

UTAH'S PHARMACIST WORKFORCE, 2018



Utah Medical Education Council



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The Utah Medical Education Council

State of Utah

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Prepared by:

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Utah's Pharmacist Workforce, 2018

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THE UTAH MEDICAL EDUCATION COUNCIL

The Utah Medical Education Council (UMEC) was created in 1997 out of a need to secure and stabilize the state's supply of healthcare clinicians. This legislation authorized the UMEC to conduct ongoing healthcare workforce analyses and to assess Utah's training capacity and graduate medical education (GME) financing policies. The UMEC is presided over by an eight-member board appointed by the Governor to bridge the gap between public/private healthcare workforce and education interests.

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EXECUTIVE SUMMARY

Nationally, the future of the pharmacist workforce is shifting rapidly. Historic shortages of pharmacists across the nation are beginning to shift, and members of the profession predict “imminent oversupply” in the coming decades unless pharmacist roles expand to include more collaborative and direct patient care roles.ⁱ

The following report is the fourth installment of UMEC studies on the pharmacist workforce in Utah. Survey data was collected and used to analyze the state’s workforce and compare it to predicted national trends. Specifically, the report explores demographics, educational history, geographic dispersal, and setting characteristics. It also examines trends that will influence the future supply and demand of pharmacists in the state, including techniques to increase efficiency, utilization of pharmacy technicians, educational and retention rates of PharmD cohorts, prescription utilization across the state, and factors contributing to workforce satisfaction.

The first two UMEC pharmacist reports (2002, 2009) indicated that Utah was experiencing a shortage of pharmacists. The Aggregate Demand Index (ADI)¹ score for Utah during this time hovered around 4.0- indicating moderate unmet demand for pharmacists in the state. The 2014 report indicated that Utah was moving toward equilibrium between supply and demand, with an ADI score of 2.8. This shift is similar to national trends, which declined steadily from 3.83 in 2006 to 2.98 in the fourth quarter of 2017.ⁱⁱ The author of that report estimated that the supply would likely overtake projected demand by 2025, unless contributing factors altered the supply/demand trajectory.ⁱⁱⁱ Mail order pharmacy programs, increased automation, increasing use of pharmacy technicians, and improved dispensing technologies are all influential factors altering the landscape of the profession.^{iv}

ADI for Utah pharmacists remained relatively stable through 2015 (3.24-3.17).^v However, predicted shifts began to emerge in following years as Utah’s ADI score began to dip downward to 2.5-2 on the PDI²- indicating supply was beginning to outpace demand, with approximately 79.5 pharmacists per 100,000 Utah residents. There are an average of 221 new licenses being issued per year and only 72 expiring due to retirement or attrition. If current workforce growth rates continue, the supply of pharmacists in the state will continue to outpace demand over the coming decade.

¹ The Aggregate Demand Index (ADI) was a monthly indicator to help evaluate pharmacist supply and demand across the country. It was created by the Pharmacy Manpower Project in 2000. The measure name was changed to Pharmacist Demand Indicator (PDI) in 2016, but measure values remain the same and can be compared to ADI numbers reported in previous UMEC Pharmacy Workforce Reports.

² This data comes from the Pharmacy Workforce Center’s “Pharmacy Manpower Project.” Demand and supply are ranked on a 1-5 scale: 1) demand is much less than the pharmacist supply available; 2) demand is less than the supply of pharmacists available; 3) demand is in balance with supply; 4) moderate demand, some difficulty filling positions; and 5) high demand, difficult to fill positions.

AT A GLANCE

- 3,103³ (69.03%) of the 4,534 licensed pharmacists are currently providing some type of service in the state of Utah.
- 2,721 consider themselves active full-time or active part-time. This translates to 2,519 Full Time Equivalents (FTEs). Those not active full-time or part-time report providing voluntary or occasional services.
- There are 79.5 pharmacists per 100,000 Utah residents.
- 41% of the Utah workforce is female, compared to the national proportion of 58.1%
- Average student loan debt for pharmacy students who graduated in 2017 is \$130,833- over 5 times as much as those graduating in 2005 with an average reported student loan debt of \$25, 105.
- 80% of responding pharmacists have primary work locations within 4 counties: Davis, Salt Lake, Utah, and Weber. 52.4% of those work primarily in Salt Lake County.
- 52% of pharmacists work in retail settings.
- 4.25% of pharmacists indicate multiple primary work settings, indicating an increase in flexibility of pharmacist roles.
- 22.8% of pharmacists reported a secondary work setting.
- The average annual mean wage for all full-time staff pharmacists is \$121,281. The average annual salary for all part-time pharmacists is \$60,660. The average annual gross income for those pharmacists in management positions is \$130,086.
- Pharmacists still report that most of their time is spent dispensing prescriptions, followed by administrative tasks and patient counseling.
- 30.3% of pharmacists report they do not have sufficient time to council patients.
- Pharmacists are able to fill an average of 23 prescriptions per hour.
- Managers' three leading techniques to cope with prescription demand increase are 1) increasing pharmacy technician workload/hours, 2) increasing automation, and 3) recruiting/hiring additional pharmacy technicians
- 36.7% of Utah pharmacists report working in a multidisciplinary care team.
- 81.1% of pharmacists supervise pharmacy technicians during their shifts.
- 36.6% of Utah pharmacists reported adverse experiences that occurred during the past two years. Of those- 29.2% reported having to work two or more positions at the same time, 22.4% had their hours decreased involuntarily, and 11.5% had to work a part-time or temporary position while they would have preferred a more stable position. 7.8% became unemployed involuntarily. 26.4% switched employers or practices.
- 80.4% of Utah pharmacists are satisfied with their current employment- 44% are "very satisfied" and 37% are "somewhat satisfied."

³ A weighting factor was applied to all counts to account for survey non-response.

POLICY RECOMMENDATIONS

1. Utah workforce supply projections are in line with national predictions of oversupply. While expanding educational programs to students with high likelihood of remaining in Utah helped close the gap for unmet demand over the past decade, the composition of PharmD cohorts will need to be adjusted to slow current trends.
 - a. Track retention rates of those with Pharmacist and Pharmacy Intern licenses to increase the efficiency of future supply estimates.
 - b. Continue to include geographic identifiers in Pharmacist Workforce Surveys. Utilizing pharmacy interns and recent graduates in historically under-served portions of the state will reduce the over-supply of pharmacists in concentrated portions of the state. Encourage utilization of programs that incentivize pharmacists to work in rural portions of the state.
2. Promote a more diverse workforce
 - a. Increase efforts to encourage underrepresented groups to pursue a Pharmacy degree, particularly those who identify as Hispanic. Those with Hispanic ethnicity comprise over 13% of Utah's population and only 1.4% of the pharmacist workforce.
 - b. Develop scholarship or loan reimbursement programs to help enable lower income students to pursue this advanced degree.
3. Include analysis of pharmacy technicians in future workforce analyses. Their role in meeting demand and increasing efficiency could play a substantive role in the future of the workforce. Pharmacists and pharmacy technicians will play an increasingly co-operate role in meeting prescription demands for the foreseeable future.
4. Enhance data collection by partnering with DOPL to add UMEC's survey to licensing process. This will streamline the survey process by reducing the amount of demographic information required. This will enable UMEC to ask more detailed questions regarding prescription fill rates, utilization of mail-order pharmacies, and technician utilization. Incorporating these measures will enable future surveys to better predict pharmacist supply and demand.

