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Proportion Of Physicians In Large Group Practices Continued To Grow In 2009–11

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ABSTRACT Payers and advocates for improved health care quality are raising expectations for greater care coordination and accountability for care delivery, and physician groups may be responding by becoming larger. We used Medicare claims from the period 2009–11, merged with information from the Medicare provider enrollment database, to measure whether physician group sizes have been increasing over time and in association with physician characteristics. All US physicians serving Medicare fee-for-service patients in any practice setting were included. The percentage of physicians in groups of more than fifty increased from 30.9 percent in 2009 to 35.6 percent in 2011. This shift occurred across all specialty categories, both sexes, and all age groups, although it was more prominent among physicians under age forty than those age sixty or older. The movement of physicians into groups is not a new phenomenon, but our data suggest that the groups are larger than surveys have previously indicated. Questions for future studies include whether there are significant cost savings or quality improvements associated with increased practice size.

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It was commonplace throughout most of the twentieth century for a physician to “hang a shingle” to advertise a solo practice. However, recent evidence suggests that physicians are increasingly moving toward group practice under one organizational roof.¹ Marketplace, practice, and physician factors appear to contribute to this process.

In the marketplace, payers and advocates for health care quality are raising expectations for greater care coordination and increased accountability for care delivery. Physicians may find that these goals can be achieved more easily when they are organized into larger groups than when they are in smaller groups. Although there is limited research on the relationship between group size and quality of care, some evidence suggests that quality of care is higher in large groups than in solo practices.² In some geographic areas, managed care organizations may

also have contributed to the consolidation of physicians into groups. And through policies that promote the formation of medical homes, accountable care organizations, and bundled payment for certain procedures, Medicare is also stimulating physician integration. As a result, physicians may practice in larger groups than before.

Other factors that may draw physicians into larger groups include increased control over work hours, shared resources, and compensation arrangements such as first-year guaranteed income, which is more commonly offered by larger, hospital-owned practices than by smaller groups.^{3–6} At the practice level, large groups have certain advantages over smaller groups, including greater access to capital to make technology investments, greater ability to standardize processes, and the ability to accept more insurance risk.⁷

By consolidating into larger groups, either “horizontally” into single-specialty groups or “vertically” into multispecialty groups, physicians may increase their market power. If groups gain market power by virtue of their size, insurers may find that they must accept the groups’ contracting terms or face the risk of omitting “must have” groups from their provider networks.⁸ Physicians in multispecialty groups may also be able to more easily arrange for consultations, establish procedures to reduce care fragmentation, monitor quality, and align financial incentives across a diverse set of providers.^{9,10}

In light of these trends and policy changes, we provide a national picture of physician groups, including how group size has changed over recent years and how this picture varies by demographics, specialty, and geography. Previous studies have examined some of these questions,¹¹ but the implementation of the Affordable Care Act makes it timely to gain an updated understanding of physician organization.

Furthermore, the availability of a new physician identifier in Medicare claims data makes it possible to more efficiently and comprehensively identify physician organizations. This identification was previously possible only through surveys that tended to exclude physicians who did not work in office-based settings, were subject to nonresponse bias, and were dependent on physicians’ or staff members’ self-reports.

Study Data And Methods

We used the following two Medicare administrative databases to characterize physicians and to assign them to a practice: the Medicare Provider Enrollment, Chain and Ownership System (PECOS)¹² and the 100 percent physician and supplier file of fee-for-service Part B claims. Records were linked at the individual physician level using the national provider identifier number, which has been required on all claims since May 2008.

PHYSICIANS To participate in Medicare, physicians and other providers must enroll in the PECOS system, which maintains information on physicians’ self-reported age, sex, and specialty. Based on primary specialty information, we grouped physicians (both allopathic and osteopathic) into the following six broad specialties: primary care (general practice, family medicine, internal medicine, pediatrics, and geriatrics), medical specialty, surgical specialty, psychiatry, obstetrics/gynecology, and hospital-based specialty (radiology, anesthesiology, emergency medicine, pathology, and hospitalist).

