The Association of Medical Education with Primary Care Physicians' Medicaid Participation: Exploring the 2016 Medicaid Claims

Introduction

Medicaid and the Children's Health Insurance Program (CHIP) provide health insurance to more than 80 million of the country's most vulnerable populations, including low-income children, pregnant women, adults, seniors, and people with disabilities.[1] For these individuals, Medicaid participation; whether and how much healthcare providers accept Medicaid patients is a critical determinant of healthcare access. However, evidence suggests that healthcare providers are less likely to accept patients with Medicaid coverage compared to those with private insurance or Medicare.[2] Several factors are associated with lower Medicaid participation such as lower payments under Medicaid programs, higher administrative burdens along with provider-level factors such as their demographic characteristics (age, gender, race and ethnicity) and features of their medical training such as their specialty and profession.[3]

Education and training are also important determinants of a physician's practice styles. Many studies have examined the role of medical schools in influencing their graduates' outcomes, including specialty choice, the likelihood of practicing in underserved communities and practice patterns.[4,5,6,7] Not much is known about the impact of the medical schools attended by providers on their Medicaid participation. Only one study by Geissler et al. showed that a higher rank in the US News and Report ranking of medical school is associated with lower level of Medicaid participation by that school's graduates.[8] However, it is unclear how factors such as type of ownership, type of degree conferred, class enrollment size has any impact on the Medicaid participation of its graduates. Using national-level Medicaid claims data, we estimate the Medicaid participation and the intensity of Medicaid participation of the primary care graduates by medical and osteopathic schools. We also examine the association between primary care providers' medical school characteristics and their likelihood of participating in Medicaid.

Methods

Data

We used several data sources for the study. Our first data source is the 2016 national-level Medicaid claims from the Transformed Medicaid Statistical Information (T-MSIS) data. Our second data source is the 2016 American Medical Association (AMA) Masterfile used to identify each providers' medical school. The National Plan & Provider Enumeration System (NPPES) data

was our third source of data for classifying provider specialties. Additionally, we used data for the years 2011 and 2012 from the Integrated Postsecondary Education Data System (IPEDS) to identify medical school characteristics. We supplemented these data sets with information on medical schools collected by the Association of American Medical Colleges (AAMC) and the American Association of Colleges of Osteopathic Medicine (AACOM) for osteopathic schools.

Sample

We linked the AMA Masterfile data to T-MSIS and to the NPPES using National Provider Identifiers (NPIs). We used information from T-MSIS Other Services (OT) and Pharmacy (Rx) files and identified unique providers using their NPI. We matched NPIs from T-MSIS to the National Plan & Provider Enumeration System (NPPES) data to determine provider specialties.

Figure 1 below describes the multi-stage sample derivation process. Since our primary data sources included information at the provider-level (AMA Masterfile and T-MSIS), the first stage of sample derivation process focused on providers. Using the AMA Masterfile, we began by identifying all graduates from medical schools in United States during the period 2009 to 2012 to capture the workforce that is likely to be practicing post-residency and hence billing in the 2016 Medicaid claims. First, we excluded all graduates who were indicated as being inactive in the AMA Masterfile (158). Next, we excluded international medical graduates (19,951). Further, we excluded providers that did not practice in 50 contiguous states, Alaska on Hawaii (537). Finally, we excluded providers for whom data was missing in the NPPES (40). Thus, we had a sample of 75,057 medical graduates in the first stage.

In the second stage of sample derivation, we collapsed (summarized) data on providers to the medical school-level. We began with a sample of 155 medical schools and obtained the total number of graduates and the number of graduates that practiced primary care from each school. We also obtained the number of graduates that served any Medicaid patients in 2016. We limited our Medicaid participation analysis to primary care specialties, including family medicine, general internal medicine, general pediatric, and obstetrics and gynecology (Ob/Gyn). We excluded any physician in residency in the 2016 AMA Masterfile, as additional training indicates further specialization. Next, we merged this medical school-level data with information on school characteristics using medical school codes found both in the AMA Masterfile, AAMC and AACOM data sets. Finally, we used school zip codes to match this combined data with IPEDS data for the years 2011 and 2012. We excluded schools for which data was missing on any study measures (15). The final sample consisted of 140 medical schools for which complete data were available.

