

THE HEALTH CARE WORKFORCE IN EIGHT STATES: EDUCATION, PRACTICE AND POLICY

- ARIZONA
- GEORGIA
- MASSACHUSETTS
- MICHIGAN
- MONTANA
- NEBRASKA
- OKLAHOMA
- OREGON

Spring 2004

INTERSTATE COMPARISONS

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The Health Care Workforce in Eight States: Education, Practice and Policy

PROJECT DESCRIPTION

Historically, both federal and state governments have had a role in developing policy to shape the health care workforce. The need for government involvement in this area persists as the private market typically fails to distribute the health workforce to medically underserved and uninsured areas, provide adequate information and analysis on the nature of the workforce, improve the racial and ethnic cultural diversity and cultural competence of the workforce, promote adequate dental health of children, and assess the quality of education and practice.

It is widely agreed that the greatest opportunities for influencing the various environments affecting the health workforce lie within state governments. States are the key actors in shaping these environments, as they are responsible for:

- financing and governing health professions education;
- licensing and regulating health professions practice and private health insurance;
- purchasing services and paying providers under the Medicaid program; and
- designing a variety of subsidy and regulatory programs providing incentives for health professionals to choose certain specialties and practice locations.

Key decision-makers in workforce policy within states and the federal government are eager to learn from each other. This initiative to compile in-depth assessments of the health workforce in 8 states is an important means of insuring that states and the federal government are able to effectively share information on various state workforce data, issues, influences and policies.

Products of this study include individual health workforce assessments for each of the eight states and a single assessment that compares various data and influences across the eight states. In general, each state assessment provides the following:

- 1) A summary of health workforce data, available resources and a description of the extent the state invests in collecting workforce data. [Part of this information has been provided by the Bureau of Health Professions];
- 2) A description of various issues and influences affecting the health workforce, including the state's legislative and regulatory history and its current programs, financing and policies affecting health professions education, service placement and reimbursement, planning and monitoring, and licensure/regulation;
- 3) An assessment of the state's internal capacity and existing strategies for addressing the above workforce issues and influences; and
- 4) An analysis of the policy implications of the state's current workforce data, issues, capacity and strategies.

The development of the project's data assimilation strategy, content and structure was guided by an expert advisory panel. Members of the advisory panel included both experts in state workforce policy (i.e., workforce planners, researchers and educators) and, more broadly, influential state health policymakers (i.e., state legislative staff, health department officials). The advisory panel has helped to ensure the workforce assessments have an appropriate content and effective format for dissemination and use by both state policymakers and workforce experts/officials.

STUDY METHODOLOGY

Study Purpose and Audience

Key decision-makers in workforce policy within states and the federal government are eager to learn from each other. Because states increasingly are being looked to by the federal government and others as proving grounds for successful health care reform initiatives, new and dynamic mechanisms for sharing innovative and effective state workforce strategies between states and with the federal government must be implemented in a more frequent and far reaching manner. This initiative to compile comprehensive capacity assessments of the health workforce in 8 states is an important means of insuring that states and the federal government are able to effectively share information on various state workforce data, issues and influences.

Each state workforce assessment report is not intended to be voluminous; rather, information is presented in a concise, easy-to-read format that is clearly applicable and easily digestible by busy state policymakers as well as by workforce planners, researchers, educators and regulators.

Selection of States

NCSL, with input from HRSA staff, developed a methodology for identifying and selecting 8 states to assess their health workforce capacity. The methodology included, but was not limited to, using the following criteria:

- a. States with limited as well as substantial involvement in one or more of the following areas: statewide health workforce planning, monitoring, policymaking and research;
- b. States with presence of unique or especially challenging health workforce concerns or issues requiring policy attention;
- c. States with little involvement in assessing health workforce capacity despite the presence of unique or especially challenging health workforce concerns or issues requiring policy attention;
- d. Distribution of states across Department of Health and Human Services regions;
- e. States with Bureau of Health Professions (BHP) - supported centers for health workforce research and distribution studies;
- f. States with primarily urban and primarily rural health workforce requirements; and
- g. States in attendance at BHP workforce planning workshops or states that generally have interest in workforce modeling.

Collection of Data

NCSL used various means of collecting information for this study. Methods exercised included:

- a. Phone and mail interviews with state higher education, professions regulation, and recruitment/retention program officials;
- b. Custom data tabulations by national professional trade associations and others (i.e., Quality Resource Systems, Inc.; Johns Hopkins University School of Public Health) with access to national data bases;
- c. Tabulations of data from the most recent edition of federal and state government databases (e.g., National Health Service Corps field strength);
- d. Site visit interviews with various officials in the eight profile states;
- e. Personal phone conversations with other various state and federal government officials;
- f. Most recently available secondary data sources from printed and online reports, journal articles, etc.; and
- g. Comments and guidance from members of the study's expert advisory panel.

INTRODUCTION

The supply and distribution of the major health professions in most states remains subject to debate and controversy. General shortages of most health professions in rural and inner city communities continues unabated. The lack of primary care physicians and dentists to serve our nation's Medicaid and low-income populations is troublesome. Although certain non-physician health professionals—which are growing dramatically in number—are being widely touted as a practical solution to the shortage of primary care in underserved areas and elsewhere (at least in the short term), state practice acts and other factors may be limiting their effectiveness.

The need for government involvement in this area persists as the private market typically fails to distribute the health workforce to medically underserved and uninsured areas, provide adequate information and analysis on the nature of the workforce, improve the racial and ethnic cultural diversity and cultural competence of the workforce, promote adequate dental health of children, and assess the quality of education and practice.

It is widely agreed that the greatest opportunities for influencing the various environments affecting the health workforce lie within state governments. States are the key actors in shaping these environments, as they are responsible for:

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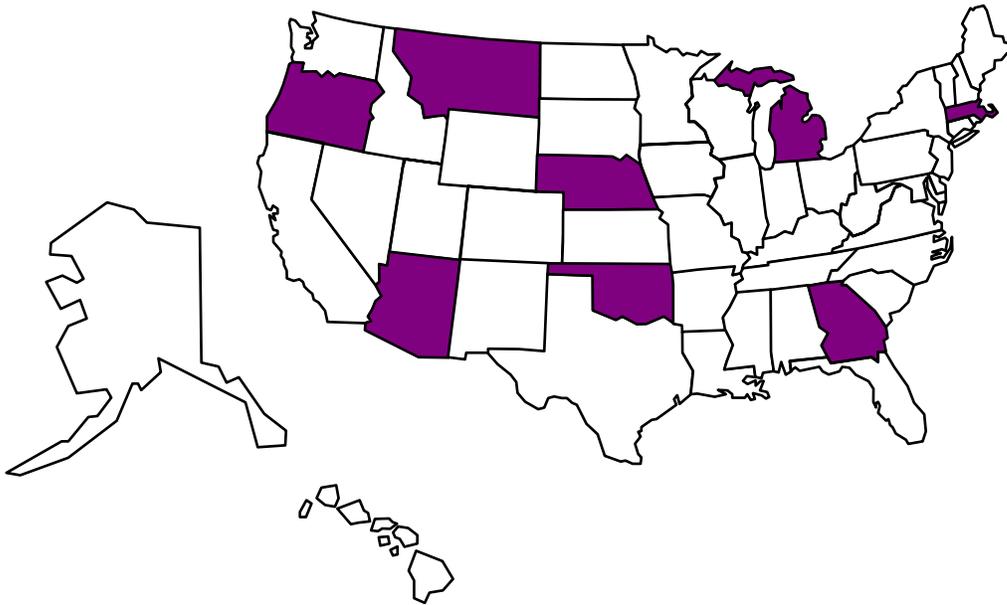
States, however, vary considerably in their interest and ability to take advantage of policy options and opportunities that would affect these environments. Research shows that only a few states use their advantage to institute innovative and far-reaching policies across all or most of the major environments affecting the health workforce. These states may, for example, create a statewide policy advisory council or develop a more comprehensive workforce database.

For traditional, political and budgetary reasons, most states, however, tend to concentrate their efforts on only a few policies and environments, ignoring potential means of encouraging broader change and reform. State workforce policy is often driven and shaped more by the structure of government in which legislators, bureaucracy and established interest groups function, than by actual and documented shortages of health professionals for needy populations and communities. Success in workforce policy is possible for these states, however, if it can be determined at what point(s) in the planning, education, regulation and placement process or environment the state can most effectively intervene and what are the most effective means of state intervention (i.e., regulation vs. appropriations, provider payer policies vs. state grant or loan programs, creating new initiatives vs. refining existing programs).

In general, states have not pursued a coherent and comprehensive set of policies aimed at promoting a reasonable health workforce. The typical state's attention to one or two types of policies and policy environments affecting the health workforce, particularly where need and wealth are not significantly part of the equation, suggest a process that is fragmented and often lacking in long-term effectiveness.

This project profiles and compares the influence of the major environments of supply and demand, education, practice location and incentives, licensure and regulation, and planning and analysis on the health workforce in and among eight (8) states.

Workforce Supply and Demand



Arguably, it is most important initially to understand the marketplace for a state's health care workforce. How many health professionals are in practice statewide and in medically underserved communities? What are the demographics of the population served? How is health care organized and paid for in the state? This section attempts to answer some of these questions by presenting state-level data collected from various sources.

ACCESS TO CARE

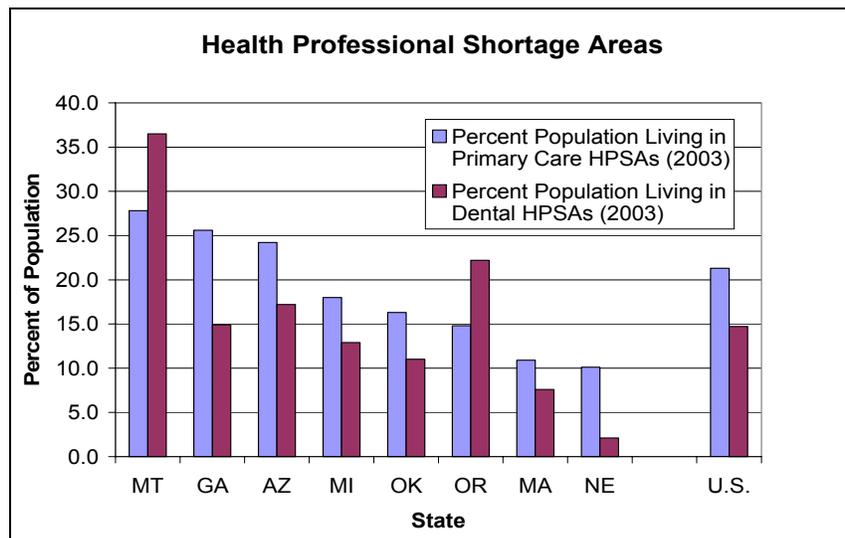
Table 1.

INDICATORS		PROFILE STATES								
		AZ	GA	MA	MI	MT	NE	OK	OR	U.S.
Percent Non-elderly (under age 65) Without Health Insurance	2000-2001	19	17	10	11	18	11	22	14	17.0
	1999-2000	21	16	11	11	21	11	21	16	16.0
Percent Children Without Health Insurance	2000-2001	17	13	6	7	14	8	17	11	12.0
	1999-2000	17	10	8	8	18	9	17	13	12.0
Percent Population Not Obtaining Health Care Due to Cost (2000)		11.8	11.9	6.3	9.0	10.8	5.8	9.9	12.7	9.9
Percent Population Living in Primary Care HPSAs (2003)		24.2	25.6	10.9	18.0	27.8	10.1	16.3	14.8	21.3
Percent Population Living in Dental HPSAs (2003)		17.2	14.9	7.6	12.9	36.5	2.1	11.0	22.2	14.7
Percent Adults with Annual Family Income Less than \$15,000 Who Made Dental Visit in Preceding Year (1999)		55	45	54	43	53	44	41	54	---

HPSAs = Health Professional Shortage Areas

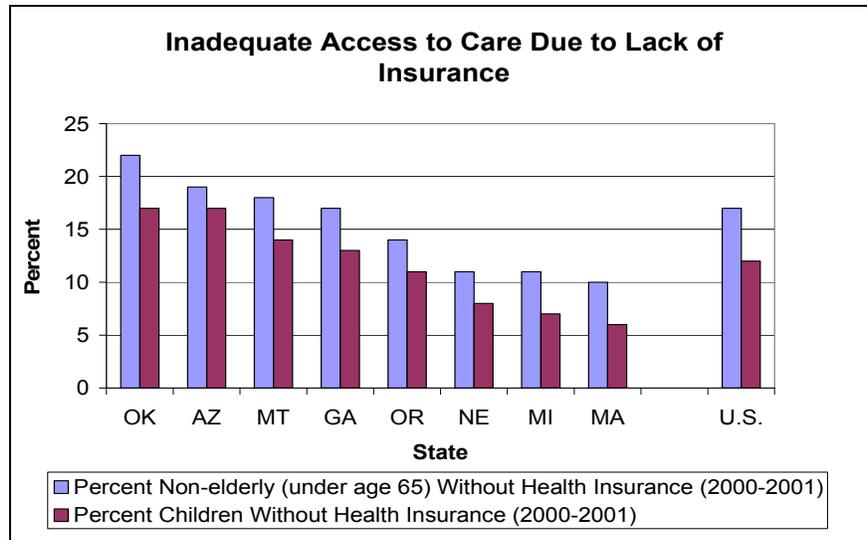
Sources: KFF, AARP, BPHC-DSD, GAO.

Chart 1A.



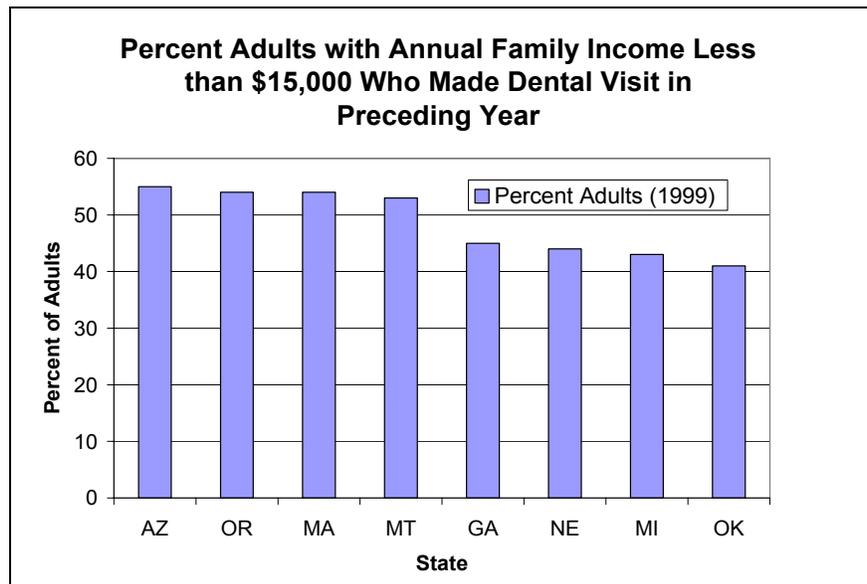
Four profile states---- Massachusetts, Michigan, Nebraska, and Oklahoma----have a smaller percentage of population living in both primary care and dental HPSAs than the U.S. as a whole. Arizona and Montana both have higher percentages of population living in primary care and dental HPSAs than the U.S. as a whole.

Chart 1B.



Arizona, Georgia, Montana, and Oklahoma have higher proportions of non-elderly and children without insurance than the national average.

Chart 1C.



In four of the profile states, less than half of the adult population with family incomes less than \$15,000 visited a dentist in the preceding year.

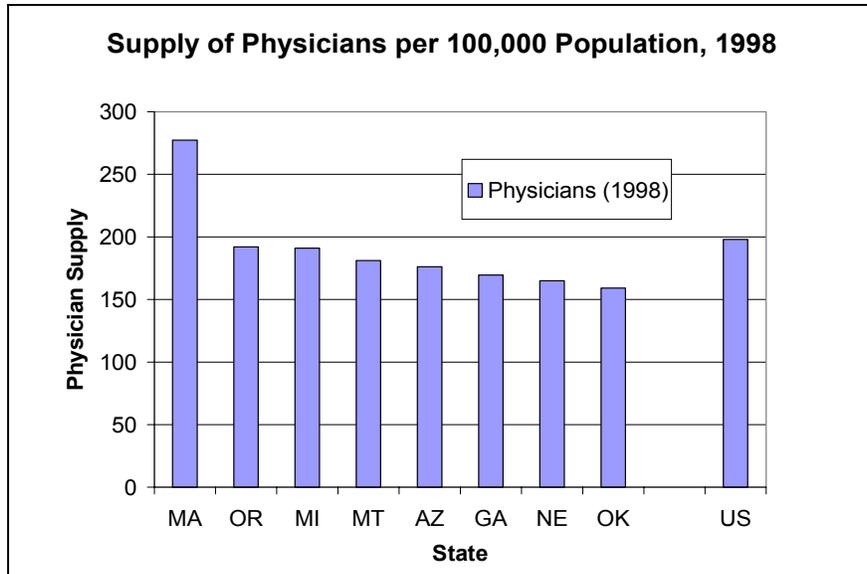
SUPPLY OF VARIOUS HEALTH CARE PROFESSIONALS

Table 2.

