

# AZCRH 2015 Arizona Pharmacist Supply and Demand Study Report



THE UNIVERSITY OF ARIZONA  
MEL & ENID ZUCKERMAN COLLEGE OF PUBLIC HEALTH

**Center for Rural Health**

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February 2016

## Executive Summary

In 2014, Arizona joined 34 other states in passing legislation recognizing pharmacists as medical providers. Pharmacists are medication experts and the primary dispensers of prescription drugs. They promote the appropriate use of both prescription and over-the-counter drugs. Pharmacists increasingly provide other health services such as health information and screening, vaccinations, and referral to other health providers. Pharmacies provide entry points into the health care system and are a vital part of Arizona's safety net health care system, especially in rural areas where health resources are limited.

The *2014 National Pharmacists Workforce Survey* findings provided national data on the supply and demand for pharmacists. There is little data on the supply and demand for pharmacists in Arizona. To address this information gap, the Arizona Center for Rural Health (AzCRH) at the Mel and Enid Zuckerman College of Public Health (MEZCOPH), The University of Arizona Health Sciences (UAHS) conducted and published this ***AzCRH 2015 Pharmacist Supply and Demand Study Report***. The study was funded in part by the Arizona Area Health Education Centers (AHEC) Program and the state of Arizona.

The ***AzCRH 2015 Pharmacist Supply and Demand Study Report*** examines Arizona pharmacist, pharmacy technician, and pharmacy trends over an eight-year period (2006-13). Data trends were analyzed to forecast potential changes in pharmacist and pharmacy technician demand and supply over the next five years. The Report uses both primary and secondary data sources.

Between 2006-13, Arizona increased the number of pharmacists (by 32.4%), pharmacy technicians (by 71.1%), and pharmacies (by 5.5%). Due to population growth, there was no change in Arizona's pharmacies per 100,000 population ratio between 2010-13. Seven Arizona counties had no change in pharmacies per 100,000 population, while Gila, Graham, Pinal and Santa Cruz Counties had net losses.

Many factors impact the supply and demand for pharmacists. Since 2006, the two Arizona Colleges of Pharmacy graduated 200 or more pharmacists per year. In 2013, 19.1% of Arizona's practicing pharmacists were age 62 years or older (eligible retirement age). There was a higher percentage of age 65 years or older pharmacists working in rural than in urban areas. "Baby boomer" pharmacist retirement will likely disproportionately decrease the number of pharmacists available in rural areas.

Three-quarters of the pharmacists that responded indicate that their practice sites provide clinical services, direct care or counseling to their patients. The top five pharmacy services expected to expand in the next five-years are: immunization, diabetes management, drug information services, health screening, and hypertension management. Expansion of services may increase the demand for pharmacists.

The spatial inequalities of pharmacists in rural areas persist. Strategies to enhance access to rural pharmacist services include establishing an Arizona Rural Pharmacy Task Force, using tele-pharmacy technologies, increasing recruitment (e.g., using Arizona 3RNet), creating retention incentives (e.g., loan repayment for pharmacists practicing in rural areas), and expanding Medicare Part B covered services to include pharmacist services delivered in Health Profession Shortage Areas, Medically Underserved Areas and Medically Underserved Populations (HRSA/MUA/P).

## Acknowledgments

The University of Arizona Center for Rural Health *AzCRH 2015 Arizona Pharmacist Supply and Demand Report* was funded in part by the Arizona Area Health Education Centers Program (AzAHEC) and the state of Arizona. We thank the following organizations and individuals for their assistance and participation:

- Dr. Sally J. Reel, Director, AzAHEC and University of Arizona Health Science (UAHS) Associate Vice President for Health Sciences Interprofessional Education, Collaboration and Community Engagement.
- Arizona State Board of Pharmacy (ASBP) for providing data on pharmacists, pharmacy technicians, and pharmacies, and for helping develop the AzCRH pharmacist survey tool.
- Hal Wand, President, National Association of Boards of Pharmacy.
- Rob Dobrowski, Information Technologist, ASBP.
- Arizona Pharmacy Association (APA) for helping develop the AzCRH pharmacist survey tool.
- Kelly Ridgeway, Chief Executive Officer and Executive Director, APA.
- UAHS College of Pharmacy (COP) for helping develop the AzCRH pharmacist survey tool.
- Dr. John Murphy, Interim Dean and Professor, UAHS, COP.
- Dr. Lyle Bootman, Professor, UAHS, COP.
- Midwestern University COP for helping develop the AzCRH pharmacist survey tool.
- Dr. Mary K. Gurney, Assistant Professor, Midwestern University COP.
- Arizona State University (ASU) Center for Health Information and Research (CHiR) for the pharmacist and pharmacy technician license/certification renewal survey data.
- Tameka Sama, Senior Coordinator, ASU, CHiR.
- Gevork Harootunian, Statistical Programmer, ASU, CHiR.
- American Association of Colleges of Pharmacy (AACCP) for the use of the Aggregate Demand Index and providing the two Arizona Colleges of Pharmacy graduation data.
- Dr. Lucinda Maine, Executive Vice President and Chief Executive Officer, AACCP.
- Danielle A. Taylor, Director of Institutional Research and Effectiveness, AACCP.
- Dr. Jon C. Schommer, Professor, University of Minnesota COP for permission to use National Pharmacist Workforce and Minnesota Survey questions.
- Kalani Anderson, Chair, Technician Academy, APA.
- Eleanor Dorsey, Manager of Customer Services, Pharmacy Technician Certification Board.
- Paul Akmajian, Manager, Marketing & Outreach, AzCRH for the Report's cover design, formatting, layout and pharmacy location map.
- The pharmacists who participated in the *AzCRH 2014 Arizona Pharmacist Survey*.

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*The University of Arizona Center for Rural Health serves Arizona through its mission to improve the health and wellness of rural and vulnerable populations. AzCRH houses Arizona's State Office of Rural Health (AzSORH), the Rural Hospital Flexibility Program (AzFlex), the Small Rural Hospital Improvement Program (AzSHIP), the Western Region Public Health Training Center (WRPHTC), the AzCRH Navigator Consortium and other programs. <http://crh.arizona.edu>*

Suggested citation for this report: Eng H, Jennings N, Tabor J, Montgomery T, Derksen D. The University of Arizona Center for Rural Health: *AzCRH 2015 Arizona Pharmacist Supply and Demand Study Report*. February 2016. <http://crh.arizona.edu>

## Table of Contents

	<b>Page</b>
Executive Summary.....	i
Acknowledgments .....	ii
Authors, Affiliations and Contributions.....	iii
Table of Contents .....	iv
List of Tables .....	v
List of Figures .....	vi
Introduction .....	1
Pharmacist Supply and Demand Factors .....	2
Data Sources and Methodology .....	2
Data Sources .....	2
Urban and Rural Definitions (Rural Urban Commuting Areas) .....	3
Study Limitations .....	3
Findings .....	3
National Aggregate Demand Index Scores .....	3
National Ranking .....	4
Arizona Colleges of Pharmacy Graduation Numbers .....	4
Pharmacists .....	5
Pharmacy Technicians .....	13
Pharmacies .....	18
Summary and Recommendations.....	21
References .....	23
Appendices .....	24
A. ASBP 2012-13 Pharmacist and Pharmacy Technician Surveys.....	24
B. AzCRH 2014 Pharmacist Survey .....	30
C. List of Arizona Towns and Cities and their Ruralness Classification: 2000 and 2010 .....	42
D. Number of Pharmacists in Arizona Towns and Cities: 2013 .....	49
E. Number of Pharmacy Technicians in Arizona Towns and Cities: 2013.....	56
F. Number of Pharmacies in Arizona Towns and Cities: 2013 .....	63

## List of Tables

		<b>Page</b>
Table 1	Arizona HRSA Pharmacist National Ranking for 2000, 2004, and 2008-10 .....	4
Table 2	Arizona Colleges of Pharmacy Graduation Numbers: 2001-14 .....	5
Table 3	Pharmacist Numbers by Counties and Four Rural-Urban Commuting Area Summary: 2006 to 2013 .....	5
Table 4	Pharmacists per 100,000 Population by Counties and Four Rural-Urban Commuting Area Summary: 2006 to 2013 .....	7
Table 5	Current and Future Hours Worked per Week .....	9
Table 6	Current and Future Services Provided at the Pharmacist Practice Sites.....	11
Table 7	Current and Future Levels of Interdisciplinary Interaction at the Pharmacist Practice Settings .....	12
Table 8	Pharmacy Technician Numbers by Counties and Four Rural-Urban Commuting Area Summary: 2006 to 2013 .....	13
Table 9	Pharmacy Technicians per 100,000 Population by Counties and Four Rural-Urban Commuting Area Summary: 2006 to 2013 .....	15
Table 10	Selected Current and Future Pharmacy Technician Roles .....	17
Table 11	Pharmacy Numbers by Counties and Four Rural-Urban Commuting Area Summary: 2006 to 2013 .....	19
Table 12	Types of Arizona Pharmacies: 2006 to 2013 .....	19
Table 13	Pharmacies per 100,000 Population by Counties and Four Rural-Urban Commuting Area Summary: 2006 to 2013 .....	20

## List of Figures

		<b>Page</b>
Figure 1	Arizona, Western Region, and National Aggregate Demand Index Trends: 2005-15 .....	4
Figure 2	Pharmacists per 100,000 Population by Arizona and Four Rural-Urban Commuting Area Summary: 2006-09 and 2010-13 .....	6
Figure 3	Pharmacists per 100,000 Population in Arizona and by Counties Trends: 2006-09 and 2010-13.....	6
Figure 4	Arizona Pharmacist Employment Status: 2012-13.....	7
Figure 5	Arizona Pharmacist Employment Setting: 2012-13 .....	8
Figure 6	Arizona Pharmacist Hours Worked Per Week: 2012-13 .....	8
Figure 7	Arizona Pharmacist Retirement Summary: 2012-13 .....	9
Figure 8	Arizona Pharmacist Retirement Summary: 2014.....	10
Figure 9	Arizona Pharmacist Age Group Urban and Rural Distribution: 2013 .....	10
Figure 10	Current Interdisciplinary Interaction Levels for Community, Hospital, and Mail Order Pharmacies .....	12
Figure 11	Future Interdisciplinary Interaction Levels for Community, Hospital, and Mail Order Pharmacies .....	13
Figure 12	Pharmacy Technicians per 100,000 Population by Arizona and Four Rural-Urban Commuting Area Summary: 2006-09 and 2010-13 .....	14
Figure 13	Pharmacy Technicians per 100,000 Population in Arizona and by Counties: 2006-09 and 2010-13.....	14
Figure 14	Arizona Pharmacy Technician Employment Status: 2012-13 .....	15
Figure 15	Arizona Pharmacy Technician Employment Setting: 2012-13 .....	16
Figure 16	Arizona Pharmacy Technician Hours Worked per Week: 2012-13.....	16
Figure 17	Current Pharmacy Technician Roles for Community, Hospital, and Mail Order Pharmacies .....	17
Figure 18	Future Pharmacy Technician Roles for Community, Hospital, and Mail Order Pharmacies .....	17
Figure 19	Map of Pharmacy Locations in Arizona.....	18
Figure 20	Pharmacies per 100,000 Population by Arizona and Four Rural-Urban Commuting Area Summary: 2006-09 and 2010-13 .....	20

## Introduction

Pharmacists are the medication experts in the health field and are the primary dispensers of prescription drugs used for the prevention, diagnosis, management and elimination of diseases.<sup>1</sup> They promote the appropriate use of both prescription and over-the-counter drugs. Pharmacists increasingly provide additional health services including health information, screening, vaccination, and referral to other health providers in many states. Most pharmacists are employed in the community setting. Pharmacy technicians may carry out certain pharmacist functions under the supervision of a pharmacist. Pharmacies are a vital part of Arizona's safety net health care system and often provide entry points into the health care system.

In 2014, Arizona joined 34 other states in passing legislation (SB 1043) recognizing pharmacists as medical providers.<sup>2</sup> During the past two decades, pharmacy practice has evolved from merely dispensing prescription drugs to being the medication expert. Medication dispensing functions (filling prescription drugs) have largely shifted to the pharmacy technicians and automated, computerized refilling and robotic dispensing systems. The three most common services reported by pharmacists offered at their practice sites were (1) medication therapy management (60%); (2) immunization (53%); and (3) adjusting medication therapy (52%).<sup>3</sup>

The contemporary pharmacist workforce is trained for diverse patient care activities such as drug monitoring, disease management, multidisciplinary clinical care, and patient education. Pharmacists with a PharmD increased to 37.8% in 2014 from 13.9% in 2000.<sup>3</sup> The number of American Society of Health System Pharmacists (ASHP) residencies has grown 212% from 697 in 2000 to 2,173 in 2011.<sup>4</sup> The number board certified in a pharmacy specialty has doubled every five years, from roughly 3,600 in 2002 to more than 18,000 in 2013.<sup>5</sup>

The U.S. Bureau of Labor Statistics projected a need for 41,400 additional pharmacists (a 14% increase) from 2012 to 2022.<sup>6</sup> Demand for pharmacy services could further increase due to other factors, if statute or regulations allow pharmacists to be reimbursed for services by Medicare Part B in medically underserved communities, the number of pharmacies increases, and services provided by pharmacists continues to evolve as it has over the past decade (e.g., medication therapy management, immunization, pharmacist specialty services, and health reform requirements). The Health Resources and Services Administration (HRSA) National Center for Workforce Analysis reported lower pharmacist per 10,000 population ratios in rural areas (6.4) than urban areas (8.8) between 2008-2010.<sup>7</sup>

Arizona had the fifth-highest increase in population in 2014, adding nearly 100,000 new residents.<sup>8</sup> Arizona's 114,000 square miles makes it the sixth largest state, exceeded in land area only by Alaska, Texas, California, Montana, and New Mexico.<sup>9</sup> It is as large as New York and the New England states combined, and as large as Italy.<sup>10</sup> Most of Arizona's land area is sparsely populated - frontier and rural. However, the majority (three-quarters) of Arizona's population resides in just two urban centers in Phoenix in Maricopa County, and in Tucson in Pima County.<sup>9</sup>

The *AzCRH 2015 Pharmacist Supply and Demand Study Report* examines Arizona pharmacist, pharmacy technician, and pharmacy trends over an eight-year period (2006-13). Data trends were analyzed to forecast potential changes in pharmacist and pharmacy technician demand and supply over the next five years. The Report has five sections: (1) Introduction, (2) Pharmacist Supply and Demand Factors, (3) Data Sources and Methodology, (4) Findings, and (5) Summary and Recommendations.



## Pharmacist Supply and Demand Factors

Many factors impact the pharmacist supply and demand in Arizona.<sup>11-13</sup>

Pharmacist supply factors include the:

- Capacity of the two Arizona and the many out-of-state pharmacy schools and colleges that train new pharmacists – that feed the pharmacist supply.
- Number of pharmacists retiring, reducing work hours, or leaving the profession – that reduce pharmacist supply.
- Demographics of the pharmacist workforce (e.g., percentage of part-time versus full-time and age group distribution) – full-time and younger pharmacists increase pharmacist supply.
- State of the Arizona economy (e.g., a poor economy may result in fewer work hours available) – that decrease the pharmacist supply.

Pharmacist demand factors include the:

- Use of automation and technology (e.g., prescription drug ordering, refilling and dispensing prescription drugs) - decreasing pharmacist demand.
- Use of pharmacy technicians – decreasing pharmacist demand.
- Increase in medication use due to the aging of the population, developing new medications, increasing insurance coverage for prescription drugs, increasing direct-to-consumer advertising by drug companies, and licensing more practitioners with prescriptive authority – increasing pharmacist demand.
- Market demand (e.g., expanding or reducing pharmacy hours, increasing or decreasing the number of pharmacies, and changing the number of mail order prescriptions) – variability affecting pharmacist demand.
- Expansion of pharmacist practice and roles (e.g., complex pharmaceuticals, genomic prescribing, specialty areas, therapy management, prescriptive authority, giving vaccinations, and providing laboratory results) – increasing pharmacist demand.
- Health Reform (e.g., Medicare Part D, 340 B Drug Pricing Program, Patient Protection and Affordable Care Act (ACA) Medicaid and Marketplace expanded health insurance coverage, and potential passage of Medicare Part B reimbursement for pharmacist services in medically underserved communities) – increasing pharmacist demand.

## Data Sources and Methodology

The *AzCRH 2015 Pharmacist Supply and Demand Study* was reviewed and approved by The University of Arizona Human Subjects Protection Program.

Data Sources used include:

- American Association of Colleges of Pharmacy provided the two Arizona Colleges of Pharmacy graduation numbers for the 2001-02 to 2013-14 academic years.
- Arizona State Board of Pharmacy provided pharmacist, pharmacy technician, and pharmacy data for 2006-13.
- Arizona State University Center for Health Information and Research provided the Arizona State Board of Pharmacy (ASBP) *Pharmacist Renewal License Survey* and *Pharmacy Technician Renewal Certification Survey* data for the 2012-13 renewal

license/ certification cycle. Both surveys are required to be completed at the time of renewal for their respective professions (See Appendix A for the survey tool).

- AzCRH, MEZCOPH, UAHS developed and administered the *AzCRH 2014 Arizona Pharmacist Workforce Survey* to collect information on the pharmacist and pharmacy technician current and future roles (see Appendix B for the study description and the survey tool).

**Urban and Rural Definitions:** There are generally fewer health resources available in rural than in urban areas, and rural populations are older and sicker than urban populations. There is no single, universally preferred definition of rural, nor can a single rural definition serve all policy purposes.<sup>9-10</sup>

For the *AzCRH 2015 Pharmacist Supply and Demand Study Report*, the University of Washington Rural Urban Commuting Areas (RUCAs) rural and urban definitions are used.<sup>9-10</sup> RUCA defines the degrees of rural and urban by their proximity to urban areas and the portion of the population that commute from rural to urban areas. The RUCAs used are based on postal zip codes from self-reported addresses that pharmacists, pharmacy technicians, and pharmacies provided the Arizona State Board of Pharmacy during applications or renewals.

The four RUCA classifications used are (1) urban and surrounding areas [e.g., Phoenix], (2) areas around and including large rural towns [e.g., Payson], (3) small, rural towns including surrounding areas [e.g., Alpine], and (4) areas around and including isolated small towns [e.g., Ash Fork]. Both 2000 and 2010 RUCA definitions are used in this study for the 2006-09 and 2010-13 time periods, respectively. Several Arizona towns changed rural classifications between 2000 and 2010 (see Appendix C). Because of these changes, only the 2010-13 time periods were used in describing the urban and rural trends.

