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ABSTRACT

A pilot project profiled and compared 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 10 states (California, Connecticut, Florida, Illinois, Iowa, Texas, Utah, Washington, West Virginia, and Wisconsin). Data were collected through telephone and mail interviews with state and higher education, professions regulation, and recruitment and retention program officials; custom tabulations by national professional trade associations and others using national databases; federal databases; site visit interviews in the 10 states; phone conversations with state and federal government officials; and literature reviews. Results of the study include individual health workforce assessments for each of the 10 pilot states and a single assessment that compares various data and influences across the 10 states. In comparing the state findings, the project concluded that typically, states pay attention to only one or two types of policies and policy environments, ignoring potential means of encouraging broader change and reform and that states have not pursued a coherent and comprehensive policy aimed at promoting a reasonable health workforce; rather the process is fragmented and lacking in long-term effectiveness. (Contains 44 references, 44 charts, and 19 tables.) (KC)

U. S. Department of Health and Human Services
HRSA
Health Resources and Services Administration
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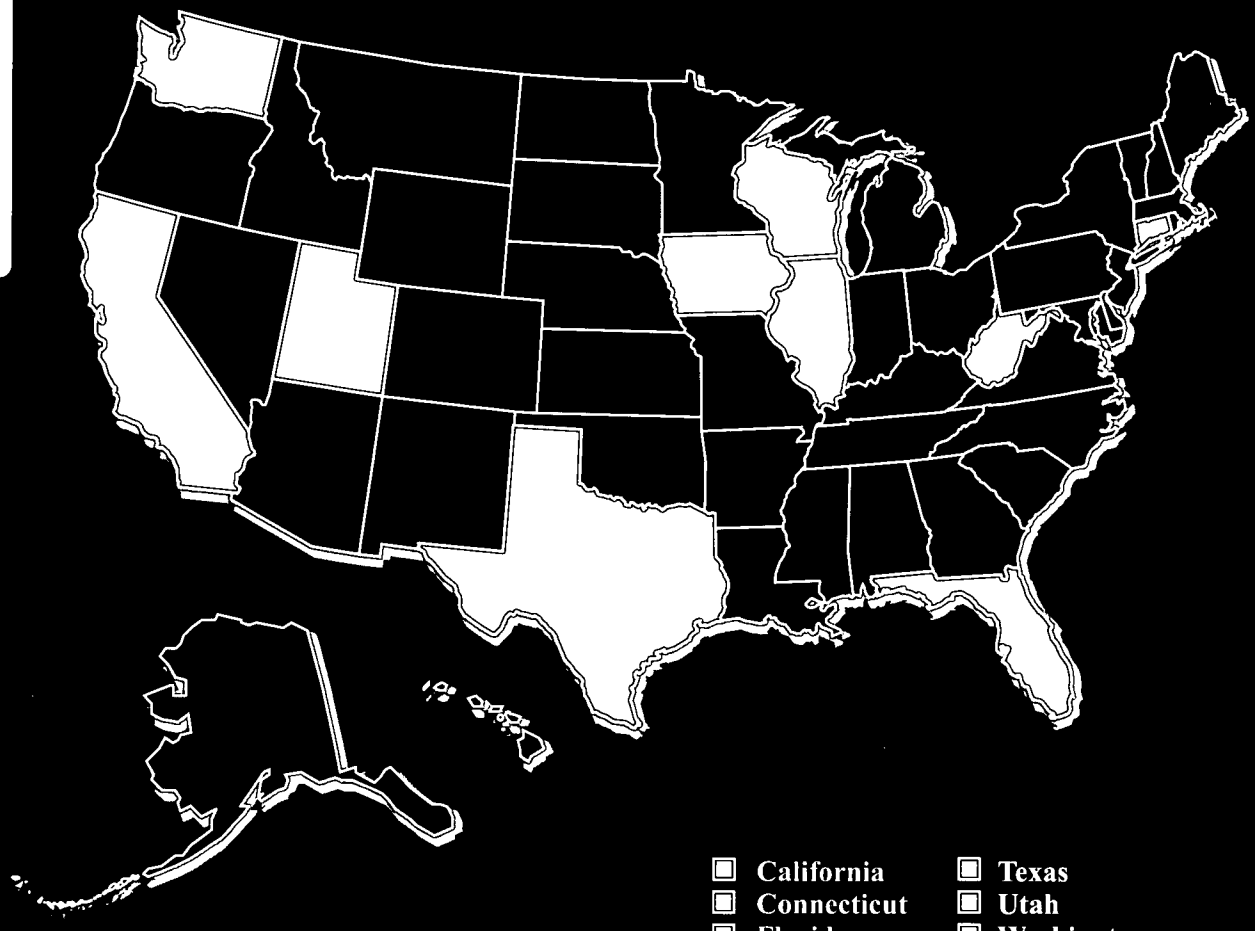
Spring
2001



- California
- Connecticut
- Florida
- Illinois
- Iowa
- Texas
- Utah
- Washington
- West Virginia
- Wisconsin

Interstate Comparisons

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

National Center for Health Workforce Information and Analysis

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

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INTERSTATE COMPARISONS

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The Health Care Workforce in Ten 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 pilot initiative to compile in-depth assessments of the health workforce in 10 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 ten pilot states and a single assessment that compares various data and influences across the ten 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 pilot initiative to compile comprehensive capacity assessments of the health workforce in 10 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 10 initial or pilot 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 (BHPr) - 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 BHPr 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 ten 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:

- 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.

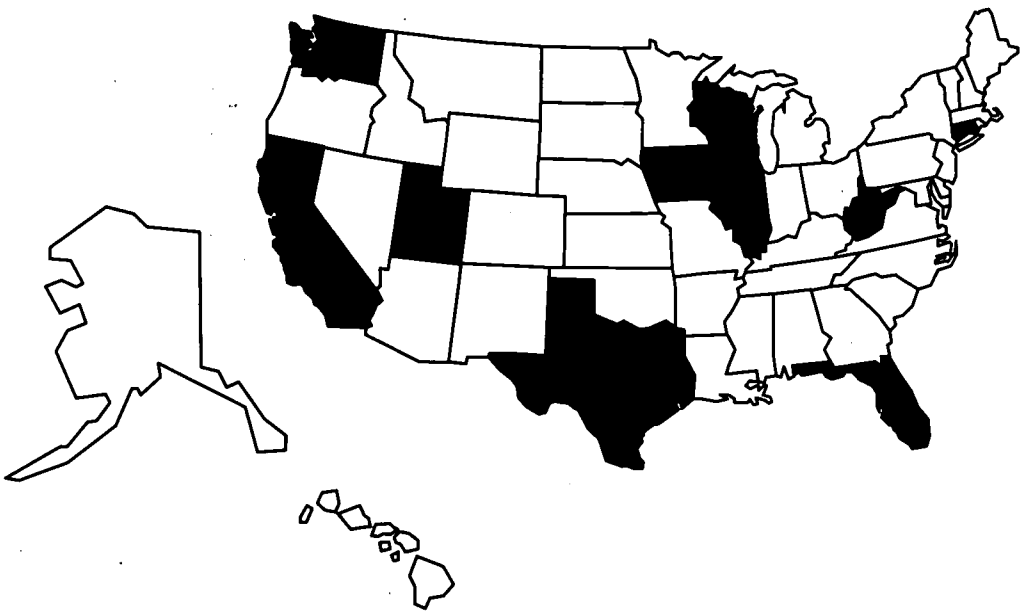
States, however, vary considerably in their interest and ability to take advantage of policy options and opportunities that would affect these environments. Research shows that only a few states use their advantage to institute innovative and far-reaching policies across all or most of the major environments 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 pilot 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 ten (10) 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

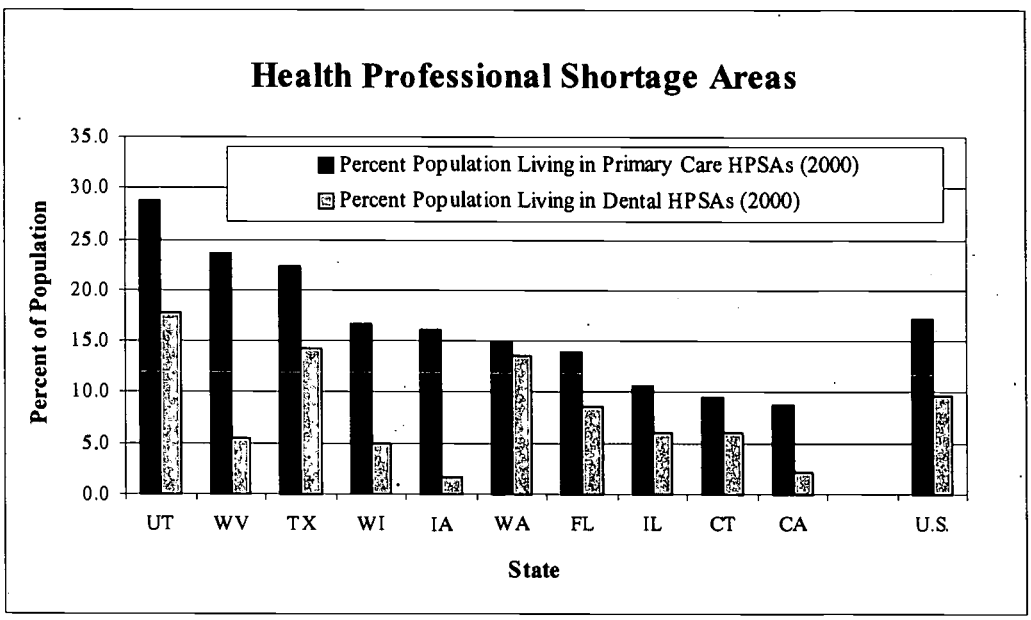
Table 1.

INDICATORS		PROFILE STATES										
		CA	CT	FL	IA	IL	TX	UT	WA	WV	WI	*U.S.*
Percent Non-elderly (under age 65) Without Health Insurance	**1994-96**	22.8	11.6	21.7	12.4	12.8	26.8	13.1	14.7	18.6	9.5	**17.5**
	1997-99	23.5	13.2	22.8	11.3	15.4	26.5	15.1	14.5	20.7	11.5	**18.1**
Percent Children Without Health Insurance	**1994-96**	18.5	10.5	17.4	11.3	10.0	24.1	10.5	11.6	10.3	7.0	**14.0**
	1997-99	19.4	10.5	18.8	8.8	12.7	25.2	11.9	10.2	12.2	8.8	**16.0**
Percent Population Not Obtaining Health Care Due to Cost (1998)		9.8	7.7	13.0	6.5	7.6	12.7	9.1	9.4	14.6	5.1	**9.2**
Percent Population Living in *Primary Care HPSAs (2000)*		8.8	9.5	13.9	16.1	10.6	22.3	28.8	15.0	23.6	16.6	**17.3**
Percent Population Living in *Dental HPSAs (2000)*		2.3	6.0	8.5	1.6	6.0	14.2	17.9	13.6	5.5	5.0	**9.7**
Percent Adults with Annual Family Income Less than $15,000 Who Made Dental Visit in Preceding Year (1999)		45	46	51	47	41	37	55	46	34	60	–

HPSAs = Health Professional Shortage Areas

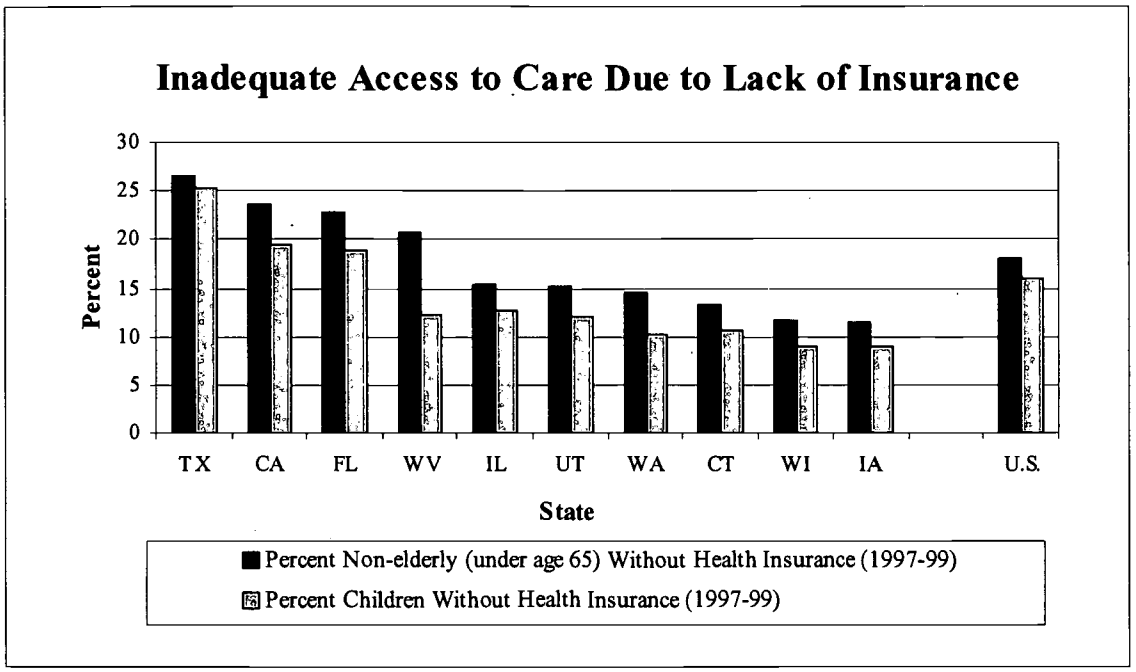
Sources: KFF, AARP, BPHC-DSD, GAO.

Chart 1A.



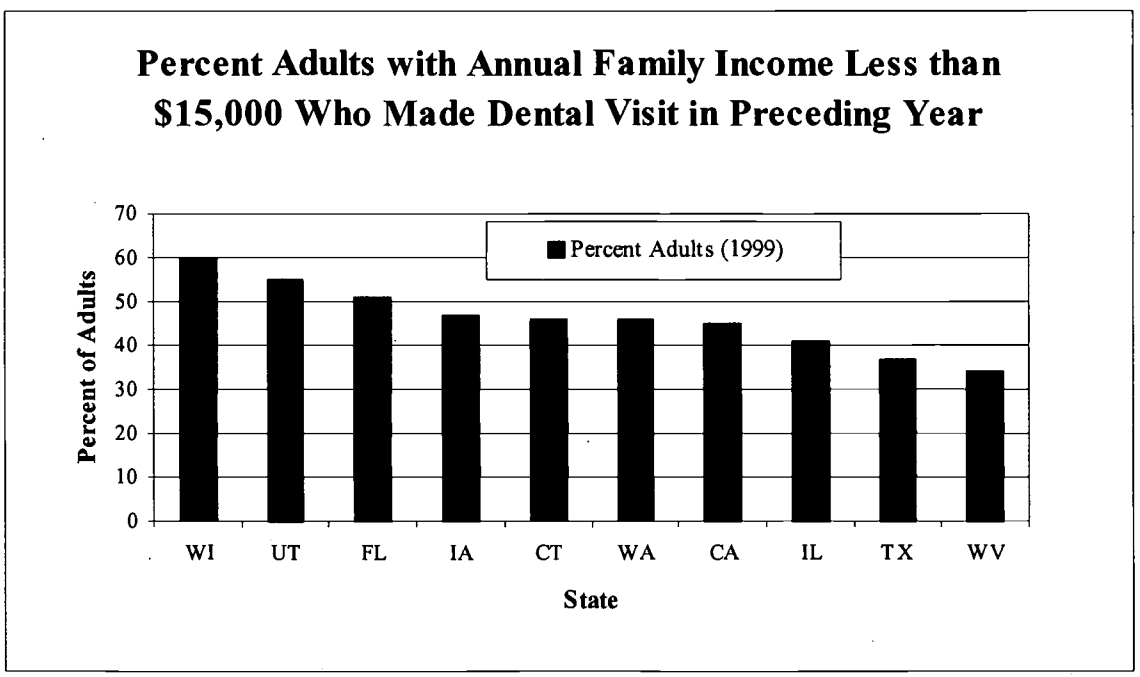
Three profile states—Utah, West Virginia and Texas—exceed the U.S. average proportion of people living in primary care HPSAs. Utah, Texas and Washington have larger proportions of people living in dental HPSAs than the U.S. as a whole.

Chart 1B.



Texas, California and Florida have higher proportions of non-elderly and children without health insurance than the national average. In contrast, Wisconsin and Iowa have the lowest percentages of non-elderly and children without health insurance.

Chart 1C.



In seven of 10 profile states, under half the adult population with family incomes less than $15,000 visited a dentist in the preceding year.

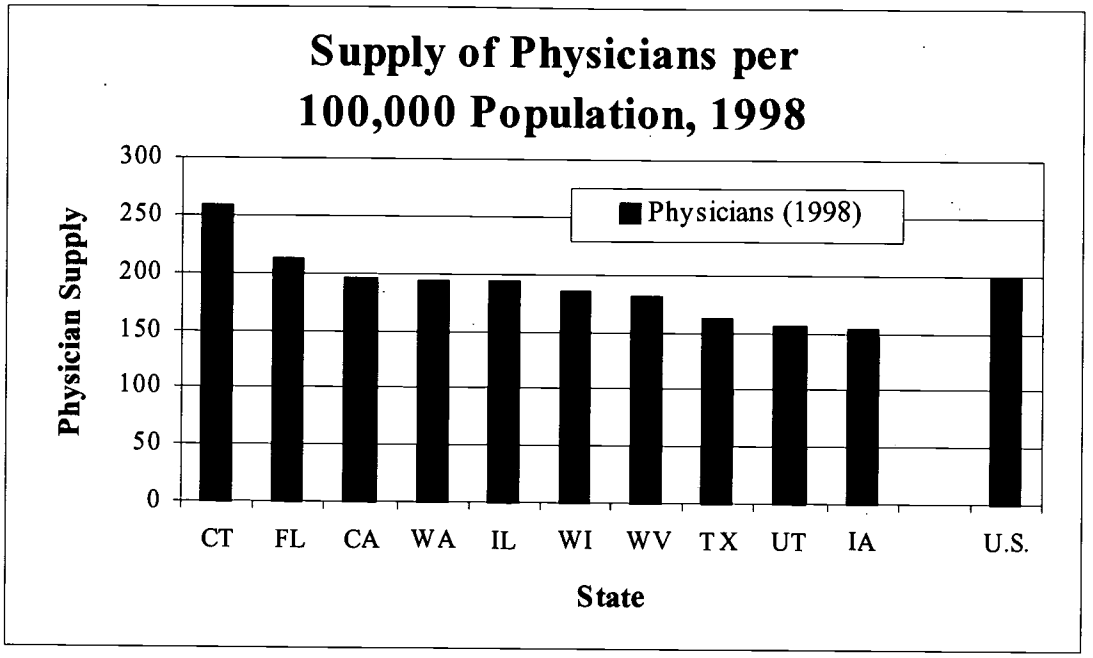
SUPPLY OF VARIOUS HEALTH CARE PROFESSIONALS

Table 2.

Professions			PROFILE STATES									
			CA	CT	FL	IA	IL	TX	UT	WA	WV	WI	*U.S.*
Supply per 100,000 population	Physicians (1998)		195	258	211	153	193	162	156	193	180	184	**198**
	Nurses	RNs (1996)	568	1,028	801	988	860	633	631	778	792	875	**798**
		LPNs (1998)	151	242	294	271	208	296	156	174	353	226	**249**
		CNMs (2000)	1.6	3.7	2.4	1.2	1.9	1.1	2.9	3.4	1.7	1.6	**2.1**
		NPs (1998)	25.6	39.7	28.8	18.1	9.9	16.0	33.0	45.7	18.4	7.4	**26.3**
		CRNAs (1997)	2.7	8.4	9.2	8.1	6.7	7.8	4.0	6.1	18.5	8.4	**8.6**
	Physician Assistants (1999)		3.8	18.0	4.4	8.7	4.9	9.3	12.2	15.7	17.6	11.9	**10.4**
	Dentists (1998)		55.0	65.9	42.2	45.0	55.8	37.0	51.9	52.4	36.8	50.5	**48.4**
	Pharmacists (1998)		51.3	70.3	64.4	69.6	69.3	53.8	54.3	67.0	83.3	70.7	**65.9**
	Dental Hygienists (1998)		53.0	81.9	50.4	42.3	52.3	37.3	37.1	61.4	40.3	65.5	**52.1**
% Physicians Practicing Primary Care			32	28	28	30	32	29	30	33	30	34	**30**
% of MDs Who Are International Medical Graduates			22	28	35	15	34	22	5	9	36	16	**24**
% Registered Nurses Employed in Nursing			77.2	81.6	77.8	87.3	82.2	88.0	89.9	82.0	86.3	85.2	**82.7**

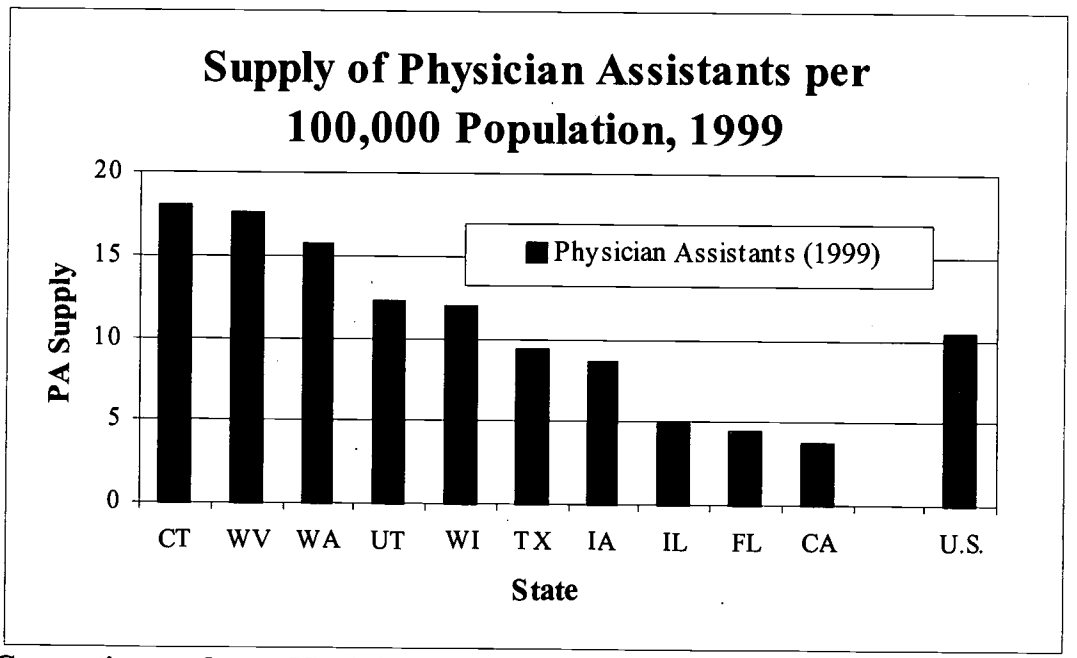
Sources: HRSA-BHPr.

Chart 2A.