Professions		PROFILE STATES									
		AZ	GA	MA	MI	MT	NE	OK	OR	U.S.	
Supply per 100,000 population	Physicians (1998)	176.2	169.6	277.3	191.1	181.2	165.0	159.2	192.1	198	
	Nurses	RNs (2000)	628	683	1,194	798	812	958	635	793	782
		LPNs (1998)	185.3	279.1	276.7	177.6	268.3	373.3	373.1	137.7	249
		CNMs (2000)	2.7	3.3	4.0	2.0	2.5	1.0	0.7	3.9	2.1
		NPs (1998)	25.1	20.7	57.0	29.5	28.7	13.1	11.3	39.0	26.3
		CRNAs (1997)	3.1	9.3	7.7	13.3	6.9	12.3	6.8	5.4	8.6
		Physician Assistants (1999)	11.0	12.3	10.0	12.5	14.8	22.0	12.7	7.6	10.4
	Dentists (1998)	37.7	35.0	61.6	50.5	48.0	50.6	39.6	55.0	48.4	
	Pharmacists (1998)	47.1	72.4	67.2	90.1	72.8	83.1	58.7	60.0	65.9	
	Dental Hygienists (1998)	54.4	49.8	77.3	79.6	55.7	48.8	29.0	94.1	52.1	
% Physicians Practicing Primary Care		28	30	28	26	32	35	28	33	30	
% of MDs Who Are International Medical Graduates		17	16	20	33	4	10	16	6	24	
% Registered Nurses Employed in Nursing		75.5	82.2	82.7	78.7	78.8	88.4	80.9	89.3	81.7	

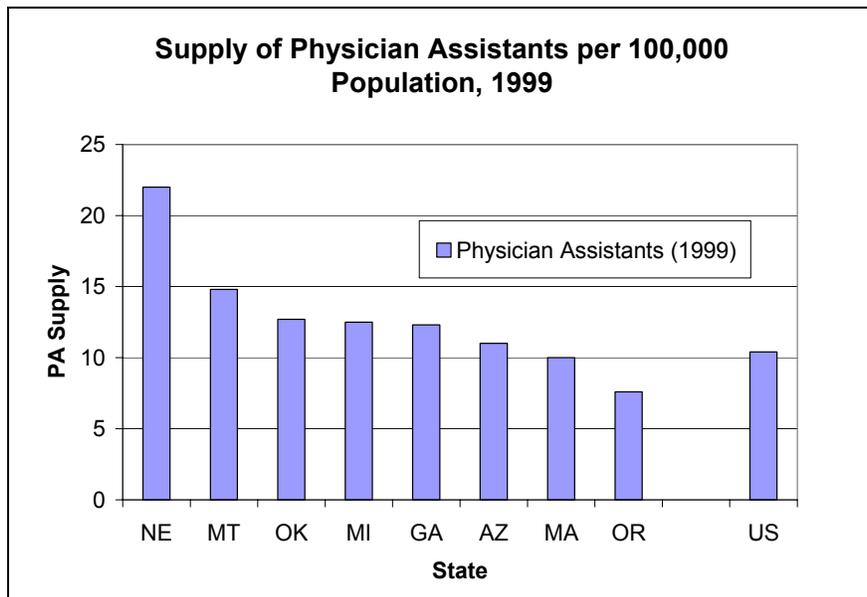
Sources: HRSA-BHPr.

Chart 2A.



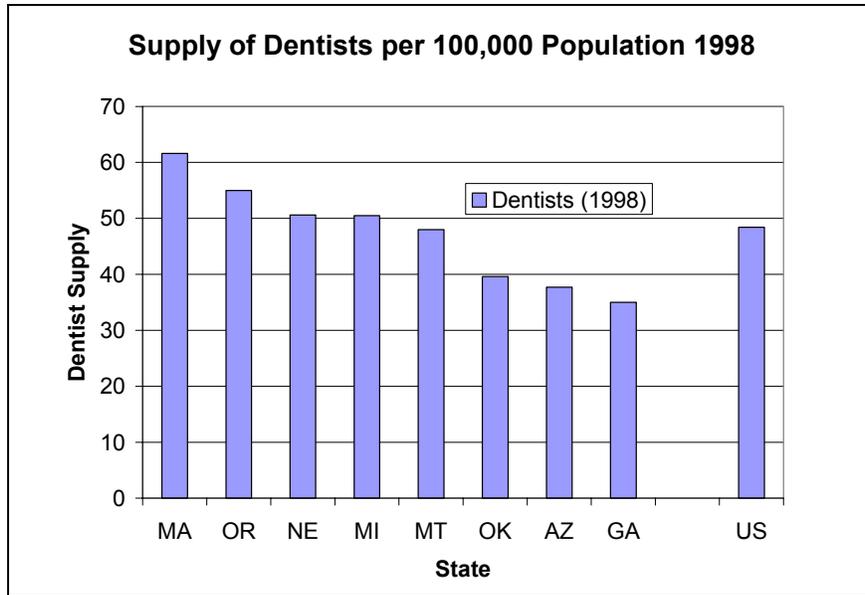
Only Massachusetts has more physicians per 100,000 population than the national average.

Chart 2B.



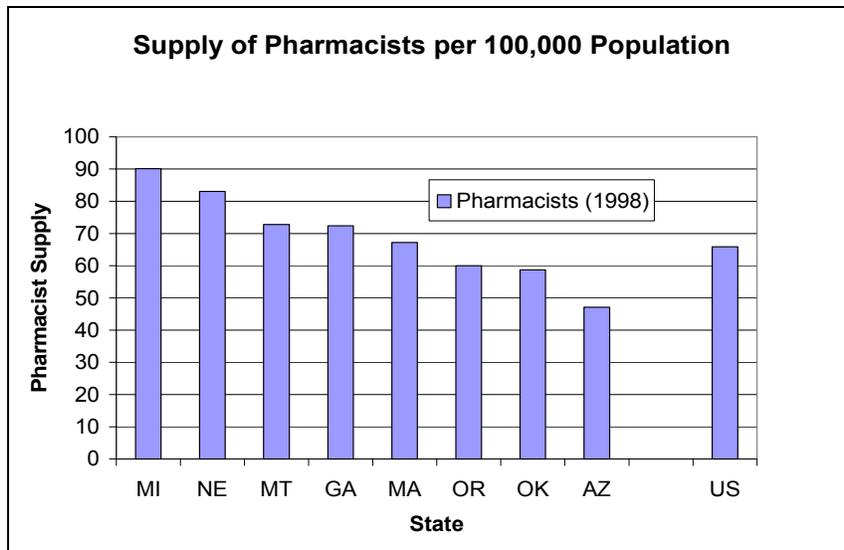
Massachusetts and Oregon have fewer physician assistants than the national average.

Chart 2C.



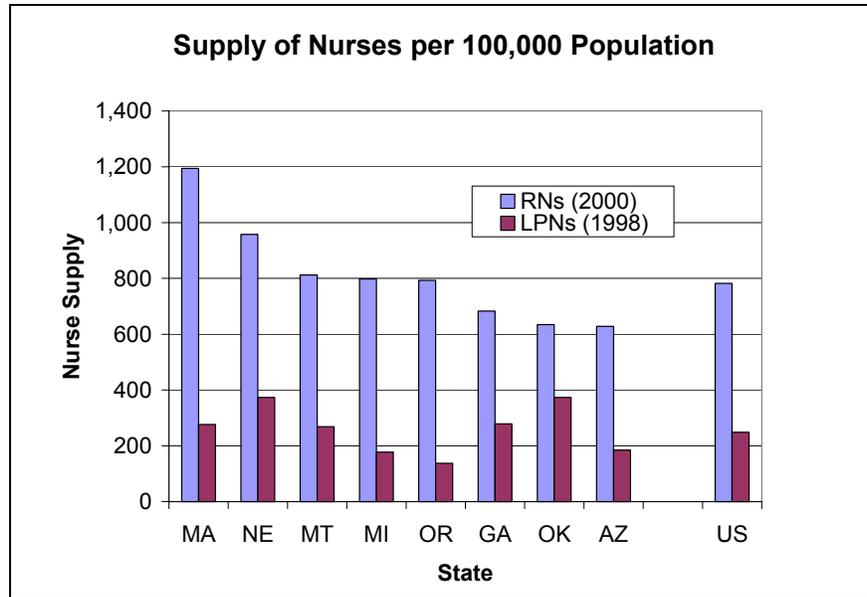
Three profile states—Arizona, Georgia, and Oklahoma---have fewer dentists per 100,000 population than the national average.

Chart 2D.



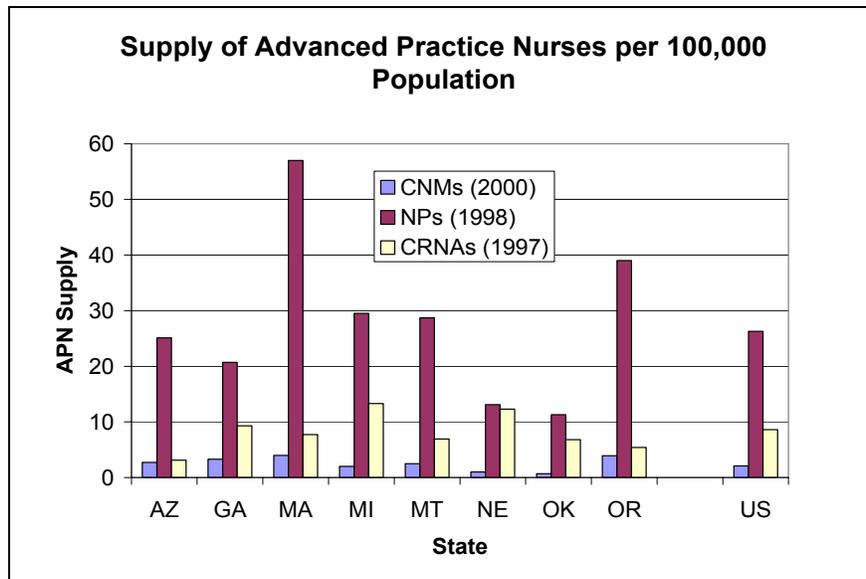
Arizona, Oklahoma, and Oregon have fewer pharmacists per 100,000 population than the national average.

Chart 2E.



Massachusetts and Nebraska have significantly higher numbers of RNs per 100,000 population than the national average. Oklahoma and Nebraska have significantly higher numbers of LPNs per 100,000 population than the national average.

Chart 2F.



Massachusetts and Oregon have significantly higher numbers of Nurse Practitioners and CNMs per 100,000 population than the national average. Georgia, Michigan, and Nebraska have higher numbers of CRNAs per 100,000 population than the national average.

NATIONAL HEALTH SERVICE CORPS (NHSC) 2003 FIELD STRENGTH

Table 3.

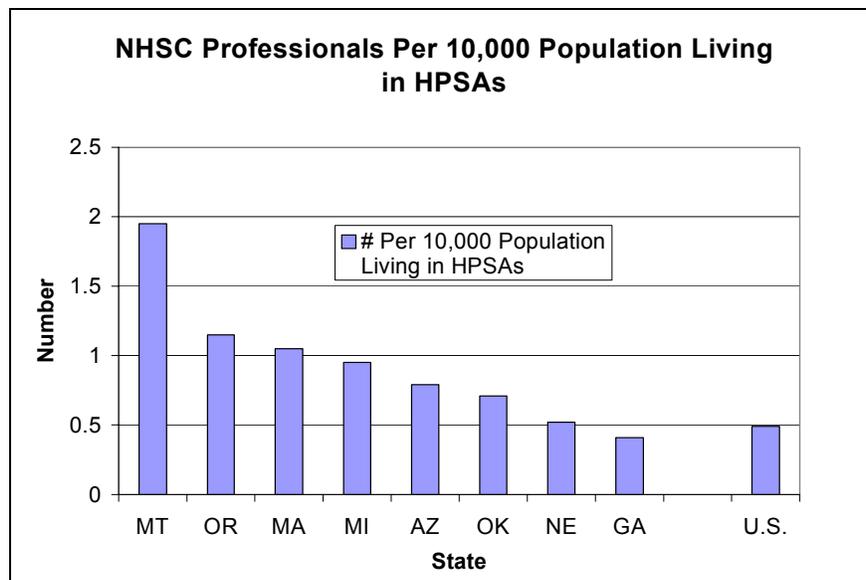
INDICATORS	PROFILE STATES								
	AZ	GA	MA	MI	MT	NE	OK	OR	U.S.
Total NHSC Field Strength*	102	88	73	152	49	9	40	59	--
# Per 10,000 Population Living in HPSAs	0.79	0.41	1.05	0.95	1.95	0.52	0.71	1.15	0.49

Includes physicians, nurses, dentists, pharmacists, dental hygienists, physician assistants and mental health professionals in placement.

HPSAs = Health Professional Shortage Areas

Source: BPHC-NHSC.

Chart 3A.



Massachusetts, Montana and Oregon have more than twice the NHSC professionals per 10,000 population living in HPSAs than the national average. Georgia is the only profile state with less NHSC professionals per 10,000 than the national average.

MEDICAID REIMBURSEMENT OF PROFESSION SERVICES**Table 4.**

INDICATORS		PROFILE STATES							
		AZ	GA	MA	MI	MT	NE	OK	OR
Active Physicians	% Enrolled Receiving Annual Payments Greater Than \$10,000	N/A	33.7	N/A	16.7	18.0	9.3	6.5	N/A
	% Change in Medicaid Payment Rate, 1993-1998	N/A*	-1.39	-2.39	0.00	N/A	N/A	-3.46	7.40
	Medicaid Provides Bonus or Special Payment for Practice in Rural or Medically Underserved Area	No	No	No	No	No	No	No	Yes
Active Advanced Practice Nurses	% Enrolled Receiving Annual Payments Greater Than \$10,000	N/A	20.0	N/A	1.4	9.2	0.0	3.0	N/A
	Overall Increase of 10% or More in Medicaid Payment Rates in Past 5 years	No	No	No	Yes	No	No	Yes	No
	Medicaid Provides Bonus or Special Payment for Practice in Rural or Medically Underserved Area	No	No	No	No	No	No	No	Yes
Active Dentists	% Enrolled in Medicaid	15	39	14	23	78	84	18	80
	% Enrolled Receiving Annual Payments Greater Than \$10,000 ¹	N/A	38.2	N/A	29.7	32.5	45.9	40.0	67.0
	Overall Increase of 10% or More in Medicaid Payment Rates in Past 5 years	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
	Medicaid Provides Bonus or Special Payment for Practice in Rural or Medically Underserved Area	No	No	Yes	No	No	No	No	No
Number of Pharmacies Enrolled in Medicaid		1,980	2,059	N/A	1,483	460	661	1,138	938
Penetration Rate (%) of Medicaid and Commercial Managed Care Plans, 2000		30.0	15.4	45.2	27.2	8.1	10.8	13.9	36.9

¹ Generally seen as an indicator of significant participation in the Medicaid program.

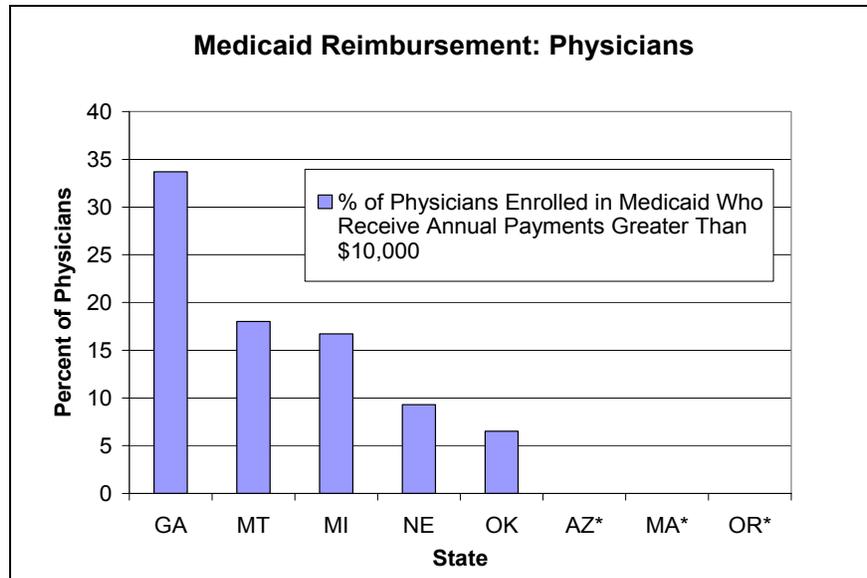
* Numerator data was unusable: dentists were apparently double-counted, perhaps due to varying participation in different health plans.

N/A = Data was not available

N/A* = Data was not applicable

Sources: State Medicaid agencies, Norton and Zuckerman "Trends", HPTS, AARP, Centers for Disease Control.

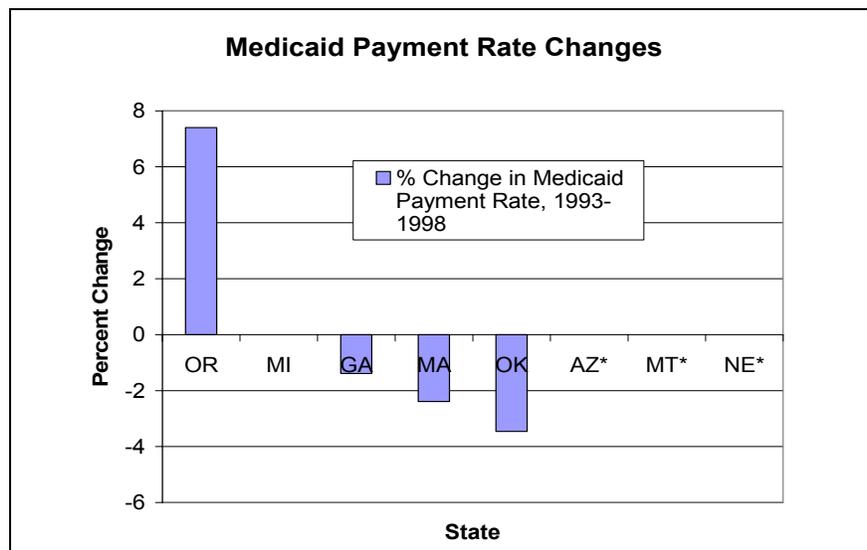
Chart 4A.