**Study Limitations** include that:

- Not all the addresses provided by the pharmacists and pharmacy technicians are work addresses, some are home addresses. Therefore, over- or under-estimates are possible in the pharmacist and pharmacy technician numbers in some locations.
- Not all the pharmacists and pharmacy technicians participated in the Arizona State Board of Pharmacy renewal license/certification surveys.
- Not all pharmacists participated in the *AzCRH 2014 Arizona Pharmacist Workforce Survey*.
- Survey information was self-reported data (e.g., some responses may change over time).
- Some small towns were classified as urban areas due to their close proximity to urban centers using RUCA classifications.

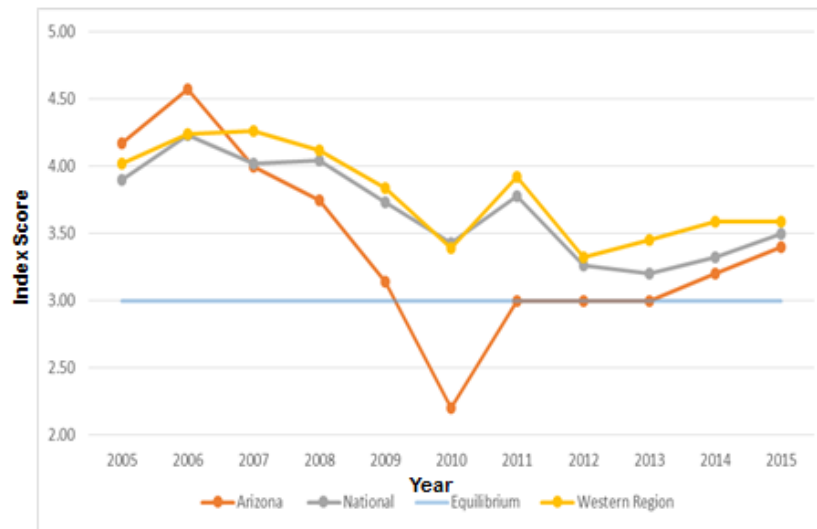
## Findings

**National Aggregate Demand Index:** The Pharmacy Workforce Center's Aggregate Demand Index (ADI) is a web-based national report of the demand for pharmacists.<sup>11</sup> The data is collected monthly from a panel of individuals who are directly involved in hiring pharmacists across the United States since August 1999. Panelists are selected to represent the major areas of pharmacy practice and different geographic areas; they respond to a survey about the ease or difficulty they experienced in filling a pharmacist position in each state where they hired during the past month. The following rating system is used to describe the demand levels: 5 = high demand, difficulty in filling open positions; 4 = moderate demand, some difficulty in filling open

positions; 3 = demand in balance with supply (state of equilibrium); 2 = demand somewhat less than the available pharmacist supply; and 1 = demand much less than the available pharmacist supply. After all the surveys are collected for the month, the ADI state level is calculated by determining the means of the ratings submitted by the panelists who hired pharmacists in the state.

Between 2011-13, Arizona’s demand for pharmacists was in balance with the supply of pharmacists in the state (state of equilibrium). After 2013, the demand for pharmacists was slightly higher than the supply. Arizona did better in reaching equilibrium than the nation and the Western Region (see Figure 1). The Western Region includes the Mountain states of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming and the Pacific states of Alaska, California, Hawaii, Oregon, and Washington. In February 2015, the Pacific states had a higher ADI score (4.0) than the Mountain states (3.5).

**Figure 1. Arizona, Western Region, and National Aggregate Demand Index Trends: 2005-15**



Source: Pharmacy Workforce Center

**National Rankings:** Arizona’s national pharmacist ranking and pharmacist per 100,000 population ratio improved since 2000 (Table 1).

**Table 1. Arizona HRSA Pharmacist National Ranking for 2000, 2004, and 2008-10**

Data Year	Arizona #/100,000	National Ranking
2000 <sup>1</sup>	41.2	50/50
2004 <sup>2</sup>	66.7	46/50
2008-10 <sup>3</sup>	73.8	39/46

Source: <sup>1</sup>2000 HRSA Health Workforce Profile, <sup>2</sup>HRSA The United States Health Workforce Profile (2006), and <sup>3</sup>HRSA The State Health Workforce Profiles (2014). The 2014 State Ranking was based on the pharmacist per 100,000 working age population. Note: if the total population was used instead of the working age population, the Arizona pharmacist per 100,000 population would be lower.

**Arizona Colleges of Pharmacy Graduation Numbers:** Prior to the 2001-02 academic year, the UA College of Pharmacy was the only pharmacy school in the state. Midwestern University graduated its first class (N=86) of Pharm D’s in 2002. By the 2006-07 academic year the two schools graduated 200 (total) or more pharmacists per year, with 244 graduating from the two

colleges in 2013-14 (Table 2). Not all graduates go directly into pharmacy practice; some enter residency programs, get specialty certifications or graduate degrees, or leave the state to practice.

**Pharmacists:** There were 6,573 active Arizona licensed pharmacists in 2013 (Table 3), an increase of 1,608 (32.4%) from 2006. In 2013, 96.2% of the pharmacists were located in urban areas. There were no pharmacists practicing in Greenlee County from 2006-13. Gila, Graham, Pinal and Santa Cruz Counties had net losses of pharmacists between 2010-13. Urban areas, large rural towns, and small rural towns gained pharmacists, while the isolated rural small towns lost pharmacists. See Appendix D for the number of pharmacists by Arizona city/town for 2013.

**Table 2. Arizona Colleges of Pharmacy Graduation Summary: 2001-14**

School Year	University of Arizona	Midwestern University	Total
2001-02	58	86	144
2002-03	50	92	142
2003-04	45	130	175
2004-05	64	122	186
2005-06	67	125	192
2006-07	75	133	208
2007-08	75	125	200
2008-09	78	131	209
2009-10	84	127	211
2010-11	83	120	203
2011-12	94	130	224
2012-13	95	148	243
2013-14	94	150	244

Source: American Association of Colleges of Pharmacy

**Table 3. Pharmacist Numbers by Counties and Four Rural-Urban Commuting Areas Summary: 2006 to 2013**

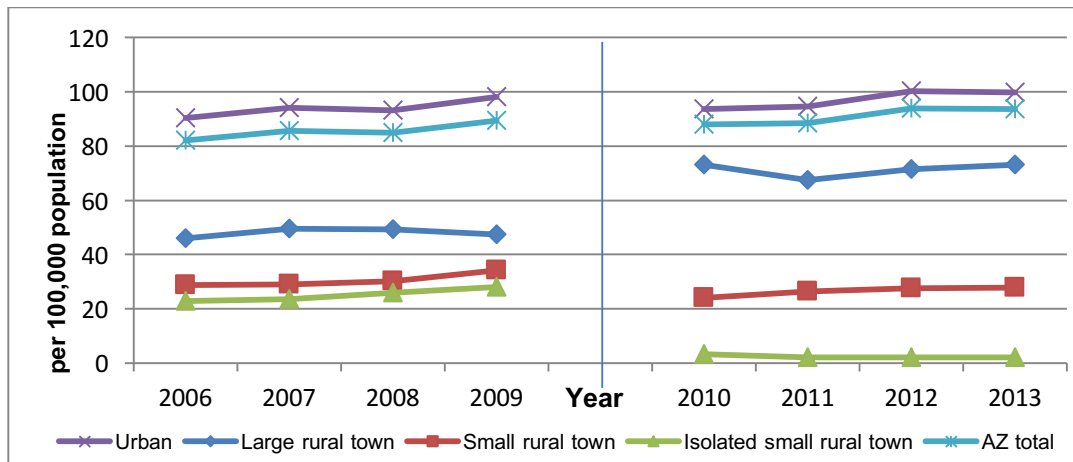
County	2006	2009	2006-09 Chg.	2010	2013	2010-13 Chg.
Apache	8	11	37.5%	13	15	15.4%
Cochise	47	45	-4.3%	47	56	19.1%
Coconino	90	97	7.8%	108	111	2.8%
Gila	31	31	0.0%	32	30	-6.3%
Graham	16	23	43.8%	24	22	-8.3%
Greenlee	0	0	0.0%	0	0	0.0%
La Paz	1	3	100.0%	3	4	33.3%
Maricopa	3,379	3,874	14.6%	4,051	4,543	12.1%
Mohave	94	116	23.4%	122	122	0.0%
Navajo	39	46	17.9%	47	52	10.6%
Pima	913	1,046	14.6%	1,088	1,213	11.5%
Pinal	134	137	2.2%	148	129	-12.8%
Santa Cruz	14	16	14.3%	14	12	-14.3%
Yavapai	141	157	11.3%	156	180	15.4%
Yuma	58	72	24.1%	80	84	5.0%
<b>Arizona – Total</b>	<b>4,965</b>	<b>5,674</b>	<b>14.3%</b>	<b>5,933</b>	<b>6,573</b>	<b>10.8%</b>
			<b>2000 RUCA 2006-09 Chg.</b>			<b>2010 RUCA 2010-13 Chg.</b>
Urban	4,637	5,297	14.2%	5,699	6,322	10.9%
Large Rural Town	195	216	10.8%	187	198	5.9%
Small Rural Town	109	131	20.2%	39	48	23.1%
Isolated Small Rural Town	24	30	25.0%	8	5	-37.5%

Source: Arizona State Board of Pharmacy

Arizona's ratio of pharmacists per 100,000 population increased from 93 to 99 (6.5%) from 2010-13. Urban areas along with large rural and small rural towns all increased their pharmacists per 100,000 population ratios between 2010-13. Only isolated small rural towns saw a decrease. La Paz County had the largest percent increase from 15 to 20 per 100,000 population (33.3%). Gila, Graham, Mohave, Pinal, and Santa Cruz Counties had decreases in pharmacists per 100,000 population.

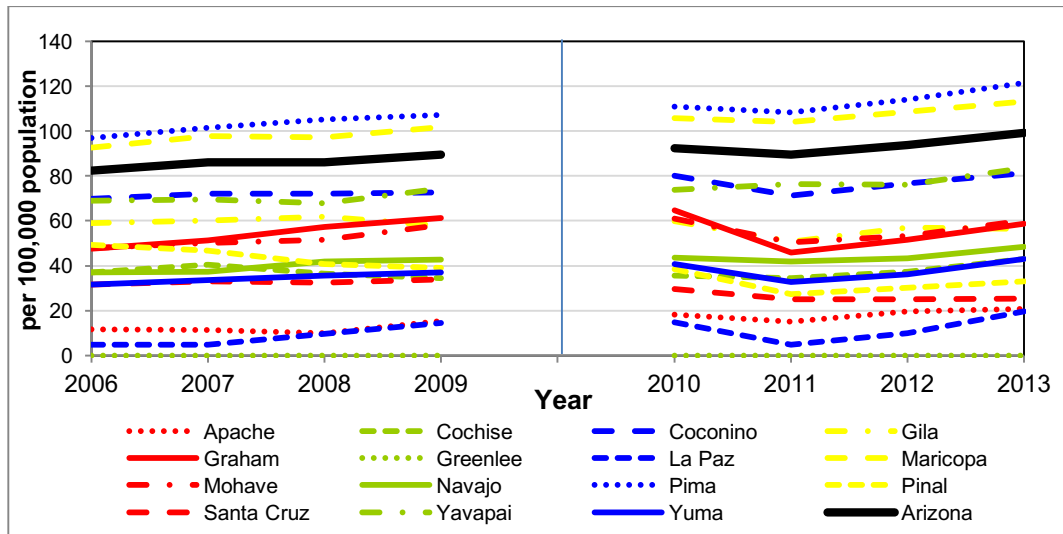
Pharmacists to population ratios by ruralness ranged 53 fold between isolated small rural town areas (2 per 100,000) and urban areas (106 per 100,000) in 2013 or greater between Greenlee County (0) and Pima County (122 per 100,000) in 2013 (Figures 2 and 3; and Table 4).

**Figure 2. Pharmacists per 100,000 Population in Arizona and by Four Rural-Urban Commuting Areas Trends: 2006-09 and 2010-13**



Source: Arizona State Board of Pharmacy

**Figure 3. Pharmacists per 100,000 Population in Arizona and by Counties Trends: 2006-09 and 2010-13**



Source: Arizona State Board of Pharmacy

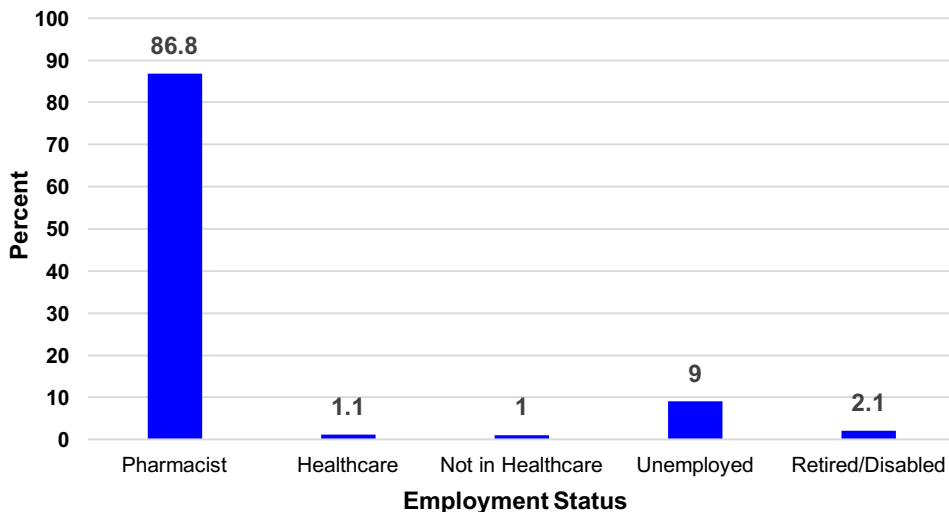
**Table 4. Pharmacists per 100,000 Population by Counties and Four Rural-Urban Commuting Areas Summary: 2006 to 2013**

County	2006	2009	2006-09 Chg.	2010	2013	2010-13 Chg.
Apache	12	15	25.0%	18	21	16.7%
Cochise	39	35	-10.3%	36	43	19.4%
Coconino	69	73	5.8%	80	81	1.3%
Gila	60	58	-3.3%	60	57	-5.0%
Graham	42	61	45.2%	65	59	-9.2%
Greenlee	0	0	0.0%	0	0	0.0%
La Paz	5	15	200.0%	15	20	33.3%
Maricopa	90	102	13.3%	106	113	6.6%
Mohave	49	58	18.4%	61	60	-1.6%
Navajo	36	43	19.4%	44	48	9.1%
Pima	96	107	11.5%	111	122	9.9%
Pinal	38	39	2.6%	39	33	-15.4%
Santa Cruz	26	34	30.8%	29	25	-13.8%
Yavapai	71	74	4.2%	74	84	13.5%
Yuma	31	37	19.4%	41	43	4.9%
<b>Arizona – Total</b>	82	90	9.8%	93	99	6.5%
			<b>2000 RUCA 2006-09 Chg.</b>			<b>2010 RUCA 2010-13 Chg.</b>
Urban	90	98	8.9%	94	106	12.8%
Large Rural Town	46	47	2.2%	73	79	8.2%
Small Rural Town	29	34	17.2%	24	31	29.1%
Isolated Small Rural Town	23	28	21.7%	3	2	-33.3%

Source: Arizona State Board of Pharmacy

*Pharmacist Renewal License Survey:* There were 3,559 Arizona pharmacists who submitted their Arizona State Board of Pharmacy (ASBP) 2012-13 Survey (two-year renewal license cycle). Most (75.6%) of the pharmacists were located in Maricopa (2,099) and in Pima (591) Counties. More than half the pharmacists were female (51.2%). Eighty-seven percent of the respondents were employed as pharmacists (3,088) and 9% were unemployed (322). See Figure 4.

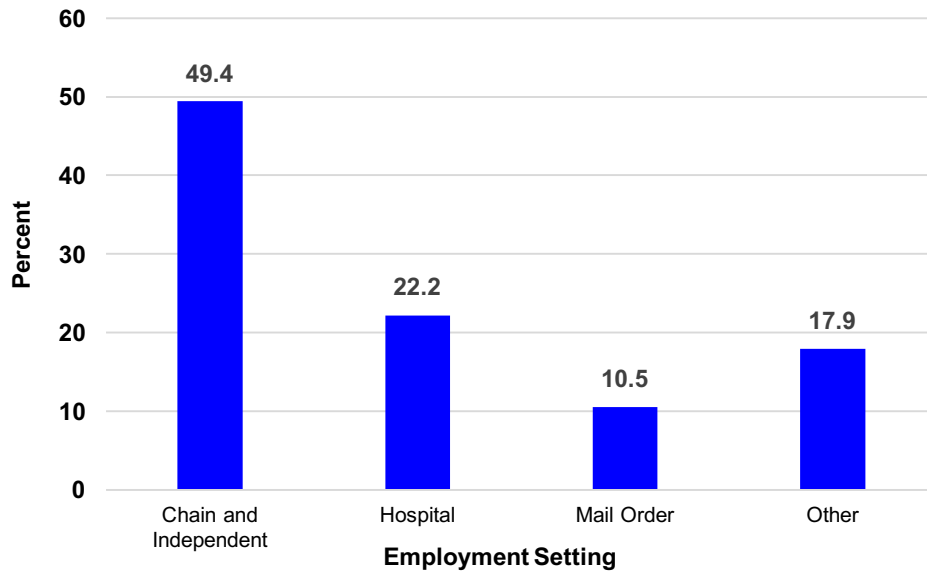
**Figure 4. Arizona Pharmacist Employment Status: 2012-13**



Source: Arizona State Board of Pharmacy 2012-13 Pharmacist Survey

*Pharmacist Employment Setting:* The top three pharmacist primary employment settings reported were (1) retail [chain – 1,381 and independent – 156], (2) hospital [692], and (3) mail order [325] (see Figure 5). Twenty-five percent of the pharmacists reported that they have been with their current position for ten years or more.