Measures

Our primary measure for each school was Medicaid participation by its primary care graduates defined in three ways: 1) the proportion of primary care graduates that served any Medicaid patients in 2016, 2) the proportion of primary care graduates that served at least 11 patients in 2016, and 3) the proportion of primary care graduates that served 100 or more patient in 2016. For each measure, we used the number of graduates that appeared in T-MSIS 2016 and satisfied

the measure criterion as the numerator and divided it by the total number of primary care graduates from each school. We also analyzed the proportion of graduates that practiced primary care for each school.

Data Quality

Data quality in the T-MSIS files varies across states. CMS provides analysis of T-MSIS data quality through the DQ Atlas. We utilized DQ Atlas data quality assessment for claims volume completeness and the Prescribing NPI completeness for the RX file to determine usability of the data for each school. We used the RX file data quality based on our analysis, which suggests the RX file overall captures more Medicaid providers and few Medicaid providers are uniquely identified through the OT file. As medical school graduates can relocate across state lines, we report the percent of primary care graduates for each school practicing in a state with low data quality and not present in the T-MSIS claims set. Those present in T-MSIS can be identified as providing service to the Medicaid population.

Analysis

We conducted descriptive analysis to examine school characteristics, followed by bivariate analysis to understand the association between individual school characteristics and Medicaid participation of its graduates. All analysis was performed using Stata 17 (StataCorp).

Results

Proportion of practicing primary care graduates serving any Medicaid patients ranged between 82-100%

Between 2009 to 2012, we identified 75,057 physicians graduated from 155 U.S. medical and osteopathic schools, of which 32% practiced primary care (23,875). Table 1 presents the percentage of Medicaid participation by primary care graduates for each of the 155 medical and osteopathic schools identified in our sample. The proportion of PCP physicians serving Medicaid patients varied considerably between schools, with 100% Medicaid participation to 82% Medicaid participation. The overall proportion of primary care providers that served at least 11 Medicaid patients in the year 2016 was 82.5%. However, we find that the percentage of graduates who see 11 or more graduates, varied significantly by school, with a high of 96% participation to a low of 67% participation. Only 53.6% of primary care physicians served at least 100 Medicaid patients, which ranged from 27.2% to 83.2% across schools.

Table 2 provides additional information on the characteristics of medical schools in our study sample. Out of the 140 schools for which we had data on the school characteristics, about 15.7% schools conferred DO degrees and about 53.6% were publicly owned. We categorized schools based on the size of their graduating class where a school with higher than median (450) number of graduates was categorized as a 'large class-size'. Approximately 54% of the schools in our sample had a large class-size. About 15% schools were community-based, as categorized in the AAMC data (we did not have this information for osteopathic schools).

Next, bivariate analyses using two-tailed t-tests (Table 3) examined the unadjusted association between the identified school characteristics and the Medicaid participation. We find that being an osteopathic school, having a public ownership status and smaller enrollment sizes were statistically associated with higher proportion of graduates participating in Medicaid.

Discussion

In this study, we provide estimates for Medicaid participation at the physicians' medical school-level. To our knowledge this is the first study that examines Medicaid participation by medical schools' graduates practicing in primary care specialties using administrative claims data. Primary care physicians' Medicaid participation rates are related to a confluence of complex and inter-twined factors, including school's ownership, class-size and the type of degree conferred.

Our study is relevant to the broader inquiry into understanding the "social mission" of health professionals' education. The social mission of medical schools is the idea of holding medical schools accountable to train physicians to care for the population as a whole, considering such issues as primary care, underserved areas, and workforce diversity.[9,10,11] Thus, whether medical school graduates provide care for Medicaid populations could be an important metric on whether they meet the social mission. The study's approach has several strengths that can contribute to knowledge in this area. First, by leveraging Medicaid claims data we are able to examine both - overall Medicaid participation and the intensity of Medicaid participation measured in terms of total number of Medicaid beneficiaries served by each provider. This is a major improvement over existing research which rarely includes a measure for service intensity. Secondly, we address the bias of overestimating Medicaid participation as in previous research in this area which relied on providers 'self-report of Medicaid acceptance. Third, we are able to provide a potential tool to track graduate outcomes for medical schools and examine practice patterns which can inform important strategies to improve Medicaid participation that can be implemented during medical education. Finally, by providing acceptance of Medicaid at the medical-school level we are able to provide state-policy makers important markers for graduate medical education reforms to hold schools accountable for their social mission towards the communities they serve.

