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Brief Report

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Health care provider movement increased through COVID-19

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Abstract

COVID-19 placed unprecedented strain on the health workforce, raising concerns of increasing worker turnover and attrition. This study explores the use of 2 publicly available Medicare datasets—Provider Enrollment, Chain, and Ownership System (PECOS) and Doctors and Clinicians—to track provider movement across states and organizations from 2017 to 2023. We found an increase in state-to-state movement of providers post–COVID-19, with an initial spike in physician movement in the first year (April 2020 to March 2021). Movement varied across specialties and professions. Between organizations, we saw an initial increase in movement for family physicians but not internal medicine physicians. Overall, provider movement was generally to larger organizations. Our study finds increasing movement of providers in the post–COVID-19 period through the novel use of 2 publicly available Medicare datasets. Tracking health care workforce movement closer to real time is important to understand a changing workforce—with differences across communities—and to guide policies to ensure sufficient workforce and prevent worsening disparities over time.

Key words: health workforce; COVID-19.

Introduction

COVID-19 placed unprecedented strain on the health workforce. Early in the pandemic, providers faced a novel, highly infectious pathogen and, while some areas experienced increased health care demands, others saw limits in nonessential services and decreased patient visits, leading to financial pressures and layoffs.[1,2] Faced with continuing waves of COVID-19 and misinformation, over 60% of physicians and advanced practice clinicians were reporting signs of burnout by the end of 2021,[3] and concerns were rising over a health care worker "great resignation."[4]

Resignations or turnover include both overall exits from the health workforce as well as movement across organizations, systems, and states. Health workforce shortages are a persistent problem for US health care. Exits can further exacerbate these shortages. The Health Resources and Services Administration estimates that 74 million people live in Primary Care Health Professional Shortage Areas[5] and projects a shortage of 81 180 full-time equivalent physicians, across all specialties, by 2035.[6] At the same time, evidence increasingly demonstrates that health workforce supply, particularly primary care, is associated with patient outcomes, including lower avoidable hospitalization rates, fewer complications, and improved mortality.[7-9]

Turnover, whether due to clinician exit or movement, further disrupts health care and can worsen existing maldistribution of the workforce. Primary care provider turnover has been associated with lower patient experience ratings, a decrease in primary care visits, and lower rates of preventive care.[10-12] Turnover is also costly to health care organizations. Replacement of a single physician is estimated to cost $500 000 to $1 million due to direct recruitment costs and lost revenue,[13] with physician turnover estimated to cost US health care systems between $2.6 and $6.3 billion each year.[14] Finally, turnover is likely to disproportionately impact already underserved communities. Over time, physician workforce density has been decreasing in rural communities,[15] and new models of care, such as independent freestanding emergency departments, have been shown to pull their workforce from rural and underserved settings.[16]

During the pandemic, workforce studies often used surveys of limited sample sizes. The Larry A. Green Center's "Quick COVID-19 Primary Care Survey" provided important surveillance on primary care; however, responses generally ranged from 500 to 1000.[17] Later, Frogner and Dill[18] used the Census Bureau's Current Population Survey (CPS), and found that physician exit rates increased post–COVID-19. While the CPS is a monthly national household survey and while data are available for overall entry and exits from the health care sector, reliable estimates become limited for smaller subsamples (eg, profession-specific) and the CPS does not allow differentiation by specialty.

In 2023, Bond et al[19] used Medicare Data on Provider Practice and Specialty (MD-PPAS) to examine both "movers" and "leavers," and found that physician movement decreased in 2020 compared with the prior 2 years. However, MD-PPAS has limited capture of physicians who infrequently bill traditional Medicare (eg, pediatricians and obstetrician/gynecologists

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[OB/GYNs]) and delays in data release of up to 2 years.[20] Studies and projections of the health workforce have also frequently relied on provider databases such as the National Provider and Plan Enumeration System (NPPES), the American Medical Association (AMA) Masterfile, and the IQVIA OneKey (previously SK&A) provider files. However, each of these files has known limitations, including inaccurate physician addresses when verified by phone for 14% of physicians in NPPES, 15% in OneKey, and 58% in the AMA Masterfile.[21] Notably, the AMA Masterfile and IQVIA OneKey are also proprietary datasets with associated costs to access.

