



Accuracy of Available Data on the Supply of Patient Care Physicians in New Jersey

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Introduction

Timely data regarding the supply of patient-care physicians is vital for physician workforce planning. Although rapidly rising medical malpractice insurance premiums have magnified concerns in recent years about the adequacy of the physician supply in certain high-risk specialties, detailed and accurate physician supply data have long been important to policymakers seeking to ensure that inner-city and rural populations have acceptable levels of access to care.

The primary source of physician workforce data in the United States for most health services researchers and government officials is the American Medical Association (AMA) Physician Masterfile (American Medical Association, 2004). AMA Masterfile data are collected from multiple sources, including directly from physicians and from organizations such as medical schools, medical residency programs, state licensing agencies, and specialty certification boards. Each physician record in the Masterfile includes information on demographics, medical school and year of graduation, residency training, practice specialty, practice type, and other physician data. Physician records are continuously updated using sources such as the survey of Physicians' Professional Activities (PPA), the Census of Medical Groups (CMG), and the Accreditation Council for Graduate Medical Education (ACGME).

The AMA Physician Masterfile has also served as the primary source of information for New Jersey policymakers concerned with the adequacy of physician supply. Most recently, the New Jersey Medical Care Access and Responsibility and Patients First Act (N.J.S.A.2A:53A-37 et al.), signed into law in June 2004, requires that the Commissioner of the Department of Banking and Insurance (DOBI) determine which medical specialties are eligible

In This Facts & Findings

Policymakers in New Jersey and around the nation rely on physician workforce data from the American Medical Association (AMA) to measure the adequacy of physician supply. This Facts & Findings explores the accuracy of the AMA Physician Masterfile data for New Jersey physicians by comparing it to data reported by physicians in a survey conducted in 2002 by the Center for State Health Policy (CSHP). Compared to the CSHP survey, the AMA Masterfile accurately classifies many characteristics of New Jersey physicians with some important exceptions; problem areas include:

- AMA data appear to undercount retired or inactive physicians by about half.
- There was poor agreement between the data sources on the number of physicians practicing gynecology, radiology, and certain other specialties.
- Race and ethnicity information is missing for nearly 1 in 4 physicians in the AMA database, and race/ethnicity recorded in the Masterfile frequently did not match that by physicians on the CSHP survey.
- The AMA Masterfile data may be slow to capture recent changes in the physician workforce such as early retirement or shifts in specialty distribution (e.g., from obstetrics/gynecology to gynecology only).

for malpractice insurance premium subsidies. In making this determination, the law provides that the DOBI Commissioner may, in consultation with the Commissioner of Health and Senior Services, consider whether "...access to care for a particular specialty is threatened..." (C.17:30D-3(2)e). Rutgers Center for State Health Policy (CSHP) was commissioned by the New Jersey DOBI to provide information about the availability of physician services in New Jersey in assisting the Commissioner in the implementation of this provision of the Act.

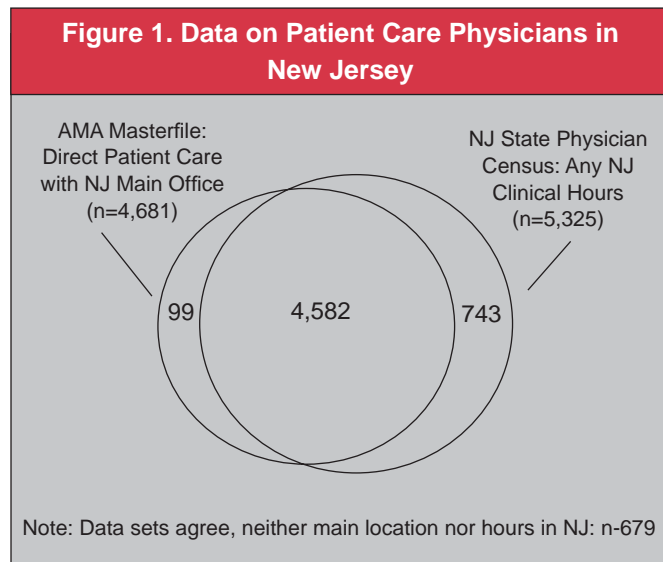
To provide the best available estimates of physician supply by specialty and county for use in meeting the