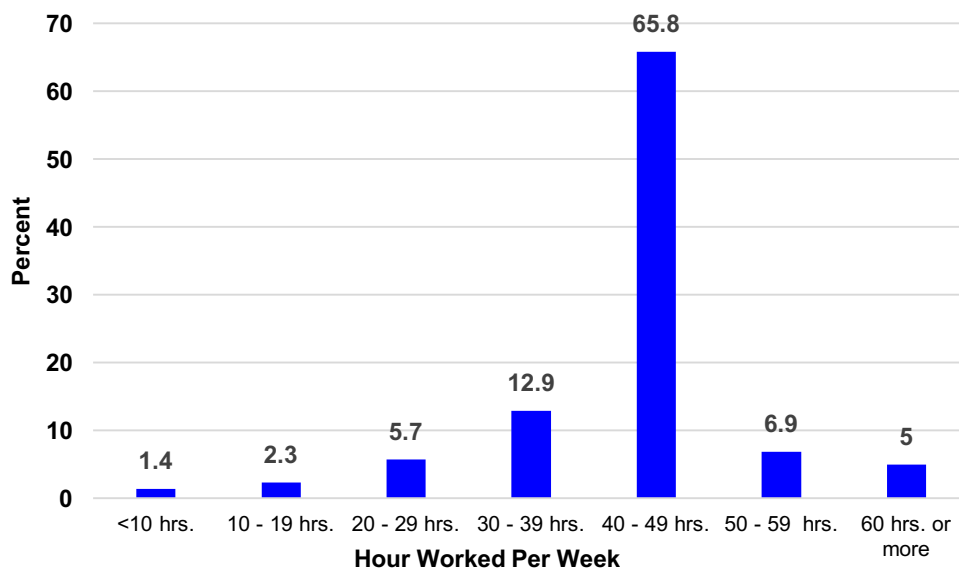
**Figure 5. Arizona Pharmacist Employment Setting: 2012-13**



Source: Arizona State Board of Pharmacy 2012-13 Pharmacist Survey

*Pharmacist Working Weeks and Hours:* Seventy-eight percent of pharmacists reported working 40 hours or more per week (see Figure 6). Less than 10% of the pharmacists worked less than 30 hours per week.

**Figure 6. Arizona Pharmacist Hours Worked Per Week: 2012-13**



Source: Arizona State Board of Pharmacy 2012-13 Pharmacist Survey

The *AzCRH 2014 Arizona Pharmacist Workforce Survey* reported that 80.5% of pharmacists worked 40 hours or more per week. One fifth of the pharmacists worked 50 hours or more. Table 5 compares the current and future expected working hours per week.

**Table 5. Current and Future Hours Worked Per Week**

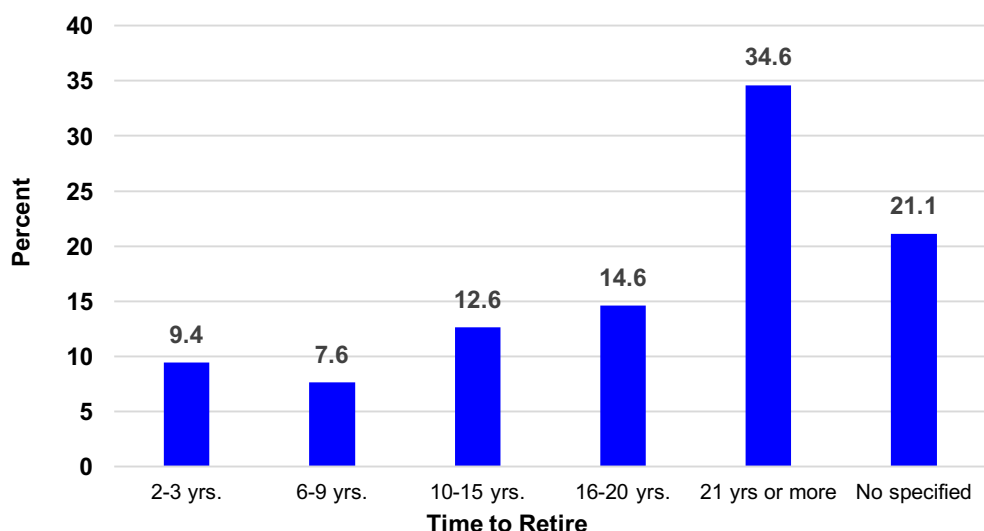
Hours Worked per Week	Current # and %	Future # and %	Change %
10 hours or less	12 2.3%	9 1.8%	-0.5%
10 - 19 hours	13 2.5%	16 3.3%	0.8%
20 - 29 hours	31 6.1%	35 7.1%	1.0%
30 - 39 hours	44 8.6%	49 9.9%	1.3%
40 - 49 hours	307 60.1%	312 63.3%	3.2%
50 - 59 hours	50 9.8%	44 8.9%	-0.9%
60 hours or more	54 10.6%	28 5.7%	-4.9%
Total	511 100.0%	493 100.0%	

Source: Arizona Center for Rural Health 2014 Pharmacist Survey; Future – Five-years from now.

*Retirement Plans:* Using the *ASBP 2012-13 Arizona Pharmacist Renewal License Survey* and the *AzCRH 2014 Arizona Pharmacist Workforce Survey* and projecting forward, an estimated 9 to 18% of pharmacists will retire in the next five years (see Figures 7 and 8). In 2013, 19.1% of pharmacists were age 62 years or older (1,264 were of eligible retirement age).

There is a higher percentage of pharmacists aged 65 years or older in rural (19%) than urban areas (11%). “Baby boomer” retirement will likely disproportionately decrease pharmacists in rural areas while the demand for them will increase. Urban and rural age distributions for 2013 are shown in Figure 9.

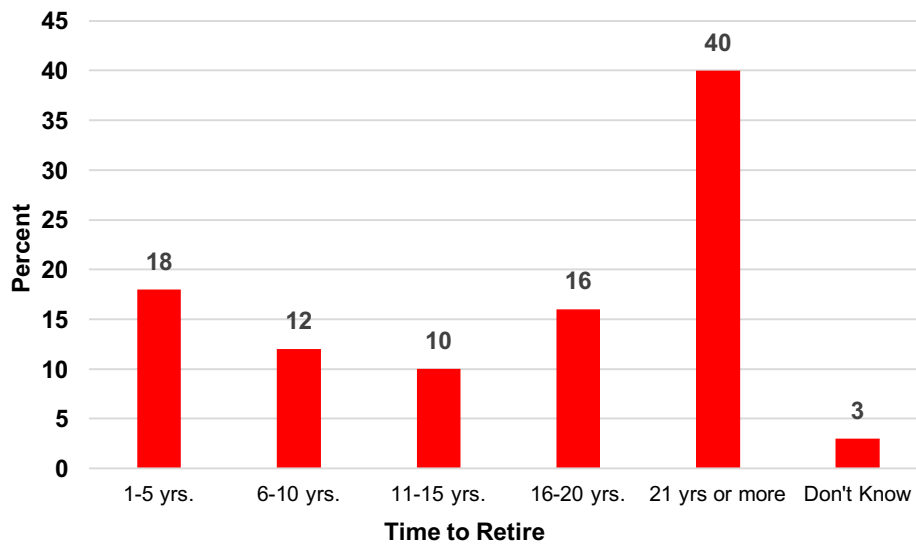
**Figure 7. Arizona Pharmacist Retirement Summary: 2012-13**



Source: Arizona State Board of Pharmacy 2012-13 Pharmacist Survey

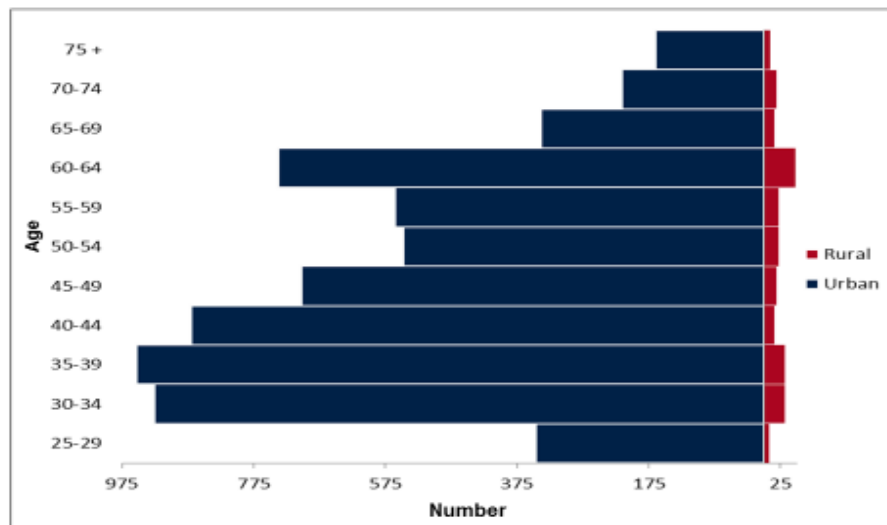


**Figure 8. Arizona Pharmacist Retirement Summary: 2014**



Source: Arizona Center of Rural Health 2014 Pharmacist Survey

**Figure 9. Arizona Pharmacist Age Group Urban and Rural Distribution: 2014**



Source: Arizona State Board of Pharmacy

*AzCRH 2014 Arizona Pharmacist Workforce Survey*: There were 727 Arizona pharmacists who submitted their *AzCRH 2014 Arizona Pharmacist Workforce Survey*. More than half (56%) were female. All the respondents were employed as pharmacists. Of these, 85% were employed full-time. The top three pharmacist primary employment settings reported were (1) retail (43.5%) percent, (2) hospital (30.7%), and (3) mail order (6.5%). Two-thirds of the pharmacists were staff/employee pharmacists, while 27.9% held a position as manager, director, assistant manager, or supervisor. Eighty-four percent of the pharmacists worked only in one pharmacy practice setting. The remainder worked in two to four pharmacy practice settings (13% in two, 2% in

three, and 1% in four). The expansion of pharmacy practice and roles are expected to increase pharmacist demand (e.g., increase clinical services and health profession interactions).

*Clinical Services:* Three-quarters of the pharmacists responded in the *AzCRH 2014 Arizona Pharmacist Workforce Survey* that their practice sites provided clinical services (activities related to medication therapy management), direct care or counseling. The top five pharmacy services they expected to expand in the next five-years include: immunization, diabetes management, drug information services, health screening, and hypertension management (Table 6).

**Table 6. Current and Future Services Provided at the Pharmacist Practice Sites**

Pharmacy Services N = 727	Current # (%)	Future # (%)	Change %
Specialty/complex compounding	48 (6.6%)	90 (12.4%)	5.8%
Drug information service	83 (11.4%)	272 (37.4%)	26.0%
Home infusion	12 (1.7%)	43 (5.9%)	4.2%
Immunizations	73 (10.0%)	272 (37.4%)	27.4%
Health screenings	38 (5.2%)	202 (27.8%)	22.6%
Smoking cessation	45 (6.2%)	181 (24.9%)	18.7%
Nutritional support	46 (6.3%)	164 (22.6%)	16.3%
Pharmacokinetic support	46 (6.3%)	167 (23.0%)	16.7%
Anticoagulation services	50 (6.9%)	191 (26.3%)	19.4%
Diabetes management	54 (7.4%)	247 (34.0%)	26.6%
Dyslipidemia management	38 (5.2%)	170 (23.4%)	18.2%
Hypertension management	40 (5.5%)	189 (26.0%)	20.5%
Asthma/COPD management	36 (5.0%)	148 (20.4%)	15.4%
Osteoporosis screening/management	14 (1.9%)	76 (10.5%)	8.6%
Pain management	43 (5.9%)	158 (21.7%)	15.8%
Weight management	16 (2.2%)	86 (11.8%)	9.6%
Other	34 (4.7%)	71 (9.8%)	5.1%

Source: Arizona Center for Rural Health 2014 Pharmacist Survey. Future – Five-years from now.

*Other Health Professional Interactions:* The *AzCRH 2014 Arizona Pharmacist Workforce Survey* found that 43% of the pharmacist practice settings (233) incorporated interdisciplinary therapy plans or collaborative practice agreements. In the pharmacist practice setting, 27.4% reported their practice was very involved in interdisciplinary practice that resulted in significant patient care or therapeutic outcomes (Table 7). This percentage is expected to increase to approximately 43.7% over five-years.

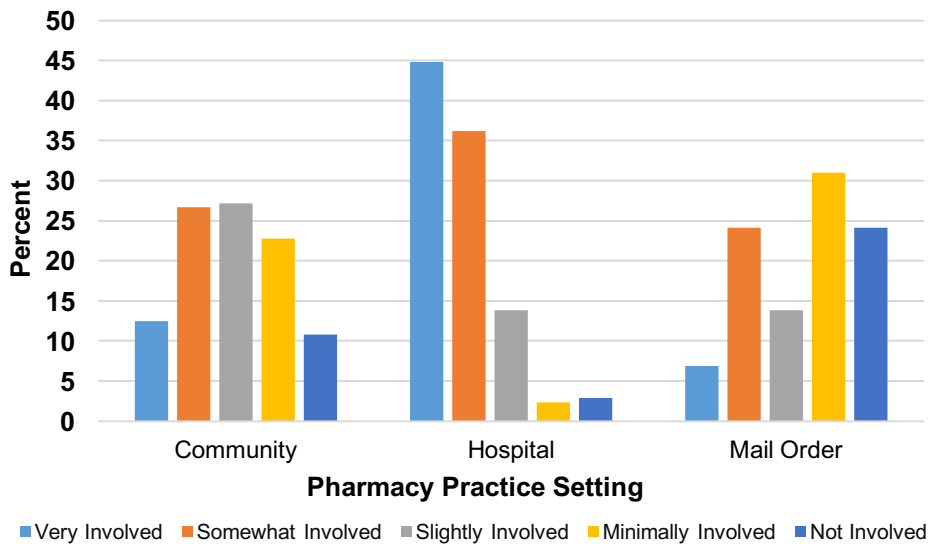
There were more interdisciplinary interactions in hospital practice settings than in community and mail order settings. In all three, the percentage of interdisciplinary interaction is expected to increase (Figures 10 and 11).

**Table 7. Current and Future Levels of Interdisciplinary Interaction in Pharmacist Practice Settings**

Interdisciplinary Practice Level	Current # and %	Future # and %	Change %
Very involved resulting in significant patient care/therapeutic outcomes	149 27.4%	235 43.7%	16.3%
Somewhat involved resulting in some patient care/therapeutic outcomes	166 30.6%	169 31.4%	0.8%
Slightly involved resulting in slight patient care/therapeutic outcomes	98 18.0%	65 12.1%	-5.9%
Minimally involved resulting in few patient care/therapeutic outcomes	83 15.3%	49 9.1%	-6.2%
Nonproductive resulting in no documentable patient care/therapeutic outcomes	47 8.7%	20 3.7%	-5.0%
Total	543 100.0%	538 100.0%	

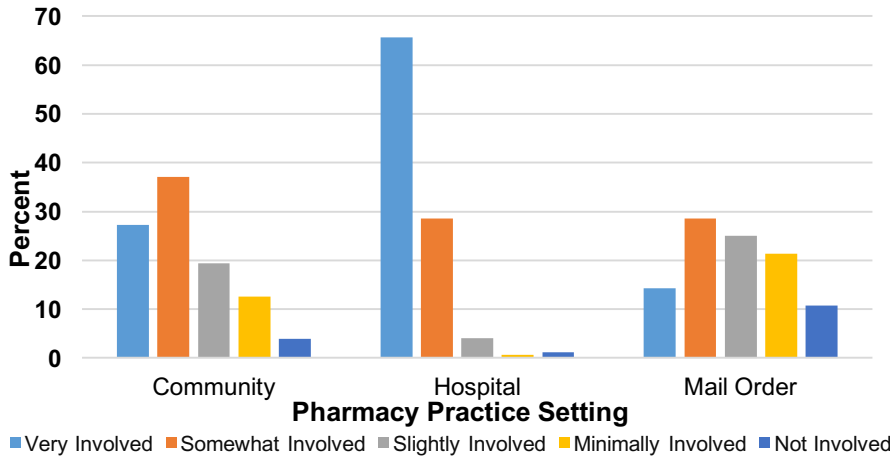
Source: Arizona Center for Rural Health 2014 Pharmacist Survey. Future – Five-years from now.

**Figure 10. Current Interdisciplinary Interaction Levels for Community, Hospital, and Mail Order Pharmacies**



Source: Arizona Center for Rural Health 2014 Pharmacist Survey

**Figure 11. Future Interdisciplinary Interaction Levels for Community, Hospital, and Mail Order Pharmacies**



Source: Arizona Center for Rural Health 2014 Pharmacist Survey

**Pharmacy Technicians:** The Arizona State Board of Pharmacy began certifying pharmacy technicians in 2004. The increased number of pharmacy technicians performing pharmacist functions will likely decrease pharmacist demand. There were more certified pharmacy technicians (10,433) than licensed pharmacists (6,573) in Arizona in 2013. See Tables 3 and 8.

**Table 8. Pharmacy Technician Numbers by Counties and Four Rural-Urban Commuting Areas Summary: 2006 to 2013**

County	2006	2009	2006-09 Chg.	2010	2013	2010-13 Chg.
Apache	25	38	52.0%	39	51	30.8%
Cochise	72	101	40.3%	114	128	12.3%
Coconino	77	96	24.7%	100	118	18.0%
Gila	35	49	40.0%	50	51	2.0%
Graham	43	49	14.0%	42	42	0.0%
Greenlee	1	3	200.0%	2	6	200.0%
La Paz	4	8	100.0%	11	9	-18.2%
Maricopa	4,187	5,701	36.2%	6,516	7,143	9.6%
Mohave	116	195	68.1%	208	229	10.1%
Navajo	40	79	97.5%	83	83	0.0%
Pima	860	1,205	40.1%	1,300	1,522	17.1%
Pinal	382	553	44.8%	553	594	7.4%
Santa Cruz	22	31	40.9%	37	48	29.7%
Yavapai	143	205	43.4%	231	264	14.3%
Yuma	89	126	41.6%	130	145	11.5%
<b>Arizona – Total</b>	6,096	8,439	38.4%	9,416	10,433	10.8%
			<b>2000 RUCA 2006-09 Chg.</b>			<b>2010 RUCA 2010-13 Chg.</b>
Urban	5,589	7,676	37.3%	8,960	9,927	10.8%
Large Rural Town	309	459	48.5%	333	368	10.5%
Small Rural Town	171	269	57.3%	111	126	13.5%
Isolated Small Rural Town	27	35	29.6%	12	12	0.0%

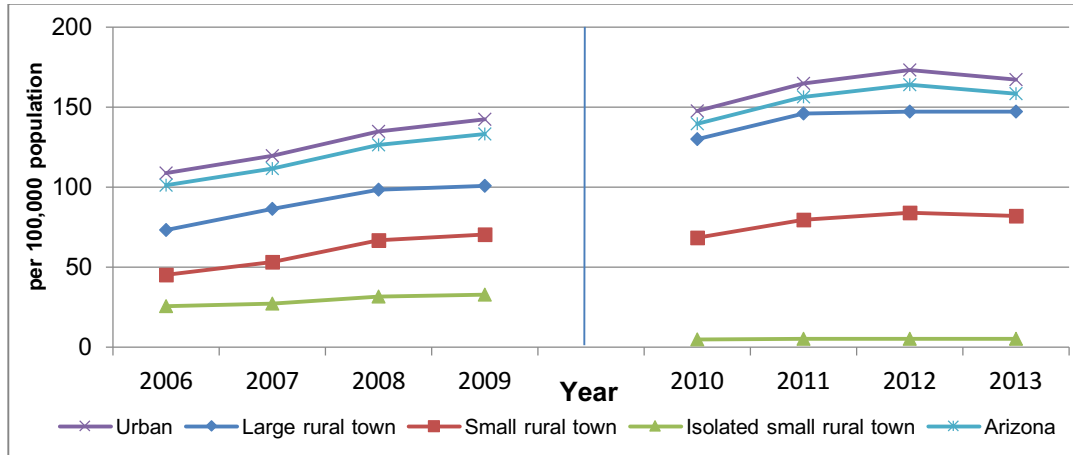
Source: Arizona State Board of Pharmacy

Most pharmacy technicians were located in urban areas (95.2%). Pharmacy technicians increased by 4,337 (71.1%) from 2006-13. Between 2010-13, the gains in pharmacy technician numbers

occurred in both urban and rural areas. Only La Paz County lost pharmacy technicians during that period. See Appendix E for pharmacy technicians by Arizona towns/cities for 2013.

