

Office-based Medical Practices: Methods and Estimates from the National Ambulatory Medical Care Survey

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Abstract

Objectives—The report uses a multiplicity estimator from a sample of office-based physicians to estimate the number and characteristics of medical practices in the United States. Practice estimates are presented by characteristics of the practice (solo or group, single, or multi-specialty group, size of practice, ownership, location, number of managed care contracts, use of electronic medical records, and use of computerized physician order entry systems).

Methods—Data presented in this report were collected during physician induction interviews for the 2003–04 National Ambulatory Medical Care Survey (NAMCS). The NAMCS is a national probability sample survey of nonfederal physicians who see patients in an office setting in the United States. Radiologists, anesthesiologists, and pathologists—as well as physicians who treat patients solely in hospital, institutional, or occupational settings—are excluded. Sample weights for physician data use information on the number of physicians in the sampled physician's practice to produce annual national estimates of medical practices.

Results—During 2003–04, an average of 311,200 office-based physicians practiced in an estimated 161,200 medical practices in the United States. Medical practice characteristics differed from physician characteristics. Although 35.8 percent of office-based physicians were in solo practice, 69.2 percent of medical practices consisted of solo practitioners. The one-fifth of medical practices with three or more physicians (19.5 percent) contains about one-half of all office-based physicians (52.4 percent). About 8.4 percent of medical practices involved multiple specialties. Fifteen percent of medical practices, consisting of 19.0 percent of physicians, used electronic medical records. Similarly, 6.5 percent of medical practices, consisting of 9.2 percent of physicians, used computerized prescription order entry systems.

Keywords: ambulatory care • physician medical practice • NAMCS

Introduction

In the United States, physician offices are the most frequent location where patients receive care (1). A previous report (2) presented estimates of physicians practicing in the United States based on data collected during the induction interview of the 2003–04 National Ambulatory Medical Care Survey (NAMCS). Decisions affecting patient care services, such as adoption of evidence-based guidelines or use of electronic medical records, however, may be made at the organizational level of the medical practice, rather than by individual physicians. This report, therefore, augments the previous report by presenting estimates for medical practices derived from the same data. To make practices rather than physicians the unit of analysis, it is necessary to adjust the weighting scheme through the use of a multiplicity estimator. Although using a multiplicity estimator is not new (3–6), the methodology has never been applied to deriving practice estimates from NAMCS physician data. Adjusting the physician weight by the number of physicians in the practice has the mathematical effect of yielding only one observation from each medical practice; the sum of the adjusted weights yields a



national estimate of the number of medical practices. Practice estimates in this report describe medical practice characteristics and decisions made by the practice that may affect patient care, such as use of electronic medical record systems.

The NAMCS is a nationally representative survey of visits to nonfederally employed, office-based physicians conducted by the National Center for Health Statistics (NCHS). The NAMCS is part of the ambulatory care component of the National Health Care Survey, a family of provider-based surveys that measures health care utilization across various types of settings. More information about the National Health Care Survey can be found at the NCHS Internet address: www.cdc.gov/nchs/nhcs.htm.

Methods

The NAMCS is an annual national probability sample survey of physicians classified by the American Medical Association (AMA) and the American Osteopathic Association (AOA) as primarily engaged in “office-based, patient care.” Federally employed physicians; those who specialize in anesthesiology, radiology, or pathology; and physicians who do not see patients in an office, such as the majority of emergency medicine physicians, are excluded. The NAMCS utilizes a multistage probability sample design involving samples of 112 geographic primary sampling units (PSUs), physicians stratified by specialty and sampled within PSUs, and patient visits sampled within physician practices. The PSUs are counties; groups of counties; county equivalents, such as parishes or independent cities; or towns and townships, for some PSUs in New England.

In the 2003–04 NAMCS, 6,000 physicians were sampled. During the induction interview, physicians were asked questions to determine their eligibility for the survey, and to gather information about their practice such as size, ownership, and revenue sources. Of 3,968 physicians eligible for the survey, 2,235 physicians who saw patients during their sampled weeks responded

to the Physician Induction Interview (PII), for an unweighted response rate of 56.3 percent.

Both the physician and office visit estimation procedures have three basic components:

1. Inflation by reciprocals of the sampling selection probabilities
2. Adjustment for physician nonresponse, and
3. A calibration ratio adjustment between the number of physicians in the sample frame when the sample was selected and the number of physicians when the NAMCS data were collected.

For each physician, the sampling selection probability reflects the probability of PSU selection and selection of physicians within each PSU. The physician nonresponse adjustment factor is the sample weight for responding physicians augmented by a factor accounting for the amount of nonresponse by similar physicians. Similar physicians were judged to be physicians having the same specialty designation and practicing in the same PSU and/or region/metropolitan statistical area (MSA) status. The calibration ratio adjusts the number of physicians based on the sample frame within specialty stratum and region cells to reflect the most recent universe counts provided by AMA and AOA for the NAMCS weights. For example, the estimated number of physicians in 2003 increased from 280,500 to 312,400 after calibration ratios were applied. Similarly, the estimated number of physicians in 2004 increased from 282,100 to 309,900 after application of the calibration ratios. A previous report presents information on physician estimation, response rates, and survey definitions in more detail (1).