* Data was unavailable

More than one-third of Georgia’s physicians enrolled in Medicaid received payments of greater than \$10,000 annually.

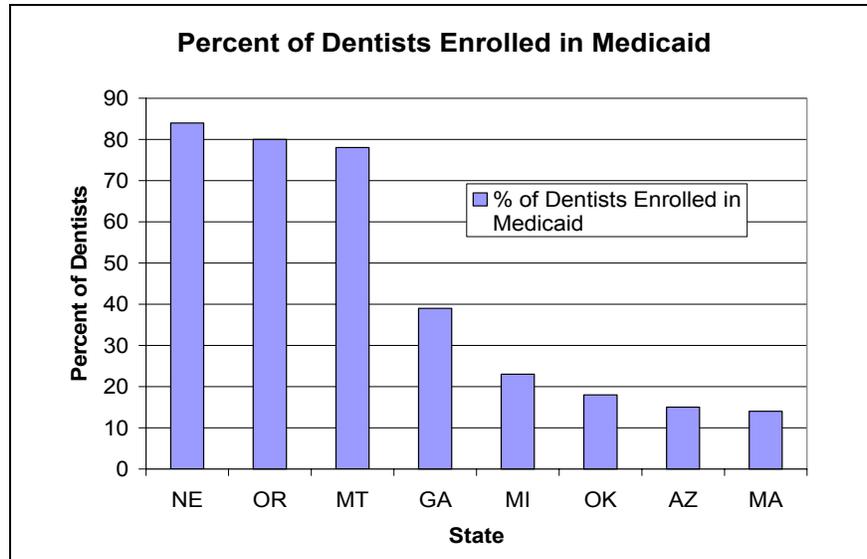
Chart 4B.



* Data was not applicable

Only Oregon had an net increase in the Medicaid payment rate for physicians between 1993 and 1998. Three profile states---Georgia, Massachusetts, and Oklahoma--- had net decreases in Medicaid payment rates for that period.

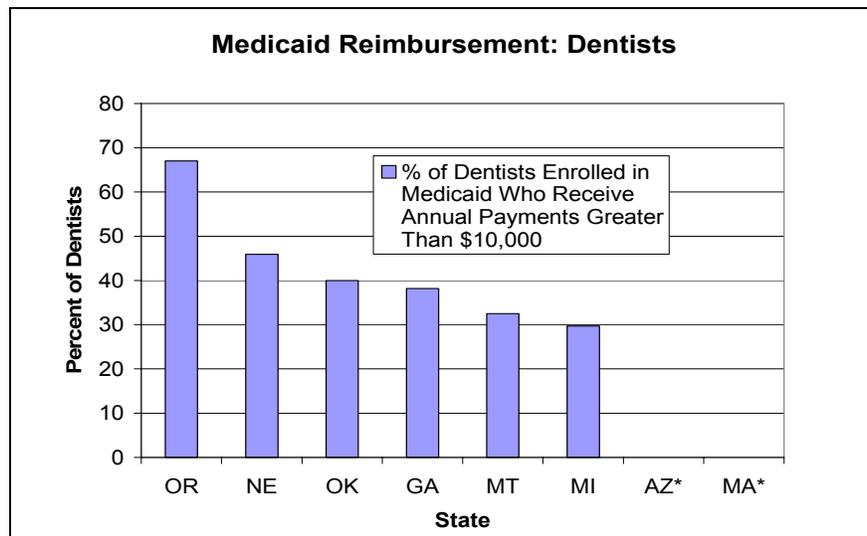
Chart 4C.



* Data was not available

Three profile states----Montana, Nebraska, and Oregon---have over three-quarters of dentists in the state actively enrolled in Medicaid. Less than forty percent of the dentists in the remaining states are enrolled in Medicaid.

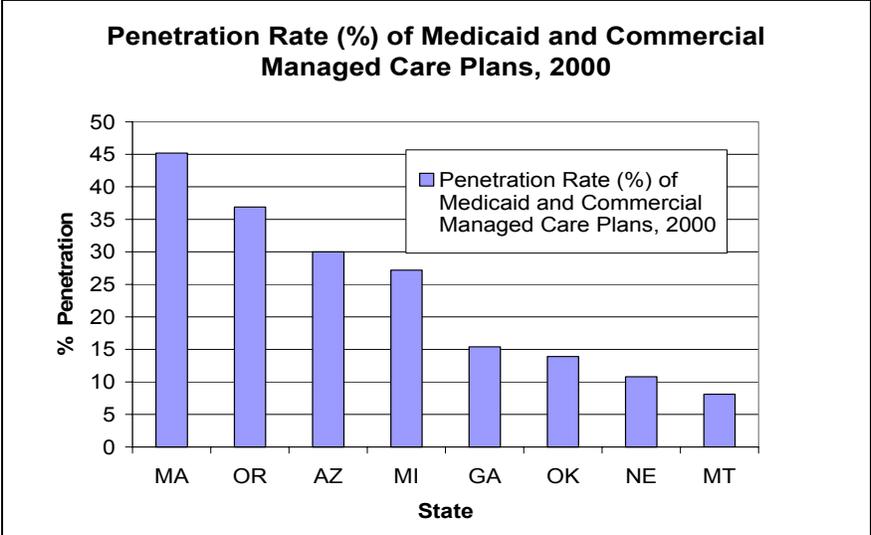
Chart 4D.



* Data was unavailable

Nearly seventy percent of Oregon dentists enrolled in Medicaid receive payments of greater than \$10,000 annually. Less than half of the dentists in the other states where data was available receive more than \$10,000 annually.

Chart 4E.



Medicaid and commercial managed care plans have the lowest penetration rates in Georgia, Montana, Nebraska, and Oklahoma.

SUMMARY AND ANALYSIS: Workforce Supply and Demand

In general, those profile states scoring comparatively higher on the various indicators of inadequate access to care also had overall supplies of various health professionals that were either below national averages or at appropriate levels. For example, the three profile states whose proportion of the population residing in primary care professional shortage areas (HPSAs) well exceeds the national average—Arizona, Georgia and Montana—have numbers of physicians per 100,000 population that are below national averages.

On the other hand, four profile states—Massachusetts, Michigan, Nebraska, Oklahoma and Oregon—have lower than average percentages of the population without health insurance as well as a lower than average proportion of the population residing in primary care HPSAs. All but one of the profile states—Massachusetts—have a per-capita physician supply that is below the national average. Yet, just one state—Arizona—reports having a per-capita count of pharmacists below the national norm.

The National Health Service Corps (NHSC) appears to play an important role in addressing health professional shortages in nearly all of the profile states. With the exception of Georgia and Nebraska, the ratio of NHSC providers per capita living in HPSAs in the profile states well exceeds the national average.

The importance of Medicaid as a payer to certain professions varies widely among the profiled states. In a growing number of states, Medicaid in fact appears to be less viable source of income to physicians and dentists. Believing that they are inadequately compensated for their services, large numbers of physicians are dropping out of Medicaid managed care plans; in many states, the problem of compensation is more of an issue between physicians and managed care plans than between physicians and Medicaid. Adequate compensation under fee-for-service Medicaid is still a major concern as well to most physicians and dentists. Despite a large Medicaid population, Medicaid payment rates for physicians have actually declined.

Most dentists, while they participate in Medicaid, have routinely decided to keep their involvement at a minimum. Nebraska, Oregon and Montana fare much better than other profile states with about 8 out of 10 dentists participating in the program. Of those dentists enrolled in these states, as many two-thirds of these dentists in Oregon and as little as one-third in Montana receive over \$10,000 in annual Medicaid payments. Subject to recent reductions due to state budget shortfalls, all states report that Medicaid in recent years has substantially increased dentist fees.

To boost dentist participation in Medicaid, experts point to the need for states to not only raise payment rates, but to also:

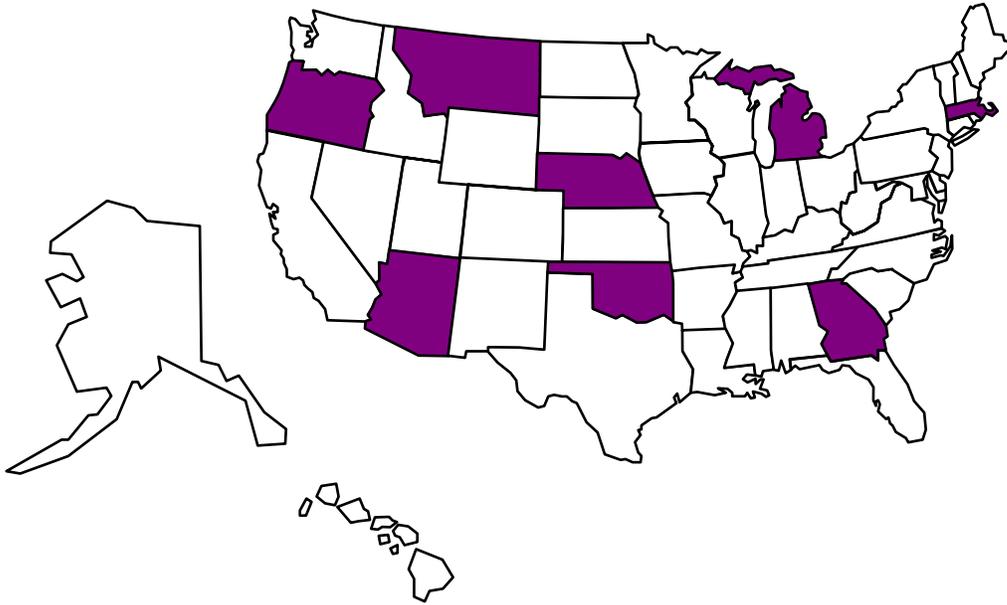
- Better understand dentist geographic distribution and practice patterns;
- Consider having Medicaid offer sign-up bonuses or make available tax credits to dentists;
- Simplify administrative tasks under Medicaid;
- Educate Medicaid clients about the dental health system and the importance of preventive care;

- Create or expand loan forgiveness programs for dentists willing to take public insurance;
- Increase dental capacity of publicly supported providers such as community health centers and local health departments;
- Consider increasing the number of school dental clinics and mobile vans;
- Improve community-based training opportunities for dentists and use Medicaid funds for graduate medical education to support general dentistry residencies; and
- Revise practice acts to expand scope of practice for dental hygienists.

Many profile states have addressed one or more of these strategies.

Several inconsistencies between supply and need (demand) are documented among the profile states. The appearance of such inconsistencies in several states, as noted earlier, is not surprising. Despite the ability of most states to ignore good health workforce data and planning in the face of other political and financial pressures, a few states have excelled in developing a good health professions information system. Nebraska and Georgia, at least for some health professions, are good examples of this.

Health Professions Education



State efforts to help ensure an adequate supply of health professionals can be understood in part by examining data on the state's health professions education programs—counts of recent students and graduates, amounts of state resources invested in education, and other factors. State officials can gauge how well these providers reflect the state's population by also examining how many students and graduates are state residents or minorities. Knowing to what extent states are also investing in primary care education and how many medical school graduates remain in-state to complete residencies in family medicine is also important.

PHYSICIANS: UNDERGRADUATE MEDICAL EDUCATION

Table 5.

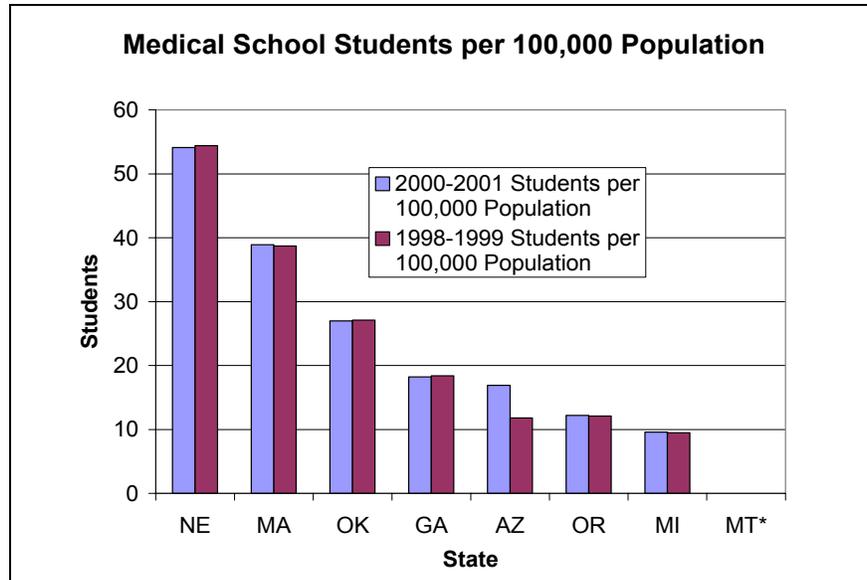
INDICATORS		PROFILE STATES							
		AZ	GA	MA	MI	MT	NE	OK	OR
Medical Schools (Allopathic and Osteopathic)	Total # of Schools	2	4	4	4	0	2	2	1
	# of Public Schools	1	1	1	4	0	1	2	1
	# of Private Schools	1	3	3	0	0	1	0	0
	# of Osteopathic Schools	1	0	0	1	0	0	1	0
Medical School Students (Allopathic and Osteopathic)	# in 2000-2001	895	1523	2,480	958	0	927	936	424
	# Per 100,000 population, 2000-2001 ¹	16.9	18.2	38.9	9.58	0	54.1	27.0	12.2
	# in 1998-1999	628	1543	2,467	947	0	932	939	419
	# Per 100,000 population, 1998-1999 ¹	11.8	18.4	38.7	9.47	0	54.4	27.1	12.1
	% Newly Entering (Allopathic) who are State Residents, 2002-2003	98.6	78.0	33.6	75.4	N/A*	51.9	95.8	54.8
	State and/or Most Training Programs Require Students in Some/All Schools to Complete Primary Care Clerkship	Yes	Yes	Yes	Yes	N/A*	Yes	Yes	Yes
Medical School Graduates (Allopathic and Osteopathic)	# in 2001	198	361	580	616	0	236	230	104
	# Per 100,000 population, 2001 ¹	3.73	4.3	9.1	6.2	0	13.8	6.6	3.0
	# in 1998	89	383	581	607	0	223	229	90
	# Per 100,000 population, 1998 ¹	1.67	4.6	9.1	6.1	0	13.0	6.6	2.6
	% Graduates (Allopathic) who are Underrepresented Minorities (1994-1998) U.S. average: 10.5	9.98	7.3	10.58	14.44	N/A*	5.95	10.47	4.56
	% 1987-1993 Medical School Graduates (Allopathic) Entering Generalist Specialties U.S. average: 26.7	34.0	29.5	24.8	26.7	N/A*	29.1	28.6	33.4
State Appropriations to Medical Schools (Allopathic and Osteopathic)	Total State Appropriations (\$ in millions) 2000-2001	\$48.1	\$98.9	\$43.0	\$113.5	\$0.0	\$76.0	\$58.3	\$17.2
	State Appropriations Per Medical Student (\$ in thousands) 2000-2001	\$76.6	\$64.9	\$17.3	\$118.4	\$0.0	\$82.0	\$62.3	\$40.6

¹ Denominator number is state population from 2000 U.S. Census.

N/A* = Data was not applicable

Sources: AAMC, AAMC Institutional Goals Ranking Report, AACOM, Barzansky et al. "Educational Programs", State higher education coordinating boards.

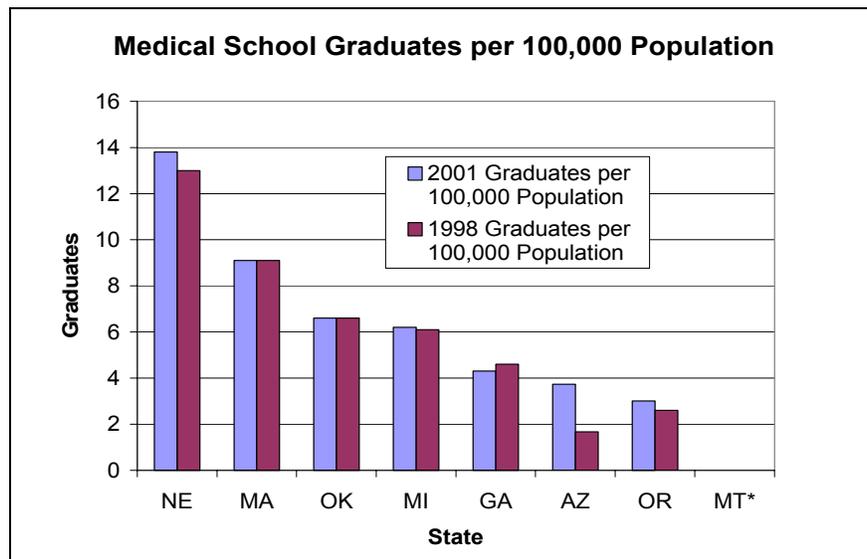
Chart 5A.