This study explores the use of the publicly available Medicare Provider Enrollment, Chain, and Ownership System (PECOS) and Doctors and Clinicians to examine physician and advanced practice clinician movement through the COVID-19 pandemic. Both datasets are updated on a regular basis, allowing closer to "real time" assessment of provider movement.

Data and methods

Data sources

The PECOS is the online Medicare provider enrollment system. The Centers for Medicare and Medicaid Services (CMS) requires enrollment in PECOS to submit Medicare claims and receive payment, incentivizing organizations to update PECOS in a timely manner, even for providers who may see low Medicare volumes and for those associated with organizations that otherwise provide Medicare service. We used PECOS base enrollment, address, specialty, and revalidation files. Provider-level enrollment record IDs include the date of every new enrollment. The PECOS public use data are released quarterly within weeks of the end of the quarter (eg, Q4 2023 data released on January 16, 2024[22]).

Doctors and Clinicians (formerly Physician Compare) is a publicly available national clinician dataset maintained by CMS. The dataset uses PECOS data checked against Medicare claims, including organizational data for which the clinician has submitted Medicare claims. Clinicians must have at least 1 Medicare claim in the last 6 months to be included in the dataset. Released approximately monthly, Doctors and Clinicians has the advantage of additional data, but only more frequent Medicare service providers will have a consistent record, limiting analysis on providers such as OB/GYNs and pediatricians.

Identification of entries and movement into states using PECOS

We used PECOS to trace the date of individuals' enrollments and identify providers' profession and specialty. We categorized PECOS enrollments into 2 groups: (1) enrollment of new providers (new entrants) and (2) enrollment of existing providers (movement). The CMS is vague about when providers need a new enrollment in PECOS. However, it is certain that enrollments are required for new providers and those who move across states served by different Medicare Administrative Contractors; and the PECOS reassignment file reports "reassignment of benefits" from an individual provider to (generally) a health care organization. Our analysis of the PECOS file indicates that (1) the same enrollment of a provider is seldom used in more than 1 state and (2) new enrollments for the same specialty represent an individual provider's movement into new states.

The PECOS is more limited in identifying the exiting workforce as there is little incentive to disenroll and revalidation is only required every 5 years. Thus, we did not analyze the individuals moving out of states or exiting the workforce using PECOS.

Due to COVID-19 shutdowns starting in March 2020, we examined annual enrollment counts from April 1 to March 31 from 2017 to 2023 by profession and specialty for all enrollments, initial entrants, and movement.

Identification of net movement into and out of states using Doctors and Clinicians

We used the Doctors and Clinicians to track year-to-year movement into and out of states, comparing the presence of providers on the last date of consecutive years from 2018 through 2022 (eg, comparing December 31, 2021, to 2022). We use the last date of the year as CMS held updates between January and July 2020. Doctors and Clinicians captures individuals' affiliation with organizations (organizational PECOS Associate Control Idenfier, or PAC-ID) on a regular basis. Comparing data releases over time allows us to examine when a health care provider is no longer identified as affiliated with an organization in a state where they were previously affiliated with an organization (movement out of).

We calculated state-level counts of movement into, movement out of, and net movement of providers for each period. Net movement for each state is calculated from the net physician movement into and out of each state. Individuals are weighted based on the number of states they practiced in (eg, a provider practicing in 2 states is assigned 0.5 to each state). We focused our analysis on family and internal medicine physicians as the primary care workforce has been an ongoing challenge in the United States, and these providers are likely to submit Medicare claims. For example, our analysis found that the total number of OB/GYN and pediatric medicine physicians in Doctors and Clinicians was 73.9% and only 13.4%, respectively, of the total counts in PECOS in 2023.

