium of US Health Systems: This grant

- Expanding years backward: 2012-2019
- Applying Mathematica's methodology
- Will be publicly available

Compendium of US Health Systems : Data

- 20% Traditional Medicare file, 2012-2019
- American Hospital Association (AHA) Annual Survey (of hospitals), 2012-2019
- IQVIA's Healthcare Provider and Organization Data (HCOS), 2012-2019

Compendium of US Health Systems : Data

- 20% Traditional Medicare file, 2012-2019
- American Hospital Association (AHA) Annual Survey (of hospitals), 2012-2019
- IQVIA's Healthcare Provider and Organization Data (HCOS), 2012-2019

Unlike Mathematica, no access to the Provider Enrollment, Chain, and Ownership System (PECOS)

Compendium of US Health Systems: System logic

- Identify system as those in either AHA and HCOS
- Identify subsystems also within AHA and HCOS
- Identify hospitals associated with systems
- Compare system structure over time

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For each step, coding and manual review of any differences

Compendium of US Health Systems: System logic

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- Compare system structure over time

For each step, coding and manual review of any differences

Systems defined as organizations with at least one hospital, 50 physicians, and 10 primary care physicians (physician definition based solely on HCOS)

Compendium of US Health Systems: Practice logic

Must deviate from Mathematica's method due to missing PECOS

- Using two of Mathematica's four methods
  - TIN affiliation with system (HCOS)
  - Physician billing to a system (Medicare claims)
  - TIN linkage with CCN (PECOS)
  - TIN linkage with Org NPI (PECOS and HCOS)

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  - Linked in both methods [following Mathematica's original logic]
  - Linked in only one method using more stringent thresholds

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- Affiliation accepted if:
  - Linked in both methods [following Mathematica's original logic]
  - Linked in only one method using more stringent thresholds
- Developing stringent thresholds based on best possible match rate with Mathematica
  - In 2016, expected 94% of practices and 95% of physicians to match

Changes in Primary Care Delivery

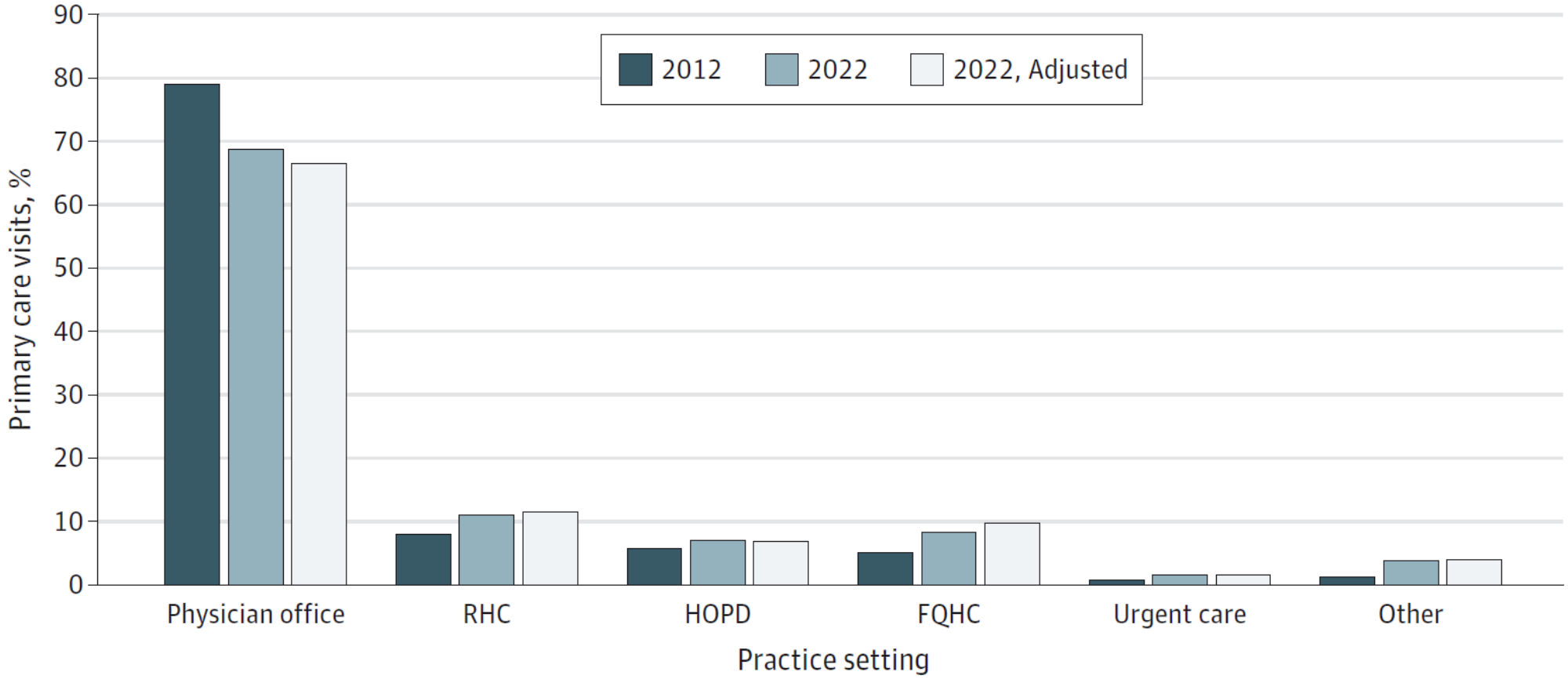
- **Question:** Has the practice setting and practice type changed for primary care visits?
  - Focused on Traditional Medicare enrollees
  - Practice setting – office, FQHC, RHC, HOPD, urgent care, other
  - Practice type – proportion of PC physicians in a practice

Changes in Primary Care Delivery: Analysis

- Identified universe of PC visits in 20% claims 2012 and 2022
  - All PC visits billed by PC physicians
  - All visits to a federally qualified health center (FQHC) or rural health clinic (RHC)
- Examined changes in practice setting - office, HOPD, FQHC, RHC etc
- Examined changes in practice type (% of PC physicians in a practice)
- To account for growth in MA, reweighted 2022 sample to match age, sex, LIS eligibility and concurrent HCC risk score distribution in 2012 sample

