

# Utah's Pharmacist Workforce

August 2002

Prepared by the  
Utah Medical Education Council  
State of Utah

## ACKNOWLEDGMENTS

*Utah's Pharmacist Workforce* is based on a survey completed in 2000 by the Utah Medical Education Council (UMEC) and funded by the Department of Health and Human Services-Centers for Medicare and Medicaid Services and the Utah Medical Education Council.

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## Preface

One of the responsibilities of the Utah Medical Education Council (UMEC) is to determine the number and mix of health care professionals needed to meet Utah's healthcare workforce requirements and develop strategies to assure the requirements are met. *Utah's Pharmacist Workforce* represents the continuation of health workforce studies begun by the Utah Medical Education Council in 1997. The first publication of the UMEC, entitled *Utah's Clinical Healthcare Workforce-Achieving Balance Through 2020*, focused on physicians, advanced practice nurses, and physician assistants.

This report is based on data collected from a survey of all licensed Utah pharmacists in 2000. The survey was conducted by the Utah Medical Education Council in association with the Utah Department of Occupational and Professional Licensing. The purpose of the survey was to discover the capacity of the current workforce to provide the services that are and will be demanded by Utah's growing population. This report focuses on the number of pharmacists that actually provide services in the state, rather than the total number of licensed pharmacists.

This report gives particular emphasis to the national pharmacist report published by the Department of Health and Human Services in December 2000 because Utah faces the same issues and concerns as the rest of the nation in a time of pharmacist shortage. However, this report centers on the data collected from the survey of all licensed Utah pharmacists. The data collected from this survey enabled the UMEC to look at issues that are more specific to the state of Utah. For example, county or city of practice, days worked per week, and average income are all reported here. In most instances, however, the Utah data are compared with the national data to provide additional emphasis and to show that Utah's pharmacist workforce is interconnected with the national pharmacist workforce.

Throughout this report, special consideration should be given to the terms *pharmacist* and *PharmD*. Pharmacist refers to any licensed pharmacist in the state of Utah, regardless of the degree they hold. The doctor of pharmacy (PharmD) degree has been primarily awarded by pharmacy schools in recent years (1990's). Prior to that time, most schools awarded bachelor of science degrees to pharmacists. For example, in Utah, there are 1,240 pharmacists with bachelor's degrees, and 161 with doctor of pharmacy degrees. Therefore, the average PharmD is younger and has less experience in the profession than the average pharmacist. In a number of instances, this report focuses on the PharmD group only. It should also be noted that the doctor of pharmacy degree is different from the doctor of philosophy degree (PhD). There are only about 10 Utah pharmacists that also hold PhD's. As noted above, this report is a study of all licensed pharmacists in Utah, regardless of degree earned.

The report is divided into three main sections. Section 1 contains an overall description of Utah's pharmacist workforce, and lists much of the data that was gathered from the survey. Section 2 discusses the demand for pharmacists, and Section 3 offers policy recommendations for the state. The information in this report is vital to train and maintain a pharmacist workforce that will be able to provide the necessary pharmacy services for Utah.

**Utah Medical Education Council**  
**Utah's Pharmacist Workforce**  
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The current shortage of pharmacists throughout the nation will make it difficult for Utah to maintain an adequate pharmacist workforce for the state. Increases in prescription volume and population are the primary reasons why the demand for pharmacists in Utah continues to rise. The number of pharmacists trained in Utah cannot meet the current state needs. This report provides a detailed description of the pharmacist workforce in Utah, estimates the annual supply and demand for pharmacists in the state, and offers recommendations to help alleviate the shortage of pharmacists in Utah.

#### **BACKGROUND ON PHARMACIST SHORTAGE**

In December 2000, the Department of Health and Human Services issued a report requested by Congress concerning a national shortage of pharmacists. The report, entitled *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*, highlights the “emergence of a shortage of pharmacists over the past two years.”<sup>1</sup> The report describes the major influences causing the shortage and provides information that is important in a discussion of Utah's pharmacist workforce. A summary of the issues that are most relevant to Utah follows.

The HRSA report notes that “the most striking evidence of a pharmacist shortage [...] are the demonstrably increased vacancy rates, difficulties in hiring, and other phenomena commonly associated with shortages; and unprecedented increases in the volume and range of activities demanded of today's pharmacist.” The primary reasons for the increase in the volume and range of activities demanded of pharmacists are the “sharply increased number of prescriptions filled each year” and “the substantially expanded roles and responsibilities of pharmacists.” Some of the main factors contributing to the shortage include increased use of prescription medications, market demand, and the changing pharmacist workforce.

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<sup>1</sup> *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. HRSA. December 2000, i.

#### **Causes of Shortage**

Prescription volume is increasing very rapidly in the United States. There was a 44 percent increase in retail prescriptions from 1992-1999 (almost 1 billion additional prescriptions). Since population growth and aging account for only 10 percent of the increase in retail prescription volume,<sup>2</sup> the primary reasons for this increase in prescription volume are: increased insurance coverage for prescriptions, an increase in the number of drugs on the market, and direct-to-consumer advertising. Pharmacists are filling 32 percent more prescriptions per year than they were in 1992. Thus, their workload has increased by at least one-third or has been offset by the use of automated filling and technicians.

Insurance prescription coverage has largely contributed to the increase in prescription volume. As the economy has grown, incomes have risen, and people have demanded more health care (often through insurance coverage). Prescription coverage increases came mainly from the transition to managed care in the last decade. Managed care may also be causing people to refill prescriptions more frequently because of shorter time periods covered by prescriptions.

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<sup>2</sup> *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. HRSA. December 2000, 20.

New drugs continue to be introduced to the market, and new uses are discovered for existing drugs. The combination of these influences has caused the number of prescriptions to rise. However, marketing has probably played a more significant role. Since 1997, when Federal restrictions were lifted on pharmaceutical advertising, companies have been focusing their marketing efforts on consumers. As a result, people have been requesting specific medications when they meet with health care professionals.

The market continues to increase the demand for pharmacists. One of the most significant reasons is the “growth and competition among retail pharmacies resulting in expanded hours and new store openings.” More pharmacists are needed to staff these positions. Additionally, pharmacists are being recruited to work in settings other than pharmacies, especially pharmaceutical or insurance companies. Pharmacists are also being utilized more in hospitals, long-term care facilities, and home health care to provide better medication management.

Changes within the pharmacist workforce are also contributing to the shortage. The change to PharmD programs in the last ten years caused the number of pharmacy graduates to drop, thus, limiting the number of new pharmacists entering the workforce. PharmD programs have been admitting a higher number of female students, which is balancing the workforce. However, since female pharmacists have been shown to have higher rates of part-time employment, more pharmacists are needed to provide the same amount of services.

### **Consequences of Shortage**

The national report identifies several negative consequences of a pharmacist shortage. As they take on additional responsibilities, pharmacists will have less time to counsel patients, “a role of increasing importance in light of the expanded use and complexity of medications.”<sup>3</sup> As patient counseling is increasingly emphasized and prescription numbers continue to rise, pharmacists will be torn between filling every prescription and making sure patients know how to use their medications.

Pharmacists will also have to work more hours or restrict services. Working more hours and taking on additional responsibilities will increase fatigue and job stress, potentially resulting in more medication errors. Job satisfaction will also decline from longer hours and less flexibility in scheduling. Restricting services will

<sup>3</sup> *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. HRSA. December 2000, ii.

immediately affect the elderly, rural communities, and people dependant on public support.

Schools of pharmacy will also be negatively influenced as pharmacist faculty are recruited for higher paying positions in the private sector. With limited funding, schools will struggle to find replacements and expansion or maintenance of pharmacy programs will not be possible.

All of these factors are increasing the demand for pharmacists in Utah. The HRSA report does not suggest any policy recommendations to alleviate the shortage, but provides evidence that there is a national shortage of pharmacists and shows the impact on healthcare throughout the nation. It is necessary for Utah to address this emerging shortage of pharmacists on a state level to assure there is an adequate workforce for the future.

## **SECTION 1 - UTAH’S PHARMACIST WORKFORCE**

### **A. General pharmacist information**

At the time of the survey, the total number of pharmacists licensed in Utah was 2,098. Surveys were mailed to each pharmacist licensed in Utah and 1,518 responded (72 percent response rate). Of the 1,518 respondents, 981 indicated they provide services in Utah. A random sample of the non-respondents showed this group was not significantly different from the response group. The number of respondents practicing in Utah (981) was then weighted to account for the non-respondents. The resulting number is 1,353 pharmacists working in Utah, meaning an estimated 64 percent of Utah’s licensed pharmacists actually provide services in the state. Based on the 2000 Utah population estimate of 2,246,554, Utah has 60.2 pharmacists per 100,000 population. The national average is estimated to be 71.2,<sup>4</sup> but the West<sup>5</sup> has traditionally had a lower ratio. While the West has averaged “only 57 pharmacists per 100,000 population,” the rest of the nation has had ratios between 68 and 73.<sup>6</sup> Thus, Utah has a significantly lower ratio of pharmacists per 100,000 population than most of the nation.

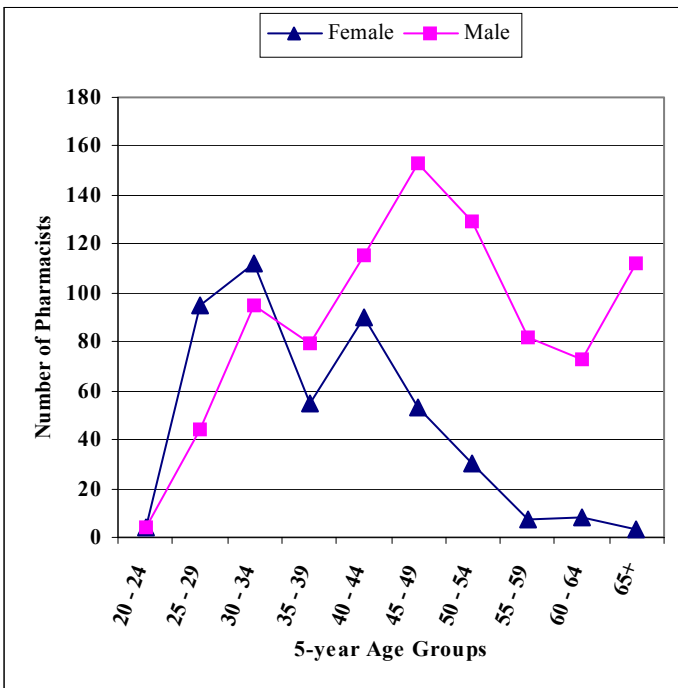
<sup>4</sup> *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. HRSA. December 2000, 49.

<sup>5</sup> Includes Alaska, Hawaii, California, Oregon, Washington, Idaho, Utah, Nevada, Arizona, New Mexico, Colorado, Wyoming, and Montana.

<sup>6</sup> *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. HRSA. December 2000, 54.

In Utah, 34 percent of pharmacists are women, which is lower than the national average of 46 percent. With this in mind, the “tendency of female pharmacists to elect part-time work and to work fewer hours”<sup>7</sup> is not as serious an issue in Utah as it might be throughout the nation. For the last few years PharmD programs throughout the nation have been graduating a higher number of females. This increase is most noticeable in Utah’s PharmD group where 56 percent are female. This also explains why female pharmacists are often younger than male pharmacists (see *Figure 1* below). About 45 percent of Utah’s female pharmacists are 25-34 years old, but only 16 percent of the male pharmacists are 25-34 years old. The primary reason for this age difference is the admission of more female students to pharmacy programs over the last decade. The percent of pharmacy students admitted at the University of Utah has remained about 50 percent female.

**Figure 1** – Utah Pharmacists by Gender and Age Groups, 2000



As shown in *Table 1*, female pharmacists in Utah tend to work fewer days per week at their primary location. This supports the national findings that, on average, women work fewer hours per week and are more likely to work part-time.<sup>8</sup> As a result of working fewer days per week and the tendency to be newer to the profession, it is no surprise that female pharmacists in Utah average a smaller annual gross income.

**Table 1** – Utah Pharmacists by Gender and Days per week at primary location, 2000

Days/Week	Female	Percent	Male	Percent	Total
1	39	11.3%	44	6.9%	83
2	41	11.9%	44	6.9%	85
3	85	24.6%	68	10.6%	153
4	73	21.2%	132	20.6%	205
5	100	29.0%	293	45.7%	393
6	3	0.9%	49	7.6%	52
7	4	1.2%	11	1.7%	15
<b>Total*</b>	<b>345</b>	<b>100.0%</b>	<b>641</b>	<b>100.0%</b>	<b>986</b>

\*Total numbers of pharmacists in many tables do not equal 1,353 because some respondents did not answer all survey questions.

More than one-half of Utah’s pharmacists (55 percent) have an annual gross income between \$60,000 and \$79,000, while 23 percent earn less than \$60,000 and 20 percent earn \$80,000 or more (see *Appendix A-19*). As shown in *Table 2*, PharmD’s actually average slightly lower incomes, probably resulting from their inexperience in the field. Most reports from pharmacies throughout Utah indicate that salaries are often dependent upon experience, especially at institutional pharmacies. Higher salaries in retail or community pharmacies are enticing experienced pharmacists and recent graduates, making it difficult for hospitals, universities, and clinics to find pharmacists. However, most of Utah’s pharmacists (76 percent) said their incomes had increased from five years ago, and almost half of those who had decreasing incomes now work 2 days or less per week (see *Appendix A-20*). One indication of a shortage is increasing salaries, and pharmacist salaries in Utah continue to rise.