Identification of movement across organizations using Doctors and Clinicians

We similarly used Doctors and Clinicians to analyze movement between organizations from 2018 to 2022, counting providers as movers if their organizational relationship from the first year disappeared and a new organization appeared in the second year. Finally, we analyzed the organizational size before and after changing organizations. Organizational size was determined by counting the number of providers associated with each organization in Doctors and Clinicians.

This study used publicly available data and was not considered human subjects research.

Results

New enrollments across states: PECOS

Movement of existing physician providers into states saw a spike in the first year of COVID-19 (April 2020 to March 2021) (Figure 1), although new entrants did not experience any substantive growth between 2017 and 2023 (Figure 2). Advanced Practice Registered Nurses (APRNs) and Physician Assistants (PAs) showed less movement in the first year of COVID-19; however, new entrants increased in the post–COVID-19 period.

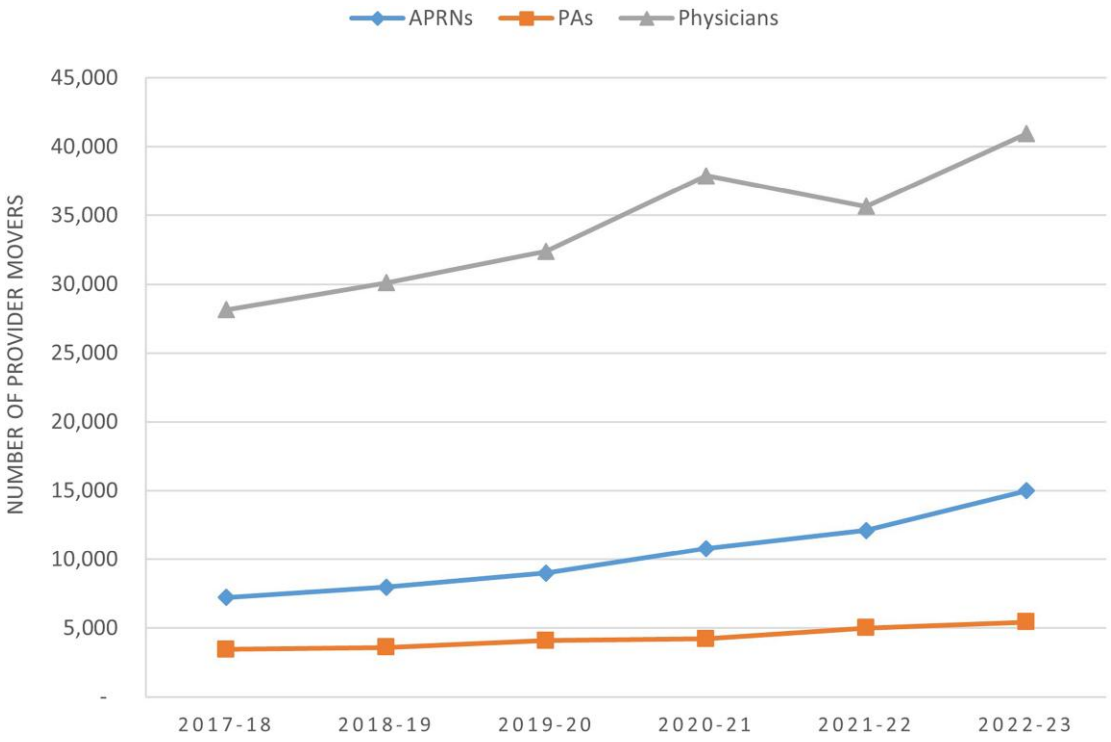

Figure 1. Health care provider movement across states, 2017–2023. Source: Authors' analysis of Provider Enrollment, Chain, and Ownership System (PECOS), 2017–2023. Time periods are April through March.