The study findings should be viewed in light of its limitations. While previous literature informed possible medical school characteristics we used in this study, there were several factors that were not measurable either due to unavailability of data or missing data for a significant number of the schools in our sample. This limited our ability to examine a robust set of school-level characteristics such as tuition-level, availability of scholarships including loan repayment programs and research-intensity at the institution, all of which can also impact Medicaid participation.[9] Finally, we recognize that while health professionals' education can play a significant role in influencing provider practice patterns, there could be a myriad of factors that may ultimately impact providers' Medicaid participation – such as their practice settings and/or state policies. Owing to the limitation of data sources, we were not able to control for these factors in our analysis.

Next Steps

We will continue this research with a more comprehensive assessment of factors related to primary care physicians' participation in Medicaid. We continue to gather additional data on school characteristics for other relevant factors such as the research intensity, diversity of the graduate cohort that may be associated with Medicaid participation. Secondly, we will increase the sample size and hence the power of the study to detect statistical differences by examining Medicaid participation at the provider-level using a multi-level regression approach. We will use hierarchical models to isolate the variation in Medicaid participation explained by factors at the individual physician-level such as their demographics, medical-school level and the state-level including state Medicaid policies such as Medicaid expansion status and generosity of Medicaid reimbursement. This will allow us to extend the current study and make a unique contribution to this area of inquiry by examining factors related to primary care physicians' participation in Medicaid using national data and a broad array of factors. These future findings can potentially suggest the multiple policy levers that might improve access to primary care for Medicaid patients.

Figure 1: Sample Derivation

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│ Medical graduates in AMA Masterfile, 2009 – 2012 │
│                 (95,774)                  │
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                    │          ┌─────────────────────────────────────────┐
                    ├──────────│ Listed as inactive in AMA Masterfile (158) │
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│        Listed as active in AMA Masterfile │
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                    │          ┌─────────────────────────────────────────┐
                    ├──────────│ Graduates from non-US Medical schools    │
                    │          │                (19,951)                  │
                    │          └─────────────────────────────────────────┘
┌─────────────────────────────────────────┐
│      Graduates from US Medical schools only │
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                    │          ┌─────────────────────────────────────────┐
                    ├──────────│ Not working in 50 contiguous states, Alaska │
                    │          │             and Hawaii (537)              │
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│ Working in 50 contiguous states, Alaska and Hawaii │
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                    │          ┌─────────────────────────────────────────┐
                    ├──────────│ Missing information in NPPES (40)         │
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│        No missing information in NPPES    │
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│ Total number of providers in the sample (75,057) │
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                    │       ⬭ Data collapsed to Medical school level
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│     All Medical schools in the data (155) │
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│ Schools with data available on characteristics (140) │
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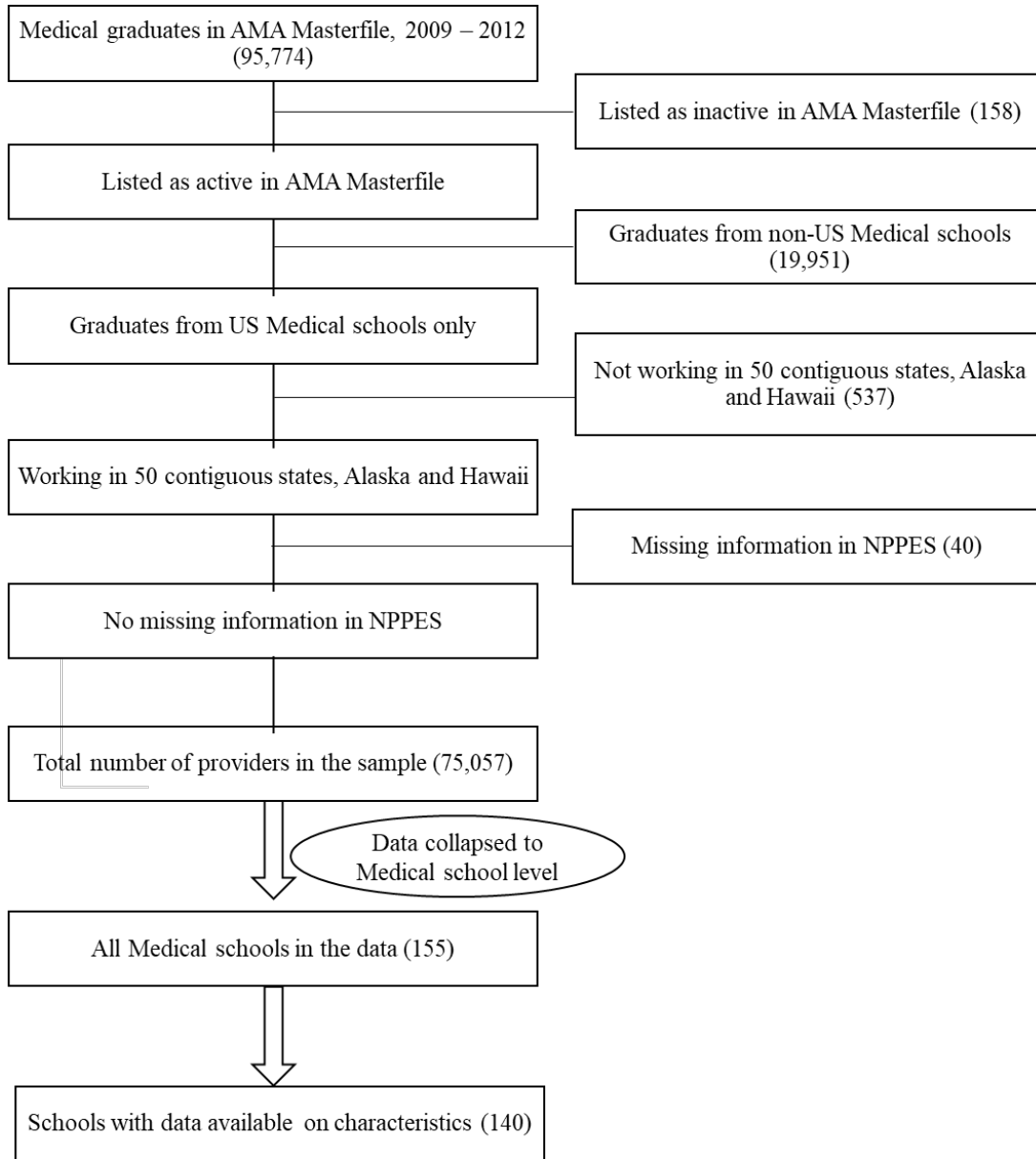
Table 1: Medicaid Participation by Medical and Osteopathic School: 2009-2012 Primary Care Physician (PCPs) Graduates (n=155 medical schools), T-MSIS 2016