The PECOS system does not have a designation

for hospitalists, but we identified as hospitalists those primary care physicians for whom inpatient claims made up at least 90 percent of their allowed charges. This criterion resulted in our reclassifying approximately 25,800 primary care physicians as hospitalists. Details on our specialty classifications are available in online Appendix Exhibit 1.¹³

Physicians who submitted at least one fee-for-service claim to Medicare are included in the PECOS database. Reflecting the fact that Medicare covers several thousand disabled children, 8,004 pediatricians (fewer than 10 percent of the estimated number of pediatricians in practice)¹⁴ submitted a claim in 2011.¹⁵ Although many health maintenance organizations (HMOs) do not routinely bill fee-for-service for Medicare, HMO physicians may submit fee-for-service claims—for example, for emergency care. In general, interns and residents are not included in Medicare claims data because Medicare pays for their services separately through direct graduate medical education and indirect medical education payments.¹⁶

PRACTICES To identify physician group practices, we used the tax identification number, which is required on claims for income reporting purposes. All physicians who bill under the same number have a financial organization in common, although they could be practicing at different locations. The Internal Revenue Service allows practices to use one or multiple tax identification numbers. When one practice acquires another, it may consolidate the two tax identification numbers, but there is no requirement to do so.

During our study period, approximately 80 percent of the physicians who submitted claims were associated with only one tax identification number. We assigned physicians who submitted claims with more than one number to the number associated with the plurality of their charges for evaluation and management visits, procedures, and imaging services. We assigned each physician to the Hospital Referral Region associated with the plurality of his or her charges, based on the 2010 ZIP codes in which the services were provided.^{17,18}

We tabulated both the annual distribution of physicians and the characteristics of physicians—including age, sex, specialty, and location—by practice size. We defined *practice size* as the number of physicians assigned to a tax identification number.

We categorized a physician group as *single specialty* if at least 90 percent of its physicians were in only one of the six categories that we used to classify physician specialties. All other groups were considered to be multispecialty. Our data

The trend toward larger groups between 2009 and 2011 was relatively uniform across specialties.

represent the entire population, not a sample, of physicians serving Medicare beneficiaries. Therefore, we present results without standard errors, confidence intervals, or statistical tests of probability that are used to support judgments about samples.

LIMITATIONS Although our study is unique in its ability to link physicians to practices, it has several important limitations. First, we may have underestimated the size of physician groups. We saw anecdotal evidence of organizations with different tax identification numbers but similar names, implying that they might all belong to a common entity. But we lacked a database that would enable us to consolidate those groups systematically.

Second, our reliance on Medicare fee-for-service claims to estimate physician group size excludes providers who do not bill Medicare. Physician workforce estimates from the American Medical Association's Physician Masterfile are higher than the number we report using provider tax identification numbers in Medicare claims data. However, the Physician Masterfile tends to overestimate the size of the physician workforce because records on physicians who have died or retired are not necessarily removed in a timely fashion.¹⁹

A recent report to Congress based on results from the National Ambulatory Medical Care Survey estimates that 90 percent of physicians accept new Medicare patients.²⁰ Nonetheless, physicians who serve children or who see only HMO patients were likely to be underrepresented in our data.

Finally, our analysis of physician specialty was based on what providers reported to the Centers for Medicare and Medicaid Services and might not agree completely with other assessments of the specialty mix of the physician workforce. We improved on the self-reported information by using Medicare claims to reclassify some primary care physicians as hospitalists. We believe that by aggregating physician specialties into six broad categories, we avoided inconsistencies

that could have arisen had we attempted to categorize physicians into narrowly defined groups.

Study Results

The number of physicians submitting Medicare fee-for-service claims with provider tax identification numbers who were linked to data in the PECOS system increased from 541,963 in 2009 to 580,573 in 2011. Some of this increase is because the number of provider identification numbers in claims that were not linked to records in the PECOS database decreased from 13,800 in 2009 to 6,400 in 2011. However, a substantial portion of the increase is probably a result either of greater participation in Medicare by physicians or of a net increase in the physician workforce, because the number of graduating medical students in 2011 (17,364)²¹ likely exceeds the number of physicians who retired in the same year.

PRACTICE SIZE In 2009, 30.9 percent of all physicians who submitted Medicare claims were in large practices—those with more than fifty physicians—compared to 35.6 percent in 2011 (Exhibit 1). The number of such practices increased from 1,061 in 2009 to 1,226 in 2011. Correspondingly, the proportion of physicians in solo practices and in group practices with fifty or fewer physicians declined over time. The trends in practice size (declines in small groups and increases in large groups) occurred consistently in all three years in our study period, so we focused our analysis on differences between 2009 and 2011.