<sup>7</sup> *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. HRSA. December 2000, iv.

<sup>8</sup> *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. HRSA. Dec. 2000, 47, 53.



**Table 2 – Utah Pharmacist income by level of education, 2000**

Annual Gross Income	Bachelors	PharmD	Masters
Less than \$30,000	86	15	
\$30,000 - \$39,000	37	7	3
\$40,000 - \$49,000	48	6	3
\$50,000 - \$59,000	87	10	3
\$60,000 - \$69,000	234	50	7
\$70,000 - \$79,000	380	36	14
\$80,000 - \$89,000	134	15	4
\$90,000 - \$99,000	51	4	6
\$100,000 - \$109,000	26	6	
\$110,000 - \$119,000	6		
\$120,000 - \$129,000	14		
\$130,000 - \$139,000	1		1
\$140,000 - \$149,000	3	1	
\$150,000+	10		
N/R	123	11	7
Total	1240	161	48

Minority groups are largely underrepresented compared to state population. Ninety-three percent of all Utah pharmacists are Caucasian. Pharmacists with an Asian background make up 5 percent of the total number of pharmacists, which is triple the percent of Asians in Utah's population (1.7 percent). While Asian people are represented well, Utah has a low mix of Hispanic pharmacists (less than 1 percent, compared to 9 percent of Utah's population; see *Appendix A-3*). Since other health professionals write prescriptions, the main concern for pharmacists is language barriers during patient counseling. The data indicate that about one-third of all Utah pharmacists provide language interpretation to their patients, mostly in urban areas. Of those that offer language interpretation, Spanish is the most common (86 percent). However, to provide a proportionate balance of ethnic diversity in the workforce, Utah needs to train or recruit more pharmacists with a Hispanic background.

Pharmacists in Utah are quite evenly distributed among age groups, therefore, retirement should not be contributing to a shortage of pharmacists in Utah (see *Appendix A-4*). However, there are a significant number of pharmacists in Utah that are practicing past the age of 65, probably because of the higher salaries offered in times of a workforce shortage (see *Table 3 and Appendix A-36*). Pharmacists also tend to be younger than other health professionals because pharmacy programs can be completed in six years with little previous healthcare experience.

## B. Practice Characteristics

The most recent national information indicated that about 63 percent of pharmacists were employed in retail stores and about 30 percent were employed in healthcare institutions.<sup>9</sup> The survey results indicate that pharmacists in Utah have a similar distribution with about 66 percent employed in retail settings (independent or chain community pharmacies) and 35 percent in healthcare institutions (hospitals, ambulatory clinics, and long-term care). The only other significant practice areas for pharmacists in Utah are academic institutions (5 percent). Utah is also similar to the nation with about 10 percent working in areas such as pharmaceutical sales, group medical practices, and research facilities. The above statistics total more than 100 percent because some pharmacists work in more than one setting and have been counted in each setting (see *Appendix A-16*).

Another way to compare Utah pharmacist practice areas to national data is by looking at the settings where Utah pharmacists spend at least one-half of their time, thus indicating their primary place of employment and avoiding double counting. By grouping the data in this manner, about 59 percent of Utah's pharmacists work in retail settings, 21 percent in hospitals, and about 20 percent in other practice settings. A national report by the Midwest Pharmacy Workforce Research Consortium indicates the nation has a similar distribution, with 55 percent in community pharmacies, 25 percent in hospitals, and 14 percent in other practice settings.<sup>10</sup> *Table 4* shows Utah pharmacist practice settings with associated income ranges.

Differences between practice settings, especially retail and institutional, continue to influence the pharmacist workforce in Utah. The nature of work is probably the most significant difference since pharmacists in institutional settings are being increasingly utilized in patient care. Hospitals have been using pharmacists to monitor individual patients, especially with recent reports concerning medication errors, and pharmacists commonly work with doctors and nurses in managing medication. As pharmacists are utilized more in hospitals, their

<sup>9</sup> *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. HRSA. December 2000, 14

<sup>10</sup> *Final Report of the National Pharmacist Workforce Survey: 2000*. The Midwest Pharmacy Workforce Research Consortium. August 2000, 9.

workloads increase. Retail settings have also begun to implement new programs, such as disease management, in order to provide more patient counseling opportunities for pharmacists. It is often more difficult for hospitals and other institutional pharmacies to recruit pharmacists because pharmacists need experience in that setting,

otherwise it is necessary to provide the needed hospital training. In retail settings, this specialized training is not often required. One other difference between these settings is the opportunity for advancement in institutional pharmacies.

**Table 3 – Utah Pharmacists by Income and Age Groups, 2000**

Annual Gross Income	5-Year Age Groups										Total
	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65+	
< \$30,000		17	8	3	7	6	1	4	6	44	96
\$30 - 39,000		7	6	7	8	1	4	3	4	4	44
\$40 - 49,000		4	12	3	11	4	1	1	8	4	48
\$50 - 59,000	1	8	11	8	17	14	11	7	6	6	89
\$60 - 69,000	1	40	54	23	30	35	43	11	11	15	263
\$70 - 79,000	4	43	66	54	84	64	32	30	21	7	405
\$80 - 89,000		7	25	18	14	32	29	10	8	4	147
\$90 - 99,000	1		4	4	14	11	7	6	4	3	54
\$100 - 109,000			1	1	3	10	7	7			29
\$110 - 119,000					1	3	1				5
\$120 - 129,000			1	1	3	4		3		1	13
\$130 - 139,000						1					1
\$140 - 149,000							3				3
\$150,000+						1	4	1		3	9
<b>Total</b>	<b>7</b>	<b>126</b>	<b>188</b>	<b>122</b>	<b>192</b>	<b>186</b>	<b>143</b>	<b>83</b>	<b>68</b>	<b>91</b>	<b>1206</b>

**Table 4 – Utah Pharmacist Income by Employment Setting, 2000**

Annual Gross Income	Amb. Clinic	Group	Chain	Indep. Pharm.	College/ Univ.	Hospital	Long Term	Home Care	Drug Info/ Poison Ctr	Other	Total
< \$30,000	4	1	21	39	6	7	4		1	4	87
\$30-39,000	4	1	14	10	1	10				1	41
\$40-49,000	3		19	19	1	6	1		1	1	51
\$50-59,000	12		12	22	3	19	4	3	1	6	82
\$60-69,000	21	11	101	44	3	55	7	4	7	14	267
\$70-79,000	25	4	210	36	8	93	8	8	1	7	400
\$80-89,000	3		70	25	1	36	7	4		3	149
\$90-99,000	1		19	12	1	11				7	51
\$100-109,000			10	4	1	7			1	8	31
\$110-119,000						3				3	6
\$120-129,000			6	6					1	1	14
\$130-139,000										1	1
\$140-149,000				1						1	2
\$150,000+			1	4						1	6
<b>Total</b>	<b>73</b>	<b>17</b>	<b>483</b>	<b>222</b>	<b>25</b>	<b>247</b>	<b>31</b>	<b>19</b>	<b>13</b>	<b>58</b>	<b>1188</b>
<b>Percent</b>	<b>6.1%</b>	<b>1.4%</b>	<b>40.7%</b>	<b>18.7%</b>	<b>2.1%</b>	<b>20.8%</b>	<b>2.6%</b>	<b>1.6%</b>	<b>1.1%</b>	<b>4.9%</b>	<b>100%</b>

The two most common activities for Utah pharmacists are patient counseling (70 percent) and dispensing drugs (59 percent), which highlight the changing nature of pharmacy work since more pharmacists are involved with patient care than simply dispensing drugs. Thirty-two percent of Utah's pharmacists indicated that they provide some patient counseling while supervising students or residents. Almost one-third of all pharmacists are administrators or managers, and many others are involved with research, consulting, or retailing (see *Appendix A-17*). Pharmacists who teach at the University of Utah are more likely to be from urban areas, and pharmacists involved with procuring or retailing medication are far more likely to be from rural areas.

More than half (58 percent) of all Utah pharmacists indicated that 40-44 hours a week is considered full-time for their work setting, and another 17 percent said 35-39 hours a week is full-time. In community or retail pharmacies, full-time pharmacists average fewer hours per week than pharmacists in other practice areas (see *Appendix A-18, 30, 31*).

Utah has unique rural/urban challenges in providing healthcare. The majority of Utah's urban population resides in four counties along the Wasatch Front, accounting for 76 percent of Utah's total population. Most of the remaining 25 counties (96 percent of the state's landmass) can be considered rural and account for the other 24 percent of the population. Thus, it is no surprise that of all the pharmacists who indicated the location of their primary practice, only 21 percent practice in a rural county, while 79 percent practice in an urban county (*Table 5*). Salt Lake County is the most concentrated area of pharmacists where almost one-half (46 percent) of Utah's pharmacists practice.

Rural pharmacies continue to find it difficult to recruit pharmacists, often having high turnover, vacancies, or limited hours. They also have to raise salaries in order to attract pharmacists, which causes problems when other health professionals at the same institutions are not compensated in the same manner. Rural pharmacies have attracted pharmacists who want to get away from an urban environment. Rural areas have also found ways to deal with the shortage by sharing a pharmacist among different institutions or cities. However, if pharmacists in Utah continue to move toward the retail sector, rural areas will be negatively impacted (see *Appendix A-32*).

**Table 5** – Estimated Utah Pharmacists by County of Practice, 2000

	Pharms.	Percent
SALT LAKE	615	45.5%
UTAH	172	12.7%
DAVIS	146	10.8%
WEBER	130	9.6%
WASHINGTON	48	3.5%
CACHE	44	3.3%
CARBON	22	1.6%
SUMMIT	21	1.6%
TOOELE	20	1.5%
BOX ELDER	18	1.3%
SANPETE	18	1.3%
IRON	15	1.1%
DUCHESNE	13	1.0%
UINTAH	11	0.8%
SEVIER	11	0.8%
WASATCH	7	0.5%
MORGAN	6	0.4%
RICH	6	0.4%
JUAB	5	0.4%
KANE	4	0.3%
MILLARD	4	0.3%
GRAND	4	0.3%
BEAVER	4	0.3%
SAN JUAN	4	0.3%
EMERY	2	0.1%
GARFIELD	2	0.1%
WAYNE	1	0.1%
<b>Total</b>	<b>1353</b>	<b>100.0%</b>

Many pharmacists have a desire to change location, since 41 percent plan to practice for a maximum of five years at their primary location. Recent graduates are even more anxious to change practice locations in the next five years. With salaries continuing to rise and many new options for employment, pharmacists are more willing to move practice locations (see *Appendix A-28*).

### C. Factors Influencing Utah Practice

The biggest influence on practicing in Utah is location of upbringing. Most of Utah's pharmacists (61 percent) were raised in Utah and another 11 percent were raised in California or Idaho (see *Appendix A-6*). Therefore, it is no surprise that 68 percent of all pharmacists studied in Utah, and that 55 percent of all PharmD's graduated from either the University of Utah or Idaho State University and another 10 percent graduated from a California school (see *Appendix A-7*). Pharmacists in Utah are usually practicing here because they went to a Utah school or they were raised in Utah. Of the 50 graduates from the University of Utah's pharmacy program in 2000, all but three will practice in Utah.

**Table 6** – Institutions where Utah pharmacists received a pharmacy degree (B.S. or PharmD), 2000

Institution of Pharmacy Degree		
	Pharms.	Percent
University of Utah	939	70%
Idaho State University	97	7%
University of Wyoming	37	3%
Creighton University	14	1%
University of Texas	11	1%
North Dakota State University	11	1%
University of Colorado	10	1%
University of Montana	10	1%
Purdue University	10	1%
All Other Schools*	193	14%
<b>Total</b>	<b>1332</b>	<b>100%</b>

\*Includes any school with fewer than 9 graduates in Utah

Only 7 percent of Utah's pharmacists completed a residency, and just over half of these were in Utah. However, about 12 percent of Utah's pharmacists would like more residency training. While residency training is not required to practice pharmacy, most pharmacists who complete resident training in Utah remain in Utah to practice. Thus, residency training can be an important recruiting and retaining tool.

## SECTION 2 - PROJECTED PHARMACIST SUPPLY REQUIREMENTS

### A. Estimated Prescription Growth

The single most important factor in determining future pharmacist workforce needs in Utah is the expected growth in prescription volume. The number of prescriptions dispensed in retail settings throughout the nation increased by 44 percent from 1992-1999, and is expected to continue to rise. Figures from the NACDS suggest that in 1998, there were approximately 15 million prescriptions filled in retail settings in Utah, which was less than one percent of the nation's total. However, if retail prescriptions continue to increase to the projected 4 billion by 2004,<sup>11</sup> Utah's portion would increase to almost 25 million.<sup>12</sup> It is important to remember that

[a]ny increase in the number of prescriptions filled is inevitably accompanied by a corresponding increase in other related functions as well, including the number of prescriptions filled by others that must be checked, the number of occasions on which patient counseling is called for, the number of occasions on which third-party payment issues must be resolved, and so on.<sup>13</sup>

While this suggests that Utah needs to increase the number of pharmacists currently practicing by about two-thirds just to keep up with the projected increase in the number of prescriptions, it is important to look at the individual elements that are creating a need for more pharmacists in Utah.

### B. Demographics

Population growth in Utah is one reason that prescription volume will continue to increase. Historically, the growth rate of Utah's population has exceeded the rest of the nation, and it is expected to continue. The projected increase in Utah's population through 2010 is about 500,000 and through 2020 it is about 1 million. In order for Utah to maintain its current ratio of 60 pharmacists per 100,000 population, 30 new pharmacists are needed each year. However, if Utah would like to approach the national level of 71 pharmacists per 100,000 people there would be an immediate need of 247 pharmacists for Utah's current population.