* Montana does not have a medical school

Massachusetts, Oklahoma, and Nebraska have significantly higher numbers of medical students per 100,000 than the other profile states that have medical schools.

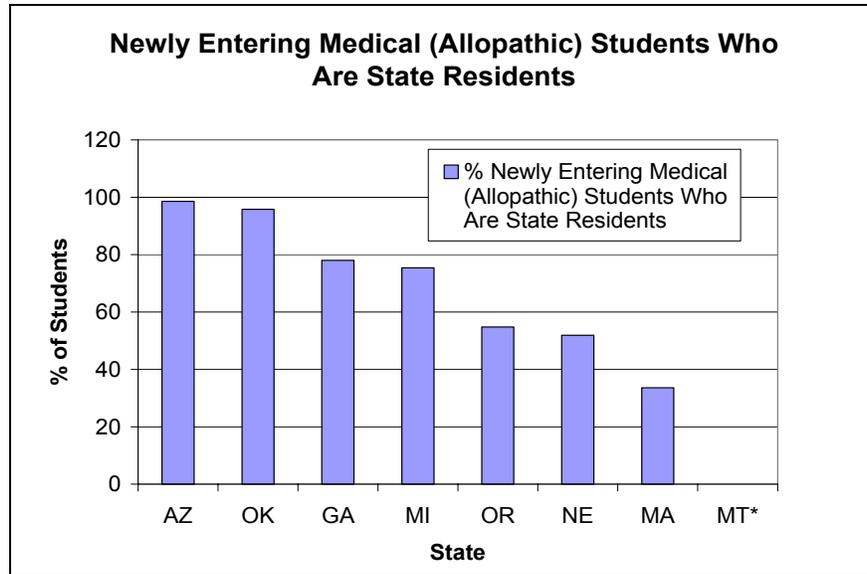
Chart 5B.



* Montana does not have a medical school

Massachusetts and Nebraska have more than double the number of medical school graduates per 100,000 population than Arizona and Oregon.

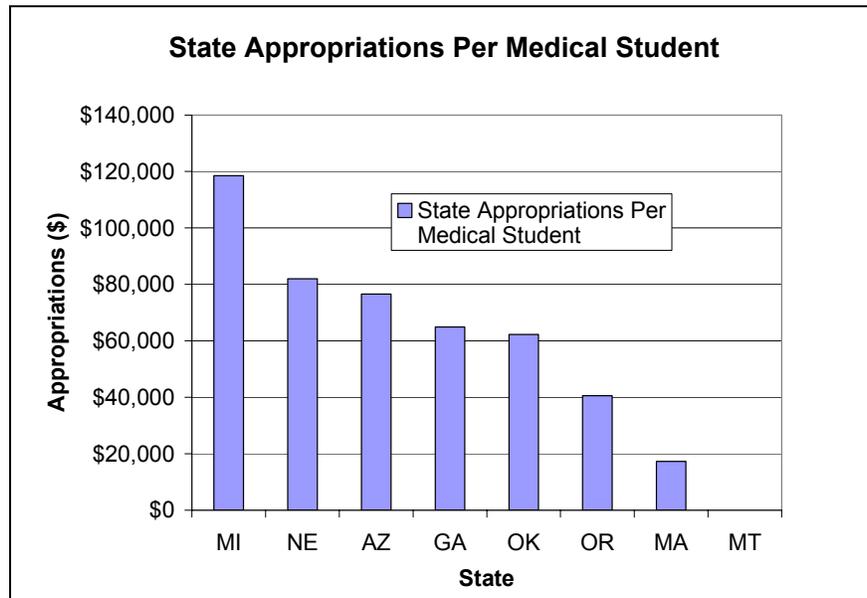
Chart 5C.



* Montana does not have a medical school

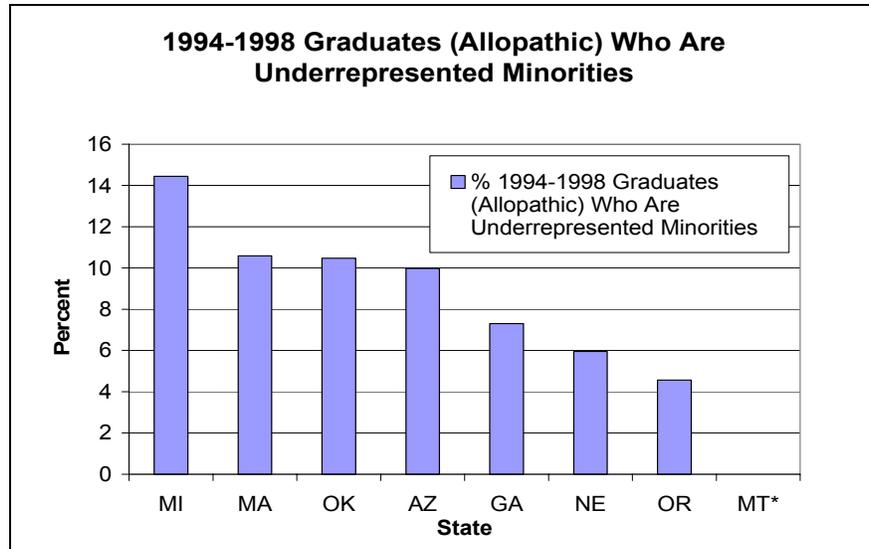
Nearly all of the newly entering allopathic medical students in Arizona and Oklahoma are state residents.

Chart 5D.



Michigan appropriates over twice as much per medical student than most of the other profile states.

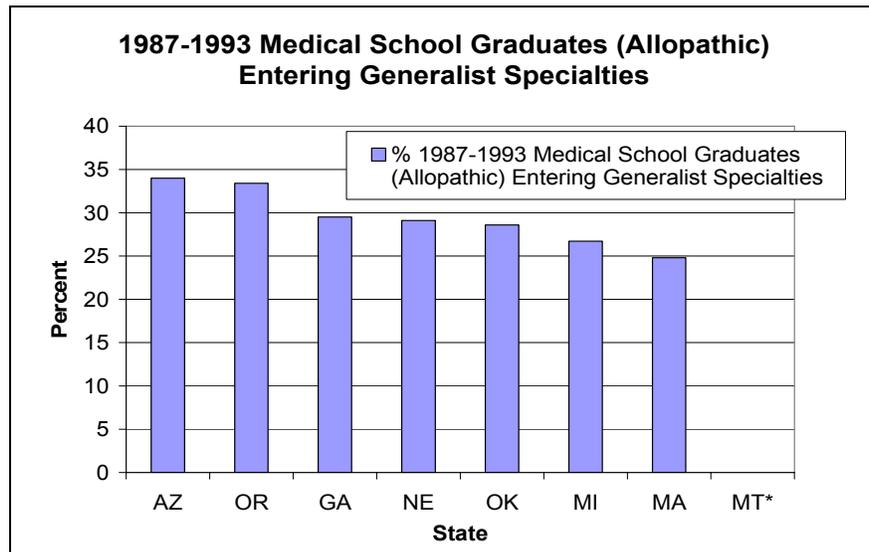
Chart 5E.



* Montana does not have a medical school

In three profile states---Georgia, Nebraska, and Oregon---fewer than 10 percent of allopathic medical school graduates from 1994-1998 were underrepresented minorities.

Chart 5F.



* Montana does not have a medical school

Between one-quarter to one-third of medical school graduates in the profile states with allopathic medical schools entered into generalist specialties between 1987 and 1993.

PHYSICIANS: GRADUATE MEDICAL EDUCATION

Table 6.

INDICATORS		PROFILE STATES							
		AZ	GA	MA	MI	MT	NE	OK	OR
Number of Residency Programs (Allopathic and Osteopathic), 2002-2003		83	148	346	312	2	48	61	59
Residents (Allopathic and Osteopathic)	# 2002-2003	1066	1803	4656	4061	N/A	565	656	678
	# Per 100,000 Population, 2002-2003 ²	20	21	72	40	N/A	33	19	19
	% From In-State Medical School, 2000-2001 ¹	17.3	27.4	21.0	24.2	N/A*	44.4	33.5	14.8
	% Who Are International Medical School Graduates 2000-2001 <i>U.S. average: 25.7</i>	12.4	16.2	21.1	32.5	5.0	23.3	25.6	5.8
	State and/or Most Training Programs Require Some or All Residents to be Offered a Rural Rotation	No	No	No	No	Yes	No	No	No
Residencies in Family Medicine	# of Residencies, 2001-2002	6	12	5	18	2	5	8	3
	# of Residents, 2001-2002	18	42	29	56	N/A	17	23	18
	# Per 100,000 Population, 2001-2002 ²	0.3	0.5	0.5	0.6	N/A	1.0	0.7	0.5
	% In-State Medical School Graduates who were First Year Family Medicine Residents, 1995-2001 <i>U.S. average: 14.1</i>	17.4	14.5	7.4	15.4	N/A*	19.1	19.1	21.3
	% In-State Medical School Graduates Choosing Family Medicine Who Entered In-State Family Medicine Residency, 1995-2001 <i>U.S. average: 48.2</i>	41.9	40.9	29.3	54.4	N/A*	43.5	49.4	12.4
State Financing of Graduate Medical Education	Medicaid GME Payments (\$ in millions), 2002 ³	\$18.6	\$80.0	\$42.3	\$173.3	\$0.12	\$11.4	\$108.3	\$27.1
	Medicare GME Payments (\$ in millions), 1998 ³	\$47.3	\$96.1	\$331.1	\$381.8	\$1.9	\$34.7	\$34.0	\$27.3

¹ Allopathic residents only.

² Denominator is state population from 2000 U.S. Census.

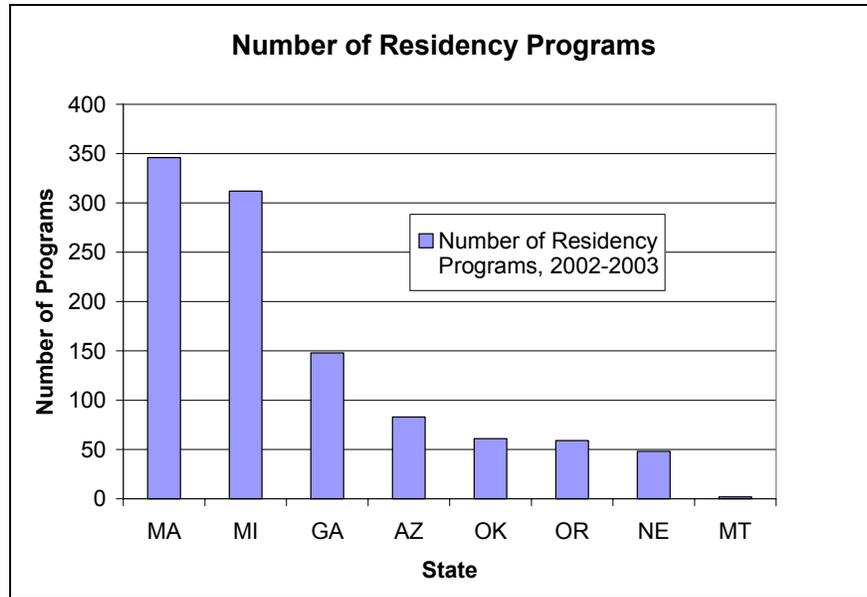
³ Explicit payments for both direct and indirect GME cost.

N/A = Data was not available

N/A* = Data was not applicable

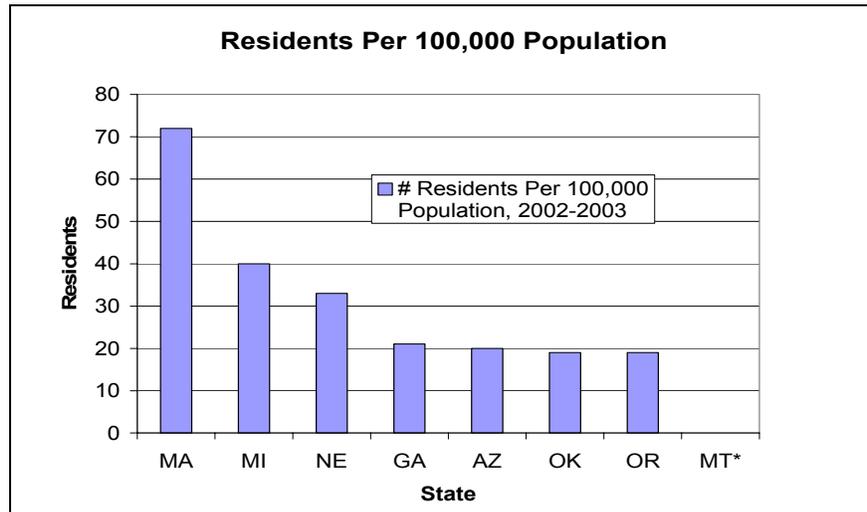
Sources: AMA, AMA [State-level Data](#), AACOM, State higher education coordinating boards, Henderson "Funding", Oliver et al. "State Variations", AAFP, AAFP [State Legislation](#), Kahn et al., Pugno et al. and Schmittling et al. "Entry of U.S. Medical School Graduates".

Chart 6A.



Massachusetts and Michigan have more than twice as many residency programs as the other profile states.

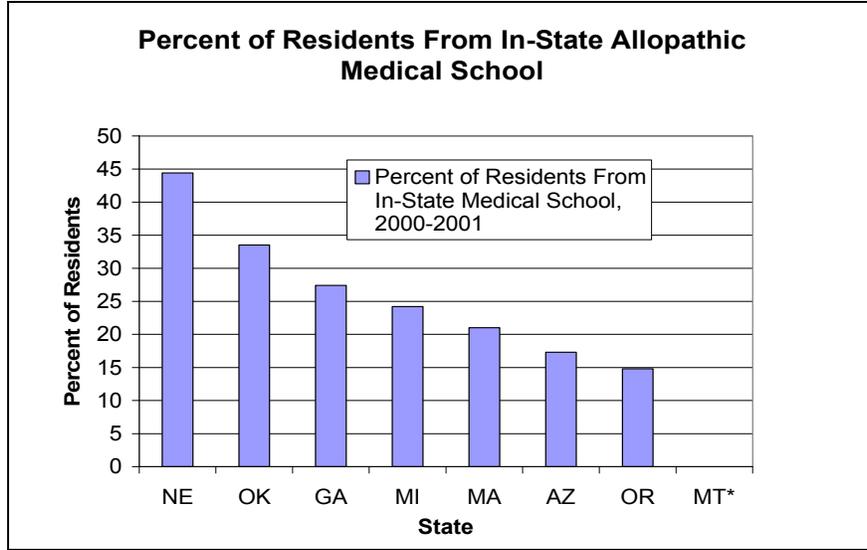
Chart 6B.



* Data was not available

Massachusetts has significantly more residents per 100,000 population than any other profile state.

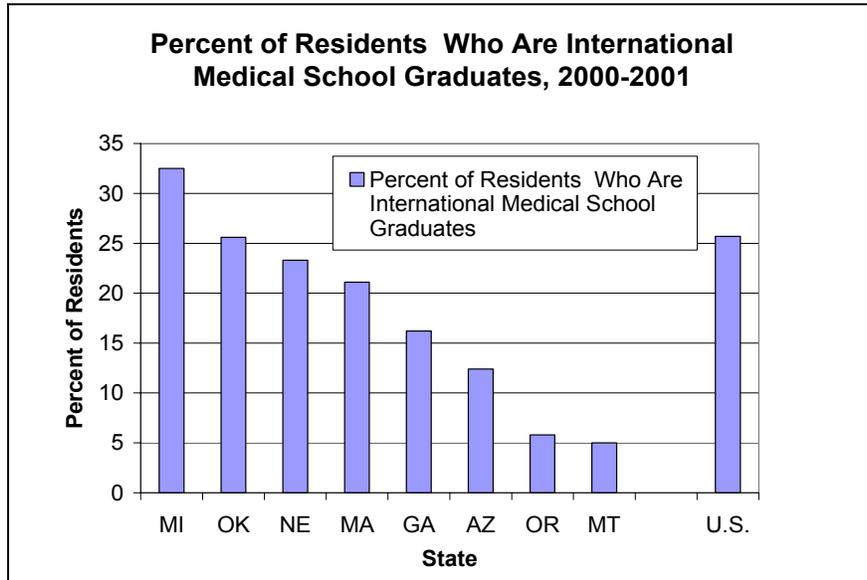
Chart 6C.