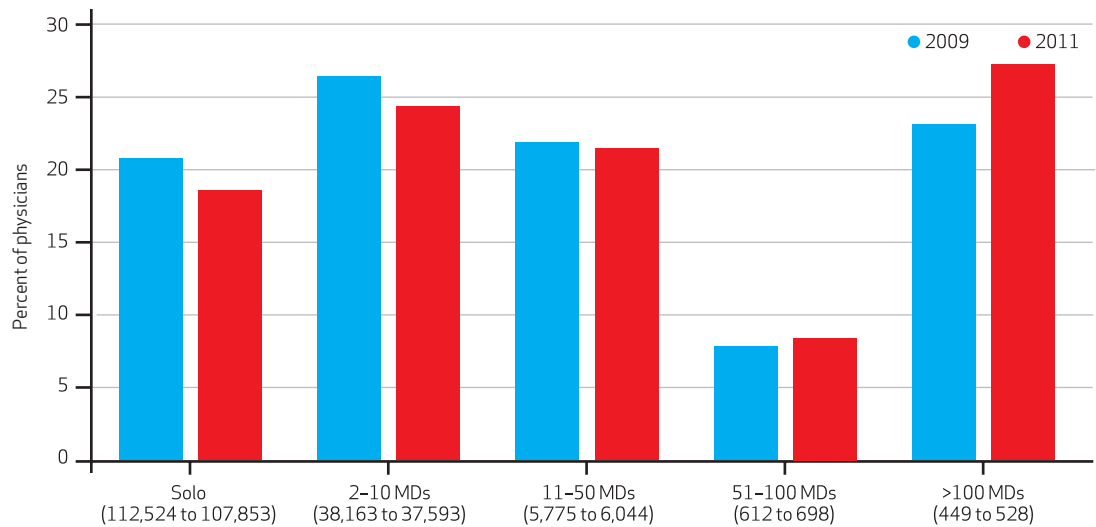
DEMOGRAPHIC DIFFERENCES Differences in age distribution were apparent across practice sizes (Exhibit 2). In both 2009 and 2011 physicians in the youngest group were less likely to be in solo practices than physicians in the middle and older age groups (5.4 percent, 17.9 percent, and 32.3 percent, respectively, in 2011). Across all age groups, the proportion of physicians in large practices increased from 2009 to 2011.

Between 2009 and 2011 the percentage of women in large practices increased from 38.6 percent to 43.6 percent, and the percentage of men increased from 28.5 percent to 32.9 percent (data not shown). In 2011 women were less likely to be in solo practice (14.0 percent) than men were (20.0 percent).

GEOGRAPHIC DISTRIBUTION Hospital Referral Regions in New England, the upper Midwest, and the Northwest were more likely than other regions to have physicians in large practices in 2009 (Exhibit 3). The fraction of physicians in large practices grew notably in regions in the Northeast, the Midwest, and the Southwest between 2009 and 2011 (Exhibits 3 and 4).

EXHIBIT 1

Distribution Of US Physicians By Practice Size, 2009 And 2011



SOURCE Authors' analyses of Medicare administrative data. **NOTES** The figure shows the numbers of practices in 2009 and 2011 for each practice size. In 2009 there were 541,963 physicians, and in 2011 there were 580,573.

PHYSICIAN SPECIALTIES The trend toward larger groups between 2009 and 2011 was relatively uniform across specialties (Exhibit 5). Psychiatrists were more likely than other physicians to be in solo practice (32.0 percent in 2011). In 2011 the fraction of physicians in solo practices across other specialties (except for hospital-based physicians) varied only between 18.8 percent and 23.8 percent. In 2011 primary care physicians were more likely than other physicians to be in practices with more than fifty physicians. The number of primary care physicians in multispecialty practices (across all practice sizes) increased from 54.3 percent in 2009 to 58.6 percent in 2011.

We found large differences across Hospital Referral Regions in the distribution of special-

ists by practice size. To illustrate, Appendix Exhibit 2¹³ shows the distribution of cardiologists in 2011 in ten selected Hospital Referral Regions, with groups categorized according to the number of cardiologists rather than the number of all physicians. The Hospital Referral Region that includes Miami, Florida, was not very concentrated: In that region 40 percent of cardiologists practiced in groups with just one cardiologist, while 30 percent were in five group practices that each had 11–50 cardiologists.