<sup>11</sup> *Wanted: A Bigger Dose of Pharmacists*. Discount Merchandiser, April 2000, 57.

<sup>12</sup> Calculated by multiplying Utah's 1998 percent of the nation's retail prescriptions by 4 billion projected in 2004.

<sup>13</sup> *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. HRSA. December 2000, 16

Utah is also expecting an age polarization over the next ten years where the youngest and oldest segments of the population will increase more rapidly than the middle segments. Since these dependent populations (children and seniors) use healthcare services more than the rest of the population, increases in the size of these groups would lead to more prescriptions per capita. The national pharmacy report estimates that “the incremental effect of aging (apart from growth in population size) is in the neighborhood of three percent.”<sup>14</sup> Utah’s projected population increases for the 65+ and <5 age groups through 2010 provide an accurate estimate for Utah. The 65+ age group would increase by 43,615, resulting in the need of an additional 14 pharmacists, or about 1.4 per year,<sup>15</sup> and the <5 age group would increase by 48,513, also resulting in the need for 14 pharmacists, or 1.4 per year.<sup>16</sup> Combining these two effects, Utah needs to add 3 pharmacists per year to account for age polarization.

The age distribution among Utah’s pharmacists is also a factor in the future needs of the state because of retirement. A conservative estimated retirement rate among Utah’s pharmacists is 2 percent (because of a younger workforce than most health professions). With this 2 percent retirement estimate, Utah needs at least 27 pharmacists each year to replace those who retire.

Combining the effects of population growth, age polarization, and retirement on the pharmacy workforce in Utah, the minimum number of new pharmacists needed each year is 60. This number is significantly more than the approximately 50 graduates of the University of Utah pharmacy program each year. It is also important to remember that this estimate of 60 is required to simply maintain the current number of pharmacists per capita in the state. If Utah wants to raise the number of pharmacists per capita to the national

average, the number of new pharmacists would have to increase by much more than 60 per year.

### C. Prescription Volume

The national report suggests that only 10 percent of the 44 percent increase in retail prescription volume from 1992-1999 was caused by population growth and aging.<sup>17</sup> Thus, the huge rise in prescription volume primarily resulted from other factors, most importantly the increase in the number of people with prescription coverage and the effects of new drugs on the market. The move toward managed care insurance coverage in the early 1990’s resulted in increased access to health care and prescription coverage for many people in Utah. However, this rise in prescription coverage is not expected to continue and may even decrease as public and private entities take steps to offset the rising cost of prescriptions. Since the rise in prescription coverage has probably tapered off, the major factor that can increase prescription volume is the market.

There are two main reasons why the market continues to increase the number of prescriptions. First, pharmaceutical companies have been permitted to advertise directly to consumers since 1997. The result has been drug branding; consumers easily recognize different prescriptions and have a better understanding of which drugs might benefit them. Second, new drugs are continually entering the market. Since new drugs are often the first of their kind, they increase the total number of prescriptions instead of replacing existing drugs. The national findings indicate that “in 1998, new drugs (defined as those introduced since 1992) accounted for almost one-third of all retail drug expenditures.” They also note that “advertising for specific brand name medications to treat common conditions seems to be effective in increasing consumer demand for specific medications.”<sup>18</sup> There is no question that, as new drugs are produced and consumer advertising is emphasized, the number of prescriptions will continue to rise. More prescriptions will require either more pharmacists or new methods of filling prescriptions, including pharmacist technicians and automated filling. However, there is a point at which technicians and automation cannot replace pharmacists who actually check each prescription and provide patient counseling.

<sup>14</sup> *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. HRSA. December 2000, 20.

<sup>15</sup> Estimated by taking the projected increase in the 65+ age group through 2010 which is 43,615, multiplying by the difference of the average annual number of Rx’s per person for the 55-64 and 65+ age groups (6) to get 261,690 more Rx’s, then dividing by the approximate number of Rx’s filled by Utah retail pharmacists (19,000) to get 14.

<sup>16</sup> Estimated by taking the 48,513 increase in the 0-5 age group population, multiplying by the average annual number of prescriptions for the 0-5 age group (5.4) and dividing by the approximate number of Rx’s filled per retail pharmacist (19,000) to get 14.

<sup>17</sup> *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*. HRSA. December 2000, 20.

<sup>18</sup> *Ibid*.

Identifying how the market might continue to increase the number of prescriptions and the demand for pharmacists is very difficult. Many factors have the potential to limit future increases in the number of prescriptions, including higher co-payments, reduction in employer-sponsored insurance coverage, and consumers becoming accustomed to advertising. However, most sources indicate that research and new drugs will continue to increase prescription volume beyond the effects of an aging population. Estimates of retail prescription volume increases have been as high as 10 percent a year,<sup>19</sup> and as low as 5 percent.<sup>20</sup> The national report notes that in the years 1997 and 1998, the increase in the number of retail prescriptions was 7 and 9 percent. Thus, a very conservative estimate for an annual increase in the number of prescriptions through 2004 is 4 percent and a probable estimate would be about 7 percent.<sup>21</sup> Looking at the impact of these increases on Utah reveals that a 4 percent annual increase would create a demand of about 32 new pharmacists a year and a 7 percent increase would require about 56 pharmacists each year in Utah.<sup>22</sup> It is also important to note that these figures are only for retail pharmacies, and do not include institutional pharmacist needs.

#### D. Training Capacity

The state of Utah has one school of pharmacy located at the University of Utah that has about 40-50 pharmacy graduates per year (BS or PharmD). Most of the graduates stay in Utah to practice, although the length of stay is not known. Of the graduating class in 2000, there were 50 graduates and 47 practiced in Utah after graduation. There are two main reasons graduates tend to remain in the state after graduation. First, preference is given to Utah residents in the application process. Second, most students have clerkship or internship experiences in Utah pharmacies. Clerkships and internships often result in job offers upon completion. Thus, Utah is an importer of pharmacists because there is

a demand for many more graduates than the 40-50 coming from the University of Utah each year.

One of the sources that Utah has drawn from is Idaho State University. Currently, there are about 4-5 graduates in each ISU graduating class that end up practicing in Utah. Idaho State has been graduating only PharmD's since 1989, while the University of Utah has only offered the PharmD degree for a few years. As a result, about the same number of PharmD's practicing in Utah have come from Idaho State and the University of Utah. Utah also has a significant number of pharmacy graduates from the University of Wyoming (see *Appendix A-7*). While the majority of the pharmacists that practice in Utah graduate from the University of Utah, there are a significant number of pharmacists that come to Utah from other states. The average number of new pharmacists that begin practicing in Utah each year is 79, with about 31 coming from other states. Thus, Utah relies heavily on imported pharmacists.

Since clerkship and internship experiences are required for a pharmacy license in Utah, they have an influence on the training capacity. Internships are the responsibility of the profession and can be provided by any licensed pharmacist who also maintains a Pharmacy Preceptor license. The University of Utah College of Pharmacy is responsible for providing introductory and advanced clerkship training for its students. Students receive academic credit for these experiences. Advanced clerkship training includes significant patient contact and involves students in making drug decisions. Since these advanced clerkships are usually completed at institutional pharmacies, students often work with physicians, nurses, and other health care professionals. These clerkships are accredited programs that are supervised by paid or volunteer pharmacist faculty members from the University of Utah College of Pharmacy. One PharmD class of 45 students requires 90 *introductory* clerkship months (2 per student) and 315 *advanced* clerkship months (7 per student) in order to meet the accreditation standards of the American Council of Pharmaceutical Education. The College is at capacity in providing 74 introductory and 248 advanced clerkship months for the class graduating in 2003. For the 45 PharmD students in the class of 2006, the College of Pharmacy will need to find 83 more clerkship months, mainly for advanced clerkships. However, these clerkship opportunities are becoming increasingly difficult to find.

<sup>19</sup> *Prescription Market Booms With Volume Growth Accelerating*. Drug Store News. May 2000, 51.

<sup>20</sup> Average from IMS Health Data in the national report for the years 1992-1998.

<sup>21</sup> High estimate calculated by taking the 1999 retail prescription volume (2.8 billion) and compared it to the 2004 projected estimate (4 billion) to get a 7 percent annual increase.

<sup>22</sup> Calculated by taking Utah's 1999 retail prescription total (15,092,000), multiplying by the percent increase, and dividing by the approximate number of prescriptions filled by a retail pharmacist in Utah (19,000).

The national report estimates that there are about 7,000 pharmacy graduates per year throughout the nation. The number of graduates will only increase by a few hundred when the newest pharmacy schools have graduating classes (by about 2005). With the demand for pharmacists extremely high, graduates are competitively recruited. The only other source of pharmacists is international recruiting, but Utah has only 3 or 4 pharmacists that did not obtain their pharmacy degree in the United States.

**E. Expanding Pharmacist Roles**

Today’s pharmacists are being utilized in many new ways but the effects of these expanding roles on the demand for pharmacists are almost impossible to quantify. The national report discusses some of these new roles, including quality of care issues and rapid changes in medications. As the number of new medications continues to grow and medications become more complex, pharmacists are needed for checking drug interactions and counseling patients to avoid medication errors. Thus, pharmacists are being utilized even more in hospitals, clinics, and pharmaceutical companies as part of health care and research teams. New programs for public health, disease management, or drug information are also seeking pharmacists for their knowledge of the latest changes in medication use. As a result, experienced pharmacists are often taken from schools or pharmacies where they are most needed.

Aside from these factors, pharmacists are also expected to provide more services within the pharmacy. The increase in managed care plans has forced pharmacists to spend more time dealing with insurance issues, often requiring interaction with poorly-trained service representatives of insurance companies. Pharmacists are also being asked to focus on patient counseling, including advice about herbal remedies.

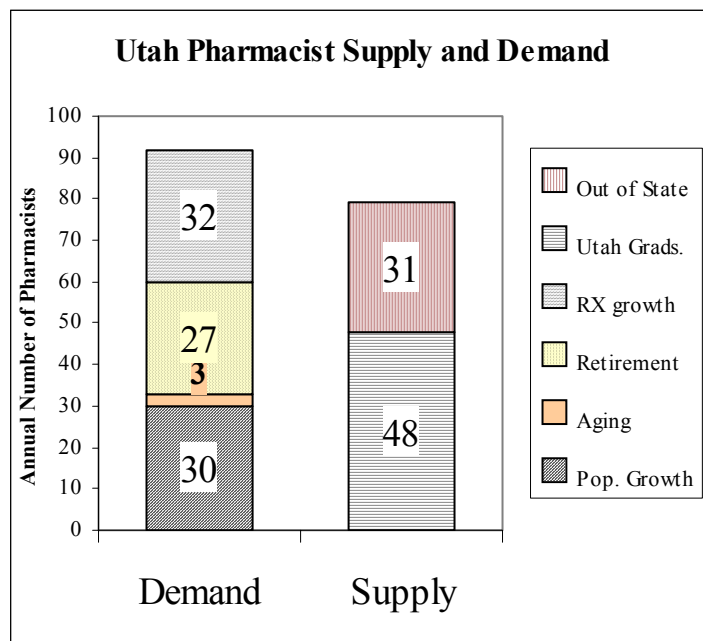
While there is really no way to quantify the number of pharmacists needed as a result of the expanded roles listed above, it is important to remember that these factors will contribute to the pharmacist shortage.

**F. Summary of Utah’s Pharmacist Shortage**

Combining all of the information presented in this section is important to an analysis of Utah’s pharmacist workforce requirements. As noted above, demographic changes (including population growth, age polarization, and retirement) will require approximately 60 new pharmacists each year. A conservative 4 percent growth in prescription volume will require an additional 32 new pharmacists a year unless new technologies or laws

change current pharmacy practices. However, if prescription volume continues to grow at 7 percent or higher, Utah will need at least 56 new pharmacists to fill those prescriptions. These factors indicate that Utah will need between 92 and 116 new pharmacists per year,<sup>23</sup> not including the effects of expanding pharmacist roles or the possibility that Utah might want to increase its pharmacist to population ratio. The average annual number of pharmacists graduating from the University of Utah is 48. There are about 31 pharmacists that come from other states to practice in Utah each year. Thus, the total number of new pharmacists entering practice in Utah each year is 79. As shown in *Figure 2*, with an annual supply of 79 and an annual demand of at least 92 pharmacists, Utah will have a minimum annual shortage of 13 pharmacists unless there are changes in current pharmacy practices.

**Figure 2 – Annual Pharmacist Supply and Demand in Utah, 2000**



<sup>23</sup> Demographic requirements (60) plus prescription volume growth requirements (32-56).

## SECTION 3 – POLICY RECOMMENDATIONS

### A. University of Utah College of Pharmacy

Any discussion of a pharmacist shortage in Utah naturally leads to the question of whether the current program is adequate for Utah's needs. As noted above, the training capacity of the school of pharmacy at the University of Utah is about 40-50 pharmacists per year. Since population growth and retirement rates require more pharmacists each year than the University of Utah can produce, Utah has become dependant on recruiting from other states. In a national shortage, however, recruiting options are limited. Since neither the national or international pool of graduates will provide enough pharmacists to meet Utah's expanding requirements, Utah must seriously consider expanding the state's pharmacist training capacity. However, there are some serious factors limiting any expansion.