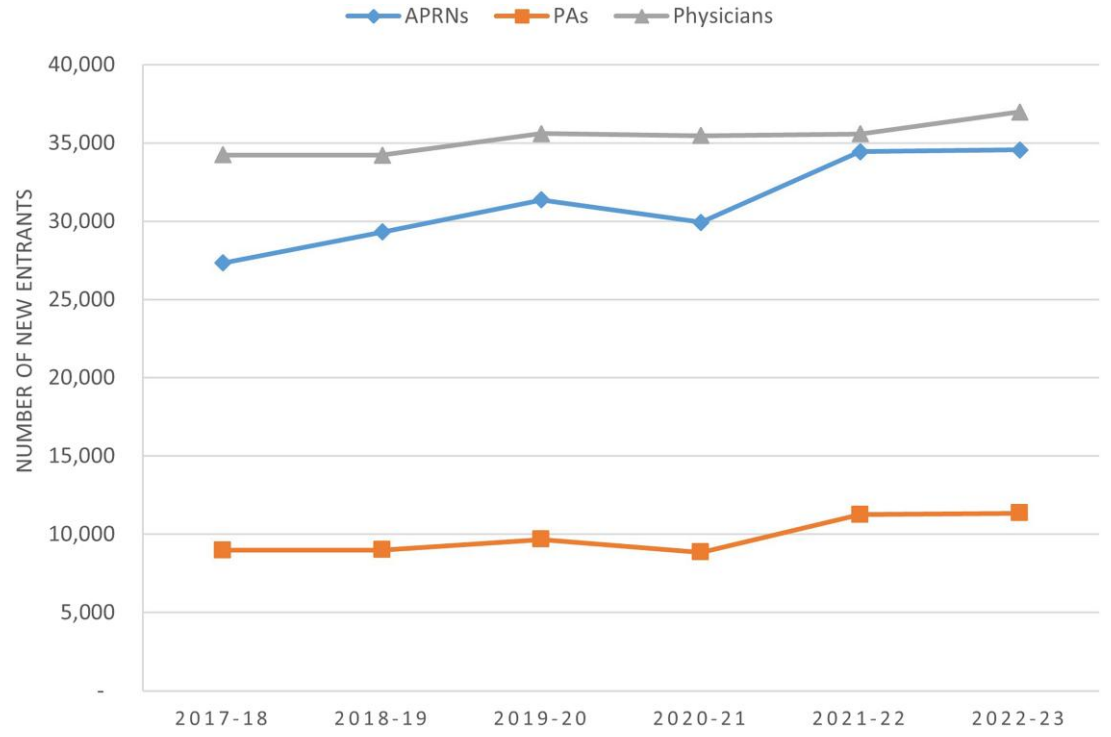

Figure 2. Health care provider new entrants, 2017–2023. Source: Authors' analysis of Provider Enrollment, Chain, and Ownership System (PECOS), 2017–2023. Time periods are April through March.

Provider movement into states varied between specialties. Family and internal medicine physicians saw a spike in movement into new states in the first year of COVID-19. Surgeons (all specialties) saw no similar increase; yet, all 3 specialties appear to have increased movement in the post–COVID-19 period (Figure 3). Similarly, different movement trends are seen across physician specialties, with a notable 38% increase in cardiologist movement in 2022–2023 compared with the prior year. New entry, movement into, and total counts by specialty and year are provided in Appendix 1.