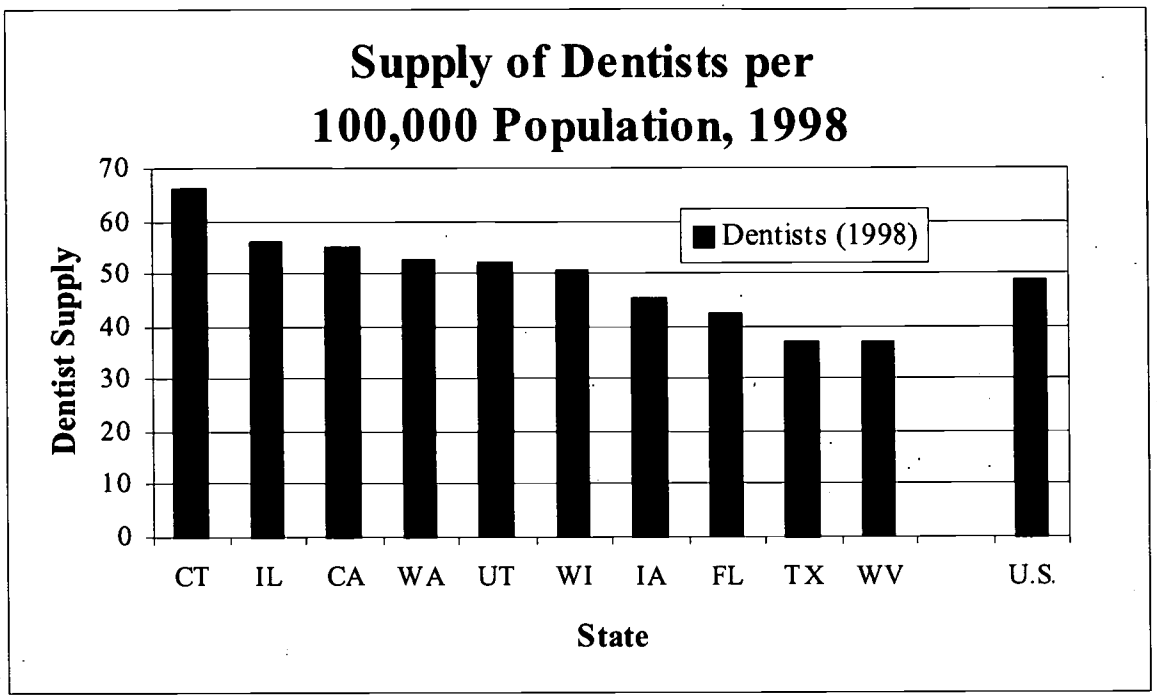
Just two profile states—Connecticut and Florida—have more physicians per 100,000 population than the national average.

Chart 2B.



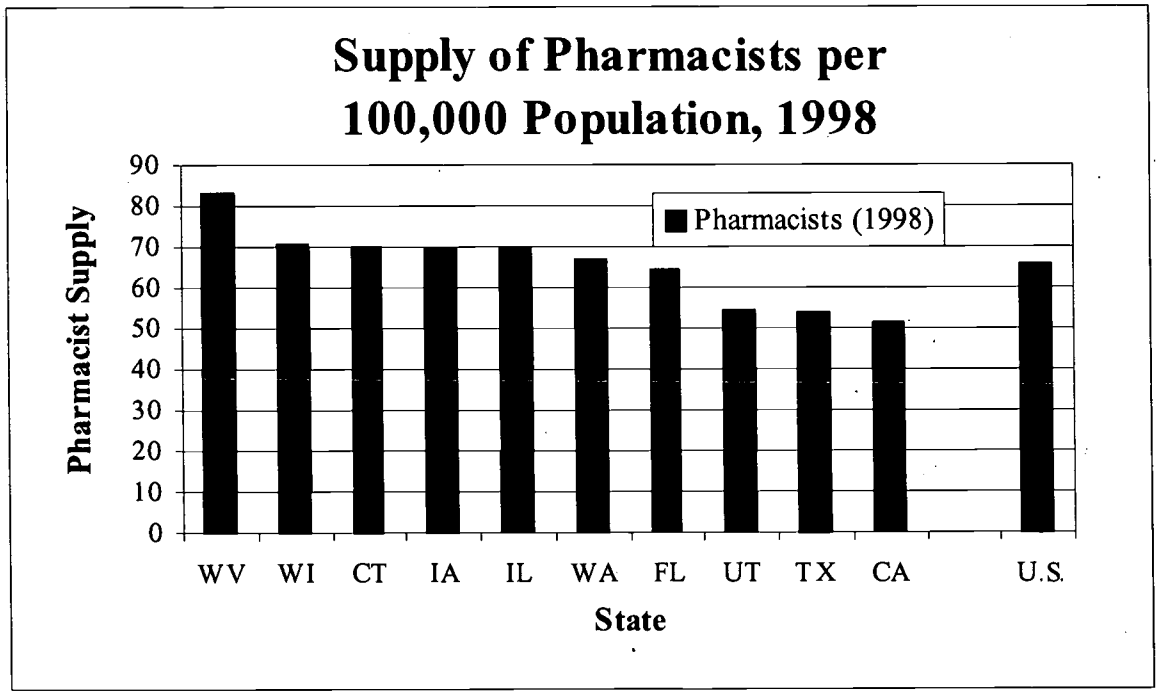
Connecticut and West Virginia have twice as many physician assistants per 100,000 population as do Texas and Iowa, and three times as many as Illinois, Florida and California.

Chart 2C.



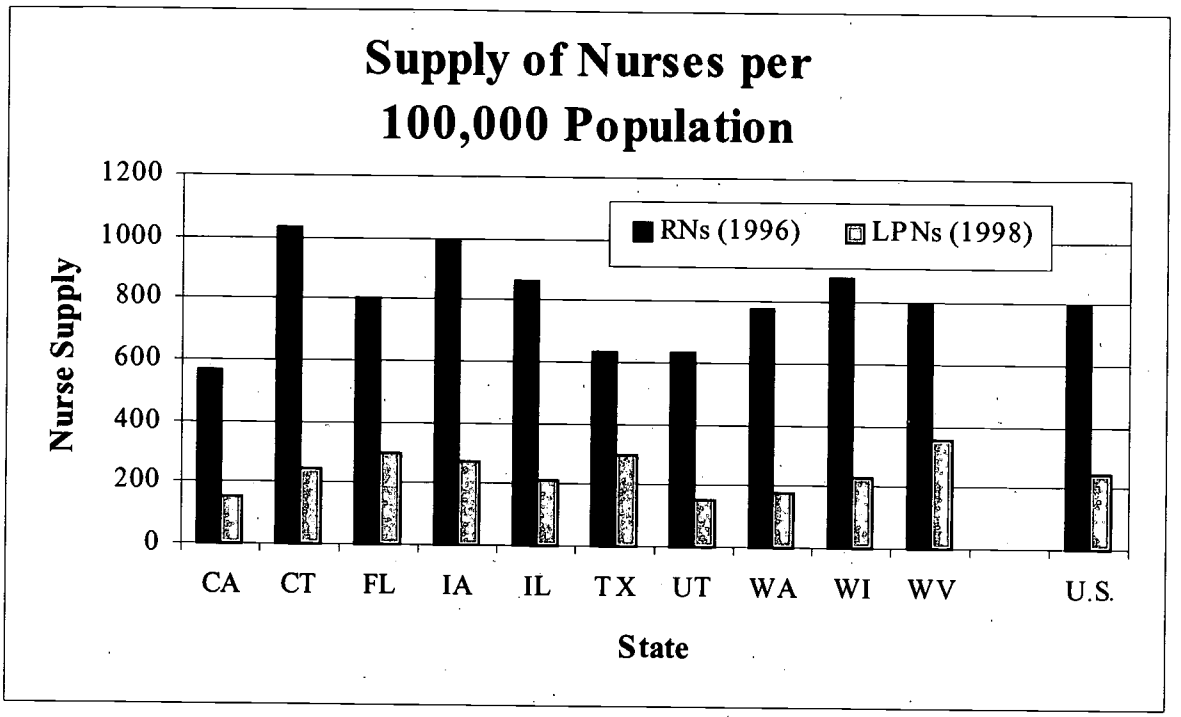
Connecticut has more dentists per 100,000 population than any of the other profile states. Texas and West Virginia have the fewest dentists, almost 15 fewer per 100,000 population than the national average.

Chart 2D.



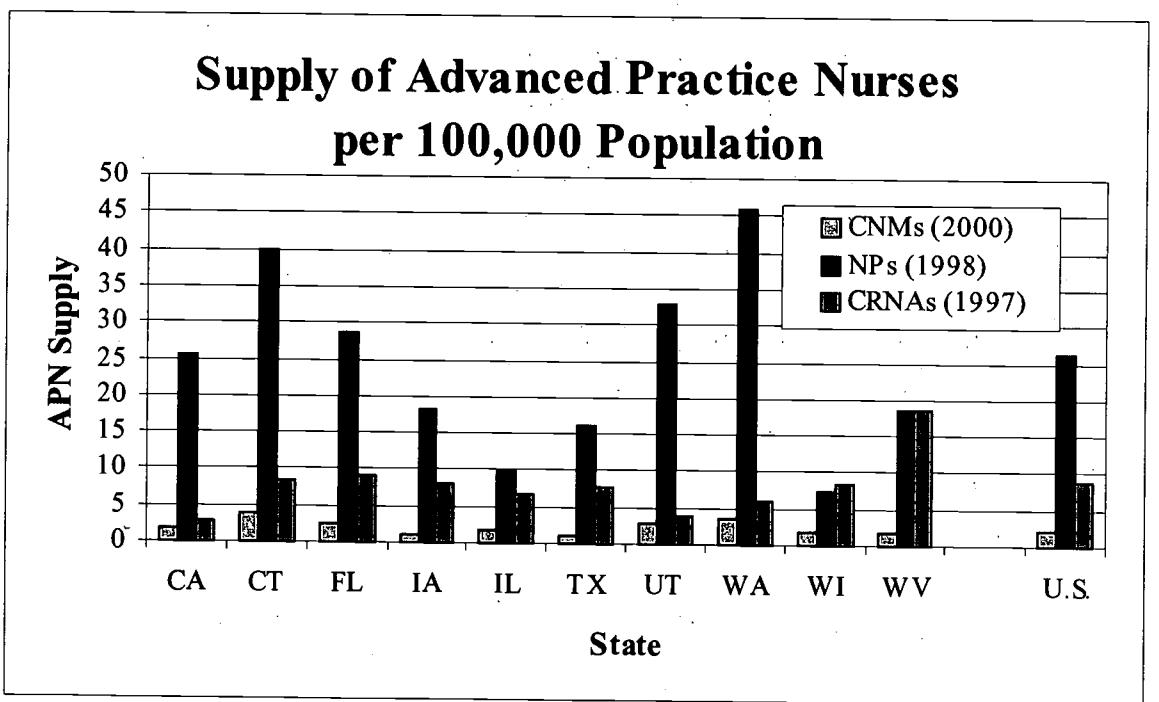
West Virginia has more pharmacists per 100,000 population than any of the other profile states, while Utah, Texas and California have the fewest.

Chart 2E.



Connecticut and Iowa have more RNs per 100,000 population than the other profile states; Utah has the fewest. West Virginia has more LPNs per 100,000 population than any other state, while California and Utah have the fewest.

Chart 2F.



Washington has far more NPs per 100,000 population than any other profile state—two-thirds as many as the national average and six times as many as the state with the fewest NPs, Wisconsin. West Virginia has more than twice as many CRNAs as any other state and the national average.

NATIONAL HEALTH SERVICE CORPS (NHSC) 2000 FIELD STRENGTH

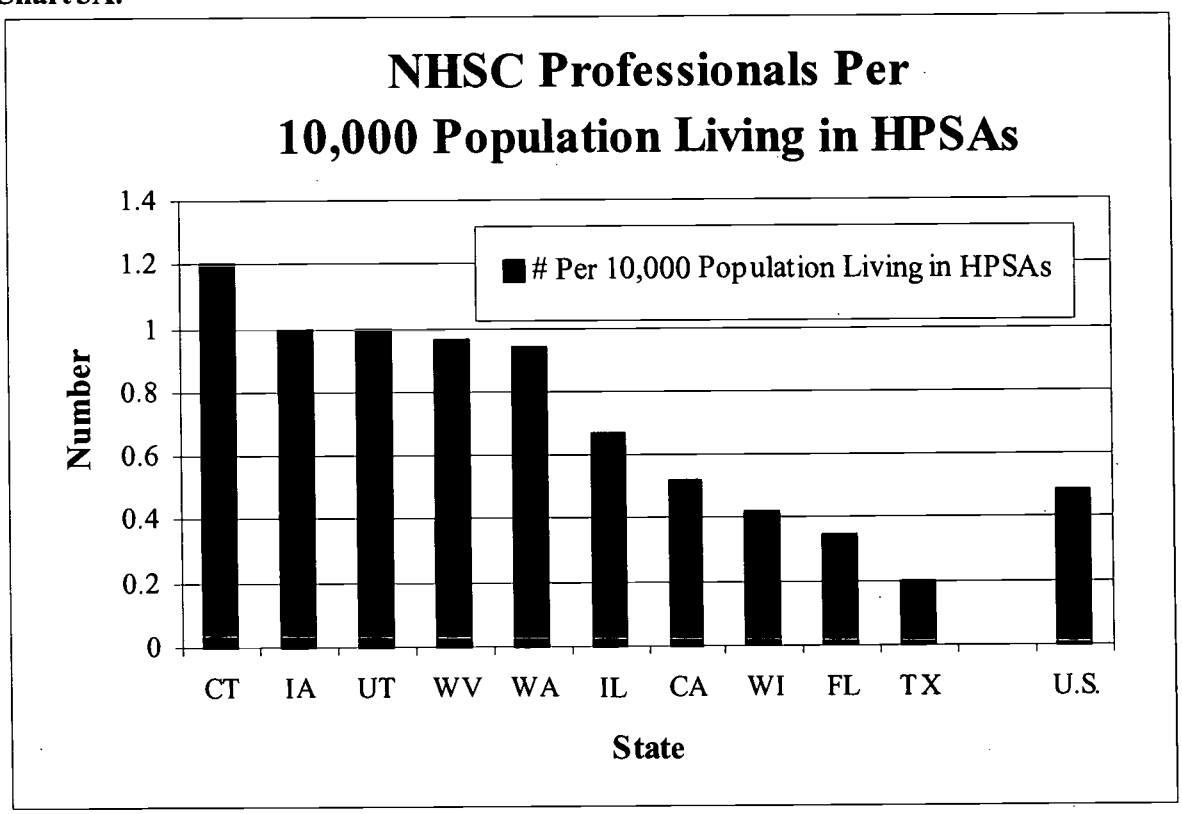
Table 3.

INDICATORS	PROFILE STATES										
	CA	CT	FL	IA	IL	TX	UT	WA	WV	WI	*U.S.*
Total NHSC Field Strength*	156	39	78	49	88	93	66	83	41	37	--
# Per 10,000 Population Living in HPSAs	0.52	1.2	0.35	1.0	0.67	0.20	1.0	0.94	0.96	0.42	**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.



Connecticut has the most NHSC professionals per 10,000 population living in HPSAs, a ratio more than twice the national average. Seven of the profile states have ratios that exceed the national average. Texas has the lowest ratio of NHSC professionals, less than half the national average.

MEDICAID REIMBURSEMENT OF PROFESSION SERVICES

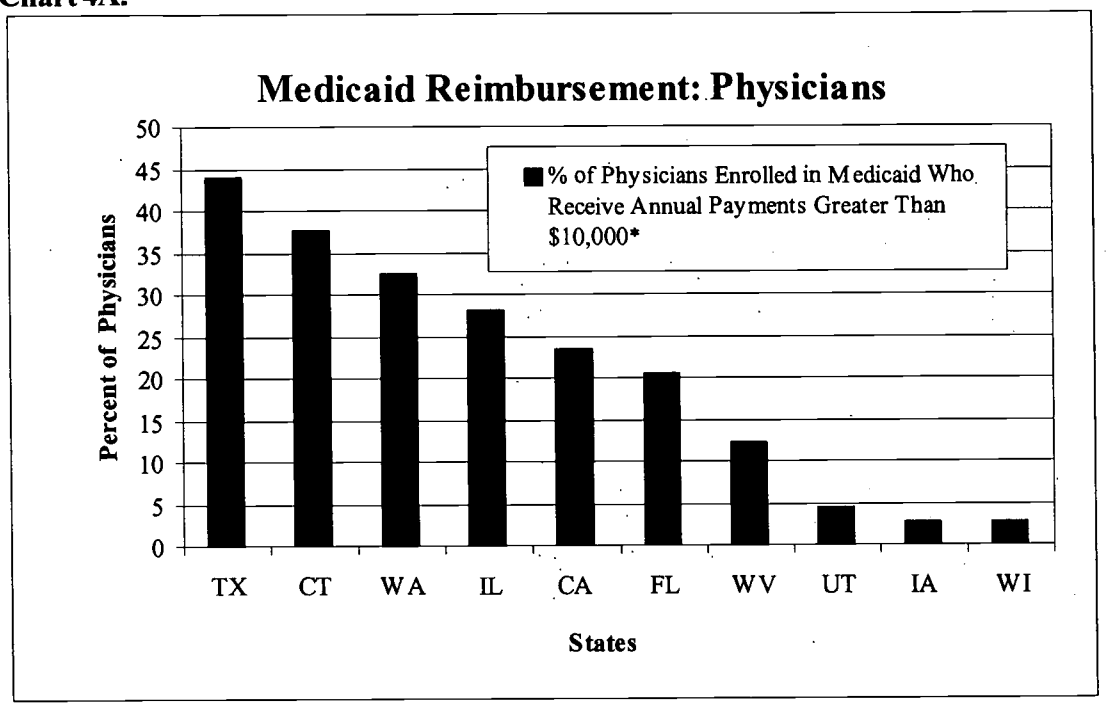
Table 4.

INDICATORS		PROFILE STATES									
		CA	CT	FL	IA	IL	TX	UT	WA	WV	WI
Active Physicians	% Enrolled Receiving Annual Payments Greater Than $10,000	23.5	37.6	20.5	2.8	28.0	44.0	4.4	32.4	12.2	2.7
	% Change in Medicaid Payment Rate, 1993-1998	0.0	38.2	5.8	10.3	24.0	12.3	10.8	22.7	-15.6	22.6
	Medicaid Provides Bonus or Special Payment for Practice in Rural or Medically Underserved Area	No	No	No	No	No	No	Yes	No	No	Yes
Active Advanced Practice Nurses	% Enrolled Receiving Annual Payments Greater Than $10,000	5.7	2.1	7.3	0	0	19.0	0	24.9	11.8	0
	Overall Increase of 10% or More in Medicaid Payment Rates in Past 5 years	No	No	No	Yes	No	No	No	No	No	No
	Medicaid Provides Bonus or Special Payment for Practice in Rural or Medically Underserved Area	No	No	No	No	No	No	No	No	No	Yes
Active Dentists	% Enrolled in Medicaid	51.8	18.2	23.8	84.6	23.9	63.0	71.4	68.2	85.3	75.4
	% Enrolled Receiving Annual Payments Greater Than $10,000[1]	49.6	23.9	53.4	8.9	20.0	55.0	25.3	35.0	52.2	10.0
	Overall Increase of 10% or More in Medicaid Payment Rates in Past 5 years	No	No	Yes	Yes	No	No	Yes	No	No	Yes
	Medicaid Provides Bonus or Special Payment for Practice in Rural or Medically Underserved Area	No	No	Yes	No	No	No	Yes	No	No	No
Number of Pharmacies Enrolled in Medicaid		8901	650	3440	939	2536	1490	456	1309	284	1171
Penetration Rate (%) of Medicaid and Commercial Managed Care Plans, 1999		52.1	38.8	32.9	4.9	20.8	18.6	35.2	17.3	10.5	30.9

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

Sources: State Medicaid agencies, Norton and Zuckerman "Trends", HPTS, AARP.

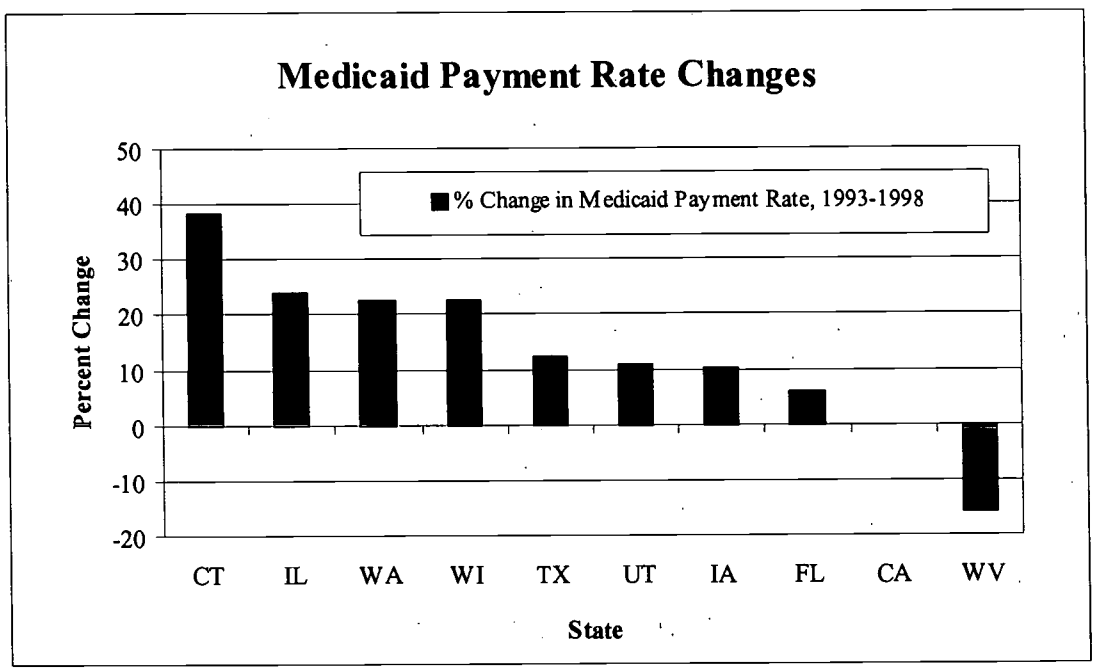
Chart 4A.