Utah has a high-quality training program with a very high retention of pharmacy graduates. However, the school faces many obstacles in maintaining or expanding the current program. First, the increased demand for pharmacists in the industry has made it more difficult to keep faculty; many are enticed to leave the university for more lucrative positions elsewhere. Second, the facilities at the school are almost forty years old; there is no room to expand, it is not economical to remodel, and the layout of the building limits the ability for smaller training sessions. Third, clerkship sites are very difficult to find and maintain as each student completes at least nine clerkship months before graduation. Fourth, the school of pharmacy has faced these challenges with annual budget cuts for the past seven years.

With the current shortage in the pharmacy workforce, both nationally and in Utah, the University of Utah College of Pharmacy in cooperation with the Utah Medical Education Council should prepare a paper outlining options to expand the training capacity of the school of pharmacy to the Utah Board of Regents by July 2005.

### B. Automation

Advances in pharmacy technology have the potential to alleviate some of the shortage of pharmacists resulting from the growth in prescription volume. As with most technology, the primary benefit of pharmacy automation is the rapid transfer and sharing of information with few errors. As a result of this benefit, there are increasing

efforts to automate the entire prescription process: prescribing, dispensing, and administration.<sup>24</sup>

New prescribing technologies allow physicians to electronically enter and send prescriptions directly to pharmacies, eliminating errors resulting from hand-written prescriptions and the need for pharmacists to call physician offices for clarifications. In a similar way, data-sharing between physicians, pharmacists, and benefit providers will allow pharmacists more time with patients instead of paperwork. Other benefits of automation range from telephone managing to patient records managing. However, the most important benefit of pharmacy automation is in dispensing.

Automating the prescription dispensing process makes it possible for pharmacies to keep up with the rise in prescription volume without adding more pharmacists. Utah pharmacists fill an average number of 93 prescriptions per day,<sup>25</sup> and most Utah pharmacies fill about 200-400 prescriptions per day. Many companies are offering dispensing equipment that can deliver up to 100 prescriptions per hour, or even 1,000 per day. This does not mean that pharmacies can fill ten times the usual number of prescriptions in a day by using automation because dispensing is only one part of the prescription process. By doing the counting, packaging, and labeling, these machines allow the pharmacist to devote more time to patient counseling and checking prescription accuracy. Thus, automation does not replace the need for additional pharmacists, but enables them to be more involved with patient care. While automation does require the knowledge and oversight of the pharmacist, increases in automation usually require an increase in the use of pharmacy technicians.

Automation is an important element in alleviating the shortage of pharmacists in Utah. Pharmacies and pharmacists in Utah should be familiar with current technology and recent changes in pharmacy automation in order to make informed decisions regarding its implementation and management.<sup>26</sup> Pharmacies should give automation high priority when discussing financial and budgeting options.

<sup>24</sup> West, Donna and Sheryl Szeinbach. *Prescription Technologies: Keeping Pace*. Journal of the American Pharmaceutical Association, January/February 2002, 24.

<sup>25</sup> Calculated by multiplying the average number of days/week a pharmacist works in Utah (3.92) by 52 weeks to get 204 days/year, then dividing the 19,000 average prescriptions/year filled by a retail pharmacist in Utah by 204.

<sup>26</sup> See *Works Consulted* for good sources of information.



### C. Pharmacy Technicians

Pharmacy technicians are another important element in dealing with the rise in prescription volume. They are often responsible for processing and dispensing prescriptions, supporting any automation, and running the register. In order to alleviate the shortage of pharmacists, technicians must be utilized in greater numbers and given more responsibilities.

Recognizing the potential need for more pharmacy technicians, Utah recently changed its laws to allow a 3-to-1 ratio of pharmacy technicians to pharmacists. In Utah, pharmacy technicians can be trained in a pharmacy or in a college program, although the training must provide both didactic and hands-on instruction in either case. Utah has approximately 1,767 licensed pharmacy technicians. Approximately 183 pharmacy technicians complete an organized program of training in Utah each year, although not all of them actually obtain a license. These 183 students come from the following schools: Salt Lake Community College, The American Institute of Medical-Dental Technology, and the applied technology colleges in Ogden/Weber, SLC/Tooele, and Bridgerland (Snow College South usually has a program but this year they could not find a pharmacist to teach the courses). Each of these schools has a program review process to ensure that graduates have the training that pharmacies desire. Over the last three years, the average annual number of new pharmacy technicians licensed in the state was 230. This suggests that some technicians receive training directly in pharmacies.

While it seems that an adequate number of technicians are trained in Utah, they need to be utilized more effectively in pharmacies. There is still a high turnover among technicians even though they are very important to pharmacy operations. It is not likely that the turnover rate can be changed because many technicians are recent high school graduates and do not view the profession as a career. Adding more technicians will not alleviate the demand for pharmacists, but Utah pharmacies should take advantage of the 3-to-1 ratio and work closely with technicians to help alleviate pharmacist workloads.

### D. Clerkship/Residency Training

The most immediate means of addressing the pharmacist shortage in Utah is the expansion of pharmacy residencies. These experiences are not required to obtain a pharmacy license, but are commonly required or preferred for the most attractive clinical positions. Utah has been very successful in recruiting pharmacists from outside the state to do residencies in Utah. Between 80 and 100 percent of those that complete a residency in

Utah continue practicing here. Not only are residency programs important recruiting tools, they are more economical because other states have paid the cost of pharmacy training. Increasing available residencies in Utah will increase the pharmacist workforce more quickly and at a lower cost than increasing class size at the University of Utah College of Pharmacy.

Oftentimes, clerkships and residencies are not supported by pharmacies in Utah because there is no funding to help get them started. Specifically, training a student or a resident usually causes some inefficiency in the pharmacy. However, students and residents bring the most recent pharmaceutical information to the pharmacy. Students and residents are also more likely to continue working in the pharmacy where they received training, enabling the pharmacies that provide training to fill vacancies.

It is important for Utah to identify resources that can be used to create more clerkship and residency training programs. These programs have the potential to attract pharmacists to Utah, helping to alleviate the pharmacist shortage without requiring an expansion of the College of Pharmacy at the University of Utah. The Utah Medical Education Council in cooperation with the pharmacy residency program will identify strategies to increase resources for residency programs and present a paper by February 2003.

### E. Conclusion

The pharmacist shortage in Utah will become more critical each year, primarily because of both population and prescription volume growth, unless something in the industry changes to counter these increases. Some of the growth in prescription volume can be handled by conversion to more effective automated systems and increased use of pharmacy technicians. However, automation and pharmacy technicians do not replace the need for pharmacists. Only pharmacists have the training to perform professional functions associated with patient care. If the increase in demand for pharmacists continues, more pharmacists need to be trained. While there are at least seven new schools throughout the nation, Utah cannot rely on recruiting to provide the additional pharmacists needed for the future.

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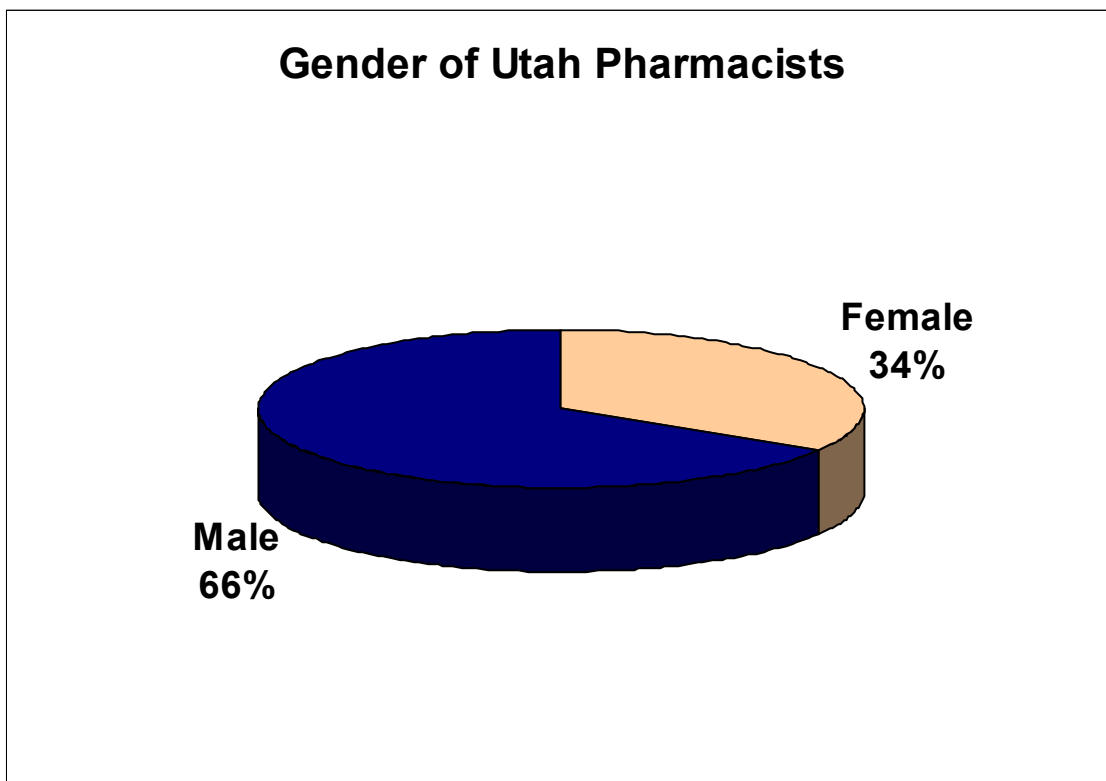
# Appendix A - Data and Graphs for Pharmacists in Utah

## 1. Do you work or provide any services in Utah?

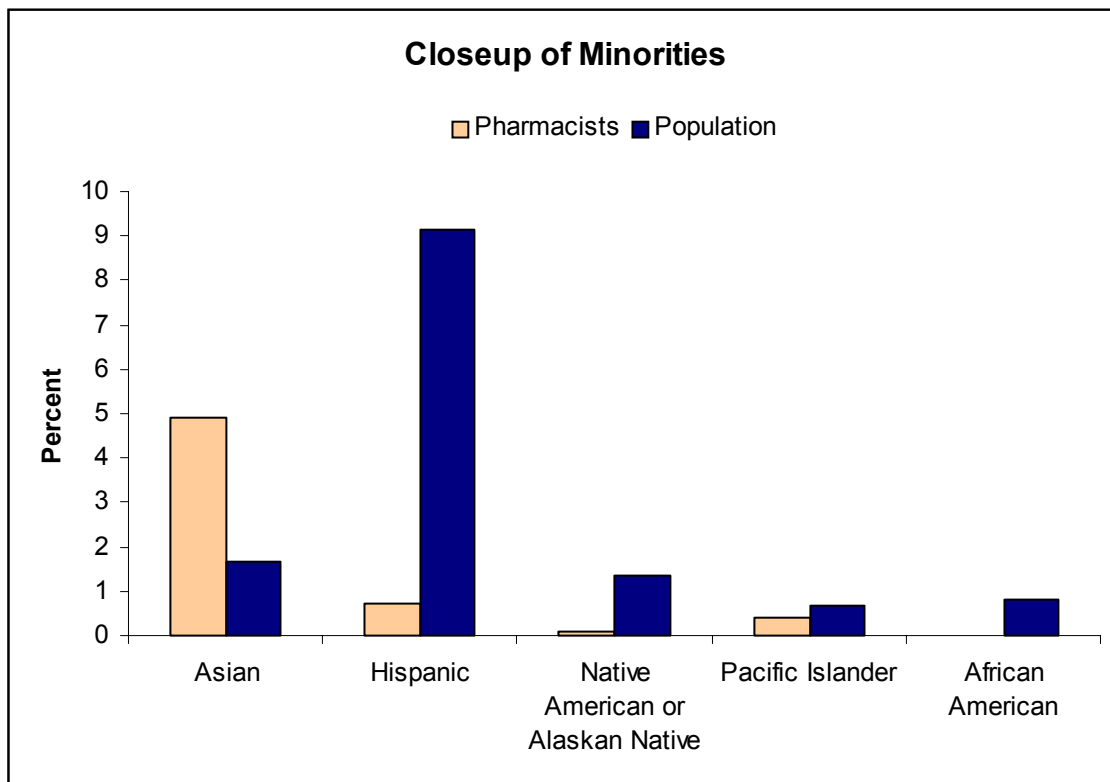
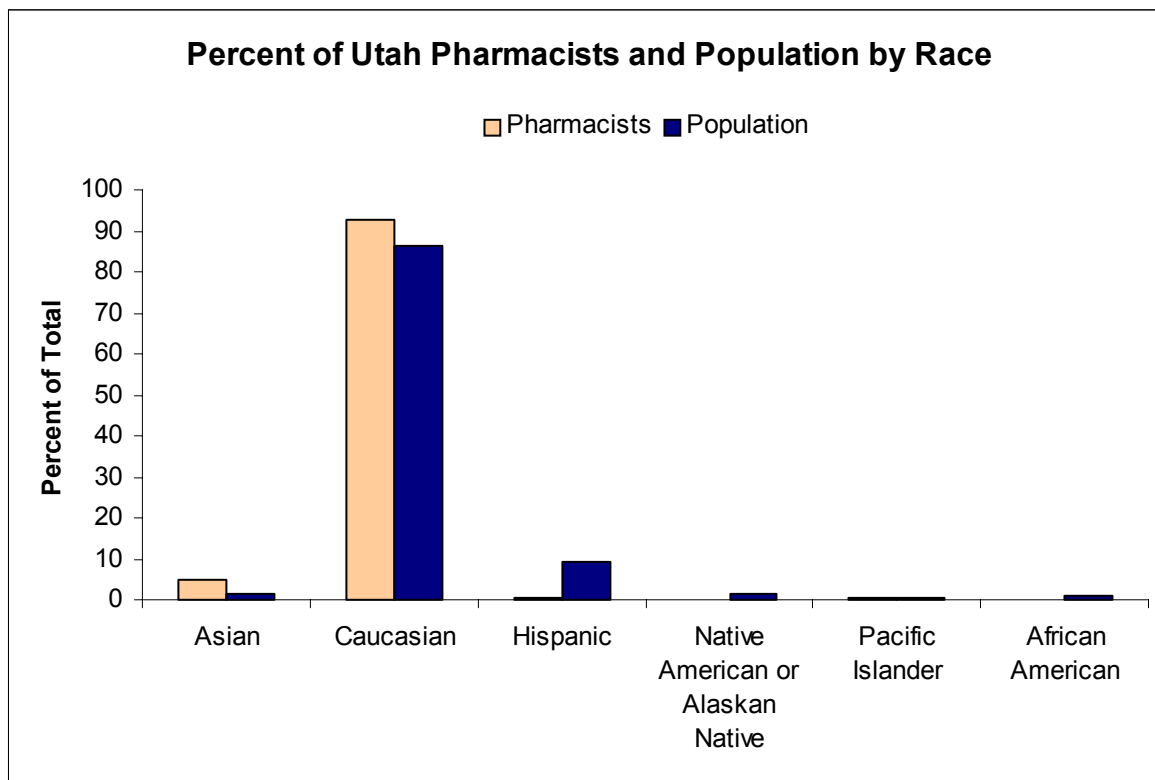
**If no, please specify reasons that you maintain a license and return the survey.**