Results: Primary Care Setting

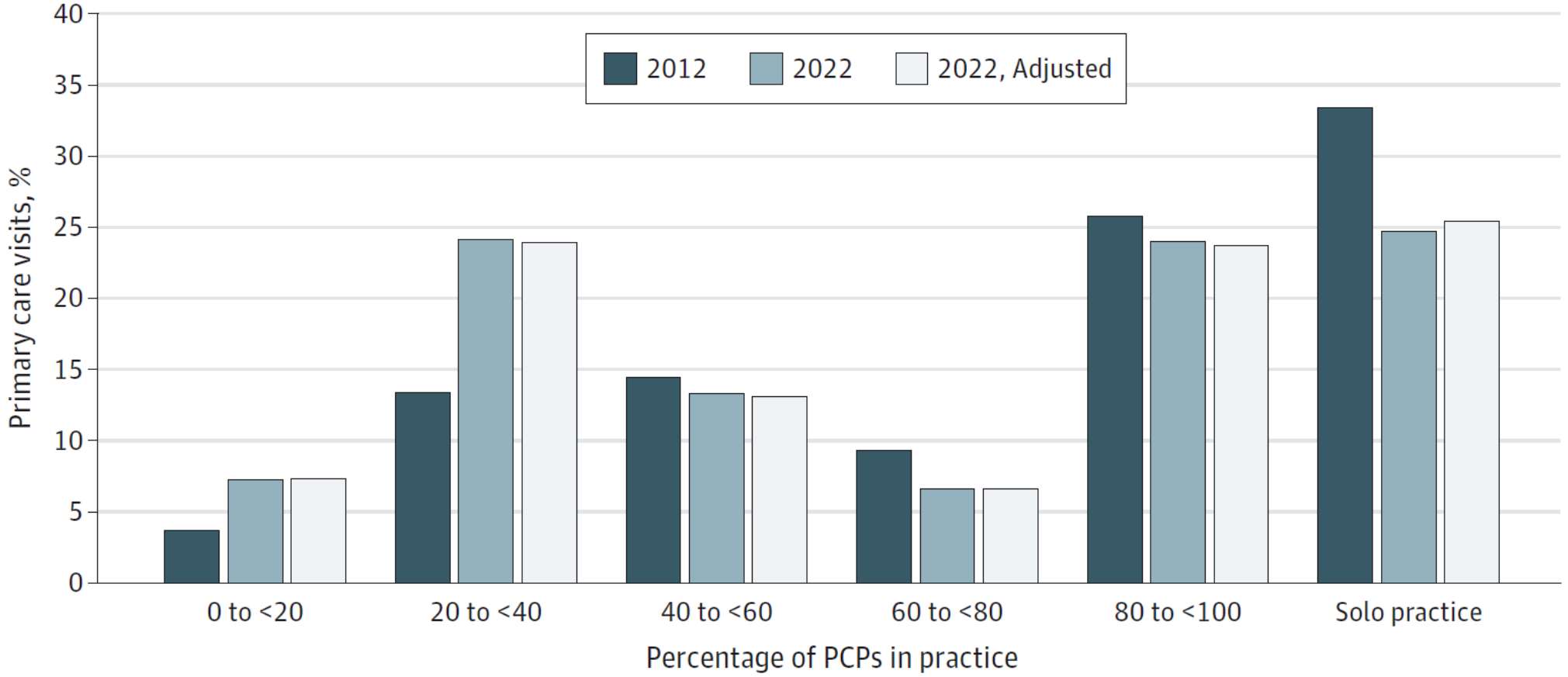
Percent of PC visits with PC physician or safety net clinician by practice setting, 2012 and 2022



Source: Forthcoming Bond et al. JAMA HF 2025

Results: Primary Care Practice Type

Percent of PC visits with PC physician by practice type, 2012 and 2022



Source: Forthcoming Bond et al. JAMA HF 2025

Discussion

- Compendium of US Health Systems (2012-2019) will be publicly available
  - System list and hospital and practice group linkages
  - Difficult to precisely identify employment relationship
- Between 2012 and 2022:
  - Share of visits in an office declined, while share in FQHCs, RHCs, and HOPDs increased
  - Substantial decline of visits by solo PC physicians with largest increase in multi-specialty practices with 20-40% PC physicians
- Future work to evaluate the impact of PC acquisition on the delivery and quality of care for medically complex Medicare beneficiaries

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1.

- Singh Y, Radhakrishnan N, Adler L, Whaley C. “Growth of Private Equity and Hospital Consolidation in Primary Care and Price Implications.” JAMA Health Forum. 2025 Jan 17;6(1):e244935.

Presentation 2

Private Equity Acquisitions in Primary Care: Effects on the Medicare Program

Jane M. Zhu, MD MPP
Oregon Health & Science University

Team

Zirui Song, MD, PhD (MPI)

