



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

Spring 2004

ARIZONA

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

PROJECT DESCRIPTION

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

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

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

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

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

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

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

STUDY METHODOLOGY

Study Purpose and Audience

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

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

Selection of States

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

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

Collection of Data

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

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

STATE SUMMARY

Arizona's population is rapidly becoming urban and more minority in composition. The percent of children and non-elderly adults without health insurance is rising and is now above the national average. Perhaps related to this trend, the percent of the population that resides in federally designated primary and dental care health professional shortage areas (HPSAs) also exceeds the U.S. average. Efforts by the state to improve recruitment and retention of physicians to such communities receive mixed reviews for effectiveness by state officials. The state does not give favorable rankings as to the impact of Medicaid incentives (reimbursement rates, payment bonuses, payment for telemedicine) in improving physician recruitment and retention in serving medically underserved areas of the state. However, the state's loan repayment program (viewed by state officials as significantly underfunded) involving physicians and dentists reports that on average about half of the recipients are retained in an underserved practice location upon completion of the program.

Indicative of the fact that the ratio of National Health Service Corps professionals per 10,000 population living in the state's HPSAs exceeds the national average is the larger problem of the overall health workforce shortages in the state. Arizona's number of active physicians, nurses, dentists and pharmacists per 100,000 total population generally is well below national averages as are the number of health care workers practicing in public health settings. In response, the state's health professions schools appear to be making efforts to expand training capacity. The state's two medical schools collectively saw a major increase between 1999 and 2001 in the number of enrolled students. Moreover, nearly 100 percent of all incoming students to medical school are state residents. In the fall of 2003, the state's first new (private) dental school began enrolling students. Just recently, the Arizona Board of Regents received nearly \$2 million in state discretionary funds from the state's federally-funded Workforce Investment Board and other sources to expand the number of registered nurses graduating from community colleges and universities in the state. Between 2001 and 2002 alone, registered nurse (RN) candidate enrollments, particularly in baccalaureate and masters degree training programs increased dramatically.

As is particularly true in this region of the country, Arizona's shortage of nurses is more acute than elsewhere. In addition to efforts to expand educational capacity, various statewide entities have stepped forward to better understand and address the nursing shortage. The Arizona Hospital and Healthcare Association established the Healthcare Institute to provide workforce advocacy opportunities for members. In addition, one member hospital--Saint Luke's Medical Center--produced their own report in 2002 that examined both physician and nurse shortages in the state and recommended widespread changes to improve the workforce practice environment. Also in 2002, the Governor established a nursing shortage task force to evaluate the shortage problem and make recommendations.

Through the creation of state's new dental school, Arizona has a growing recognition of the problem of access to oral health care across the state. A 2002 report by Saint Luke's Health Initiatives and ongoing work by the Arizona Office of Oral Health point to the many challenges and opportunities for improving the dental health workforce.

Despite the low per capita number of pharmacists in the state, there appears to be no major concern yet with their overall supply in hospitals and chain drug stores. However, shortages are becoming more apparent in the state's rural areas.

I. 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.

Table I-a.

POPULATION		AZ	U.S.
Total Population (2001)		5,307,331	284,796,887
Sex (2000)	% Female	50.1	50.9
	% Male	49.9	49.1
Age (2000)	% less than 18	26.6	25.7
	% 18-64	60.4	61.9
	% 65 or over	13.0	12.4
% Minority/Ethnic (2002)		37.3	30.9
% Metropolitan (2002)		86.4	81.3

Sources: U.S. Census Bureau, AARP.

Arizona has higher proportion of minorities and a higher proportion of residents living in metropolitan areas than the U.S. as a whole.

Table I-b.

PROFESSION UTILIZATION	AZ	U.S.
% Adults who Reported Having Routine Physical Exam Within Past Two Years (1997)	87.0	83.2 (Median)
Average # of Retail Prescription Drugs per Resident (2002)	8.6	10.6
% Adults who Made Dental Visit in Preceding Year by Annual Family Income (1999):		
Less than \$15,000	55	
\$15,000 - \$34,999	61	
\$ 35,000 or more	74	

Sources: CDC, AARP, GAO.

Eighty-seven percent of Arizona adults report having a routine physical exam within the past two years.

Table I-c.

ACCESS TO CARE		AZ	U.S.
% Non-elderly (under age 65) Without Health Insurance	2000-2001	19	17
	1999-2000	21	16
% Children Without Health Insurance	2000-2001	17	12
	1999-2000	17	12
% Not Obtaining Health Care Due to Cost (2000)		11.8	9.9
% Living in Primary Care HPSA (2003)		24.2	21.3
# Practitioners Needed to Remove Primary Care HPSA Designation (2003)		204	--
% Living in Dental HPSA (2003)		17.2	14.7
# Practitioners Needed to Remove Dental HPSA Designation (2003)		133	--

HPSA = Health Professional Shortage Area

Sources: KFF, AARP, BPHC-DSD.

Arizona has a greater proportion of non-elderly and children without health insurance, a larger percentage of people living in primary care and dental HPSAs, and a greater proportion of people not obtaining health care due to cost than the U.S. average.

Table I-d.