Out of 2,098 licensed pharmacists at the time of the survey, there were 1518 respondents. 981 indicated that they provide services in Utah. Phone surveys were given to a random sample of the pharmacists not responding to the survey. The sample was compared with the original survey results and there was little variance concerning practicing in Utah. The data was then weighted to account for the non-respondents. The resulting number is 1,353 pharmacists working in Utah, meaning an estimated 64 percent of Utah's licensed pharmacists actually provide services in the state.

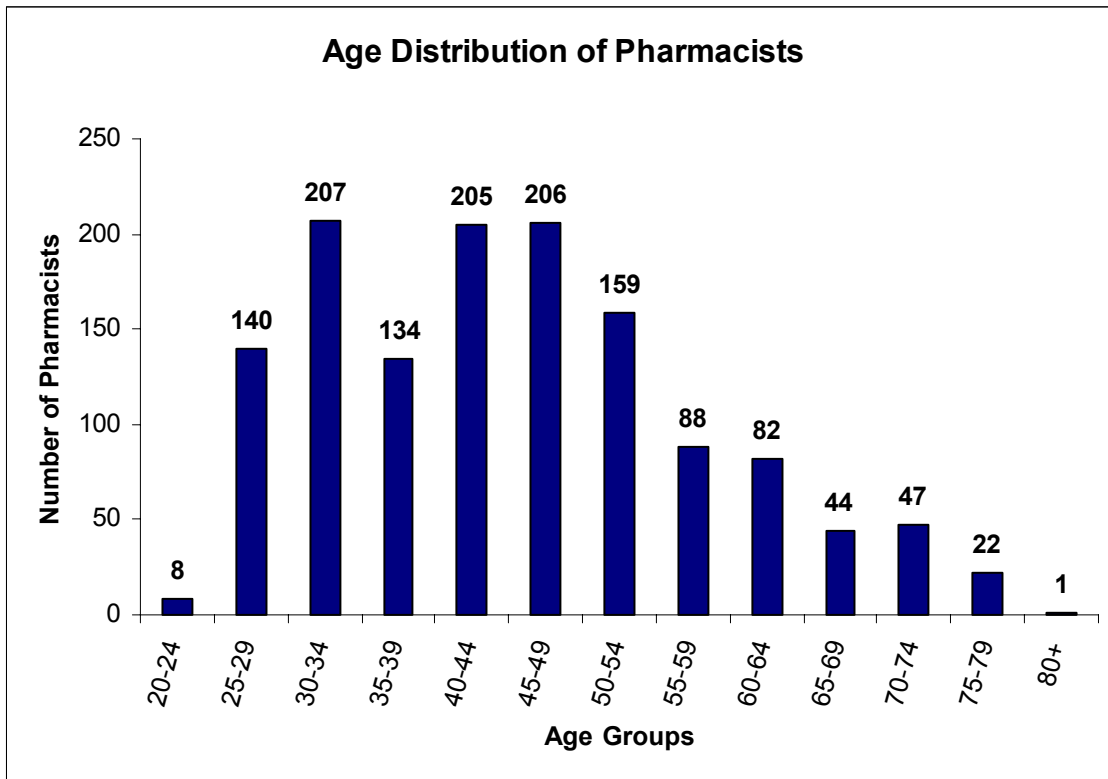
## 2. Gender:



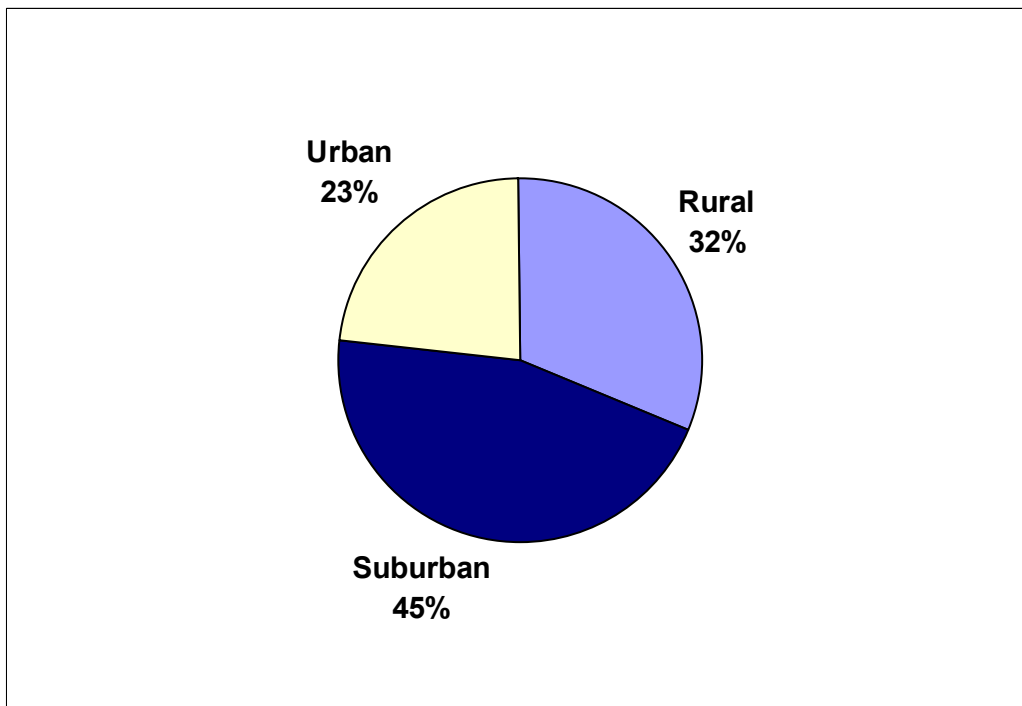
### 3. What race/ethnicity are you?



**4. Year of Birth:**



**5. How would you best describe the setting where you spent the majority of your upbringing?**



6. From what State/Country would you best describe where you spent the majority of your upbringing?

Primary States of Upbringing for Utah Pharmacists					
	Pharmacists	Percent			
Utah	824	61%	Michigan	11	0.8%
Idaho	79	6%	Oregon	11	0.8%
California	76	6%	Texas	9	0.7%
Wyoming	35	3%	Wisconsin	9	0.7%
New York	23	2%	Florida	9	0.7%
Washington	19	1%	Canada	9	0.7%
Illinois	13	1%	Oklahoma	8	0.6%
Iowa	13	1%	Missouri	8	0.6%
Pennsylvania	13	1%	North Dakota	8	0.6%
Colorado	12	0.9%	Kansas	8	0.6%
Ohio	12	0.9%	Minnesota	8	0.6%
Montana	12	0.9%	<b>Total</b>	<b>1229</b>	<b>92%*</b>

\*The remainder of Utah's pharmacists were raised in other U.S. states or internationally.

7. Degrees earned:

State of BS Pharmacy Degree					
	Pharmacists	Percent			
Utah	891	66%	Nebraska	8	0.6%
Idaho	56	4%	Michigan	8	0.6%
Wyoming	35	3%	Oregon	7	0.5%
Iowa	13	1%	Missouri	6	0.4%
Colorado	12	0.9%	Pennsylvania	6	0.4%
Washington	12	0.9%	Minnesota	6	0.4%
Oklahoma	11	0.8%	Illinois	4	0.3%
New York	11	0.8%	Wisconsin	4	0.3%
Ohio	11	0.8%	Kansas	4	0.3%
Texas	9	0.7%	Alabama	4	0.3%
North Dakota	9	0.7%	Louisiana	4	0.3%
Montana	9	0.7%	South Dakota	4	0.3%
Indiana	9	0.7%	<b>Total</b>	<b>1153</b>	<b>86%*</b>

\*The remainder of Utah's pharmacists received a BS degree from another state or country.

<b>State of PharmD Degree</b>		
	<b>Pharmacists</b>	<b>Percent</b>
Utah	48	30%
Idaho	40	25%
California	16	10%
Nebraska	12	8%
Arizona	5	3%
Georgia	4	3%
Texas	4	3%
Michigan	4	3%
Oklahoma	3	2%
Pennsylvania	3	2%
Minnesota	3	2%
Florida	3	2%
<b>Total</b>	<b>145</b>	<b>93%*</b>

\*There is **one** PharmD working in Utah that received his/her degree from each of the following states: New York, Illinois, Iowa, North, Dakota, Ohio, Washington, Montana, Tennessee, Virginia, Indiana, Maryland, and Massachusetts.

#### 8. In what states other than Utah are you currently licensed?

<b>Other States of Licensure</b>			
	<b># of</b>		
	<b>Pharms.</b>		
California	127	Montana	12
Idaho	54	New York	12
Nevada	39	Michigan	12
Wyoming	33	North Dakota	11
Nebraska	30	Minnesota	8
Colorado	29	Ohio	8
Arizona	28	Virginia	7
Texas	25	Florida	7
Iowa	17	Pennsylvania	7
Washington	17	Oklahoma	6
Illinois	15	<b>Total</b>	<b>504</b>

#### 9-11. If applicable, what institution sponsored your fellowship or residency?

Questions 9-11 ask about pharmacy residencies. Most pharmacy programs require clerkships, or hands-on pharmacy training, to graduate. Therefore, post-graduate or residency training is not common. Only about 7 percent of Utah's pharmacists completed a residency after graduation from a pharmacy program. Only 1 percent are residents currently, but 12 percent said they would like to receive more residency training.

**12. What specialties or sub-specialties do you currently practice?**

About one-third of all Utah's pharmacists indicated a specialty. Some of the only significant specialty areas were diabetes education/management, pediatrics, geriatrics, compounding, and mental/psychiatric pharmacy, with about 1 percent of pharmacists specializing in each.

**13. In what disease management areas are you certified?**

Only 7 percent indicated that they were certified in disease management, and of those listed, only three areas had more than one-half a percent of all pharmacists. 3 percent of Utah's pharmacists are certified in diabetes management, 1 percent are certified in immunization, and 1 percent in asthma.

**14. Which continuing pharmacy education programs would you like to have available locally?**

Includes number and percent of Utah pharmacists that would like each program.