The sample weights for office visits include the same physician nonresponse adjustment and calibration ratio components utilized in the physician weight. The major difference between the physician and visit weight is in the sampling probabilities for visits. That is, the visit sample selection probabilities reflect selection of PSUs, selection of physicians within each PSU, as well as selection of visits within each

physician’s practice. In addition, the visit weights go through a smoothing process such that excessively large visit weights are truncated and a ratio adjustment is performed. This technique preserves the total estimated visit count within each specialty by shifting the “excess” from visits with the largest weights to visits with smaller weights. More details on the NAMCS sampling design and estimation process have been published (7,8).

Medical practice estimates

In this report, the NAMCS physician sampling weight is modified to produce a medical practice estimator. Multiplicity occurs within a sampling frame when a member of the population is linked to more than one entry on the frame, so that the member has multiple chances of being selected. In the NAMCS sampling frame, multiplicity exists among partnerships and group practices because medical practices with more physicians have a higher probability of being selected than practices with fewer physicians. Group practices are defined as three or more physicians practicing together with a common billing and medical record system (9). No sampling frame currently exists for sampling all types of medical practices, i.e., solo, partnership, and group. Sampling frames for individual physicians and for group practices exist, but no sampling frame has all practices. Modifying a physician survey to make estimates of medical practices has the advantage of using a single survey and arithmetic manipulations to estimate both physicians and practices. In this report, nationally representative estimates of medical practices were derived using a “multiplicity estimator” to account for multiplicity in the physician frame (4).

The multiplicity measure used in this calculation was based on physician response to the question “How many other physicians are associated with you (at this location)?” This question was asked for a maximum of four office locations at which the sample physician saw ambulatory patients during his/her sampled week (see Excerpts from the 2004 Physician Induction Interview (PII)

form in “[Technical Notes](#),” [Figure I](#)). Practice size was assumed to be one plus the number of other physicians recorded at the first-listed location. About 14.4 percent of physicians reported that they saw patients at multiple office locations. Medical practices were estimated by adjusting the physician sample weight by the inverse of the multiplicity indicator (number of physicians in the practice) to account for the increased likelihood of selection:

$$(\text{Medical practice weight})_{ij} = (\text{Physician sample weight})_{ij} / S_{ij}$$

Where S_{ij} = number of physicians within practice j reported by physician i

Analysis

The PII form included questions used to determine physician eligibility for the survey as well as to gather information about the practice, such as size, ownership, and revenue sources. The breadth of specialization for practices was based on the questions, “Do you have a solo practice” and “Is this a single- or multi-specialty group practice,” in which responses of solo practice and single-specialty group were combined. Physician specialty for solo practices and group practices is also presented (see “[Technical Notes](#),” [Table I](#) for physician specialty definitions). The physician specialty categories grouped specific self-designated subspecialty codes provided by the AMA and AOA on the sampling frame. Information on physician specialty was updated during the NAMCS induction interview of the physician.

Because estimates presented in this report are based on a sample rather than the universe of office-based physicians, they are subject to sampling variability. The standard errors are calculated using Taylor series approximations in SUDAAN, which take into account the complex sample design of the NAMCS (10). Estimates based on 20–29 cases and/or estimates whose standard errors represent more than 30 percent of the estimate have an asterisk (*) to indicate that they do not meet the reliability standard set by NCHS. Chi-square tests

using SUDAAN were performed to detect significant associations among practice characteristics. Tests of linear trends, such as the percent of revenue from managed care contracts by size of practice, are based on a weighted linear regression with significance at the 0.05 level. All other tests of statistical significance among estimates are based on the two-tailed t-test at the 0.05 level of significance, unless otherwise noted. Terms relating to differences, such as “greater than” or “less than,” indicate that the difference is statistically significant. A lack of comment regarding the difference between any two estimates does not mean that the difference was not tested for significance.

Results

During 2003–04, there were, on average, 161,200 office-based medical practices in the United States involving 311,200 physicians ([Table 1](#)). Although 35.8 percent of office-based physicians were in solo practice, 69.2 percent of medical practices consisted of solo practitioners ([Figure 1](#)). The one-fifth of medical practices with three or more physicians (19.5 percent) contains about one-half of all office-based physicians

(52.4 percent). The percentage of practices that are multi-specialty groups (8.4 percent) is smaller than the percentage of physicians in these practices (21.1 percent), although the percentage of practices that are in solo and single specialty groups (91.6 percent) is larger than comparable percentage of physicians in these practices (78.9 percent). The percentage of health maintenance organization (HMO) practices is only 0.5 percent, but the percentage of physicians in HMO practices is 2.0 percent.

As would be expected, the percent distribution of office visits by practice size more closely resembles the distribution of physicians than it does medical practices. Practices involving 11 or more physicians constituted only 1.2 percent of practices, but 9.8 percent of all visits occurred at these practices, since 10.7 percent of all physicians are employed there. In contrast, solo physician practitioners, who constituted 69.2 percent of all practices but 35.8 percent of all physicians, had 36.8 percent of all office-based visits. Similarly, solo and single-specialty practices and multi-specialty group practices constituted 91.6 and 8.4 percent of all practices, respectively,