LITERATURE REVIEW: NATIONAL WORKFORCE

The trajectory of pharmacist workforce supply has changed significantly over the past decade. While national PDI scores remained at an average of 3 for all four quarters of 2018 (indicating equilibrium of supply and demand)^{vi}, stakeholders are concerned about maintaining that balance. As pharmacist schools continue to open and cohort sizes continue to grow, some stakeholders predict that the current equilibrium will quickly turn into oversupply unless pharmacist roles expand to include more patient care roles and multi-disciplinary team positions.^{vii}

One study on the pharmacist technician workforce discussed the evolution of pharmacist roles, noting that “[t]he [pharmacist] profession has been for the better parts of 3 decades or longer discussing a transition, or at least an evolution in care afforded to patients by pharmacists. Carrying different names such as drug use control, clinical pharmacy, pharmaceutical care, and medication therapy management, there has been progress in this evolution, albeit probably not as quickly or as ubiquitously embraced as first hoped or hypothesized.”^{viii} This has led institutions to increase utilization of pharmacist support staff and efficiency techniques, to save on labor costs and allow pharmacists at the top of their licensure abilities. However, the shifts in pharmacist roles have been slower to implement than anticipated. This has resulted in a decreased projected growth rate for pharmacist positions. In 2012, the BLS predicted that the pharmacist would grow by 14.5% between 2012 and 2022.^{ix} When 10-year projections were updated in 2016, the BLS predicated that growth for pharmacists will only be 5.6% between 2016 and 2026, a significant decrease from previous trends.^x

This projection of oversupply is particularly concerning when coupled with the rising rates of student loan debts facing the nation’s pharmacists. Part of this price increase comes from the change in education requirements from a bachelor’s level to a doctorate level degree. This was done to encourage utilization of pharmacists in interdisciplinary care, particularly in primary care settings.^{xi} While research shows that PharmD degrees still typically yield a positive return on investment, the extent of that return is continuing to weaken as student indebtedness continues to rise at a faster rate than salaries. Additionally, the growth rates for those salaries have slowed. Between 2012 and 2016, salary growth for pharmacists was 1%-2%, unlike the previous five years where salary growth year to year was 3%-6%.^{xii}

Nationally, it will become increasingly important to ensure pharmacy graduates continue to earn a return on their education investment and are being utilized towards the top of their license. The following report analyzes how the supply of Utah pharmacists compares to these national trends and makes projections about the future of the workforce in the state.

METHODOLOGY

License Data

Information for every licensed pharmacist in the state was provided to UMEC by The Utah Division of Occupational and Professional Licensing (DOPL). As of 2018, there were 4,534 pharmacists holding licenses in the state.

Design of Survey Instrument

The data used for this report were collected using a survey crafted by UMEC. The designed survey was based on the UMEC's 2014 Pharmacist Workforce Survey. A survey draft was presented to the Pharmacist Advisory Committee for feedback (see Appendix B for survey). The final survey consisted of 40 questions and was mailed out to all 4,534 licensed pharmacists in Utah.⁴

Data Collection

The first mailing was distributed in the beginning of 2018. A total of four mailings of the survey were distributed, and the data collection period ended in August 2018. 1,373 surveys were returned – 943 surveys from respondents who reported providing services in Utah, 423 indicating that they do not provide any pharmacy related services in Utah, and 7 who did not indicate their provider status. The final response rate for the survey was 30.4%.⁵

Data Entry & Analysis

The 2018 Pharmacist Workforce Survey was created using SNAP survey software. Responses were scanned and exported into Excel, where the data was cleaned in house by UMEC staff. Tableau was used to conduct statistical analyses and create data visualizations. Analysis began in Fall 2018.

Those who are not providing services in Utah were asked to only complete the first two questions of the survey. Therefore, the denominator for most of the analysis includes only those who are providing some type of service in Utah (943). A weight factor of 3.29 has been applied to each case in the analysis.⁶ The weight factor was used to account for non-response when estimating counts for the workforce population.

⁴ Licensed pharmacist data was provided by the Utah Division of Occupational and Professional Licensing (DOPL). 16 Utah pharmacists licensed through DOPL did not have updated mailing addresses, which prevented them from participating in the survey. The final response rate then is 1,373 divided out of 4,518 ($4,534 - 16 = 4,518$) = 30.48%.

⁵ This response rate decreased significantly from the 2014 study (60.4%). However, results were still statistically significant at a 95% confidence interval and showed no systemic skew. Excluding pharmacy intern licenses, the response rate is 35%.

⁶ The weight factor is calculated by taking the response rate of the entire population ($1,373/4,518$) - which is 0.30389553. Dividing this number from one gives a weight factor of 3.29 for each case. Weight was applied to account for non-response.

Limitations

789 pharmacy interns holding a license with DOPL were included in the mailing list information. Survey questions were crafted to capture data from those already employed in the workforce, so interns may have felt it was inapplicable to them and chose not to respond. This may have been one factor contributing to the decline in response rate between 2014 and 2018.

Only 66 interns responded to the current survey, 20 of which indicated they were providing services in Utah.

In some questions, respondents were asked to provide a specific number as a response (eg- average gross income, number of pharmacy technicians supervised per shift, number of pharmacy technicians comfortable supervising). Some respondents provided a range rather than a specific number, so the mean of the range was used for analysis.

Question 13 was answered inconsistently by respondents, which impacted the ability to make consistent comparisons to previous survey findings. The question on average gross annual compensation was changed from a categorical variable to an open-ended question in hopes of providing more precise income information for the workforce. However, this potentially contributed to some item non-response. Respondents might be uncomfortable answering income questions with specificity.

UTAH'S PHARMACIST WORKFORCE

One of the Utah Medical Education Council's (UMEC) principal responsibilities is to determine the current number and mix of healthcare professionals in Utah. An integral part of this process involves determining the supply and demand of specific healthcare professionals. The UMEC conducts periodic workforce surveys to: 1) help gauge the current active workforce in Utah; 2) assess the future supply and demand for specific healthcare workforces; and 3) develop strategies with stakeholders to ensure that the healthcare workforce requirements of Utah are met.

The following report is the fourth UMEC analysis of Utah's pharmacist workforce.⁷ Information contained in this report presents updated workforce characteristics, including primary work settings, geographic distribution, demographics, workload, and compensation. Information from UMEC's 2018 survey builds off of previous reports to provide longitudinal analysis of Utah's pharmacist workforce and make projections about future supply and demand over the coming decade.

SECTION 1: UTAH PHARMACIST WORKFORCE - OVERVIEW

The first two UMEC pharmacist reports were published in 2002 and 2009, both indicated that Utah was experiencing a pharmacist shortage.^{xiii xiv} By 2014, the supply of pharmacists was meeting demand. However, PDI⁸ has continued to decline since 2015, suggesting that supply is beginning to outpace demand.⁹

The total number of licensed Utah pharmacists has increased from 3,044 in 2013 to 3,729. There are also 789 active pharmacist intern licenses, 76 of which are providing services in the state.¹⁰ According to estimates, the total active pharmacist workforce in Utah has increased to 2,721 from the 2013 estimate of 2,135.