Daniel Polsky, PhD

Aine Huntington, MS

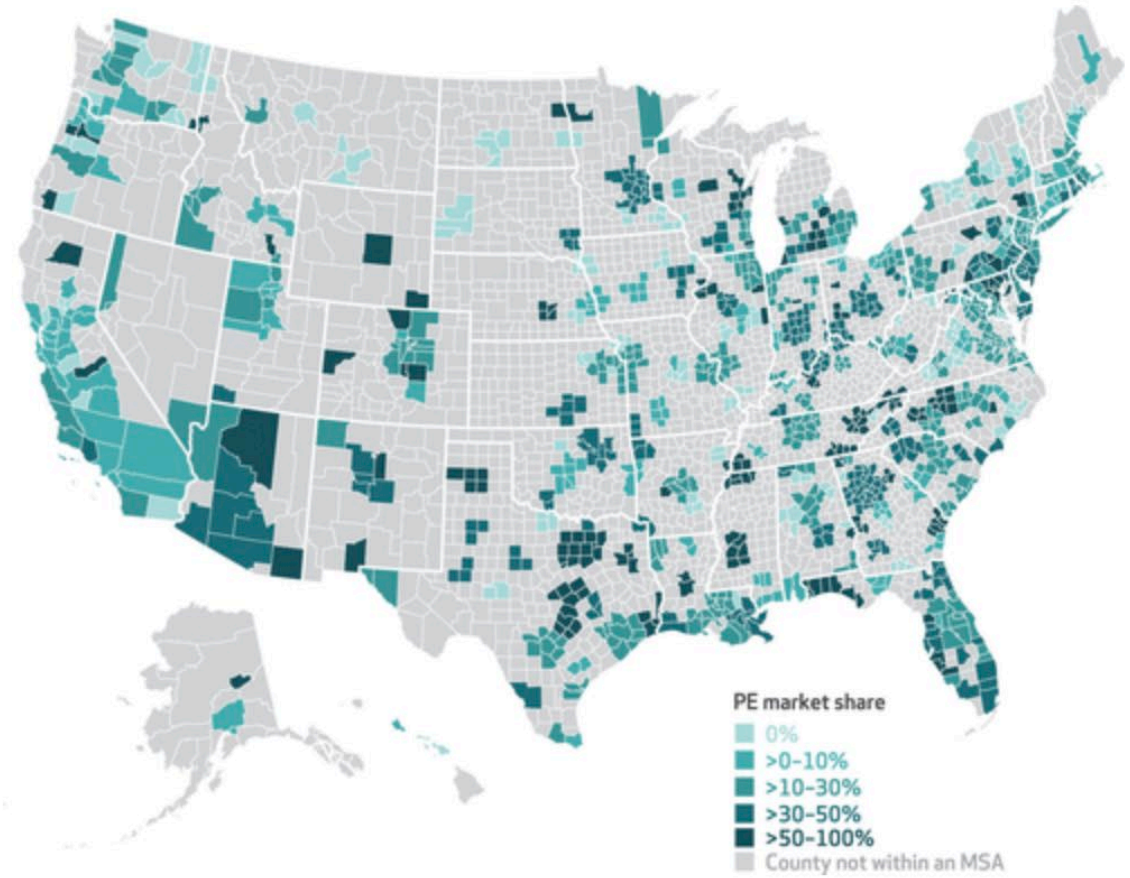
Mia Giuriato, MS

Jose Zubizarreta, PhD

AHRQ (R01HS029467)

PE Penetration in Health Care

Exhibit 4 Metropolitan Statistical Area (MSA)-level private equity (PE) market share of physician practices among 10 physician specialties, 2021



In **108 MSAs**, a single PE firm held >30 percent market share in at least one specialty

In **50 MSAs**, a single PE firm held a greater than 50 percent market share in at least one specialty

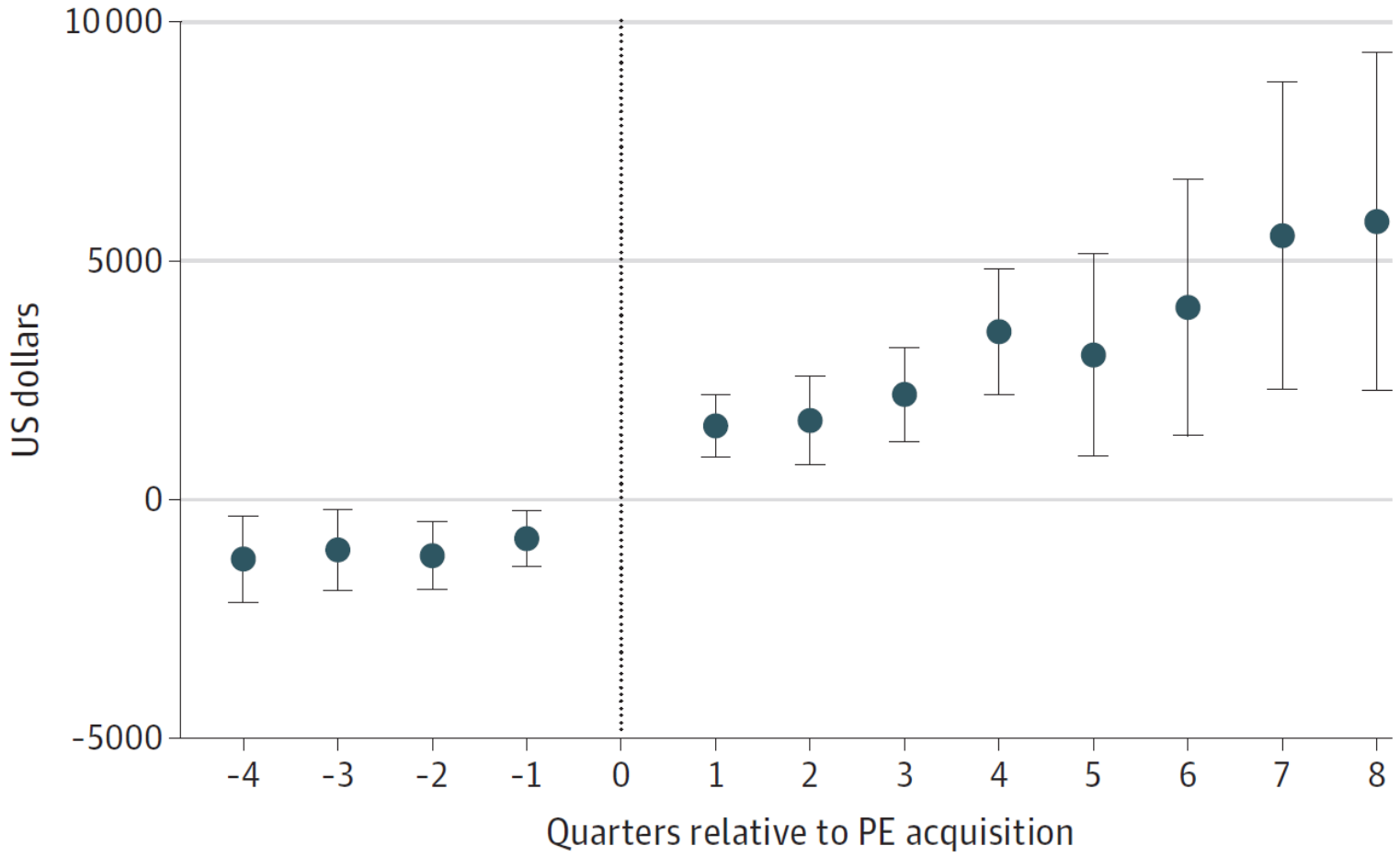
What is Private Equity?