requirements of the Act, CSHP matched detailed year-end American Medical Association Physician Masterfile data for the years 2001, 2003, 2004, and 2005 to New Jersey Board of Medical Examiners licensure lists for the respective years (Cantor, Brownlee, & Huang, 2006). Main practice specialties provided in the AMA Masterfile data were mapped as closely as possible to the Insurance Service Organization list of specialties provided by DOBI. New Jersey population data by county for the respective years were used to calculate physician-to-population ratios by specialty. All analyses were limited to physicians designated by the AMA Masterfile as active in patient care with a main office location in New Jersey. To evaluate the adequacy of supply, New Jersey physician-to-patient ratios were compared to benchmark figures (Weiner, 2004) and to U.S. supply (Smart, 2006).

This report explores the accuracy of the AMA Masterfile data which were used to compile the physician supply findings. This was done by comparing the 2001 AMA data to the New Jersey State Physician Census, a survey of physicians licensed in the state for the year 2001. The data for the respondents to the survey were matched to their AMA Masterfile data, and the two data sources were then compared on a number of physician characteristics. The results show that the AMA Masterfile data accurately classify New Jersey physicians on most characteristics with the exception of race/ethnicity, current work status, and some specialties.

Previous Research on the AMA Physician Master File

Physician workforce supply analysis depends on accurate and timely data. Several recent studies have investigated the accuracy of the AMA Masterfile data (Freed, Nahra, & Wheeler, 2006; Konrad, Slifkin, Stevens, & Miller, 2000; Rittenhouse, Mertz, Keane, & Grumbach, 2004; Williams, Whitcomb, & Kessler, 1996; Shea, Kletke, Wozniak, Polsky, & Escarce, 1999). The results have been mixed. Although the AMA Masterfile seems to perform reasonably well at estimating overall physician supply at the state and national level, some discrepancies have been discovered. These errors may be particularly worrisome in small-area analyses



of workforce supply, for instance at the county or town level, or in analyses examining the adequacy of supply of less common physician specialties.

Several different types of errors have been identified in the Masterfile data (e.g., CECS, 2006). One involves the timeliness of the data. As physicians change practice locations, there may be a failure to update this data or a delay in updating it. This would hold more serious implications in places such as rural or underserved medical areas where physician turnover may be greater. This lag in updating records also is problematic for specialty designation. Some physicians start in generalized specialties and later move to specialized ones; a failure to update the designated specialty would thus result in an underestimation of specialists and an overestimation of primary care physicians.

Another type of error involves the scope of the data. For instance, the Masterfile data only lists one office address for each physician, and yet many physicians today practice in multiple locations and settings. County and even state workforce supply analyses could be negatively impacted by this. A related type of error is the omission of physician effort at each of these locations; any physician with more than one office location is most likely not practicing full-time at any one of these locations, and yet they are counted as a full-time equivalent for the one location listed. Problems in identifying physician location and allocation of effort across locations may be of particular concern in New Jersey with its close proximity to major out-of-state medical centers.

Table 1: Accuracy of American Medical Association Physician Masterfile Physician Demographics and Specialty Classification Among New Jersey State Physician Census Respondents