PROFESSIONS SUPPLY			
Profession	# Active Practitioners	# Active Practitioners per 100,000 Population	
		AZ	U.S.
Physicians (1998)	8,226	176.2	198
Physician Assistants (1999)	525	11.0	10.4
Nurses	RNs (2000)	42,658	628
	LPNs (1998)	8,650	185.3
	CNMs (2000)	131	2.7
	NPs (1998)	1,173	25.1
	CRNAs (1997)	139	3.1
Pharmacists (1998)	2,200	47.1	65.9
Dentists (1998)	1,760	37.7	48.4
Dental Hygienists (1998)	2540	54.4	52.1
% Physicians Practicing Primary Care		28.0 (30.0 U.S.)	
% Registered Nurses Employed in Nursing		75.5 (81.7 U.S.)	
% of MDs Who Are International Medical Graduates (IMGs)		17.0 (24.0 U.S.)	

RN= Registered Nurse, LPN= Licensed Practical Nurse, CNM= Certified Nurse Midwife, NP= Nurse Practitioner
CRNA= Certified Registered Nurse Anesthetist

Source: HRSA-BHPr.

Arizona has a lower percentage of physicians practicing primary care and a much lower percentage of registered nurses employed in nursing than the U.S. as a whole.

Table I-e.

NATIONAL HEALTH SERVICE CORPS (NHSC) FIELD STRENGTH			
Total Field Strength (FY 2003) * Includes mental/behavioral health officials	% in Urban Areas	% in Rural Areas	# Per 10,000 Population Living in HPSAs
102	29	71	0.79 (0.49 U.S.)
<i>Field Strength by Profession</i>			
Physicians	41		
Nurses	11		
Physician Assistants	18		
Dentists/Hygienists	9		

HPSA= Health Professional Shortage Area

Source: BPHC-NHSC.

Arizona’s ratio of National Health Service Corps professionals working in HPSAs is much larger than the national average.

Table I-f.

MANAGED CARE			
Penetration Rate of Commercial and Medicaid HMOs (as % of total population), 2000		AZ	U.S.
		30.0	28.1
Profession	MCOs required by state to include profession on their provider panel*	Profession allowed by state to serve as primary care provider in MCOs	Profession allowed by state to coordinate primary care as part of a standing referral
Physicians	No	Yes	No
Nurses	No	No	No
Pharmacies	No	No	No
Dentists	No	No	No
State requires certain individuals enrolled in MCOs to have direct access to certain specialty (OB/GYN, etc.) providers.			No
State requires certain individuals enrolled in MCOs to receive a standing referral to a specialist (OB/GYN, etc.).			Yes

MCOs = Managed Care Organizations HMOs = Health Maintenance Organizations OB/GYN = Obstetrician/Gynecologist

* This requirement does not preclude MCOs from including additional professions on their provider panels.

Sources: HPTS, AARP.

Thirty percent of Arizona residents receive their health care from an HMO.

Table I-g.

REIMBURSEMENT OF SERVICES					
	Profession	% Active Practitioners Enrolled	% Enrolled Receiving Annual Payments Greater Than \$10,000 ¹	Increase of 10% or More in Overall Payment Rates 1998-2003	Bonus or Special Payment Rate for Practice in Rural or Medically Underserved Area
Medicaid	Physicians	90	N/A	No	No
	NPs	50	N/A	No	No
	Dentists	15	N/A	Yes	No
	# of Enrolled Pharmacies				1,980
	% Change in Physician Fees (All Services), 1993-1998				N/A
	Recent State-Mandated Payment Increases				Yes (for dentists)
	Medicare	# Active Practitioners Enrolled (2000)			
% Practitioners who Accept Fee as Full Payment (2003)				91.1	

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

² Denominator number from HRSA State Health Workforce Profile, December 2000.

N/A- Data was not applicable

Sources: State Medicaid programs, Norton and Zuckerman “Trends”, HPTS, AARP.

Ninety percent of physicians in Arizona are actively enrolled in Medicaid.

II. 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.

Table II-a.

UNDERGRADUATE MEDICAL EDUCATION			
# of Medical Schools <i>(Allopathic and Osteopathic)</i>	2	Public Schools	1
		Private Schools	1
		Osteopathic Schools	1
# of Medical Students <i>(Allopathic and Osteopathic)</i>	1998-1999	628	
	2000-2001	895	
# Medical Students per 100,000 Population ¹	1998-1999	11.8	
	2000-2001	16.9	
% Newly Entering Students <i>(Allopathic)</i> who are State Residents, 2002-2003		98.6	
Requirement for Students in Some/All Medical Schools to Complete a <i>Primary Care Clerkship</i>	By the State	No	
	By Majority of Schools	Yes	
# of Medical School Graduates <i>(Allopathic and Osteopathic)</i>	1998	89	
	2001	198	
# Medical School Graduates per 100,000 Population ¹	1998	1.67	
	2001	3.73	
% Graduates <i>(Allopathic)</i> who are Underrepresented Minorities, 1994-1998		9.98 (10.5 U.S.)	
% 1987-1993 Medical School Graduates <i>(Allopathic)</i> Entering Generalist Specialties		34.0 (26.7 U.S.)	
State Appropriations to Medical Schools <i>(Allopathic and Osteopathic)</i> , 2000-2001	Total	\$48.1 million	
	Per Student	\$76,592	

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

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

Ninety-eight percent of newly entering medical students in Arizona are state residents.

Table II-b.