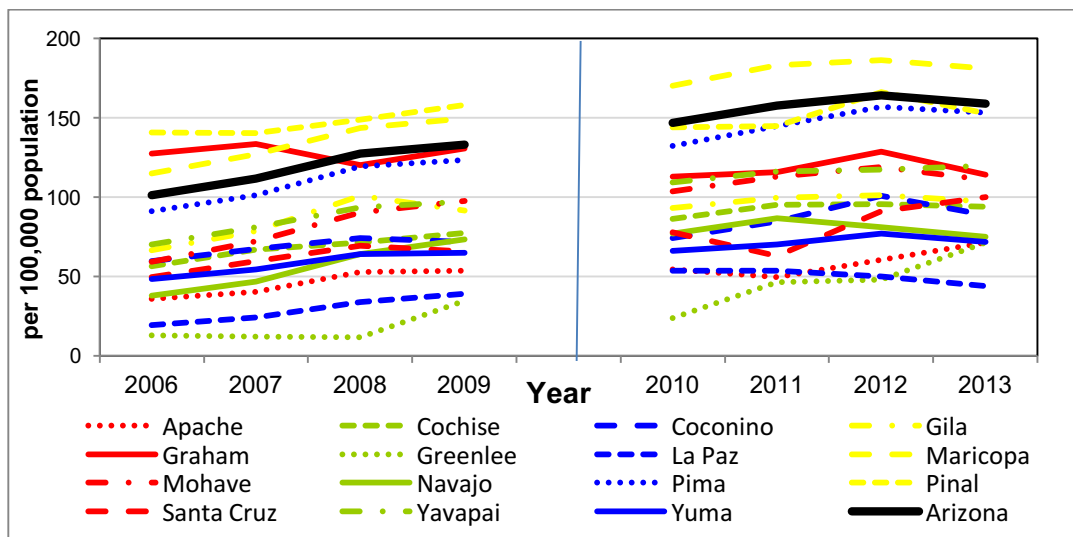
Pharmacy technicians increased from 101 to 159 per 100,000 (57.4%) between 2006-13. La Paz and Navajo Counties were the only two counties with a decreasing ratio. All state RUCA areas either increased or remained steady (isolated small rural towns) between 2010-13 in their pharmacy technician provider to 100,000 population ratio. There were inequalities in distribution of pharmacy technician-population ratios by ruralness and counties (Figures 12 and 13; Table 9).

**Figure 12. Pharmacy Technicians per 100,000 Population in Arizona and by Four Rural-Urban Commuting Areas Trends: 2006-09 and 2010-13**



Source: Arizona State Board of Pharmacy

**Figure 13. Pharmacy Technicians per 100,000 Population in Arizona by County Trends: 2006-09 and 2010-13**



Source: Arizona State Board of Pharmacy

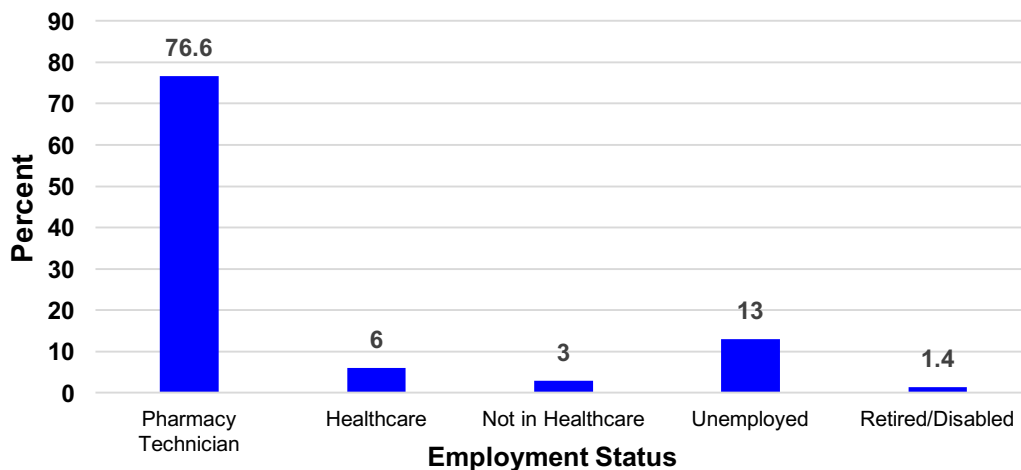
**Table 9. Pharmacy Technicians per 100,000 Population by Counties and Four Rural-Urban Commuting Areas Summary: 2006 to 2013**

County	2006	2009	2006-09 Chg.	2010	2013	2010-13 Chg.
Apache	33	54	63.6%	54	71	31.5%
Cochise	65	78	20.0%	87	94	8.0%
Coconino	59	72	22.0%	74	89	20.3%
Gila	70	92	31.4%	93	97	4.3%
Graham	96	131	36.5%	113	114	0.9%
Greenlee	13	35	169.2%	24	71	195.8%
La Paz	20	39	95.0%	54	44	-18.5%
Maricopa	112	150	33.9%	170	181	6.5%
Mohave	60	98	63.3%	104	111	6.7%
Navajo	38	73	92.1%	77	75	-2.6%
Pima	91	124	36.3%	132	153	15.9%
Pinal	129	158	22.5%	144	153	6.3%
Santa Cruz	45	66	46.7%	78	100	28.2%
Yavapai	71	97	36.6%	109	120	10.1%
Yuma	48	65	35.4%	66	72	9.1%
<b>Arizona – Total</b>	<b>101</b>	<b>133</b>	<b>31.7%</b>	<b>147</b>	<b>159</b>	<b>8.2%</b>
			<b>2000 RUCA 2006-09 Chg.</b>			<b>2010 RUCA 2010-13 Chg.</b>
Urban	109	142	30.2%	147	167	13.6%
Large Rural Town	73	101	38.4%	130	147	13.1%
Small Rural Town	45	70	55.6%	68	82	20.6%
Isolated Small Rural Town	26	33	27.0%	5	5	0.0%

Source: Arizona State Board of Pharmacy

*Technician Renewal Certification Survey:* There were 5,175 Arizona pharmacy technicians who submitted their Arizona State Board of Pharmacy 2012-13 Survey. Seventy-seven percent of the respondents were employed as pharmacy technicians [3,965] and 13% were unemployed [672] (see Figure 14).

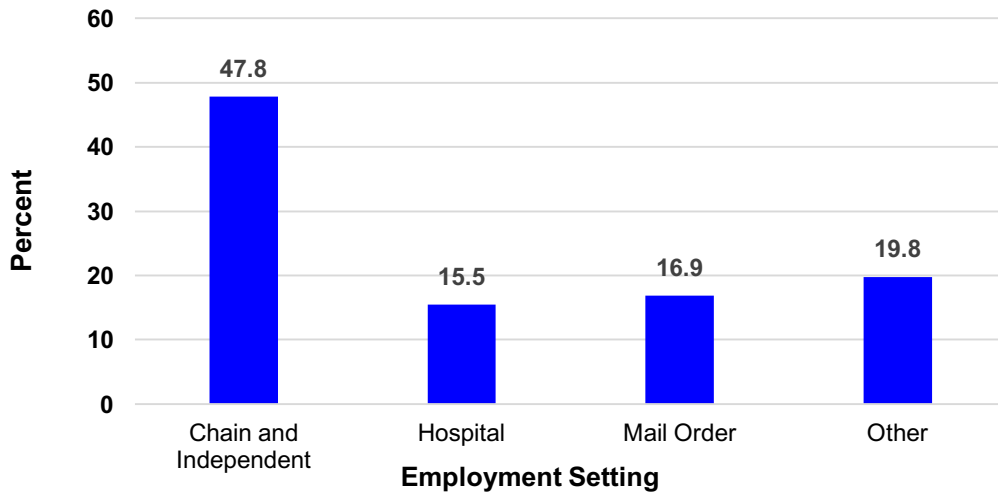
**Figure 14. Arizona Pharmacy Technician Employment Status: 2012-13**



Source: Arizona State Board of Pharmacy 2012-13 Pharmacy Technician Survey

Most pharmacy technicians (83.8 %) were located in Maricopa County (3,556) and Pima County (780). Seventy-one percent the pharmacy technicians were female. The top three pharmacy technician primary employment settings reported were (1) retail [chain = 1,872 and independent = 239], (2) mail order [745], and (3) hospital [684] (see Figure 15).

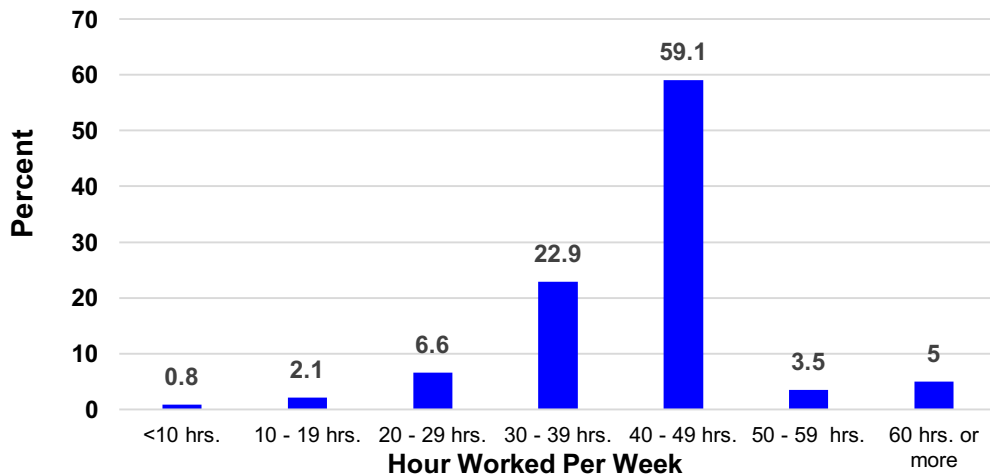
**Figure 15. Arizona Pharmacy Technician Employment Setting: 2012-13**



Source: Arizona State Board of Pharmacy 2012-13 Pharmacy Technician Survey

*Pharmacy Technician Working Weeks and Hours:* Sixty-eight percent of pharmacy technicians reported working 40 or more hours per week (see Figure 16). Ten percent of pharmacy technicians worked less than 30 hours per week.

**Figure 16. Arizona Pharmacy Technician Hours Worked Per Week: 2012-13**



Source: Arizona State Board of Pharmacy 2012-13 Pharmacy Technician Survey

*Pharmacy Technician Roles:* Using *AzCRH 2014 Arizona Pharmacist Workforce Survey* data, pharmacy technician roles will likely expand. The top two expansion areas are: medication reconciliation and management and administrative duties (Table 10). There are more consumer service interactions by pharmacy technicians in the mail order and community settings than in the hospital practice setting (Figure 17). Pharmacy technicians will likely play greater roles in

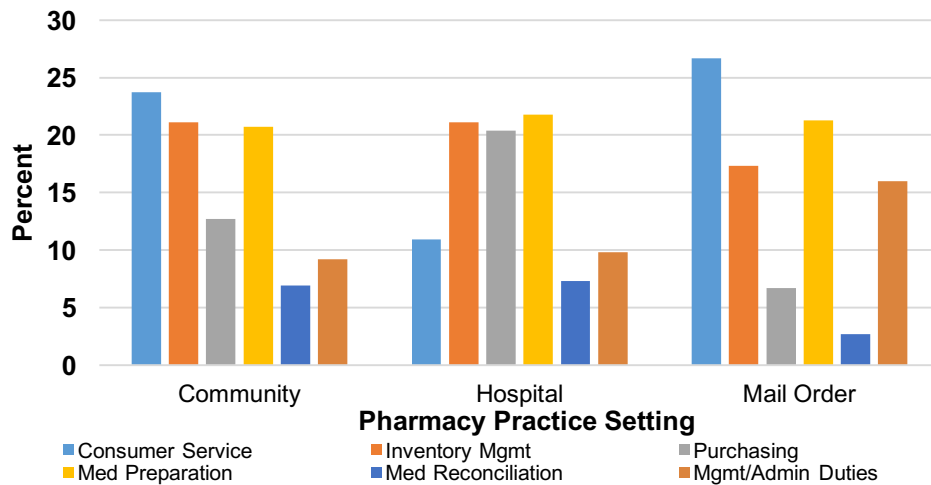
medication reconciliation in hospital settings and in management and administration duties in mail order settings (Figure 18).

**Table 10. Selected Current and Future Pharmacy Technician Roles**

Pharmacy Technician Role N = 727	Current # (%)	Future # (%)	Change %
Customer service provider	381 (52.4%)	380 (52.3%)	-0.1%
Inventory management	416 (57.2%)	413 (56.8%)	-0.4%
Buying and acquisition	313 (43.1%)	314 (43.2%)	-0.1%
Medication preparation in the distribution process	423 (58.2%)	409 (56.3%)	-1.9%
Medication reconciliation	136 (18.7%)	224 (30.8%)	12.1%
Management/administrative duties	211 (29.0%)	266 (36.6%)	7.6%

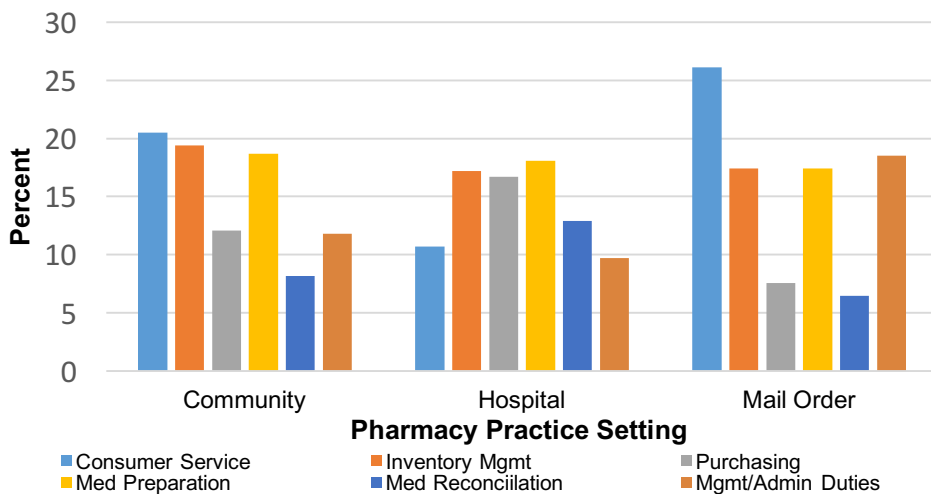
Source: Arizona Center for Rural Health 2014 Pharmacist Survey. Future – Five-years from now.

**Figure 17. Current Pharmacy Technician Roles for Community, Hospital, and Mail Order Pharmacies**



Source: Arizona Center for Rural Health 2014 Pharmacist Survey

**Figure 18. Future Pharmacy Technician Roles for Community, Hospital, and Mail Order Pharmacies**



Source: Arizona Center for Rural Health 2014 Pharmacist Survey





**Table 11. Pharmacy Numbers by Counties and Four Rural-Urban Commuting Areas Summary: 2006-13**

County	2006	2009	2006-09 Chg.	2010	2013	2010-13 Chg.
Apache	4	4	0%	4	4	0%
Cochise	23	26	13.0%	24	27	12.5%
Coconino	24	23	-4.2%	25	25	0%
Gila	11	11	0%	11	14	27.3%
Graham	6	6	0%	6	6	0%
Greenlee	1	1	0%	1	1	0%
La Paz	5	5	0%	5	5	0%
Maricopa	824	817	-0.9%	811	852	5.1%
Mohave	38	43	13.2%	40	41	2.5%
Navajo	13	15	15.4%	15	16	6.7%
Pima	194	193	-0.5%	193	202	4.7%
Pinal	33	39	- 18.2%	43	45	4.7%
Santa Cruz	8	8	0%	8	8	0%
Yavapai	41	45	9.8%	44	46	4.5%
Yuma	25	30	20.0%	29	27	- 6.9%
<b>Arizona – Total</b>	<b>1,250</b>	<b>1,266</b>	<b>1.3%</b>	<b>1,259</b>	<b>1,319</b>	<b>4.7%</b>
			<b>2000 RUCA 2006-09 Chg.</b>			<b>2010 RUCA 2010-13 Chg.</b>
Urban	1,108	1,106	-0.2%	1,167	1,221	4.6%
Large Rural Town	80	89	11.3%	69	75	8.7%
Small Rural Town	56	63	12.5%	23	23	0.0%
Isolated Small Rural Town	7	8	33.3%	0	0	0.0%

Source: Arizona State Board of Pharmacy

Table 12 shows pharmacy permit trends. There are six types of pharmacy permits (chain, independent, hospital, limited service, government, and full service). In 2013, the top three types of pharmacy permits were: (1) chain, (2) independent, and (3) hospital. The greatest percentages increase in permit types during 2006-13 were for hospital and independents; the greatest percentage decrease was for government pharmacy permits.