Continuing Education Programs					
	Count	Percent		Count	Percent
Diabetes	781	58%	Dermatology	362	27%
Drug Information (new drugs)	691	51%	Substance Abuse	334	25%
Herbal/Natural/Supplements	684	51%	Endocrine	307	23%
Hypertension	665	49%	Immunology	303	22%
Pain Management	663	49%	Neurology	300	22%
Cardiology	640	47%	Hematology/Oncology	297	22%
Infectious Disease	626	46%	Smoking Cessation	285	21%
Asthma	564	42%	Regulatory Issues	275	20%
Pediatrics	480	35%	HIV	270	20%
Geriatrics	478	35%	Ophthalmology	256	19%
Disease state management	475	35%	Toxicology	238	18%
Respiratory	467	35%	Transplant	202	15%
Women's Health	413	31%	Other	55	4%
Psycho-Pharmacy	391	29%			

**15. If you do not have a PharmD degree, would you be interested in obtaining one?**

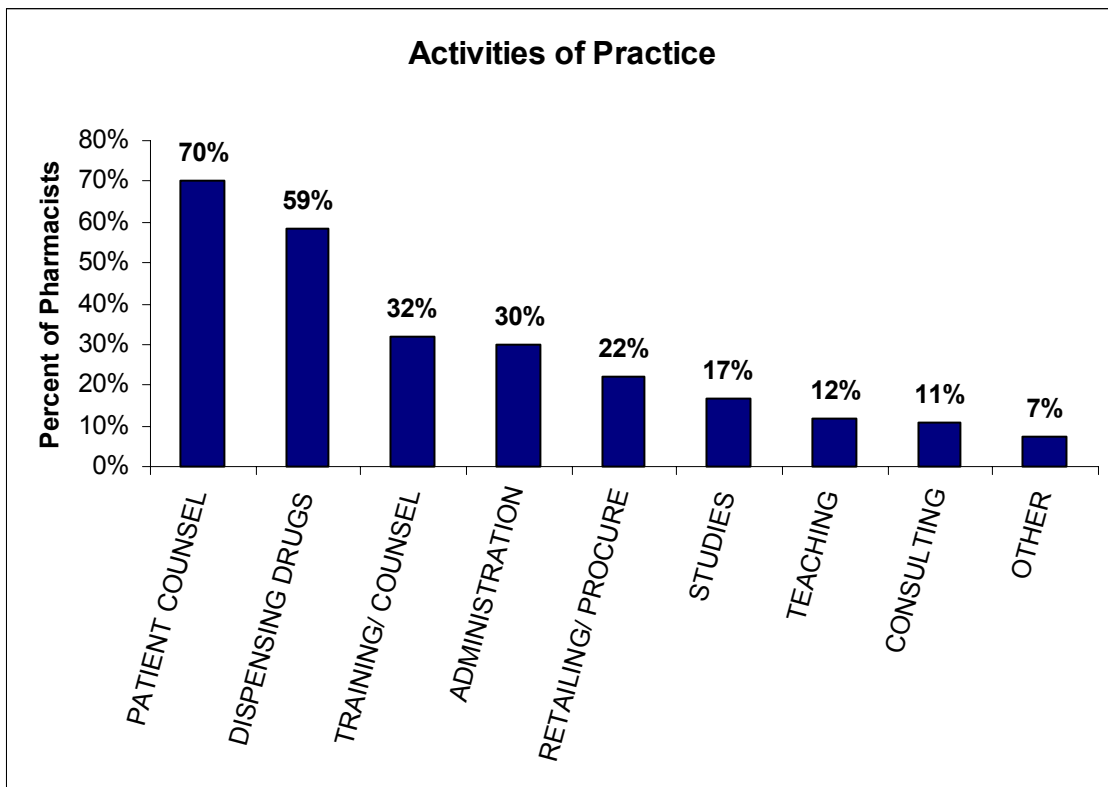
Just over 30 percent of Utah's pharmacists would still like to obtain a PharmD.



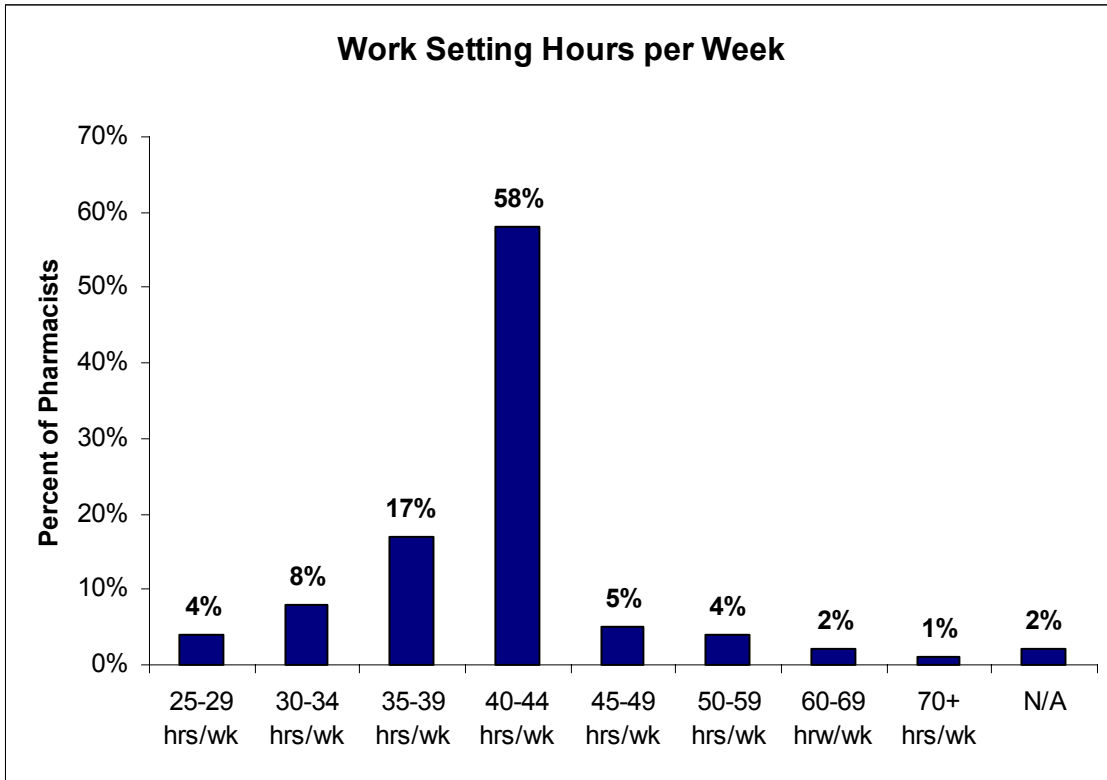
16. Percent of time in the following practice areas/sites on average in a year:

Areas of practice by time spent				
50% or more of time			Any Amount of Time	
	Count	Percent	Count	% of 1353
Chain Community Pharmacy	487	40%	568	42%
Hospital-based Inpatient Pharmacy	258	21%	315	23%
Independent Community Pharmacy	234	19%	326	24%
Ambulatory Clinic	74	6%	115	8%
Long-term Care	32	3%	59	4%
Academic Institution	26	2%	62	5%
Home Care	18	1%	30	2%
Group Medical Practice	17	1%	25	2%
Drug Info	11	1%	33	2%
Poison Center	7	1%	11	1%
Other	60	5%	99	7%
<b>Total</b>	<b>1224</b>	<b>100%</b>		

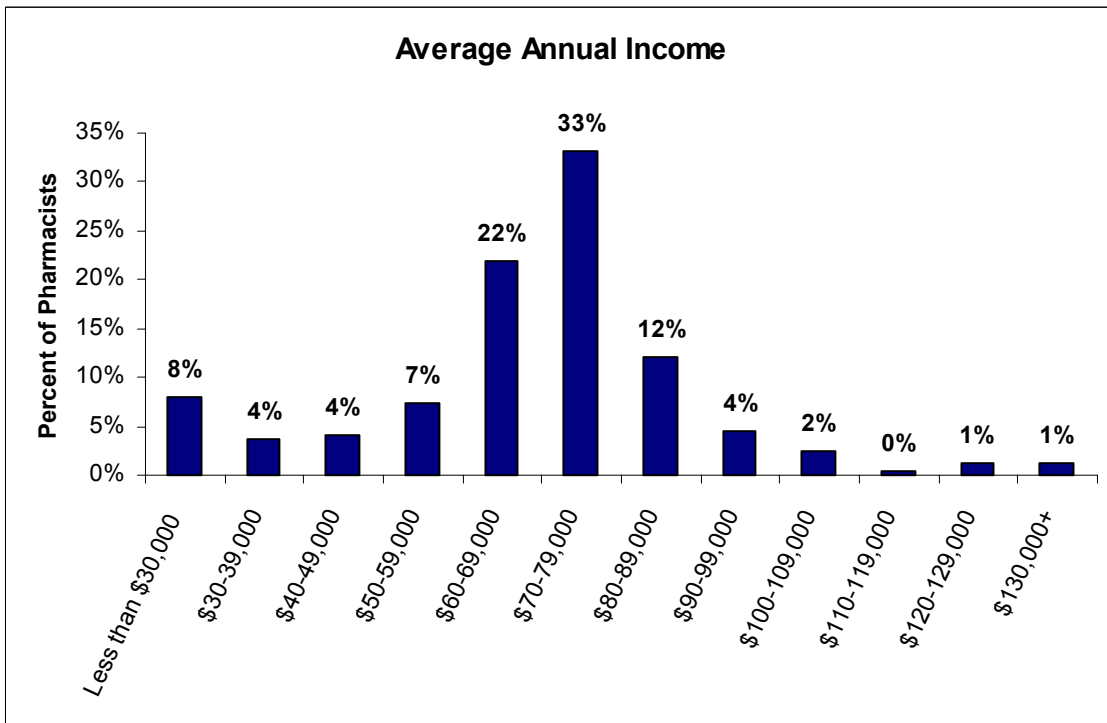
17. Which of the following activities are you involved in? (Check all that apply)



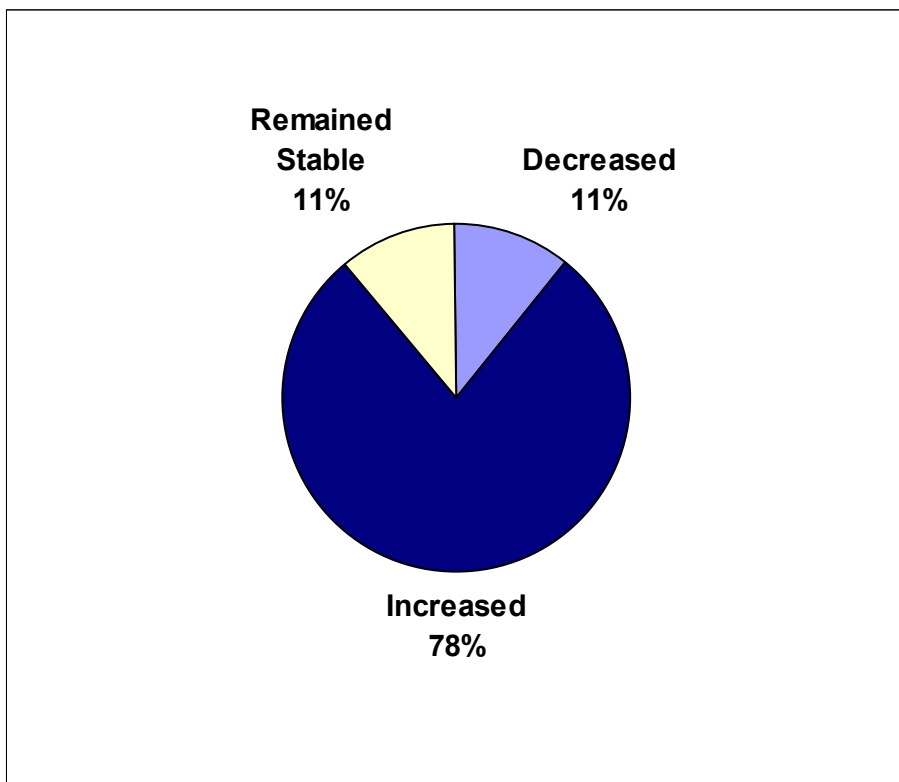
**18. In your specific work situation, what is considered full-time?**



**19. What is your average gross compensation?**



**20. Compared to five years ago, has your gross income:**



**21-22. Is there a need for more clinically trained pharmacists in the market? Is pharmacy viewed as a key part of integrated clinical medicine?**

Almost two-thirds (64 percent) of all pharmacists feel that there is a need for more clinically trained pharmacists in the market, and 70 percent agree that pharmacy is now viewed as a key part of integrated clinical medicine.

**23. Which health care professionals do you serve and/or collaborate with?**

Number of Pharmacists who serve or collaborate with the following health professionals		
	# Pharms.	Percent
MD or DO	1066	79%
RN	850	63%
PA	795	59%
DENTIST	668	49%
APRN	652	48%
PHARMD	359	27%
SOCIAL WORKER	348	26%
DIETICIAN	314	23%
HEALTH EDUCATOR	180	13%
OTHER	86	6%

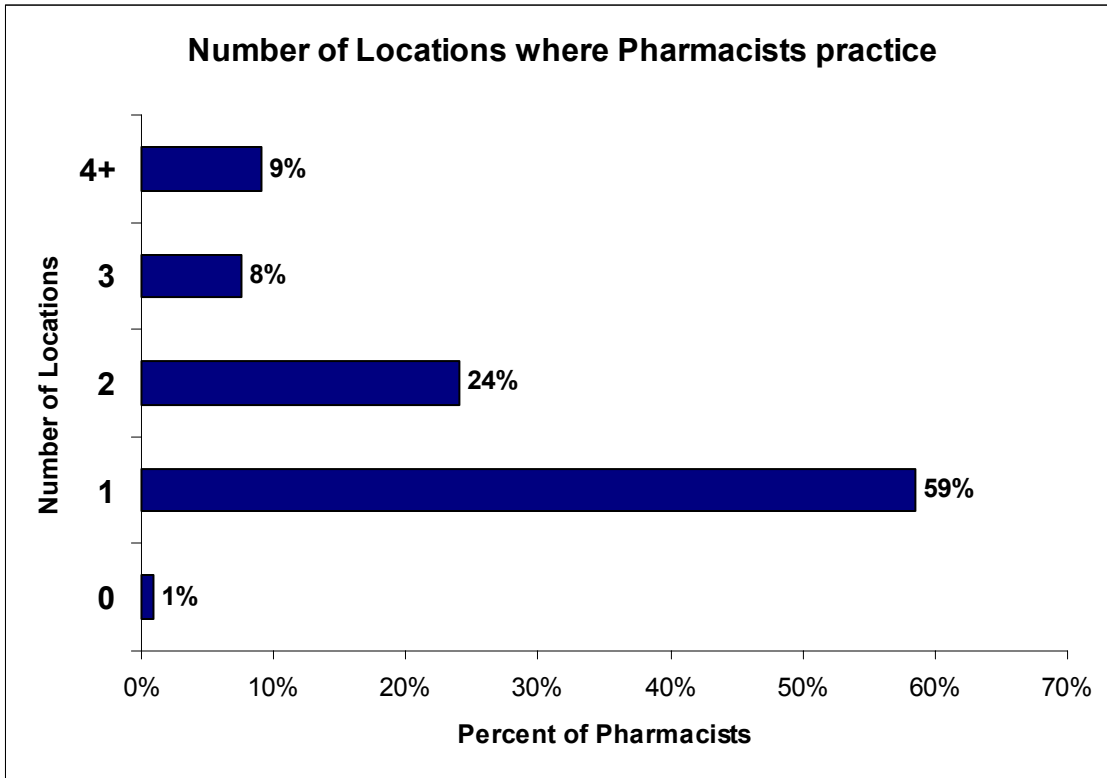
**24. Does your practice include collaboration with a physician and/or other health care professionals in managing drug therapy via protocol?**

39 percent collaborate in this manner.