Type of investment	Risk tolerance	ROI expectation	Investment horizon	Company stage	Investment features
Venture capital	Very high	"10x" initial investment	5-10 years	Early stage, high-growth	Smaller investment, diversified portfolio
Growth capital	Moderate to high	~30% IRR	3-7 years	Mature/ established	Larger investments, targeted industries
Leveraged buyout (LBO)	Low-moderate	~15-20% IRR	2-7 years	Late-stage	Majority/controlling stake, high debt-to-equity ratio (2-3X)

*IRR (internal rate of return) = annual return over the investment period

PE's Effects in Other Sectors

Figure 1. Changes in Total Spending per Practice Associated With Private Equity Acquisition, by Quarter



Increases in prices, charges

Increases in volume of care

Case mix and service line changes

Mixed evidence on quality, outcomes

Unknown effects in primary care

Singh Y, Song Z, Polsky D, Bruch JD, Zhu JM. JAMA Health Forum. 2022

Research Objectives

1) What are the effects of PE ownership in primary care?

2) How do PE strategies differ in traditional Medicare vs. Medicare Advantage?

Aim 1. Measure changes in provider behavior associated with PE acquisitions of primary care practices

Aim 2. Estimate changes in quality of care and patient outcomes

Aim 3. Quantify treatment effect heterogeneity by patient and provider characteristics (race/ethnicity, rural geography, practice size)

Methods: Overview

1. Identify PE acquisitions and affiliated clinicians

2. Link to Medicare claims (100% A, B, D, and carrier files) and Medicare Advantage Encounter files (carrier, outpatient, and inpatient files)

3. Match beneficiaries of PCPs in PE-acquired practices to controls whose PCPs are not in PE practices

4. Difference-in-differences model within an event study framework to estimate the impact of PE acquisition

Methods: Selected Outcomes

Aim 1 outcomes:

- Traditional Medicare: counts of services and per-beneficiary spending across sets of low-value services (e.g. cervical cancer screening after age 65, PSA testing, routine electrocardiograms, screening labs before low-risk surgery, imaging for back pain within 6 weeks of onset)
- Medicare Advantage: CMS-HCC risk scores, share of higher- level E&M codes

Aim 2 outcomes:

- ED visits for ambulatory care-sensitive health conditions
- HEDIS measures for preventative care
- Use of a high-risk medication (Beers criteria)

Methods: Identifying PE Clinicians

Identify PE acquisitions from 2016-2022:

- Pitchbook proprietary mergers and acquisition data + manual searches

Identify affiliated clinicians (MD/DOs and NP/PAs):

- Link practices to IQVIA OneKey data using exact and fuzzy matching algorithms (96.2% matched)
- IQVIA OneKey data contains provider and practice characteristics (e.g. NPIs, practice type)
- Follow practices over study period to build longitudinal cohort of affiliated clinicians

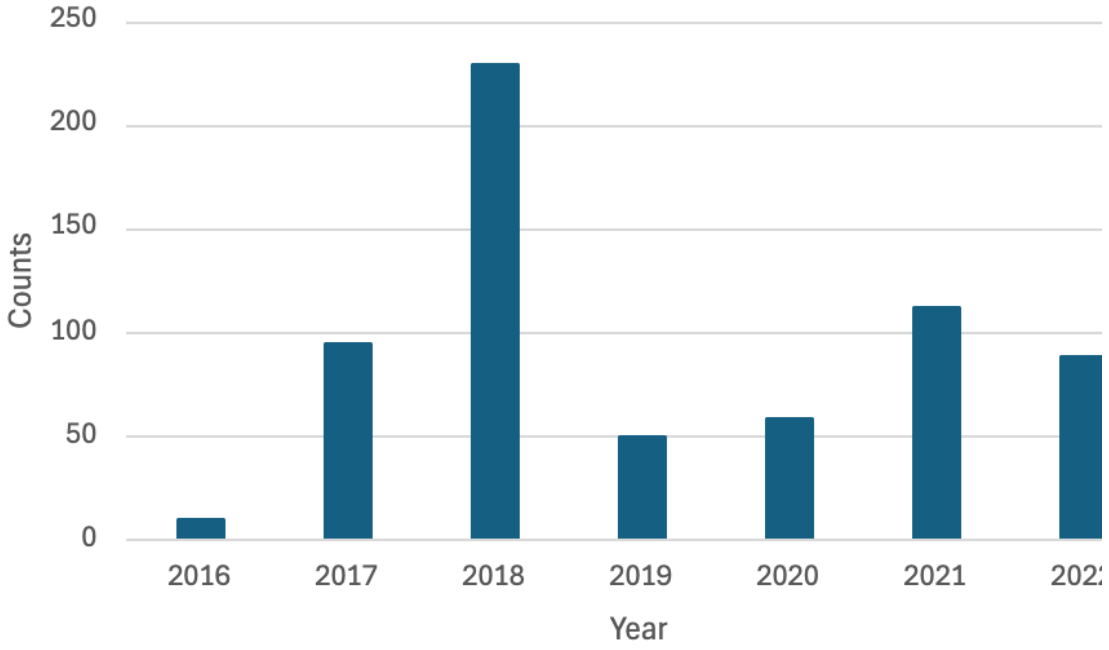
Link to Medicare claims and MA encounter data