State	School Name	Total Grads	% Grads PCPs	% PCPs At least 1 Medicaid	% PCPs 11 or more Medicaid	% PCPs 100 or more Medicaid	% PCPs practicing in low-DQ states and not in Medicaid
	Total	**75,057**	**31.8%**	**92.9%**	**82.5%**	**53.6%**	**5.5%**
AL	University of Alabama School of Medicine	650	34.00	94.1%	84.6%	57.5%	1.8%
AL	University of South Alabama College of Medicine	269	36.80	94.9%	85.9%	55.6%	3.0%
AZ	University of Arizona College of Medicine	489	34.15	98.2%	89.2%	59.3%	0.6%
AZ	Arizona College of Osteopathic Medicine of Midwestern University	198	41.41	92.7%	85.4%	51.2%	2.4%
AZ	A.T. Still University of Health Sciences - School of Osteopathic Medicine in Arizona	105	48.57	90.2%	78.4%	52.9%	0.0%
AR	University of Arkansas for Medical Sciences College of Medicine	550	32.73	94.4%	89.4%	73.9%	4.4%
CA	University of California, San Francisco, School of Medicine	582	30.07	96.0%	84.0%	40.6%	4.0%
CA	Keck School of Medicine of the University of Southern California	635	24.41	94.8%	85.2%	44.5%	3.9%
CA	Stanford University School of Medicine	324	17.90	94.8%	67.2%	27.6%	5.2%
CA	Loma Linda University School of Medicine	603	32.17	94.8%	84.0%	55.2%	4.6%
CA	University of California, Los Angeles David Geffen School of Medicine	609	23.48	96.5%	80.4%	38.5%	3.5%
CA	University of California, Irvine, School of Medicine	375	26.67	97.0%	84.0%	34.0%	3.0%
CA	University of California, San Diego School of Medicine	459	26.80	95.9%	78.0%	40.7%	3.3%
CA	University of California, Davis, School of Medicine	360	31.11	92.9%	84.8%	42.0%	6.3%
CA	Western University of Health Sciences College of Osteopathic Medicine of the Pacific	630	45.40	94.8%	88.1%	51.0%	3.5%
CA	Touro University College of Osteopathic Medicine - California	385	47.27	94.0%	86.3%	51.1%	4.4%