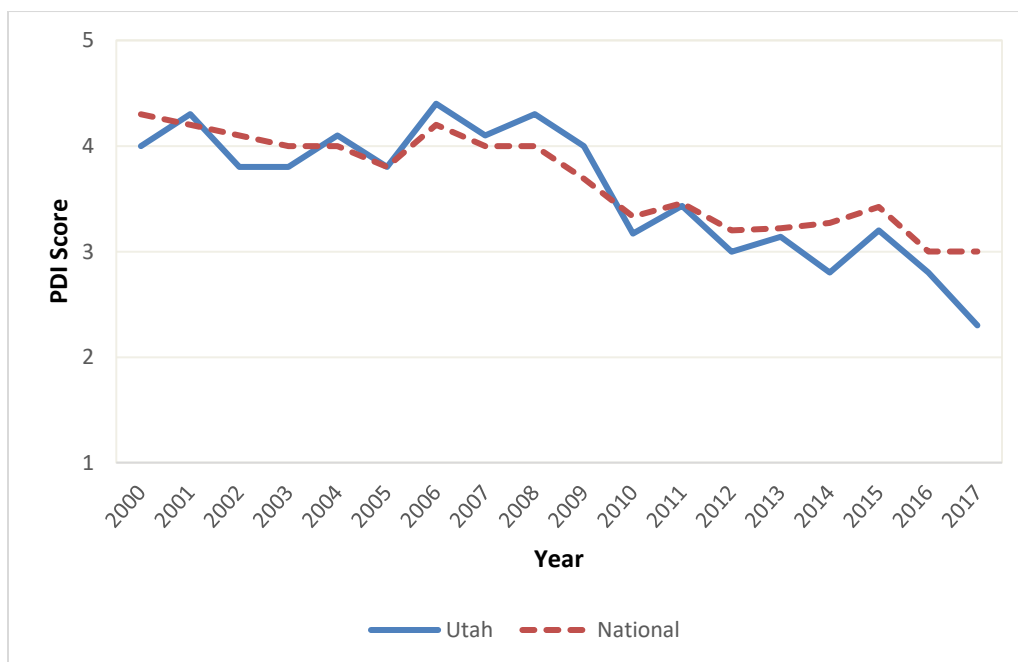
⁷ See "Utah's Pharmacist Workforce, 2002," "Utah's Pharmacist Workforce, 2009," and "Utah's Pharmacist Workforce, 2014" at www.utahmec.org for information on previous reports.

⁸ The Aggregate Demand Index (ADI) was a monthly indicator to help evaluate pharmacist supply and demand across the country. It was created by the Pharmacy Manpower Project in 2000. The measure name was changed to Pharmacist Demand Indicator (PDI) in 2016, but measure values remain the same and can be compared to ADI numbers reported in previous UMEC Pharmacy Workforce Reports.

⁹ PDI measures can be found and compared at <https://pharmacymanpower.com/trends.php>

¹⁰ 66 of 789 pharmacist interns responded to the survey, and only 23 indicated they are still actively providing services in the state. 19 indicated that they are now providing services as a pharmacist full-time. Weighted counts estimate pharmacy interns actively practicing in the state at 76. They account for only 2.1% of provider responses.

Figure 1: PHARMACIST DEMAND INDICATOR, UTAH VS. U.S., 2000-2017



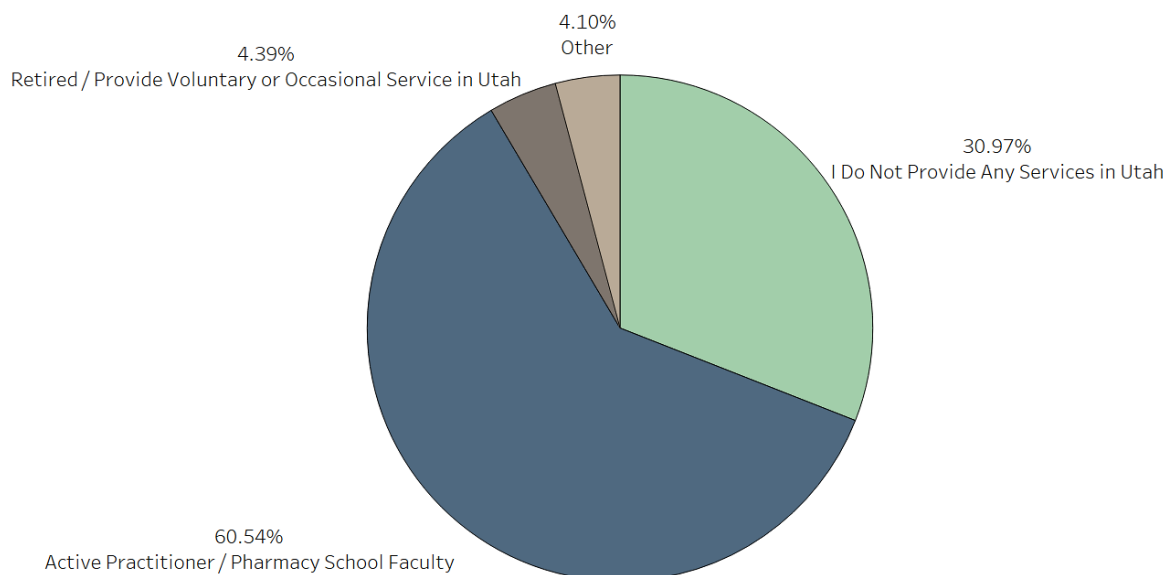
1.1: CURRENT ACTIVE PHARMACIST SUPPLY IN UTAH

The pharmacist workforce survey estimates that 3,103 (69.03%) of the 4,534 pharmacists licensed in the state are currently providing some type of service in the state of Utah. This is slightly less than the 2013 rate of 70.1%. Of those currently providing services, 2,721¹¹ consider themselves active full-time or active part-time.

Those that identified as “other” were asked to specify what type of services they provide in the state. Responses included pharmacy informatics, consulting, administration, pharmaceutical industry medical science liaison, mail order pharmacists, and people whose primary work location is in another state, but occasionally provide services in Utah. A majority of those still licensed and working as pharmacy interns were also classified into this category.

¹¹ After accounting for employment status and hours worked per week, this translates to an estimated 2,518 full-time equivalent (FTE) pharmacists working in the state.

Figure 2: LICENSED PHARMACISTS IN UTAH: DISTRIBUTION BY SERVICE PROVISION, 2018



Respondents were also asked to rank factors influencing their decision to practice or not to practice in Utah. Familial factors were the most important reasons for both those providing and not providing services in Utah. Themes that emerged among those choosing not to provide services in Utah included decisions to move/relocate, lack of career opportunities, transitioned to full retirement, and opting to work remotely. Recurring themes among those choosing to work in Utah included work-life balance, job benefits, enjoyment of their colleagues/ practice environment, career opportunities, and feeling that the work they do is important.¹²