* Montana does not have a medical school

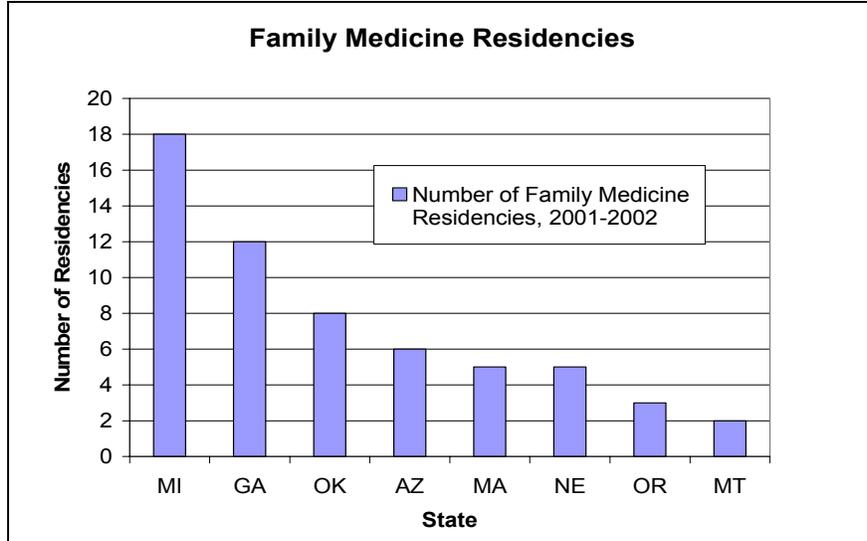
Four states----Arizona, Massachusetts, Michigan, and Oregon----get less than one-quarter of their residents from in-state medical schools.

Chart 6D.



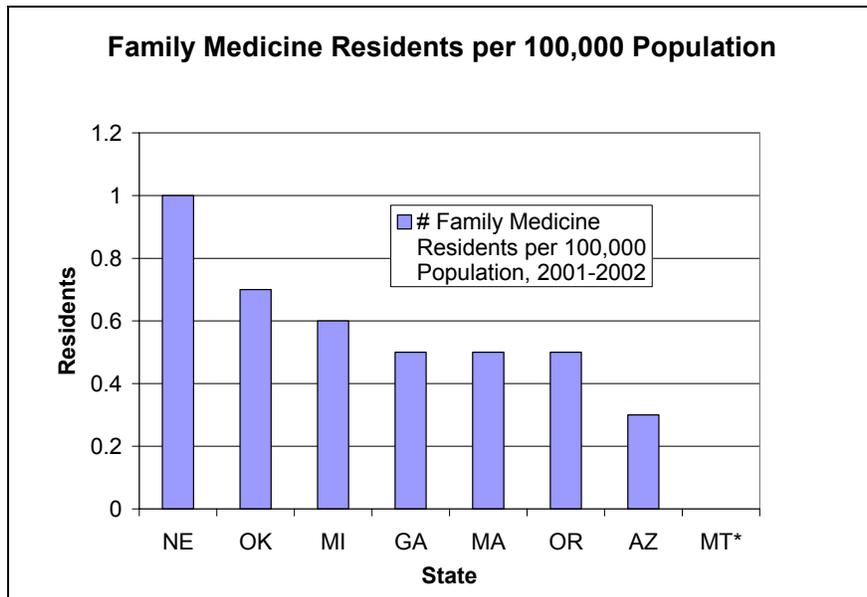
Roughly one third of residents in Michigan and one-quarter of residents in Oklahoma are International Medical School Graduates (IMGs). Only five percent of residents in MT are IMGs.

Chart 6E.



Michigan and Georgia have significantly high numbers of residencies than the other six profile states.

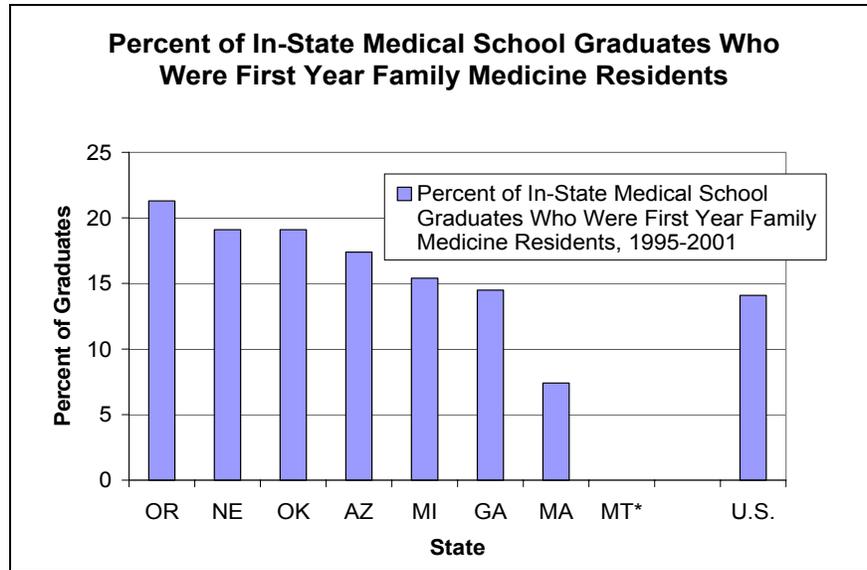
Chart 6F.



* Data was not available

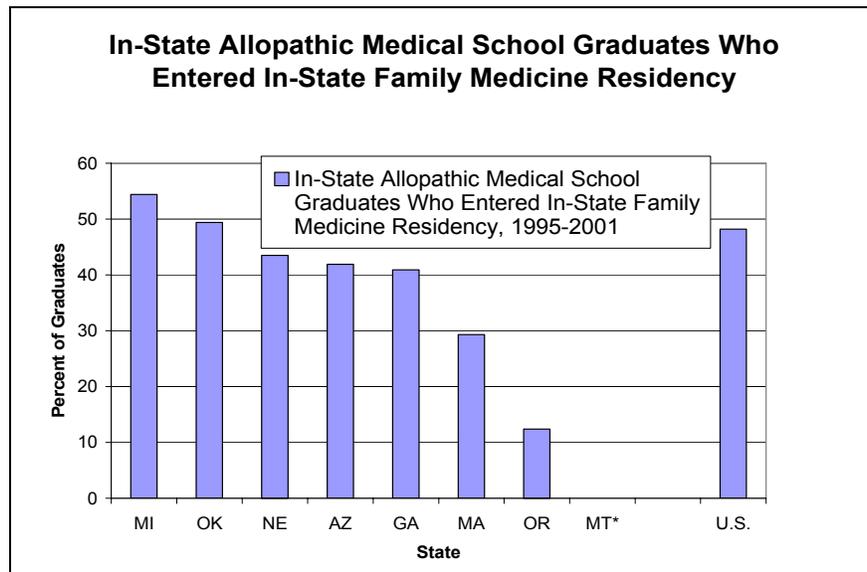
Nebraska has the highest number of family medicine residents per 100,000 population of all the profile states. Arizona has the smallest.

Chart 6G.



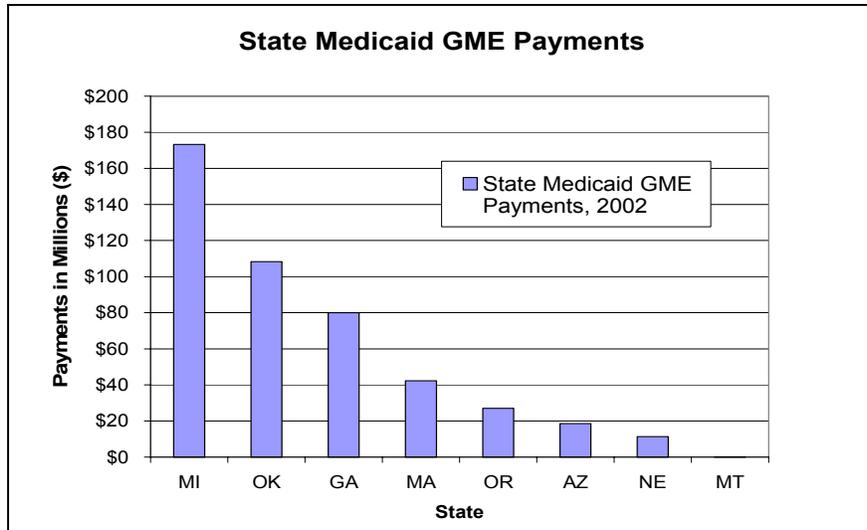
Of the states with medical schools, only Massachusetts had a lower percentage of in-state medical school graduates who were first year family residents than the national average.

Chart 6H.



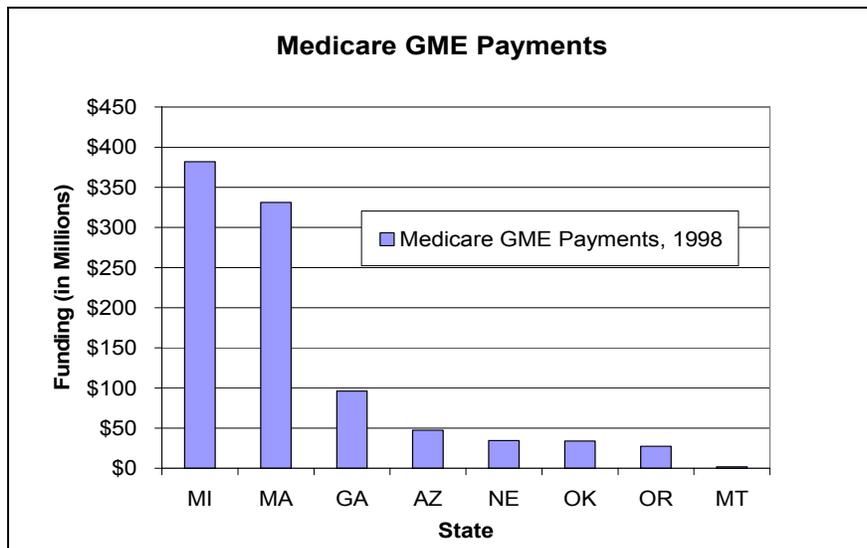
Only twelve percent of Oregon allopathic medical school graduates entered in-state family medicine residency from 1995-2001.

Chart 6I.



Michigan Medicaid GME payments in 2002 were more than twice those of the other profile states.

Chart 6J.



Medicare GME funding in Massachusetts and Michigan is more than three times that of all the other profile states.

NURSING EDUCATION

Table 7.

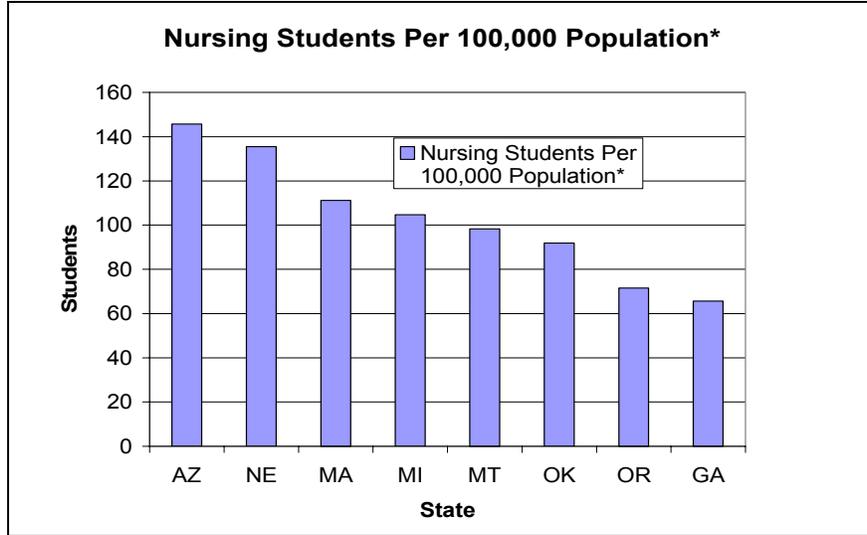
INDICATORS		PROFILE STATES								
		AZ	GA	MA	MI	MT	NE	OK	OR	
Nursing Schools	Total # of Schools	21	38	44	48	5	21	45	16	
	# of Public Schools	18	33	26	41	3	13	25	14	
	# of Private Schools	3	5	18	7	2	8	20	2	
Nursing School Students	Total # of Students *	7,732	5,499	7,091	10,462	889	2,321	3,181	2,488	
	# Per 100,000 Population **	145.7	65.6	111.2	104.7	98.3	135.5	91.9	71.6	
	# of Associate Degree Students, 2002-2003	2,291	2,022	2,532	4,259	101	629	1,777	983	
	# of Baccalaureate Students	2001-2002	744	241	3,810	4,491	636	1,201	1,047	1,197
		2002-2003	3,414	2,725	3,363	5,258	767	1,354	1,165	1,292
	# of Masters Students	2001-2002	169	678	1,136	930	19	372	208	186
		2002-2003	1,958	702	1,081	817	21	304	239	170
	# of Doctoral Students	2001-2002	53	43	106	127	0	36	0	37
2002-2003		69	50	115	128	0	34	0	43	
Nursing School Graduates	Total # of Graduates *	2,784	1,925	2,188	2,758	180	716	1,266	948	
	# Per 100,000 Population **	52.5	23.0	34.3	27.6	19.9	41.8	36.6	27.3	
	# of Associate Degree Graduates, 2002	933	707	980	1,365	39	191	680	462	
	# of Baccalaureate Graduates	# in 2001	313	925	930	1,195	130	400	465	367
		# in 2002	1,124	988	812	1,129	133	446	534	396
	# of Masters Graduates	# in 2001	66	268	371	317	10	107	58	54
		# in 2002	723	223	380	248	8	75	52	85
	# of Doctoral Graduates	# in 2001	8	12	18	15	0	1	0	5
# in 2002		4	7	16	16	0	4	0	5	

* This number is the total of all associate, baccalaureate, masters and doctoral students/ graduates, using the most recent data available.

** This figure uses the total number of students/ graduates from the figure above and the state population from the 2000 U.S. Census.

Sources: NLN, AACN.

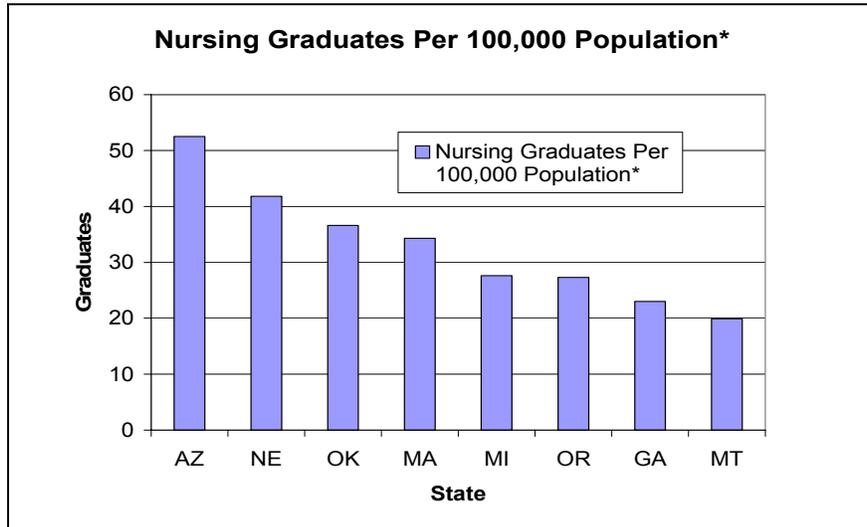
Chart 7A.



* Number of students is the total of all associate, baccalaureate, masters and doctoral students/ graduates, using the most recent data available; denominator is state population from 2000 Census.

Arizona and Nebraska have more nursing students per 100,000 population than the other profile states.

Chart 7B.



* Number of graduates is the total of all associate, baccalaureate, masters and doctoral students/ graduates, using the most recent data available; denominator is state population from 2000 Census.

Montana has less than half as many nursing graduates per 100,000 population as Arizona and Nebraska.

DENTAL EDUCATION

Table 8.

INDICATORS		PROFILE STATES							
		AZ*	GA	MA	MI	MT	NE	OK	OR
Dental Schools	Total # of Schools	0	1	3	2	0	2	1	1
	# of Public Schools	0	1	0	1	0	1	1	1
	# of Private Schools	0	0	3	1	0	1	0	0
Dental Students	Total # of Students, 2000-2001	0	223	1344	718	0	497	214	277
	# Per 100,000 Population, 2000-2001	0	2.7	21.1	7.2	0	29.0	6.2	8.0
Dental Graduates	Total # of Graduates, 2000	0	52	327	176	0	125	55	71
	# Per 100,000 Population, 2000	0	0.6	5.1	1.8	0	7.3	1.6	2.0
State Appropriations (\$) Per Dental Student, 1997		N/A*	\$44,470	N/A	\$36,503	N/A*	\$20,823	\$17,968	\$15,314

Denominator number is state population from the 2000 U.S. Census.

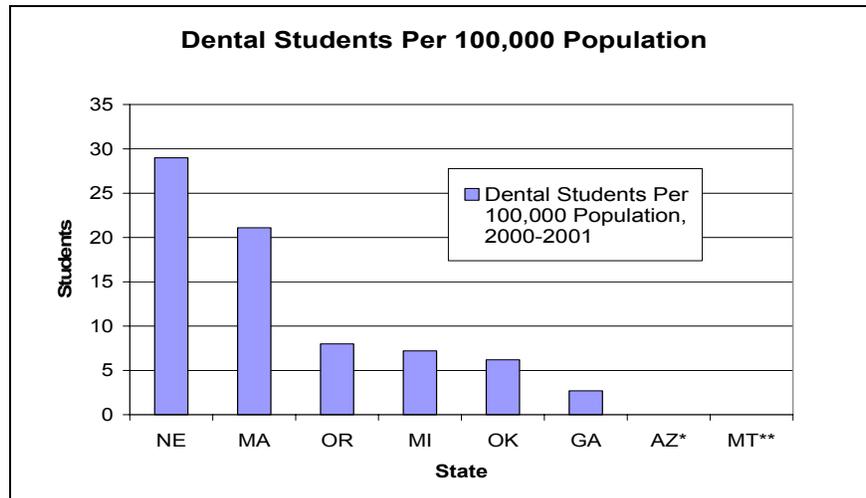
*New school accepted first students in Fall 2003.