**25. Do you offer language interpretation to your patients?**

36 percent offer language interpretation, and almost all of these (86 percent) offer Spanish.

**26. In the past 12 months, at how many separate SITE(S) have you consistently counseled patients?**

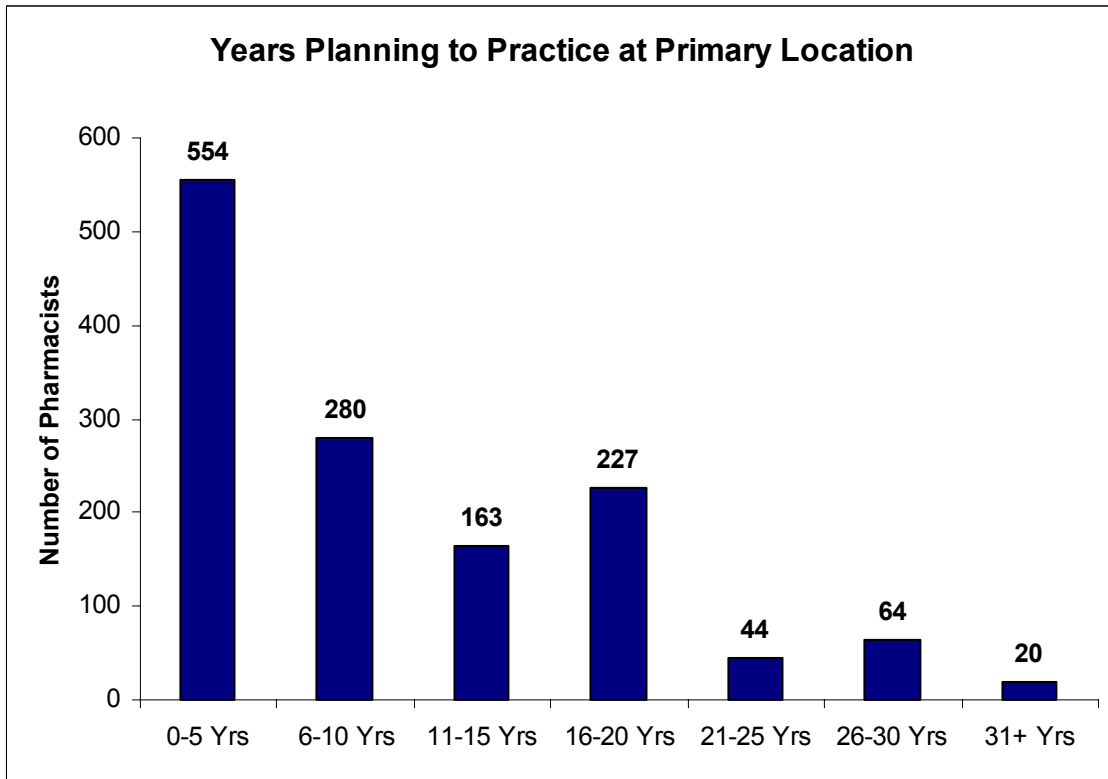


27-31 Information from location of primary practice (Site #1) only

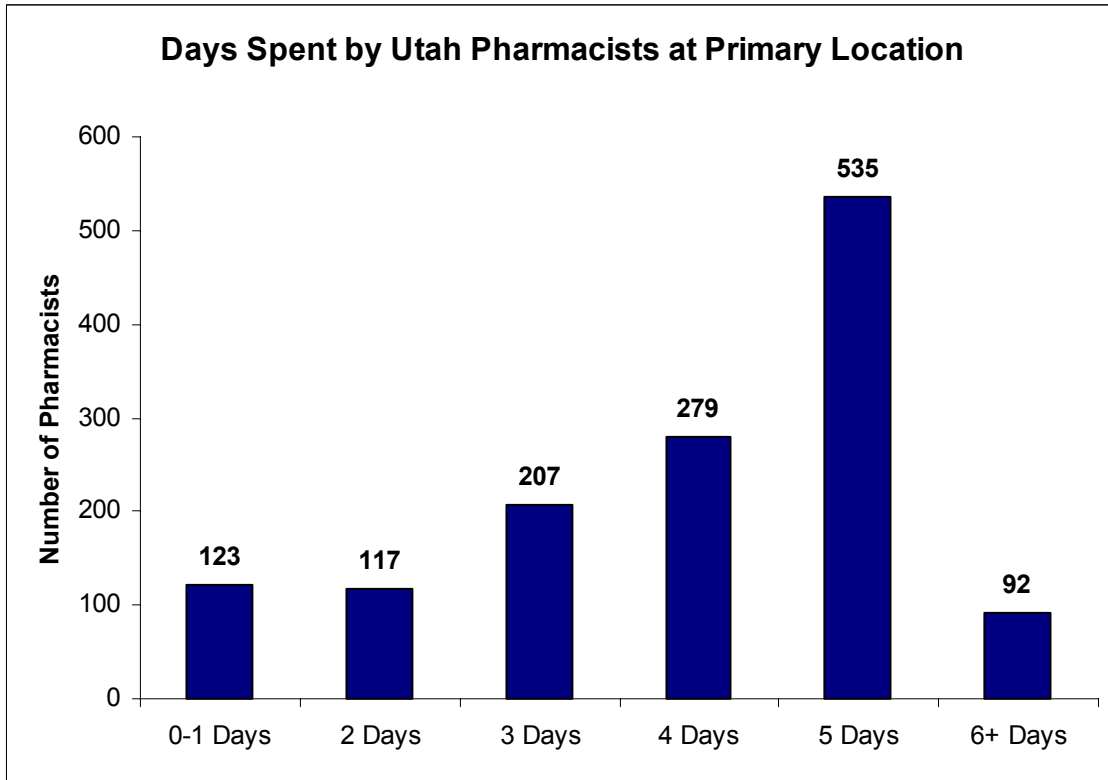
27. Zip Code

County of Primary Practice					
	Count	Percent			
SALT LAKE	660	48.80%	UINTAH	11	0.80%
UTAH	182	13.50%	SANPETE	9	0.70%
WEBER	131	9.70%	DUCHESNE	7	0.50%
DAVIS	117	8.60%	KANE	6	0.40%
CACHE	47	3.50%	MILLARD	6	0.40%
WASHINGTON	47	3.50%	MORGAN	6	0.40%
CARBON	26	1.90%	RICH	6	0.40%
TOOELE	20	1.50%	BEAVER	3	0.20%
BOX ELDER	18	1.30%	GRAND	3	0.20%
SUMMIT	18	1.30%	JUAB	2	0.10%
IRON	15	1.10%	SAN JUAN	2	0.10%
SEVIER	11	1.10%	Total	1353	100.00%