1.2: ACTIVE PHARMACIST-TO-100,000 POPULATION RATIO IN UTAH

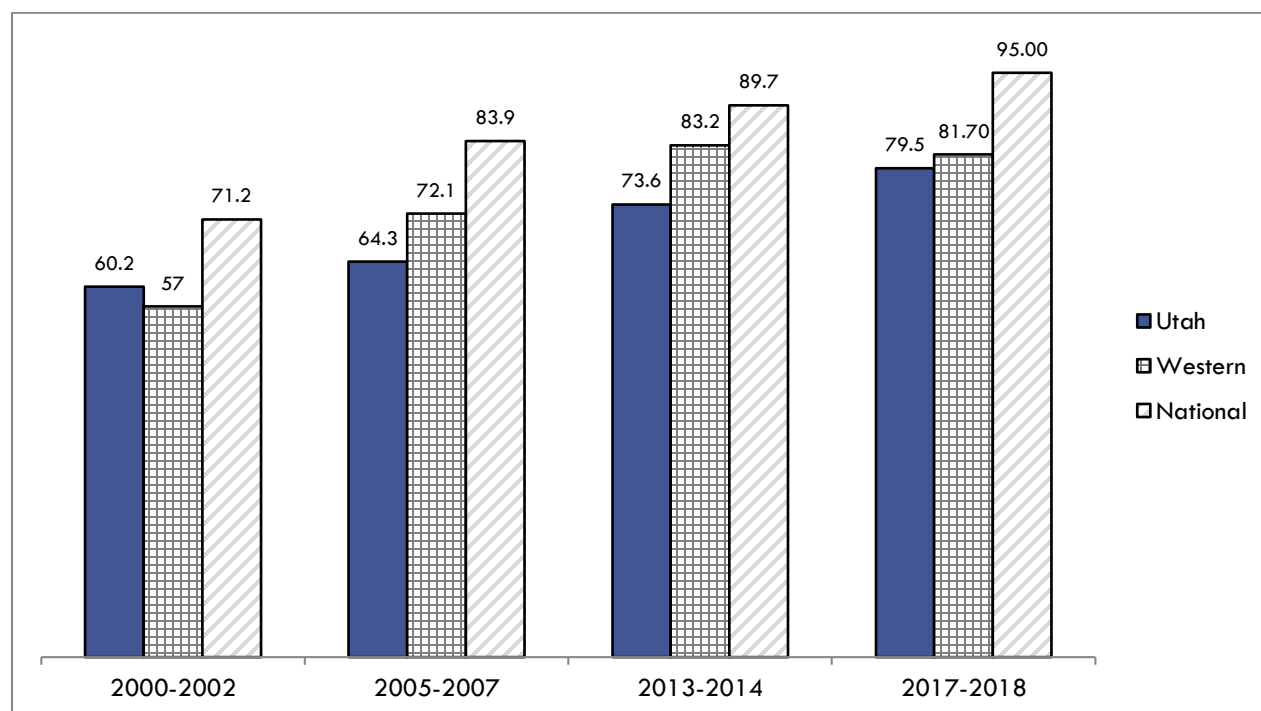
In 2005, the UMEC estimated that Utah's pharmacist-to-100,000 population ratio was approximately 64.3.¹³ As of 2013, that ratio had increased to 73.6. The UMEC currently estimates there are 79.5 pharmacists per 100,000 Utah residents. While the Utah ratio continues to increase, it still lags behind the western and national ratios of 81.7 and 95,

¹² Respondents asked to rank options based on importance: 1-5 scale (1=MOST influential, 5=LEAST influential). Options included "family," "lifestyle," "pay scale/wages," "cost of living," "climate," and an open-ended "other" option. "Other" was the most selected option for those not providing services in Utah and the second most selected option for those who are. Qualitative themes were coded from those open-ended responses.

¹³ Those not providing services in Utah were asked to only respond to the first two questions of the survey. The remainder of this analysis is based on the unweighted responses from the respondents providing services within the state (943 total). See Appendix B for the survey instrument, and Appendix C for item response rates.

respectively.¹⁴ See Appendix A- Table 6 for full regional and national breakdowns of providers-per-100,000.¹⁵

Figure 3: UTAH PHARMACISTS-TO-100,000 POPULATION RATIO (2002-2018)



1.3: DEMOGRAPHICS

1.3.a: Race and Ethnicity

A majority of the pharmacist workforce identifies as Caucasian (93%), which is consistent across workforce reports for the state. The proportion of Caucasians in the pharmacist workforce is over-represented when compared to Utah's general population (91%). The second largest category represented are Asian (5.5%). They are also over-represented in the workforce when compared with the Utah population (2.2% Asian).

Ethnicity was asked as a separate question from race. Those of Hispanic ethnicity are underrepresented in the pharmacist workforce, with only 1.4% of the workforce identifying Hispanic ethnicity. They are under-represented in the workforce when compared to the population, which is 13.5% Hispanic.

¹⁴ Data comes from the U.S. Department of Labor- Bureau of Labor Statistics and U.S. Department of Commerce- United States Census Bureau. See "State and County Quick Facts, 2017."

¹⁵ Provider-per-100,000 was calculated using Kem C. Gardner Policy Institute's 2018 population estimates for the state of Utah (3,166,647)

Figure 4: CAUCASIAN PROPORTION OF PHARMACIST WORKFORCE UTAH VS. U.S.

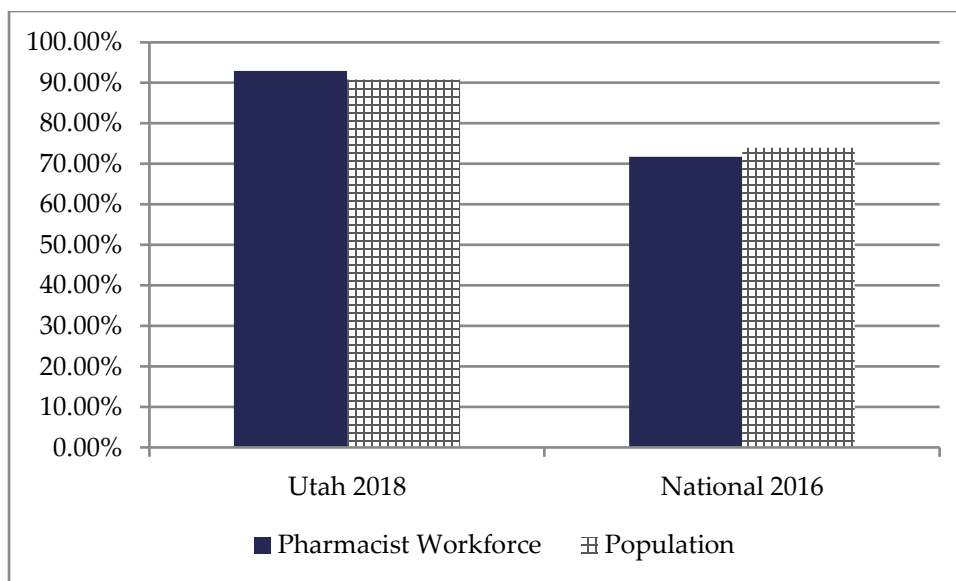


Table 1: RACE/ETHNICITY COMPARISON: PHARMACIST WORKFORCE VS. POPULATION

| Race/Ethnicity | Utah's Pharmacist Workforce (2018) | Utah's Population (2018) | National Pharmacist Workforce (2016)* | National Population (2017)** | Utah's Pharmacist Workforce (2013) | Utah's Population (2013) | National Pharmacist Workforce (2009) | National Population (2013) |
|--------------------------------------|------------------------------------|--------------------------|---------------------------------------|------------------------------|------------------------------------|--------------------------|--------------------------------------|----------------------------|
| Caucasian | 92.97% | 87.30% | 71.80% | 76.60% | 83.50% | 89.10% | 86.50% | 77.70% |
| Asian | 5.49% | 2.20% | 18% | 5.80% | 5.00% | 2.00% | 8.10% | 5.30% |
| Hispanic*** | 1.41% | 13.50% | -- | 18.10% | 1.00% | 12.90% | 1.70% | 17.10% |
| African American | 0.11% | 1.10% | 7.30% | 13.40% | 0.20% | 1.10% | 2.00% | 13.20% |
| American Indian/ Alaska Native | 0.11% | 1.10% | 0.02% | 1.30% | 0.20% | 1.10% | 0.40% | 1.20% |
| Pacific Islander/ Native Hawaiian | 0.22% | 0.90% | 0.10% | 0.20% | 0.20% | 0.90% | -- | 0.20% |
| Other | 1.10% | 4.80% | 0.80% | -- | 1.00% | -- | 3.30% | -- |

Information from 2013 and 2009 comes from UMEC's *Pharmacist Workforce Report, 2014*.