CO	University of Colorado School of Medicine	565	33.27	93.6%	88.3%	56.4%	5.3%
CO	Rocky Vista University College of Osteopathic Medicine	117	52.14	95.1%	78.7%	54.1%	4.9%
CT	Yale School of Medicine	361	24.65	92.1%	80.9%	39.3%	6.7%
CT	University of Connecticut School of Medicine	309	30.74	94.7%	90.5%	62.1%	4.2%
DC	George Washington University School of Medicine and Health Sciences	656	26.98	92.7%	73.4%	37.9%	5.6%
DC	Georgetown University School of Medicine	732	24.32	89.9%	75.8%	43.3%	7.9%
DC	Howard University College of Medicine	398	34.42	91.2%	81.8%	52.6%	6.6%
FL	University of Miami Leonard M. Miller School of Medicine	654	21.87	87.4%	72.7%	39.9%	11.2%
FL	University of Florida College of Medicine	506	26.28	88.0%	78.2%	49.6%	11.3%
FL	USF Health Morsani College of Medicine	449	30.29	82.4%	69.9%	41.9%	16.9%
FL	Florida State University College of Medicine	388	39.18	87.5%	75.0%	53.9%	10.5%
FL	Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine	521	45.68	88.2%	76.5%	49.6%	10.5%
FL	Lake Erie College of Osteopathic Medicine Bradenton Campus	353	42.49	86.7%	72.0%	48.7%	12.7%
GA	Medical College of Georgia at Augusta University	713	31.14	90.1%	81.1%	58.6%	4.5%
GA	Emory University School of Medicine	449	27.17	92.6%	77.0%	48.4%	3.3%
GA	Morehouse School of Medicine	190	40.00	92.1%	86.8%	52.6%	5.3%
GA	Mercer University School of Medicine	260	32.31	92.9%	88.1%	59.5%	3.6%
GA	Philadelphia College of Osteopathic Medicine Georgia Campus	41	43.90	100.0%	100.0%	66.7%	0.0%
HI	University of Hawaii, John A. Burns School of Medicine	233	34.76	88.9%	81.5%	49.4%	6.2%
IL	Rush Medical College of Rush University Medical Center	480	32.08	93.5%	86.4%	59.1%	5.8%
IL	University of Chicago Division of the Biological Sciences The Pritzker School of Medicine	420	26.90	92.9%	71.7%	41.6%	6.2%
IL	Northwestern University The Feinberg School of Medicine	631	26.94	92.4%	75.9%	42.4%	5.3%
IL	University of Illinois College of Medicine	1164	29.81	93.1%	79.8%	49.9%	5.2%

IL	Chicago Medical School at Rosalind Franklin University of Medicine & Science	692	28.47	90.4%	77.2%	48.2%	7.6%
IL	Loyola University Chicago Stritch School of Medicine	532	33.27	95.5%	83.6%	50.8%	3.4%
IL	Southern Illinois University School of Medicine	259	42.08	90.8%	85.3%	56.9%	7.3%
IL	Chicago College of Osteopathic Medicine of Midwestern University	215	46.98	97.0%	86.1%	62.4%	3.0%
IN	Indiana University School of Medicine	1,089	30.21	94.8%	89.4%	68.1%	3.6%
IA	University of Iowa Roy J. and Lucille A. Carver College of Medicine	552	33.88	92.5%	87.2%	61.5%	2.7%
IA	Des Moines University College of Osteopathic Medicine	631	48.97	95.5%	90.9%	67.3%	2.6%
KS	University of Kansas School of Medicine	643	44.95	94.5%	88.6%	58.8%	5.2%
KY	University of Louisville School of Medicine	553	32.01	89.8%	84.7%	68.9%	5.1%
KY	University of Kentucky College of Medicine	371	31.81	96.6%	88.1%	66.9%	1.7%
KY	University of Pikeville - Kentucky College of Osteopathic Medicine	204	56.37	95.7%	90.4%	77.4%	0.9%
LA	Tulane University School of Medicine	627	23.76	94.0%	83.9%	58.4%	5.4%
LA	Louisiana State University School of Medicine in New Orleans	668	26.20	97.1%	88.6%	54.9%	2.3%
LA	Louisiana State University School of Medicine in Shreveport	431	29.23	98.4%	96.0%	68.3%	0.8%
ME	University of New England College of Osteopathic Medicine	365	46.58	93.5%	85.3%	62.4%	5.3%
MD	University of Maryland School of Medicine	580	24.83	93.1%	81.3%	51.4%	5.6%
MD	Johns Hopkins University School of Medicine	425	23.53	90.0%	77.0%	47.0%	5.0%
MD	Uniformed Services University of the Health Sciences F. Edward Hebert School of Medicine	582	33.16	22.3%	10.4%	4.1%	57.0%
MA	Harvard Medical School	613	25.77	88.6%	74.1%	27.2%	9.5%
MA	Boston University School of Medicine	617	29.34	90.1%	80.7%	45.9%	8.8%
MA	Tufts University School of Medicine	673	30.61	92.2%	80.1%	43.7%	6.3%