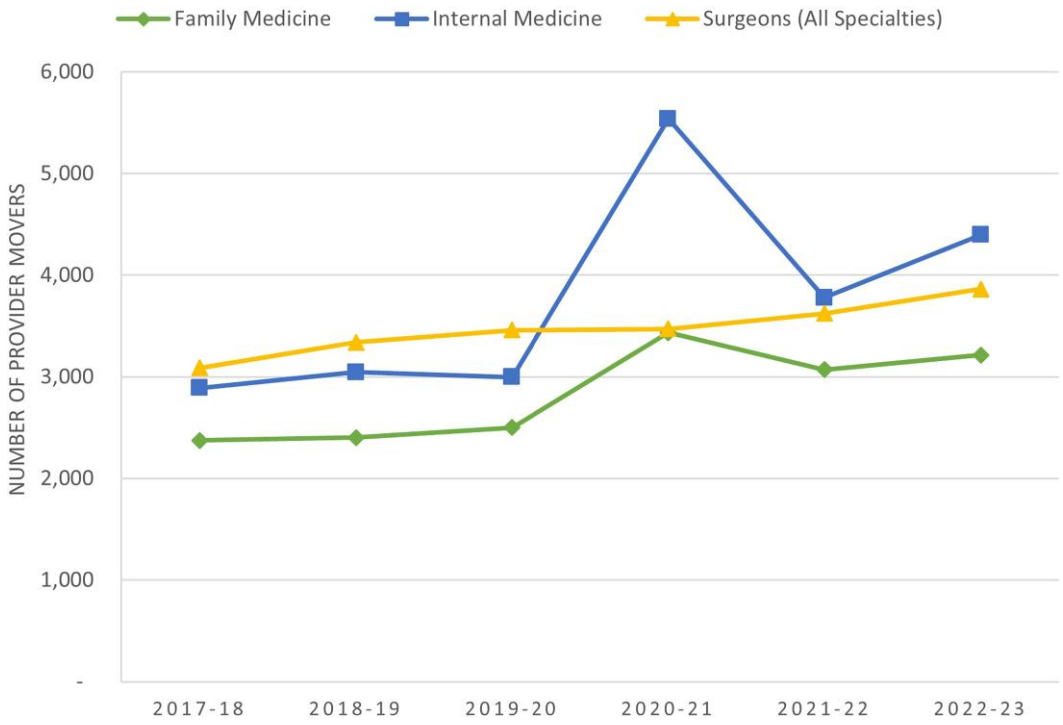

Figure 3. Health care provider movement across states, select specialties 2017–2023. Source: Authors' analysis of Provider Enrollment, Chain, and Ownership System (PECOS), 2017–2023. Time periods are April through March.

Provider movement across states: Doctors and Clinicians

The number of family and internal medicine physicians moving across states increased from 2019 to 2022, from 352 movers in 2019 to 431 in 2022. States show year-to-year variation in net movement (Figure 4), with some states flipping from net annual gain/loss of family and internal medicine physicians between 2019 and 2022. Net movement data are available in Appendix 2.

Provider movement between organizations

In 2020, 11.72% of family physicians moved to new organizations compared to 10.37% in 2019. Internal medicine physicians generally moved to new organizations at a higher rate compared with family physicians, except in 2020 (Figure 5) and movement to new organizations decreased for both specialties in 2021 and 2022. Organized by deciles based on the size of originating organizations, physicians moved, on average, from smaller to larger organizations in all but the largest decile (Figure 6). Prior years' movement showed similar trends (Appendix 3).

Discussion

Throughout the COVID-19 pandemic, concerns were rising over health care worker turnover. Our study demonstrates an increase in provider movement for some, but not all, provider types in the first year of COVID-19 and an ongoing increase in movement in many specialties after the first year. In some cases, like cardiology, we see a large increase in movement in the most recent April 2022 to March 2023 period. Examining specialties separately is important as different policies, market changes, and demands may drive different workforce behaviors. Collectively examining the physician workforce may mask important gaps and trends. The ability to examine specialty-specific movement closer to real time, rather than delayed by up to 2 years, will allow federal, state, and local policymakers to make better, data-informed decisions and investments to address their specific health workforce challenges.