GRADUATE MEDICAL EDUCATION (GME)		
# of Residency Programs (<i>Allopathic and Osteopathic</i>), 2002-2003 ¹		83
# of Physician Residents (<i>Allopathic and Osteopathic</i>), 2002-2003 ¹		1066
# Residents Per 100,000 Population, 2002-2003		20
% Allopathic Residents from In-State Medical School, 2000-2001		17.3
% Residents who are International ² Medical Graduates, 2000-2001		12.4
Requirement to Offer Some or All Residents a <i>Rural Rotation</i>	By the State	No
	By Most Primary Care Residencies	No
<i>Medicaid</i> Payments for Graduate Medical Education, 2002 ³		\$18.6 million
	Payments as % of Total Medicaid Hospital Expenditures	3.4 (8.0 U.S.)
	Payments Made Directly to Teaching Programs Under Capitated Managed Care	Yes
	Payments Linked to State Workforce Goals/ Goals of Improved Accountability	No
<i>Medicare</i> Payments for Graduate Medical Education, 1998 ³		\$47.3 million

¹ Includes estimated number of osteopathic residencies/residents not accredited by the Accreditation Council for Graduate Medical Education.

² Does not include residents from Canada.

³ Explicit payments for both direct and indirect GME cost.

Sources: AMA, AMA State-level Data, AACOM, State higher education coordinating boards, Henderson “Funding”, Oliver et al. “State Variations.”

Less than one-fifth of allopathic residents in Arizona are from in-state medical schools.

Table II-c.

FAMILY MEDICINE RESIDENCE TRAINING			
# of Residency Programs, 2001-2002	6	# Residencies Located in Inner City	4
		# Residencies Offering Rural Fellowships or Training Tracks	0
# of Family Medicine Residents, 2001-2002			18
# Family Medicine Residents per 100,000 Population, 2001-2002 ¹			0.33
% Graduates (<i>from state's Allopathic and Osteopathic medical schools</i>) who were First Year Residents in Family Medicine, 1995-2001			17.4
% Graduates (<i>from state's Allopathic medical schools</i>) Choosing a Family Medicine Residency Program Who Entered an In-State Family Medicine Residency, 1995-2001			41.9

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

Sources: AAFP

Over forty percent of graduates who chose a family medicine residency program entered a family medicine residency program in Arizona.

Table II-d.

NURSING EDUCATION				
# of Nursing Schools	21	Public Schools		18
		Private Schools		3
# of Nursing Students ¹	7,732	# Associate Degree, 2001-2002		2,291
		# Baccalaureate Degree	2001-2002	744
			2002-2003	3,414
		# Masters Degree	2001-2002	169
			2002-2003	1,958
		# Doctoral Degree	2001-2002	53
			2002-2003	69
# Per 100,000 population ²			145.7	
# of Nursing School Graduates ¹	2,784	# Associate Degree, 2002		933
		# Baccalaureate Degree	2001	313
			2002	1,124
		# Masters Degree	2001	66
			2002	723
		# Doctoral Degree	2001	8
			2002	4
# Per 100,000 population ²			52.5	

¹ Annual figure for Associate, Baccalaureate, Masters and Doctoral students/graduates for most recent years available.

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

Sources: NLN, AACN, State higher education coordinating boards.

The number of baccalaureate and master’s degree nursing students and graduates rose dramatically between 2001 and 2002.

Table II-e.

PHARMACY EDUCATION			
# of Pharmacy Schools	2	Public Schools	1
		Private Schools	1
# of Pharmacy Students, 2002-2003	585	# Baccalaureate Degree	0
		# Doctoral Degree (<i>PharmD</i>)	585
	# Per 100,000 population*	11.0	
# of Pharmacy Graduates, 2001-2002	144	# Baccalaureate Degree	0
		# Doctoral Degree (<i>PharmD</i>)	144
	# Per 100,000 population*	2.7	

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

Source: AACP.

Table II-f.

PHYSICIAN ASSISTANT EDUCATION			
# of Physician Assistant Training Programs, 2002-2003	2	Public Schools	1
		Private Schools	1
# of Physician Assistant Program Students, 2002-2003			253
# Physician Assistant Program Students per 100,000 Population, 2002-2003 ¹			4.76
# of Physician Assistant Program Graduates, 2003			N/A
# Physician Assistant Program Graduates per 100,000 Population, 2003 ¹			N/A

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

Sources: APAP, APAP Annual Report.

Table II-g.

DENTAL EDUCATION			
# of Dental Schools New school accepted first students in Fall 2003.	1	Public Schools	0
		Private Schools	1
# of Dental Students, 2000-2001	N/A		
# Dental Students per 100,000 Population, 2000-2001*	N/A		
# of Dental Graduates, 1999-2000	N/A		
# Dental Graduates per 100,000 Population, 2000*	N/A		
State Appropriations to Dental Schools, 1997	Per Student: N/A*		
	As % of Total Revenue: N/A*		

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

Source: ADA.

Table II-h.

DENTAL HYGIENE EDUCATION			
# of Dental Hygiene Training Programs	4	Public Schools	4
		Private Schools	0
# of Dental Hygiene Program Students, 2001-2002	229		
# Dental Hygiene Program Students per 100,000 Population*	3.9		
# of Dental Hygiene Program Graduates, 2000-2001	112		
# Dental Hygiene Program Graduates per 100,000 Population*	2.1		

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

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

III. 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. Compiled from the American Medical Association’s 1999 Physician Masterfile by Quality Resource Systems, Inc., the data importantly illustrates to what extent physician graduates practice in many of the state’s small towns, using the rural-urban continuum developed by the U.S. Department of Agriculture.

PRACTICE LOCATION (URBAN/ RURAL) OF PHYSICIANS WHO RECEIVED THEIR MEDICAL SCHOOL TRAINING IN ARIZONA BETWEEN 1975 AND 1995.

Table III-a.