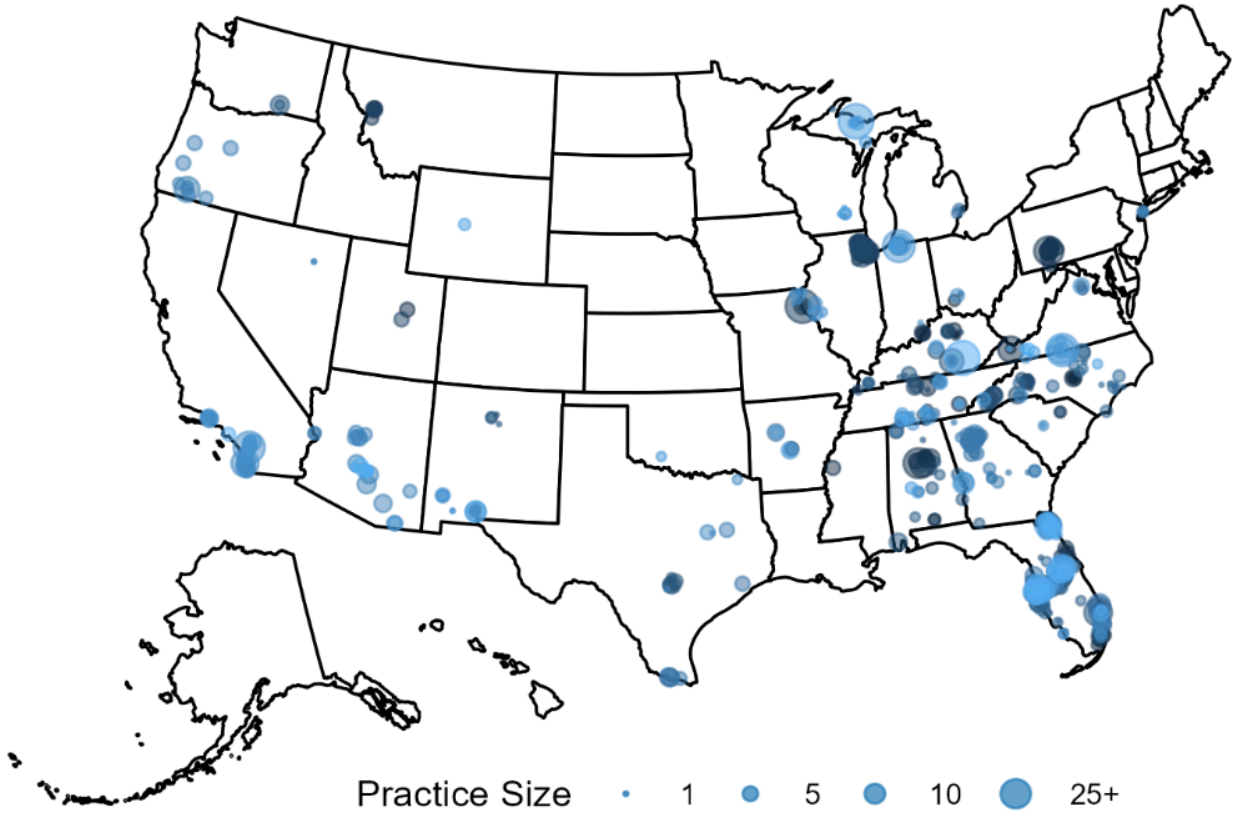
- **2022 data recently available**

WE ARE HERE

Preliminary Findings: PE Acquisitions and Geography

PE acquisitions in primary care, 2016-2022

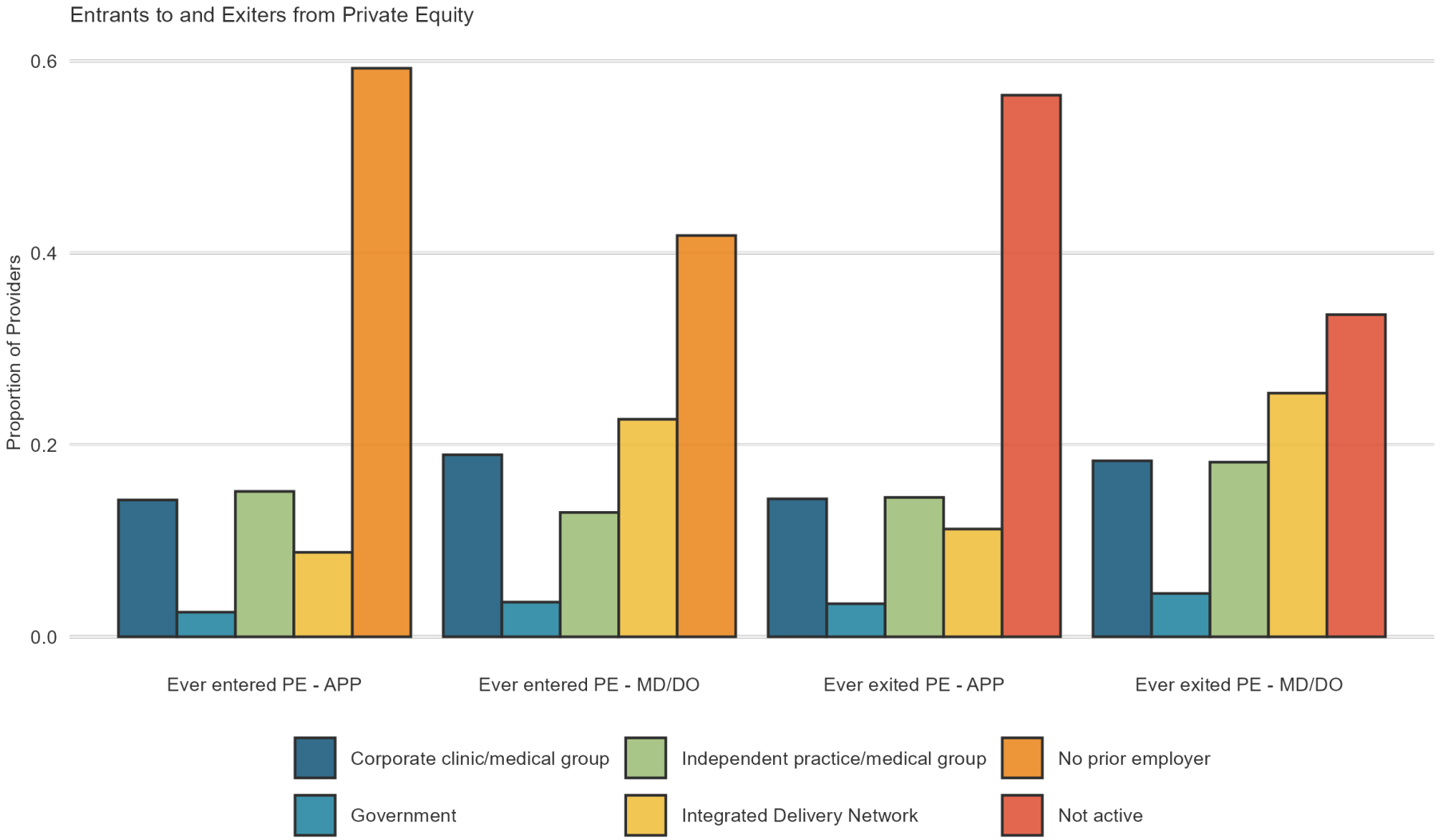




Preliminary Findings: Practice and Clinician Changes

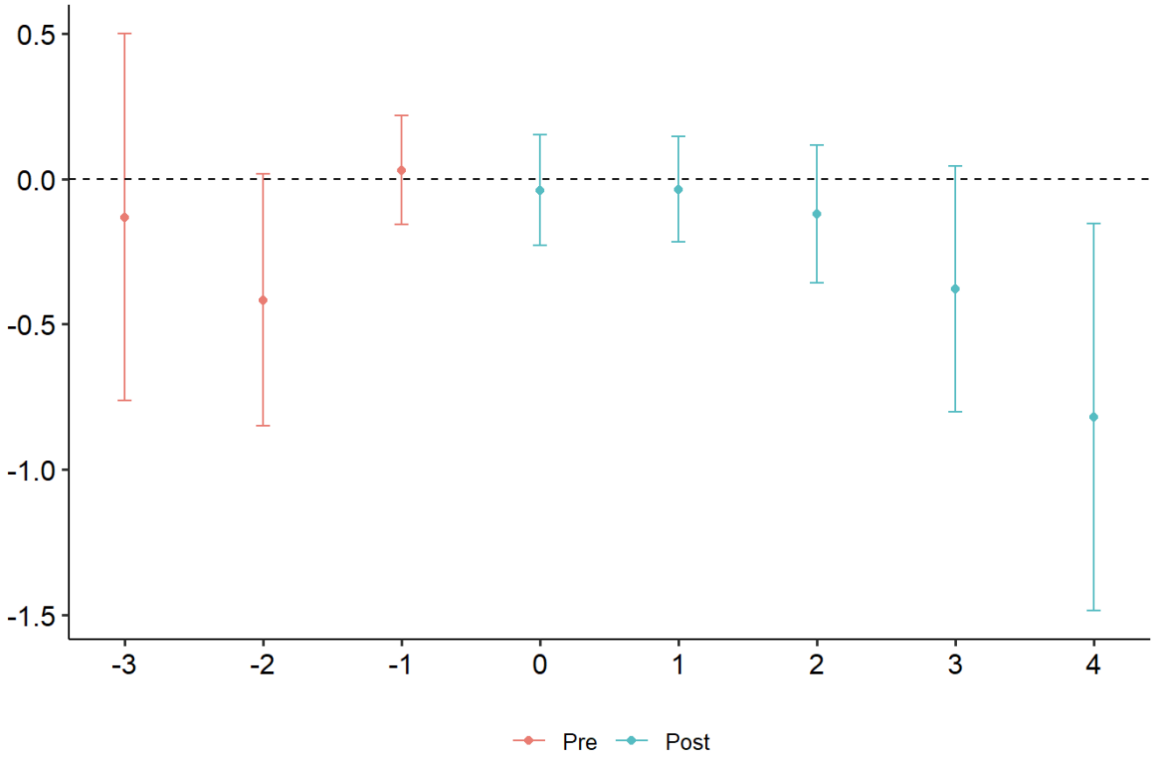
	PE pre-acquisition		PE post-acquisition	
Practice characteristics	Clinicians	Practice sites	Clinicians	Practice sites
Total counts		643		741
Practice sites per corporate parent, mean		4.7		9.7
Clinicians per practice site, mean		3.3		3.7