MA	University of Massachusetts Medical School	392	43.62	93.6%	82.5%	60.8%	5.3%
MI	University of Michigan Medical School	628	26.43	94.6%	75.9%	37.3%	2.4%
MI	Wayne State University School of Medicine	1,085	28.85	94.2%	84.7%	52.1%	3.5%
MI	Michigan State University College of Human Medicine	484	36.16	96.0%	84.6%	49.1%	1.7%
MI	Michigan State University College of Osteopathic Medicine	501	45.71	93.0%	83.8%	52.4%	3.9%
MN	University of Minnesota Medical School	833	35.05	97.3%	89.4%	55.5%	2.1%
MN	Mayo Clinic Alix School of Medicine	157	23.57	91.9%	81.1%	56.8%	8.1%
MS	University of Mississippi School of Medicine	428	37.38	92.5%	83.8%	39.4%	6.3%
MO	Washington University in St. Louis School of Medicine	451	18.63	91.7%	77.4%	35.7%	7.1%
MO	University of Missouri-Columbia School of Medicine	358	40.22	97.2%	84.7%	59.7%	2.8%
MO	Saint Louis University School of Medicine	637	31.87	94.1%	82.8%	52.2%	5.9%
MO	University of Missouri-Kansas City School of Medicine	354	28.25	89.0%	82.0%	49.0%	9.0%
MO	Kansas City University of Medicine and Biosciences, College of Osteopathic Medicine, Kansas	815	48.83	91.5%	83.2%	53.5%	7.5%
MO	A.T. Still University of Health Sciences - Kirksville College of Osteopathic Medicine	507	46.55	90.3%	83.5%	55.9%	5.9%
NE	University of Nebraska College of Medicine	448	44.42	98.0%	87.9%	60.3%	2.0%
NE	Creighton University School of Medicine	477	37.32	89.9%	79.8%	48.3%	7.3%
NV	University of Nevada, Reno School of Medicine	214	33.18	97.2%	88.7%	66.2%	1.4%
NV	Touro University Nevada College of Osteopathic Medicine	328	46.04	96.0%	90.1%	64.9%	1.3%
NH	Geisel School of Medicine at Dartmouth	282	28.37	87.5%	76.3%	35.0%	10.0%
NJ	Rutgers New Jersey Medical School	644	19.72	91.3%	73.2%	41.7%	5.5%
NJ	Rutgers, Robert Wood Johnson Medical School	590	24.41	91.7%	78.5%	51.4%	6.9%
NJ	Rowan University School of Osteopathic Medicine	199	36.68	95.9%	84.9%	56.2%	4.1%
NM	University of New Mexico School of Medicine	288	37.15	93.5%	86.9%	74.8%	4.7%