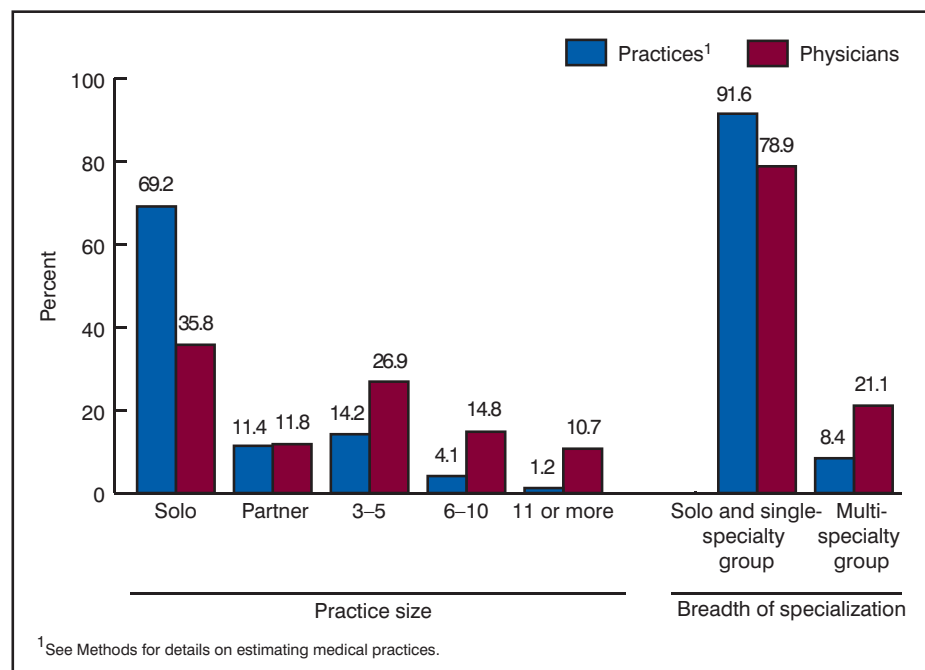


Figure 1. Percent distributions of office-based medical practices and physicians within practices by size and breadth of specialization: United States, 2003–04

and 78.9 and 21.1 percent of all physicians worked in these practices, respectively. About 79.4 and 20.6 percent of all visits, respectively, were to solo and single-specialty practices and multi-specialty group practices. With the exception of visits in the Northeast, the distribution of visits by region was similar to the distribution of medical practices. The Northeast accounted for 23.8 percent of all medical practices, but only 19.8 percent of visits. The distributions of visits and medical practices by metropolitan status were similar.

The distribution of office-based medical practices by financial and process characteristics is shown according to practice size in [Table 2](#). In general, the percent of revenue from managed care contracts increased with practice size, a pattern that reflects the association between having any managed care contracts and practice size. Conversely, the percentage of practices without managed care contracts was inversely related to practice size. A higher percentage of small practices had some or a lot of difficulty referring patients with private insurance than larger practices. Participation in a practice-based research network also increased with practice size, from 2.7 percent for solo practices to 15.2 percent for practices with 11 or more physicians. Use of electronic billing records, electronic medical records, and computerized prescription order entry each increased with practice size. Other characteristics, such as percent of revenue from selected payment sources, were not associated with practice size ([Table 2](#)). On average, medical practices received 45.1 percent of revenues from private insurance, 36.3 percent from Medicare, and 17.1 percent from Medicaid.

With regard to the adoption of information technology, 69.2 percent of practices had electronic billing records, which translates to 74.2 percent of physicians using this technology ([Figure 2](#)). The percentage of practices adopting these systems is lower than comparable percentages reported by physicians because use of these computerized clinical support systems among physicians increases with

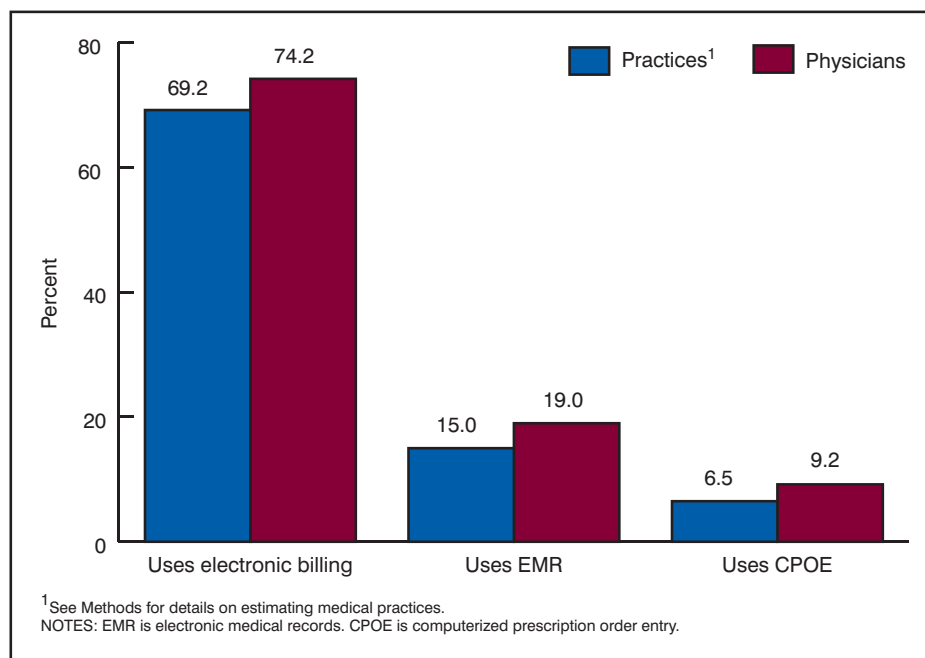


Figure 2. Percent of office-based medical practices and physicians using computerized administrative and clinical support systems: United States, 2003–04

practice size (11) and consequently contributes more frequently to the physician estimates than to practice estimates. Similarly, the percentage of practices that adopted electronic medical records (15.0 percent) was lower than the comparable percentage of physicians (19.0 percent), and the percentage of practices using computerized prescription order entry systems (6.5 percent) was lower than the comparable percentage of physicians (9.2 percent). This reflects the higher likelihood of large practices to adopt information technology and the fact that the percentage of all physicians in these practices is higher than the percentage of small practices (11).