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

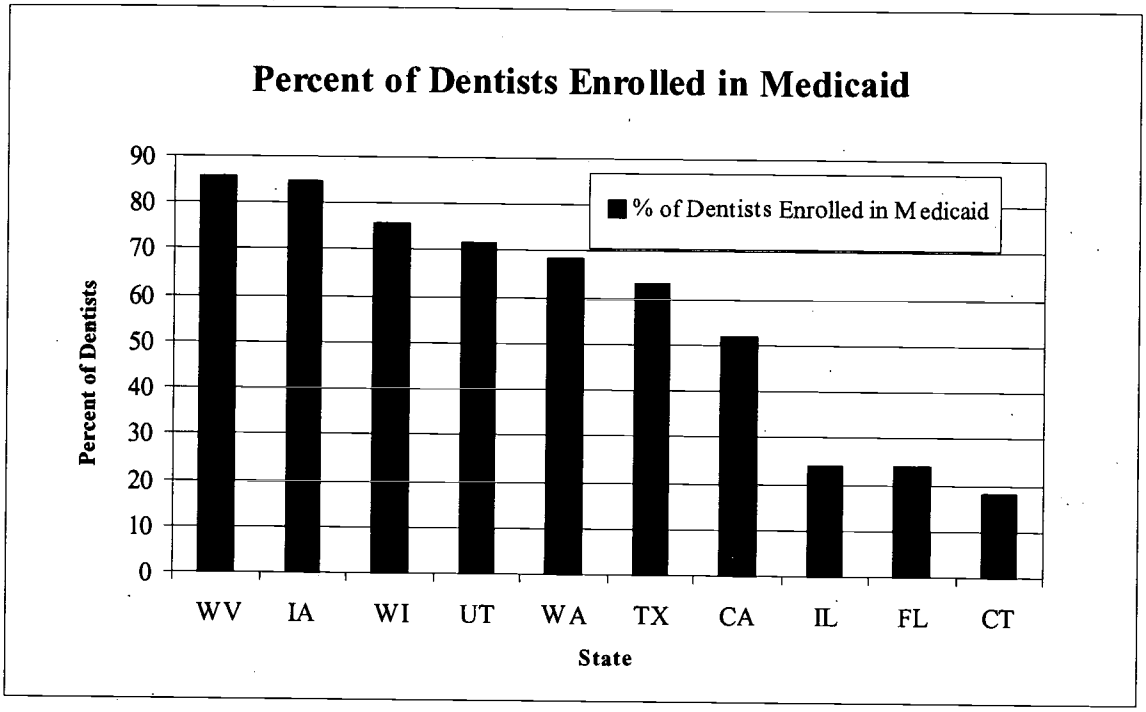
Over 40 percent of Texas physicians enrolled in Medicaid receive annual payments greater than $10,000—the highest of any of the profile states—compared to under three percent of Medicaid-enrolled physicians in Iowa and Wisconsin.

Chart 4B.



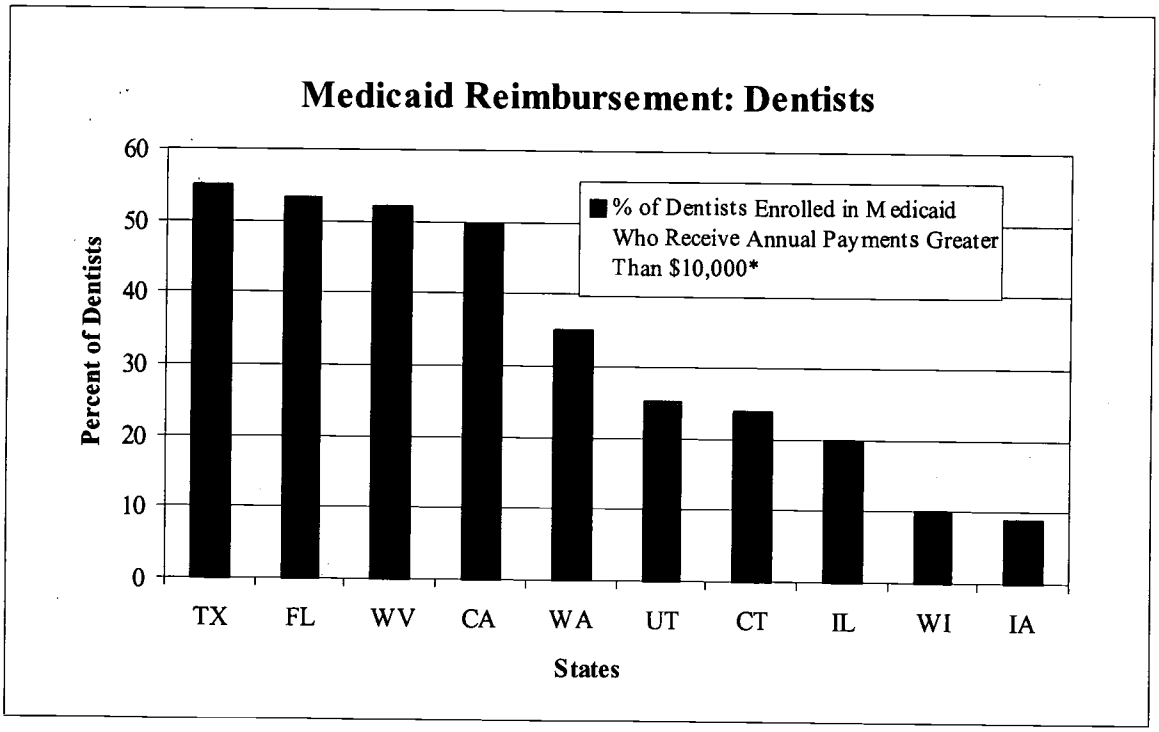
Connecticut physicians had the greatest increase in Medicaid payment rates—almost 40 percent—between 1993 and 1998. In contrast, California physicians had no increase in payment rates while physicians in West Virginia suffered a 15 percent drop in rates.

Chart 4C.



Over 80 percent of all dentists in West Virginia and Iowa are enrolled in Medicaid, compared to less than a third of all dentists in Illinois, Florida and Connecticut.

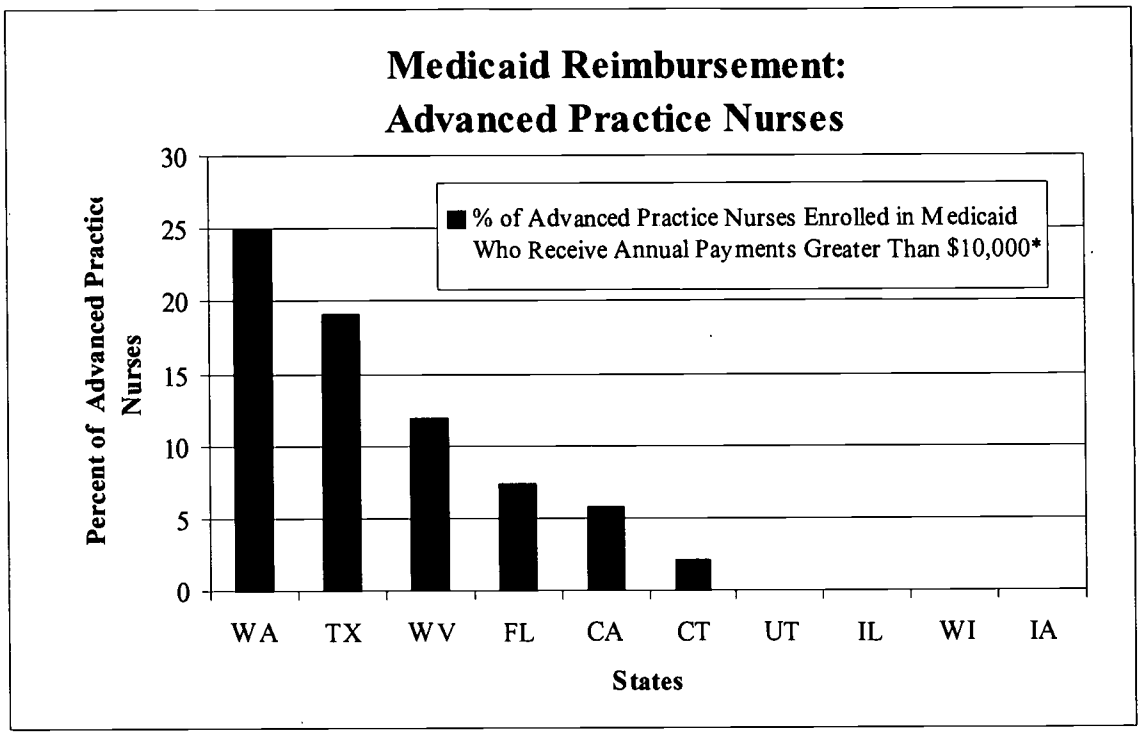
Chart 4D.



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

Over half of all Medicaid-enrolled dentists in Texas, Florida and West Virginia receive annual payments greater than $10,000. Less than a quarter of Medicaid-enrolled dentists receive this amount annually in Connecticut, Illinois, Wisconsin and Iowa.

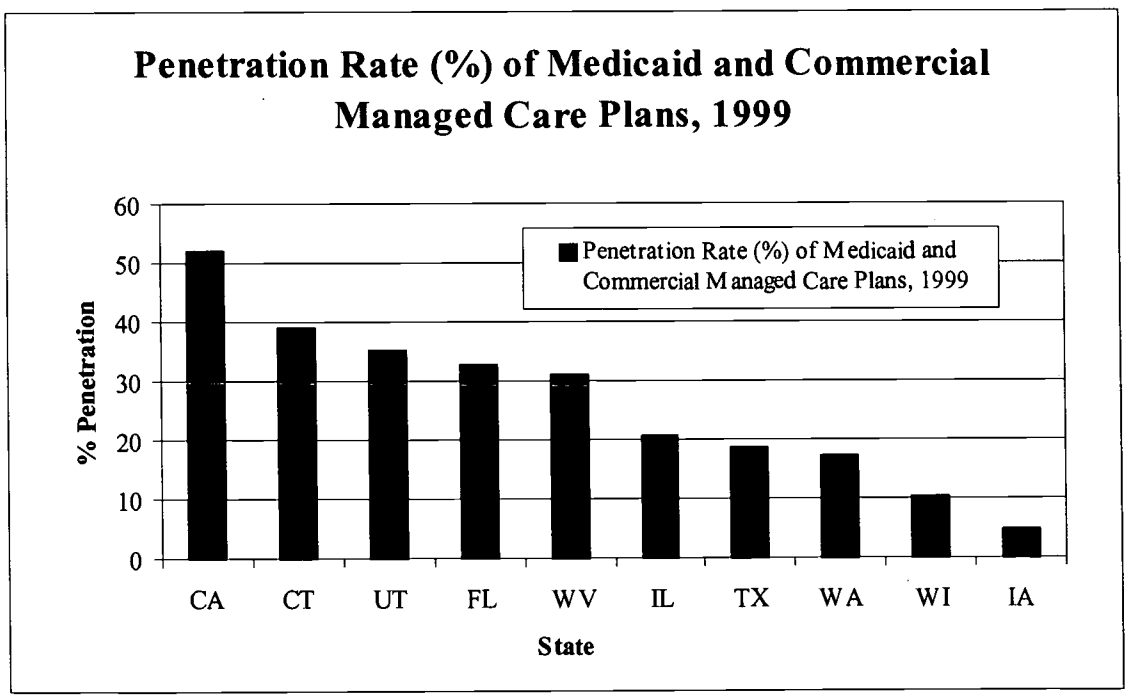
Chart 4E.



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

A quarter of all Medicaid-enrolled advanced practice nurses receive annual payments greater than $10,000 in Washington. There are no advanced practice nurses who receive this amount in Utah, Illinois, Wisconsin or Iowa.

Chart 4F.



California's Medicaid and commercial managed care plans have over 50 percent penetration in the state, compared to less than a 20 percent penetration in Texas, Washington, Wisconsin and Iowa.

SUMMARY AND ANALYSIS

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 instance, West Virginia shows higher than average levels of poverty as it relates to access as well as the largest proportion of dentist participation in Medicaid of any profile state.

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. Most dentists, while they participate in Medicaid, have routinely decided to keep their involvement at a minimum. Low Medicaid rates in California reportedly are limiting participation particularly for pediatricians, although the state's governor plans to spend some of California's recent budget surplus to boost Medi-Cal provider rates for the first time since the early 1990s. Moreover, just three profile states report that more than half of their Medicaid enrolled dentists receive over $10,000 in annual payments. Research continues to suggest that provider fee levels affect both access and outcomes for Medicaid patients. In 2000, a class action lawsuit on behalf of Medicaid beneficiaries in North Carolina was filed against the state claiming that beneficiaries receive inadequate dental care primarily because Medicaid dental payment rates are too low. Reportedly, North Carolina Medicaid pays dentists just 40 to 60 percent of a dentist's usual charges for dental procedures—a similar situation in many states.

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.

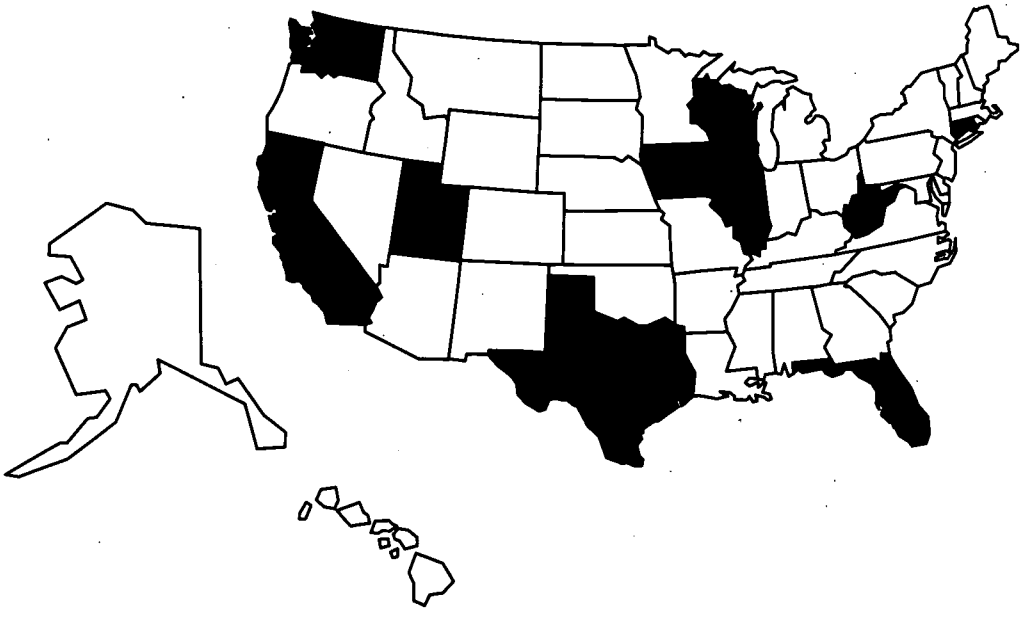
Many profile states have addressed one or more of these strategies. Seven of the 10 profile states have NHSC or state loan repayment programs that include dentists as *eligible* providers. The University of Washington's Center for Health Workforce Studies recently issued a factsheet on the distribution of the dental workforce in Washington and their implications of state policy changes. In 1998, the Connecticut Department of Public Health held a summit that focused on improving dental delivery systems for the poor.

Several inconsistencies between supply and need (demand) are documented among the profile states. Utah, for example, has the highest ratio of National Health Service Corps professionals per 10,000 population living

in federally designated health professional shortage areas (HPSAs); yet, the state has the next to lowest percent population living in HPSAs of any profile state.

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. Iowa is a good example of this. Since the early 1970s, the University of Iowa School of Medicine has routinely collected detailed practice profiles on several health professions in Iowa (a profile state). For over twenty years, North Carolina has produced a model data collection system on multiple health professions practicing in the state. The data for the system is provided to the respective licensing boards by health professionals at the time of initial license or renewal and tabulated by the Sheps Center for Health Services Research at the University of North Carolina. Other states have made periodic (but not ongoing) attempts to collect and analyze comprehensive data on its health workforce. These include the profile states of Texas and Washington, as well as Indiana. Still, a few states, such as Utah, have just recently begun a concerted effort through statewide commissions or studies to comprehensively understand its health workforce.

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.

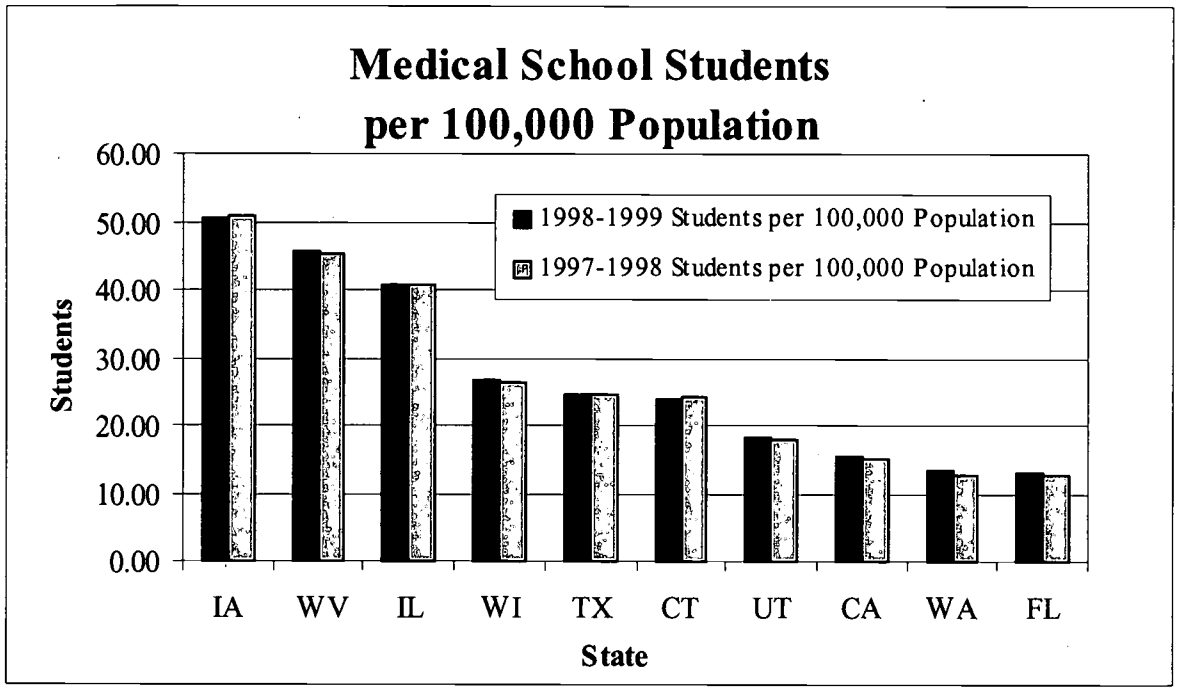
INDICATORS		PROFILE STATES									
		CA	CT	FL	IA	IL	TX	UT	WA	WV	WI
Medical Schools *(Allopathic and Osteopathic)*	Total # of Schools	10	2	4	2	8	8	1	1	3	2
	# of *Public* Schools	5	1	2	1	2	7	1	1	3	1
	# of *Private* Schools	5	1	2	1	6	1	0	0	0	1
	# of *Osteopathic* Schools	2	0	1	1	1	1	0	0	1	0
Medical School Students *(Allopathic and Osteopathic)*	# in 1998-1999	5213	816	2055	1477	5058	5143	407	795	824	1422
	# Per 100,000 population, 1998-1999[1]	15.39	23.96	12.86	50.47	40.73	24.66	18.23	13.49	45.57	26.51
	# in 1997-1998	5120	826	2045	1487	5051	5155	398	738	818	1420
	# Per 100,000 population, 1997-1998[1]	15.12	24.25	12.80	50.81	40.67	24.72	17.82	12.52	45.23	26.47
	% Newly Entering *(Allopathic)* who are State Residents, 1999-2000	78.9	37.6	97.7	72.0	62.2	90.7	73.5	56.0[2]	95.6	64.0
	State and/or Most Training Programs Require Students in Some/All Schools to Complete *Primary Care Clerkship*	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Medical School Graduates *(Allopathic and Osteopathic)*	# in 1999	1182	181	494	351	1294	1263	97	160	199	332
	# Per 100,000 population, 1999[1]	3.49	5.31	3.09	11.99	10.42	6.06	4.34	2.71	11.00	6.19
	# in 1998	1166	184	488	370	1178	1233	93	154	201	320
	# Per 100,000 population, 1998[1]	3.44	5.40	3.05	12.64	9.49	5.91	4.16	2.61	11.12	5.97
	% Graduates *(Allopathic)* who are Underrepresented Minorities (1994-1998) *U.S. average: 10.5*	16.7	13.1	7.6	8.0	8.8	12.7	2.5	7.4	1.0	8.3
	% 1987-1993 Medical School Graduates *(Allopathic)* Entering Generalist Specialties *U.S. average: 26.7*	29.5	22.7	24.3	31.3	26.5	26.5	26.4	38.3	32.4	28.5
State Appropriations to Medical Schools *(Allopathic and Osteopathic)*	Total State Appropriations ($ in millions) 1997-1998	279.0	44.7	106.1	56.7	101.1	449.9	17.9	46.5	47.8	36.1
	State Appropriations Per Medical Student ($ in thousands) 1997-1998	63.9	54.1	77.6	82.1	22.9	177.8	45.0	63.0	102.9	25.4

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

[2] The state's one medical school at the University of Washington annually allots a certain portion of its admissions to qualified students applying from AK, MT, ID and WY—states that do not have their own medical schools.

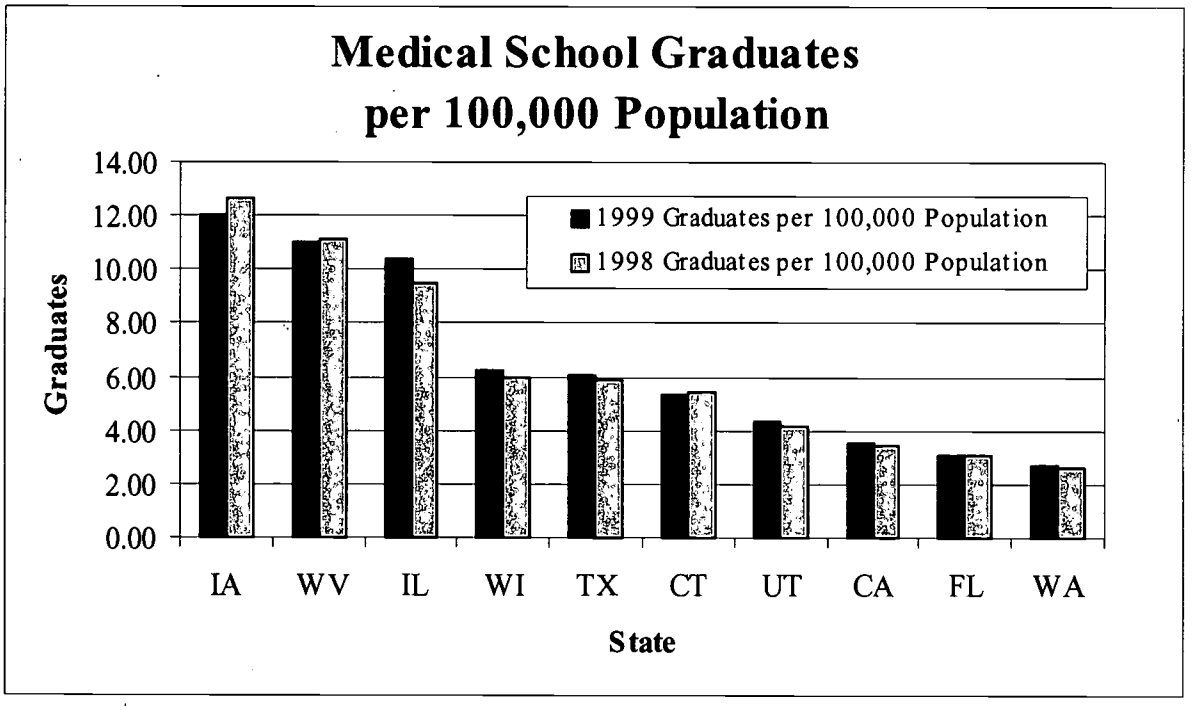
Sources: AAMC, AAMC Institutional Goals Ranking Report, AACOM, Barzansky et al. "Educational Programs", State higher education coordinating boards.