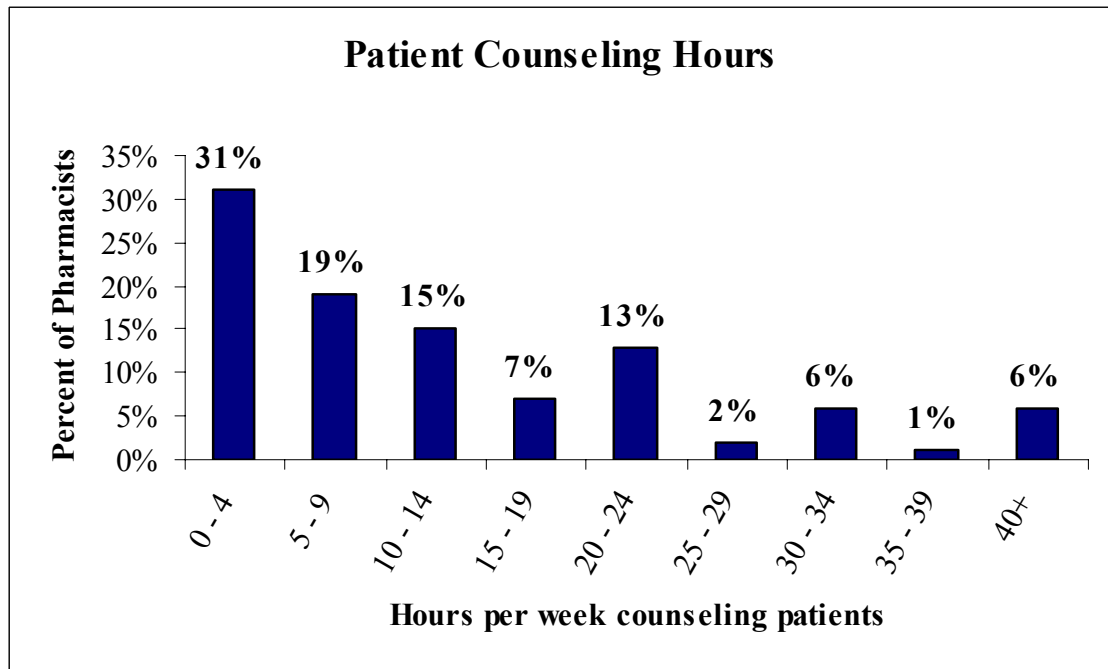
28. Years of Practice



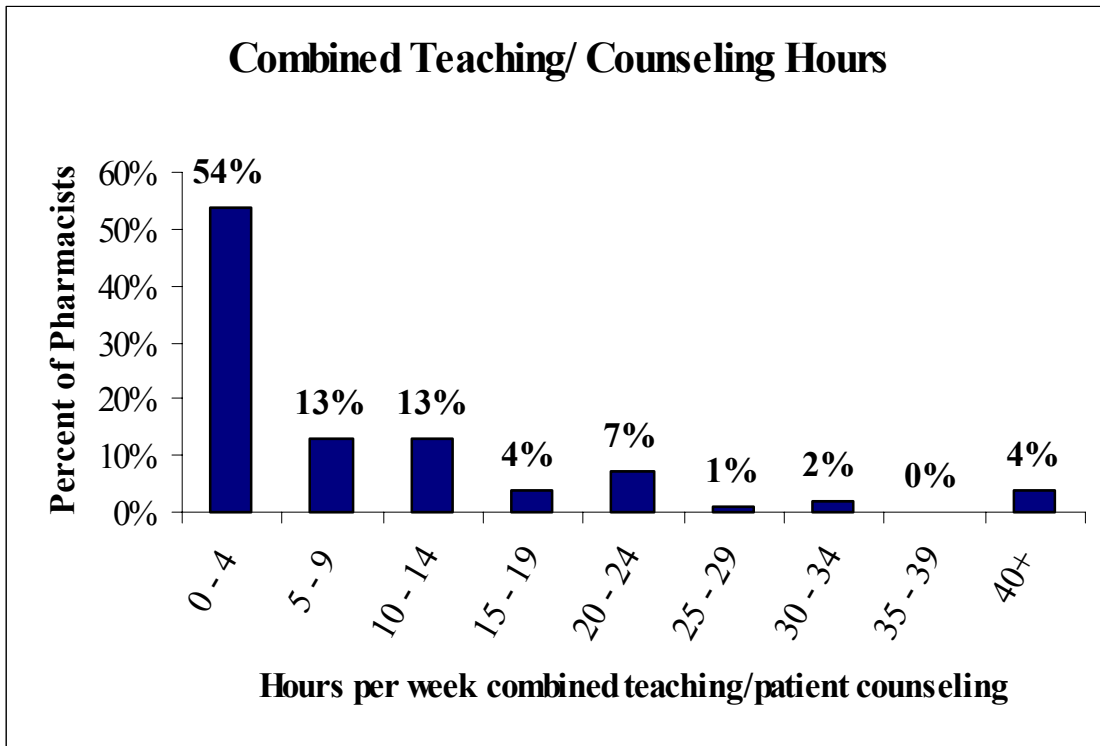
**29. Days/week at Primary Location**



**30. Hours in an average week counseling patients**

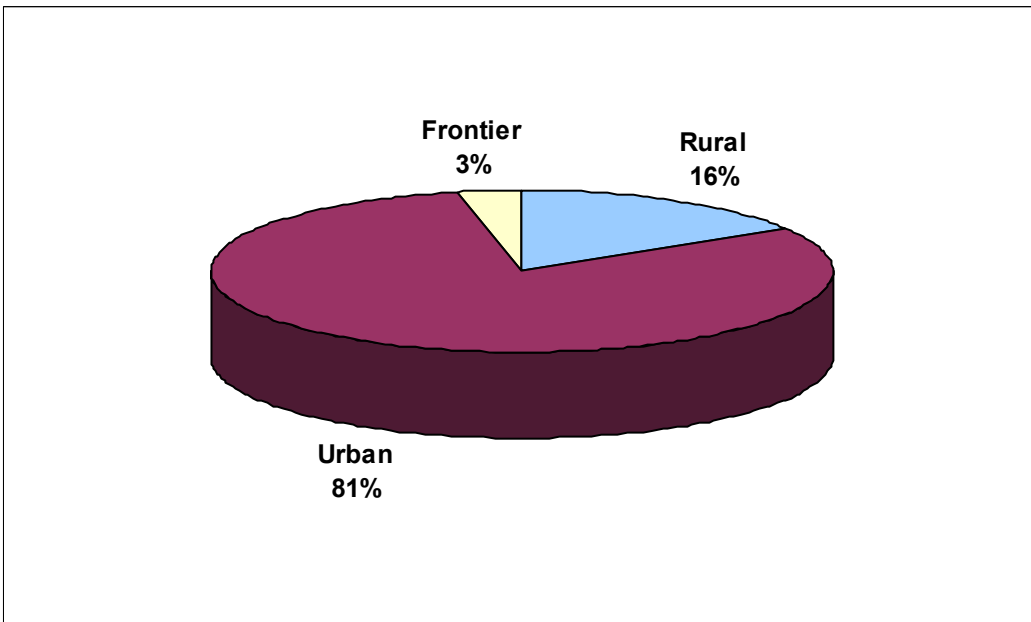


**31. Hours in an average week combined teaching/patient counseling**



**Other Graphs and Tables**

**32. Location of practice by frontier, rural, and urban breakdown.**



### 33. Practice Area by Age

County of Primary Practice	5-Year Age Groups										Total
	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65+	
SALT LAKE	1	68	94	62	93	72	54	21	21	18	504
UTAH		11	23	8	23	19	18	10	11	14	137
WEBER		12	8	10	21	15	6	7	8	12	99
DAVIS		10	18	10	10	11	8	10	7	7	91
<b>Urban Counties TOTAL</b>	1	101	143	90	147	117	86	48	47	51	831
Percent Urban	0%	12%	17%	11%	18%	14%	10%	6%	6%	6%	100%
Percent of Total	20%	89%	79%	81%	91%	80%	75%	76%	77%	74%	81%
<b>Rural Counties TOTAL</b>	4	13	38	21	14	30	29	15	14	18	196
Percent Rural	2%	7%	19%	11%	7%	15%	15%	8%	7%	9%	100%
Percent of Total	80%	11%	21%	19%	9%	20%	25%	24%	23%	26%	19%
<b>Total</b>	5	114	181	111	161	147	115	63	61	69	1027

### 34. Age by Days worked per week at primary location

5-Year Age Groups	Days per Week at Primary Location								Total
	0 days	1 day	2 days	3 days	4 days	5 days	6 days	7 days	
20 - 24				1	3	1			5
25 - 29	1	10	8	15	28	47	1		110
30 - 34	1	11	17	40	38	54	3	4	168
35 - 39	1	6	1	23	24	44	11		110
40 - 44	1	12	18	25	28	58	6	4	152
45 - 49	1	11	7	14	29	73	8	3	146
50 - 54		7	8	16	22	47	7		107
55 - 59		3	3	7	12	25	4	3	57
60 - 64		8	6	8	8	26	7		63
65+		15	18	1	10	15	4	1	64
<b>Total</b>	5	83	86	150	202	390	51	15	982



### 35. Days at primary location by Income Change

Days/week at Primary Location	INCOME change			Total
	Decreased	Increased	Remained Stable	
0		7		7
1	24	48	9	81
2	22	53	11	86
3	11	120	18	149
4	11	176	17	204
5	24	325	40	389
6	9	30	12	51
7	3	8	4	15
<b>Total</b>	104	767	111	982

### 36. Income by Days worked at primary location

Annual Gross Income	Days at primary location								
	0 days	1 day	2 days	3 days	4 days	5 days	6 days	7 days	Total
<\$30,000		32	22	1	3	11	1		70
\$30 - 39,000		6	10	14		4	3		37
\$40 - 49,000		1	10	19	3	6	3		42
\$50 - 59,000		1	7	15	17	19	4	1	64
\$60 - 69,000	1	11	11	21	57	94	15		210
\$70 - 79,000	3	11	14	51	70	131	15	8	303
\$80 - 89,000	1	8	4	12	30	57	1	3	116
\$90 - 99,000			1		14	22	3		40
\$100 - 109,000	1					10	1		12
\$110 - 119,000		1				1			2
\$120 - 129,000				1		3	1		5
\$140 - 149,000							1		1
\$150,000+						6			6
<b>Total</b>	6	71	79	134	194	364	48	12	908

## APPENDIX B - UTAH PHARMACIST SURVEY

1. Do you work or provide any services in Utah?  YES  NO  
If no, please specify reasons that you maintain a Utah license and return the survey. Thank you.  
\_\_\_\_\_
  
2. Gender:  MALE  FEMALE
  
3. What race/ethnicity are you?  
 CAUCASIAN  
 AFRICAN AMERICAN  
 NATIVE AMERICAN or ALASKAN NATIVE  
 HISPANIC  
 ASIAN  
 PACIFIC ISLANDER  
 OTHER, (please specify) \_\_\_\_\_
  
4. Year of Birth: 19\_\_\_\_\_
  
5. How would you best describe the setting where you spent the majority of your upbringing?  
 RURAL  SUBURBAN  URBAN
  
6. From what State/Country would you best describe where you spent the majority of your upbringing?  
 UTAH  OTHER, (please specify) State \_\_\_\_\_ or Country \_\_\_\_\_
  
7. Degrees earned:  
 BS in Pharmacy Institution: \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Year of Degree \_\_\_\_\_  
 Pharm D Institution: \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Year of Degree \_\_\_\_\_  
 Ph D  
 MS  
 Other \_\_\_\_\_
  
8. In what states other than Utah are you currently licensed?  
(1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) \_\_\_\_\_
  
9. If applicable, what institution sponsored your fellowship or residency: \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Year fellowship/residency completed: \_\_\_\_\_
  
10. Are you currently enrolled in a residency or fellowship training program?  YES  NO  
If yes, please specify: \_\_\_\_\_
  
11. Do you want to obtain additional residency/fellowship training?  YES  NO
  
12. What specialties or sub-specialties do you currently practice?  
\_\_\_\_\_
  
13. In what disease management areas are you certified?  
\_\_\_\_\_

14. Which continuing pharmacy education program(s) would you like to have available locally:

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Cardiology<br><i>(Arrhythmia, anti-coagulants)</i> | <input type="checkbox"/> Transplant                                    | <input type="checkbox"/> Psycho-pharmacy              |
| <input type="checkbox"/> Diabetes   | <input type="checkbox"/> Pain Management                               | <input type="checkbox"/> Neurology                    |
| <input type="checkbox"/> Hypertension                                       | <input type="checkbox"/> Drug Information<br><i>(on new FDA drugs)</i> | <input type="checkbox"/> Disease state management     |
| <input type="checkbox"/> HIV  | <input type="checkbox"/> Infectious Disease                            | <input type="checkbox"/> Endocrine                    |
| <input type="checkbox"/> Hematology/Oncology                                | <input type="checkbox"/> Herbal/Natural/Supplements                    | <input type="checkbox"/> Geriatric                    |
| <input type="checkbox"/> Toxicology   | <input type="checkbox"/> Dermatology                                   | <input type="checkbox"/> Pediatric                    |
| <input type="checkbox"/> Immunology   | <input type="checkbox"/> Ophthalmology                                 | <input type="checkbox"/> Women's health               |
| <input type="checkbox"/> Respiratory  | <input type="checkbox"/> Substance abuse                               | <input type="checkbox"/> Asthma                       |
|   | <input type="checkbox"/> Smoking cessation                             | <input type="checkbox"/> Regulatory Issues            |
|   |  | <input type="checkbox"/> Other (please specify) _____ |

15. If you do not have a Pharm D degree, would you be interested in obtaining one?  YES  NO

16. Percent of time in the following practice areas/sites on average in a year:

AMBULATORY CLINIC	_____ %	HOSPITAL BASED	_____ %
GROUP MEDICAL PRACTICE	_____ %	INPATIENT	_____ %
COMMUNITY PHARMACY		LONG TERM CARE	
(a) CHAIN	_____ %	HOME CARE	_____ %
(b) INDEPENDENT	_____ %	POISON CENTER	_____ %
ACADEMIC INSTITUTION	_____ %	DRUG INFORMATION	_____ %
OTHER (please specify) _____	_____ %		

17. Which of the following activities are you involved in? (Check all that apply)

- COMBINED PATIENT COUNSELING AND TEACHING:  
*(Supervising or training students/residents while counseling patients)*
- PATIENT COUNSELING:  
*(Patient counseling without teaching of students/residents)*
- TEACHING:  
*(Didactic and/or classroom teaching of students without patient counseling)*
- DISPENSING / DRUG DISTRIBUTION:  
*(Drug distribution without patient counseling or teaching students)*
- PARTICIPATING IN STUDIES:  
*(Drug studies sponsored by industries, surveys, etc.)*
- ADMINISTRATION / MANAGEMENT:  
*(Planning, budgeting, personnel management, not in support of patient care)*
- CONSULTING:  
*(Nursing homes, pharmaceutical companies, etc.)*
- PROCURING MEDICATIONS / RETAILING:  
*(?)*
- OTHER, *(please specify):* \_\_\_\_\_

18. In your specific work situation, what is considered full time?

- |                                       |                                       |                                       |   |                                       |
|---------------------------------------|---------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> 25-29 hrs/wk | <input type="checkbox"/> 30-34 hrs/wk | <input type="checkbox"/> 35-39 hrs/wk | <input type="checkbox"/> 40-44 hrs/wk   | <input type="checkbox"/> 45-49 hrs/wk |
| <input type="checkbox"/> 50-59 hrs/wk | <input type="checkbox"/> 60-69 hrs/wk | <input type="checkbox"/> 70+ hrs/wk   | <input type="checkbox"/> Not applicable |                                       |

19. What is your average gross compensation?

- Less than \$30,000
- \$30,000-\$39,000
- \$40,000-\$49,000
- \$50,000-\$59,000
- \$60,000-\$69,000
- \$70,000-\$79,000
- \$80,000-\$89,000
- \$90,000-\$99,000
- \$100,000-\$109,000
- \$110,000-\$119,000
- \$120,000-\$129,000
- \$130,000-\$139,000
- \$140,000-\$149,000
- \$150,000 +

20. Compared to five years ago, has your gross income:

- INCREASED
- DECREASED
- REMAINED STABLE

21. Do you think there is a need for more clinically trained pharmacists in the market?  YES  NO

22. Pharmacy is now viewed as a key part of integrated clinical medicine.

(Check the box that best applies to the statement.)

- Strongly agree
- Agree
- No opinion
- Disagree
- Strongly disagree

-----THE REMAINING QUESTIONS DEAL WITH YOUR CLINICAL PRACTICE-----

23. Which health care professionals do you serve and /or collaborate with?

- PA
- PN/NP
- PHARM D
- MD/DO
- DENTISTS
- DIETICIAN
- RN
- HEALTH EDUCATORS
- SOCIAL WORKERS
- OTHER (please specify) \_\_\_\_\_

24. Does your practice include collaboration with a physician and/or other health care professionals in managing drug therapy via protocol?  YES  NO

25. Do you offer language interpretation to your patients?  YES  NO

If yes, what languages? \_\_\_\_\_

26. In the past 12 months, at how many separate SITE(S) have you consistently counseled patients?

- 1
- 2
- 3
- 4 or more

**Please allocate your patient counseling hours to the SITE(S) where you spend the largest portion of you time.**

	SITE #1	SITE #2	SITE #3
27. Zip Code	Zip _____	Zip _____	Zip _____
28. How many more years do you plan on practicing at each location?	Yrs _____	Yrs _____	Yrs _____
29. Number of days per week you spend at each location:	Days _____	Days _____	Days _____
30. Hours in an average week counseling patients:	Hrs _____	Hrs _____	Hrs _____
31. Hours in an average week combined teaching/patient counseling:	Hrs _____	Hrs _____	Hrs _____

# Appendix C - UMEC, Pharmacist Committee, and Staff

## Utah Medical Education Council

### Members

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Senior Vice President for Health Sciences  
& Dean, School of Medicine  
CEO, University of Utah Health System

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School of Medicine  
University of Utah

Gaylen Bunker  
Director of Business Studies  
Westminster College

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Rural Educator & State Advisor  
Technology Student Association  
Southeastern Utah Economic  
Development Council

William L. Hamilton  
Medical Director,  
Intermountain Health Care  
Urban Central Region

John W. Robinson  
President, Utah Healthcare Institute  
Residency Director, St. Mark's Family  
Medicine Residency

Michael J. Stapley  
President and Chief Executive Officer  
Deseret Mutual Benefits Administrators

Aileen Clyde  
Educator & Former Member of  
State Board of Regents

## Pharmacist Committee Members

Reid Barker, Executive Director  
Utah Pharmaceutical Association

Steve Bateman, Chief Executive Officer  
Ogden Regional Medical Center

Don Beckwith, Program Manager  
State Office of Rural Health

Robert Hooten, Pharmacy Services Director  
Intermountain Health Care

Si Hutt, Chief Executive Officer  
Ashley Valley Medical Center

Michael Kelly, Service Director  
University of Utah Hospitals and Clinics

Jim Jorgensen, Director, Pharmacy Services  
University of Utah Hospital Network

John Mauger, Dean  
University of Utah College of Pharmacy

Mark Woolf, VP Pharmacy Sales  
Smith's Food and Drug

Warren Young, Director Pharmacy Sales  
Smith's Food and Drug

## UMEC Staff

Gar Elison, Director  
David Squire, Financial Officer  
Julie Olsen, Administrative Assistant  
Daniel Bergantz, Intern  
Clint Elison, Intern  
Jennifer Ha, Intern  
Matt Horstmann, Intern