*2018 National Pharmacist Workforce data comes from the Data USA. A National Workforce Report has not been published by the Pharmacy Workforce Center since 2014.

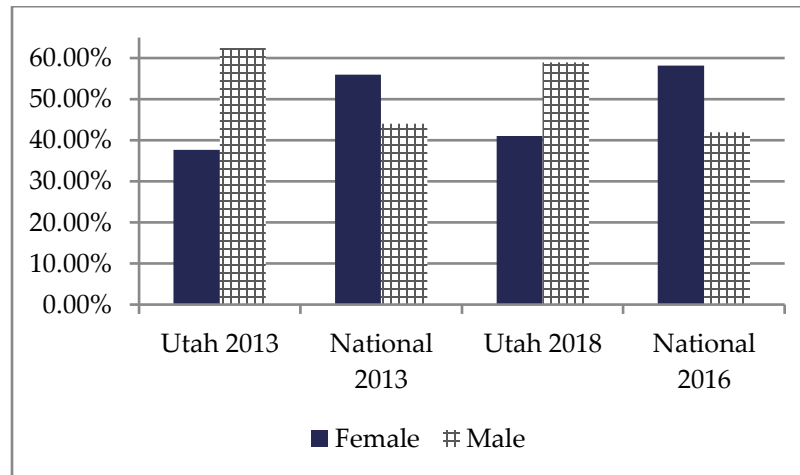
**Utah and National population proportions come from US Census data. See factfinder.census.gov

***Hispanic ethnicity was asked as a separate question from race. Individuals could identify Hispanic ethnicity as well as race.

1.3.b: Gender Composition

There are currently an estimated 1,142 females actively providing services in Utah compared to 1,579 males. Historically, there have been more males than females in the pharmacist workforce, but the proportion of females has continued to increase over the past decade. The percentage of females was 34% in 2002, 37.6% in 2013, and is 41% in 2018. This proportion still lags behind the national pharmacist workforce, which was 58.1% female as of 2016.^{xv}

Figure 5: GENDER COMPOSITION IN WORKFORCE: UTAH VS. U.S.A.



1.3.c: Age

Average Age Over Time

2005: 45.6

39.6 Female,
48.8 Male

2013: 47.5

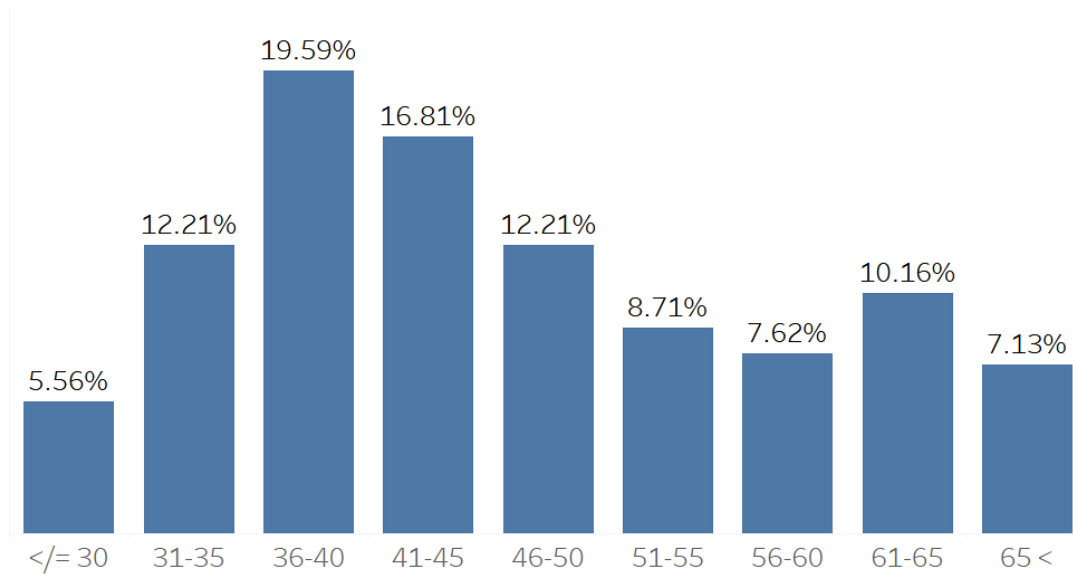
42.6 Female,
50.4 Male

2018: 47.3

44.5 Female,
49.3 Male

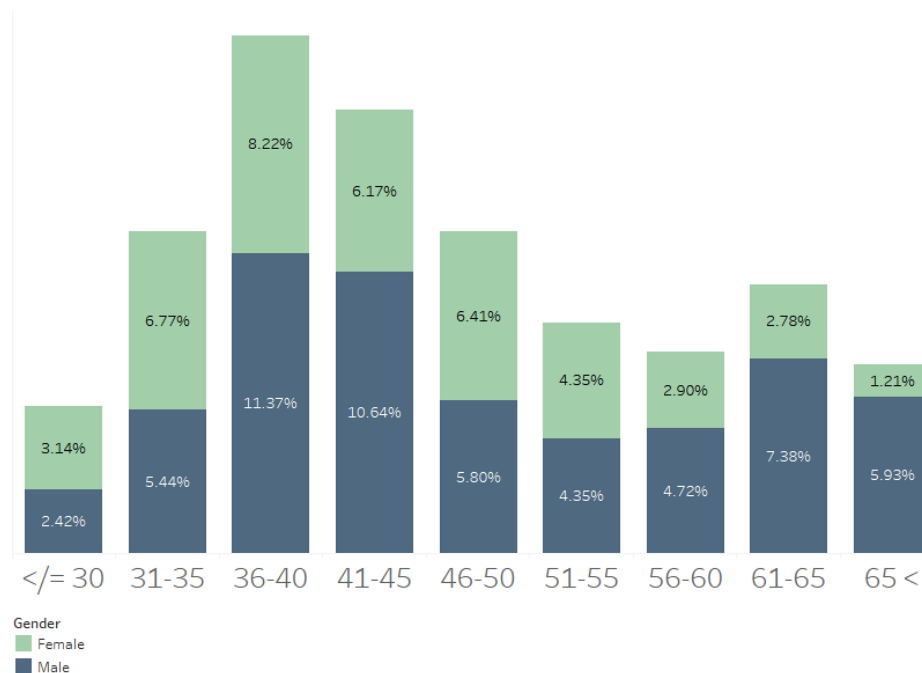
The average pharmacist in Utah is 47.3 years old – a slight decrease from 47.5 years old in 2013. The difference between average ages for male and female pharmacists has decreased since 2013. The average age for females is 44.5 years old, and for males it is 49.3 years old. In 2013, the average ages were 42.6 and 50.4, respectively. The proportion of the workforce under the age of 46 has increased since the 2013 report, from 51% to 54.17%. Conversely, the proportion of the workforce over the age of 56 has decreased since 2013, going from 31% to 24.9%. Only 7.13% of the workforce identified as active full-time or part-time in the 65+ age cohort. However, when taking into account those over 65 who choose to provide voluntary or occasional services in Utah, the proportion jumps to 12.6%.