Chart 5A.



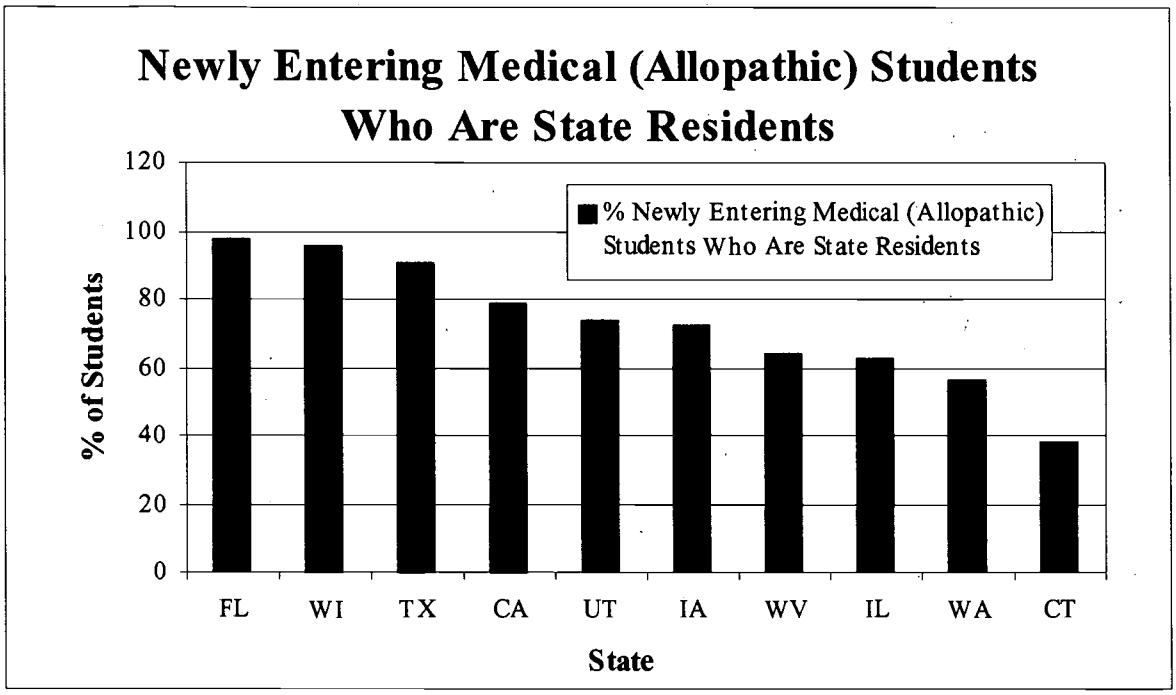
Iowa and West Virginia have twice as many medical school students per 100,000 population as Utah, California, Washington and Florida.

Chart 5B.



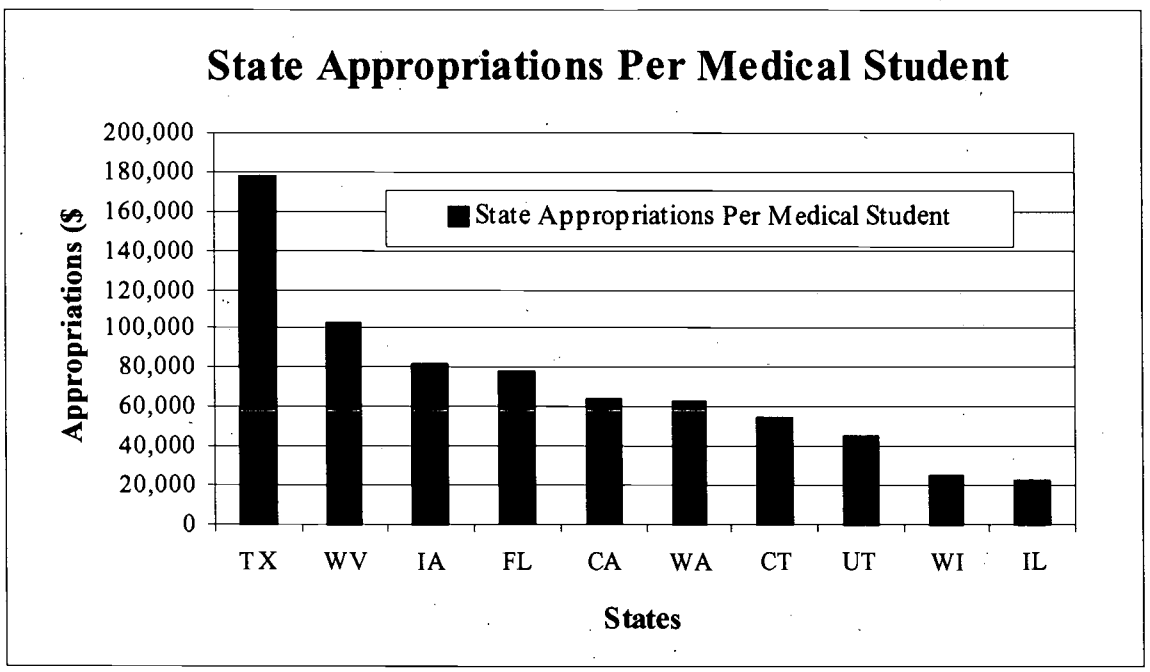
Iowa, West Virginia and Illinois graduated over three times as many medical students per 100,000 population in 1998 and 1999 as Florida and Washington.

Chart 5C.



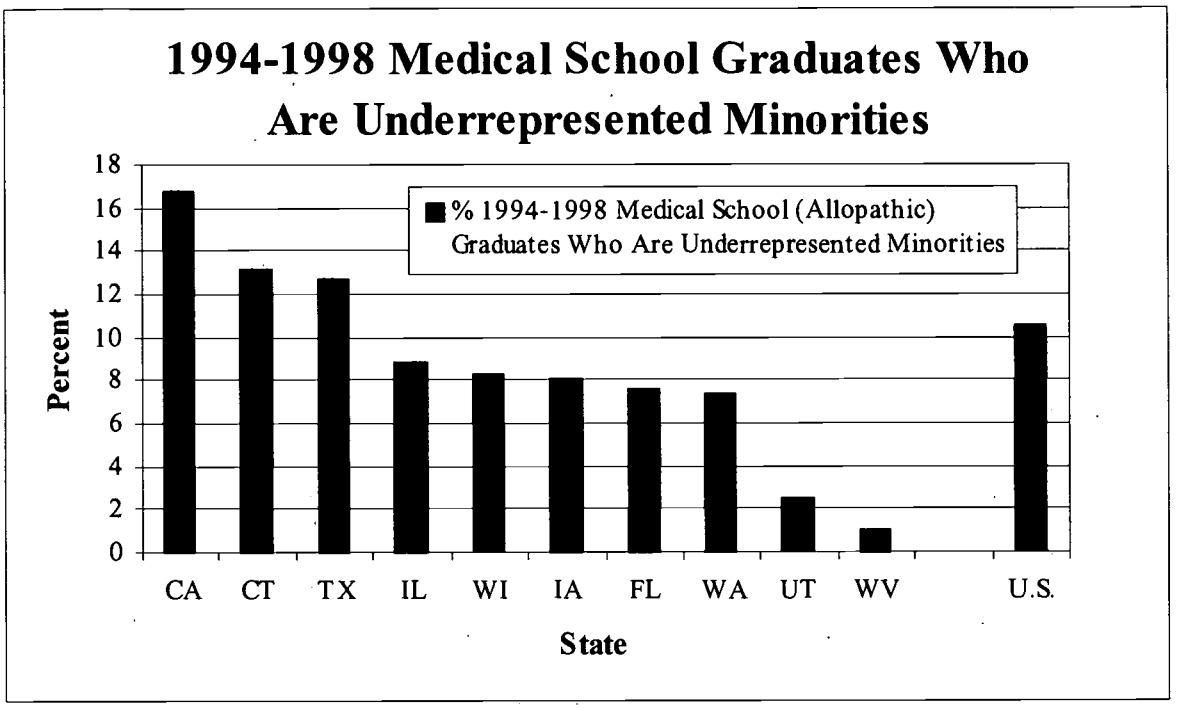
Over 95 percent of Florida's and Wisconsin's newly entering medical students are state residents; less than half of Connecticut's newly entering students reside in the state.

Chart 5D.



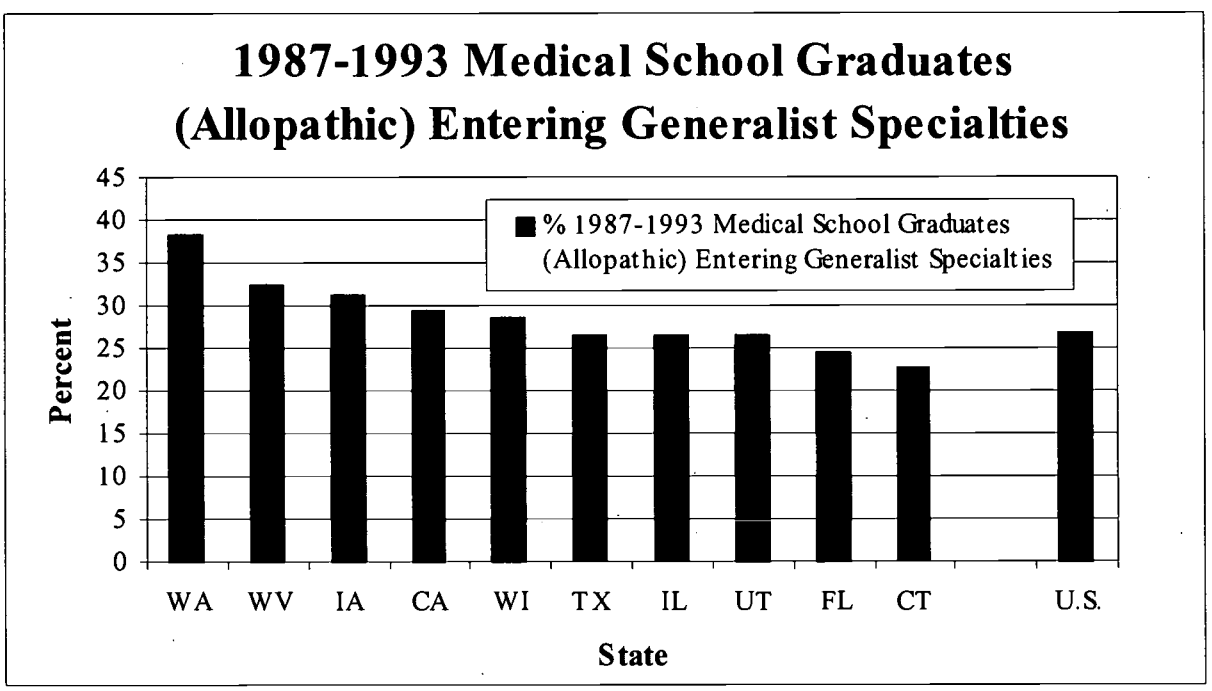
Texas appropriates almost 80 percent more money per medical student than any other state, and over three times as much as Wisconsin and Illinois.

Chart 5E.



California has a higher percentage of underrepresented minority medical school graduates (15 percent) than any other profile state. West Virginia and Utah's underrepresented minority medical school graduates make up less than 5 percent of their classes.

Chart 5F.



Washington had a higher percentage of its 1987 to 1993 medical school graduates entering generalist specialties than any other profile state. Half the 10 profile states have percentages that exceed the national average.

PHYSICIANS: GRADUATE MEDICAL EDUCATION

Table 6.

INDICATORS		PROFILE STATES									
		CA	CT	FL	IA	IL	TX	UT	WA	WV	WI
Number of Residency Programs *(Allopathic and Osteopathic)*, August, 1999		678	152	244	72	419	466	54	106	61	146
Residents *(Allopathic and Osteopathic)*	# in August 1999	8,685	1,817	2,814	732	5,606	6,112	529	1,448	590	1,443
	# Per 100,000 Population, 1999-2000	26	55	18	25	46	30	25	25	32	27
	% From In-State Medical School, 1999-2000[1]	30.8	10.6	21.3	25.9	31.7	38.1	17.4	16.4	38.8	26.3
	% Who Are International Medical Graduates, 1999-2000 *U.S. average: 26.4*	12.3	42.0	26.2	18.8	32.7	19.5	6.4	5.5	30.5	22.9
	State and/or Most Training Programs Require Some or All Residents to be Offered a *Rural Rotation*	Yes	No	No	No	No	Yes	Yes	No	No	Yes
Residencies in Family Medicine	# of Residencies, 1999-2000	41	3	13	9	30	28	4	12	6	12
	# of Residents, 1999-2000	1,047	56	362	189	622	751	83	260	108	266
	# Per 100,000 Population, 1999-2000[2]	3.09	1.64	2.26	6.46	5.01	3.60	3.72	4.41	5.97	4.96
	% In-State Medical School Graduates who were First Year Family Medicine Residents, 1995-1999 *U.S. average: 15.2*	16.0	6.2	10.3	29.6	14.4	16.3	24.2	28.5	18.1	19.1
	% In-State Medical School Graduates Choosing Family Medicine Who Entered In-State Family Medicine Residency, 1995-1999 *U.S. average: 48.3*	72.3	23.1	55.6	44.1	45.0	68.0	26.1	49.5	72.3	50.4
State Financing of Graduate Medical Education	State GME Appropriations (millions of $), 1999-2000[9]	100.1[3,5]	0.3[4]	8.5	2.5	3.09	26.4	1.68[5]	2.1	0.91[6]	9.0
	State GME Appropriations (thousands of $) Per Medical Resident [9]	21.6[3,5]	5.8[4]	5.7	12.0	11.6	10.1	21.5[5]	--[7]	7.8[6]	33.8
	Medicaid GME Payments ($ in millions), 1998[8]	129.1	6.0	75.1	43.8	0	40.0	4.0	63.5	2.7	37.0
	Medicare GME Payments ($ in millions), 1998[8]	266.6	19.6	126.2	34.1	266.2	182.9	21.1	50.0	40.7	95.3

[1] Allopathic residents only.

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

[3] For all programs at the medical schools, including physician assistant students, graduate students and residents.

[4] 1994-1995 data.

[5] 1996-1997 data.

[6] 1998-99 data.

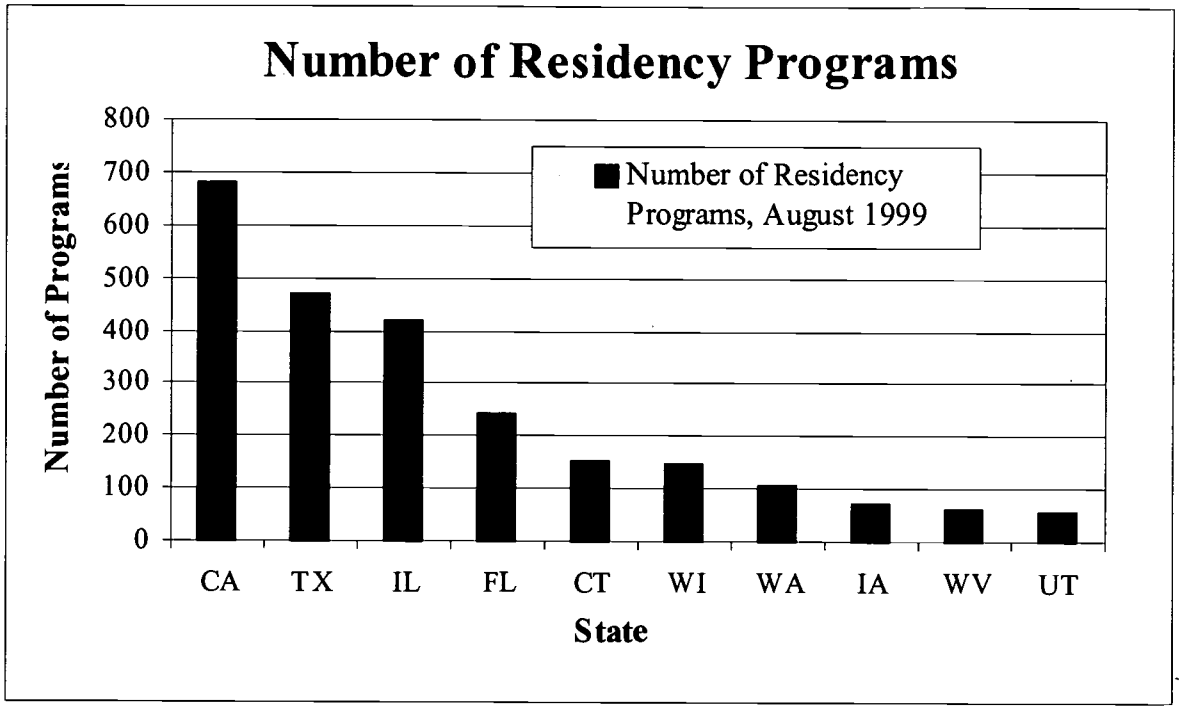
[7] All University of Washington residency programs receive a percentage of state funds. No information is available on which specialties receive these funds.

[8] Explicit payments for both direct and indirect GME cost.

[9] Dollar amounts refer largely to funding for family medicine training programs. However, these funds that flow directly to teaching hospitals are not necessarily earmarked by the state for graduate medical education.

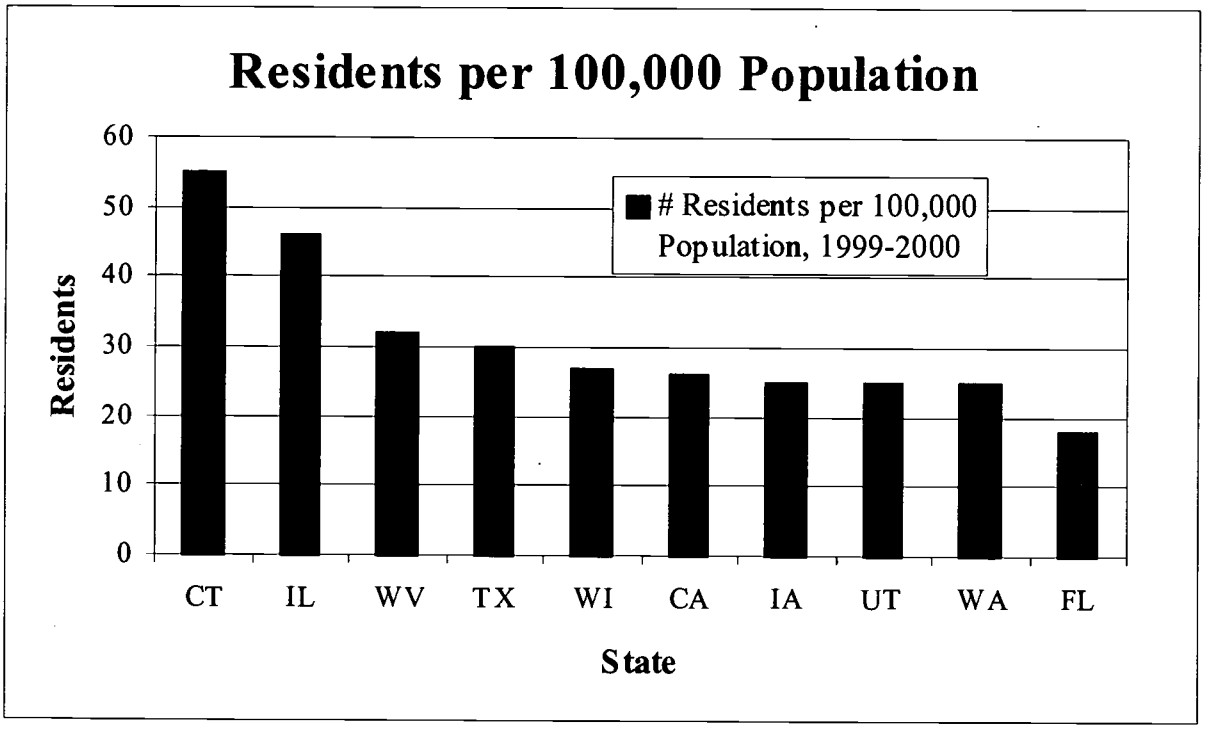
Sources: AMA, AMA State-level Data, AACOM, State higher education coordinating boards, Henderson "Funding", Oliver et al. "State Variations", AAFP, AAFP State Legislation, Kahn et al., Pugno et al. and Schmittling et al. "Entry of U.S. Medical School Graduates".

Chart 6A.



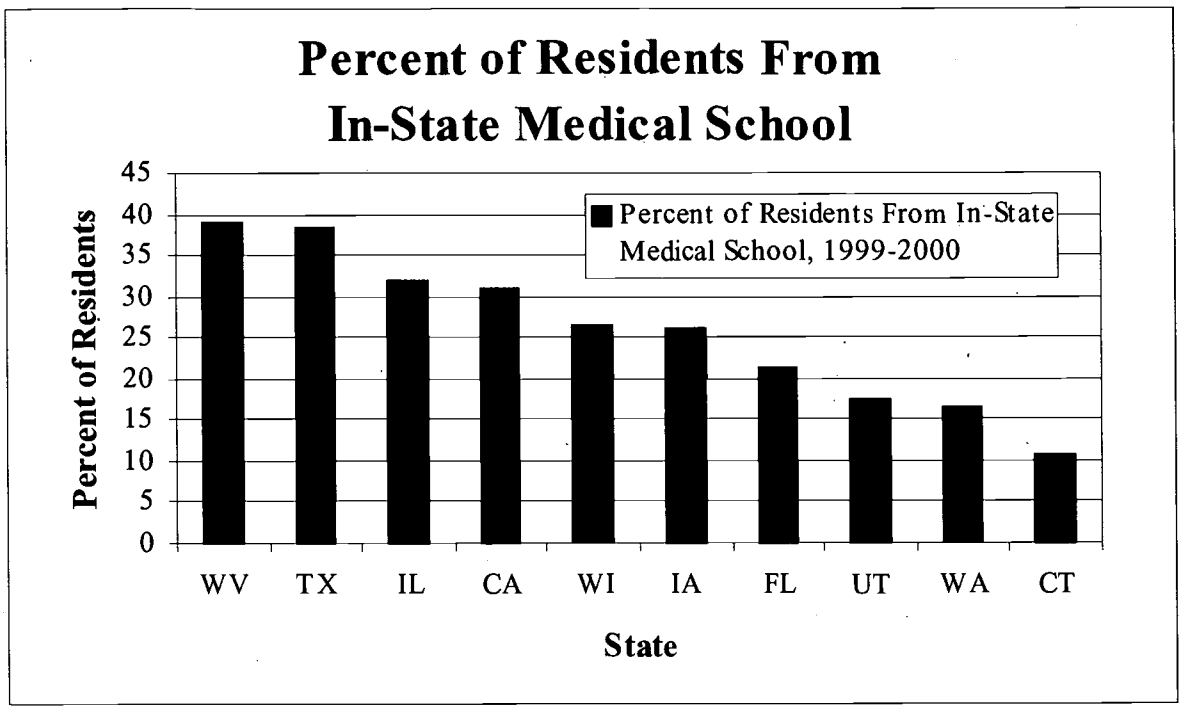
California has more than twice as many residency programs as most of the other profile states.