ARIZONA		
Number of physicians who were trained in AZ and who are now practicing in AZ as a percentage of all physicians practicing in AZ.		14.07
Number of physicians who were trained in AZ and are practicing in AZ, by practice location (metro code ²), as a percentage of all physicians practicing in AZ.	#00	11.68
	#01	6.98
	#02	19.93
	#03	7.14
	#04	18.87
	#05	11.76
	#06	36.84
	#07	10.34
	#08	0.00
#09	0.00	
Number of physicians who were trained in AZ and who are now practicing in AZ as a percentage of all physicians who were trained in AZ.		47.77
Number of physicians who were trained in AZ and are practicing in AZ, by practice location (metro code ²), as a percentage of all physicians trained in AZ.	#00	49.70
	#01	14.29
	#02	56.03
	#03	7.00
	#04	60.61
	#05	51.35
	#06	25.00
	#07	9.68
	#08	0.00
#09	0.00	

¹ 1995 Rural/Urban Continuum Codes for Metro and Nonmetro Counties. Margaret A. Butler and Calvin L. Beale. Agriculture and Rural Economy Division, Economic Research Service, U.S. Department of Agriculture.

Codes # 00-03 indicate metropolitan counties:

00: Central counties of metro areas of 1 million or more

01: Fringe counties of metro areas of 1 million or more

02: Counties with metro areas of 250,000 - 1 million

03: Counties in metro areas of less than 250,000

Codes # 04-09 indicate non-metropolitan counties:

04: Urban population of 20,000 or more, adjacent to metro area

05: Urban population of 20,000 or more, not adjacent to metro area

06: Urban population of 2,500-19,999, adjacent to metro area

07: Urban population of 2,500-19,999, not adjacent to metro area

08: Completely rural (no place w population > 2,500), adjacent to metro area

09: Completely rural (no place w population > 2,500), not adjacent to metro area

NA: Not Applicable; no counties in the state are in the R/U Continuum Code.

**PRACTICE LOCATION (URBAN/ RURAL) OF PHYSICIANS WHO RECEIVED
THEIR MOST RECENT GME TRAINING IN ARIZONA
BETWEEN 1978 AND 1998.**

Table III-b.

ARIZONA		
Number of physicians who received their most recent GME training in AZ and who are now practicing in AZ as a percentage of all physicians practicing in AZ.		33.21
Number of physicians who received their most recent GME training in AZ and are practicing in AZ, by practice location (metro code ¹), as a percentage of all physicians practicing in AZ.	#00	32.77
	#01	17.02
	#02	41.43
	#03	16.07
	#04	23.64
	#05	15.27
	#06	26.32
	#07	24.00
	#08	0.00
#09	0.00	
Number of physicians who received their most recent GME training in AZ and who are now practicing in AZ as a percentage of all physicians who were trained in AZ.		47.64
Number of physicians who received their most recent GME training in AZ and are practicing in AZ, by practice location (metro code ¹), as a percentage of all physicians trained in AZ.	#00	57.10
	#01	15.38
	#02	50.47
	#03	6.62
	#04	40.63
	#05	31.10
	#06	10.00
	#07	7.06
	#08	0.00
#09	0.00	

¹ 1995 Rural/Urban Continuum Codes for Metro and Nonmetro Counties. Margaret A. Butler and Calvin L. Beale. Agriculture and Rural Economy Division, Economic Research Service, U.S. Department of Agriculture.

Codes # 00-03 indicate metropolitan counties:

- 00: Central counties of metro areas of 1 million or more
- 01: Fringe counties of metro areas of 1 million or more
- 02: Counties with metro areas of 250,000 - 1 million
- 03: Counties in metro areas of less than 250,000

Codes # 04-09 indicate non-metropolitan counties:

- 04: Urban population of 20,000 or more, adjacent to metro area
 - 05: Urban population of 20,000 or more, not adjacent to metro area
 - 06: Urban population of 2,500-19,999, adjacent to metro area
 - 07: Urban population of 2,500-19,999, not adjacent to metro area
 - 08: Completely rural (no place w population > 2,500), adjacent to metro area
 - 09: Completely rural (no place w population > 2,500), not adjacent to metro area
- NA: Not Applicable; no counties in the state are in the R/U Continuum Code.*

IV. 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.

Table IV-a.

PHYSICIANS	
LICENSURE REQUIREMENTS	Graduation from an accredited medical school, taken and passed a complete written examination endorsed by the state of Arizona. Acceptable examinations include the National Board of Medical Examiners, the FLEX Examination, state written/oral exams, or the USMLE examination.
LICENSURE REQUIREMENTS: <i>INTERSTATE TELE-CONSULTATION</i>	Full License. A law enacted in 2000 allows the Board of Medicine to issue a pro bono registration to non-resident physicians permitting them to practice in the state for 60 days per year if the physician agrees to render all medical services without accepting a fee or salary.
STATE MANDATES INDIVIDUAL PROFESSION PROFILES TO BE PUBLICLY ACCESSIBLE	Yes, a law enacted in 2000 mandates that profiles be made available on the web and in writing.

Sources: State licensing board, HPTS.

Table IV-b.

PHYSICIAN ASSISTANTS	
LICENSURE REQUIREMENTS	Have attended and completed a course of training for physician assistants approved by the board; passed a certifying examination approved by the board; be physically and mentally able to safely perform health care tasks as a physician assistant.
RECENT STATE MANDATED EXPANSIONS IN SCOPE OF PRACTICE	<p><i>PRESCRIPTIVE AUTHORITY</i> Yes. A physician assistant can prescribe schedule II-III controlled substances.</p> <p><i>PHYSICIAN SUPERVISION</i> A supervising physician must be present or in easy contact with the PA by radio, telephone, or other telecommunication.</p>

Source: State licensing board.