**Table 12. Types of Arizona Pharmacies: 2006 to 2013**

Type of Pharmacy	2006	2007	2008	2009	2010	2011	2012	2013	2006-13 Chg.
Chain	934	900	939	931	921	922	934	957	2.5%
Independent	139	143	141	150	151	148	157	160	15.1%
Hospital	102	106	107	111	115	117	117	127	24.5%
Limited Service	63	67	65	63	61	66	65	68	7.9%
Government	11	11	11	10	10	11	9	6	-45.5%
Full Service	1	1	1	1	1	1	1	1	0%
Other	0	1	0	0	0	0	0	0	0%
Total	1,250	1,229	1,264	1,266	1,259	1,265	1,283	1,319	

Source: Arizona State Board of Pharmacy

While the number of pharmacies increased, there was no change in Arizona's ratio of pharmacies per 100,000 population (20) between 2010-13, due to Arizona's population growth. Seven

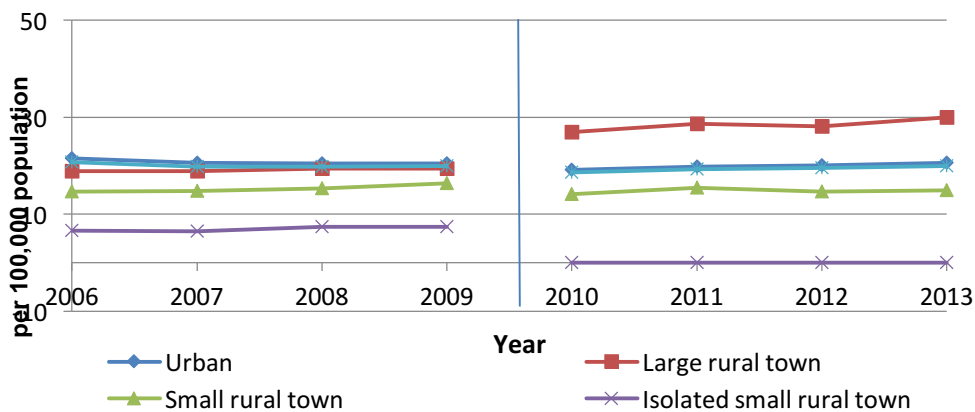
counties did not have any change in pharmacies per 100,000 population. Urban areas, and large and small rural towns had slight increases between 2010-13. There were no changes in pharmacies/population ratio for isolated small rural towns during the four-year period. Isolated rural towns had the lowest pharmacies/population ratios, while large rural towns had the highest pharmacies/population ratios (Table 13 and Figures 19).

**Table 13. Pharmacies per 100,000 Population by Counties and Four Rural-Urban Commuting Areas Summary: 2006 to 2013**

County	2006	2009	2006-09 Chg.	2010	2013	2010-13 Chg.
Apache	6	6	0%	6	6	0%
Cochise	18	20	11.1%	18	21	11.1%
Coconino	19	17	-10.5%	19	18	-5.3%
Gila	21	21	0%	21	26	23.8%
Graham	18	16	-11.1%	16	16	0%
Greenlee	13	12	-7.7%	12	11	-8.3%
La Paz	24	24	0%	24	25	4.2%
Maricopa	23	21	-8.7%	21	21	0%
Mohave	19	22	10.5%	20	20	0%
Navajo	12	14	16.7%	14	15	7.1%
Pima	21	20	-4.8%	20	20	0%
Pinal	12	11	-8.3%	11	12	9.1%
Santa Cruz	18	17	-5.6%	17	17	0%
Yavapai	20	21	5.0%	21	21	0%
Yuma	14	15	7.1%	15	14	6.7%
<b>Arizona – Total</b>	21	20	4.8%	20	20	0%
			<b>2000 RUCA 2006-09 Chg.</b>			<b>2010 RUCA 2010-13 Chg.</b>
Urban	22	20	-9.1%	19	21	10.5%
Large Rural Town	19	19	0%	27	30	11.1%
Small Rural Town	15	16	6.7%	14	15	7.1%
Isolated Small Rural Town	6	7	16.7%	0	0	0%

Source: Arizona State Board of Pharmacy

**Figure 20. Pharmacies per 100,000 Population in Arizona and by Four Rural-Urban Commuting Areas Trends: 2006-09 and 2010-13**



Source: Arizona State Board of Pharmacy

## Summary and Recommendations

In the U.S. health care system, pharmacists are the medication experts and the primary dispensers of prescription drugs. They promote the appropriate use of both prescription and non-prescription drugs. Pharmacists increasingly provide other health services such as health information, health screening, vaccination, and referral to other health providers. Pharmacies provide entry points into the health care system and are a vital part of Arizona's safety net health care system, especially in rural areas where health resources are limited.

The Pharmacy Workforce Center's Aggregate Demand Index showed that Arizona's demand for pharmacists was in balance with the supply of pharmacists (state of equilibrium) between 2011-13. After 2013, the demand for pharmacists was slightly higher than supply. Arizona is doing better in meeting the demand for pharmacists than the nation and the Western Region. The spatial distribution inequalities between rural and urban areas for pharmacists persist.

Between 2006-13, Arizona increased in the number of pharmacists (by 32.4%), pharmacy technicians (71.1%), and pharmacies (5.5%). Gila, Graham, Pinal and Santa Cruz Counties lost pharmacists between 2010-13. There was no change in Arizona's pharmacies per 100,000 population in that period.

Three-quarters of the pharmacist respondents reported that their practice sites provide clinical services, direct care or counseling to their patients at their site. Twenty-eight percent of the pharmacists report that they are very involved with interdisciplinary practice in patient care, most in hospital settings. These activities are expected to increase over the next five-years.

Pharmacy technician medication dispensing functions will likely level off over the next five-years. However, their roles in medication reconciliation in hospital settings, and management and administrative duties in mail order settings are expected to expand.

Arizona pharmacist supply and demand are influenced by many factors including that:

- Both Arizona Colleges of Pharmacy increased class sizes and capacity to graduate pharmacists, thereby increasing the supply of pharmacists.
- An estimated 9 to 18% of pharmacists will retire in the next five years, thus decreasing the supply of pharmacists.
- There is higher percentage of pharmacists age 65 years or older in rural (19%) than urban areas (11%). "Baby boomer" pharmacist retirement will disproportionately affect rural areas, decreasing the pharmacist supply.
- The number and use of pharmacy technicians will increase, reducing pharmacist demand.
- Pharmacist delivery of clinical services and interdisciplinary interactions will likely increase in the next five-years, increasing the demand for pharmacists.
- The top five pharmacy services that are expected to expand in the next five-years are: immunization, diabetes management, drug information services, health screening, and hypertension management – increasing pharmacist demand.

To address pharmacist supply, demand and distribution challenges in Arizona's rural areas, the following steps are recommended:

- Establish an Arizona Rural Pharmacy Task Force to review data, reports and best practices from other rural states to assure access to a well-trained and distributed pharmacist workforce for all Arizonans, with an emphasis on rural areas;

- Publicize the recently created Arizona pharmacist loan repayment program;
- Expand the National Health Service Corps loan repayment program to include pharmacists;
- Increase tele-pharmacy services for rural Arizonans;
- Expand Medicare Part B covered services to include pharmacist services delivered in Health Profession Shortage Areas, Medically Underserved Areas and Medically Underserved Populations (HRSA/MUA/P);
- Work with pharmacy employers to increase the number of pharmacists in rural areas.
- Use tools such as Arizona 3RNet to recruit rural pharmacists to Arizona's rural areas.

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**Appendix A:**  
**Arizona State Board of Pharmacy (ASBP) – 2012-13 Pharmacist Renewal License Survey and 2012-13 Pharmacy Technician Renewal Certification Survey**

**ASBP 2012-13 Pharmacist Renewal License Survey**

**Instructions**

The Arizona Board of Pharmacy and The Arizona Healthcare Workforce Data Center  
August 2008 Pharmacy Licensing Renewal Cycle

The following questions are being used to create a more accurate description of the current and future pharmacy workforce. Your answers are confidential and will not be included in the public website of the Arizona Board of Pharmacy.

**Survey Questions**

\*1. What is Your Gender?  
 Female    Male

\*2. Employment Status  
Employed in a paid position as a pharmacist in direct patient care ▼

\*3. What is the County in Which You Work?  
Click to select ▼

\*4. Approximate number of months worked during the last 12 months  
Click to select ▼

\*5. Approximate number of weeks usually worked per month during the last 12 months  
Click to select ▼

\*6. Approximate number of hours usually worked per week during the last 12 months  
Click to select ▼

\*7. What is your current place of employment? (if you have more than one job select the one that you consider to be your primary job)  
Click to Select ▼

\*8. How long have you worked in your current job?  
Click to select ▼

\*9. What was your previous place of employment?  
Click to Select ▼

\*10. How long did you work in your previous job?  
Click to select ▼

\*11. Was your decision to work for your current employer largely based on a major perks, such as a signing bonus, or a car?  
Click to select ▼

\*12. When do you plan to retire from work altogether?  
Click to select ▼

**Thank you**

THE INFORMATION THAT YOU HAVE PROVIDED WILL BE USED TO IMPROVE THE PHARMACY WORKFORCE. THANK YOU FOR YOUR VALUABLE CONTRIBUTION.

BackContinue

**Appendix A (cont.)**

If customer selects the “Hospital/health care system” as the answer to Question #7 and “Retail –Chain” for Question #9 the following additional questions will appear:

**Level of Importance**

Please indicate the level of importance for the following factors that attracted you to a hospital setting

4=Most important to me  
3=Important to me  
2=Somewhat important to me  
1=Not important to me

- Opportunities for research (e.g. clinical trials)
- Patient education
- Robotic pharmacy
- Contribution to patient treatment decisions/physician collaboration
- Opportunities to teach residents/other clinical hospital staff
- Communication with patient families
- Increased compensation
- Monitoring medical therapy
- Convenient location to home

**Primary Employer Questions**

Please indicate if your PRIMARY employer provides the following work options, and then indicate your level of importance for these options.

4=Most important to me  
3=Important to me  
2=Somewhat important to me  
1=Not important to me

My Primary Employer Provides (Y/N)	RANK	Question
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Option to work longer shifts with less days, such as 4 days at 10 hours each or 3 days at 12 hours each and still be fulltime
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Provide support, such as loan forgiveness programs, financial assistance for relocation, or tuition reimbursement
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Offer programs that support pharmacists to re-enter the workforce after an extended absence from the profession
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Provide employees the opportunity to create their own flexible work schedules
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Opportunity to exchange your paid time off for cash
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Offer bonuses above annual wage increase
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Provide support or incentives for retirement age workers to remain in the workforce longer

**Thank you**



## Appendix A (cont.)

If customer selects the “Retail –Chain” as the answer to Question #7 and “Hospital/health care system” for Question #9 the following additional questions will appear:

Level of Importance		
Please indicate the level of importance for the following factors that attracted you to a retail setting		
4=Most important to me		
3=Important to me		
2=Somewhat important to me		
1=Not important to me		
<input type="text"/>	Regular work hours	<input type="text"/>
<input type="text"/>	Flexible Schedule	<input type="text"/>
<input type="text"/>	Most Holidays off	<input type="text"/>
<input type="text"/>	Convenient location to home	<input type="text"/>
<input type="text"/>	Less stressful work environment	<input type="text"/>
<input type="text"/>	Enjoy the customer interaction	<input type="text"/>
<input type="text"/>	Increased compensation	<input type="text"/>
<input type="text"/>	Major perks such as a sign-on bonus or a car	<input type="text"/>
Primary Employer Questions		
Please indicate if your PRIMARY employer provides the following work options, and then indicate your level of importance for these options.		
4=Most important to me		
3=Important to me		
2=Somewhat important to me		
1=Not important to me		
My Primary Employer Provides (Y/N)	RANK	Question
<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	Option to work longer shifts with less days, such as 4 days at 10 hours each or 3 days at 12 hours each and still be fulltime
<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	Provide support, such as loan forgiveness programs, financial assistance for relocation, or tuition reimbursement
<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	Offer programs that support pharmacists to re-enter the workforce after an extended absence from the profession
<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	Provide employees the opportunity to create their own flexible work schedules
<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	Opportunity to exchange your paid time off for cash
<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	Offer bonuses above annual wage increase
<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	Provide support or incentives for retirement age workers to remain in the workforce longer
Thank you		

Appendix A (cont.)

Pharmacy Technician Survey

**Instructions**

The Arizona Board of Pharmacy and The Arizona Healthcare Workforce Data Center  
August 2008 Pharmacy Licensing Renewal Cycle

The following questions are being used to create a more accurate description of the current and future pharmacy workforce. Your answers are confidential and will not be included in the public website of the Arizona Board of Pharmacy.

**Survey Questions**

\*1. What is Your Gender?  
 Female  Male

\*2. Employment Status  
Employed in a paid position as a pharmacy technician in direct patient care ▼

\*3. What is the County in Which You Work?  
Click to select ▼

\*4. Approximate number of months worked during the last 12 months  
Click to select ▼

\*5. Approximate number of weeks usually worked per month during the last 12 months  
Click to select ▼

\*6. Approximate number of hours usually worked per week during the last 12 months  
Click to select ▼

\*7. What is your current place of employment? (if you have more than one job select the one that you consider to be your primary job)  
Click to Select ▼

\*8. How long have you worked in your current job?  
Click to select ▼

\*9. What was your previous place of employment?  
Click to Select ▼

\*10. How long did you work in your previous job?  
Click to select ▼

\*11. Was your decision to work for your current employer largely based on a major perks, such as a signing bonus, or a car?  
Click to select ▼

\*12. When do you plan to retire from work altogether?  
Click to select ▼

**Thank you**

THE INFORMATION THAT YOU HAVE PROVIDED WILL BE USED TO IMPROVE THE PHARMACY WORKFORCE. THANK YOU FOR YOUR VALUABLE CONTRIBUTION.

[Back](#) [Continue](#)

## Appendix A (cont.)

If customer selects the “Hospital/health care system” as the answer to Question #7 and “Retail –Chain” for Question #9 the following additional questions will appear:

Level of Importance		
<p>Please indicate the level of importance for the following factors that attracted you to a hospital setting</p> <p>4=Most important to me 3=Important to me 2=Somewhat important to me 1=Not important to me</p>		
<input type="text" value="v"/>		Broader range of duties
<input type="text" value="v"/>		Patient education
<input type="text" value="v"/>		Robotic pharmacy
<input type="text" value="v"/>		Interesting and exciting work environment
<input type="text" value="v"/>		Different job opportunities
<input type="text" value="v"/>		Interaction with nursing staff and other departments
<input type="text" value="v"/>		Increased compensation
<input type="text" value="v"/>		Convenient location to home
Primary Employer Questions		
<p>Please indicate if your PRIMARY employer provides the following work options, and then indicate your level of importance for these options.</p> <p>4=Most important to me 3=Important to me 2=Somewhat important to me 1=Not important to me</p>		
My Primary Employer Provides (Y/N)	RANK	Question
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Option to work longer shifts with less days, such as 4 days at 10 hours each or 3 days at 12 hours each and still be fulltime
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Provide support, such as loan forgiveness programs, financial assistance for relocation, or tuition reimbursement
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Offer programs that support pharmacists to re-enter the workforce after an extended absence from the profession
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Provide employees the opportunity to create their own flexible work schedules
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Opportunity to exchange your paid time off for cash
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Offer bonuses above annual wage increase
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Provide support or incentives for retirement age workers to remain in the workforce longer
Thank you		

**Appendix A (cont.)**

If a customer selects the “Retail –Chain” as the answer to Question #7 and “Hospital/health care system” for Question #9 the following additional questions will appear:

**Level of Importance**

Please indicate the level of importance for the following factors that attracted you to a retail setting

4=Most important to me  
3=Important to me  
2=Somewhat important to me  
1=Not important to me

- Regular work hours
- Flexible Schedule
- Most Holidays off
- Convenient location to home
- Less stressful work environment
- Enjoy the customer interaction
- Increased compensation

**Primary Employer Questions**

Please indicate if your PRIMARY employer provides the following work options, and then indicate your level of importance for these options.

4=Most important to me  
3=Important to me  
2=Somewhat important to me  
1=Not important to me

My Primary Employer Provides (Y/N)	RANK	Question
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Option to work longer shifts with less days, such as 4 days at 10 hours each or 3 days at 12 hours each and still be fulltime
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Provide support, such as loan forgiveness programs, financial assistance for relocation, or tuition reimbursement
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Offer programs that support pharmacists to re-enter the workforce after an extended absence from the profession
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Provide employees the opportunity to create their own flexible work schedules
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Opportunity to exchange your paid time off for cash
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Offer bonuses above annual wage increase
<input type="radio"/> Yes <input type="radio"/> No	<input type="text" value="v"/>	Provide support or incentives for retirement age workers to remain in the workforce longer

**Thank you**

**Appendix B:**  
**Arizona Center for Rural Health (AzCRH) 2014 Pharmacist Survey**

The 2014 National Pharmacists Workforce Survey findings provided a national summary of the current pharmacist roles, but there was very little empirical data on the pharmacist current and future roles in Arizona. To fill this information gap, the *AzCRH 2014 Arizona Pharmacist Workforce Survey* was developed and administered with assistance by the Arizona State Board of Pharmacy, Arizona Pharmacy Association, Midwestern University College of Pharmacy, and UAHS College of Pharmacy. The survey was reviewed and approved by UA Human Subjects Protection Program. The survey was pilot-tested with 10 pharmacists before distributing to Arizona pharmacists.

On October 22, 2014, an email was sent to 10,410 Arizona licensed pharmacists inviting them to participate in the survey. There were two follow-up email reminders for those who did not submit a survey. The Arizona Pharmacy Association emailed two newsletter messages encouraging pharmacists to participate. One thousand one hundred and eighty-six pharmacists submitted a survey (11.4% response rate). Of the 1,186 respondents, 727 were pharmacists practicing in Arizona. The primary difference between the *2012-13 Arizona Pharmacist Renewal License Survey* (87%) and the *AzCRH 2014 Arizona Pharmacist Workforce Survey* (100%) was the percentage of respondents who were employed as a pharmacist. Although there were pharmacist characteristic percentage differences for gender, employment settings, and 40-49 hours worked per week between the two surveys, the overall patterns for three comparison characteristics were similar for the pharmacists practicing in Arizona – more female respondents, same top three employment settings, and 40-49 hours worked per weeks (see Table 1 for details).