Chart 6B.



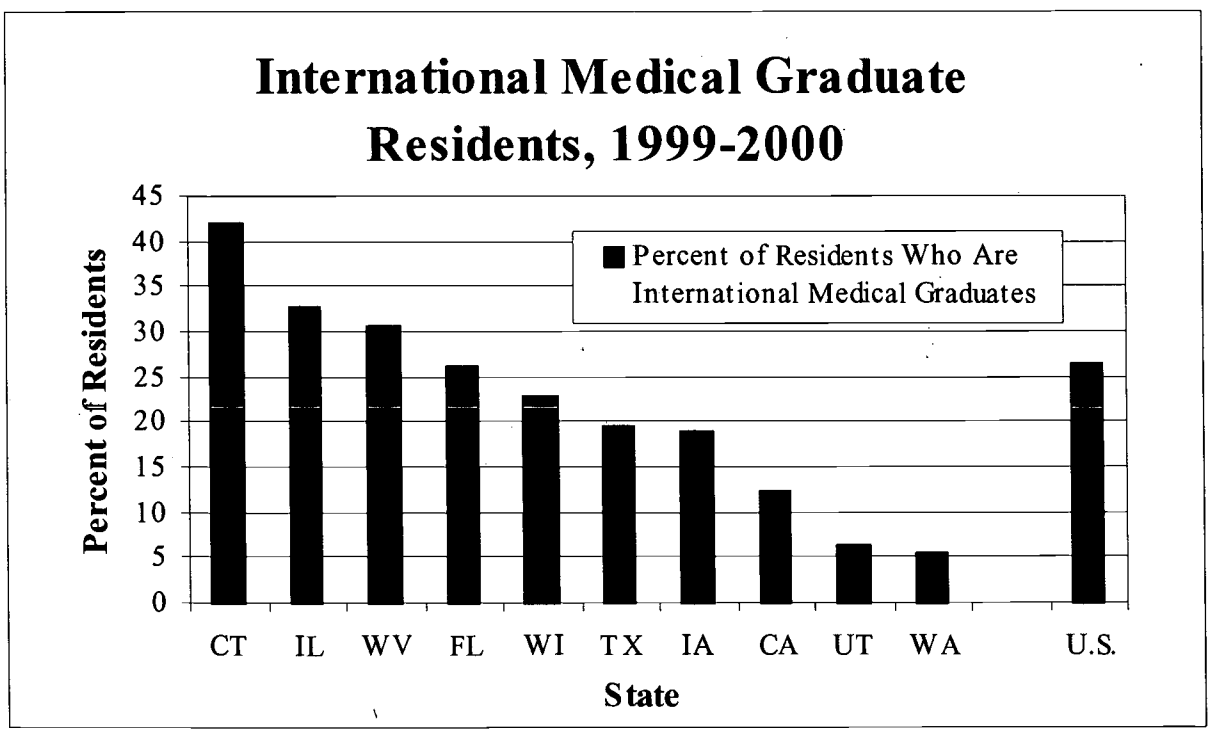
Connecticut has twice as many residents per 100,000 population as many of the profile states and three times as many as Florida.

Chart 6C.



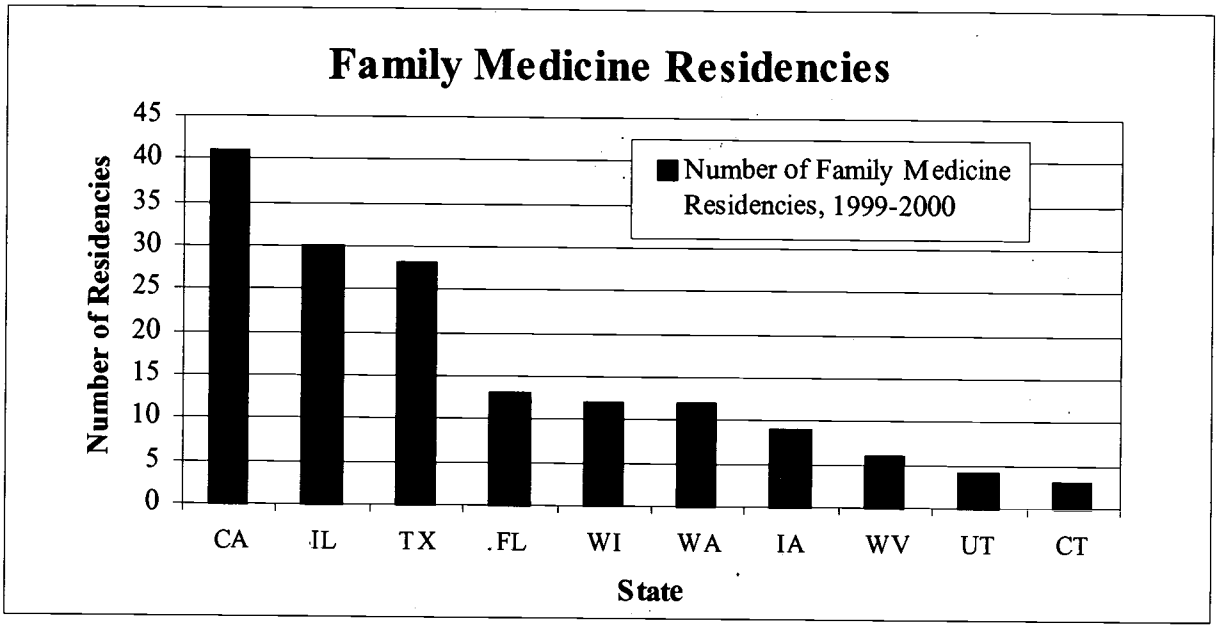
More than a third of West Virginia's and Texas' residents are from in-state medical schools, while less than 15 percent of Connecticut's residents are from in-state schools.

Chart 6D.



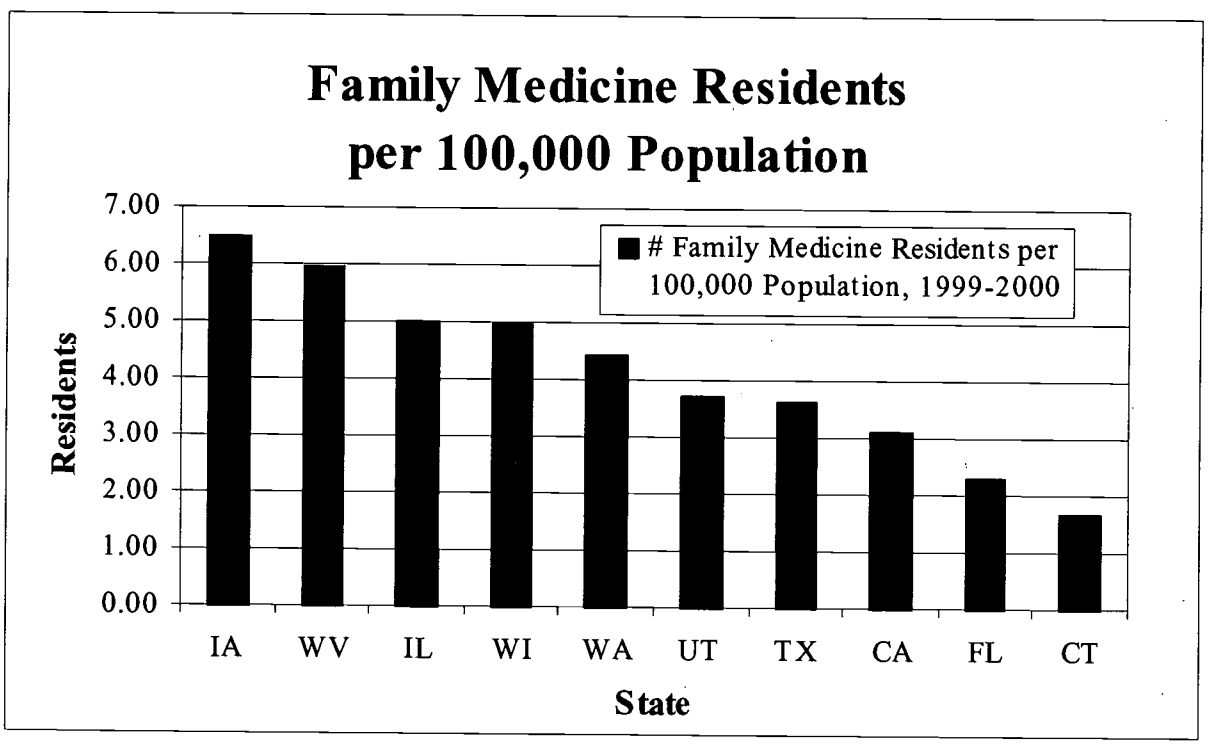
Fewer than a tenth of Utah's and Washington's medical residents are international medical graduates (IMGs), while over a third of Connecticut's residents are IMGs.

Chart 6E.



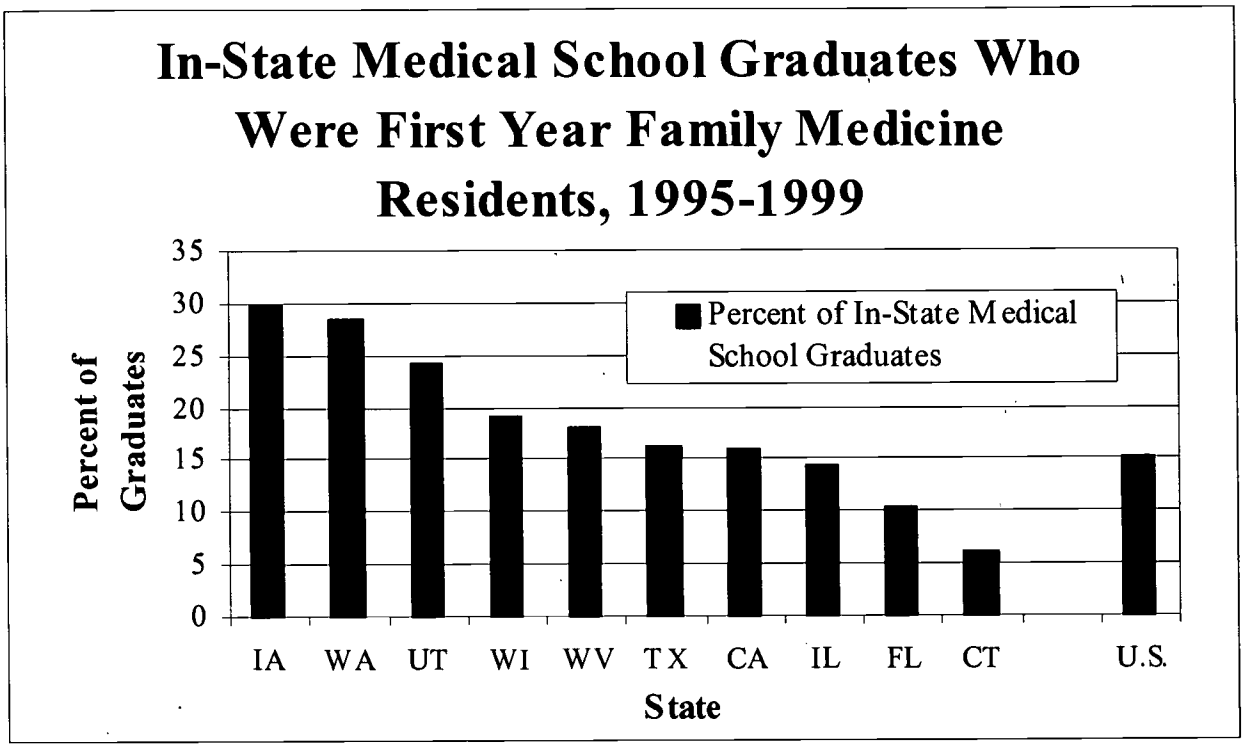
Of the 10 profile states, California has more than twice the number of family medicine residency programs.

Chart 6F.



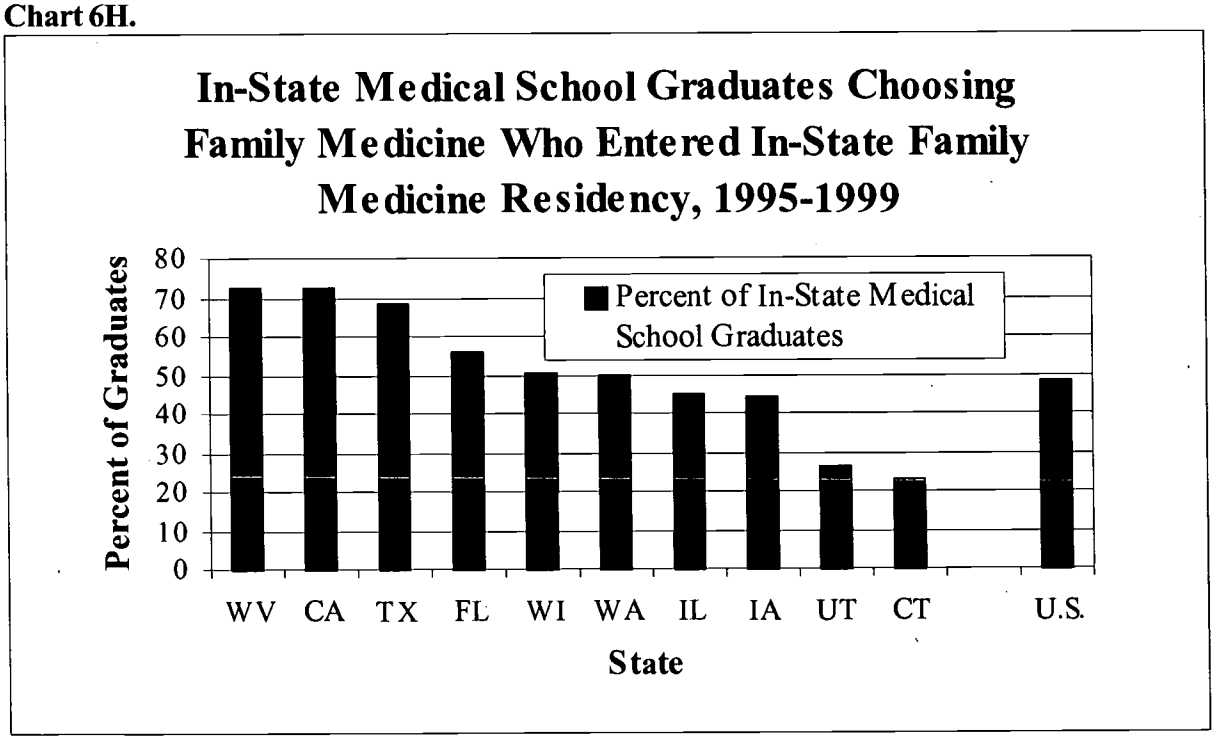
Iowa and West Virginia have almost three times as many family medicine residents per 100,000 population as Florida and Connecticut.

Chart 6G.



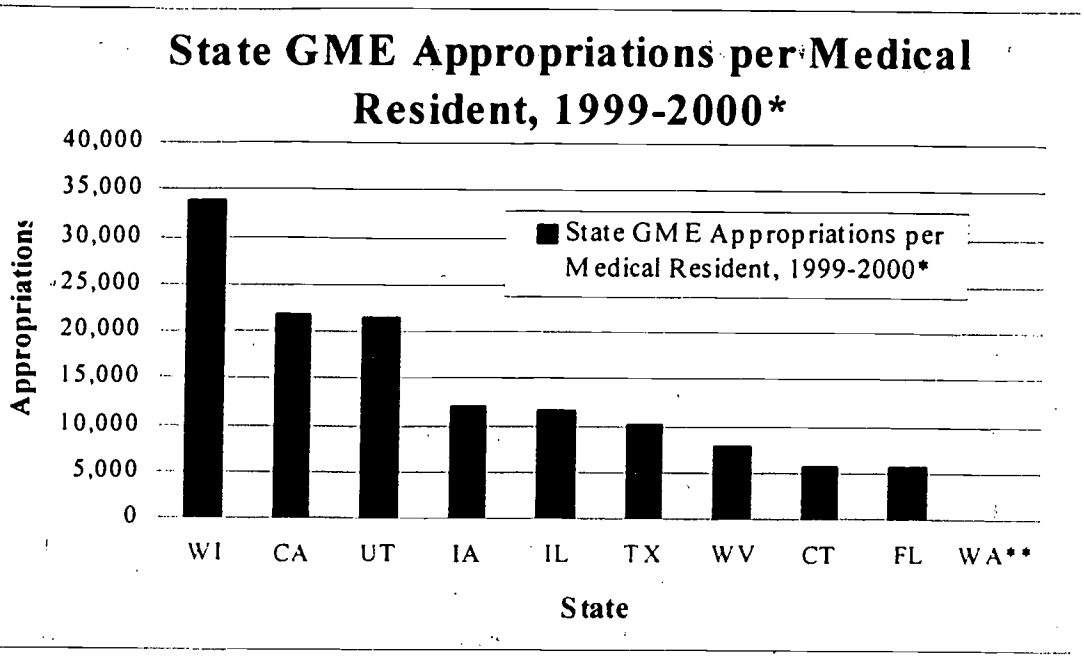
Over a quarter of Iowa's and Washington's medical school graduates were first-year family medicine residents between 1995 and 1999. In contrast, less than a tenth of Connecticut's graduates were first year family medicine residents during that period.

Chart 6H.



Of West Virginia's, California's and Texas' medical school graduates who entered family medicine residencies, over two-thirds entered in-state residencies. This was true for less than a third of Utah's and Connecticut's graduates who entered family medicine residencies.

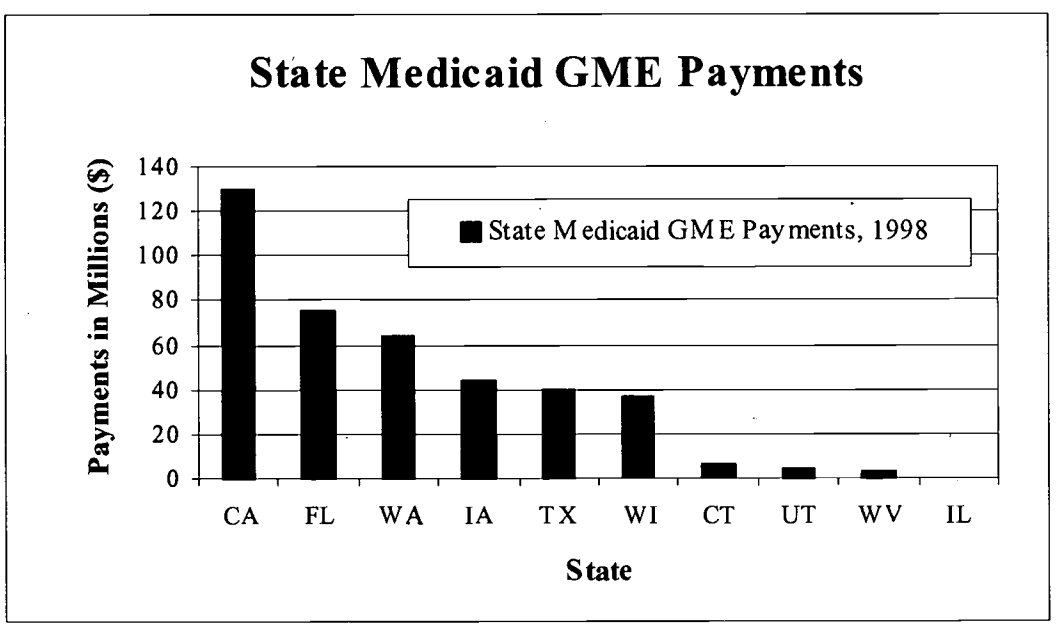
Chart 6I.



* Not all figures reflect 1999-2000 data. See table for details. Dollar amounts refer largely to funding for family medicine training programs. However, these funds that flow directly to teaching hospitals are not necessarily earmarked by the state for graduate medical education.
** All University of Washington residency programs receive a percentage of state funds. No information is available on which specialties receive these funds.

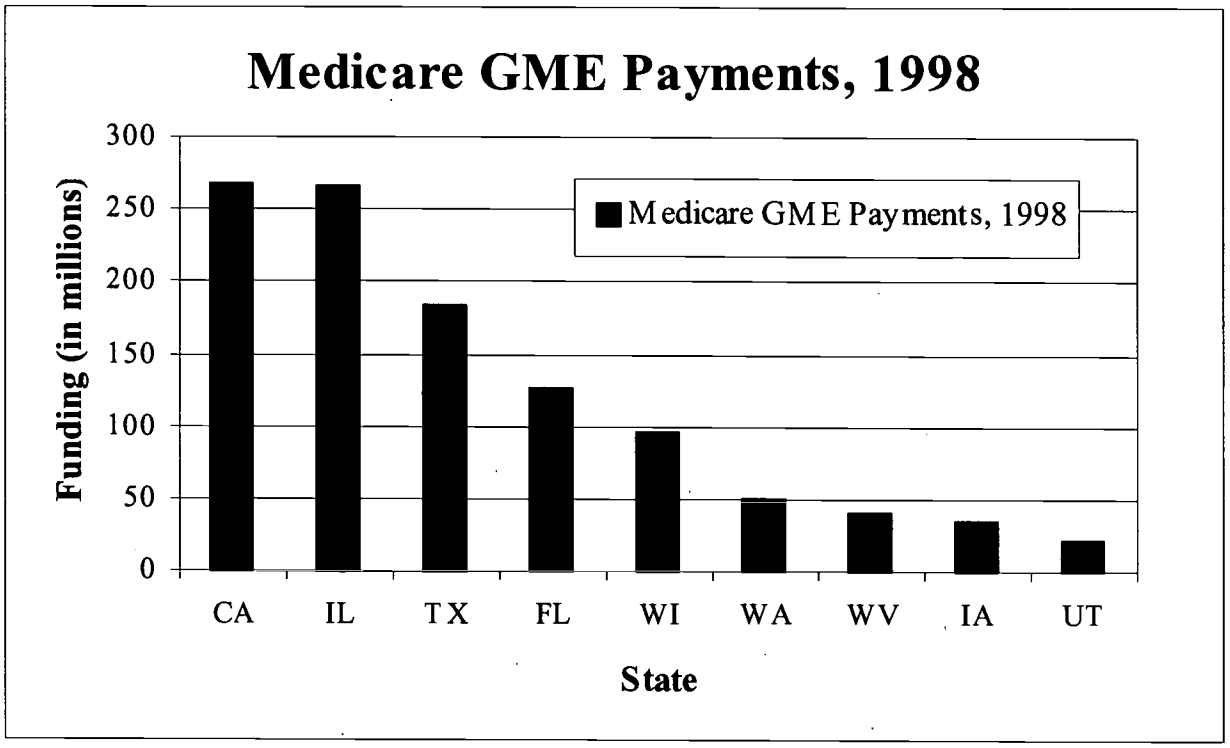
Wisconsin's graduate medical education appropriations per resident are twice that of most profile states.