Table IV-c.

NURSES	
LICENSURE REQUIREMENTS	<p>Registered Nurses (RNs) Have completed satisfactorily the basic professional curriculum in an approved professional nursing program and holds a diploma or degree from that program; pass an examination in subjects relating to the duties and services of a registered nurse taught in an approved professional nursing program as the board determines.</p> <p>Advanced Practice Nurses (APNs) Hold a current license in good standing to practice as a professional nurse in Arizona; and shall have a master of science degree in nursing or a masters degree in a health-related area. The Board shall continue to certify a registered nurse practitioner without the masters degree required by this Section who was certified prior to January 1, 2001, if the registered nurse practitioner maintains a current license in good standing to practice as a professional nurse in Arizona and qualifies for certification by endorsement.</p> <p>Licensed Practical Nurses (LPNs) Have satisfactorily completed the basic curriculum in an approved practical or professional nursing program and hold a degree from that program; passed an examination in subjects relating to the duties and services of a practical nurse taught in an approved practical nursing program as the board determines.</p>
LICENSURE REQUIREMENTS: <i>FOREIGN-TRAINED NURSES</i>	Must submit a report from an agency approved by the board providing information indicating the applicants nursing program is equivalent to an approved professional nursing program or submit a passing score on the English language version of the Canadian nurses association testing service examination. Must pass an examination.
LICENSURE REQUIREMENTS: <i>INTERSTATE TELE-CONSULTATION</i>	No. But state participates in interstate licensure developed by the National Council State Boards of Nursing with AR, DE, ID, IN, IO, ME, MD, MS, NE, NJ, NC, ND, SD, TN, TX, UT, WI.
RECENT STATE MANDATED EXPANSIONS IN SCOPE OF PRACTICE	<p><i>PRESCRIPTIVE AUTHORITY</i> Nurse Practitioners (NPs) and Certified Registered Nurse Anesthetists (CRNAs) may prescribe and dispense medication within their scope of practice.</p> <p><i>PHYSICIAN SUPERVISION</i> CRNAs must be under the supervision of either an anesthesiologist or operating surgeon. NPS must have a collaborative relationship for consultation and referral purposes.</p>
RECENT STATE REQUIREMENTS TO IMPROVE WORKING CONDITIONS IN CERTAIN INSTITUTIONS	None.
STATE MANDATES INDIVIDUAL PROFESSION PROFILES TO BE PUBLICLY ACCESSIBLE	No.

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

Table IV-d.

DENTISTS	
LICENSURE REQUIREMENTS	Be of good moral character, hold a diploma from a recognized dental school; and pass Part I and II of the National Dental Board examinations, the Western Regional Examining Board examination, and the Arizona Dental Jurisprudence examination.
LICENSURE REQUIREMENTS: <i>INTERSTATE TELE-CONSULTATION</i>	Arizona has a dental consultant license and a restricted permit for which out of state dentists may apply.

Source: State licensing board.

Table IV-e.

PHARMACISTS	
LICENSURE REQUIREMENTS	Have an undergraduate degree in pharmacy from a school or college of pharmacy whose professional degree program, at the time the person graduates, is accredited by the American Council on Pharmaceutical Education; complete not less than 1500 hours of intern training; passing score on the NAPLEX or AZPLEX examination.
RECENT STATE MANDATED EXPANSIONS IN SCOPE OF PRACTICE	Pharmacists are allowed to implement, monitor, or modify drug therapy under certain circumstances.
STATE MANDATES INDIVIDUAL PROFESSION PROFILES TO BE PUBLICLY ACCESSIBLE	No.

Source: State licensing board.

Table IV-f.

DENTAL HYGIENISTS	
LICENSURE REQUIREMENTS	Must be eighteen years of age; of good moral character; graduate from a recognized school of dental hygiene; and pass the Arizona Dental Jurisprudence examination, the Western Regional Examining Board examination, and the National Dental Hygiene Board examination.
RECENT STATE MANDATED EXPANSIONS IN SCOPE OF PRACTICE	<p><i>PRESCRIPTIVE AUTHORITY</i> Dental hygienists may receive an additional certification for in Local Anesthesia and Nitrous Oxide Analgesia.</p> <p><i>DENTAL SUPERVISION</i> A dental hygienist must be supervised by a dentist.</p>

Source: State licensing board, ADHA.

Glossary of Acronyms

CNM: Certified nurse midwife.

CRNA: Certified registered nurse anesthetist.

DEA: Drug Enforcement Agency.

HPSA: Health Professional Shortage Area

NCLEX: National Council Licensure Examination, administered by the National Council of State Boards of Nursing.

NP: Nurse practitioner.

RDHAP: Registered dental hygienist in alternative practice.

V. 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 Arizona’s programs as well as the perceived effectiveness of these programs.

RECRUITMENT/ RETENTION INITIATIVES

Table V-a.