In contrast, the Hospital Referral Region that includes Charlotte, North Carolina, was much more concentrated: Only 10 percent of cardiologists there practiced in groups with a single cardiologist, and 61 percent were in two group practices with 11–50 cardiologists. However, nei-

EXHIBIT 2

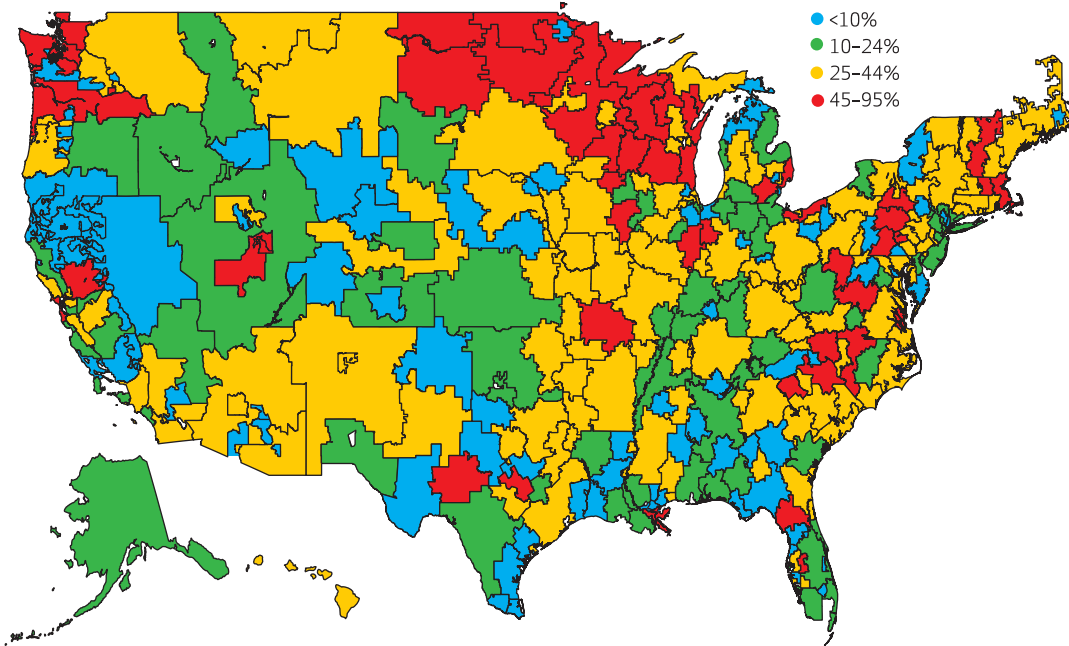
Distribution Of US Physicians By Age And Practice Size, 2009 And 2011

	Physicians, 2009 (n = 541,963)				Physicians, 2011 (n = 580,573)			
	Younger than 40	40-59	60 or older	Age missing	Younger than 40	40-59	60 or older	Age missing
Total	119,832	305,172	101,200	15,759	125,170	316,259	120,411	18,733
Percent	22.1	56.3	18.7	2.9	21.6	54.5	20.7	3.2
PRACTICE SIZE (NUMBER OF PHYSICIANS)								
1	7.4%	20.6%	35.2%	33.5%	5.4%	17.9%	32.3%	30.3%
2-10	24.4	27.6	25.5	25.9	21.3	25.5	24.5	24.3
11-50	26.0	22.1	17.0	17.1	25.2	21.8	17.3	17.7
51-100	10.3	7.7	5.6	6.0	10.7	8.4	6.3	6.8
>100	31.9	22.1	16.7	17.6	37.4	26.4	19.7	21.0

SOURCE Authors' analyses of Medicare administrative data.