Figure 6: AGE DISTRIBUTION OF PHARMACISTS IN UTAH, 2018



Note: Percentages represent the total proportion of the **active** pharmacist workforce population. Graphs including those who provide voluntary/occasional services in the state are included in Appendix A.

Figure 7: AGE DISTRIBUTION OF PRACTICING PHARMACISTS IN UTAH BY GENDER, 2018



Note: Percentages represent the total proportion of the **active** pharmacist workforce population. Graphs including those who provide voluntary/occasional services in the state are included in Appendix A.

Certain gender trends exist across age cohorts, similarly to the 2005 and 2013 reports. Female pharmacists work part-time at higher rates than male pharmacists across all age cohorts, except those 30 years old or younger. A majority of female pharmacists are young, with 57.78% of the female workforce under the age of 46. The percentage of females over 56 has continued to increase since 2013 to 16.77% (up from 15.4%). Male pharmacists work almost exclusively full-time until age 65 or older. After the age of 65, there is almost an equal split between those who report providing full-time, part-time, and voluntary/occasional services.

Figure 8: AGE DISTRIBUTION OF ACTIVE FEMALE PHARMACISTS IN UTAH, 2018

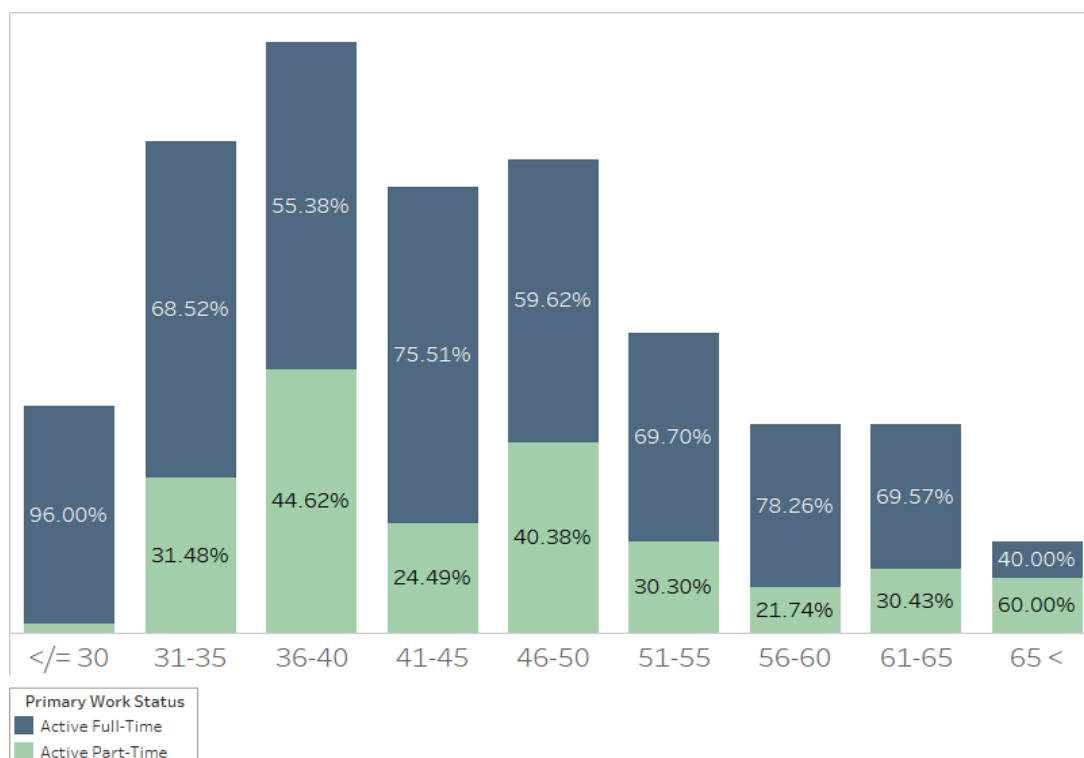
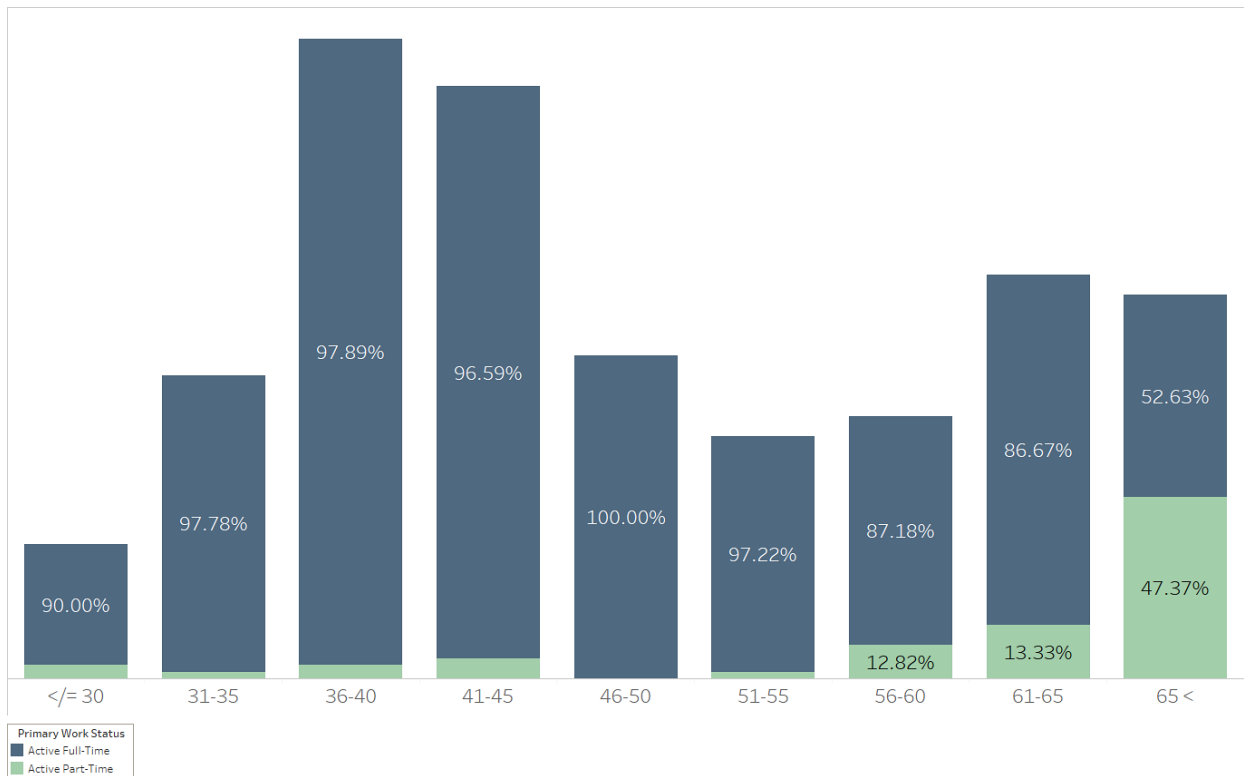


Figure 9: AGE DISTRIBUTION OF ACTIVE MALE PHARMACISTS IN UTAH, 2018



1.3.d: Education and Educational Debt

Since the change in educational requirements shifted from a B.S. Pharm to a PharmD, the educational background and student loan burden for the workforce have shifted.