Finally, [Table 3](#) presents solo and group practices in terms of physician specialty. In this table, the multi-specialty group column represents the residual after accounting for solo and single-specialty group practices. Among major specialties, psychiatric practices (85.6 percent) were most likely to operate as solo practices while pediatric practices were least likely to operate as solo practices (52.1 percent). Among the 69.2 percent of medical practices involving solo physicians ([Table 1](#)), the most frequent specialties were general and family practice, internal medicine, obstetrics and gynecology (data not

shown). Among the 22.4 percent of practices organized as single-specialty group practices, the top three specialties were general and family practice (17.0 percent), internal medicine (13.9 percent), and pediatrics (12.3 percent) (data not shown).

Discussion

This report provides descriptive information on medical practices during 2003–04. Practice estimates provide new perspectives on the organization and delivery of office-based ambulatory care. Because the physician sample weight is directly modified by the number of physicians in practice to yield a medical practice weight, the distribution of medical practices on characteristics associated with practice size varied distinctly from the distribution of physicians on the same characteristic. For example, the one-third of office-based physicians who are in solo practice contrasts with the finding that two-thirds of medical practices consist of solo practitioners. On the other hand, group practices, which account for one-fifth of medical practices, contain about one-half of all office-based physicians. Estimates of practices and physicians are similar on some but not all characteristics. For

example, private insurance and Medicare are the most frequent sources of revenue for practices and physicians (2). The percentage of practice revenue from managed care contracts (44.7 percent) is identical to the previously published estimate for physicians (2). The percentages of medical practices adopting electronic medical records or computerized prescription order entry systems, however, were lower than the comparable percentages reported by physicians.

The overall estimate of group practices (three or more physicians) derived from the NAMCS is roughly comparable to the estimate from the Medical Group Management Association (MGMA). The 2003–04 NAMCS estimated there were 31,400 group practices, while the MGMA study estimated 34,490 group practices in 2004 (9). The MGMA estimate, however, included radiology, anesthesiology, and pathology group practices, while the NAMCS estimate did not. After adding the MGMA estimate of anesthesia, radiology, and pathology single specialty groups to the 2003–04 NAMCS estimate, the resulting total was very close to the total in MGMA's universe of group practices (12).

Although the overall NAMCS and MGMA estimates are similar, definitional differences exist between the two data sets. The MGMA has a greater percentage of large practices and a lower percentage of small medical groups than NAMCS (12). The NAMCS percentage of large practices (11 or more physicians) among all group practices (6 percent) was smaller than the comparable MGMA percentage (15.7 percent) (12). Within practices with 11 or more physicians, the NAMCS averaged 17.7 physicians per practice compared with 49.8 physicians per practice reported by the MGMA (12). Many of these differences stem from the definition of practice size reported in the MGMA. If a medical group was "subordinate" to a larger practice, MGMA listed only the size of the "parent" organization in its data base. In contrast, the NAMCS measured

the practice size at locations where the physician saw patients; the size of the "parent" organization was not measured. Finally, the MGMA estimate included large Veterans Administration hospital practices (12); such practices were excluded from the NAMCS. Thus, the NAMCS estimates are reasonable based on the MGMA comparison as long as the scope of the NAMCS survey is taken into account.

This report has described how estimates of medical practices were derived from the NAMCS physician data. These estimates are subject to several limitations. First, practice estimates are subject to variability in how practice size is defined. For this report, practice size was assumed to be the size indicated in the first-listed location. If a different measure of size was used to estimate practices, for example, the location where the majority of patients were seen, the estimate of practices would vary. Second, practice characteristics were limited to information collected during the induction interview. The practice size might be underestimated if the sampled physician was an employee and worked with different practices at different locations. The induction interview questionnaire did not include questions that could identify this situation. Finally, practice estimates derived from sampled physician data are reasonable only for characteristics of the overall practice that do not vary by physician within a practice, such as the use of electronic medical records or number of managed care contracts (Table 2). Practice estimates from NAMCS data are not reasonable for characteristics that vary among physicians within a practice. For example, variation in physician characteristics and treatment practice patterns can be collected only from individual physicians within practices.

Policy makers interested in the structure and policies of medical practices may be interested in these data. Practice estimates are an additional way to monitor the dispersion of new technologies and policies of medical

practices that affect care provided at ambulatory medical visits.

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Table 1. Number and percent distribution of office-based medical practices, physicians within practices, and office visits with corresponding standard errors, by selected practice characteristics: United States, 2003–04