N/A = Data was not available

N/A* = Data was not applicable

Source: ADA.

Chart 8A.

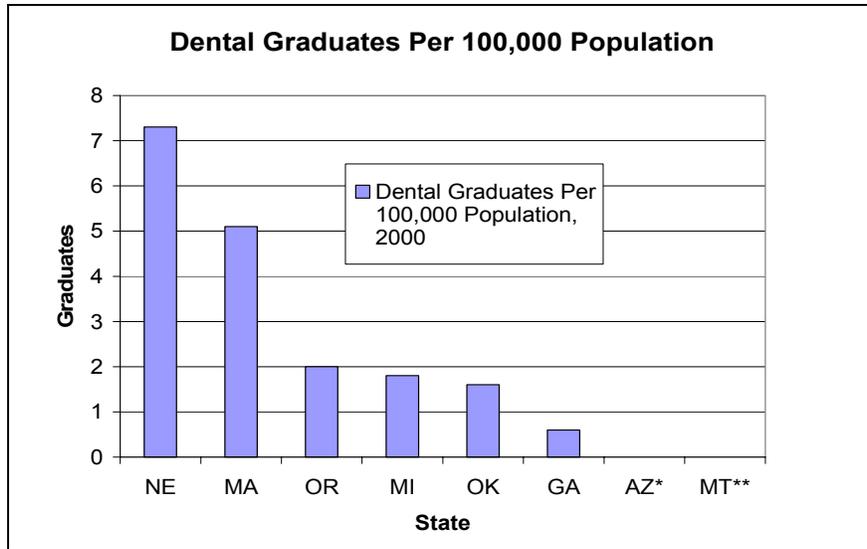


*New school accepted first students in Fall 2003.

** Montana does not have a dental school.

Massachusetts and Nebraska have over three times as many dental students per capita as Georgia, Michigan, Oklahoma and Oregon.

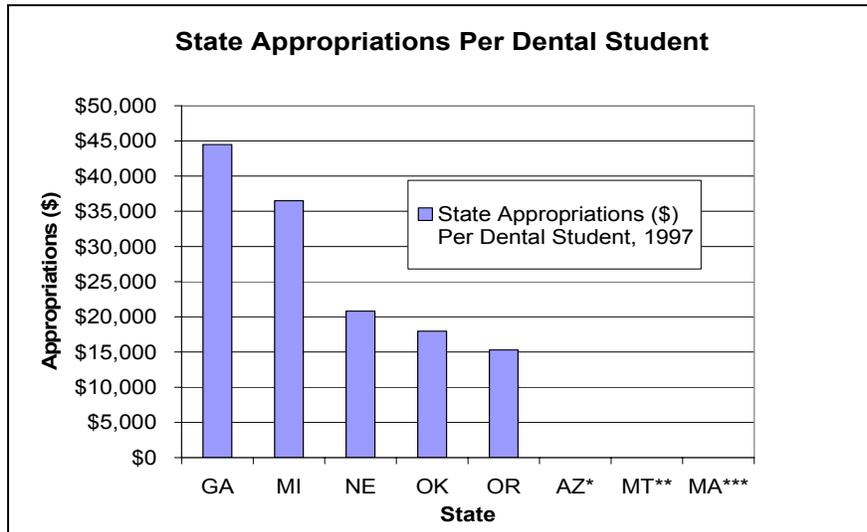
Chart 8B.



*New school accepted first students in Fall 2003.
 ** Montana does not have a dental school.

Massachusetts and Nebraska have significantly more graduates per 100,000 population than the other profile states with dental schools.

Chart 8C.



*New school accepted first students in Fall 2003.
 ** Montana does not have a dental school.
 *** Data was not available

Georgia and Michigan appropriate much more money per dental student than the other profile states with dental schools.

PHARMACY EDUCATION

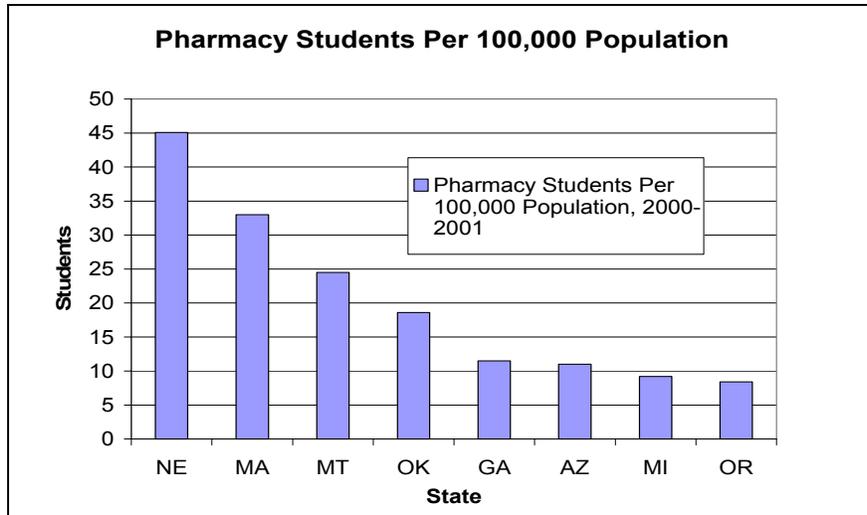
Table 9.

INDICATORS		PROFILE STATES							
		AZ	GA	MA	MI	MT	NE	OK	OR
Pharmacy Schools	Total # of Schools	2	2	3	3	1	2	2	1
	# of <i>Public</i> Schools	1	1	0	3	1	1	2	1
	# of <i>Private</i> Schools	1	1	3	0	0	1	0	0
Pharmacy School Students, 2000-2001	Total # of Students	585	967	2102	923	222	773	644	290
	# Per 100,000 Population*	11.0	11.5	33.0	9.2	24.5	45.1	18.6	8.4
	# Baccalaureate Students	0	0	1	158	12	0	0	0
	# Doctoral (PharmD) Students	585	967	2101	765	210	773	644	290
Pharmacy School Graduates, 2000	Total # of Graduates	144	211	256	281	65	164	119	0
	# Per 100,000 Population*	2.7	2.5	4.0	2.8	7.2	9.6	3.4	0
	# Baccalaureate Graduates	0	1	7	206	21	0	9	0
	# Doctoral (PharmD) Graduates	144	210	249	75	44	164	119	0

* Denominator number is state population from the 2000 U.S. Census.

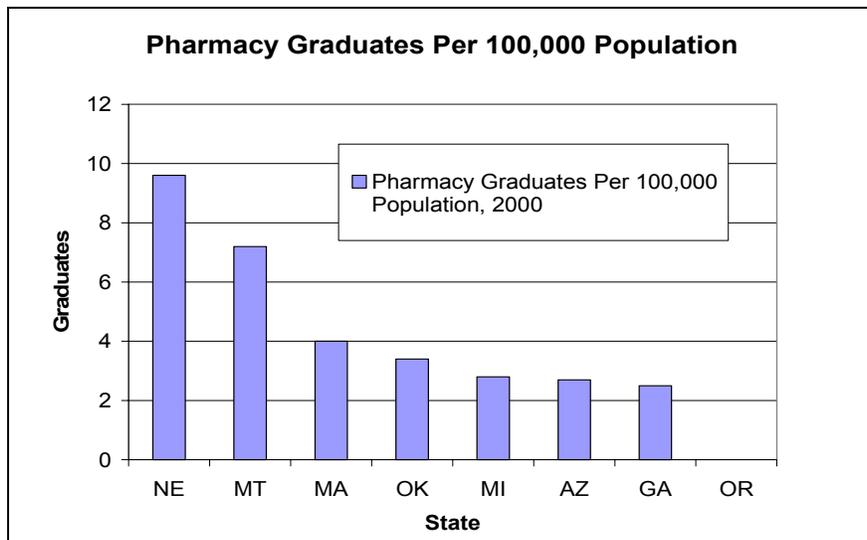
Source: AACP.

Chart 9A.



Nebraska has more than three times as many pharmacy students per 100,000 population as Arizona, Georgia, Michigan, and Oregon.

Chart 9B.



Montana and Nebraska have significantly more pharmacy graduates per 100,000 population than the other profile states.

PHYSICIAN ASSISTANT EDUCATION

Table 10.

INDICATORS*		PROFILE STATES							
		AZ	GA	MA ²	MI ²	MT	NE	OK	OR
Physician Assistant Training Programs, 2002-2003	Total # of Programs	2	3	2	5	1	2	1	2
Physician Assistant Program Students, 2002-2003	Total Number	253	227	63 ³	277	32 ³	51	100	112
	# Per 100,000 Population ¹	4.76	2.7	0.98	2.77	3.53	2.97	2.89	3.22
Physician Assistant Program Graduates, 2003	Total Number	N/A	90	31	157	N/A	36	51	N/A
	# Per 100,000 Population ¹	N/A	1.07	0.48	1.57	N/A	2.10	1.47	N/A

* These data are based only on the schools that responded to a survey by the Association of Physician Assistant Programs.

¹ Denominator number is state population from the 2000 U.S. Census.

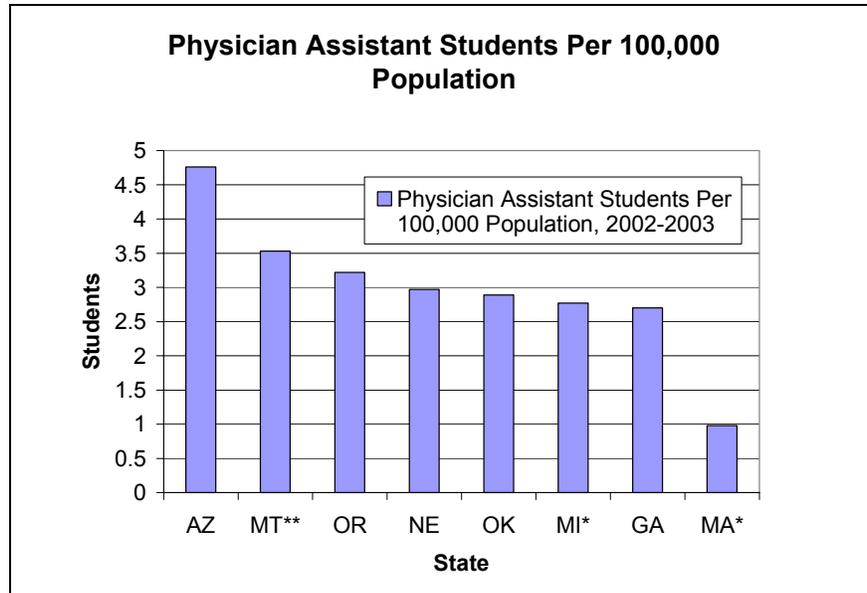
² Data was only available from one of the programs in Massachusetts and four of the programs in Michigan.

³ The most recent available data from this program was 1997-1998.

N/A = Data was not available

Source: APAP, APAP Annual Report.

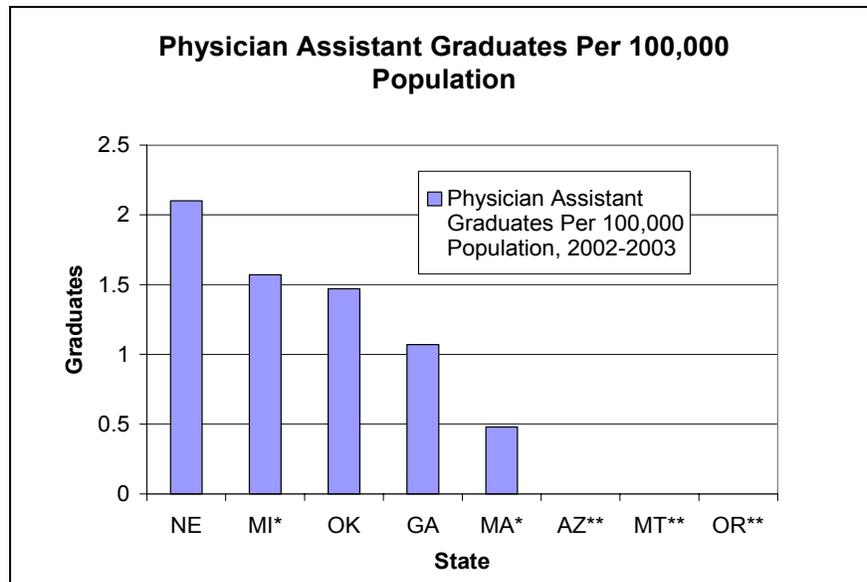
Chart 10A.



* Data was only available from one of the programs in Massachusetts and four of the programs in Michigan.
 ** The most recent available data from this program was 1997-1998.

Arizona had more physician assistant students per 100,000 population than any of the other profile states.

Chart 10B.



* Data was only available from one of the programs in Massachusetts and four of the programs in Michigan.
 ** Data was not available

Nebraska had more physician assistant graduates per 100,000 population than any of the other profile states for which data was available.

DENTAL HYGIENIST EDUCATION

Table 11.

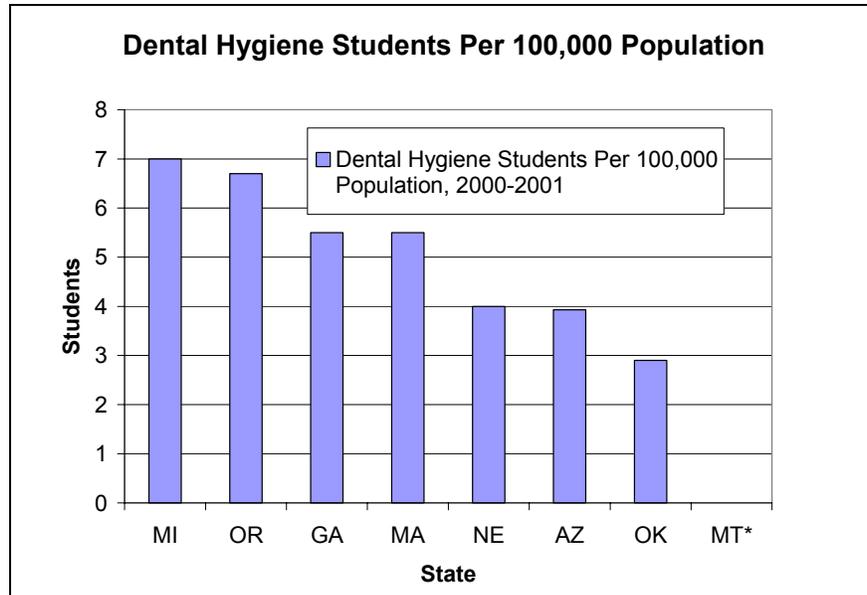
INDICATORS		PROFILE STATES							
		AZ	GA	MA	MI	MT ¹	NE	OK	OR
Dental Hygiene Training Programs	Total # of Programs	3	13	7	12	1	2	3	5
	# of <i>Public</i> Programs	3	13	5	10	1	2	3	5
	# of <i>Private</i> Programs	0	0	2	2	0	0	0	0
Dental Hygiene Training Program Students	# of Students, 2001-2002	209	457	354	697	0	69	99	233
	# Per 100,000 Population, 2001-2002*	3.93	5.5	5.5	7.0	0	4.0	2.9	6.7
Dental Hygiene Training Program Graduates	# of Graduates, 2001	112	212	172	330	0	34	46	111
	# Per 100,000 Population, 2001*	2.11	2.5	2.7	3.3	0	2.0	1.3	3.2

* Denominator number is state population from the 2000 U.S. Census.

¹ Montana opened a dental hygiene school in 2003

Sources: ADHA, AMA [Health Professions](#).

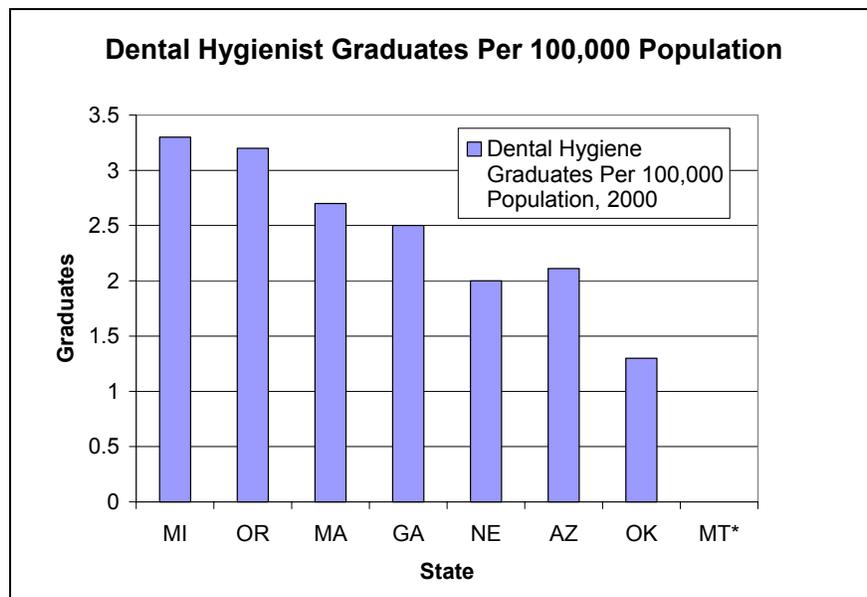
Chart 11A.