INITIATIVE	In Use	Perceived or Known Impact (1= high, 5= low)	Health Professions Affected					
			Physicians	Nurses	Pharmacists	Dentists	Dental Hygienists	Physician Assistants
FOCUSED ADMISSIONS / RECRUITMENT OF STUDENTS FROM RURAL OR UNDERSERVED AREAS	No							
SUPPORT FOR HEALTH PROFESSIONS EDUCATION (stipends, preceptorships) IN UNDERSERVED AREAS	No							
RECRUITMENT / PLACEMENT PROGRAMS FOR HEALTH PROFESSIONALS	No							
PRACTICE DEVELOPMENT SUBSIDIES (i.e., start-up grants)	No							
MALPRACTICE PREMIUM SUBSIDIES	No							
TAX CREDITS FOR RURAL / UNDERSERVED AREA PRACTICE	No							
PROVIDING SUBSTITUTE PHYSICIANS (<i>locum tenens</i> support)	No							
MALPRACTICE IMMUNITY FOR PROVIDING VOLUNTARY OR FREE CARE	No							
PAYMENT BONUSES / OTHER INCENTIVES BY MEDICAID OR OTHER INSURANCE CARRIERS	Yes	3	X					
MEDICAID REIMBURSEMENT OF TELEMEDICINE	Yes	4	X					

Source: State health officials.

The recruitment and retention initiatives used by Arizona received a moderate to low impact ratings from state health officials.

LOAN REPAYMENT/ SCHOLARSHIP PROGRAMS *

Table V-b.

Program Type	Number of Programs	Number of Annual Participants	Average Retention Rate	Eligible Health Professions					
				Physicians	Nurses	Pharmacists	Dentists	Dental Hygienists	Physician Assistants
LOAN REPAYMENT	2	12-13	50%	X			X		X
SCHOLARSHIP	0	0	N/A*						

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

N/A* = Data was not applicable.

Source: State health officials.

WORKFORCE PLANNING ACTIVITIES*

Table V-c.

ACTIVITY	In Use	Health Professions Affected					
		Physicians	Nurses	Pharmacists	Dentists	Dental Hygienists	Physician Assistants
COLLECTION / ANALYSIS OF PROFESSIONS SUPPLY DATA: FROM <i>PRIMARY</i> SOURCES (e.g., licensure renewal process; other survey research)	Yes	X			X		
FROM <i>SECONDARY</i> SOURCES (e.g., state-based professional trade associations)	Yes	X			X		
PRODUCTION OF RECENT STUDIES OR REPORTS THAT DOCUMENT / EVALUATE THE SUPPLY, DISTRIBUTION, EDUCATION OR REGULATION OF HEALTH PROFESSIONS	Yes	X					
RECENT REGULATORY ACTIONS INTENDED TO REQUIRE OR ENCOURAGE COORDINATION OF POLICIES AND DATA COLLECTION AMONG HEALTH PROFESSIONS GROUPS OR LICENSING BOARDS	No						

* One state health official supplied these responses. Therefore, data may be limited and may not accurately reflect all current workforce-planning activities in the state.

Arizona frequently collects and analyzes physician supply data from both primary and secondary sources, and produces workforce reports that include physicians and dentists.

VI. EXEMPLARY WORKFORCE LEGISLATION, PROGRAMS AND STUDIES

The following abstracts describe several of Arizona’s recent endeavors to understand and describe the status of the state’s current health care workforce.

Legislation and Programs

H-2029 (2002)

This law allows the Board of Dental Examiners to issue Restricted Permits to Dental Hygienists licensed in other states to volunteer at charitable organizations or dental clinics. It also gives the Board the authority to issue dental consultant licenses to dentists for supervising or conducting utilization review or other claims or case management activity on behalf of an entity or insurer.

H-2145 (2000)

This law requires physician profiles to be made available to the public through an internet web site and in writing.

S-1321 (2001)

This law provides for the adoption of the state of the nurse licensure compact. Other states participating in the compact include: AR, DE, ID, IN, IO, ME, MD, MS, NE, NJ, NC, ND, SD, TN, TX, UT, and WI.

Nursing Shortage Task Force

Established by the Governor in 2002, this task force is responsible for working with the public and private sectors to evaluate the issues facing the state and make recommendations to ensure an adequate supply of nurses. The Task Force has four subcommittees looking at the image of nursing, educational issues, workplace issues, and regulatory issues.

Registered Nurse (RN) Training Expansion

Arizona Board of Regents

The goal of this program is to expand the number of RNs graduating from community colleges and universities in Arizona. The program expands community college RN training programs by 180 students for each of two years. It also introduces accelerated BSN degree programs at the state universities for students with bachelor degrees in other areas. The accelerated BSN program is expected to increase the number of BSN graduations by 100 per year.

The Healthcare Institute

Arizona Hospital and Healthcare Association (AzHHA)

The Healthcare Institute (HCI) was established by the AzHHA to provide workforce advocacy for members of the group. The HCI has three main goals: 1) Increase communication and collaboration among healthcare professionals, educators, regulators, and employers; 2) Collect and disseminate information related to ongoing workforce redesign activities of healthcare systems and; 3) Participate in studies addressing the healthcare needs of Arizonans and the demands of the state’s healthcare systems.

Studies

Boom or Bust?: The Future of the Health Care Workforce in Arizona

St Luke's Health Initiatives, Spring 2002

The report examines the health workforce in Arizona in its current state and where it is projected to be in 10-20 years. Primarily focused on nurses and physicians, the report looks at the underlying forces in health care affecting shortages in the workforce. It notes that demographic shifts, more career opportunities for women, negative images, and poor working conditions are all contributing factors to the current shortage of nurses and population growth, an aging workforce, and a strained educational capacity will be critical factors in the future. The report cites a higher percentage of older physicians in the state, lower increases in physicians per 100,000 population in the 1990s, lower numbers of physicians trained in state, and a declining number of physician residents per capita as things compounding the physician shortage in the state. Recommendations for the future include: 1) moving beyond recruitment and focusing on improving the practice environment; 2) focusing on diversity; 3) focusing on regulations and licensing; 4) focusing on prevention; and 5) creating new financial incentives.