Currently, only 38.8% of pharmacists state that their highest degree obtained is a B.S. Pharm. 57.2% of respondents hold only a PharmD degree. 4% of respondents have both.

40.3% of pharmacists who provided education information indicated they received their degree in Utah- 82.8% of which attended a state school, and 17.2% attended a private school.¹⁶

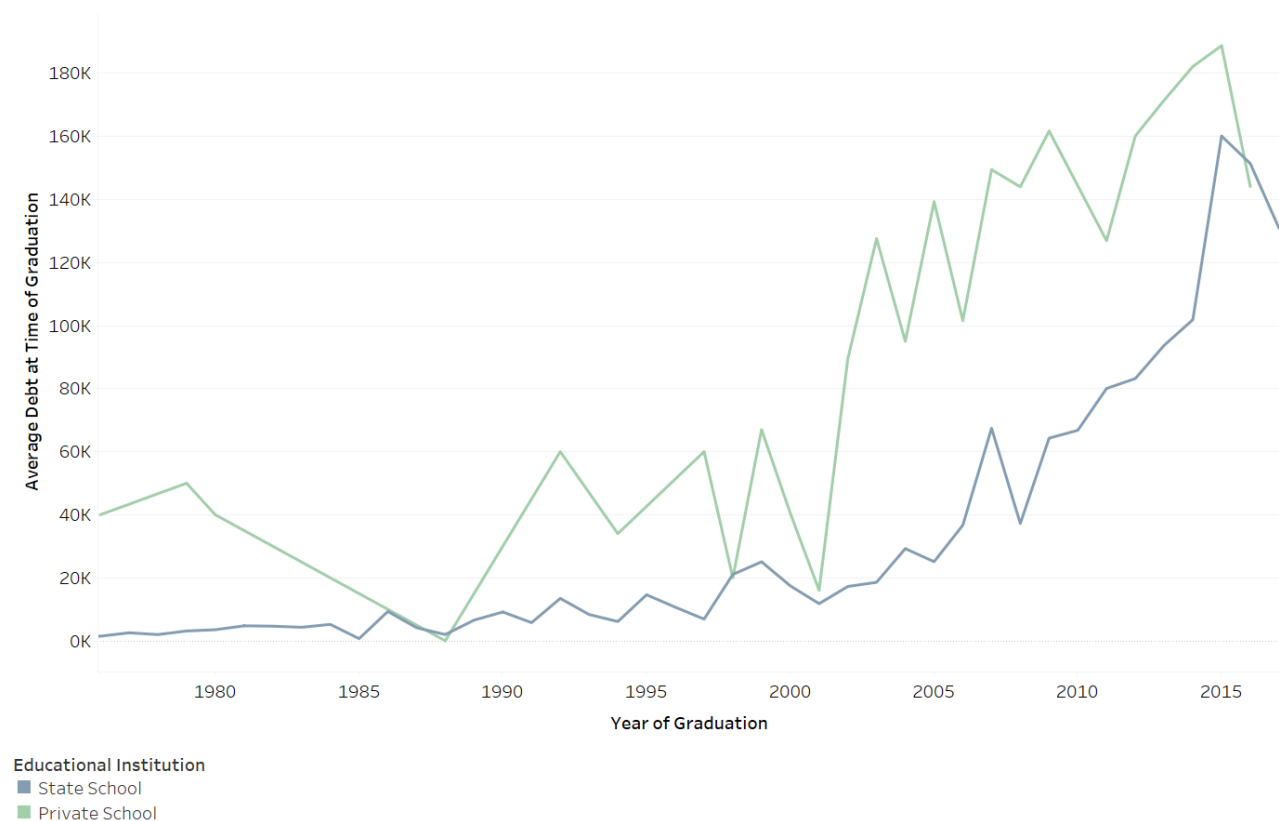
A small portion of respondents (11.3%) indicated they had completed a post-pharmacy degree. Most chose to complete an MBA (45.8%) or Masters of Science (23.4%). Other programs included Ph.D., Masters of Arts, and Masters of Public Health.

¹⁶ State PharmD programs admit and graduate fewer students than private programs, but a greater proportion of those that attended school and currently provide services in Utah indicate they attended a Utah school.

Only 17.5% of respondents completed a pharmacy residency. 81.1% of pharmacists did not complete or were not interested in completing a residency as part of their training. 1.4% are currently seeking or completing a residency.

Educational debt is a topic of growing concern among many different professions, and the pharmaceutical workforce is no different. The average student loan debt for pharmacy students who graduated in 2017 is \$130,833, over 5 times as much as those graduating in 2005 with an average student loan debt of \$25,105.¹⁷ Over the last decade, student loan debts have been consistently greater for those who attended private schools. See Appendix A- Figure 34 for a comparison of annual gross income by educational institution type.