	2001 AMA Data Total NJ LP ^a N= 32, 857		2001 AMA Matched ^b Data N= 8,150		2002 Census Data N= 8,150		% Disagree- ment
	N	%	N	%	N	%	%
Gender							
Male	24,491	74.5	6,048	74.2	5,980	73.4	0.5
Female	8,366	25.5	2,009	24.7	2,031	24.9	2.4
Missing	0	0	93	1.1	139	1.7	---
Age (in 2002)							
Under 35	2,354	7.2	429	5.3	464	5.7	3.7
35-44	9,194	28.0	1,871	23.0	1,851	22.7	1.7
45-54	10,272	31.3	2,491	30.6	2,417	29.7	1.5
55-64	6,260	19.1	1,624	19.9	1,559	19.1	2.6
65 and older	4,713	14.3	1,637	20.1	1,457	17.9	1.9
Missing	64	0.2	98	1.2	402	4.9	---
Ethnicity							
White, non-Hispanic	17,004	51.8	5,109	62.7	6,101	74.9	2.0
Black, non-Hispanic	986	3.0	172	2.1	211	2.6	9.1
Hispanic	886	2.7	173	2.1	1,235	15.2	90.4
Asian	4,508	13.7	959	11.8	133	1.6	47.7
All other	1,338	4.1	209	2.6	201	2.5	79.9
Missing	8,135	24.8	1,528	18.7	269	3.3	---
Birthplace							
U.S.	20,036	61.0	5,640	69.2	5,792	71.1	0.5
Other	6,769	20.6	1,329	16.3	1,999	24.5	1.4
Missing	6,052	18.4	1,181	14.5	359	4.4	---
Medical School Location							
U.S. Medical School	19,777	60.2	5,334	65.4	4,679	57.4	0.8
Foreign Medical Grad	12,076	36.8	2,355	28.9	2,222	27.3	6.5
U.S. Born	---	---	---	---	641	7.9	---
Foreign Born	---	---	---	---	1,581	19.4	---
Retired/Inactive	1,004	3.1	368	4.5	---	---	---
Missing	0	0	93	1.1	1,249	15.3	---

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Table 1: Accuracy of American Medical Association Physician Masterfile Physician Demographics and Specialty Classification Among New Jersey State Physician Census Respondents (Continued)

	2001 AMA Data Total NJ LP ^a N= 32, 857		2001 AMA Matched ^b Data N= 8,150		2002 Census Data N= 8,150		% Disagree- ment
	N	%	N	%	N	%	
Work Status							
Active	28,494	86.7	7,167	87.9	6,879	84.4	3.7
Resident	1,551	4.7	219	2.7	383	4.7	82.4
Retired	751	2.3	307	3.8	621	7.6	62.0
Not Active	253	0.8	61	0.7	227	2.8	93.9
Missing	1,808	5.5	396	4.9	40	0.5	---
Primary Care Specialties							
General/Family Practice	2,592	7.9	659	8.1	624	7.7	15.8
Internal Medicine	9,030	27.5	1,990	24.4	1,680	20.6	5.5
Obstetrics/Gynecology	1,832	5.6	487	6.0	380	4.7	3.2
Gynecology Only	84	0.3	36	0.4	90	1.1	76.4
Pediatrics	3,126	9.5	937	11.5	805	9.9	5.3
Surgical Specialties							
Surgery	5,000	15.2	1,283	15.7	1,119	13.7	4.3
Neurosurgery Only	177	0.5	44	0.5	38	0.5	5.6
Hospital Based Specialties							
Anesthesiology	1,904	5.8	349	4.3	324	4.0	4.0
Pathology	749	2.3	190	2.3	149	1.8	6.9
Radiology	299	0.9	66	0.8	66	0.8	23.4
Diagnostic Radiology Only	1,571	4.8	295	3.6	248	3.6	5.3
Other Specialties							
Psychiatry	2,036	6.2	519	6.4	484	5.9	3.8
Other Specialty	3,068	9.3	745	9.1	936	11.5	35.5
Retired/Inactive Physicians	1,004	3.1	368	4.5	---	---	---
Missing	385	1.2	182	2.2	1,207	14.8	---

^a New Jersey licensed physicians

^b AMA data was matched on the Census' 8,150 respondents

^c Percent disagreement between AMA matched data and Census data (N=8,150 Census respondents). All results shown in this column are significant at the 0.05 p-value level based upon chi-square tests.

Note: The 8,150 Census sample includes 93 individuals who were not present in the AMA 32,857 sample; thus, the number of missing cases in column 2 is greater than the number of missing cases in column 1.

Results

Table 1 offers the results for all physicians licensed in the state of New Jersey along with the matched AMA/survey data for all survey respondents. Column 1 contains AMA Masterfile data for all 32,857 physicians licensed in New Jersey as of year-end 2001. Columns 2 and 3 contain data only for the 8,150 respondents to the 2002 New Jersey State Physician Census: column 2 contains the AMA Masterfile data for these respondents, while column 3 contains their actual survey responses. The final column lists the percent disagreement between columns 2 and 3.