Open Wide: The Future of Oral Health Care in Arizona

St. Luke's Health Initiatives, September 2002

The report is delivered as a three-part series providing background and analysis on oral health care in Arizona. This first part gives a general overview of oral health in the United States and in the state and looks closely at Arizona's oral health delivery system. It specifically looks at who delivers care, what type of services are provided, who needs the services, and the financial and organizational underpinnings of the system. The second part examines the integration of primary care and oral health while the third part of the report discusses alternative financing structures for oral health.

VII. POLICY ANALYSIS

Statewide Organizations with Significant Involvement in Health Workforce Development/Analysis

- Arizona Hospital and Healthcare Association
- Arizona Board of Regents
- Arizona Department of Health Services
 - Bureau of Health Systems Development
 - Office of Oral Health
- Arizona Nurses Association

Evidence of Collaboration: **Minimal** (largely associated with workforce data collection and profession recruitment and retention)

Despite its growing urban centers, Arizona is predominantly a rural state with a rapidly growing minority population. About a fifth of the state's population are uninsured, a proportion that is significantly above the national average and is growing.

Concurrently, Arizona has suffered significant budget shortfalls. These troubles may be ending, however. The state's \$1.3 billion deficit in 2003 has been reduced by one-third, and the state's economy is starting to rebound. This is good news, particularly as Arizona's overall population and its over age 65 population growth between now and 2020 is expected to be larger than the country as a whole.

What is not good news is the fact that Arizona has major problems with the supply and distribution of much of its health care workforce. One-quarter of the population resides in a primary care health professional shortage area (HPSA), and the proportion of residents that live in a dental HPSA is above the national average. The ratio of National Health Service Corps personnel per 10,000 population living in HPSAs is also well above the U.S. average. The state's overall ratios of physicians, nurses, dentists and pharmacists per 100,000 population each are significantly below the national average.

Arizona's health professions schools recently appear to have had a mixed record in expanding training efforts to address these shortages. The state's two medical schools collectively saw a major increase between 1999 and 2001 in the number of enrolled students. Moreover, nearly 100 percent of all incoming students to medical school are state residents. However, on a per capita basis, Arizona graduates far fewer new physicians than nationwide. On the other hand, starting in the fall of 2003 the state's new (and only) dental school began enrolling students with a unique interest in serving rural and underserved communities. Between 2001 and 2002 alone, registered nurse (RN) candidate enrollments, particularly in baccalaureate and masters degree training programs increased dramatically. Arizona has 21 schools of nursing, a large majority of which are public supported. The state has two schools of pharmacy which both now train only PhD candidates. Despite the low per capita number of pharmacists in the state, there appears to be no major concern yet with their overall supply in hospitals and chain drug stores. However, shortages are becoming more apparent in the state's rural areas.

Nursing

Arizona's shortage of nurses is one of the worst in the nation. The state's hospitals recently reported a nurse vacancy rate of 26 percent, compared to 15 percent nationwide.

Although, data on the state's changing demand for and supply of nurses is lacking, there is a growing consensus that the nursing shortage in Arizona, like elsewhere, is largely associated with an insufficient

capacity of nurse training programs to educate more nurses. Increasing numbers of qualified applicants are being turned away from nursing schools. Recent state legislation directs the Arizona Board of Regents with nearly \$2 million in state discretionary funds from the state's federally-funded Workforce Investment Board and other sources (including the state's hospitals) to double the number of registered nurses graduating from the state's community colleges and universities (1,000 graduates) by 2007. Concurrently, a Governor-appointed nursing shortage task force, created in 2002, has been asked to evaluate the shortage problem and make recommendations. There are concerns among many nursing officials that the work of this task force has been compromised by a lack of coordination with other statewide initiatives to address the nursing shortage. In addition to work by the Board of Regents, the Arizona Hospital and Healthcare Association recently initiated a 'campaign-for-caring' to increase interest in nursing and opportunities in nursing education as well as increased efforts to provide workforce advocacy opportunities for members. In addition, one member hospital--Saint Luke's Medical Center--produced their own report in 2002 that examined both physician and nurse shortages in the state and recommended widespread changes to improve the workforce practice environment.

Less attention appears to have been placed on improving workplace conditions for nurses. Arizona is a 'right to work' state.

Dentistry

Despite the fact that Arizona has a lower dentist-to-population ratio than nationwide and many adjacent states, oral health experts in the state generally agree that the dental workforce shortage in Arizona is largely a maldistribution problem. The dentist shortage is seen becoming acute in rural areas and also in impoverished areas of larger cities. The Board of Dental Examiners, like a growing number of other states, has adopted 'licensing by credential' as one way of more effectively increasing the supply of dentists, particularly in maldistributed areas. The state's new private dental school is viewed quite favorably as the future source of many dentist graduates wishing to locate and practice in such communities. The school's 'home town program' is a collaboration with area community health centers in rural communities.

Debate exists, however, as to whether the state has an overall adequate supply of hygienists. Arizona fares reasonably well in the ratio of hygienists to population in comparison to the national average, although less well compared to selected neighboring states. Given the inequity in access to oral health services in the state's rural and inner city areas, discussion continues in Arizona over to what extent to allow hygienists to practice with less supervision in certain settings.

Recent state budget problems have precluded efforts by dentists to advocate for increases in Medicaid payment rates for dental care. Only 15 percent of the state's dentists are enrolled to see Medicaid patients.