Characteristic	Medical practices ¹		Physicians within practices ²		Office visits within practices	
	Number	Standard error	Number	Standard error	Number	Standard error
Average number of physicians						
Total	161,200	5,300	311,200	8,000	908,440,000	27,969,000
Percent distribution						
Total	100.0	...	100.0	...	100.0	...
Number of in-scope office locations						
One	88.3	1.1	85.6	1.0	85.0	1.2
More than one	11.7	1.1	14.4	1.0	15.0	1.2
Practice size ³						
Solo	69.2	1.4	35.8	1.4	36.8	1.7
Partner	11.4	1.0	11.8	0.9	12.3	1.0
3–5	14.2	0.9	26.9	1.4	27.1	1.6
6–10	4.1	0.3	14.8	0.9	14.0	1.0
11 or more	1.2	0.1	10.7	0.9	9.8	0.9
Breadth of specialization						
Solo and single-specialty group	91.6	0.7	78.9	1.3	79.4	1.4
Multi-specialty group	8.4	0.7	21.1	1.3	20.6	1.4
Ownership						
Physician or group	92.0	0.8	85.7	1.2	86.9	1.3
HMO ⁴	0.5	0.1	2.0	0.4	1.7	0.4
Other	7.4	0.8	12.3	1.1	11.4	1.2
Geographic region						
Northeast	23.8	1.3	21.4	1.1	19.8	1.3
Midwest	18.1	1.0	22.3	1.0	20.9	1.1
South	35.7	1.8	33.7	1.3	38.1	1.6
West	22.3	1.3	22.6	0.8	21.2	1.1
Metropolitan status ⁵						
MSA	88.3	1.1	74.2	1.2	87.4	1.6
Non-MSA	11.7	1.1	19.0	1.3	12.6	1.6

¹See "Methods" for details on estimating practices.

²Includes nonfederal physicians who see patients in offices. Excludes radiologists, pathologists, and anesthesiologists.

³Practice size is number of physicians in the practice.

⁴HMO is health maintenance organization.

⁵MSA is metropolitan statistical area.

NOTE: Numbers may not add to totals because of rounding.

Table 2. Selected characteristics office-based medical practices by practice size with corresponding standard errors: United States, 2003–04

Characteristic	Practice size ¹						Practice size ¹					
	All practices	Solo	Partner	3–5	6–10	11 or more	All practices	Solo	Partner	3–5	6–10	11 or more
	Percent distribution						Standard error					
Number of managed care contracts												
Total	100.0	100.0	100.0	100.0	100.0	100.0
None ²	13.3	15.9	9.3	6.9	5.8	3.9	1.3	1.7	2.5	1.3	1.7	1.8
Less than 3	10.8	11.3	8.0	10.3	9.7	16.8	1.1	1.5	1.9	1.7	2.2	4.6
3–10 ²	40.9	41.9	36.4	41.8	37.0	28.7	1.7	2.2	4.3	2.8	3.9	4.5
11 or more ²	31.7	27.9	42.1	37.9	43.2	43.4	1.8	2.2	4.7	2.9	4.1	5.4
Unknown	3.2	3.0	4.1	3.1	4.4	7.1	0.9	1.1	1.6	0.9	1.2	2.2
Mean percent												
Percent of revenue from managed care contracts ^{2,3}	44.7	43.7	44.5	46.4	52.4	47.5	1.2	1.4	2.9	1.9	2.4	3.1
Percent of revenue from selected sources ⁴												
Private insurance ²	43.7	41.0	48.9	50.9	49.5	48.3	0.9	1.1	1.9	1.7	1.9	2.2
Medicare	32.2	33.5	28.8	29.1	29.2	33.4	0.9	1.1	1.7	1.5	1.8	2.6
Medicaid	13.5	13.5	13.8	12.7	15.7	9.8	0.6	0.8	1.5	1.0	1.5	1.6
Other sources ²	10.6	11.5	9.4	8.6	7.1	8.5	0.8	1.0	1.3	1.3	0.9	1.5
Any difficulty referring certain types of patients for specialty consultation ⁵												
Percent												
Medicaid	32.2	32.3	27.4	36.1	32.6	28.5	1.8	2.3	3.5	2.7	3.4	4.3
Medicare	11.0	11.5	8.3	11.0	9.4	9.9	1.0	1.3	2.2	2.0	2.1	3.2
Private insurance ²	16.2	17.4	14.0	13.6	12.5	7.2	1.3	1.8	2.3	2.1	2.8	2.8
Uninsured	33.1	33.7	29.2	34.1	31.2	28.8	1.6	2.3	3.3	2.7	3.7	4.2
Participates in practice-based research network ^{2,6}	3.8	2.7	4.8	5.5	9.7	15.2	0.7	0.7	1.8	1.8	2.7	3.5
Computerized administrative and clinical support systems ⁷												
Uses electronic billing records ²	69.2	64.4	77.9	81.8	78.8	79.5	1.5	2.0	3.0	2.1	3.0	4.1
Uses electronic medical records ²	15.0	12.9	17.4	19.5	23.5	30.2	1.2	1.3	3.0	2.6	3.2	4.3
Uses computerized prescription order entry system (CPOE) ²	6.5	4.9	6.7	11.9	14.4	10.5	0.9	1.1	1.8	2.3	2.6	2.8
Mean percent												
Percent of prescriptions written using CPOE ⁸	80.9	78.7	*	81.2	80.9	68.6	3.0	5.2	...	4.1	4.9	10.6

* Figure does not meet standards of reliability.

... Data not applicable.

¹Practice size is number of physicians in practice. See "Methods" for details on estimating practices.

²Significant weighted linear trend with practice size (p<0.05).

³Mean percent among practices with any managed care revenue. The missing value for managed care revenue is 12 percent.

⁴Mean percent of revenue among practices. Sum will approximate a percent distribution but responses were provided as a percentage for each source of revenue. Cases with missing data were excluded (6–15 percent depending on type of payment source).

⁵Missing data ranged from 12–22 percent depending on type of payment source.

⁶Missing data for practice-based research network is 9 percent.

⁷Missing values for electronic billing records is 7 percent, 1 percent each for electronic medical records and 2 percent for CPOE.