Recruitment, retention, and distribution of the health workforce are rising priorities, particularly for states. A complex and interactive array of policy-, market-, and provider-level factors are known to affect workforce decisions and movement across states and organizations. For example, Medicaid expansion has been shown to influence the practice locations of new graduate internal medicine physicians.[23] As states continue to adopt Medicaid expansion, changing state policies may be affecting the health workforce of neighboring states. States with a full scope of practice policies generally have more nurse practitioners, particularly among rural and underserved populations.[24] This may be an increasingly important policy as our study and others demonstrate that nurse practitioners are a rapidly growing workforce.[25] States and the federal government are also making increasing investments in education and training to increase their workforce supply.[26] Rural and community-based residency programs have been shown to produce physicians who practice in rural and underserved communities, who are more likely to practice near their residency program, and who provide critical services including behavioral and gynecological services.[27,28] However, increasing trends towards movement across states may undermine state investments in expanding their health workforce.

Our study also demonstrated a trend of provider movement to larger organizations, consistent with increasing health system consolidation.[29,30] Consolidation has raised concerns over higher prices and mixed results for quality of care,[31]

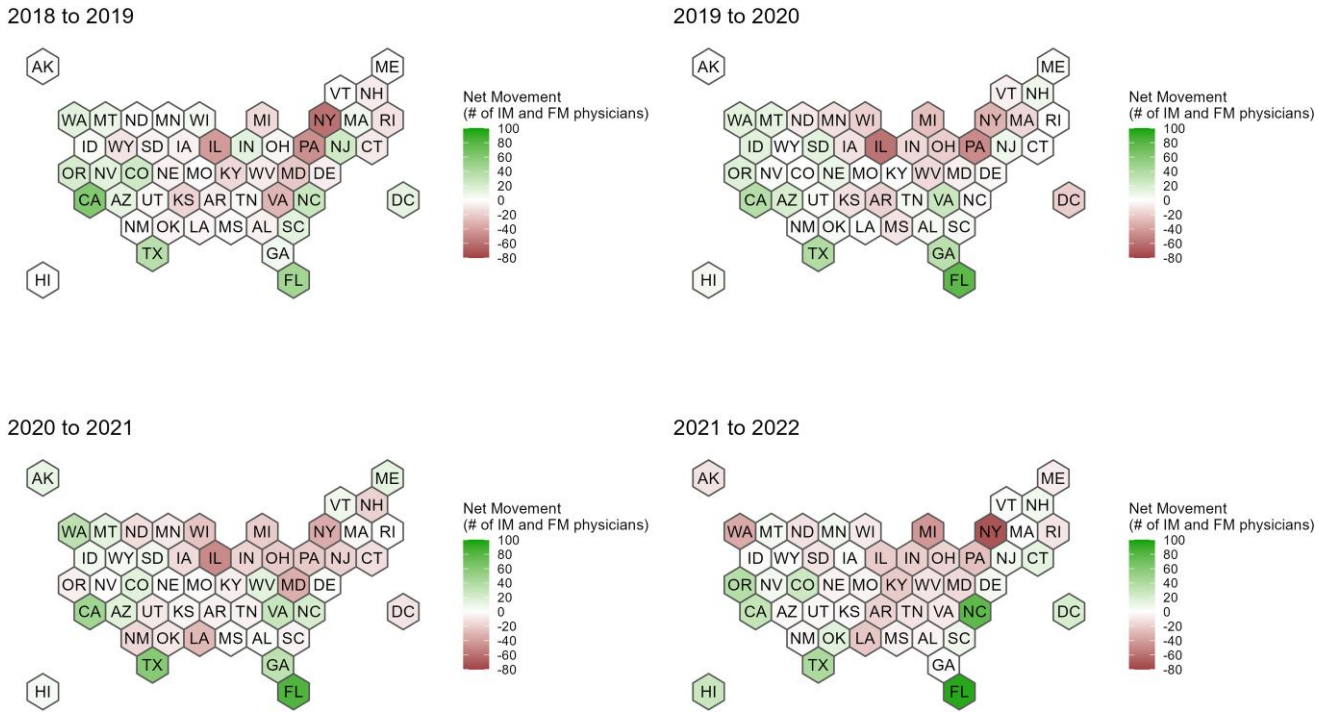

Figure 4. States' net movement of family and internal medicine physicians, 2019–2022. Source: Authors' analysis of Doctors and Clinicians, 2018–2022.