EXHIBIT 3

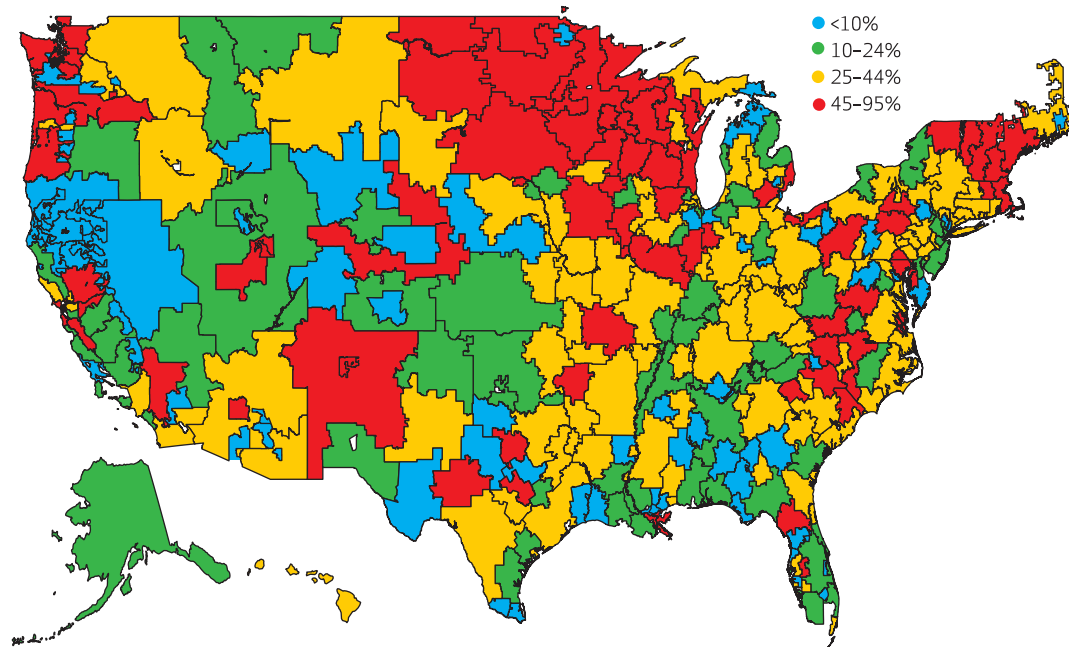
Distribution Of Physicians In Practices With More Than 50 Physicians, By Hospital Referral Region, 2009



SOURCE Authors' analyses of Medicare administrative data.

EXHIBIT 4

Distribution Of Physicians In Practices With More Than 50 Physicians, By Hospital Referral Region, 2011



SOURCE Authors' analyses of Medicare administrative data.

EXHIBIT 5

Distribution Of Physicians By Specialty And Practice Type, 2009 And 2011

Specialty	Physicians, 2009				Physicians, 2011			
	Number	In solo practice	In groups of >50	In multispecialty practice	Number	In solo practice	In groups of >50	In multispecialty practice
Primary care	157,395	26.4%	31.4%	54.3%	168,792	23.8%	38.9%	58.6%
Medical specialty	97,853	20.5	33.5	53.5	103,811	18.8	38.2	57.5
Surgical specialty	92,152	26.4	24.3	40.2	96,987	23.6	28.7	45.5
OB/GYN	30,188	22.7	29.5	41.1	32,154	19.9	34.4	45.5
Hospital-based	138,947	7.8	35.0	49.2	152,239	6.8	36.2	51.7
Psychiatry	25,428	34.9	22.6	37.0	26,590	32.0	25.3	38.8
All	541,963	20.8	31.0	48.9	580,573	18.6	35.6	52.8

SOURCE Authors' analyses of Medicare administrative data. **NOTES** Practice size is number of physicians. Typically, the three percentages do not sum to 100.

ther city had a practice with more than fifty cardiologists billing under one tax identification number, whereas several other cities had a substantial proportion of cardiologists in one or two large practices.

Discussion

Using administrative data to measure physician groups—an approach that has been made possible by the recent availability of the national provider identifier numbers—we found that the concentration of physicians in large medical groups is much greater than has previously been reported and that it continues to grow. In 2011 more than a third of US physicians were in practices with more than fifty physicians, and more than a quarter were in practices with more than a hundred physicians (Exhibit 1). Almost 60 percent of physicians were in practices of eleven or more physicians, and those practices constituted less than 5 percent of the practices nationwide. The concentration of physicians in a small number of large groups was particularly evident in states in New England, the upper Midwest, and the Northwest.

The movement of physicians into groups is not a new phenomenon, but our data suggest that the groups are larger than previous surveys have indicated. The change is apparent in the increasing number of physicians in large practices and the shrinking number of physicians in solo practice. In 2009 more physicians were practicing in large groups (167,791 physicians) than in solo practice (112,524 physicians). In 2011 there were almost twice as many physicians in large groups (206,837) than in solo practice (107,853).