* Montana opened a dental hygiene school in 2003

Michigan and Oregon have the highest numbers of dental hygiene students per 100,000 population. Oklahoma has the lowest.

Chart 11B.



* Montana opened a dental hygiene school in 2003

Michigan and Oregon have more than twice as many dental hygiene graduates as Arizona and Oklahoma.

SUMMARY AND ANALYSIS

The various indicators of health professions education point to both important similarities as well as significant differences among the profile states.

Medical Education

With the exception of Arizona where enrollment in the state's two medical schools rose drastically between 1998 and 2000, the number of enrolled medical students in the profiled states has remained steady or in small decline in recent years. All of the profile states, except Montana, have at least one medical school. Three of the eight states have four medical schools.

The percent of newly entering medical students who are state residents varies widely by state. Over 90 percent of such students are state residents in Arizona and Oklahoma where there is a predominance of public schools. In Massachusetts, where three of the four medical schools are private, just a third of the newly entering students are in-state residents.

Most medical schools derive the majority of their income from care to referral patients, federal research funds, and state appropriations. Nationally, state appropriations for medical education have increased steadily since the early 1980s. In 2001-2002, state appropriations amounted to \$3.7 billion. About 95 percent of those appropriations went to public schools that represent about 60 percent of all medical schools. Of the profiled states, Michigan's four public medical schools are the leaders in receipt of state support for undergraduate medical education.

While total state appropriations have risen steadily, the percent that these funds represent to the average medical school's revenue base is declining. Nationally, in 2001-2002, state appropriations represented just 7 percent of total medical school revenues compared to nearly 23 percent in the early 1980s. For public medical schools, however, the proportion is twice the overall average—16 percent.

Although patient referrals and federal research funds are based on performance and quite competitive, state appropriations are not generally related to performance outside of meeting basic accreditation rules and regulations. Despite the lack of a required link to performance, medical students in all of the profiled states (excluding Montana) are mandated by either the state or most of the medical schools to complete a clinical clerkship in family medicine or primary care (mostly in the third year of school).

In earlier studies of what medical school characteristics are related to choice of family medicine as a specialty, the public ownership of the medical school and the number of required weeks of a family medicine clinical clerkship were the only two characteristics found to be significant. This is evident in at least two profile states—Michigan and Oklahoma. One half to 55 percent of all in-state medical school graduates of the two states' all public medical schools entered an in-state family medicine residency between 1995 and 2001.

Virtually all innovative undergraduate and graduate training programs based in rural or community-based settings that are viewed as addressing the state's physician workforce needs were started with and still may depend significantly on grant funds or state appropriations.

Payments by Medicare and Medicaid for graduate medical education (GME) largely do not address such training missions. However, in this study, three of the profile states—Massachusetts, Michigan and Oklahoma—have in place policies as part of their Medicaid program’s GME payments that link these payments to addressing state health workforce goals or needs.

Other Professions Education

As is evident nationwide, nursing school enrollment in most of the profiled states has rebounded since the late 1990s. Baccalaureate nursing school enrollment in all but one profile state—Massachusetts—increased between 2001 and 2002. In fact, baccalaureate enrollment for the period in Arizona and Georgia rose drastically.

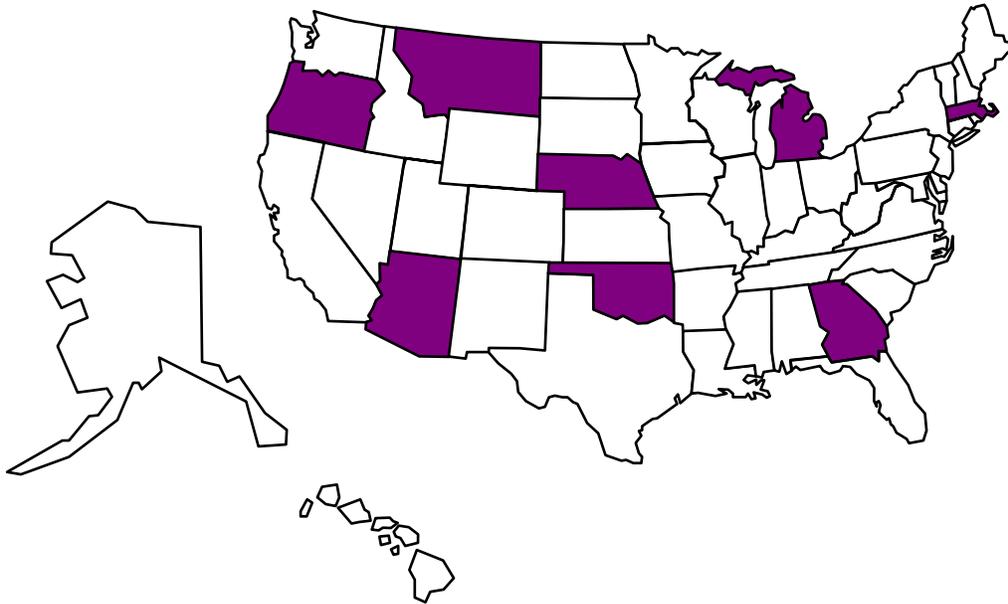
There is wide variation among the states in the number of nursing school graduates per capita. Arizona’s supply of nursing graduates per 100,000 population is over twice that of Georgia’s nursing graduate supply. Arizona has 21 schools and Georgia has 38 schools. The clear majority of the nursing schools in these states are public schools.

All but one of the profile states—Montana—has a dental school. Montana contracts with dental schools in nearby states to enable qualified in-state students to enroll in these programs. The number of dental schools operating in these states are a mixture of both public and private. Arizona’s dental school is brand new, having admitted its first class of students in the fall of 2003.

None of the profile states’ dental schools appear to be producing a sufficient supply of dental graduates to replace the existing supply of dentists or to expand access to dental care for underserved populations. There is also wide variation of student enrollment—Nebraska’s two schools enroll over ten times the number of students per 100,000 population as Georgia’s one school. However, state support for dental education in Georgia, on a per student basis, is the highest of the profiled states. State funding per dental student is lowest in Oregon and Oklahoma.

All the profile states have at least one college of pharmacy. As elsewhere, the trend in these states has been to graduate a predominance of doctoral degree students and only a remaining few baccalaureate students.

Physician Practice Location



The following tables examine in-state physician practice location from two different vantage points: (1) of all physicians who were trained (went to medical school or received their most recent GME training) in the state between 1975 and 1998, and (2) of all physicians who are now practicing in the state, regardless of where they were trained. The data was compiled from the American Medical Association's 1999 Physician Masterfile by Quality Resource Systems, Inc..

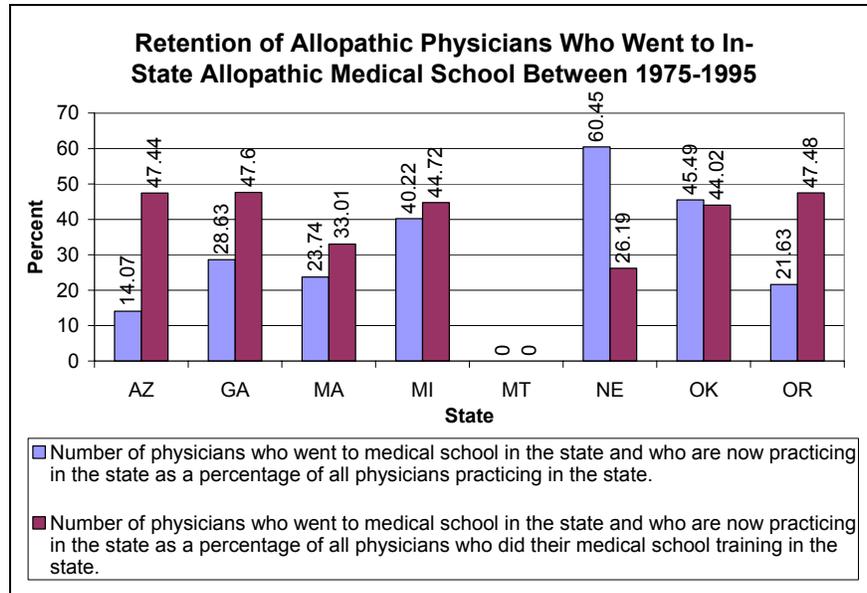
**PRACTICE LOCATION OF PHYSICIANS WHO RECEIVED
THEIR ALLOPATHIC MEDICAL SCHOOL TRAINING
(1975-1995) OR MOST RECENT GME TRAINING (1978-1998)
IN THE STATE**

Table 12.

STATE	AZ	GA	MA	MI	MT	NE	OK	OR
Number of physicians who were trained in the state and who are now practicing in the state as a percentage of all physicians practicing in the state.	14.07	28.63	23.74	40.22	0.00	60.45	45.49	21.63
Number of physicians who were trained in the state and who are now practicing in the state as a percentage of all physicians who were trained in the state.	47.44	47.60	33.01	44.72	0.00	26.19	44.02	47.48
Number of physicians who received their most recent GME training in the state and who are now practicing in the state as a percentage of all physicians practicing in the state.	33.21	35.58	63.33	63.43	0.00	43.06	46.56	32.43
Number of physicians who received their most recent GME training in the state and who are now practicing in the state as a percentage of all physicians who received their most recent GME training in the state.	47.39	51.09	49.29	50.43	0.00	45.63	51.55	54.11

NOTE: Montana does not have an allopathic medical school.

Chart 12A.

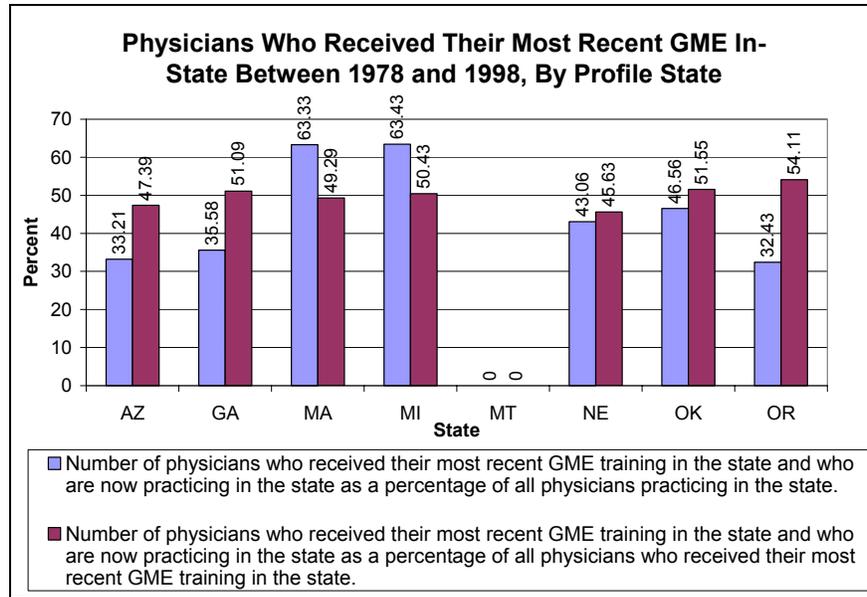


* Montana does not have a medical school

Nebraska, Michigan, and Oklahoma had the highest retention rates for physicians who went to medical school in the state. Arizona had the lowest retention rate for physicians who went to medical school in the state at fourteen percent.

Only one-quarter of the physicians now practicing in Nebraska and one-third of physicians practicing in Massachusetts received their medical training in the state.

Chart 12B.



* Data was not available

Nearly two-thirds of physicians now practicing in Massachusetts and Michigan received their most recent GME training in the state.

Oregon and Georgia had the highest number of physicians who received their most recent GME training in the state in which they are practicing. Nebraska and Arizona had the lowest numbers.

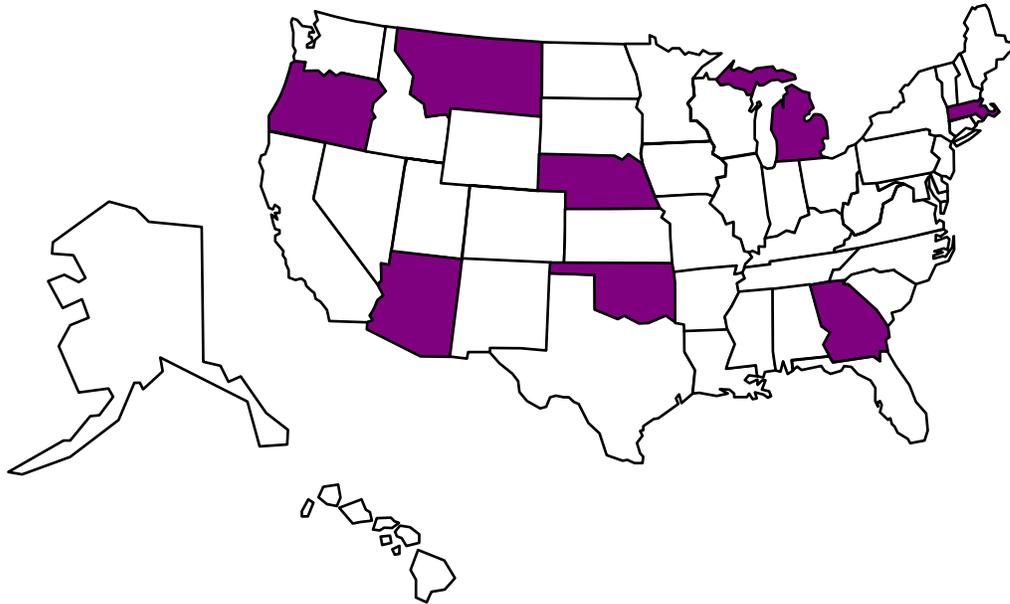
SUMMARY AND ANALYSIS

As tabulated from recent physician data masterfiles of the American Medical Association, there is wide variation among the profiled states as to whether location of allopathic medical school training and graduate medical education (GME) is a significant factor in a physician's practice location. Massachusetts and Michigan, two states each with 4 medical schools and over 300 GME programs fare best of the profile states at retaining resident graduates. Of all physicians who are now practicing in Massachusetts and Michigan, nearly two-thirds (63%) completed their GME in the state. At the low end are Oregon and Arizona where just about a third of all physicians who now practice in the state completed their GME there.

However, of all physicians who completed their GME in Oregon, over half (54%) are now practicing in the state—the highest proportion of any profile state. Montana has no medical school and just two residency programs, and for the period of study, there was no available data for the analysis of GME and practice location.

Nebraska fares the best in its retention of medical school graduates. Of all physicians who are now practicing in Nebraska, the state leads the nation in the proportion of physicians who did their medical school training in the state (60 percent). At the low end are Arizona (14 percent) and Oregon (22 percent). Of all physicians who received their medical school training in Arizona, Georgia and Oregon, just under half (47 percent) have remained in the state to practice—the highest proportion of any of the profile states.

Licensure and Regulation of Practice



States are responsible for regulating the practice of health professions by licensing each provider, determining the scope of practice of each provider type and developing practice guidelines for each profession. The tables below illustrate the licensure requirements for each of the health professions covered in this study as well as additional information on recent expansions in scope of practice or other novel regulatory measures taken by the state.

LICENSURE AND REGULATION OF PRACTICE

Table 13.

ADVANCED PRACTICE NURSES (APNs): Recent Expansions in Scope of Practice		
Profile States	Prescriptive Authority	Physician Supervision
AZ	NPs can prescribe Schedule II-III without physician supervision. Schedules IV-V limited to a 34-day supply.	CRNAs must be under the supervision of either an anesthesiologist or operating surgeon. NPs must have a collaborative relationship for consultation and referral purposes.
GA	No independent prescriptive authority, but APN can be delegated authority to order controlled substances and dangerous drugs medical treatments or diagnostic studies in a public health setting or in certain hospitals and patient clinic settings (ordered under nurse protocols).	CNMs must practice “within a health care system that provides for consultation, collaborative management and referral as indicated by the health status of the patient.” CRNAs do not require direct supervision. Nurse Practitioners (NPs) must enter into a written agreement with a supervising physician.
MA	NPs and CNMs can prescribe schedule II-V with physician supervision.	All APNs must practice in collaboration with a supervising physician.
MI	Michigan NPs and CNMs may prescribe both controlled and non-controlled substances as a delegated act. CRNAs may prescribe non-controlled substances as a delegated act.	APNs can practice without supervision or collaborative agreement within their scope of practice.
MT	NPs and CRNAs can prescribe schedule II-V. No protocol required for prescribing. Schedule II limited to a 72-hour supply.	APNs practice in collaboration with a supervising physician.
NE	APNs and CRNAs can prescribe Schedule II up to 72-hour supply and Schedule III-V with physician supervision. APNs without master's degrees and/or certain coursework must have protocols to prescribe.	APNs may obtain a waiver of the collaborative practice requirement if they meet the requirements for practice without protocols, have made a diligent effort to obtain an integrated practice agreement, and are willing to practice in a geographic area where there is a shortage of health care services.
OK	CNMs and NPs can prescribe Schedule III-V. Per exclusionary formulary under supervision. CRNAs have the option to apply for the authority to select obtain and administer schedule III-V and legend drugs - subject to an inclusionary formulary under supervision.	CRNAs must have supervising physician on premises. NPs must have a written practice agreement to prescribe controlled substances.
OR	NPs have prescriptive authority for Schedule II-V medications. Pursuant to formulary determined by the Board of Nursing. No protocol required for practice.	CRNA can practice without medical collaboration when an anesthesiologist is not available. NPs can practice independently.
<p>APN = advanced practice nurse; includes NPs, CNMs, and CRNAs where used. NP = nurse practitioner; CNM= certified nurse midwife; CRNA= certified registered nurse anesthetist</p>		

Sources: State licensing board, ANA, AANA, ACNM, Pearson “Annual Legislative Update”, HPTS.