A 2002 report by Saint Luke's Health Initiatives and ongoing work by the Arizona Office of Oral Health point to the many challenges and opportunities for improving the dental health workforce.

DATA SOURCES

Workforce Supply and Demand

American Association of Retired Persons, Public Policy Institute (AARP). Reforming the Health Care System: State Profiles 2000. (Washington, DC: 2001).

American Association of Retired Persons, Public Policy Institute (AARP). Reforming the Health Care System: State Profiles 2003. (Washington, DC: 2003).

Bureau of Primary Health Care, Division of Shortage Designation (BPHC-DSD). Selected Statistics on Health Professional Shortage Areas (Bethesda, MD: December 2003).

Bureau of Primary Health Care, National Health Service Corps (BPHC-NHSC). National Health Service Corps Field Strength: Fiscal Year 2003 (Bethesda, MD: January 2004).

Centers for Disease Control, National Center for Chronic Disease Prevention and Health Promotion. National Oral Health Surveillance System, Oral Health Profiles. (Atlanta, GA: 2003)

Health Resources and Services Administration, Bureau of Health Professions, National Center for Health Workforce Information and Analysis (HRSA-BHPr). State Health Workforce Profiles (Bethesda, MD: December 2000).

Kaiser Family Foundation, Kaiser Commission on Medicaid and the Uninsured (KFF). Health Insurance Coverage in America: 2002 Data Update (Palo Alto, CA: January 2002).

National Conference of State Legislatures, Health Policy Tracking Service (HPTS).

National Conference of State Legislatures, Health Policy Tracking Service. Primary Health Care and Vulnerable Populations (Washington, DC: January 2000).

Personal conversations with CMS regional office officials.

S. Norton and S. Zuckerman. “Trends in Medicaid Physician Fees” Health Affairs. 19(4), July/August 2000.

State Medicaid programs (data from NCSL survey).

United States General Accounting Office (GAO). Oral Health: Dental Disease is a Chronic Problem Among Low-Income Populations. (Washington, DC: April 2000) GAO/HEHS-00-72.

Health Professions Education

American Academy of Family Physicians (AAFP)

American Academy of Family Physicians. State Legislation and Funding for Family Practice Programs. (Washington, DC).

American Association of Colleges of Nursing (AACN)

American Association of Colleges of Osteopathic Medicine (AACOM). Annual Statistical Report. (Chevy Chase, MD).

American Association of Colleges of Pharmacy (AACP). Profile of Pharmacy Students. (Alexandria, VA).

American Dental Association (ADA)

American Dental Association. 1997-1998 Survey of Predoctoral Dental Educational Institutions. (Washington, DC).

American Dental Hygienist Association (ADHA)

American Medical Association (AMA). Health Professions Career and Education Directory.

American Medical Association. State-level Data for Accredited Graduate Medical Education Programs in the U.S.: 2002-2003. (Washington, DC: 2001)

Association of American Medical Colleges (AAMC)

Association of American Medical Colleges. Institutional Goals Ranking Report. (AAMC website).

Association of Physician Assistant Programs (APAP).

Association of Physician Assistant Programs. Sixteenth Annual Report on Physician Assistant Educational Programs in the United States, 2002-2003. (Loretto, PA: 2001).

Barzansky B. et al., “Educational Programs in U.S. Medical Schools, 2002-2003” JAMA. 290(9), September 3, 2003.

Henderson, T., Funding of Graduate Medical Education by State Medicaid Programs, prepared for the Association of American Medical Colleges, April 1999.

Kahn N. et al., “Entry of U.S. Medical School Graduates into Family Practice Residencies: 1997-1998 and 3-year Summary” Family Medicine. 30(8), September 1998.

Kahn N. et al., “Entry of U.S. Medical School Graduates into Family Practice Residencies: 1996-1997 and 3-year Summary” Family Medicine. 29(8), September 1997.

Kahn N. et al., “Entry of U.S. Medical School Graduates into Family Practice Residencies: 1995-1996 and 3-year Summary” Family Medicine. 28(8), September 1996.

National League for Nursing (NLN)

Oliver T. et al., State Variations in Medicare Payments for Graduate Medical Education in California and Other States, prepared for the California HealthCare Foundation. (Data from the Health Care Financing Administration, compiled by the Congressional Research Service.)

Pugno P. et al. “Entry of U.S. Medical School Graduates into Family Practice Residencies: 1999-2000 and 3-year Summary” Family Medicine. 32(8), September 2000.

Schmittling G. et al. “Entry of U.S. Medical School Graduates into Family Practice Residencies: 1998-1999 and 3-year Summary” Family Medicine. 31(8), September 1999.

State higher education coordinating board/university board of trustees (data from NCSL survey).

Physician Practice Location

1999 American Medical Association Physician Masterfile. Computations were performed by Quality Resource Systems, Inc. of Fairfax, Virginia.

Licensure and Regulation of Practice

American Association of Nurse Anesthetists (AANA)

American College of Nurse Midwives (ACNM). Direct Entry Midwifery: A Summary of State Laws and Regulations. (Washington, DC: 1999).

American College of Nurse Midwives. Nurse-Midwifery Today: A Handbook of State Laws and Regulations. (Washington, DC: 1999).

American Dental Hygienist Association

National Conference of State Legislatures, Health Policy Tracking Service.

Pearson L., editor. “Annual Legislative Update: How Each State Stands on Legislative Issues Affecting Advanced Nursing Practice” The Nurse Practitioner. 25(1), January 2000.

State licensing boards (NCSL survey).

Improving the Practice Environment

State health officials (NCSL survey).