MDs/DOs		2.2		2.5
APPs (NPs/PAs)		1.1		1.2
Unique corporate owners		88		80
Clinician characteristics				
Total counts	2,974		3,894	
MDs (%, n)	54.7% (1,626)		49.9% (1,944)	
Share, top 50 medical schools	26.2% (363)		21.6% (400)	
DOs (%, n)	9.8% (292)		11.7% (456)	
NP/PA (%, n)	35.5% (1,056)		38.4% (1,494)	
Female clinicians (%, n)	57.5% (1,711)		61.7% (2,402)	
Mean age of MDs/DOs in 2023 (yrs)	55.5		51.4	
(*missing* %, n)	*17.4% (334)*		*5.2% (126)*	

Preliminary Findings (Workforce Changes)

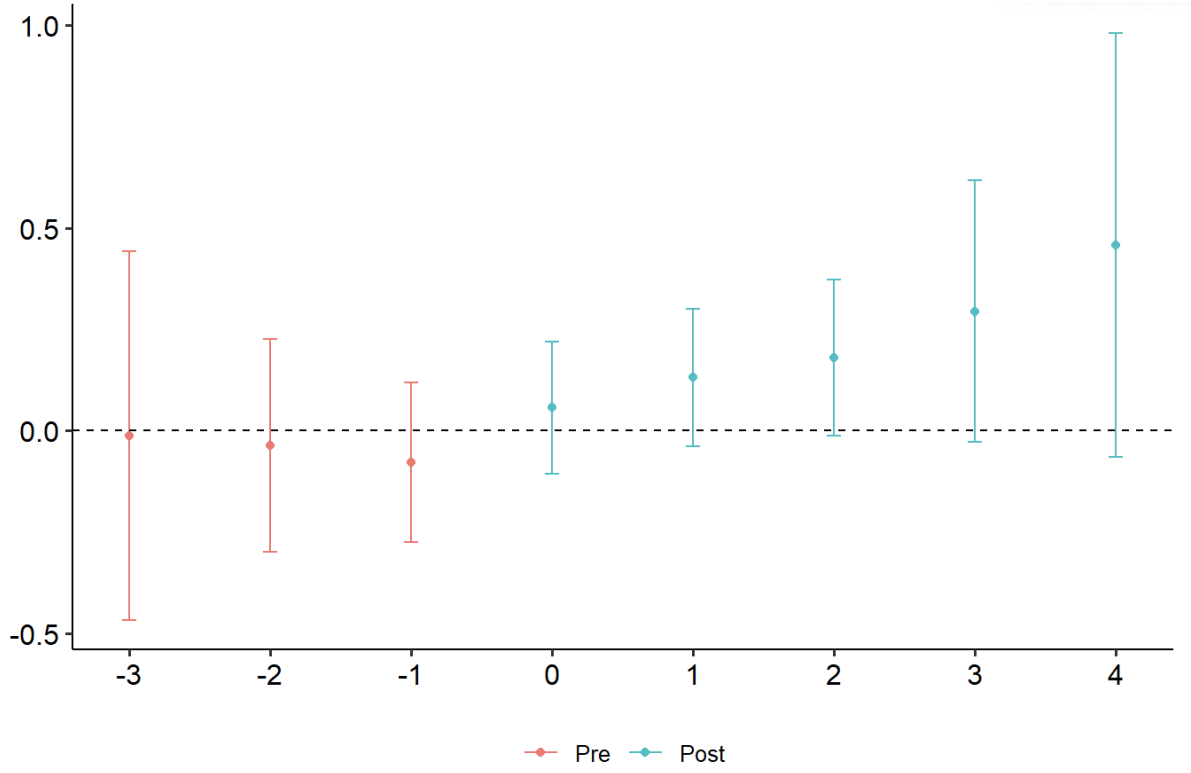


Preliminary Findings (Workforce Changes)