Analyses of the Health Tracking Physician Survey, a national survey of nonfederal physicians, found that in 2008 only 6 percent of physicians were in practices of more than fifty and that

another 11 percent worked in medical schools or HMOs,²² settings that most likely represent groups of fifty or more physicians. Furthermore, the survey found that the proportion in these categories had changed very little over the previous ten years.¹

In contrast, we found that 30.9 percent of physicians in 2009 were practicing in groups of more than fifty (Exhibit 1), and that the percentage had increased to 35.6 percent by 2011, for an average annual growth rate of 2.3 percentage points per year. We also found a much lower percentage of physicians in solo practice in 2009 (20.8 percent) than was reported by office-based physicians (36.8 percent) as a part of the National Ambulatory Medical Care Survey in 2005–06.¹¹

Contrary to the findings of a decade ago,⁷ the more recent movement of physicians into larger groups is also associated with a relatively greater growth in the number of multispecialty groups, compared to single-specialty groups. Physicians of all types are increasingly practicing in larger groups, especially physicians who are young, female, and in hospital-based specialties. We cannot determine from this study whether this trend is the result of personal choices, practice-level considerations, marketplace opportunities, or some combination of those types of factors.

From 2009 to 2011 we observed a trend toward practicing in multispecialty groups in each of our six broad specialty categories. This pattern suggests that separate from market power, referrals and other practice-level considerations may play some role in the consolidation of physicians. The landscape, however, is varied: In some metropolitan areas, concentration in narrow specialties such as cardiology is more noteworthy than elsewhere.

Some of the differences between our results and those obtained from surveys of physicians could be explained by our focus on a more recent

The implications of growth in practice size provide an important agenda for future studies.

time period, but differences in methodology likely play a role as well. The National Ambulatory Medical Care Survey samples office-based physicians only; in contrast, we included hospital-based specialties—a category encompassing at least a quarter of all physicians in our analyses.

In addition, our reliance on tax identification numbers to define medical groups might produce different results than the self-reported practice sizes in surveys of physicians. There may be circumstances in which the practice location is a relevant unit of analysis. However, we believe that the tax identification number is an important way to define a medical group because all physicians using that number are part of the same financial organization.

We believe that our approach for measuring physician practice size is an improvement over traditional survey methods. The use of secondary data from claims tends to be a lower-cost approach than conducting a survey, and the ongoing availability of claims data provides an opportunity to easily monitor changes in physician groups with relatively current data. The secondary data from claims are comprehensive, and—unlike survey data, which have sample size limitations—the claims information can be used to create in-depth profiles of physician practice organizations at the local level, as we illustrated in comparing cardiologists in Miami and Charlotte.

Our measurement over time of practice size,

based on physicians providing care to Medicare fee-for-service beneficiaries, can provide a good approximation of changes in physician practice.

Conclusion

The implications of growth in practice size for access to, quality of, and cost of care provide an important agenda for future studies. What are the savings associated with increased physician group size, and do single-specialty and multi-specialty groups realize different amounts of savings? How can individual physicians best be given incentives to improve their performance when they function in large groups? Similarly, how do care quality and the prices paid by private insurers change in response to practice growth?

Other important questions include how referral patterns change when physicians form larger groups, such as those providing ancillary and hospital services. Should practice growth that arises from hospital purchases of practices be viewed differently from other practice growth, in terms of coordination of care across settings or market power? What are the implications for the initial formation of accountable care organizations and that model's future role?

The limited previous research available suggests that larger groups appear more likely than solo practitioners to incorporate quality improvement strategies such as the use of information technology and multidisciplinary care teams into their practice.^{23,24} These practice improvements could contribute to more efficient and less costly care, but there is also the potential for concentrated providers to leverage higher rates of reimbursement.²⁴ And although group practice may enable physicians to provide around-the-clock access, some evidence suggests that when groups get too large, they can become more difficult for patients to access.²⁵ A national database of physician group practices could support research on these and related issues. ■

A presentation on the database underlying the work reported in this article was given at the AcademyHealth Annual Research Meeting, Baltimore, Maryland, June 25, 2013. The data were available through a data use agreement (No. 21990) between the Office of the

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related to this analysis. The content is solely the responsibility of the authors and does not necessarily reflect the views of the Department of Health and Human Services.

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