The demographic variables show high comparability between the Masterfile data and survey data, with the exception of race/ethnicity. The Masterfile data has a large amount of missing race/ethnicity data (18.7%), and for those whose race/ethnicity is reported, the percent disagreement between the Masterfile data and the survey data is quite high. This is particularly true for Hispanics (90.4%), Asians (47.7%), and “all others” (79.9%). The percent disagreement for non-Hispanic blacks is 9.1%.

For work status, the percent disagreement for resident, retired, and not active are also very high. While some of this error may be due to the slightly different time frames between the year-end AMA Masterfile data and the survey data (roughly 6 months on average), the discrepancies are unlikely to be completely attributed to this.

The results for primary specialty vary considerably across specialties. Gynecology shows a high percent disagreement (76.5%) between the AMA Masterfile data and the survey data. This may be due to a lag in physicians updating their specialty, as many OB/GYNs may be transitioning to gynecology only due to rises in medical malpractice premiums in the state. The high percent disagreement for radiology may also be rooted in a similar cause if physicians have shifted from diagnostic radiology. The high disagreement rates for family practitioners (15.8%) and “other specialties” (35.5%) may be due to physicians moving to more specialized areas as they progress in their careers, but the data records may not have been updated in the AMA Masterfile.

A similar comparison was made using only those physicians who provide direct patient care and whose main office location according to the AMA Masterfile is in New Jersey. There was very little difference from the above results shown in Table 1.

Figure 1 compares the number of physicians whose main office location is in New Jersey according to the AMA Masterfile to the number of physicians whose survey responses indicate that they provide direct patient care in New Jersey. Although these data do not necessarily represent data inaccuracies in the AMA Masterfile, it does underscore problems with the scope of the AMA data in listing only one office location. Of the 5,325 physicians who, according to the survey, had any hours providing clinical care in New Jersey, 743 or 14% did not have a main office location in New Jersey according to the AMA Masterfile.

Conclusions

The AMA Masterfile appears to accurately classify New Jersey physicians regarding many characteristics. However, on certain variables such as race/ethnicity and some specialties, there are high rates of misclassification according to the New Jersey State Physician Census. Some of the specialty categories that appear subject to the most misclassification (e.g., gynecology and radiology) have also experienced the most turmoil in malpractice premiums, raising questions about the timeliness of supply estimates for these groups. A growing number of states have elected to conduct their own regular physician surveys (Association of American Medical Colleges, 2006). New Jersey would be well served by developing a physician survey of its own.

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CSHP's Facts & Findings

This is the seventh in a series of *Facts & Findings* from Rutgers Center for State Health Policy. These briefs highlight findings from major research initiatives at the Center, including the New Jersey Family Health Survey and the New Jersey State Physician Census.

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Rutgers Center for State Health Policy

Contributing to this issue:

Tonya Jones, B.S., Research Assistant
Susan Brownlee, Ph.D., Survey Research Analyst
Joel C. Cantor, Sc.D, Professor & Director
Jeff Abramo, B.S., Senior Writer

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Methods

In order to assess the accuracy of the AMA Masterfile data in New Jersey, we compared the Masterfile data to data from the NJ State Physician Census, a survey of all physicians licensed in the state for the year 2001. The New Jersey State Physician Census was conducted by Rutgers Center for State Health Policy (CSHP) in collaboration with the New Jersey Board of Medical Examiners and the NJ Commission on the Physician Workforce. This survey of all physicians licensed in New Jersey was conducted by mail, web, and telephone from July through October 2002, with a response rate of 26.6%, or 8,150 physicians total. The survey was funded by the Robert Wood Johnson Foundation and endorsed by major health groups statewide. We matched all respondents to the survey to the AMA Masterfile data for year-end 2001. For respondents to the State Physician Census, we assumed the responses to survey questions are more accurate than Masterfile data for these same individuals. We then compared the two data sources on a number of physician characteristics, including demographics (gender, age, ethnicity, and birthplace), work status, primary specialty, office location, and medical school location.

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Rutgers Center for State Health Policy

The Institute for Health, Health
Care Policy and Aging Research
Rutgers, The State University of New Jersey
55 Commercial Avenue, 3rd Floor
New Brunswick, NJ 08901-1340
Ph: 732.932.3105 Fx: 732.932.0069
cshp_info@ifh.rutgers.edu
www.cshp.rutgers.edu

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