⁸Mean percent of prescriptions written among practices using CPOE. The missing value for prescriptions written using CPOE is 12 percent.

NOTE: Numbers may not add to totals because of rounding.

Table 3. Percent distribution of solo and group office-based practices with corresponding standard errors, by specialty type: United States, 2003–04

Physician specialty ¹	Total	Group			Total	Solo	Group	
		Solo	Single-specialty	Multi-specialty			Single-specialty	Multi-specialty
Percent distribution					Standard error			
Total	100.0	69.2	22.4	8.4	...	1.4	1.3	0.7
General and family practice	100.0	68.5	21.6	9.9	...	2.9	2.4	1.4
Internal medicine	100.0	70.0	18.9	11.1	...	4.2	3.3	2.2
Pediatrics	100.0	52.1	37.4	*10.5	...	6.0	5.1	2.4
Obstetrics and gynecology	100.0	68.4	23.4	*	...	5.0	4.1	...
Psychiatry	100.0	85.6	11.5	*	...	2.2	1.9	...
Orthopedic surgery	100.0	59.9	32.4	*7.7	...	5.8	5.1	2.5
Cardiovascular diseases	100.0	64.7	28.7	*6.5	...	5.4	5.0	1.5
Ophthalmology	100.0	72.9	19.4	*7.6	...	3.8	3.7	2.0
General surgery	100.0	67.3	25.4	7.3	...	4.4	3.9	1.7
Dermatology	100.0	74.4	18.6	*7.0	...	3.9	3.1	2.3
Urology	100.0	64.5	32.9	*	...	5.0	4.6	...
Otolaryngology	100.0	67.1	26.7	*6.2	...	4.7	4.2	1.9
Neurology	100.0	73.3	23.5	*3.1	...	3.7	3.5	1.0
All other specialties	100.0	70.6	20.3	9.1	...	3.2	2.8	1.7

* Figure does not meet standards of reliability.

... Data not applicable.

¹Physician specialty is defined in "Technical Notes," Table I.

NOTE: Numbers may not add to totals because of rounding.

Technical Notes

Physician specialty groups

Physician specialty is based on the 15 strata of physician specialties used for sampling purposes in the NAMCS survey design. One stratum, doctors of osteopathy, was based on information from the AOA. The “physician specialty” classification presented in this report includes the same physician specialty strata used for sampling purposes with the exception of the doctors of osteopathy stratum, which is

combined with doctors of medicine in the following 14 categories: general and family practice, internal medicine, pediatrics, general surgery, obstetrics and gynecology, orthopedic surgery, cardiovascular diseases, dermatology, urology, psychiatry, neurology, ophthalmology, otolaryngology, and a residual category of other specialties. [Table I](#) defines the 14 “physician specialty” categories in terms of self-designated subspecialty provided by the AMA and AOA. The “physician specialty” classification is updated with information provided by sampled

physicians at the time of the survey. In this classification, for example, a pediatric cardiologist is grouped with other pediatricians.

It should be noted that although emergency medicine physicians made up 2.5 percent of sampled physicians in 2003–04 and are included in the physician specialty category “all other specialties,” few of these physicians are included in the NAMCS. They often fall outside the scope for the survey because they rarely see patients in an office setting.

Table I. Reclassification of physician specialty based on American Medical Association subspecialty designations for use in the National Ambulatory Medical Care Survey

Physician specialty	Subspecialty designation
General and family practice	FP - Family practice
	FPG - Family practice, geriatric medicine
	FSM - Sports medicine (family practice)
	GP - General practice
Internal medicine	IM - Internal medicine
Pediatrics	ADL - Adolescent medicine
	CCP - Critical care pediatrics
	DBP - Developmental-behavioral pediatrics
	MPD - Internal medicine (pediatrics)
	NDN - Neurodevelopmental disabilities
	NPM - Neonatal-perinatal medicine
	PD - Pediatrics
	PDA - Pediatric allergy
	PDC - Pediatric cardiology
	PDE - Pediatric endocrinology
	PDI - Pediatric infectious diseases
	PDP - Pediatric pulmonology
	PDT - Medical toxicology (pediatrics)
	PEM - Pediatric emergency medicine
	PG - Pediatric gastroenterology
	PHO - Pediatric hematology or oncology
	PN - Pediatric nephrology
PPR - Pediatric rheumatology	
PSM - Sports medicine (pediatrics)	
General surgery	GS - General surgery
Obstetrics and gynecology	GO - Gynecological oncology
	GYN - Gynecology
	MFM - Maternal and fetal medicine
	OBG - Obstetrics and gynecology
	OBS - Obstetrics
	OCC -Critical care medicine (obstetrics and gynecology)
	REN - Reproductive endocrinology
Orthopedic surgery.	OAR - Adult reconstructive orthopedics
	OFA - Foot and ankle orthopedics
	OMO - Musculoskeletal oncology
	OP - Pediatric orthopedics
	ORS - Orthopedic surgery
	OSM - Sports medicine (orthopedic surgery)
	OSS - Orthopedic surgery of the spine
	OTR - Orthopedic trauma
Cardiovascular diseases	CD - Cardiovascular diseases
Dermatology.	D - Dermatology
Urology.	U - Urology
	UP - Pediatric urology

Table I. Reclassification of physician specialty based on American Medical Association subspecialty designations for use in the National Ambulatory Medical Care Survey—Con.