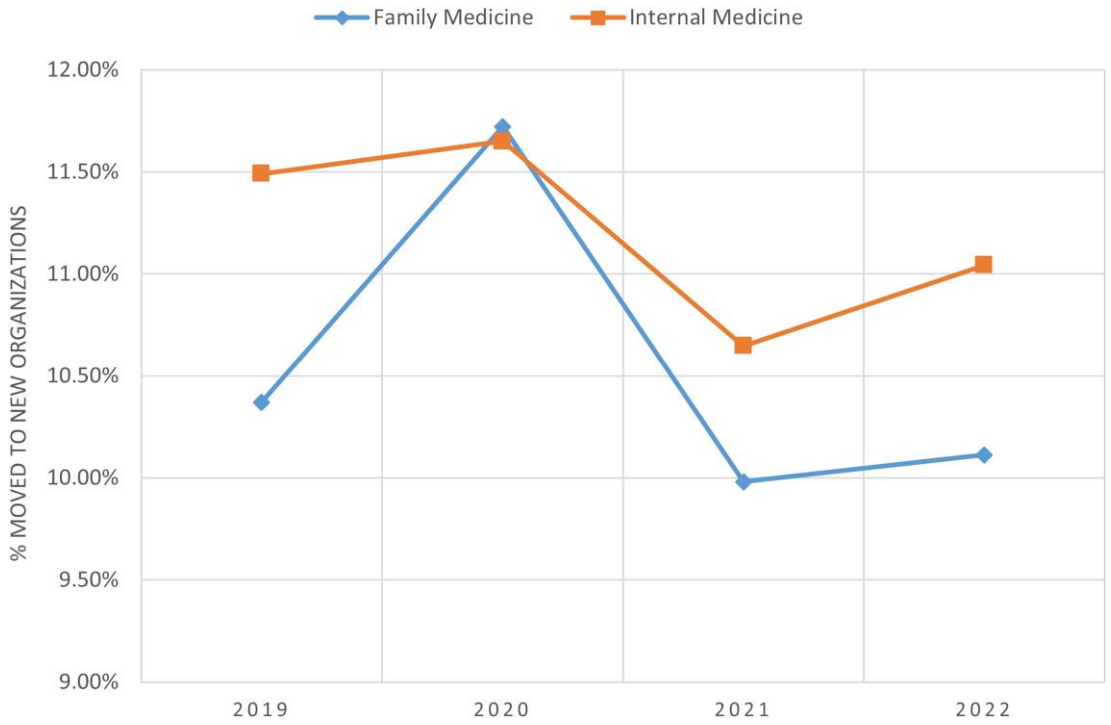

Figure 5. Percentage of family and internal medicine physicians who move to new organizations annually, 2019–2022. Source: Authors' analysis of Doctors and Clinicians, 2018–2022.