Chart 6J.



California's Medicaid GME payments are almost twice that of any of the profile state, while Connecticut's, Utah's and West Virginia's payments are at least four times smaller than any other state. Illinois does not make any Medicaid payments for graduate medical education.

Chart 6K.



Medicare funding for GME is highest in California and Illinois, more than twice that of most profile states.

NURSING EDUCATION

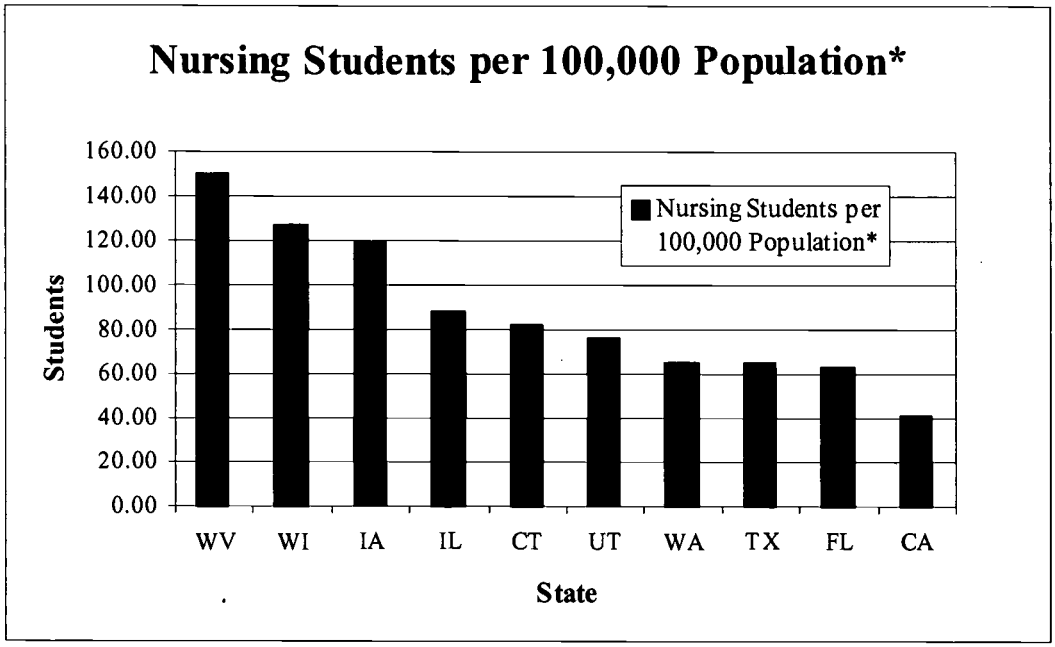
Table 7.

INDICATORS			PROFILE STATES								
			CA	CT	FL	IA	IL	TX	UT	WA	WV	WI
Nursing Schools	Total # of Schools		100	15	45	38	76	77	7	25	16	31
	# of *Public* Schools		85	8	36	24	47	68	5	20	9	21
	# of *Private* Schools		15	7	9	14	29	9	2	5	7	10
Nursing School Students	Total # of Students *		13,866	2787	10,044	3,485	10,947	13,568	1,690	3,583	2,716	6,838
	# Per 100,000 Population **		40.94	81.84	62.84	119.09	88.15	65.07	75.68	65.37	150.19	127.49
	# of Associate Degree Students, 1998-1999		7,910	650	5,774	1,881	4,579	6,647	675	1,709	1,305	2,115
	# of Baccalaureate Students	1999-2000	4,134	1,433	3,198	1,324	4,812	5,075	754	1,091	1,226	4,053
		1997-1998	6,305	1,639	3,615	1,398	5,423	5,877	720	1,430	1,400	4,416
	# of Masters Students	1999-2000	1,639	648	966	243	1,278	1,637	225	702	185	600
		1997-1998	2,699	807	1,644	253	1,265	1,848	237	535	182	716
	# of Doctoral Students	1999-2000	183	56	106	37	278	209	36	81	0	70
		1997-1998	163	45	82	40	326	214	37	72	0	65
Nursing School Graduates	Total # of Graduates *		5,851	921	4,602	1,636	4,338	5,791	772	1,495	861	2,250
	# Per 100,000 Population **		17.27	27.04	28.79	55.91	34.93	27.77	34.57	25.36	47.61	41.95
	# of Associate Degree Graduates, 1998		3,759	258	3,023	963	2,269	3,051	411	776	479	967
	# of Baccalaureate Graduates	# in 1999	1,522	442	1,257	596	1,664	2,195	282	488	323	1,023
		# in 1997	1,943	452	1,340	546	1,818	2,347	344	614	330	1,247
	# of Masters Graduates	# in 1999	544	216	315	77	353	519	72	219	59	246
		# in 1997	706	202	436	45	349	575	111	208	40	225
	# of Doctoral Graduates	# in 1999	26	5	7	0	52	26	7	12	0	14
		# in 1997	45	0	0	0	58	29	7	8	0	10

* 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.

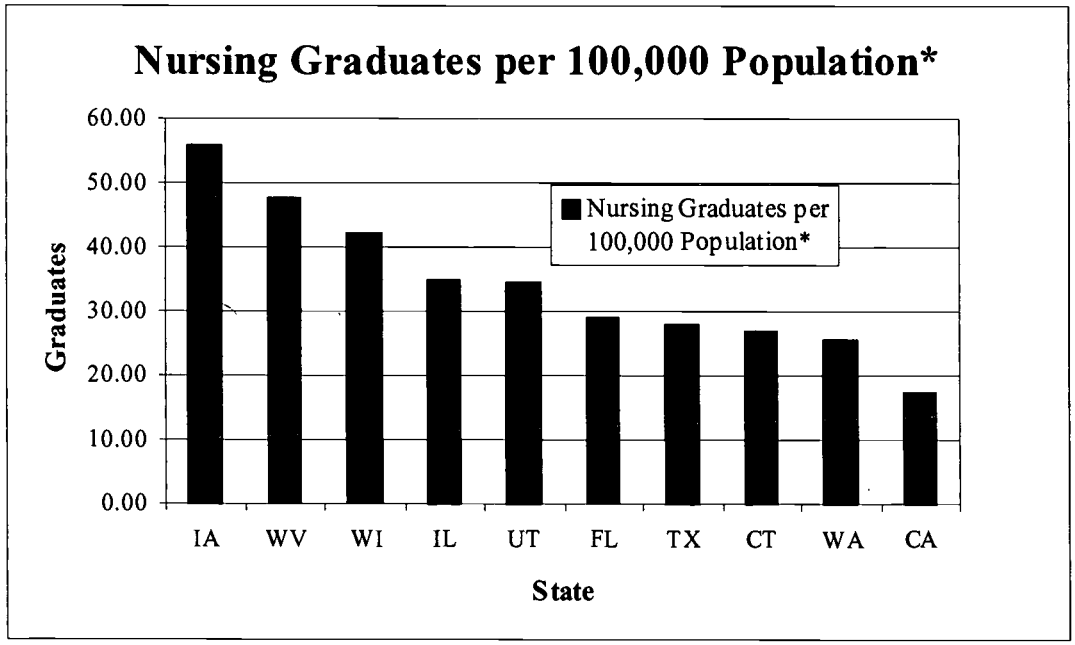
Chart 7A.



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

West Virginia and Wisconsin have twice as many nursing students per 100,000 population as Washington, Texas, Florida and California.

Chart 7B.



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

Of the profile states, California has the fewest nursing graduates per 100,000 population, more than 30 per 100,000 fewer than Iowa.

DENTAL EDUCATION

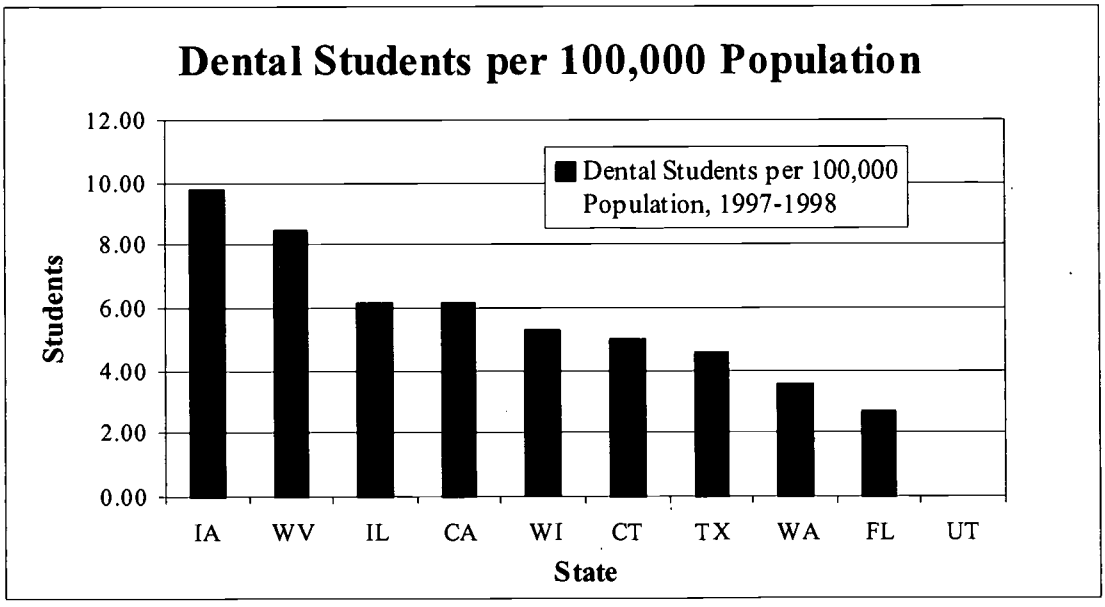
Table 8.

INDICATORS		PROFILE STATES									
		CA	CT	FL	IA	IL	TX	UT	WA	WV	WI
Dental Schools	Total # of Schools	5	1	2	1	3	3	0	1	1	1
	# of *Public* Schools	2	1	1	1	2	3	0	1	1	0
	# of *Private* Schools	3	0	1	0	1	0	0	0	0	1
Dental Students	Total # of Students, 1997-1998	2,071	169	429	285	767	953	0	210	153	284
	# Per 100,000 Population, 1997-1998*	6.11	4.96	2.68	9.74	6.18	4.57	0	3.56	8.46	5.29
Dental Graduates	Total # of Graduates, 1998	506	37	78	68	170	229	0	45	35	70
	# Per 100,000 Population, 1998*	1.49	1.09	0.49	2.32	1.37	1.10	0	0.76	1.94	1.31
State Appropriations ($) Per Dental Student, 1997-1998		16,321	53,961	25,803	35,227	16,565	44,782	0	30,265	34,355	10,681

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

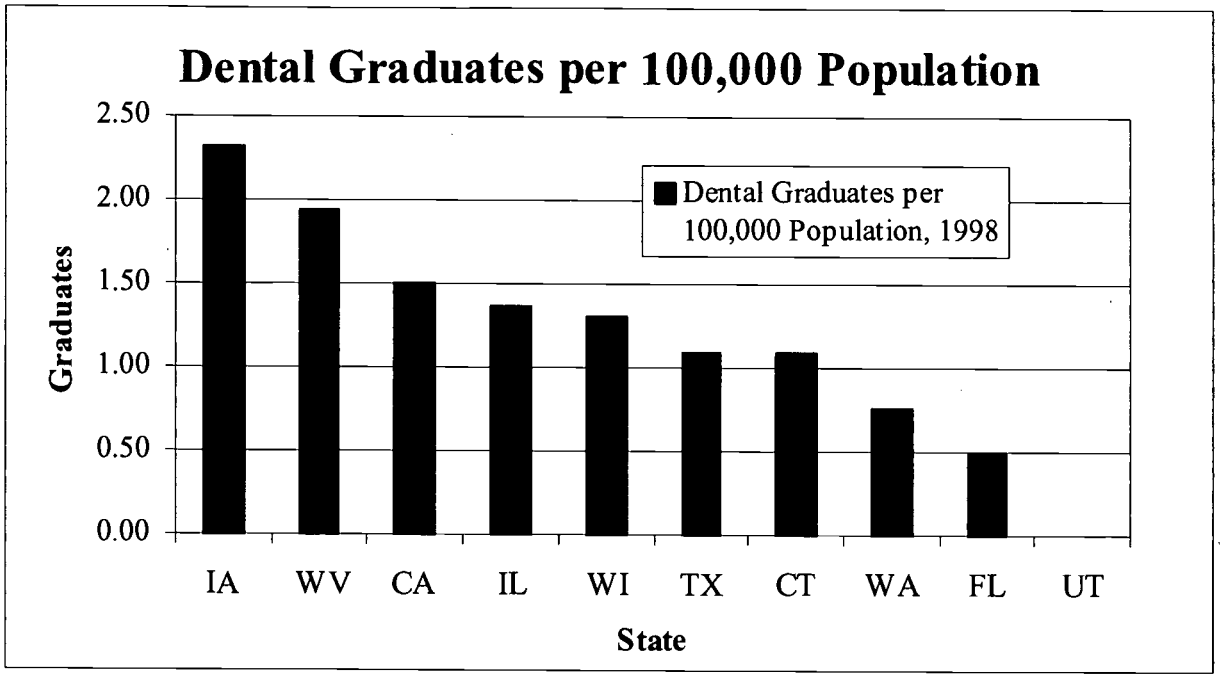
Source: ADA.

Chart 8A.



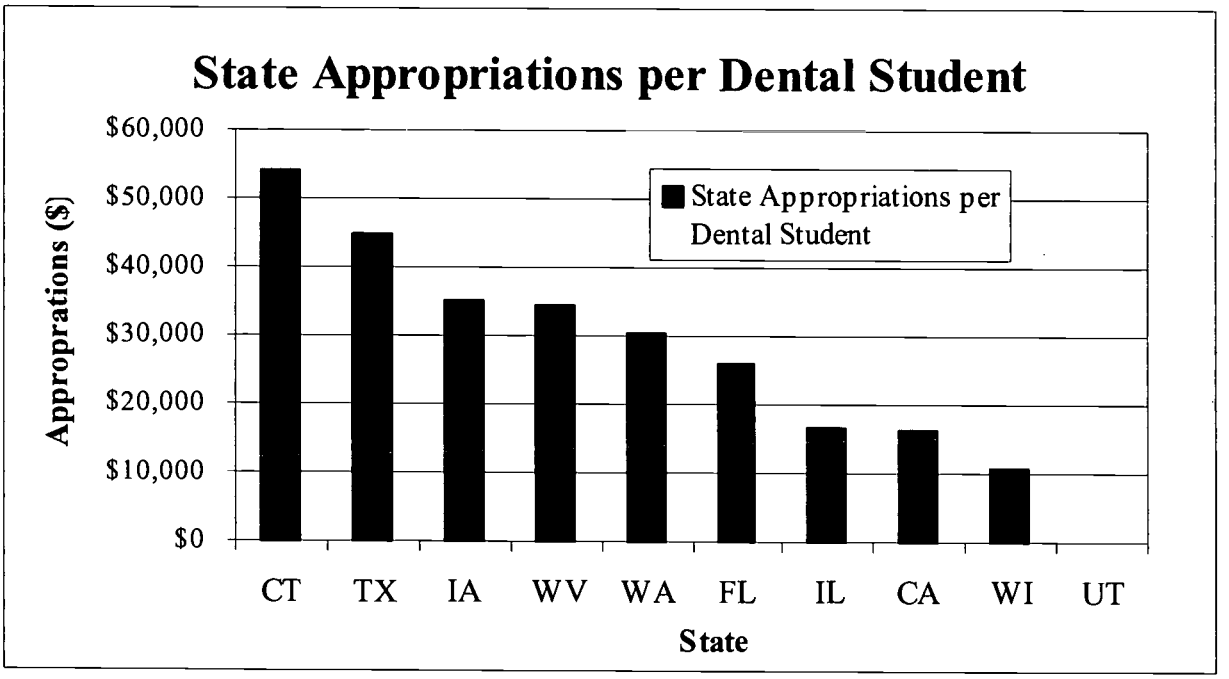
Iowa and West Virginia have more than twice as many dental students per 100,000 population as Washington and Florida. Utah has no dental school.

Chart 8B.



Iowa graduated more dentists per 100,000 population than any other profile state and more than four times as many as Florida.

Chart 8C.



Connecticut provides more appropriations per dental student than any of the other profile states. Utah has no dental school.

PHARMACY EDUCATION

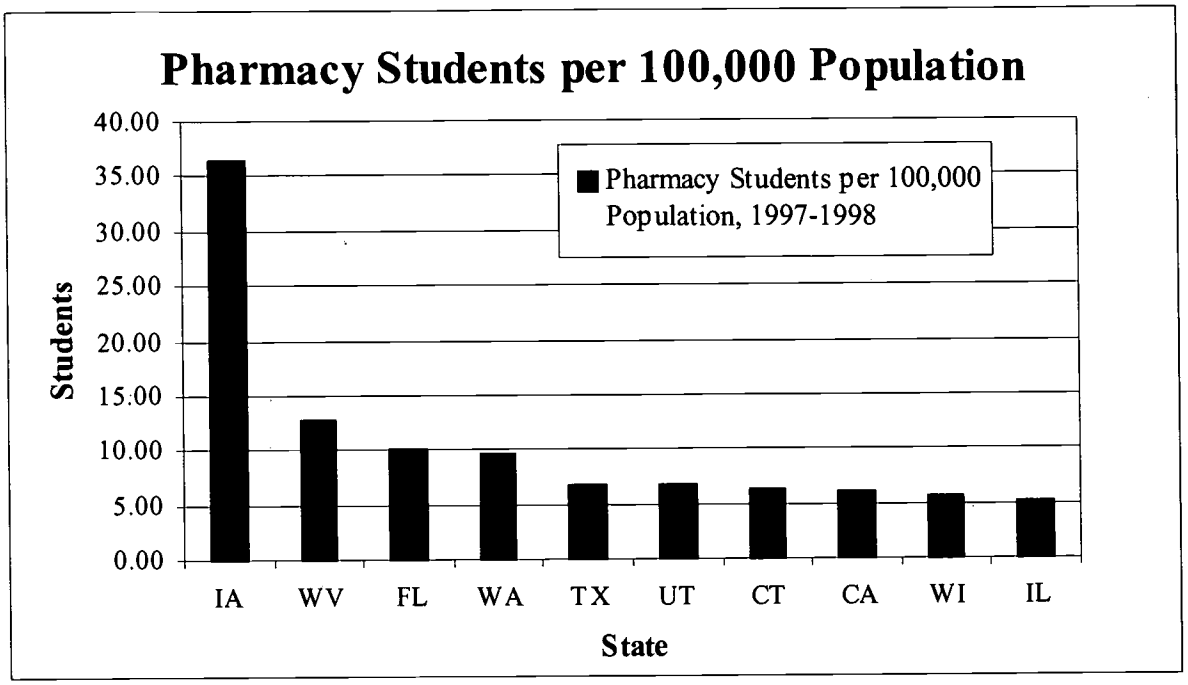
Table 9.

INDICATORS		PROFILE STATES									
		CA	CT	FL	IA	IL	TX	UT	WA	WV	WI
Pharmacy Schools	Total # of Schools	4	1	3	2	2	4	1	2	1	1
	# of *Public* Schools	1	1	2	1	1	4	1	2	1	1
	# of *Private* Schools	3	0	1	1	1	0	0	0	0	0
Pharmacy School Students, 1997-1998	Total # of Students	2,045	212	1,592	1,067	642	1,396	149	562	232	300
	# Per 100,000 Population*	6.04	6.23	9.96	36.46	5.17	6.69	6.67	9.53	12.83	5.59
	# Baccalaureate Students	0	97	28	175	0	456	128	0	145	82
	# Doctoral (PharmD) Students	2,045	115	1,564	892	642	940	21	562	87	218
Pharmacy School Graduates, 1997-1998	Total # of Graduates	491	102	265	193	246	381	43	0	78	99
	# Per 100,000 Population*	1.45	3.0	1.66	6.60	1.98	1.83	1.93	0	4.31	1.85
	# Baccalaureate Graduates	0	102	60	101	85	293	35	0	78	99
	# Doctoral (PharmD) Graduates	491	0	205	92	161	88	8	0	0	0

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

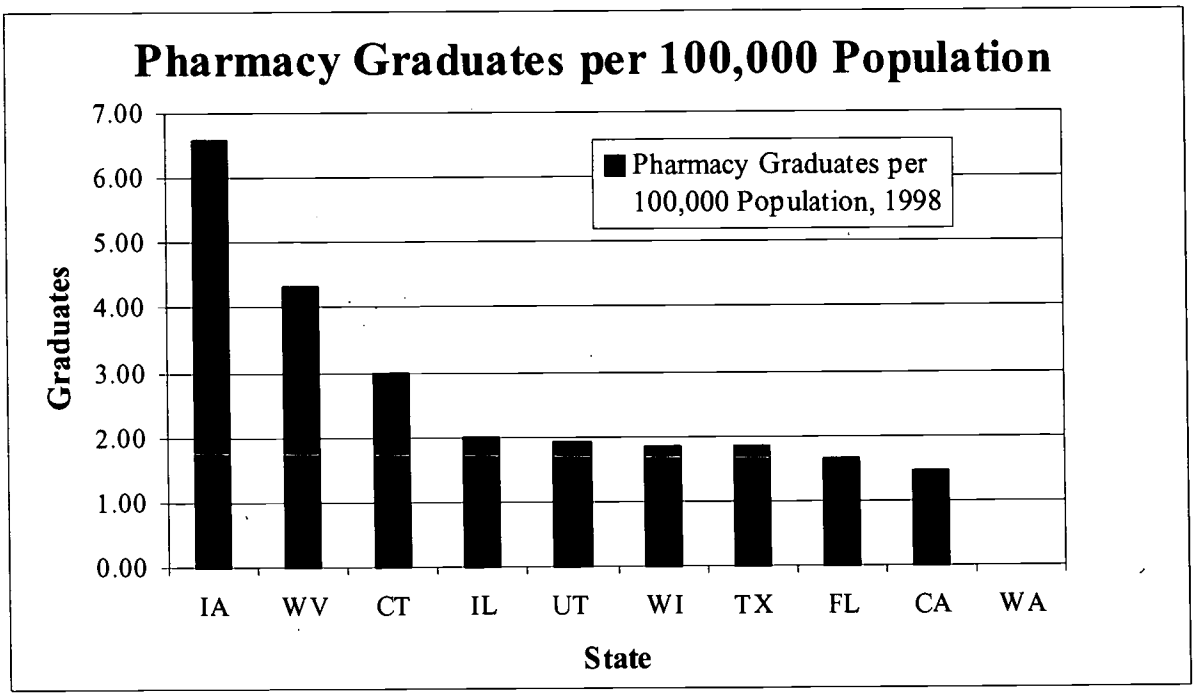
Source: AACP.