**Table 1. ASBP 2012-13 Pharmacist Renewal License Survey and AzCRH 2014 Pharmacist Workforce Survey Demographic Characteristic Comparisons for Gender, Top Three Employment Settings, and 40-49 Hours Worked per Week.**

<b>Characteristics</b>	<b>ASBP Survey (N = 3,559 – AZ RPh’s)</b>	<b>AzCRH Survey (N = 727 – AZ RPh’s)</b>
Gender		
Female %	51.2%	56.0%
Employment Setting (Top 3)		
Community (Retail) %	49.4%	43.5%
Hospital %	22.2%	30.7%
Mail Order %	10.5%	6.5%
Hours Worked per Week		
Worked 40-49 Hours per Week %	65.8%	60.3%

Source: ASBP 2012-13 Pharmacist Renewal License Survey and AzCRH 2014 Arizona Pharmacist Workforce Survey

**Default Question Block**

**Arizona Pharmacist Workforce Survey**

The University of Arizona, Mel and Enid Zuckerman College of Public Health, Center for Rural Health is conducting an Arizona Pharmacist Workforce Survey. This goal of this survey to assess current and future roles of pharmacists in Arizona. The survey will take about 15 minutes to complete. Your participation in the survey is crucial in getting an accurate picture of pharmacist practice in the state. Thank you for taking the time to complete the survey.

**Practice Setting Questions:**

1. Select your current employment status? (Check one)

- Employed full-time as a pharmacist
- Employed part-time as a pharmacist
- Unemployed as a pharmacist but seeking employment as a pharmacist (go to 11)
- No longer practicing as a pharmacist (go to 20)
- Employed full-time in a pharmacy-related field or position but not practicing as a pharmacist (go to 20)
- Employed part-time in a pharmacy-related field or position but not practicing as a pharmacist (go to 20)

2. For your primary pharmacy practice setting, which of the following best describes your position? (Select one)

## Appendix B (cont.)

1/20/2015

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- Owner/partner
- Manager/director/assistant manager/supervisor
- Staff/employee pharmacist
- Resident/fellow
- Other (specify):

3a. Identify your current primary pharmacy practice setting. (Select all that apply)

- Community independent / chain
- Hospital/health system inpatient/outpatient department-clinic
- Community Health Center / Clinic
- IHS, VA, or military services
- Pharmacy education/university
- Other (go to 3b)

3b. Identify your current primary pharmacy practice setting. (Select all that apply)

- Long-term care/nursing home/hospice
- Home IV infusion/home health care
- Health Department
- Local or state government agency
- Pharmacy benefit management (PBM)
- Pharmaceutical manufacturing (industry)
- Pharmaceutical consulting
- Managed care
- Mail order pharmacy
- Medical management company
- Temporary agency

## Appendix B (cont.)

1/20/2015

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Nuclear pharmacy

Other (specify):

4. What is the zip code (of the street address) of your primary practice setting (if not in the US then name the country)?

5. In addition to your primary practice setting, do you work in other pharmacy practice settings?

Yes

No (go to question 7)

6. What is the zip code or country and your percent effort during the past 4 weeks at the other pharmacy practice settings?

	Zip code of street address	Percent of total practice
2nd practice site	<input type="text"/>	<input type="text"/>
3rd practice site	<input type="text"/>	<input type="text"/>
4th practice site	<input type="text"/>	<input type="text"/>

7. Do you (as an individual pharmacist) provide direct care or counseling to your patients at your primary practice setting?

Yes

No

8. Are clinical services provided at your primary practice setting?

Yes



## Appendix B (cont.)

1/20/2015

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No (go to 10)

9. Approximately what percentage of your patients/clients are provided clinical services?

10. Does your primary practice setting incorporate interdisciplinary therapy plans or collaborative practice agreements?

Yes

No

11. To assist us in projecting the supply of Arizona pharmacists in the future, please tell us how much longer you plan to practice as a pharmacist.

Less than a year

1 - 5 years

6 - 10 years

11 - 15 years

16 - 20 years

More than 20 years

Don't know

### **Comparison of current (past 4 weeks) and likely future practice (next 5 years):**

12. Indicate the average number of hours/week that you currently dedicate to each practice setting (Enter average hrs/wk by all options that apply).

Not currently working as a pharmacist, enter 0 go to question 13.

## Appendix B (cont.)

1/20/2015

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Community independent	<input type="text"/>
Community chain	<input type="text"/>
Hospital/health system inpatient	<input type="text"/>
Hospital/health system outpatient department-clinic	<input type="text"/>
Community Health Center / Clinic	<input type="text"/>
IHS, VA, or military services	<input type="text"/>
Pharmacy education/university	<input type="text"/>
Long-term care/nursing home/hospice	<input type="text"/>
Home IV infusion/home health care	<input type="text"/>
Health Department	<input type="text"/>
Local or state government agency	<input type="text"/>
Pharmacy benefit management (PBM)	<input type="text"/>
Pharmaceutical manufacturing (industry)	<input type="text"/>
Pharmaceutical consulting	<input type="text"/>
Managed care	<input type="text"/>
Mail order pharmacy	<input type="text"/>
Medical management company	<input type="text"/>
Temporary agency	<input type="text"/>
Nuclear pharmacy	<input type="text"/>
Other (specify):	<input type="text"/>

## Appendix B (cont.)

1/20/2015

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13. How many hours per week do you anticipate you will be dedicating to the following practice settings over the next five years? (average hrs/wk for each option that applies)

No plans to work as a pharmacist, enter 0 go to question 14	<input type="text"/>
Community independent	<input type="text"/>
Community chain	<input type="text"/>
Hospital/health system inpatient	<input type="text"/>
Hospital/health system outpatient department-clinic	<input type="text"/>
Community Health Center / Clinic	<input type="text"/>
IHS, VA, or military services	<input type="text"/>
Pharmacy education/university	<input type="text"/>
Long-term care/nursing home/hospice	<input type="text"/>
Home IV infusion/home health care	<input type="text"/>
Health Department	<input type="text"/>
Local or state government agency	<input type="text"/>
Pharmacy benefit management (PBM)	<input type="text"/>
Pharmaceutical manufacturing (industry)	<input type="text"/>
Pharmaceutical consulting	<input type="text"/>
Managed care	<input type="text"/>
Mail order pharmacy	<input type="text"/>
Temporary agency	<input type="text"/>
Nuclear pharmacy	<input type="text"/>

## Appendix B (cont.)

1/20/2015

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Other (hrs/wk):

Other (describe setting):

14. Which of the following services are currently offered at your primary practice site?  
(Select all that apply)

- Not currently working as a pharmacist
- Specialty/complex compounding
- Drug information service
- Home infusion
- Immunizations
- Health screening
- Smoking cessation
- Nutritional support
- Pharmacokinetic dosing
- Anticoagulation services
- Diabetes management
- Dyslipidemia management
- Hypertension management
- Asthma/COPD management
- Osteoporosis screening/management
- Pain management
- Weight management
- Other (specify):

15. Which of the following services do you anticipate will be offered at your primary practice site over the next five years? (Select all that apply)

- No plans to work as a pharmacist

## Appendix B (cont.)

1/20/2015

Qualtrics Survey Software

- Specialty/complex compounding
- Drug information service
- Home infusion
- Immunizations
- Health screening
- Smoking cessation
- Nutritional support
- Pharmacokinetic dosing
- Anticoagulation services
- Diabetes management
- Dyslipidemia management
- Hypertension management
- Asthma/COPD management
- Osteoporosis screening/management
- Pain management
- Weight management
- Other (specify) :

16. How would you describe the level of interdisciplinary practice you currently have in your primary practice setting?

- Not currently working as a pharmacist
- Very involved resulting in significant patient care/therapeutic outcomes
- Somewhat involved resulting in some patient care/therapeutic outcomes
- Slightly involved resulting in slight patient care/therapeutic outcomes
- Minimally involved resulting in few patient

## Appendix B (cont.)

1/20/2015

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care/therapeutic outcomes

- Nonproductive resulting in no documentable patient care/therapeutic outcomes

17. What do you anticipate the level of interdisciplinary practice to be in your primary practice setting over the next five years?

- No plans to work as a pharmacist
- Very involved resulting in significant patient care/therapeutic outcomes
- Somewhat involved resulting in some patient care/therapeutic outcomes
- Slightly involved resulting in slight patient care/therapeutic outcomes
- Minimally involved resulting in few patient care/therapeutic outcomes
- Nonproductive resulting in no documentable patient care/therapeutic outcomes

18. In your primary practice setting indicate the roles that pharmacy technicians currently fill? (Select all that apply)

- Not currently working as a pharmacist
- Customer service provider
- Inventory management
- Buying and acquisition
- Medication preparation in the distribution process
- Medication reconciliation
- Management/administrative duties
- Study coordination and management (includes financial/budgetary responsibilities)
- Verification of inpatient's prior to admit medications

## Appendix B (cont.)

1/20/2015

Qualtrics Survey Software

Other (specify):

Not applicable

19. What do you anticipate the roles that pharmacy technicians will fill in your pharmacy practice setting over the next five years? (Select all that apply)

- No plans to work as a pharmacist
- Customer service provider
- Inventory management
- Buying and acquisition
- Medication preparation in the distribution process
- Medication reconciliation
- Management/administrative duties
- Study coordination and management (includes financial/budgetary responsibilities)
- Verification of inpatient's prior to admit medications
- Other (specify):

### Demographic Questions:

20. What is your Arizona Pharmacist license number?

(The number is used to link to board information. All information will be kept confidential; no individual pharmacist information will be identifiable. All pharmacist data will be reported in aggregate).

21. What is your birth year?

## Appendix B (cont.)

1/20/2015

Qualtrics Survey Software

22. What is your gender?

- Male
- Female

23. Which of the following educational experiences have you completed? (Check all that apply)

- BS in Pharmacy
- PharmD
- Residency
- Fellowship
- Certification Program (describe)

- Masters (describe)

- Doctorate (describe)

- Other (describe)

24. What is the name of the pharmacy school where you graduated, year, and state or country? (Board information on schools is incomplete, and not available if your Arizona license was initiated prior to 2009)

School name:

Year of graduation:

Indicate state or if not in US, indicate country:

**We thank you for your time spent taking this survey.  
Your response has been recorded.**

<https://uarizona.co1.qualtrics.com/ControlPanel/Ajax.php?action=GetSurveyPrintPreview&T=3vxKtt1E8BnMEtYncRYwN4>

11/12



**Appendix C:  
List of Arizona Towns and Cities and their Ruralness Classifications  
2000 and 2010**

<b>Town-City</b>	<b>County</b>	<b>2000 Zip Code-RUCA</b>	<b>2010 Zip Code-RUCA</b>	<b>Classification Chg.</b>
Aguila	Maricopa	*****	Urban	Yes
Ajo	Pima	Small rural town	Urban	Yes
Alpine	Apache	Small rural town	Small rural town	No
Amado	Santa Cruz	Urban	Urban	No
Apache Junction	Pinal	Urban	Urban	No
Arivaca	Pima	Urban	Urban	No
Arizona City	Pinal	Large rural town	Urban	Yes
Arlington	Maricopa	Urban	Urban	No
Ash Fork	Yavapai	Isolated small rural	Isolated small rural	No
Avondale	Maricopa	Urban	Urban	No
Avra Valley	Pima	Urban	*****	Yes
Bagdad	Yavapai	Isolated small rural	Urban	Yes
Bapchule	Pinal	Small rural town	*****	Yes
Bellemont	Coconino	Urban	*****	Yes
Benson	Cochise	Small rural town	Urban	Yes
Bisbee	Cochise	Small rural town	Urban	Yes
Black Canyon City	Yavapai	Urban	Urban	No
Blue	Greenlee	Small rural town	Small rural town	No
Blue Gap	Navajo	Isolated small rural	*****	Yes
Bouse	La Paz	Small rural town	Small rural town	No
Bowie	Cochise	Isolated small rural	*****	Yes
Buckeye	Maricopa	Urban	Urban	No
Bullhead City	Mohave	Small rural town	Large rural town	Yes
Bylas	Graham	Small rural town	Large rural town	Yes
Cameron	Coconino	Small rural town	*****	Yes
Camp Verde	Yavapai	Isolated small rural	Urban	Yes
Carefree	Maricopa	Urban	Urban	No
Casa Grande	Pinal	Large rural town	Urban	Yes
Cashion	Maricopa	Urban	*****	Yes
Cave Creek	Maricopa	Urban	Urban	No
Central	Graham	Small rural town	*****	Yes
Chamber	Apache	Urban	Urban	No
Chandler	Maricopa	Urban	Urban	No
Chandler Heights	Maricopa	Urban	*****	Yes
Chinle	Apache	Small rural town	Urban	Yes
Chino Valley	Yavapai	Urban	Urban	No
Chloride	Mohave	Large rural town	*****	Yes
Cibecue	Navajo	Small rural town	*****	Yes

## Appendix C (cont.)

Town-City	County	2000 Zip Code-RUCA	2010 Zip Code-RUCA	Classification Chg.
Cibola	La Paz	Large rural town	Large rural town	No
Clarkdale	Yavapai	Large rural town	Urban	Yes
Clay Springs	Navajo	Small rural town	*****	Yes
Claypool	Gila	Large rural town	*****	Yes
Clifton	Greenlee	Small rural town	Small rural town	No
Cochise	Cochise	Small rural town	Isolated small rural	Yes
Colorado City	Mohave	Small rural town	Urban	Yes
Concho	Apache	Urban	Urban	No
Congress	Yavapai	Urban	Urban	No
Coolidge	Pinal	Small rural town	Urban	Yes
Cornville	Yavapai	Small rural town	Large rural town	Yes
Cortaro	Pima	Urban	*****	Yes
Cottonwood	Yavapai	Large rural town	Large rural town	No
Crown King	Yavapai	Urban	Urban	No
Dataland	Yuma	Isolated small rural	Urban	Yes
Dennehotso	Apache	Small rural town	Urban	Yes
Dewey	Yavapai	Urban	Urban	No
Dolan Springs	Mohave	Large rural town	Isolated small rural	Yes
Douglas	Cochise	Large rural town	Large rural town	No
Dragoon	Cochise	Isolated small rural	Isolated small rural	No
Duncan	Greenlee	Isolated small rural	Isolated small rural	No
Eagar	Apache	Small rural town	Small rural town	No
Eden	Graham	Large rural town	Large rural town	No
Ehrenberg	La Paz	Large rural town	Large rural town	No
El Mirage	Maricopa	Urban	Urban	No
Elfrida	Cochise	Isolated small rural	Isolated small rural	No
Elgin	Santa Cruz	Isolated small rural	Urban	Yes
Eloy	Pinal	Small rural town	Urban	Yes
Flagstaff	Coconino	Urban	Urban	No
Florence	Pinal	Large rural town	Urban	Yes
Forest Lake	Coconino	Small rural town	*****	Yes
Fort Apache	Navajo	Small rural town	*****	Yes
Fort Defiance	Apache	Small rural town	*****	Yes
Fort Huachuca	Cochise	Large rural town	Urban	Yes
Fort McDowell	Maricopa	Urban	Urban	No
Fort Mohave	Mohave	Small rural town	Large rural town	Yes
Fort Thomas	Graham	Large rural town	*****	Yes
Fountain Hills	Maricopa	Urban	Urban	No
Fredonia	Coconino	Isolated small rural	Urban	Yes
Gadsden	Yuma	Urban	*****	Yes
Ganado	Apache	Small rural town	Large rural town	Yes
Gila Bend	Maricopa	Urban	Urban	No
Gilbert	Maricopa	Urban	Urban	No

## Appendix C (cont.)

Town-City	County	2000 Zip Code-RUCA	2010 Zip Code-RUCA	Classification Chg.
Glendale	Maricopa	Urban	Urban	No
Globe	Gila	Large rural town	Urban	Yes
Gold Canyon	Pinal	Urban	Urban	No
Golden Valley	Mohave	Large rural town	Large rural town	No
Goodyear	Maricopa	Urban	Urban	No
Grand Canyon	Coconino	Isolated small rural	Urban	Yes
Gray Mountain	Coconino	Urban	*****	Yes
Green Valley	Pima	Urban	Urban	No
Greer	Apache	Isolated small rural	*****	Yes
Hackberry	Mohave	Large rural town	Large rural town	No
Happy Jack	Coconino	Urban	Urban	No
Hayden	Gila	Isolated small rural	*****	Yes
Heber	Navajo	Isolated small rural	Large rural town	Yes
Hereford	Cochise	Large rural town	Urban	Yes
Higley	Maricopa	Urban	*****	Yes
Holbrook	Navajo	Small rural town	Small rural town	No
Hotevilla	Navajo	Isolated small rural	Isolated small rural	No
Houck	Apache	Small rural town	*****	No
Huachuca City	Cochise	Large rural town	Urban	Yes
Hualapai	Mohave	Large rural town	*****	Yes
Indian Wells	Navajo	Isolated small town	*****	Yes
Jerome	Yavapai	Large rural town	*****	Yes
Joseph City	Navajo	Small rural town	*****	Yes
Kaibito	Coconino	Small rural town	Small rural town	No
Kayenta	Navajo	Small rural town	Urban	Yes
Keams Canyon	Navajo	Isolated small rural	Isolated small rural	No
Kearny	Pinal	Isolated small rural	Urban	No
Kingman	Mohave	Large rural town	Large rural town	No
Kirkland	Yavapai	Urban	Urban	No
Kykotsmovi Village	Navajo	Isolated small rural	Isolated small rural	No
Lake Havasu City	Mohave	Large rural town	Urban	Yes
Lake Montezuma	Yavapai	Isolated small rural	*****	Yes
Lakeside	Navajo	Small rural town	Large rural town	Yes
Laveen	Maricopa	Urban	Urban	No
Leupp	Coconino	Urban	Urban	No
Litchfield Park	Maricopa	Urban	Urban	No
Littlefield	Mohave	Small rural town	Urban	Yes
Lukachukai	Apache	Isolated small rural	Urban	Yes
Lukeville	Pima	Urban	Urban	No
Lupton	Apache	Small rural town	*****	Yes
Mammoth	Pinal	Urban	Urban	No
Many Farms	Apache	Small rural town	Urban	Yes
Marana	Pima	Urban	Urban	No