MD/DO entrants



NP/PA entrants



Value and Impact

- Describing the scope and characteristics of PE acquisitions in primary care
- Assessing workforce impacts, particularly given an existing primary care shortage
- Next steps: understanding specific mechanisms by which PE affects primary care delivery

Inform policies that mitigate negative consequences for patients (e.g., overutilization and overspend) and protect the solvency of the Medicare program which covers 60 million aging Americans

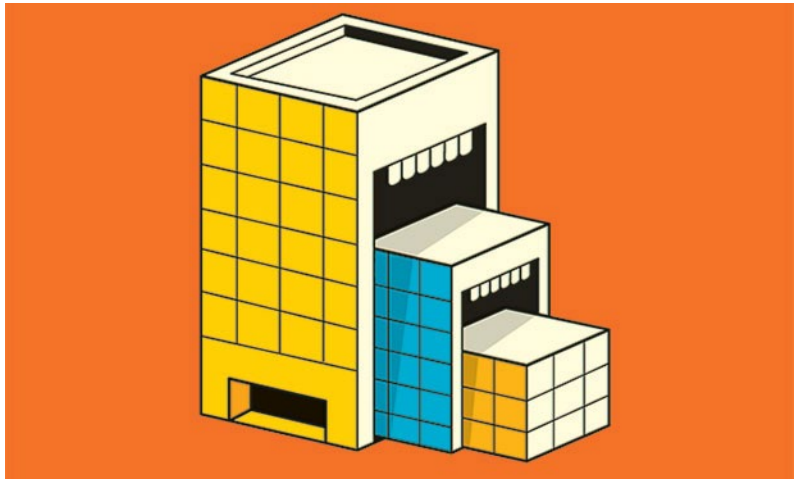
Presentation 3

Assessing the Impact of Health System Ownership on Fulfilling the Vision of High-Quality Primary Care and Whole Health

E. Marshall Brooks, PhD
Virginia Commonwealth University

Shifts in Ownership of Primary Care Practices

- 68% of active AAFP members are now employed
  - **90% of positions offered to new residency graduates** are employed rather than independent
- In Virginia, shift from **25% -> 43% of practices owned by a health system** between 2018-2022



(theispot.com/Harry Campbell)

Whole Health

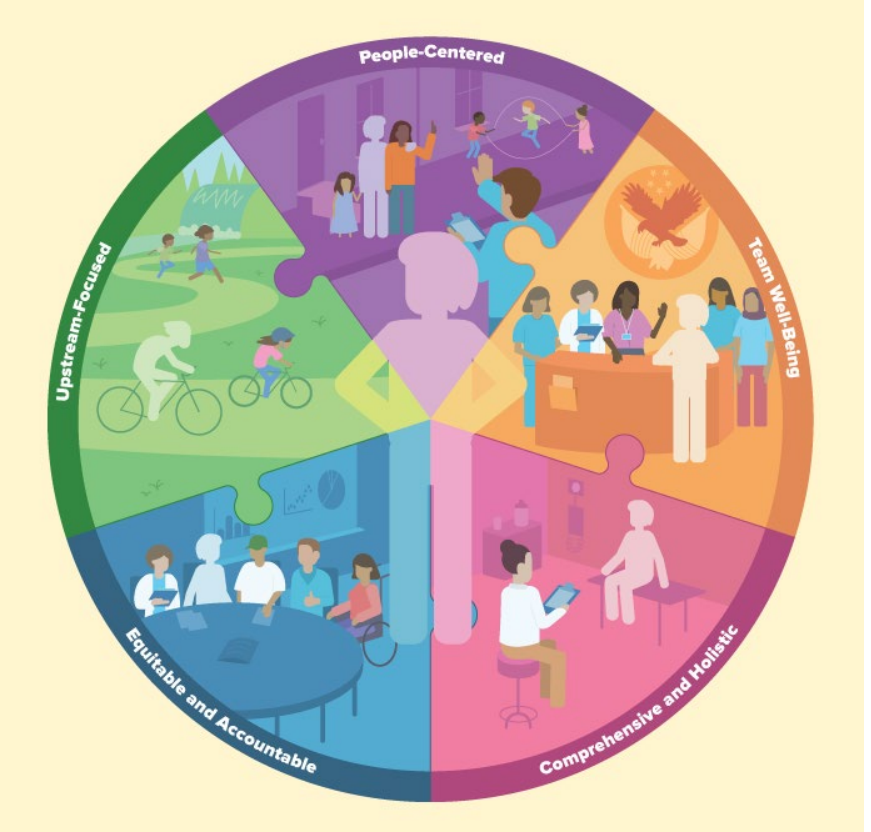
(1) People-centered

(2) Comprehensive and holistic

(3) Upstream-focused

(4) Equitable and accountable

(5) Ensures team well-being



Potential Benefits of Consolidation

- Capitalize on economies of scale
- Reduce costs, improve quality, and expand access
- Improve alignment between clinicians and organizations
- Better fit the lifestyle goals of early career clinicians
- Ease financial and psychological stresses

Potential Downsides to Consolidation

- May exacerbate clinician stress and impair patient interactions, diminish productivity, and contribute to turnover
  - **Undermines autonomy** and local decision-making authority
    - Employed clinicians report higher rates of treatment and referral interference
  - Replace ambulatory focus with hospital interests
  - Doctors who are employed by hospitals and corporations are more **dissatisfied and burned out** than those who work independently and in clinician-owned practices
    - 57% of independent clinicians report lower empathy for patients as the result of clinician burnout compared to 72% of corporate/hospital-owned clinicians, an ownership gap of 15 percentage points

Research Gaps

- Lack of research on…
  - How primary care clinicians respond to and are affected by these shifts
  - To what extent this facilitates or undermines practices' ability to promote high-quality care and whole health

- Previous studies have overlooked:
  - Impact of **regional differences**
  - Micro-level variations in **experiences across different health systems**
  - Impact of **specific socioeconomic conditions** unique to a given historical moment

Study Design

Aim 1: Assess whether differences and changes in practice ownership are **advancing or preventing primary care clinicians' perceived ability** to deliver high-quality care and whole health care.

Sub-aim 1: Identify which domains of high-quality care and whole health care are more aligned with each ownership status.