Chart 9A.



Iowa has almost three times as many pharmacy students (baccalaureate and doctoral) per 100,000 population as any other profile state.

Chart 9B.



Iowa graduated more than twice as many pharmacy students (baccalaureate and doctoral) per 100,000 population in 1998 as any other profile state, with the exception of West Virginia. Washington did not graduate any pharmacy students in 1998.

PHYSICIAN ASSISTANT EDUCATION

Table 10.

INDICATORS		PROFILE STATES									
		CA*	CT	FL	IA	IL*	TX	UT	WA	WV*	WI
Physician Assistant Training Programs, 1999-2000	Total # of Programs	6	2	4	2	3	7	1	1	1	3
	# of *Public* Programs	1	0	2	1	1	6[1]	1	1	0	2
	# of *Private* Programs	5	2	2	1	2	1	0	0	1	1
Physician Assistant Program Students	# in 1999-2000	642	167	435	113	313	755	64	148	134	141
	# Per 100,000 Population, 1999-2000[2]	1.90	4.90	2.72	3.86	2.52	3.62	2.87	2.51	7.41	2.63
Physician Assistant Program Graduates	# in 2000	255	66	86	55	128	204	32	72	37	69
	# Per 100,000 Population, 2000[2]	0.75	1.94	0.54	1.88	1.03	0.98	1.43	1.22	2.05	1.29
Total State Appropriations ($ in thousands) for Physician Assistant Training Programs, 1999-2000		929	0	0	0	9	0	0	29.8	0	2
State Appropriations ($) Per Physician Assistant Student, 1999-2000		1,807	0	0	0	54	0	0	201	0	35

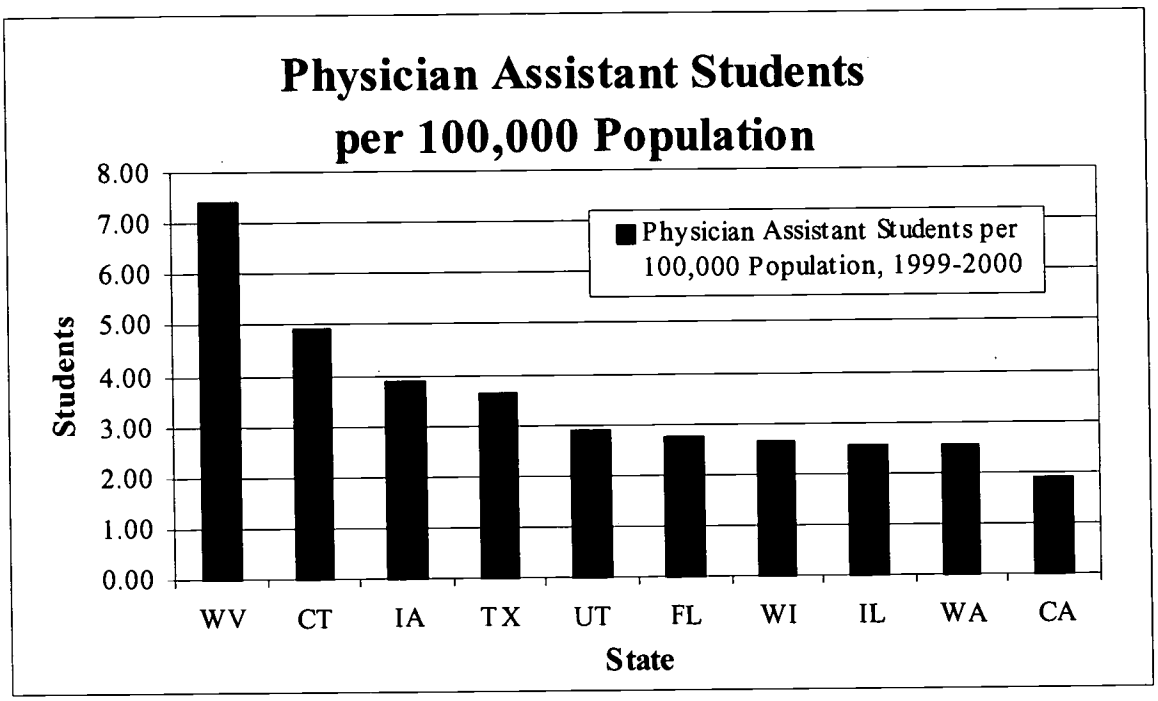
* CA, IL and WV each have another public PA school which did not respond to the survey. These data are based only on the schools that responded.

[1] One of these schools solely trains members of the U.S. Armed Forces.

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

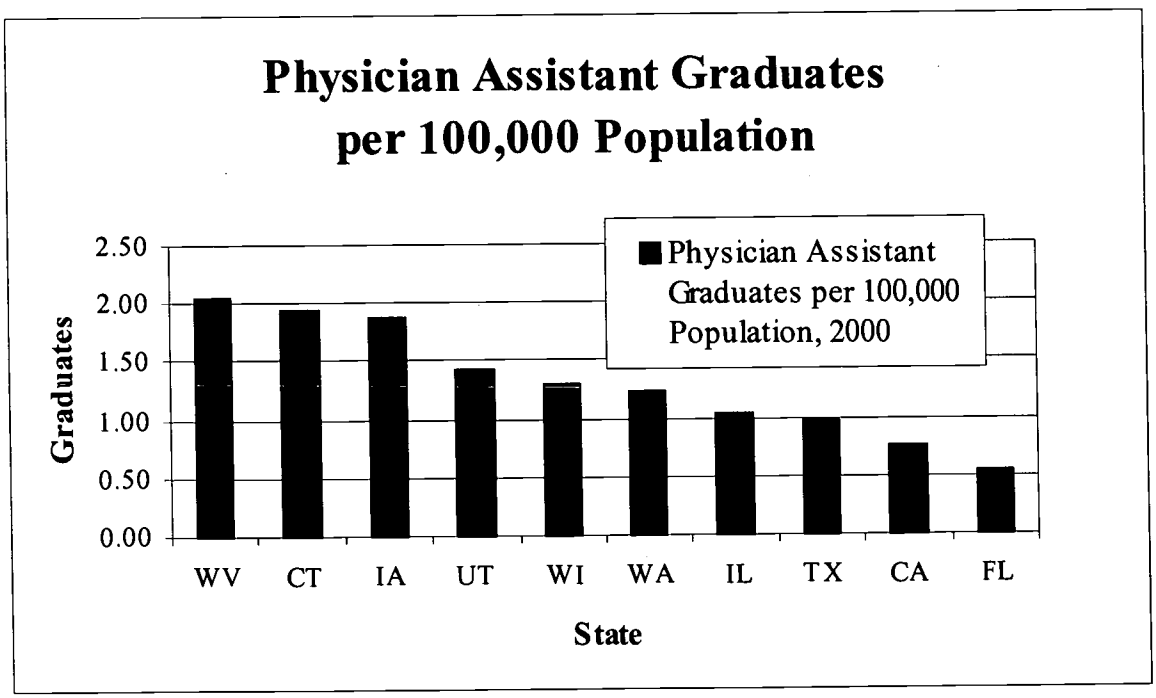
Source: APAP, APAP Annual Report.

Chart 10A.



West Virginia has more than twice as many physician assistant students per 100,000 population as Illinois, Washington and California.

Chart 10B.



West Virginia, Connecticut and Iowa graduate twice as many physician assistants per 100,000 population as Florida.

DENTAL HYGIENIST EDUCATION

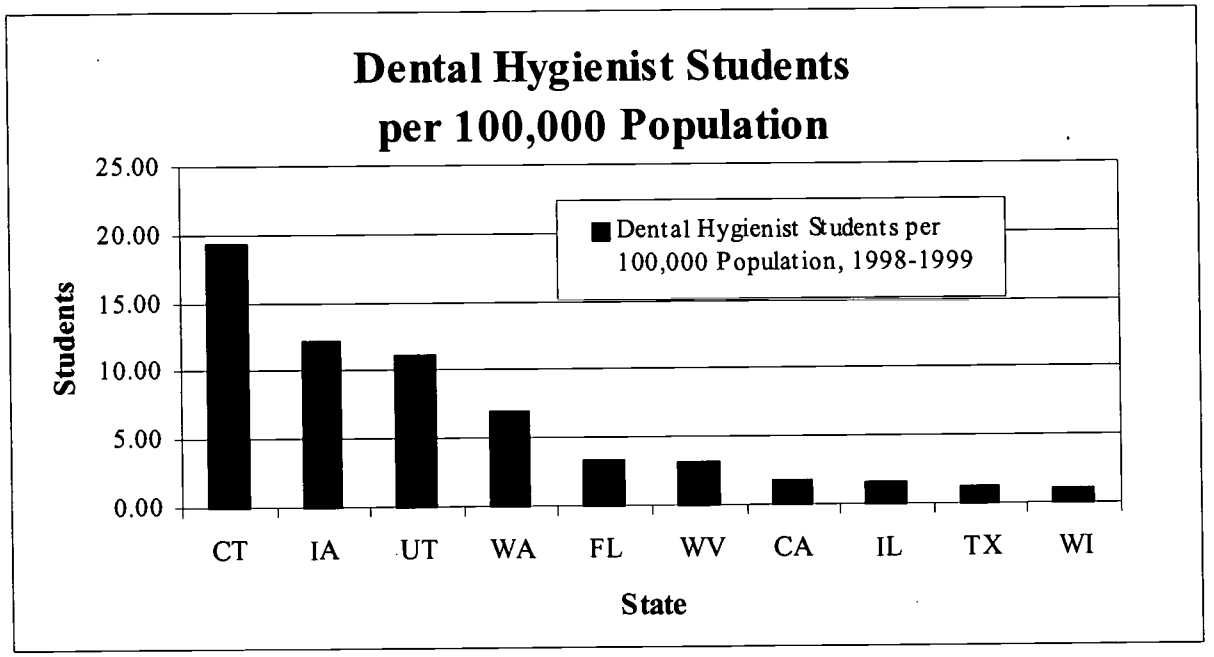
Table 11.

INDICATORS		PROFILE STATES									
		CA	CT	FL	IA	IL	TX	UT	WA	WV	WI
Dental Hygiene Training Programs	Total # of Programs	16	3	15	3	8	17	2	6	3	6
	# of *Public* Programs	14	3	15	3	8	17	2	6	3	5
	# of *Private* Programs	2	0	0	0	0	0	0	0	0	1
Dental Hygiene Training Program Students	# of Students, 1998-1999	593	248	533	56	354	658	59	268	190	408
	# Per 100,000 Population, 1998-1999*	1.75	19.32	3.33	12.10	1.53	1.29	11.11	6.92	3.10	1.10
Dental Hygiene Training Program Graduates	# of Graduates, 1999	350	104	270	18	220	315	57	128	66	165
	# Per 100,000 Population, 1999*	1.03	9.25	1.69	7.52	1.33	0.61	4.66	1.12	1.0	1.06

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

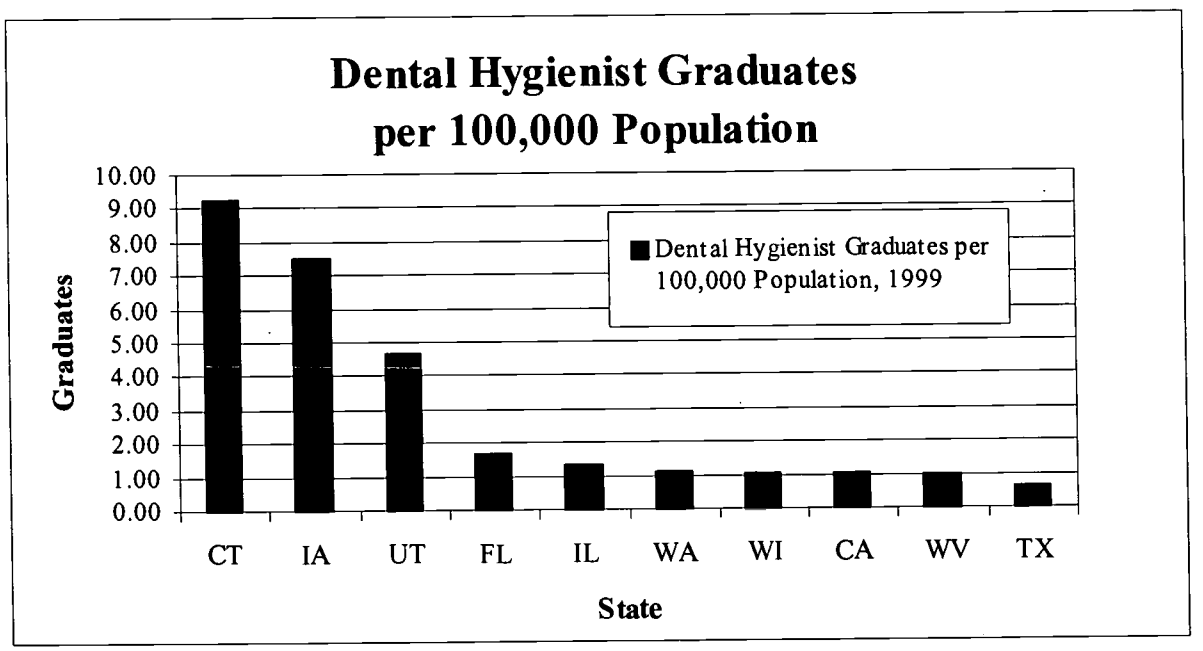
Sources: ADHA, AMA Health Professions.

Chart 11A.



Connecticut has more dental hygienist students per 100,000 population than any other profile state—almost 10 times as many per 100,000 population as California, Illinois, Texas or Wisconsin.

Chart 11B.



Connecticut and Iowa graduate more than four times as many dental hygienists per 100,000 population than all other profile states with the exception of Utah.

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

Although applications to medical school continue to decline nationwide, the number of enrolled medical students in the profiled states has remained steady in recent years. One state—Washington—actually shows a significant increase in medical student enrollment between the 1997 and 1998 academic periods. Enrollment of underrepresented minorities in medical schools across the country has remained low (just 10 percent of all allopathic school graduates between 1994 and 1998 were underrepresented minorities). Yet, three of the 10 profile states—California, Texas and Connecticut—have proportions that significantly exceed the national average. This is despite recent directives by many states' attorneys general in response to court cases for schools not to consider ethnicity or race in the admissions process. For example, the number of Hispanics accepted to the University of Texas Medical School at San Antonio doubled between 1997 and 1998 alone.

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 1998-1999, state appropriations amounted to $3.25 billion. About 95 percent of those appropriations went to public schools that represent about 60 percent of all medical schools. Of the profiled states, Texas is the clear leader in state support for medical education, both in total appropriations and amount per medical student. Despite its relatively small total level of appropriations, West Virginia places second in the amount given in state funds per medical student.

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 1998-1999, state appropriations represented just 8 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 just two of the profiled states—Connecticut and Florida—are not required 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 particularly evident in two profile states—West Virginia and Texas. Two-thirds to nearly three-fourths of all in-state medical school graduates of the two states' nearly all public medical schools entered an in-state family medicine residency between 1995 and 1999. West Virginia's retention rate is one of the highest in the nation.

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. Just two profile states—Texas and West Virginia—now 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. At least one profile state—Wisconsin—was one of several states nationwide in the early 1990s to enact legislation that explicitly called on the state's two medical schools to prepare a plan on how to graduate more primary care physicians.

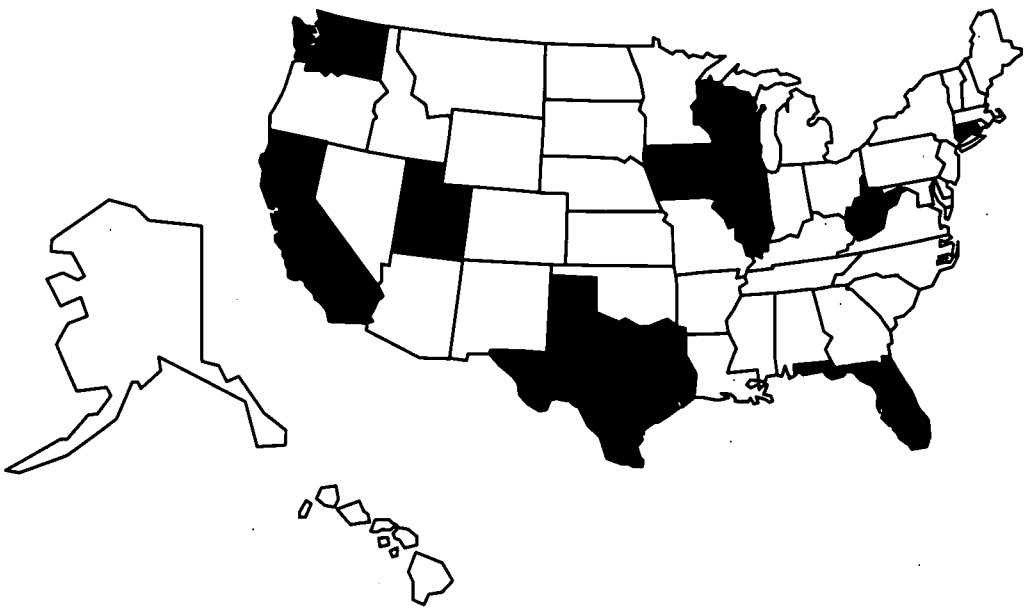
Other Professions Education

As in evident nationwide, nursing school enrollment in most of the profiled states showed significant decline between 1997 and 1999. Baccalaureate nursing school enrollment in one profile state—Utah—actually increased for the period.

California's five dental schools clearly produce the most dentists of any profile state. State support for dental education in California, however, on a per student basis is among the lowest of the profiled states. In general, state support for dental education varies widely among the profiled states. State funding per dental student is highest in Connecticut and Texas. Although Utah is the only profile state that does not have a dental school, the state contracts with dental schools in nearby states to enable qualified in-state students to enroll in these programs.

Colleges of pharmacy in Florida, Iowa, Illinois and Washington are among several schools in various states to establish community-based pharmacy residency programs. These community training programs foster the development of more formal training experiences for pharmacists in contemporary pharmacy practice settings.

Physician Practice Location



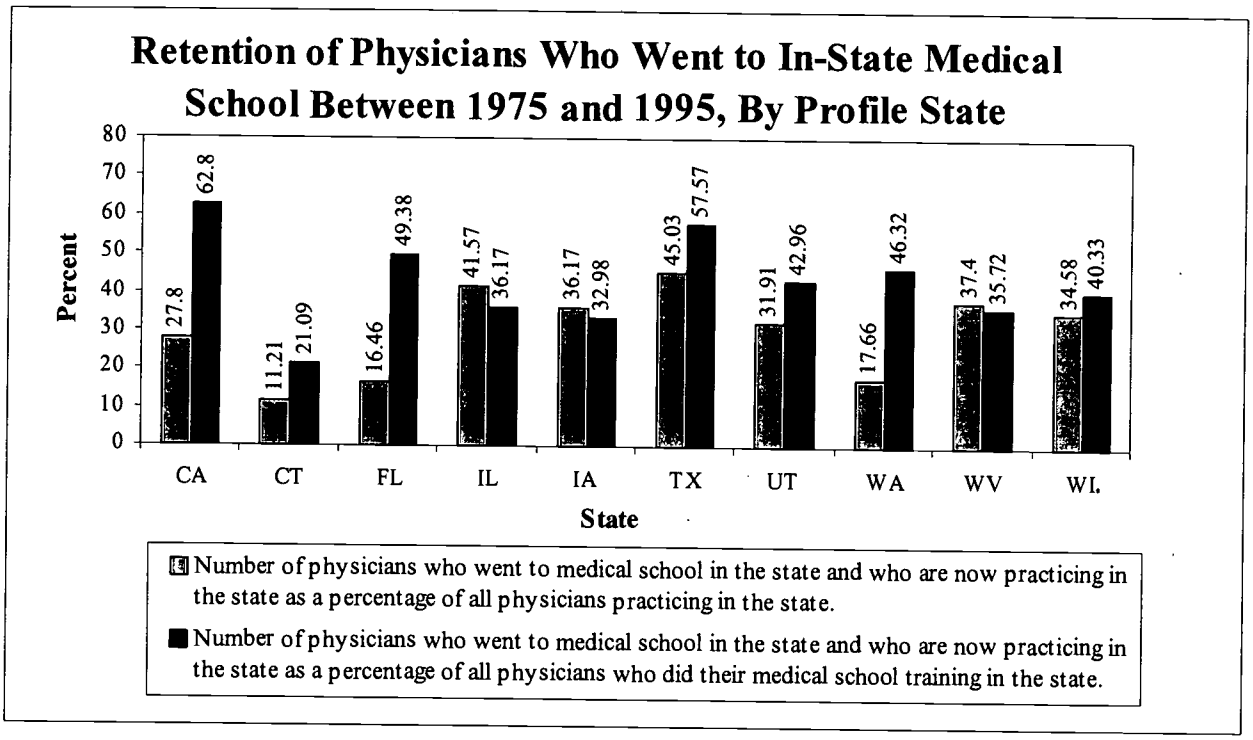
The following tables examine in-state physician practice location from two different vantage points: (1) of all physicians who were trained (went to medical school or received their most recent GME training) in the state between 1975 and 1995, and (2) of all physicians who are now practicing in the state, regardless of where they were trained. The data was complied from the American Medical Association's 1999 Physician Masterfile by Quality Resource Systems, Inc..

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

Table 12.