## Appendix C (cont.)

Town-City	County	2000 Zip Code-RUCA	2010 Zip Code-RUCA	Classification Chg.
Marble Canyon	Coconino	Isolated small rural	Urban	Yes
Maricopa	Pinal	Urban	Urban	No
Mayer	Yavapai	Urban	Urban	No
McNary	Apache	Small rural town	*****	Yes
McNeal	Cochise	Isolated small rural	Isolated small rural	No
Meadview	Mohave	Large rural town	Isolated small rural	Yes
Mesa	Maricopa	Urban	Urban	No
Miami	Gila	Large rural town	Urban	Yes
Mohave Valley	Mohave	Small rural town	Small rural town	No
Morenci	Greenlee	Small rural town	Small rural town	No
Mormon Lake	Coconino	Urban	Urban	No
Morristown	Maricopa	Urban	Urban	No
Mount Lemon	Pima	Urban	Urban	No
Naco	Cochise	Small rural town	*****	Yes
Nazlini	Apache	Small rural town	*****	Yes
New River	Maricopa	Urban	Urban	No
Nogales	Santa Cruz	Large rural town	Large rural town	No
Nutrioso	Apache	Small rural town	*****	Yes
Oatman	Mohave	Small rural town	*****	Yes
Oracle	Pinal	Urban	Urban	No
Overgaard	Navajo	Small isolated town	*****	Yes
Page	Coconino	Small rural town	Urban	Yes
Pale Verde	Maricopa	Urban	Urban	No
Paradise Valley	Maricopa	Urban	Urban	No
Parker	La Paz	Small rural town	Small rural town	No
Parks	Coconino	Isolated small rural	*****	Yes
Patagonia	Santa Cruz	Isolated small rural	Urban	Yes
Paulden	Yavapai	Urban	Urban	No
Payson	Gila	Large rural town	Large rural town	No
Peach Springs	Mohave	Large rural town	Isolated small rural	Yes
Pearce	Cochise	Small rural town	Isolated small rural	Yes
Peoria	Maricopa	Urban	Urban	No
Peridot	Gila	Small rural town	Small rural town	No
Phoenix	Maricopa	Urban	Urban	No
Picacho	Pinal	Small rural town	*****	Yes
Pima	Graham	Large rural town	Large rural town	No
Pine	Gila	Large rural town	Urban	Yes
Pinedale	Navajo	Small rural town	*****	Yes
Pinetop	Navajo	Small rural town	Large rural town	Yes
Pinon	Navajo	Isolated small rural	Urban	Yes
Pirtleville	Cochise	Large rural town	*****	Yes
Polacca	Navajo	Isolated small rural	Isolated small rural	No
Pomerene	Cochise	Small rural town	*****	Yes

## Appendix C (cont.)

Town-City	County	2000 Zip Code-RUCA	2010 Zip Code-RUCA	Classification Chg.
Poston	La Paz	Small rural town	*****	Yes
Prescott	Yavapai	Urban	Urban	No
Prescott Valley	Yavapai	Urban	Urban	No
Quartzsite	La Paz	Small rural town	*****	No
Queen Creek	Maricopa	Urban	Urban	No
Red Rock	Pinal	Urban	Urban	No
Red Valley	Apache	Isolated rural town	*****	Yes
Rillito	Pima	Urban	*****	Yes
Rim Rock	Yavapai	Isolated rural town	Urban	Yes
Rio Rico	Santa Cruz	Large rural town	Large rural town	No
Rio Verde	Maricopa	Urban	Urban	No
Rock Point	Apache	Isolated small rural	*****	Yes
Roll	Yuma	Isolated small rural	Isolated small rural	No
Roosevelt	Gila	Isolated small rural	Isolated small rural	No
Round Rock	Apache	Small rural town	*****	Yes
Sacaton	Pinal	Isolated small rural	*****	Yes
Safford	Graham	Large rural town	Large rural town	No
Sahuarita	Pima	Urban	Urban	No
Saint David	Cochise	Small rural town	Urban	Yes
Saint John	Apache	Small rural town	Small rural town	No
Saint Michaels	Apache	Small rural town	*****	Yes
Salome	La Paz	Isolated small rural	Isolated small rural	No
San Carlos	Gila	Small rural town	Large rural town	Yes
San Luis	Yuma	Urban	*****	Yes
San Manuel	Pinal	Small rural town	Urban	Yes
San Simon	Cochise	Isolated small rural	Isolated small rural	No
San Tan Valley	Pinal	Urban	Urban	No
Sanders	Apache	Isolated small rural	*****	Yes
Sasabe	Pima	Urban	*****	Yes
Scottsdale	Maricopa	Urban	Urban	No
Second Mesa	Navajo	Isolated small rural	Isolated small rural	No
Sedona	Coconino	Small rural town	Small rural town	No
Seligman	Yavapai	Isolated small rural	Isolated small rural	No
Sells	Pima	Isolated small rural	Urban	Yes
Shonto	Navajo	Small rural town	Urban	Yes
Show Low	Navajo	Small rural town	Large rural town	Yes
Sierra Vista	Cochise	Large rural town	Urban	Yes
Skull Valley	Yavapai	Urban	*****	Yes
Snowflake	Navajo	Small rural town	Small rural town	No
Solomon	Graham	Large rural town	*****	Yes
Somerton	Yuma	Urban	Urban	No
Sonoita	Santa Cruz	Isolated small rural	Urban	Yes
Springerville	Apache	Small rural town	Small rural town	No

**Appendix C (cont.)**

<b>Town-City</b>	<b>County</b>	<b>2000 Zip Code-RUCA</b>	<b>2010 Zip Code-RUCA</b>	<b>Classification Chg.</b>
Stanfield	Pinal	Urban	Urban	No
Sun City	Maricopa	Urban	Urban	No
Sun City West	Maricopa	Urban	Urban	No
Sun Valley	Navajo	Small rural town	Small rural town	No
Supai	Coconino	Isolated small rural	Urban	Yes
Superior	Pinal	Urban	Urban	No
Surprise	Maricopa	Urban	Urban	No
Tacna	Yuma	Urban	*****	Yes
Taylor	Navajo	Small rural town	*****	No
Teec Nos Pos	Apache	Isolated small rural	Urban	Yes
Tempe	Maricopa	Urban	Urban	No
Temple Bar Marin	Mohave	Large rural town	*****	Yes
Thatcher	Graham	Large rural town	Large rural town	No
Tolleson	Maricopa	Urban	Urban	No
Tombstone	Cochise	Isolated small rural	Urban	Yes
Tonalea	Coconino	Small rural town	*****	Yes
Tonopah	Maricopa	Urban	Urban	No
Tonto Basin	Gila	Large rural town	*****	Yes
Topawa	Pima	Urban	*****	Yes
Topock	Mohave	Small rural town	Large rural town	Yes
Tortilla Flat	Maricopa	Urban	*****	Yes
Tsaile	Apache	Isolated small rural	Urban	Yes
Tuba City	Coconino	Small rural town	Small rural town	No
Tubac	Santa Cruz	Isolated small rural	Urban	Yes
Tucson	Pima	Urban	Urban	No
Tumacacori	San Cruz	Isolated small rural	Isolated small rural	No
Vail	Pima	Urban	Urban	No
Valentine	Mohave	Large rural town	*****	Yes
Vernon	Apache	Small rural town	*****	Yes
Valley Farms	Pinal	Small rural town	*****	Yes
Waddell	Maricopa	Urban	Urban	No
Wellton	Yuma	Urban	Urban	No
Wenden	La Paz	Isolated small rural	*****	Yes
White Mount. Lake	Navajo	Small rural town	*****	Yes
Whiteriver	Navajo	Small rural town	Large rural town	Yes
Wickenburg	Maricopa	Urban	Urban	No
Wikieup	Mohave	Large rural town	*****	Yes
Willcox	Cochise	Small rural town	Small rural town	No
Williams	Coconino	Isolated small rural	Urban	Yes
Willow Beach	Mohave	Large rural town	Isolated small rural	Yes
Window Rock	Apache	Small rural town	*****	Yes
Winkelman	Gila	Isolated small rural	Urban	Yes
Winslow	Navajo	Small rural town	Small rural town	No

**Appendix C (cont.)**

Town-City	County	2000 Zip Code-RUCA	2010 Zip Code-RUCA	Classification Chg.
Whittmann	Maricopa	Urban	Urban	No
Woodruff	Navajo	Small rural town	*****	Yes
Yarnell	Yavapai	Urban	Urban	No
Young	Gila	Large rural town	*****	Yes
Youngtown	Maricopa	Urban	Urban	No
Yucca	Mohave	Small rural town	*****	Yes
Yuma	Yuma	Urban	Urban	No

Based on University of Washington RUCA Classifications

- Key:
- “Blue Yes” – change to a larger town/urban classification in 2010
  - “Red Yes” – change to a smaller town classification in 2010
  - “Black Yes” – previously classification in 2000, but not in 2010
  - “Black No” – no change in town/urban classification between 2000 and 2010

**Appendix D:  
Number of Pharmacists in Arizona Towns and Cities 2013**

<b>Town-City</b>	<b>County</b>	<b>2013 Numbers</b>
Aguila	Maricopa	1
Ajo	Pima	1
Alpine	Apache	1
Amado	Santa Cruz	2
Anthem	Maricopa	35
Apache Junction	Maricopa	1
Apache Junction	Pinal	13
Arivaca	Pima	0
Arizona City	Pinal	0
Arlington	Maricopa	0
Ash Fork	Yavapai	0
Avondale	Maricopa	50
Avra Valley	Pima	0
Bagdad	Yavapai	0
Bapchule	Pinal	0
Bellemont	Coconino	0
Benson	Cochise	2
Bisbee	Cochise	2
Black Canyon City	Yavapai	2
Blue	Greenlee	0
Blue Gap	Navajo	0
Bouse	La Paz	0
Bowie	Cochise	0
Buckeye	Maricopa	34
Bullhead City	Mohave	27
Bylas	Graham	0
Cameron	Coconino	0
Camp Verde	Yavapai	5
Carefree	Maricopa	7
Casa Grande	Pinal	17
Cashion	Maricopa	0
Cave Creek	Maricopa	80
Central	Graham	5
Chamber	Apache	0
Chandler	Maricopa	485
Chandler Heights	Maricopa	0
Chinle	Apache	3
Chino Valley	Yavapai	7
Chloride	Mohave	0
Cibecue	Navajo	0



## Appendix D (cont.)

Town-City	County	2013 Numbers
Cibola	La Paz	0
Clarkdale	Yavapai	2
Clay Springs	Navajo	0
Claypool	Gila	0
Clifton	Greenlee	0
Cochise	Cochise	0
Colorado City	Mohave	0
Concho	Apache	1
Congress	Yavapai	0
Coolidge	Pinal	3
Cornville	Pinal	1
Cornville	Yavapai	6
Cortaro	Pima	2
Cottonwood	Yavapai	13
Crown King	Yavapai	0
Dataland	Yuma	0
Dennehotso	Apache	0
Desert Hills	Maricopa	3
Dewey	Yavapai	3
Dolan Springs	Mohave	0
Douglas	Cochise	5
Dragoon	Cochise	0
Duncan	Greenlee	0
Eagar	Apache	1
Eden	Graham	0
Ehrenberg	La Paz	0
El Mirage	Maricopa	3
Elfrida	Cochise	0
Elgin	Santa Cruz	1
Eloy	Pinal	3
Flagstaff	Coconino	97
Florence	Pinal	7
Forest Lake	Coconino	0
Fort Apache	Navajo	0
Fort Defiance	Apache	1
Fort Defiance	Navajo	1
Fort Huachuca	Cochise	0
Fort McDowell	Maricopa	0
Fort Mohave	Mohave	8
Fort Thomas	Graham	0
Fountain Hills	Maricopa	55
Fredonia	Coconino	0
Gadsden	Yuma	0

## Appendix D (cont.)

Town-City	County	2013 Numbers
Ganado	Apache	1
Gila Bend	Maricopa	0
Gilbert	Maricopa	413
Glendale	Maricopa	307
Globe	Gila	6
Gold Canyon	Pinal	15
Golden Valley	Mohave	2
Goodyear	Maricopa	121
Grand Canyon	Coconino	0
Gray Mountain	Coconino	0
Green Valley	Pima	14
Greer	Apache	0
Hackberry	Mohave	0
Happy Jack	Coconino	1
Hayden	Gila	0
Heber	Navajo	0
Hereford	Cochise	5
Higley	Maricopa	2
Holbrook	Navajo	2
Hotevilla	Navajo	0
Houck	Apache	0
Huachuca City	Cochise	1
Hualapai	Mohave	0
Humboldt	Yavapai	1
Indian Wells	Navajo	0
Jerome	Yavapai	0
Joseph City	Navajo	0
Kaibito	Coconino	0
Kayenta	Navajo	2
Keams Canyon	Navajo	0
Kearny	Pinal	0
Kingman	Mohave	47
Kirkland	Yavapai	0
Kykotsmovi Village	Navajo	0
Lake Havasu City	La Paz	3
Lake Havasu City	Maricopa	1
Lake Havasu City	Mohave	37
Lake Montezuma	Yavapai	0
Lakeside	Navajo	10
Laveen	Maricopa	20
Leupp	Coconino	0
Litchfield Park	Maricopa	53
Littlefield	Mohave	0

## Appendix D (cont.)

Town-City	County	2013 Numbers
Lukachukai	Apache	0
Lukeville	Pima	0
Lupton	Apache	0
Mammoth	Pinal	0
Many Farms	Apache	0
Marana	Pima	39
Marana	Pinal	1
Marble Canyon	Coconino	0
Maricopa	Maricopa	1
Maricopa	Pinal	1
Mayer	Yavapai	3
McNary	Apache	0
McNeal	Cochise	1
Meadview	Mohave	0
Mesa	Maricopa	308
Miami	Gila	0
Mohave Valley	Mohave	0
Morenci	Greenlee	0
Mormon Lake	Coconino	0
Morristown	Maricopa	2
Mount Lemon	Pima	0
Naco	Cochise	0
Nazlini	Apache	0
New River	Maricopa	4
Munds Park	Coconino	1
Nogales	Santa Cruz	1
Nutrioso	Apache	0
Oatman	Mohave	0
Oracle	Pinal	3
Oro Valley	Pima	81
Overgaard	Navajo	2
Page	Coconino	5
Pale Verde	Maricopa	0
Paradise Valley	Maricopa	26
Parker	La Paz	2
Parks	Coconino	1
Patagonia	Santa Cruz	2
Paulden	Yavapai	0
Payson	Gila	18
Peach Springs	Mohave	0
Pearce	Cochise	2
Peoria	Maricopa	314
Peridot	Gila	0

## Appendix D (cont.)

Town-City	County	2013 Numbers
Phoenix	Maricopa	1,115
Picacho	Pinal	0
Pima	Graham	5
Pine	Gila	2
Pinedale	Navajo	0
Pinetop	Apache	1
Pinetop	Navajo	14
Pinon	Navajo	0
Pirtleville	Cochise	0
Polacca	Navajo	0
Pomerene	Cochise	0
Poston	La Paz	0
Prescott	Yavapai	80
Prescott Valley	Maricopa	1
Prescott Valley	Yavapai	37
Quartzsite	La Paz	0
Queen Creek	Maricopa	31
Queen Creek	Pinal	9
Red Rock	Pinal	0
Red Valley	Apache	0
Rillito	Pima	0
Rim Rock	Yavapai	0
Rio Rico	Santa Cruz	3
Rio Verde	Maricopa	0
Rock Point	Apache	0
Roll	Yuma	0
Roosevelt	Gila	1
Round Rock	Apache	0
Sacaton	Pinal	1
Safford	Graham	8
Sahuarita	Pima	28
Saint David	Cochise	0
Saint John	Apache	0
Saint Michaels	Apache	0
Salome	La Paz	0
San Carlos	Gila	0
San Luis	Yuma	0
San Manuel	Pinal	0
San Simon	Cochise	0
San Tan Valley	Maricopa	1
San Tan Valley	Pinal	20
Sanders	Apache	0
Sasabe	Pima	0

**Appendix D (cont.)**

<b>Town-City</b>	<b>County</b>	<b>2013 Numbers</b>
Scottsdale	Maricopa	751
Scottsdale	Mohave	1
Second Mesa	Navajo	0
Sedona	Coconino	2
Sedona	Yavapai	20
Seligman	Yavapai	0
Sells	Pima	1
Shonto	Navajo	0
Show Low	Apache	1
Show Low	Navajo	8
Sierra Vista	Cochise	30
Sierra Vista	Pinal	1
Skull Valley	Yavapai	0
Snowflake	Navajo	8
Solomon	Graham	0
Somerton	Yuma	0
Sonoita	Santa Cruz	2
Springerville	Apache	1
Saint David	Cochise	4
Saint Johns	Apache	1
Stanfield	Pinal	0
Star Valley	Gila	1
Strawberry	Gila	2
Strawberry	Pinal	1
Sun City	Maricopa	18
Sun City West	Maricopa	13
Sun Lakes	Maricopa	16
Sun Valley	Navajo	0
Supai	Coconino	0
Superior	Pinal	1
Surprise	Maricopa	84
Tacna	Yuma	0
Taylor	Navajo	0
Teec Nos Pos	Apache	1
Tempe	Maricopa	153
Temple Bar Marin	Mohave	0
Thatcher	Graham	4
Tolleson	Maricopa	7
Tombstone	Cochise	0
Tonalea	Coconino	0
Tonopah	Maricopa	0
Tonto Basin	Gila	0
Topawa	Pima	0

## Appendix D (cont.)

Town-City	County	2013 Numbers
Topock	Mohave	0
Tortilla Flat	Maricopa	0
Tsaile	Apache	0
Tuba City	Coconino	2
Tubac	Santa Cruz	3
Tucson	Maricopa	1
Tucson	Pima	1,019
Tucson	Pinal	9
Tumacacori	San Cruz	0
Vail	Pima	26
Valentine	Mohave	0
Vernon	Apache	0
Valley Farms	Pinal	0
Waddell	Maricopa	4
Wellton	Yuma	1
Wenden	La Paz	0
White Mount. Lake	Navajo	0
Whiteriver	Navajo	2
Wickenburg	Maricopa	5
Wickenburg	Yavapai	1
Wikieup	Mohave	0
Willcox	Cochise	4
Williams	Coconino	2
Willow Beach	Mohave	0
Window Rock	Apache	2
Winkelman	Gila	1
Winslow	Navajo	3
Whittmann	Maricopa	3
Woodruff	Navajo	0
Yarnell	Yavapai	0
Young	Gila	0
Youngtown	Maricopa	2
Yucca	Mohave	0
Yuma	Maricopa	1
Yuma	Yuma	83