Table 14.

PHYSICIAN ASSISTANTS: Recent Expansions in Scope of Practice		
Profile States	Prescriptive Authority	Physician Supervision
AZ	Physician Assistants can prescribe up to a 72 hour supply of Schedule II-III medications and a 34 day supply of Schedule IV-V drugs.	A supervising physician must be present or in easy contact with the PA by radio, telephone, or other telecommunication.
GA	PAs order Schedules III-V (Schedule II in an emergency) and non-controlled drugs as delegated by physician. Dispensing authorized in public or nonprofit health facilities.	Supervising physician must be readily available. Board approval required for utilization of PA in satellite clinic where there is a shortage of health care professionals.
MA	Physician Assistants can prescribe schedule II-V medications.	Physician need not be physically present when PA renders medical services; patient records must be reviewed in a timely manner.
MI	PA may prescribe non-controlled and Schedule III-V medications as delegated by supervising physician. PA may prescribe seven-day supply of Schedule II drugs as discharge medications. Supervising physician's and PA's names must be indicated on prescription. PA prescribers of controlled medications must register with the DEA. PAs may request and distribute complimentary starter doses of medication.	Physician must be continuously available for direct communication in person or by radio, telephone
MT	Physician Assistants can prescribe schedule II-V medications and up to a 34 day supply of schedule II medications as delegated by a physician.	Communication between PA and physician by telephone, radio, or in person as frequently as the board decides is necessary. If practicing in a remote site, PA and supervising physician must work together in direct contact for a minimum of two weeks before PA delivers services in remote site. Supervising physician must visit remote site every 30 days or other interval.
NE	Physician Assistants who are registered with the Drug Enforcement Agency (DEA) may prescribe medications including a 72-hhour supply of schedule II medications with physician authorization.	Physician must be readily available for consultation; telecommunication shall be sufficient. Board approval required for PA utilization in secondary site.
OK	Physician Assistants can prescribe only schedule III-V medications from a board formulary.	Physician not required to be physically present when, nor specifically consulted before, PA performs delegated task. Board approval required for PA utilization in remote site.
OR	Physician Assistants can prescribe schedule III-V medications with physician approval and DEA registration. PA may apply for emergency dispensing authority for medications prepackaged by pharmacist.	Law enacted in 1999 allows 1) physicians in underserved areas to supervise four physician assistants instead of two; 2) Physician Assistants to provide Medical services to ambulatory patients in underserved areas; and 3) Physicians to delegate emergency prescribing and dispensing authority to physician assistants.

Source: State licensing board, AAPA.

Table 15.

DENTAL HYGIENISTS: Recent Expansions in Scope of Practice		
Profile States	Prescriptive Authority	Dentist Supervision
AZ	Dental hygienists may receive an additional certification for in Local Anesthesia and Nitrous Oxide Analgesia.	A hygienist must be supervised by a dentist.
GA	None.	A 2002 rule allows hygienists to perform dental screenings without the direct supervision of a dentist in settings, which include schools, hospitals, clinics, state, county, local, and federal health programs approved by the Board.
MA	None.	A dental hygienist may practice only in public or private institutions such as schools, hospitals, or orphan asylums and sanitariums, under the general direction of a licensed and qualified dentist, but not otherwise; or in the office of a duly qualified and licensed dentist.
MI	A 2003 law allows hygienists to administer intraoral block and infiltration anesthesia to patients 18 and over if they receive specific training.	Dental Hygienists may provide services in certain board approved settings without supervision.
MT	None.	A licensed dental hygienist with a limited access permit may provide dental hygiene preventative services without dentist supervision in a public health setting.
NE	May administer local anesthesia under the indirect supervision of a licensed dentist.	Dental hygienists must practice under the supervision of a licensed dentist.
OK	May administer local anesthesia and nitrous oxide under supervision of a licensed dentist.	Dental Hygienists must practice under supervision of a licensed dentist.
OR	Dental hygienists may administer nitrous oxide with dentist supervision.	A law allowing dental hygienists to practice unsupervised in state licensed facilities was passed in 1997.

Source: State licensing board, ADHA.

Table 16.

Profile States	PHARMACISTS: Recent Expansions in Scope of Practice
AZ	Yes. Pharmacists are allowed to implement, monitor, or modify drug therapy under certain circumstances.
GA	Yes. State permits Collaborative Drug Therapy Management.
MA	None.
MI	Yes. State permits Collaborative Drug Therapy Management.
MT	State permits Collaborative Drug Therapy Management.
NE	State permits Collaborative Drug Therapy Management.
OK	Allowed to administer immunizations.
OR	Allowed to administer immunizations. Involved in collaborative drug therapy management.

Source: State licensing board.

Table 17.

PHYSICIANS: Public Profiling								
State Mandates Physician Profiles to be Publicly Accessible	AZ	GA	MA	MI	MT	NE	OK	OR
	Yes	Yes	Yes	No	No	No	No	No

Source: State licensing board.

SUMMARY AND ANALYSIS

Several changes in the way that both physicians and non-physicians are licensed and regulated by states is having an important impact on health professions supply and practice.

Physician Practice

As part of their traditional responsibility for regulating physicians, state medical boards are required to discipline certain providers where necessary. This task largely has been viewed without controversy until recently when media reports have highlighted growing concerns by the public over the practicing behavior of certain physicians. According to a national consumer guide on physicians released in 2000 by Public Citizen, the majority of physicians who were disciplined by state medical boards for the most serious offenses (e.g., sexual abuse or misconduct, incompetence or negligence, criminal conviction, misprescribing or overprescribing of drugs) were not required to stop practicing medicine, even temporarily. Since that time, according to the Federation of State Medical Boards, the number of state licensing boards establishing extraordinary measures for disciplining physicians are increased substantially.

Such measures continue to place greater pressure on states and the federal government to make more information on individual physicians available to the public. Several states have moved ahead to require the establishment of public statewide physician data profiles. Three of the 8 profiled states—Arizona, Georgia and Massachusetts—have mandated the creation of such profiles, often accessible through the Internet.

Medical and health professions licensing boards in a few profiled states have also agreed voluntarily to assist health workforce researchers on a one-time or periodic basis by allowing them to collect various kinds of workforce data through the profession's licensure renewal process.

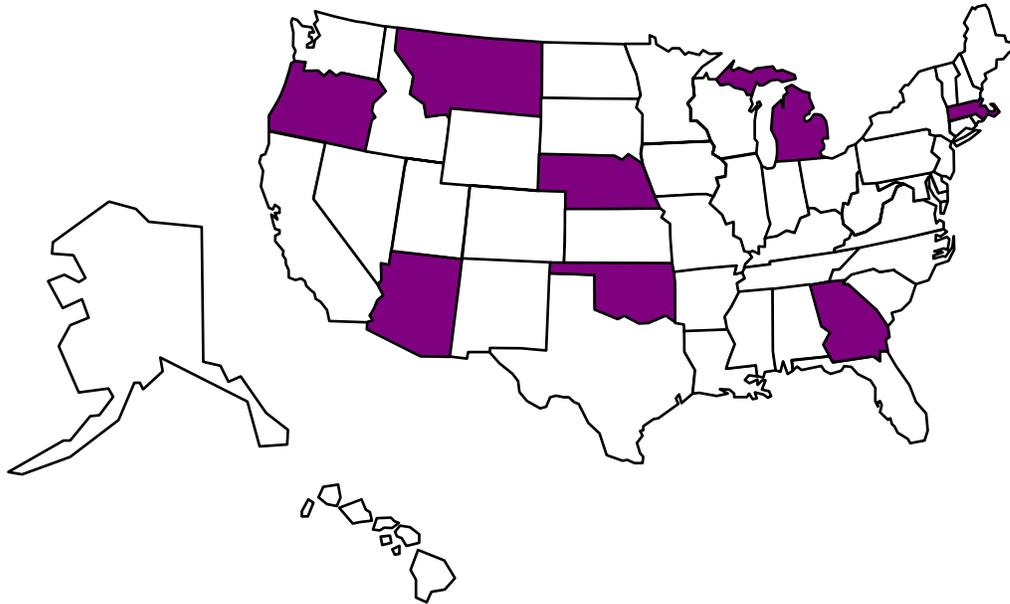
Non-Physician Practice

There continues to be a growing interest by many states to liberalize the scope of practice or change the supervision requirements, in some cases, of pharmacists and dental hygienists as well as advanced practice nurses and physician assistants. Several states have given nurse practitioners increased independence from physician supervision in certain settings or places or for certain procedures. Recent studies also show that the supply of certified nurse midwives is higher in states with more favorable state regulatory policies as well as higher managed care concentration and a more educated population. There is evidence at least in the profiled states that such conditions may also be at least a factor in the supply of other advanced practice nurses.

There is greater movement in many states to change the supervision requirements for dental hygienists to allow the hygienist practicing in public health or other particular settings or locations to practice without the direct supervision of a dentist. Four of the eight profile states have enacted or pending legislation allowing such a change.

Pharmacists are also receiving greater expansions in their scope of practice, thanks in large part to their expanded doctoral-level training upon graduation. Five of the 8 profile states grant pharmacists some level of authority in collaboration with physicians to perform drug therapy and counseling. Pharmacists in Oklahoma and Oregon allow pharmacists to dispense immunizations.

Improving the Practice Environment



States have the challenge of not only helping to create an adequate supply of health professionals in the state, but also ensuring that those health professionals are distributed evenly throughout the state. Various programs and incentives are used by states to encourage providers to practice in rural and other underserved areas. The tables in this section describe programs in the eight profile states as well as the perceived effectiveness of these programs.

STATE LOAN REPAYMENT, SCHOLARSHIP AND OTHER PROGRAMS

Table 18.

INDICATORS	PROFILE STATES							
	AZ	GA	MA	MI	MT	NE	OK	OR
# of Programs*	2	3	1	1	2	2	5	2
# of Annual Participants	13	66	15	35	N/A	76	361	16
Available Data on Program Impact/ Participant Retention (yes/no)	No	Yes	No	Yes	No	Yes	Yes	Yes
<i>Eligible Professions:</i>								
Physicians	X	X	X	X	X	X	X	X
Physician Assistants	X		X	X		X	X	X
Nurses			X	X		X	X	X
Dentists	X		X	X		X	X	
Dental Hygienists			X				X	
Pharmacists						X	X	

* Includes only state-funded programs which require a service obligation in an underserved area. (NHSC state loan repayment programs are included since the state provides funding.)

N/A Data was not available

Source: State health officials.

All of the profile states have at least one scholarship or loan repayment program. Oklahoma and Georgia have the most with five and three respectively. Five of the profile states have available data on program impact and/or participant retention.

STATE RECRUITMENT AND RETENTION INITIATIVES

Table 19.

State Recruitment/Retention Initiatives	Number of Profile States Adopting Initiative	Average Impact Rating (1=high, 5=low)	Professions Affected					
			Physicians	Nurses	Pharmacists	Dentists	Dental Hygienists	Physician Assistants
FOCUSED ADMISSIONS / RECRUITMENT OF STUDENTS FROM RURAL OR UNDERSERVED AREAS	5	1.5	X	X	X	X		X
SUPPORT FOR HEALTH PROFESSIONS EDUCATION (stipends, preceptorships) IN UNDERSERVED AREAS	7	1.86	X	X	X	X	X	X
RECRUITMENT / PLACEMENT PROGRAMS FOR HEALTH PROFESSIONALS	7	2.57	X	X	X	X	X	X
PRACTICE DEVELOPMENT SUBSIDIES (i.e., start-up grants)	1	3	X					
MALPRACTICE PREMIUM SUBSIDIES	3	2.5	X	X				
TAX CREDITS FOR RURAL / UNDERSERVED AREA PRACTICE	3	4	X	X		X		X
PROVIDING SUBSTITUTE PHYSICIANS (<i>locum tenens</i> support)	0	0						
MALPRACTICE IMMUNITY FOR PROVIDING VOLUNTARY OR FREE CARE	3	3.5	X	X	X	X	X	X
PAYMENT BONUSES / OTHER INCENTIVES BY MEDICAID OR OTHER INSURANCE CARRIERS	2	2	X			X		
MEDICAID REIMBURSEMENT OF TELEMEDICINE	4	3.33	X					

Source: State health officials.

SUMMARY AND ANALYSIS

In recent years, states have been putting greater emphasis on creating a more attractive practice environment for health professionals in underserved areas. By examining incentives other than those focusing on educational opportunities and financial support for education and training, most states have developed more organized and coordinated recruitment efforts and better resources and service systems in underserved areas. Financial incentives to practice in underserved areas include bonuses and grants, tax credits and higher reimbursement levels. State officials in this 8-state study ranked state strategies to recruit health professions students from underserved areas and support health professions in underserved areas as having the greatest impact on recruitment and retention of providers in these locales.

Recruiting and retaining a sufficient number of health professionals in rural and underserved communities remains a perennial challenge. Numerous federal, state and local programs, such as the National Health Service Corps (NHSC) and targeted state health service loan repayment initiatives, are intended to spur recruitment of new primary care physicians and other health care providers to rural and inner city areas. While these programs have rapidly placed providers in needy areas, service obligations have not always been effectively enforced, nor are some programs necessarily doing a good job of retaining providers beyond their payback period.

Critics point out that the rise in the supply of generalist physicians in both urban and rural areas has not helped to reduce the overall number of health professional shortage areas and the total positions needed to alleviate these shortage areas. Supporters of the NHSC and similar state initiatives, however, note that as private managed care plans and health networks increasingly entice larger numbers of primary care physicians to join up, it is tougher for isolated rural areas to compete. Thus, they say these government programs are needed now more than ever. (In 2000, NHSC reinstated funding of dental scholarships.) At the same time, some argue that there needs to be more of an aggressive mindset and effort by needy communities to market themselves and their practices, regardless of the ability of government initiatives to provide assistance.

Although the NHSC is widely regarded as important among efforts to correct the maldistribution of health care providers, it is also recognized as having its limitations. For example, research has documented the relatively poor retention of NHSC physicians in their assigned communities after their service obligations are completed, even when the Corps placed larger and more continuous numbers of health professionals.

In recent years, many states have begun to examine their health professional scholarship and loan programs as well as other practice environment incentives to identify changes that would make these programs more effective. Several states have begun to differentiate priorities (as they collect more data collection on workforce needs and supply) and structure scholarships and loans to be more responsive to these needs. In many states, the selection criteria for scholarships and loans have been expanded and better delineated, just as they have for school admissions. In addition, there is increasing emphasis on developing community sponsorship in underserved areas for individual scholarship and loan candidates, as well as for overall financial support for efforts to attract health professionals to their areas. Modifications have been made to funding levels and payback conditions. Stronger penalty provisions for non-compliance have been

instituted in a growing number of states, but more emphasis has generally been placed on enhancing incentives for practice in underserved areas rather than on development of penalties.

In general, several states have been willing to re-examine programs and make significant improvements. While much of the change is incremental, many of the improvements are far reaching. Five of the profiled states—Georgia, Michigan, Nebraska, Oklahoma and Oregon—have collected significant data on the number of individuals recently participating in new and expanded scholarship and loan programs and have reported on retention in underserved areas.

These scholarship and loan programs are typically small with the annual number of participants under 20 in number. On the other hand, Oklahoma's array of programs are sizable with annual participants numbering over 350. Importantly, several of the profile states have considered and approved expansion of these programs to include dentists and dental hygienists—two professions that are increasingly in short supply in underserved areas. Five states offer such programs for nurses.

While state scholarship and loan repayment programs in particular have shown some evidence of short and long term success, due in part to recent improvements, further legislative and regulatory modifications are needed. Possible needed changes include:

- Strengthening the linkage between increased financial awards and enhanced placement in underserved areas;
- Ensuring that penalties for noncompliance are an effective deterrent;
- Broadening the definition of required service location;
- Devoting more attention to targeting the selection of participants;
- Placing greater importance on retention and emphasize the collection and monitoring of performance data; and
- Streamlining differences in site designation, participant selection and placement criteria between federal and state loan repayment and scholarship programs.

In general, states need to increase significantly their evaluation of all practice incentive programs resulting in the expansion of the most successful initiatives and termination of the others. Legislation (comprehensive or otherwise) enacted to spur health professionals to locate in underserved communities has not always translated into action or results. Budgetary crises and other financial barriers have delayed or downsized appropriations for more costly programs. Most well-designed practice incentive programs remain small (e.g., loan repayment/scholarship initiatives typically can only accommodate a few participants) and ultimately have little impact on addressing the aggregate problem. More recently, a few states, however, have decided to use funds from their recent tobacco settlement to address health workforce shortages. Mississippi, for example, is supporting the creation of up to 20 new physician resident scholarships.

The effectiveness of many recently passed initiatives is often unknown because insufficient time has passed between placement and retention in practice, and often there is limited centralized data available in states on underserved area practice costs and payer mixes, underserved community needs and issues, participant practice concerns, retention rates in underserved areas and other matters. Also, many laws obtain no appropriation to evaluate nor contain measures to enforce a new program's effectiveness, thus providing the state little or no evidence of its

success. In summary, few sound evaluations have been performed of these various state strategies, particularly those initiatives common to many states.

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