Aim 2: Describe **how and why ownership and other contextual factors** shape the delivery of high-quality care and whole health care.

Sub-aim 2: Identify context specific barriers, facilitators, threats, and opportunities to the advancement of high-quality primary care.

- Explanatory sequential mixed-methods design
  - Multimedia elicitation surveys
  - Focus group interviews

Primary Care in Virginia

National Plan and Provider Enumeration System (NPPES) and All Payer Claims Database (APCD) to identify every primary care clinician in Virginia (updated annually), nested by practice and health system.

- 20,976 active physicians, 5,899 (28.1%) classified as providing primary care **-> 2,296 practices**
- Survey practices every 4 years - current practice characteristics, capacity, scope of work, and changes and stressors experienced in the preceding year

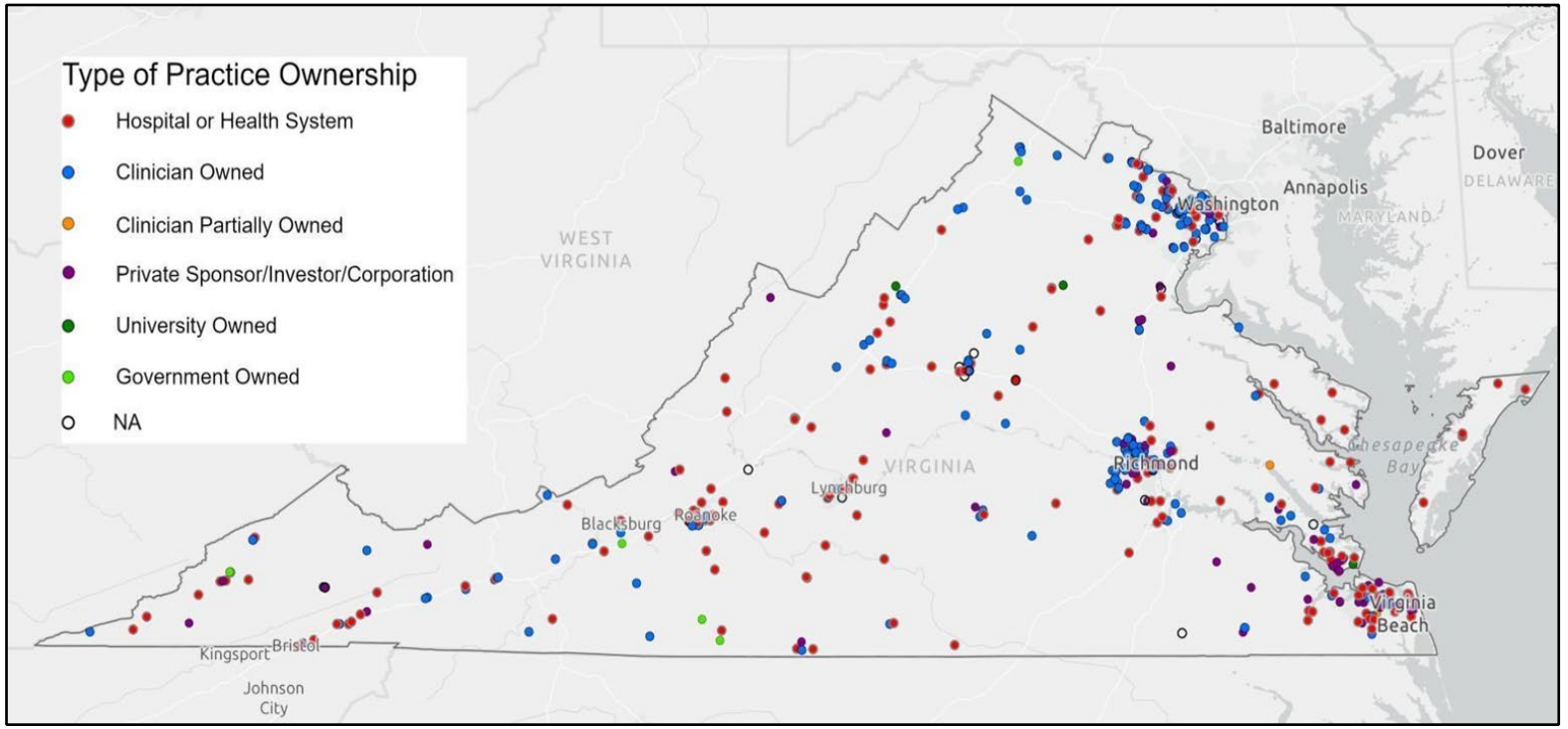
Characteristics of Practices in Virginia

Specialty	Geography	Ownership	Payer mix
83% FM / IM	48% rural	43% health system owned (25% in 2018)	45% commercial / private
15% pediatrics	29% suburban	29% clinician owned (53% in 2018)	24% Medicare
2% OB/GYN	22% urban		22% Medicaid (12% in 2018)

Study Sample

Random sample of **30 practices** (10 of each of the following types) that have in the past five years either

(a) moved from clinician to hospital/health system ownership,
(b) stayed clinician owned, or
(c) stayed hospital/health system owned



Multimedia Survey

- **Collaborate with NASEM report authors** and committee members to develop a multimedia elicitation survey that presents a brief overview of the reports' findings

- **Assess perspectives** on the 5 core NASEM elements
  (a) attitude
  (b) current practice
  (c) confidence of future improvement

- Survey instrument will also assess experiences and perspectives related to:
  - professional satisfaction
  - work environment
  - practice culture

Practice Team Interviews

Practice team interviews will be conducted within a month after each team completes the multimedia elicitation survey to:

(a) Critically reflect on each team's survey responses regarding their **attitudes, current practice, and confidence** in future improvement on the NASEM report elements;

(b) Comprehensively assess the **impact of ownership and practice setting** on their ability to deliver high-quality primary care; and

(c) Identify and describe other **organizational, practice, and individual factors** influencing care quality

Value and Impact

- Understand how and why practice ownership and other contextual factors help or hinder the delivery of high-quality primary care and whole health

- Integrate findings into future projects that help address barriers to transforming care models
  - Better plan for and tailor interventions to context specific variables based on practice ownership

- Future study will
  - ► expand study sample beyond Virginia
  - ► include non-clinician practice members and patients
  - ► track changes longitudinally

Questions

Please post your questions in the chat!

Thank you

We value your feedback.

Please complete the short evaluation poll after this webinar!