STATE	CA	CT	FL	IL	IA	TX	UT	WA	WV	WI
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.**	27.8	11.21	16.46	41.57	36.17	45.03	31.91	17.66	37.40	34.58
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.**	62.8	21.09	49.38	36.17	32.98	57.57	42.96	46.32	35.72	40.33
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.**	64.08	44.00	31.54	64.87	40.33	55.28	38.74	35.95	34.96	43.62
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.**	68.19	39.34	60.47	53.24	32.56	57.27	44.21	52.64	39.15	48.65

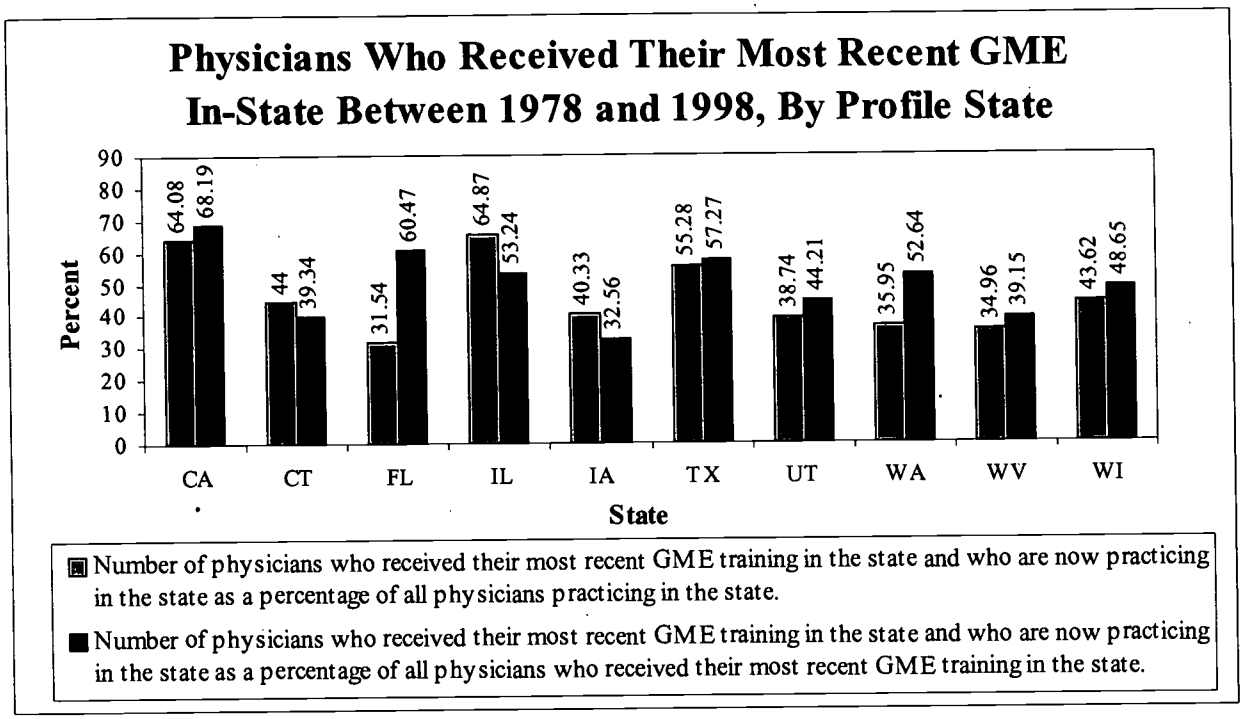
Chart 12A.



California has the highest retention rate of physicians who went to medical school in the state—almost two-thirds are now practicing in the state. In contrast, just a fifth of those physicians trained in Connecticut are now practicing in the state.

Looking at practice location in a different way: Of all physicians practicing in Connecticut, only a tenth went to medical school in the state, as compared to Texas, where almost half of those practicing in the state were trained there.

Chart 12B.



Almost two-thirds of physicians who received their most recent GME training in California are now practicing in the state. Only one-third of those physicians who received their most recent GME training in Iowa, however, are now practicing in the state.

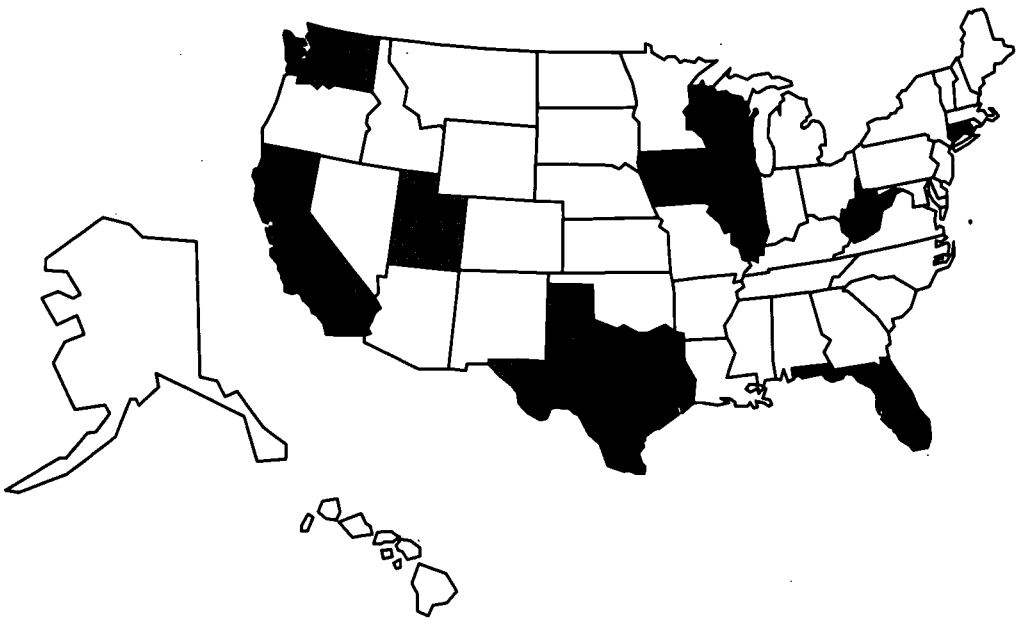
Of all physicians practicing in California and Illinois, respectively, almost two-thirds received their most recent GME in the state. In contrast, only 30 percent of practicing physicians in Florida received their most recent GME training in the state.

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 medical school training and graduate medical education (GME) is a significant factor in a physician's practice location. Of all physicians who received their medical school training and most recent GME in California, over 60 percent are now practicing in the state. Also, of all physicians who are now practicing in-state, California also—along with Illinois—has the highest proportion of physicians (64%) who did their most recent GME in-state. Of all physicians now practicing in-state, Texas—followed closely by Illinois—have the highest proportion of physicians (41 to 45%) who did their medical school training in-state. California, Texas and Illinois each have a very large complement of medical schools and residency programs. Medical schools in California and Texas are predominantly public schools.

Connecticut ranked lowest in both the percent of practicing in-state physicians who did their medical school training in-state (11%) and the percent of physicians who went to medical school in-state who remain in-state to practice (21%). These ratios are explained mainly by two factors. First, Connecticut is a small state situated in a largely metropolitan region with an abundance of medical schools. Second, one of the state's two schools—Yale University—is a private school with a national reputation for attracting students and exporting graduates.

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**
CA	Yes, for designated APNs (not including CRNAs). NPs and CNMs must complete a pharmacology course and be supervised by a physician in ordering or furnishing drugs and devices for six months prior to being issued a "furnishing number" by the state. CNMs can prescribe "drugs and devices incidental to family planning", not including controlled substances. CNMs must be supervised by a physician. NPs must collaborate with a physician to develop standardized protocols. NPs can prescribe all non-controlled drugs and schedule III-V, but must have their own DEA number. CRNAs do not have prescriptive authority.	CNMs must be supervised by a physician, though not necessarily on-site. The level of supervision required for NPs is specific to the practice site and the procedure, but does not require physical presence. For CRNAs, the level of supervision is specific to the practice site, ranging from no required supervision to direct supervision.
CT	Yes. CNMs follow protocols for prescribing though have no direct physician oversight; can prescribe all non-controlled and schedule II-V drugs. CRNAs can prescribe when a physician is in the practice facility; can prescribe all non-controlled and schedule II-V drugs. NPs in a collaborative relationship (documented in writing) with a physician can prescribe all non-controlled and schedule II-V drugs according to the written collaborative agreement.	CNMs must have a "clinical practice relationship" with an OBGYN, but no direct oversight required. NPs work in a collaborative relationship with a physician (documented in writing). CRNAs must be under direct supervision of a physician (does require physical presence).
FL	Yes. CNMs must prescribe under protocol and need DEA number of physician; can prescribe all non-controlled and limited schedule II-IV drugs. CRNAs require physician supervision; can prescribe all non-controlled drugs. NPs collaborate with a physician to develop protocols; can prescribe all non-controlled drugs.	NPs, CNMs and CRNAs work under the general supervision of a physician to develop protocols; this relationship does not require physical presence.
IA	Yes. CNMs can prescribe independently, but must use DEA number for controlled substances; can prescribe all non-controlled and all schedules drugs. CRNAs and NPs can prescribe independently, but must register with the state; can prescribe all non-controlled and schedule II-V drugs with DEA number.	NPs, CNMs and CRNAs may practice independently, and in addition can perform "selected medically designated functions" when a "collaborative practice agreement" exists.
IL	Yes. All APNs must collaborate with a physician and can prescribe all non-controlled and schedule III-V drugs. All APNs must obtain their own DEA numbers. CRNAs are not required to obtain prescriptive authority to administer anesthesia.	NPs and CNMs must have a written collaborative agreement with a physician (does not require an employment relationship). CRNAs must be under direct supervision of a physician (physical presence) and must develop a written practice agreement with that physician.

Sources: State licensing board, AANA, ACNM, Pearson "Annual Legislative Update", HPTS.

ADVANCED PRACTICE NURSES (APNs): Recent Expansions in Scope of Practice		
Profile States	**Prescriptive Authority**	**Physician Supervision**
TX	Yes. CNMs limited to non-controlled substances and certain sites- physician's practice site, hospitals, rural and MUAs. (However, can prescribe controlled substances for women in labor). CRNAs and NPs are also limited to non-controlled drugs, but collaborate with a physician (direct supervision not required). All APNs must apply for approval to prescribe and must be issued a prescription authorization number.	NPs and CNMs must work in a collaborative relationship with a physician. CRNAs must be supervised by a physician, but may select, obtain and administer anesthesia.
UT	Yes. CNMs are required to have written guidelines for prescribing and must take graduate level coursework to obtain prescriptive authority; can prescribe all non-controlled and limited schedule III-V drugs with own DEA number. NPs obtain their own DEA number and can prescribe all non-controlled drugs; are required to develop a "consultation referral plan" with a physician to prescribe schedule III-V drugs. CRNAs do not have prescriptive authority, but can select, order and administer appropriate medications.	NPs and CNMs may practice without the physical presence of a physician. For CRNAs, physician supervision is required; a physician must be available in the facility for medical emergencies.
WA	Yes. APNs must be assigned a DEA number by a "commission" after completion of application process and pharmacotherapeutic education; can prescribe all non-controlled and schedule V drugs. Recent legislation expanded the scope of practice to include schedules II-IV (rules still pending).	No. APN practice is both "independent judgement" and "collaborative interaction with other health care professionals". The practice act defines neither "collaborative interaction" nor "other health care professionals".
WV	Yes. APRNs must be in a collaborating relationship with a physician and develop a protocol; can prescribe all non-controlled and limited schedule III-V drugs with own DEA number. CRNAs can also select, order and administer schedule II-IV drugs consistent with facility protocols.	CNMs must practice in a collaborative relationship with a physician. NPs can practice without physician oversight. CRNAs must be supervised by a physician (physical presence required).
WI	For prescriptive authority, must have passed a jurisprudence exam and received a masters degree. CNMs and NPs must obtain DEA numbers and must collaborate with a physician; can prescribe all non-controlled and limited schedule II-V drugs. CRNAs can prescribe via collaboration (not direct supervision) all non-controlled, limited schedule II and all schedule III-V drugs. NPs can prescribe independently; can prescribe all non-controlled and schedule II-V drugs with own DEA number.	CNMs and CRNAs must practice under the general supervision of a physician (not necessarily physical). NPs must be in a collaborative relationship with a physician.

APN = advanced practice nurse; includes NPs, CNMs, and CRNAs where used.
NP = nurse practitioner
CNM= certified nurse midwife
CRNA= certified registered nurse anesthetist

Table 14.

PHYSICIAN ASSISTANTS: Recent Expansions in Scope of Practice		
Profile States	**Prescriptive Authority**	**Physician Supervision**
CA	Yes. Must be supervised by a physician. All records with prescribing require physician review and countersigning within 7 days of initial date. Controlled substances are delegated on a case by case basis from physician. Can prescribe all non-controlled and schedule II-V drugs.	Physician must be available in person or by electronic communication at all times.
CT	Yes. Can independently prescribe all non-controlled and limited schedule II-V drugs, though co-signature from physician required on schedules II and III.	Physician must be available in person or by electronic communication at all times.
FL	Yes. All prescriptions must be within the Board approved formulary.	Physician must be available in person or by electronic communication at all times.
IA	Yes. Can prescribe independently; can prescribe all non-controlled and schedule II-V drug, though schedule II stimulants and depressants are limited.	Physician need not be physically present.
IL	Yes. Can prescribe all non-controlled and schedule III-V drugs, though supervising physician's DEA number must be on all scripts along with periodic review of charts.	Physician must be available in person or by electronic communication at all times.
TX	Yes. Prescription privileges are limited to particular pre-approved underserved areas on a case-by-case basis. Can prescribe all non-controlled and limited schedule II-V drugs.	Physician need not be physically present. Establishment of separate practice limited to medically underserved settings.
UT	Yes. Have independence; can prescribe all non-controlled and schedule II-V drugs, though schedule II and III medications require chart co-signing.	May practice without direct physician supervision in remote practice settings; however physician must be available for consultation.
WA	Yes. Can prescribe all non-controlled and schedule II-V drugs, though must use physician's DEA number on script along with suffix, or own number from PA.	Physician need not be physically present. May practice without direct physician supervision in remote practice settings; however physician must be available for consultation.
WV	Yes. NCCPA certification and completion of pharmacological courses and training required, along with DEA certification. Can prescribe board formulary and schedule III-V drugs, though schedule III is limited to 73 hour supply and schedules IV-V limited to 30-day supply.	Physician must be available in person or by electronic communication at all times.
WI	Yes. Can prescribe all non-controlled and schedule II-V drugs, although prescribing must follow pre-approved guidelines and physician must counter-sign all records within specified time limits.	Physician must be available in person or by electronic communication at all times.

Source: State licensing board.

Table 15.

DENTAL HYGIENISTS: Recent Expansions in Scope of Practice		
Profile States	**Prescriptive Authority**	**Physician Supervision**
CA	None	Hygienists endorsed as RDHAPs (registered dental hygienists in alternative practice) may provide certain services independent of a dentist for patients in certain institutions and settings including dental HPSAs who bring them a prescription from a dentist or physician. RDHAPs are those with at least 2000 hours of practice, 150 hours of additional education, and who have passed an exam.
CT	None	Hygienists with at least two years of experience may provide certain services without supervision in certain institutions and settings.
FL	None	Certain services may be provided without the physical presence of a dentist.
IA	None	Certain services may be provided without the physical presence of a dentist.
IL	None	Certain services may be provided in certain settings without the physical presence of a dentist.
TX	Yes. Hygienist cannot administer local anesthetic, but the supervisory dentist requirement was recently relaxed.	Several services may be provided without the physical presence of a dentist.
UT	None	Certain services may be provided without the physical presence of a dentist.
WA	No, but hygienists are allowed to administer N2O or local anesthetic with close supervision of a dentist.	A waiver allows limited unsupervised practice in specific areas (hospitals, nursing homes, state facilities, etc.) for hygienists with two or more years of clinical experience in the past five years.
WV	None	The physical presence of a dentist is required for all services at all times.
WI	No. Can administer medications but cannot prescribe them.	Many services do not require the physical presence of a dentist. In certain settings, the provision of prophylaxis requires no prior authorization by a dentist.

Source: State licensing board, ADHA.

Table 16.

Profile States	PHARMACISTS: Recent Expansions in Scope of Practice
CA	Pharmacists are allowed to administer immunizations and are involved in collaborative drug therapy management.
CT	None
FL	Pharmacists are involved in collaborative drug therapy management.
IA	Pharmacists are allowed to administer immunizations.
IL	Pharmacists are allowed to administer immunizations.
TX	Pharmacists are allowed to administer immunizations and are involved in collaborative drug therapy management.
UT	Pharmacists are allowed to administer immunizations.
WA	Pharmacists are allowed to administer immunizations and are involved in collaborative drug therapy management.
WV	None
WI	Pharmacists are allowed to administer immunizations.

Source: State licensing board.

Table 17.

PHYSICIANS: Public Profiling										
State Mandates Physician Profiles to be Publicly Accessible	**CA**	**CT**	**FL**	**IA**	**IL**	**TX**	**UT**	**WA**	**WV**	**WI**
	Yes	Yes	Yes	No	No	Yes	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 new 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.

In 2000, the Department of Professional Regulation (DPR)—the state agency that disciplines physicians in Illinois (a profile state)—was subjected to harsh questioning by the state legislature for refusing to review medical records in a portion of the medical malpractice cases brought before the Department. An audit of the Department's activities by the legislature found that DPR failed to take steps on several occasions to correct many of its problems. DPR has also been criticized by consumer groups in Illinois for failing to take disciplinary action with several physicians and dentists.

Such reports continue to place greater pressure on states and the federal government to make more information on individual physicians available to the public. Although Congress continues to debate whether to open up the National Practitioner Data Bank to the public, several states have moved ahead to require the establishment of public statewide physician data profiles. Four of the profiled states—California, Connecticut, Florida and Texas—have mandated the creation of such profiles, often accessible through the Internet.

In the name of providing consumers greater access to essential services in health plans, several states (including many profile states) have passed "direct access" laws which allow patients to bypass their primary care gatekeepers and see specialty providers without a referral (predominantly for obstetric/gynecological care).

Also receiving growing attention by states is the interest by physicians in having the right to collectively bargain with managed care organizations. Of the profiled states, Texas and Wisconsin now allow independent physicians to bargain collectively with health plans over clinical guidelines and procedures. Several states, including the profiled state of Connecticut, have seriously considered such a measure.

Finally, medical and health professions licensing boards in a few profiled states have 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

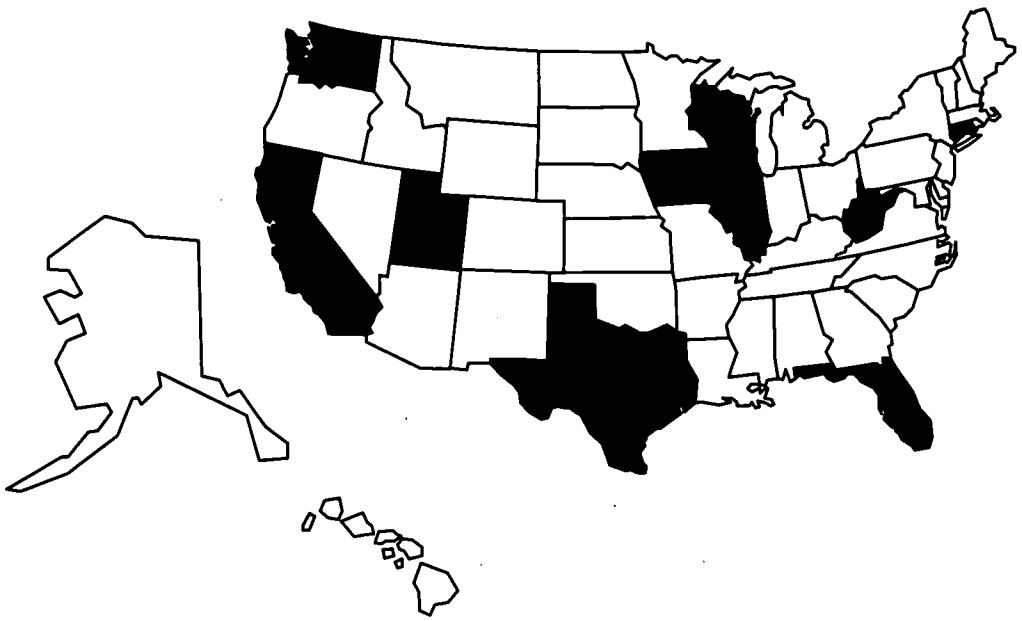
There continues to be a growing interest by many states to liberalize of the mandated scope of practice of certain advanced practice nurses, physician assistants, and in some cases, dental hygienists. A few states have expanded scope of practice of certified registered nurse anesthetists coincident to the recent federal ruling that

eliminates the requirement that nurse anesthetists be supervised by physicians while administering anesthesia to Medicare patients. 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.

However, it is not very clear as to what the relationship is between a state's scope of practice environment for certain non-physicians and the state's education system for and the practicing supply of such professionals. Much further evaluation on a state-specific basis is needed to better understand these relationships.

Regulators in several states are taking action against pharmacies and physicians for prescribing medication over the Internet. The two causes of action are 1) against out-of-state pharmacies and physicians for prescribing electronically without being licensed in the state where the patient resides, and 2) against physicians for prescribing over the Internet without physically examining the patient. California, Florida and Texas are among at least nine states that have adopted rules or statements that clarify standards for online prescription and distribution of medications. Also, California and Florida are two of five states that have introduced legislation to establish practice standards for prescribing medications over the Internet.

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 ten profile states as well as the perceived effectiveness of these programs.

STATE LOAN REPAYMENT, SCHOLARSHIP AND OTHER PROGRAMS

Table 18.

INDICATORS	PROFILE STATES									
	CA	CT	FL	IA	IL	TX	UT	WA	WV	WI
# of Programs*	4	1	1	1	4	5	4	2	4	2
# of Annual Participants **	145	18	300	5	187	215	74	41	260	9
Available Data on Program Impact/ Participant Retention *(yes/no)*	No	No	No	No	Yes	Yes	Yes	Yes	No	No
Eligible Professions:										
Physicians	X	X		X	X	X	X	X	X	X
Physician Assistants	X	X		X	X	X	X	X	X	X
Nurses	X	X	X	X	X	X	X	X	X	X
Dentists	X	X		X	X	X	X	X	X	
Dental Hygienists				X	X	X		X	X	
Pharmacists	X					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.)
** FL and UT numbers reflect total participants in any stage of the programs, not just those who begin the program in a given year.

Source: State health officials.

Every profile state has at least one scholarship or loan repayment program, with Texas having the most programs and West Virginia having the highest number of annual participants. Four of the 10 states have available data on program impact and/or 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	6	2.6	X	X	X	X		X
SUPPORT FOR HEALTH PROFESSIONS EDUCATION (stipends, preceptorships) IN UNDERSERVED AREAS	8	3.2	X	X	X	X		X
RECRUITMENT / PLACEMENT PROGRAMS FOR HEALTH PROFESSIONALS	10	2.5	X	X	X	X	X	X
PRACTICE DEVELOPMENT SUBSIDIES (i.e., start-up grants)	4	2.7	X	X	X	X		X
MALPRACTICE PREMIUM SUBSIDIES	2	2	X			X		
TAX CREDITS FOR RURAL / UNDERSERVED AREA PRACTICE	0	--						
PROVIDING SUBSTITUTE PHYSICIANS (*locum tenens* support)	4	4	X					
MALPRACTICE IMMUNITY FOR PROVIDING VOLUNTARY OR FREE CARE	7	3	X	X	X	X	X	X
PAYMENT BONUSES / OTHER INCENTIVES BY MEDICAID OR OTHER INSURANCE CARRIERS	2	2.5	X	X				X
MEDICAID REIMBURSEMENT OF TELEMEDICINE	3	4.3	X	X		X		X

Source: State health officials.

Most of the profile states rate their recruitment or placement programs for health professionals as being only moderately effective. States rated providing malpractice premium subsidies as having the highest impact on retention, while rating locum tenens support programs as having the lowest impact.

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.

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 on a pilot basis.) 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 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. Four of the profiled states—Illinois, Texas, Utah and Washington—have collected significant data on the number of individuals recently

participating in new and expanded scholarship and loan programs and often have reported on retention in underserved areas. Most recently, California has issued a study of its service-contingent scholarship and loan repayment programs. Another state—South Dakota—has recently spent considerable time analyzing cost-effective ways to improve its recruitment and retention of family physicians to the state's rural areas.

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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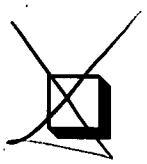

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