NY	Columbia University Vagelos College of Physicians and Surgeons	582	22.34	94.6%	74.6%	39.2%	4.6%
NY	Albany Medical College	531	27.87	95.3%	85.1%	62.2%	3.4%
NY	Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo	531	22.98	95.9%	82.0%	59.0%	3.3%
NY	State University of New York Downstate Medical Center College of Medicine	724	20.03	97.9%	84.8%	57.2%	2.1%
NY	New York Medical College	731	21.75	91.8%	81.1%	47.8%	3.8%
NY	State University of New York Upstate Medical University	578	25.95	98.0%	84.0%	56.0%	1.3%
NY	New York University Grossman School of Medicine	639	17.84	94.7%	78.9%	39.5%	4.4%
NY	Weill Cornell Medicine	362	19.06	95.7%	82.6%	36.2%	4.3%
NY	University of Rochester School of Medicine and Dentistry	382	24.61	94.7%	89.4%	61.7%	5.3%
NY	Albert Einstein College of Medicine	669	24.81	94.0%	86.1%	53.6%	6.0%
NY	Icahn School of Medicine at Mount Sinai	463	18.36	90.6%	70.6%	37.6%	9.4%
NY	Renaissance School of Medicine at Stony Brook University	438	15.53	95.6%	80.9%	41.2%	2.9%
NY	New York Institute of Technology College of Osteopathic Medicine	488	32.38	95.6%	89.9%	65.8%	3.8%
NY	Touro College of Osteopathic Medicine - New York	138	31.88	93.2%	90.9%	56.8%	4.5%
NC	University of North Carolina at Chapel Hill School of Medicine	601	32.78	95.4%	81.2%	59.4%	4.1%
NC	Wake Forest School of Medicine of Wake Forest Baptist Medical Center	441	28.34	90.4%	85.6%	55.2%	8.8%
NC	Duke University School of Medicine	368	21.20	91.0%	67.9%	35.9%	9.0%
NC	Brody School of Medicine at East Carolina University	262	44.66	96.6%	91.5%	73.5%	3.4%
ND	University of North Dakota School of Medicine and Health Sciences	227	41.85	96.8%	93.7%	71.6%	3.2%
OH	Case Western Reserve University School of Medicine	684	23.54	93.2%	79.5%	42.9%	6.2%
OH	Ohio State University College of Medicine	784	27.42	95.3%	89.3%	61.4%	2.8%
OH	University of Cincinnati College of Medicine	596	27.52	94.5%	90.2%	64.6%	5.5%
OH	The University of Toledo College of Medicine and Life Sciences	578	26.82	94.8%	86.5%	61.3%	3.2%

OH	Northeast Ohio Medical University	462	24.46	96.5%	89.4%	64.6%	1.8%
OH	Wright State University Boonshoft School of Medicine	378	35.19	94.7%	87.2%	63.9%	4.5%
OH	Ohio University Heritage College of Osteopathic Medicine	359	44.29	96.9%	94.3%	75.5%	3.1%
OK	University of Oklahoma College of Medicine	600	34.17	96.6%	87.8%	60.0%	3.4%
OK	Oklahoma State University Center for Health Sciences College of Osteopathic Medicine	169	44.38	98.7%	89.3%	72.0%	1.3%
OR	Oregon Health & Science University School of Medicine	464	39.22	93.4%	88.5%	66.5%	5.5%
OR	Western University of Health Sciences College of Osteopathic Medicine of the Pacific	7	42.86	100.0%	100.0%	33.3%	0.0%
PA	Perelman School of Medicine at the University of Pennsylvania	566	23.32	96.2%	73.5%	43.9%	3.8%
PA	Sidney Kimmel Medical College at Thomas Jefferson University	970	26.19	95.3%	83.9%	50.8%	4.3%
PA	University of Pittsburgh School of Medicine	550	24.00	89.4%	74.2%	47.7%	9.8%
PA	Lewis Katz School of Medicine at Temple University	653	31.24	89.7%	83.3%	52.5%	8.8%
PA	Pennsylvania State University College of Medicine	544	31.07	95.3%	83.4%	60.4%	2.4%
PA	Drexel University College of Medicine	976	31.45	92.8%	79.5%	44.6%	5.9%
PA	Philadelphia College of Osteopathic Medicine	696	49.71	92.5%	83.2%	57.8%	5.2%
PA	Lake Erie College of Osteopathic Medicine	584	42.12	91.5%	84.6%	58.5%	6.9%
PR	University of Puerto Rico School of Medicine	210	21.43	84.4%	68.9%	28.9%	13.3%
PR	Ponce Health Sciences University School of Medicine	172	36.05	90.3%	87.1%	54.8%	9.7%
PR	Universidad Central del Caribe School of Medicine	137	30.66	81.0%	73.8%	42.9%	16.7%
PR	San Juan Bautista School of Medicine	61	40.98	84.0%	68.0%	48.0%	16.0%
RI	The Warren Alpert Medical School of Brown University	327	31.19	94.1%	79.4%	49.0%	4.9%
SC	Medical University of South Carolina College of Medicine	549	35.70	92.3%	85.2%	59.7%	6.6%
SC	University of South Carolina School of Medicine	301	47.18	93.7%	86.6%	62.7%	6.3%