Physician specialty	Subspecialty designation
Psychiatry	ADP - Addiction psychiatry
	CHP - Child psychiatry
	NUP - Neuropsychiatry
	P - Psychiatry
	PFP - Forensic psychiatry
	PYA - Psychoanalysis
Neurology	PYG - Geriatric psychiatry
	CHN - Child neurology
	CN - Clinical neurophysiology
	ESN - Endovascular surgical neuroradiology
Ophthalmology	N - Neurology
	NRN - Neurology (diagnostic radiology)
	OPH - Ophthalmology
Otolaryngology	PO - Pediatric ophthalmology
	NO - Otolaryngology
	OTO - Otolaryngology
All other	PDO - Pediatric otolaryngology
	A - Allergy
	ADM - Addiction medicine
	AI - Allergy and immunology
	ALI - Allergy and immunology or diagnostic laboratory immunology
	AM - Aerospace medicine
	AMI - Adolescent medicine (internal medicine)
	AS - Abdominal surgery
	CBG - Clinical biochemical genetics
	CCG - Clinical cytogenetics
	CCM - Critical care medicine
	CCS - Critical care surgery
	CFS - Craniofacial surgery
	CG - Clinical genetics
	CMG - Clinical molecular genetics
	CRS - Colon and rectal surgery
	CS - Cosmetic surgery
	DDL - Dermatological immunology or diagnostic laboratory immunology
	DIA - Diabetes
	DS - Dermatologic surgery
	EM - Emergency medicine
	END - Endocrinology
	EP - Epidemiology
	ESM - Sports medicine (emergency medicine)
	ETX - Medical toxicology (emergency medicine)
	FPS - Facial plastic surgery
	GE - Gastroenterology
	GPM - General preventive medicine
	HEM - Hematology
	HEP - Hepatology
	HNS - Head and neck surgery
	HO - Hematology or oncology
	HS - Hand surgery
	HSP - Hand surgery (plastic surgery)
	HSS - Hand surgery (surgery)
	IC - Interventional cardiology
	ICE - Cardiac electrophysiology
	ID - Infectious diseases
	IG - Immunology
	ILI - Internal medicine or diagnostic laboratory immunology
	IMG - Geriatric medicine (internal medicine)
	ISM - Sports medicine (internal medicine)
	LM - Legal medicine
	MDM - Medical management
	MG - Medical genetics
	NEP - Nephrology
	NS - Neurological surgery
	NSP - Pediatric surgery (neurology)
	NTR - Nutrition
	OM - Occupational medicine
OMF - Oral and maxillofacial surgery	
OMM - Osteopathic manipulative medicine	

Table I. Reclassification of physician specialty based on American Medical Association subspecialty designations for use in the National Ambulatory Medical Care Survey—Con.

Physician specialty	Subspecialty designation
All other—Con.	ON - Medical oncology
	PA - Clinical pharmacology
	PCC - Pulmonary critical care medicine
	PCS - Pediatric cardiothoracic surgery
	PDS - Pediatric surgery
	PE - Pediatric emergency medicine (emergency medicine)
	PHM - Pharmaceutical medicine
	PHP - Public health or general preventive medicine
	PLI - Pediatric diagnostic laboratory immunology
	PLM - Palliative medicine
	PM - Physical medicine and rehabilitation
	PMD - Pain medicine
	PMM - Sports medicine (physical medicine and rehabilitation)
	PRM - Pediatric rehabilitation medicine
	PRO - Proctology
	PS - Plastic surgery
	PSH - Plastic surgery within the head and neck
	PTX - Medical toxicology (preventive medicine)
	PUD - Pulmonary diseases
	RHU - Rheumatology
	SCI - Spinal cord injury
	SM - Sleep medicine
	SO - Surgical oncology
	TRS - Traumatic surgery
	TS - Thoracic surgery
	TTS - Transplant surgery
	UCM - Urgent care medicine
	UM - Undersea medicine
	VM - Vascular medicine
	VS - Vascular surgery
	OS - Other specialty
	US - Unspecified

Section II - INDUCTION INTERVIEW - Continued

Ask item 16a ONCE to obtain total for ALL in-scope locations.

16a. During the week of Monday, _____ through Sunday, _____ How many days do you expect to see any ambulatory patients? (Only include days at in-scope locations.)
Note: If physician is unavailable or refuses to participate, enter number of days in a normal week. Edit **Estimated Number of Days** →

Enter street name or town of in-scope location(s).
NOTE: Keep the location numbers the same as the office numbers in item 15a.

	Office location No.			
_____	#1	#2	#3	#4

b. During that week, approximately how many ambulatory patient visits do you expect to have at each office location?
Note: If physician is unavailable or refuses to participate, enter number of visits in a normal week. Edit **Estimated Number of Total Visits** →

	Number of visits			
_____	_____	_____	_____	_____

Now, I'm going to ask about your practice at (in-scope location).

17a. Do you have a solo practice, or are you associated with other physicians in a partnership, in a group practice, or in some other way (at this/that in-scope location)?

Office Location	#1	#2	#3	#4
Solo 1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
Nonsolo 2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>

If Solo, SKIP to item 17d.

b. How many other physicians are associated with you (at this/that in-scope location)?
 How many → _____

c. Is this a single- or multi-specialty group practice (at this/that in-scope location)?

Multi 1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
Single 2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>

d. Are you a full- or part-owner, employee, or an independent contractor (at this/that in-scope location)?
If "Owner" is marked then automatically mark "Physician or physician group" in item 17e.