Source: Arizona State Board of Pharmacy

**Appendix E:  
Number of Pharmacy Technicians in Arizona Towns and Cities 2013**

<b>Town-City</b>	<b>County</b>	<b>2013 Numbers</b>
Aguila	Maricopa	0
Ajo	Pima	3
Alpine	Apache	0
Amado	Santa Cruz	6
Anthem	Maricopa	81
Apache Junction	Maricopa	1
Apache Junction	Pinal	86
Arivaca	Pima	0
Arizona City	Pinal	11
Arlington	Maricopa	1
Ash Fork	Yavapai	0
Avondale	Maricopa	166
Avra Valley	Pima	0
Bagdad	Yavapai	0
Bapchule	Pinal	1
Bellemont	Coconino	0
Benson	Cochise	22
Benson	Pima	1
Bisbee	Cochise	2
Black Canyon City	Yavapai	4
Blackwater	Pinal	1
Blue	Greenlee	0
Blue Gap	Navajo	1
Bouse	La Paz	0
Bowie	Cochise	0
Buckeye	Maricopa	127
Bullhead City	Mohave	46
Bylas	Graham	0
Cameron	Coconino	1
Camp Verde	Yavapai	14
Carefree	Maricopa	1
Casa Grande	Pinal	105
Catalina	Pinal	0
Cashion	Maricopa	2
Cave Creek	Maricopa	34
Central	Graham	0
Chamber	Apache	0
Chandler	Maricopa	537
Chandler Heights	Maricopa	0
Chinle	Apache	5

**Appendix E (cont.)**

<b>Town-City</b>	<b>County</b>	<b>2013 Numbers</b>
Chino Valley	Yavapai	21
Chloride	Mohave	0
Cibecue	Navajo	0
Cibola	La Paz	0
Clarkdale	Yavapai	5
Clay Springs	Navajo	0
Claypool	Gila	5
Clifton	Greenlee	1
Cochise	Cochise	0
Colorado City	Mohave	0
Concho	Apache	0
Congress	Yavapai	3
Coolidge	Pinal	13
Cordes Lakes	Yavapai	1
Cornville	Yavapai	2
Corona	Pima	1
Cortaro	Pima	1
Cottonwood	Yavapai	36
Crown King	Yavapai	0
Dataland	Yuma	0
Dennehotso	Apache	0
Dewey	Yavapai	10
Dolan Springs	Mohave	0
Douglas	Cochise	15
Dragoon	Cochise	0
Duncan	Greenlee	1
Eagar	Apache	10
Eden	Graham	0
Ehrenberg	La Paz	0
El Mirage	Maricopa	85
Elfrida	Cochise	1
Elgin	Santa Cruz	0
Eloy	Pinal	6
Flagstaff	Coconino	84
Florence	Pinal	17
Forest Lake	Coconino	0
Fort Apache	Navajo	0
Fort Defiance	Apache	1
Fort Huachuca	Cochise	4
Fort McDowell	Maricopa	0
Fort Mohave	Mohave	21
Fort Thomas	Graham	0
Fountain Hills	Maricopa	38



## Appendix E (cont.)

Town-City	County	2013 Numbers
Fredonia	Coconino	1
Gadsden	Yuma	1
Ganado	Apache	14
Gila Bend	Maricopa	1
Gilbert	Maricopa	515
Glendale	Maricopa	657
Globe	Gila	13
Gold Canyon	Pinal	16
Golden Valley	Mohave	6
Goodyear	Maricopa	153
Grand Canyon	Coconino	0
Granado	Apache	1
Gray Mountain	Coconino	0
Green Valley	Pima	22
Greer	Apache	0
Hackberry	Mohave	0
Happy Jack	Coconino	0
Hayden	Gila	0
Heber	Navajo	0
Hereford	Cochise	10
Higley	Maricopa	2
Holbrook	Navajo	4
Hotevilla	Navajo	1
Houck	Apache	0
Huachuca City	Cochise	5
Hualapai	Mohave	0
Humboldt	Mohave	1
Indian Wells	Navajo	0
Janesville	Maricopa	1
Jerome	Yavapai	0
Joseph City	Navajo	0
Kaibito	Coconino	2
Kayenta	Navajo	4
Keams Canyon	Navajo	0
Kearny	Pinal	1
Kingman	Mohave	73
Kirkland	Yavapai	1
Kykotsmovi Village	Navajo	1
Lake Havasu City	Mohave	72
Lake Montezuma	Yavapai	0
Lakeside	Navajo	8
Laveen	Maricopa	90
Leupp	Coconino	2

## Appendix E (cont.)

Town-City	County	2013 Numbers
Linden	Navajo	1
Litchfield Park	Maricopa	62
Littlefield	Mohave	0
Lukachukai	Apache	1
Lukeville	Pima	0
Lupton	Apache	0
Mammoth	Pinal	3
Many Farms	Apache	0
Marana	Pima	38
Marble Canyon	Coconino	0
Maricopa	Pinal	84
Mayer	Yavapai	4
McNary	Apache	0
McNeal	Cochise	2
Meadview	Mohave	0
Mesa	Maricopa	1,032
Mesquite	Mohave	0
Miami	Gila	6
Mohave Valley	Mohave	10
Morenci	Greenlee	4
Mormon Lake	Coconino	0
Morrristown	Maricopa	2
Mount Lemon	Pima	0
Naco	Cochise	2
Nazlini	Apache	0
New River	Maricopa	14
Nogales	Santa Cruz	18
Nutrioso	Apache	0
Oatman	Mohave	0
Oracle	Pinal	7
Overgaard	Navajo	29
Page	Coconino	7
Pale Verde	Maricopa	0
Paradise Valley	Maricopa	4
Parker	La Paz	9
Parks	Coconino	1
Patagonia	Santa Cruz	0
Paulden	Yavapai	3
Payson	Gila	22
Peach Springs	Mohave	0
Pearce	Cochise	1
Peoples Valley	Yavapai	1
Peoria	Maricopa	395

**Appendix E (cont.)**

<b>Town-City</b>	<b>County</b>	<b>2013 Numbers</b>
Peridot	Gila	2
Phoenix	Maricopa	1,960
Picacho	Pinal	0
Pima	Graham	6
Pine	Gila	1
Pinedale	Navajo	0
Pinetop	Navajo	3
Pinon	Navajo	1
Pirtleville	Cochise	1
Polacca	Navajo	0
Pomerene	Cochise	1
Poston	La Paz	0
Prescott	Yavapai	62
Prescott Valley	Yavapai	76
Quartzsite	La Paz	0
Queen Creek	Maricopa	57
Queen Creek	Pinal	66
Queen Valley	Pinal	0
Red Rock	Pinal	3
Red Valley	Apache	0
Rillito	Pima	0
Rim Rock	Yavapai	2
Rio Rico	Santa Cruz	24
Rio Verde	Maricopa	0
Rock Point	Apache	0
Roll	Yuma	0
Roosevelt	Gila	0
Round Rock	Apache	0
Sacaton	Pinal	3
Safford	Graham	32
Sahuarita	Pima	41
Saint David	Cochise	2
Saint John	Apache	2
Saint Michaels	Apache	2
Salome	La Paz	0
San Carlos	Gila	1
San Luis	Yuma	13
San Manuel	Pinal	7
San Simon	Cochise	0
San Tan Valley	Pinal	155
Sanders	Apache	2
Sasabe	Pima	0
Scottsdale	Maricopa	329

## Appendix E (cont.)

Town-City	County	2013 Numbers
Second Mesa	Navajo	0
Sedona	Coconino	16
Seligman	Yavapai	0
Sells	Pima	1
Shonto	Navajo	0
Show Low	Navajo	26
Sierra Vista	Cochise	51
Skull Valley	Yavapai	0
Snowflake	Navajo	10
Solomon	Graham	0
Somerton	Yuma	13
Sonoita	Santa Cruz	0
Spring Valley	Yavapai	1
Springerville	Apache	6
Stanfield	Pinal	5
Strawberry	Gilia	1
Sun City	Maricopa	42
Sun City West	Maricopa	9
Sun Valley	Navajo	0
Supai	Coconino	0
Superior	Pinal	2
Surprise	Maricopa	260
Tacna	Yuma	0
Taylor	Navajo	7
Teec Nos Pos	Apache	0
Tempe	Maricopa	330
Temple Bar Marin	Mohave	0
Thatcher	Graham	4
Tolleson	Maricopa	80
Toltec	Pinal	1
Tombstone	Cochise	0
Tonalea	Coconino	4
Tonopah	Maricopa	11
Tonto Basin	Gila	0
Topawa	Pima	0
Topock	Mohave	1
Tortilla Flat	Maricopa	0
Tsaile	Apache	0
Tuba City	Coconino	12
Tubac	Santa Cruz	0
Tucson	Pima	1,355
Tumacacori	San Cruz	0
Vail	Pima	30

**Appendix E (cont.)**

<b>Town-City</b>	<b>County</b>	<b>2013 Numbers</b>
Valentine	Mohave	0
Valley Farms	Pinal	1
Vernon	Apache	3
Waddell	Maricopa	20
Wellton	Yuma	2
Wenden	La Paz	0
White Mount. Lake	Navajo	0
Whiteriver	Navajo	0
Wickenburg	Maricopa	10
Wikieup	Mohave	0
Willcox	Cochise	9
Williams	Coconino	4
Willow Beach	Mohave	0
Window Rock	Apache	1
Winkelman	Gila	0
Winslow	Navajo	14
Whittmann	Maricopa	11
Woodruff	Navajo	0
Yarnell	Yavapai	1
Young	Gila	0
Youngtown	Maricopa	24
Yucca	Mohave	0
Yuma	Yuma	116

Source: Arizona State Board of Pharmacy

**Appendix F:  
Number of Pharmacies Arizona Towns and Cities 2013**

<b>Town-City</b>	<b>County</b>	<b>2013 Numbers</b>
Aguila	Maricopa	0
Ajo	Pima	1
Alpine	Apache	0
Amado	Santa Cruz	0
Anthem	Maricopa	4
Apache Junction	Pinal	11
Arivaca	Pima	0
Arizona City	Pinal	0
Arlington	Maricopa	0
Ash Fork	Yavapai	0
Avondale	Maricopa	13
Avra Valley	Pima	0
Bagdad	Yavapai	0
Bapchule	Pinal	0
Bellemont	Coconino	0
Benson	Cochise	4
Bisbee	Cochise	2
Black Canyon City	Yavapai	1
Blue	Greenlee	0
Blue Gap	Navajo	0
Bouse	La Paz	0
Bowie	Cochise	0
Buckeye	Maricopa	7
Bullhead City	Mohave	10
Bylas	Graham	0
Cameron	Coconino	0
Camp Verde	Yavapai	2
Carefree	Maricopa	2
Casa Grande	Pinal	13
Cashion	Maricopa	0
Cave Creek	Maricopa	6
Central	Graham	0
Chamber	Apache	0
Chandler	Maricopa	58
Chandler Heights	Maricopa	0
Chinle	Apache	0
Chino Valley	Yavapai	2
Chloride	Mohave	0
Cibecue	Navajo	0

**Appendix F (cont.)**

<b>Town-City</b>	<b>County</b>	<b>2013 Numbers</b>
Cibola	La Paz	0
Clarkdale	Yavapai	0
Clay Springs	Navajo	0
Claypool	Gila	1
Clifton	Greenlee	0
Cochise	Cochise	0
Colorado City	Mohave	0
Concho	Apache	0
Congress	Yavapai	0
Coolidge	Pinal	3
Cornville	Yavapai	0
Cortaro	Pima	0
Cottonwood	Yavapai	7
Crown King	Yavapai	0
Dataland	Yuma	0
Dennehotso	Apache	0
Dewey	Yavapai	0
Dolan Springs	Mohave	0
Douglas	Cochise	6
Dragoon	Cochise	0
Duncan	Greenlee	0
Eagar	Apache	0
Eden	Graham	0
Ehrenberg	La Paz	0
El Mirage	Maricopa	3
Elfrida	Cochise	0
Elgin	Santa Cruz	0
Eloy	Pinal	1
Flagstaff	Coconino	21
Florence	Pinal	3
Forest Lake	Coconino	0
Fort Apache	Navajo	0
Fort Defiance	Apache	0
Fort Huachuca	Cochise	0
Fort McDowell	Maricopa	0
Fort Mohave	Mohave	5
Fort Thomas	Graham	0
Fountain Hills	Maricopa	7
Fredonia	Coconino	0
Gadsden	Yuma	0
Ganado	Apache	1
Gila Bend	Maricopa	0
Gilbert	Maricopa	51

## Appendix F (cont.)

Town-City	County	2013 Numbers
Glendale	Maricopa	61
Globe	Gila	3
Gold Canyon	Pinal	2
Golden Valley	Mohave	1
Goodyear	Maricopa	18
Grand Canyon	Coconino	0
Gray Mountain	Coconino	0
Green Valley	Pima	5
Greer	Apache	0
Hackberry	Mohave	0
Happy Jack	Coconino	0
Hayden	Gila	0
Heber	Navajo	0
Hereford	Cochise	0
Higley	Maricopa	0
Holbrook	Navajo	1
Hotevilla	Navajo	0
Houck	Apache	0
Huachuca City	Cochise	0
Hualapai	Mohave	0
Indian Wells	Navajo	0
Jerome	Yavapai	0
Joseph City	Navajo	0
Kaibito	Coconino	0
Kayenta	Navajo	0
Keams Canyon	Navajo	0
Kearny	Pinal	1
Kingman	Mohave	13
Kirkland	Yavapai	0
Kykotsmovi Village	Navajo	0
Lake Havasu City	Mohave	12
Lake Montezuma	Yavapai	0
Lakeside	Navajo	2
Laveen	Maricopa	3
Leupp	Coconino	0
Litchfield Park	Maricopa	4
Littlefield	Mohave	0
Lukachukai	Apache	0
Lukeville	Pima	0
Lupton	Apache	0
Mammoth	Pinal	0
Many Farms	Apache	0
Marana	Pima	6



## Appendix F (cont.)

Town-City	County	2013 Numbers
Marble Canyon	Coconino	0
Maricopa	Maricopa	1
Maricopa	Pinal	4
Mayer	Yavapai	1
McNary	Apache	0
McNeal	Cochise	0
Meadview	Mohave	0
Mesa	Maricopa	103
Miami	Gila	1
Mohave Valley	Mohave	0
Morenci	Greenlee	1
Mormon Lake	Coconino	0
Morristown	Maricopa	0
Mount Lemon	Pima	0
Naco	Cochise	0
Nazlini	Apache	0
New River	Maricopa	0
Nogales	Santa Cruz	6
Nutrioso	Apache	0
Oatman	Mohave	0
Oracle	Pinal	0
Oro Valley	Pima	13
Overgaard	Navajo	1
Page	Coconino	3
Pale Verde	Maricopa	0
Paradise Valley	Maricopa	1
Parker	La Paz	4
Parks	Coconino	0
Patagonia	Santa Cruz	0
Paulden	Yavapai	0
Payson	Gila	6
Peach Springs	Mohave	0
Pearce	Cochise	0
Peoria	Maricopa	36
Peridot	Gila	0
Phoenix	Maricopa	270
Picacho	Pinal	0
Pima	Graham	0
Pine	Gila	0
Pinedale	Navajo	0
Pinetop	Navajo	0
Pinon	Navajo	0
Pirtleville	Cochise	0

## Appendix F (cont.)

Town-City	County	2013 Numbers
Polacca	Navajo	0
Pomerene	Cochise	0
Poston	La Paz	0
Prescott	Yavapai	16
Prescott Valley	Yavapai	12
Quartzsite	La Paz	1
Queen Creek	Maricopa	8
Queen Creek	Pinal	2
Red Rock	Pinal	0
Red Valley	Apache	0
Rillito	Pima	0
Rim Rock	Yavapai	0
Rio Rico	Santa Cruz	1
Rio Verde	Maricopa	0
Rock Point	Apache	0
Roll	Yuma	0
Roosevelt	Gila	0
Round Rock	Apache	0
Sacaton	Pinal	0
Safford	Graham	5
Sahuarita	Pima	3
Saint David	Cochise	0
Saint John	Apache	0
Saint Michaels	Apache	0
Salome	La Paz	0
San Carlos	Gila	0
San Luis	Yuma	3
San Manuel	Pinal	1
San Simon	Cochise	0
San Tan Valley	Maricopa	1
San Tan Valley	Pinal	4
Sanders	Apache	0
Sasabe	Pima	0
Scottsdale	Maricopa	86
Second Mesa	Navajo	0
Sedona	Coconino	5
Seligman	Yavapai	0
Sells	Pima	0
Shonto	Navajo	0
Show Low	Navajo	7
Sierra Vista	Cochise	11
Skull Valley	Yavapai	0
Snowflake	Navajo	0

**Appendix F (cont.)**

<b>Town-City</b>	<b>County</b>	<b>2013 Numbers</b>
Solomon	Graham	0
Somerton	Yuma	1
Sonoita	Santa Cruz	1
Springerville	Apache	2
St. Johns	Apache	1
Stanfield	Pinal	0
Sun City	Maricopa	10
Sun City West	Maricopa	6
Sun Lakes	Maricopa	3
Sun Valley	Navajo	0
Supai	Coconino	0
Superior	Pinal	0
Surprise	Maricopa	27
Tacna	Yuma	0
Taylor	Navajo	1
Teec Nos Pos	Apache	0
Tempe	Maricopa	52
Temple Bar Marin	Mohave	0
Thatcher	Graham	1
Tolleson	Maricopa	1
Tombstone	Cochise	1
Tonalea	Coconino	0
Tonopah	Maricopa	0
Tonto Basin	Gila	0
Topawa	Pima	0
Topock	Mohave	0
Tortilla Flat	Maricopa	0
Tsaile	Apache	0
Tuba City	Coconino	0
Tubac	Santa Cruz	0
Tucson	Pima	174
Tumacacori	San Cruz	0
Vail	Pima	1
Valentine	Mohave	0
Vernon	Apache	0
Valley Farms	Pinal	0
Waddell	Maricopa	0
Wellton	Yuma	0
Wenden	La Paz	0
White Mount. Lake	Navajo	0
Whiteriver	Navajo	0
Wickenburg	Maricopa	6
Wikieup	Mohave	0

**Appendix F (cont.)**

<b>Town-City</b>	<b>County</b>	<b>2013 Numbers</b>
Willcox	Cochise	3
Williams	Coconino	1
Willow Beach	Mohave	0
Window Rock	Apache	0
Winkelman	Gila	0
Winslow	Navajo	4
Whittmann	Maricopa	0
Woodruff	Navajo	0
Yarnell	Yavapai	0
Young	Gila	0
Youngtown	Maricopa	3
Yucca	Mohave	0
Yuma	Yuma	23

Source: Arizona State Board of Pharmacy