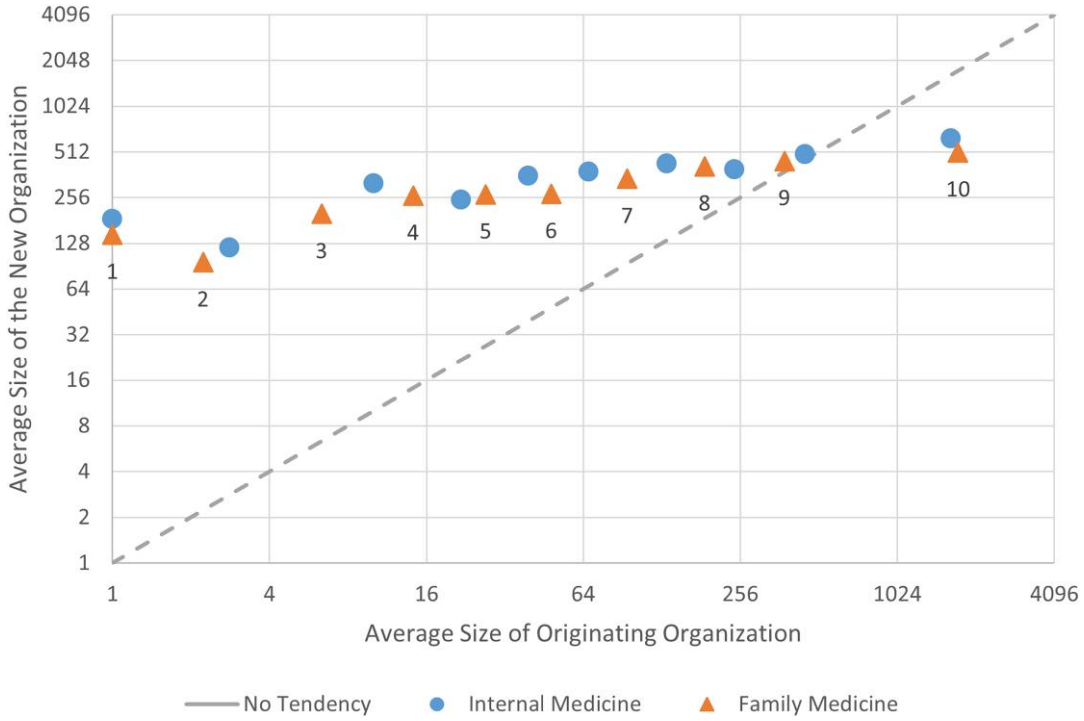

Figure 6. Change in organization size for family and internal medicine physicians who moved organizations in 2022, by deciles of originating organization size. Source: Authors' analysis of Doctors and Clinicians, 2018–2022.

with rising federal and state interest in increasing oversight and regulation of consolidations in health care.[32,33] Our study adds to the field by establishing a method to track clinician movement across organizations to understand both where they are going as well as where they are coming from and whether rural and already underserved communities are disproportionately losing critical health workers.

This study demonstrates the potential and limitations of existing datasets. While PECOS data can track new entrants and movement into states close to real time, there is little incentive for timely disenrollment, limiting the tracking of exiting providers. Doctors and Clinicians can more reliably identify exits than PECOS. However, it can only reasonably be used to track the movement of providers who serve Medicare patients on a regular basis and data on exits are delayed up to 6 months. Both datasets largely focus on billing providers, limiting the tracking of other critical workforce such as registered nurses.

Our study also has a number of limitations. The analysis is largely descriptive and does not assess the many factors, such as state policies, local market changes, and community characteristics, that influence clinician movement. However, this study establishes a method by which clinician movement can be tracked and future research can explore how these factors impact movement and workforce. Our Doctors and Clinicians analysis also focused on family medicine and internal medicine physicians and on movement of existing providers and not those newly entering or fully exiting the workforce. Future work could examine additional specialties along with new entrants and exits from the workforce.

Ultimately, tracking changes in health workforce movement closer to real time is critical to understand the acute impacts of events, like the public health emergency, to develop data-informed policies and to support research to understand the factors driving changes as well as the impact and effectiveness of developing policies. Strengthening existing datasets and integrating additional data, such as Medicaid and private payer claims, would further the ability to understand and track changes in the health workforce that can guide the many policies aimed at strengthening the health workforce and closing gaps to access.

Supplementary material

Supplementary material is available at *Health Affairs Scholar* online.

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Conflicts of interest

Please see ICMJE form(s) for author conflicts of interest. These have been provided as supplementary materials.

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