Owner 1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
Employee 2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
Contractor 3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>

e. Who owns the practice (at this/that in-scope location)?

Physician or physician group 1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
HMO 2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
Medical/ Academic health center 3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
Other hospital 4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
Other health care corp 5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>
Other - Specify for <input checked="" type="checkbox"/> 6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>

Location #1 → _____
 Location #2 → _____
 Location #3 → _____
 Location #4 → _____

18. Is any laboratory testing performed in the office (at this/that in-scope location)?

Yes 1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
No 2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>

RETURN TO ITEM 17a FOR NEXT IN-SCOPE LOCATION

Figure I. Excerpts from the 2004 Physician Induction Interview (PII) form

Section II - INDUCTION INTERVIEW - Continued	
<p>19a. During your last complete week of practice, about how many encounters of the following type did you make with patients:</p> <p>(1) Office visits</p> <p>(2) Home visits (including nursing homes)</p> <p>(3) Hospital visits</p> <p>(4) Telephone consults</p> <p>(5) Internet/e-mail consults</p> <p><i>The following question is concerned with the Emergency Medical Treatment and Labor Act of 1986 (EMTALA).</i></p> <p>b. In a typical week, how many hours do you spend providing EMTALA mandated care?</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-top: 10px;"> <p>PROBE - We are interested in all hours spent screening and stabilizing patients, regardless of whether you were compensated for them.</p> </div>	<p>Number of encounters per week <input checked="" type="checkbox"/></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Number of hours <input checked="" type="checkbox"/></p> <p>_____</p>
<p>20. Are you a member of a practice-based research network (PBRN)?</p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't know</p>
<p>21a. For the medication prescriptions written in your practice, do you use a computerized prescription order entry (CPOE) system?</p> <p>FR NOTE - CPOE refers to a computer-based system for ordering medications that helps to reduce errors by automating the medication ordering process.</p>	<p>1 <input type="checkbox"/> Yes - Continue with item 21b 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't know } SKIP to item 22a</p>
<p>b. Approximately, for what percent of medication prescriptions written do you use the CPOE?</p>	<p>Percent of prescriptions using CPOE <input checked="" type="checkbox"/></p> <p>_____ %</p>
<p>22a. Does your practice use electronic MEDICAL RECORDS (not including billing records)?</p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't know</p>
<p>b. Does your practice submit claims electronically? (Electronic billing)</p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't know</p>

Section II - INDUCTION INTERVIEW - Continued

Ask items 23 and 24 ONCE for ALL in-scope locations.

23. I would like to ask a few questions about your practice revenue and contracts with managed care plans.

a. Roughly, what percent of your practice revenue from patient care comes from -

(1) Medicare?.....

(2) Medicaid?.....

(3) Private insurance?

(4) Other? -(including charity, research, CHAMPUS, VA, etc.)

Percent of practice revenue \nearrow

_____ %

_____ %

_____ %

_____ %

FR NOTE - Categories should sum close to 100%.

b. Roughly, how many managed care contracts does this practice have such as HMOs, PPOs, IPAs, and point-of-service plans?

If necessary read: **Managed care includes any type of group health plan using financial incentives or specific controls to encourage utilization of specific providers associated with the plan.**

FR NOTE - Include Medicare managed care and Medicaid managed care, but not traditional Medicare and Medicaid. Include any private insurance managed care plans. Be sure the response is about contracts and not patients.

Include all the different plans an insurance provider may have and for which the physician has a contract. For example, the physician may have a contract for each of the plans Aetna may offer: a PPO, IPA, and point-of-service plan. This would equal 3 contracts, not 1 contract. It may be necessary to obtain information from the billing office of the practice.

- 1 None - SKIP to item 24a on page 12.
- 2 Less than 3
- 3 3 to 10
- 4 More than 10

c. Roughly, what percentage of the patient care revenue received by this practice comes from (these) managed care contracts?

Percent of revenue from managed care \nearrow

_____ %

Edit

NOTES

Section II – INDUCTION INTERVIEW – Continued

24a. Are you currently accepting "new" patients into your practice(s) (at in-scope locations)?

- 1 Yes
- 2 No – *SKIP to item 25*
- 3 Don't know – *SKIP to item 25*

b. From those "new" patients, which of the following types of payment do you accept (at in-scope locations)?

(1) Private insurance –

(a) Capitated?.....

- 1 Yes 2 No 3 Don't know

(b) Non-capitated?.....

- 1 Yes 2 No 3 Don't know

(2) Medicare?

- 1 Yes 2 No 3 Don't know

(3) Medicaid?

- 1 Yes 2 No 3 Don't know

(4) Workers compensation?

- 1 Yes 2 No 3 Don't know

(5) Self-pay?

- 1 Yes 2 No 3 Don't know

(6) No charge?

- 1 Yes 2 No 3 Don't know

25. On a 4-point scale from a lot of difficulty, some, little, or no difficulty, in the last 12 months, has your practice experienced any difficulty in referring patients with the following types of health insurance for specialty consultations?

A lot of difficulty	Some difficulty	Little difficulty	No difficulty	Don't know
---------------------	-----------------	-------------------	---------------	------------

(a) Medicaid

- | | | | | |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> | 5 <input type="checkbox"/> |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|

(b) Medicare

- | | | | | |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> | 5 <input type="checkbox"/> |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|

(c) Private insurance

- | | | | | |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> | 5 <input type="checkbox"/> |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|

(d) Uninsured

- | | | | | |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> | 5 <input type="checkbox"/> |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|

NOTES

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