SD	University of South Dakota, Sanford School of Medicine	190	35.26	92.5%	85.1%	52.2%	6.0%
TN	Vanderbilt University School of Medicine	400	23.25	89.2%	72.0%	41.9%	7.5%
TN	University of Tennessee Health Science Center College of Medicine	562	30.60	89.0%	80.8%	55.2%	9.3%
TN	Meharry Medical College	322	38.20	94.3%	80.5%	52.0%	4.1%
TN	East Tennessee State University James H. Quillen College of Medicine	233	38.63	93.3%	88.9%	73.3%	4.4%
TN	Lincoln Memorial University - DeBusk College of Osteopathic Medicine	186	51.08	94.7%	86.3%	61.1%	3.2%
TX	University of Texas Medical Branch School of Medicine	842	33.37	94.3%	78.6%	45.9%	5.0%
TX	Baylor College of Medicine	630	27.62	90.2%	78.7%	50.0%	8.6%
TX	University of Texas Southwestern Medical School	842	28.86	92.2%	75.3%	46.1%	7.4%
TX	The University of Texas Health Science Center at San Antonio Joe R. and Teresa Lozano Long School of Medicine	806	29.53	92.9%	77.7%	49.2%	7.1%
TX	McGovern Medical School at the University of Texas Health Science Center at Houston	848	26.65	92.0%	72.6%	43.4%	7.1%
TX	Texas Tech University Health Sciences Center School of Medicine	523	32.31	97.0%	86.4%	54.4%	3.0%
TX	Texas A&M Health Science Center College of Medicine	364	37.91	94.9%	79.7%	47.8%	5.1%
TX	University of North Texas Health Science Center at Fort Worth - Texas College of Osteopathic Medicine	517	49.13	94.9%	79.9%	48.8%	4.3%
UT	University of Utah School of Medicine	388	28.09	92.7%	88.1%	56.9%	6.4%
VT	Robert Larner, M.D., College of Medicine at the University of Vermont	421	33.25	96.4%	87.1%	62.9%	3.6%
VA	University of Virginia School of Medicine	537	25.88	92.8%	82.7%	56.1%	3.6%
VA	Virginia Commonwealth University School of Medicine	688	31.98	92.7%	76.8%	48.2%	5.0%
VA	Eastern Virginia Medical School	402	36.32	92.5%	87.0%	56.2%	2.7%
VA	Edward Via College of Osteopathic Medicine - Virginia Campus	401	48.88	93.9%	83.7%	60.7%	3.1%
WA	University of Washington School of Medicine	730	42.19	95.8%	82.8%	53.6%	2.9%

WA	Pacific Northwest University of Health Sciences College of Osteopathic Medicine	44	75.00	100.0%	84.8%	54.5%	0.0%
WV	West Virginia University School of Medicine	387	30.23	94.9%	90.6%	69.2%	4.3%
WV	Marshall University Joan C. Edwards School of Medicine	246	41.06	99.0%	94.1%	83.2%	1.0%
WV	West Virginia School of Osteopathic Medicine	424	52.59	96.9%	91.0%	64.6%	3.1%
WI	University of Wisconsin School of Medicine and Public Health	587	31.52	94.1%	87.6%	65.4%	4.3%
WI	Medical College of Wisconsin	770	28.83	92.8%	84.7%	61.3%	6.3%

Table 2: Characteristics of schools in study sample (n = 140)

Medical School Characteristics	Percentages
Degree: Osteopathic	15.7%
Ownership: Public	53.6%
Enrollment Size: Large Class Size (> median enrollment)	53.6%
Gender: % Females	62.11%

Table 3: Bivariate analysis examining the association between intensity of Medicaid participation and school characteristics (n=140)

Intensity of Medicaid Participation	School Characteristics		
	Degree conferred		
	MD	DO	p-value
n	118	22	
% PCPs 11 or more Medicaid	82.60	86.57	0.0025
% PCPs 100 or more Medicaid	52.82	60.08	0.0031
	Ownership status		
	Public	Private	
n	75	65	
% PCPs 11 or more Medicaid	84.93	81.25	0.0001
% PCPs 100 or more Medicaid	57.17	50.27	0.0001
	Enrollment Size: Large Class Size (> median enrollment)		
	<Median	>Median	
n	60	81	
% PCPs 11 or more Medicaid	84.46	82.31	0.0266
% PCPs 100 or more Medicaid	56.04	52.42	0.0449
*Two-tailed t-tests			

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