Figure 10: DEBT AT TIME OF GRADUATION, STATE V. PRIVATE SCHOOLS

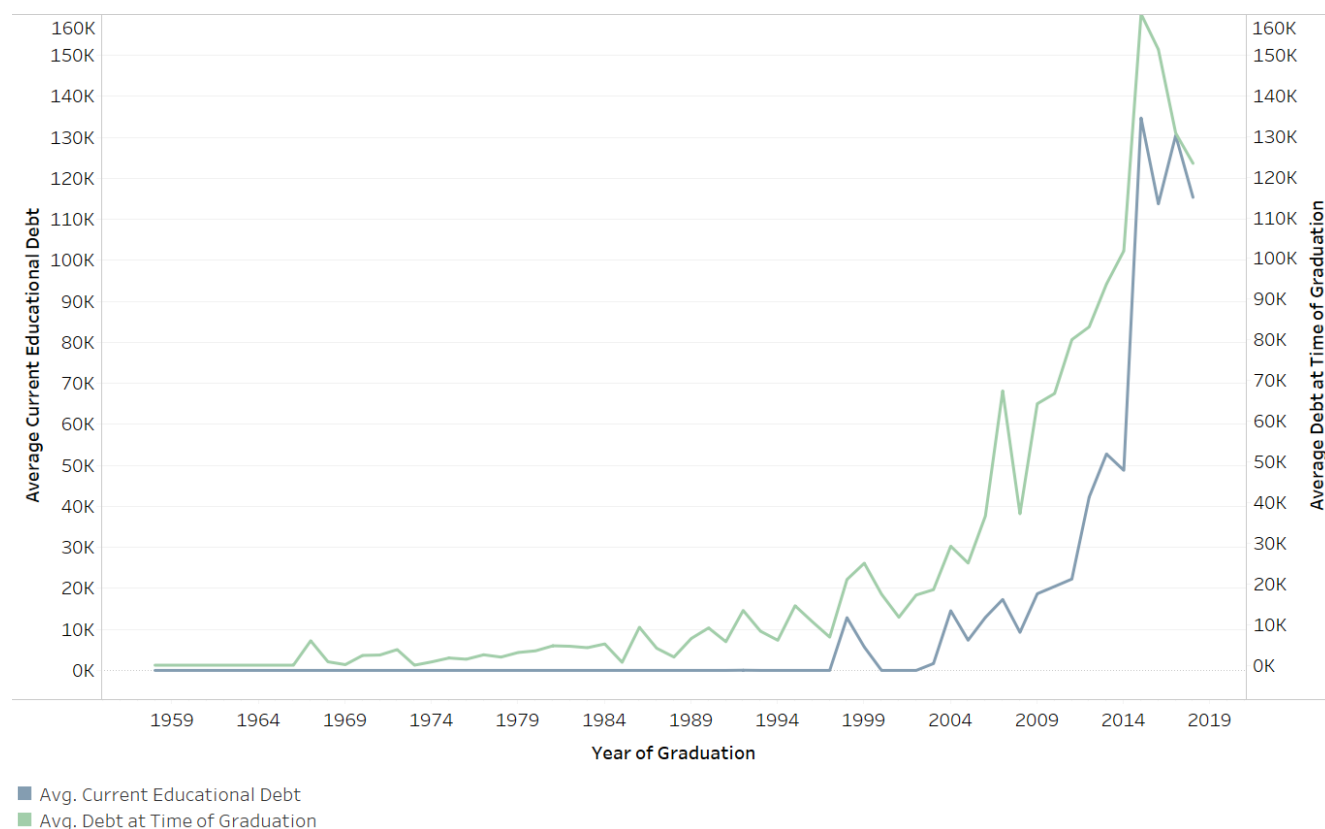


Unlike past pharmacist workforce surveys, respondents were also asked to provide information on their current educational debt. This will help provide longitudinal insight into student loan debt burden for pharmacists. When compared to debt at time of graduation, the smallest differences exist for those who have recently graduated (just entering the workforce and beginning repayment) and those who graduated over a decade ago (adequate time in the

¹⁷ Part of this increase may be attributed to the shift in degree requirements from a B.S. to a PharmD degree in the early 2000s.

workforce to pay down educational debt). Those with the current greatest debt burden graduated between 2010 and 2014. Future surveys will be able to track these current educational debts over time and measure how much time in the workforce it takes to repay debt.

Figure 11: DEBT AT TIME OF GRADUATION V. CURRENT EDUCATIONAL DEBT



SECTION 2: PRACTICE SETTINGS

Geographic distribution of pharmacists is similar to previous reports, with a majority of pharmacists working within a few counties.

2.1: GEOGRAPHIC DISTRIBUTION

Similar to previous reports, a majority of Utah pharmacists (80%) reported primary work locations in four counties: Davis, Salt Lake, Utah, and Weber. 75% of the state's population lives in these four counties, so pharmacists are proportionally overrepresented. Washington County had the highest proportion of pharmacists outside of the Wasatch Front. The percentage of the pharmacist workforce in Washington County (5.6%) is representative to the proportion of the total population that resides there (5.4%).

The proportion of pharmacists working in rural counties (11.29%) falls below the proportion of the population living in those counties (15.37%).¹⁸ See Appendix A-Table 1 for geographic distributions by county from 2005-2018.

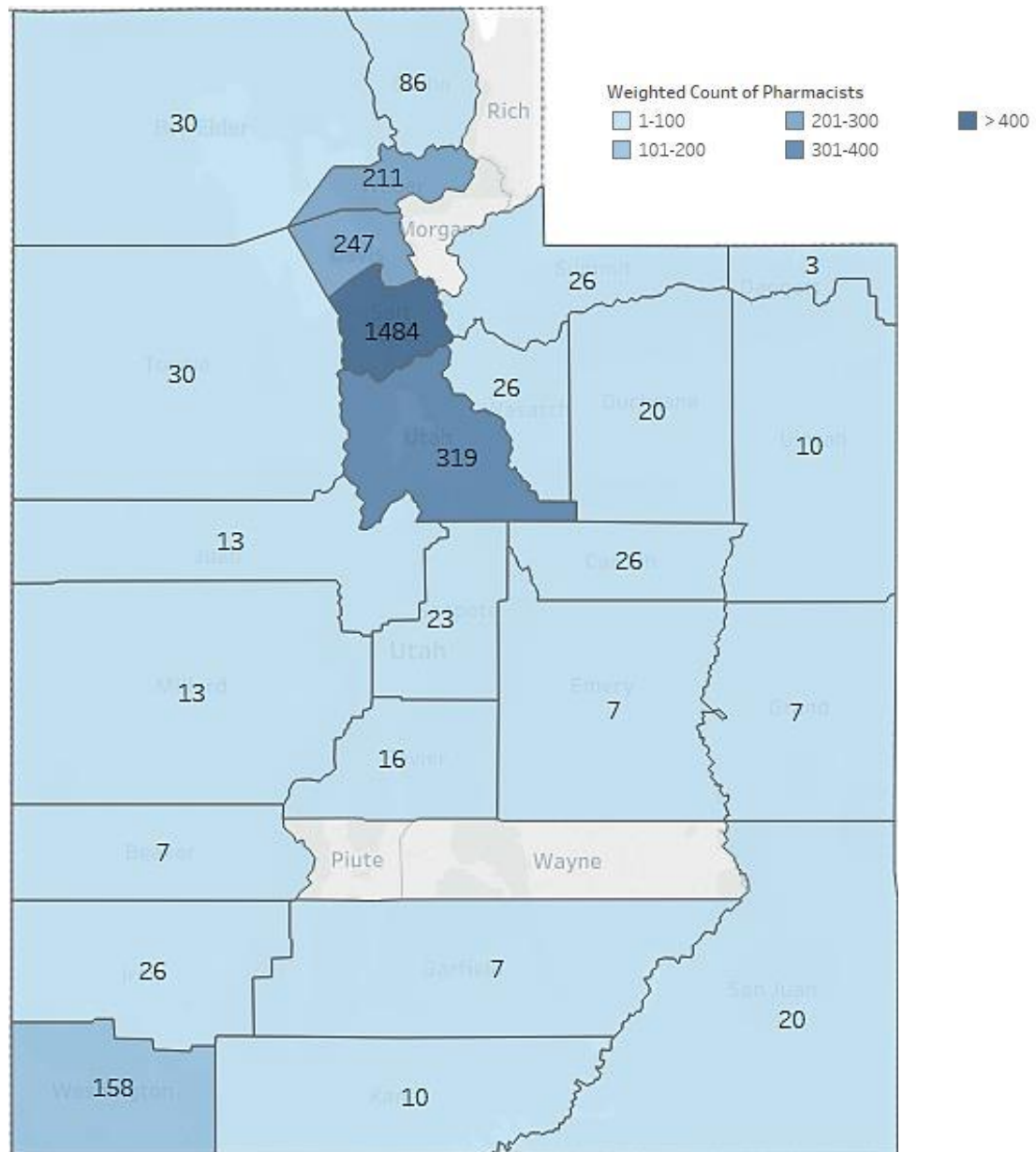
Table 2: GEOGRAPHIC DISTRIBUTION OF ACTIVE UTAH PHARMACISTS, 2018

| County | Pharmacist Workforce* | Utah Population |
|-------------------|-----------------------|-----------------|
| Beaver County | 0.23% | 0.22% |
| Box Elder County | 1.05% | 1.76% |
| Cache County | 3.03% | 4.07% |
| Carbon County | 0.93% | 0.68% |
| Daggett County | 0.12% | 0.03% |
| Davis County | 8.73% | 11.14% |
| Duchesne County | 0.70% | 0.66% |
| Emery County | 0.23% | 0.34% |
| Garfield County | 0.23% | 0.17% |
| Grand County | 0.23% | 0.32% |
| Iron County | 0.93% | 1.71% |
| Juab County | 0.47% | 0.38% |
| Kane County | 0.35% | 0.24% |
| Millard County | 0.47% | 0.43% |
| Morgan County | -- | 0.38% |
| Piute County | -- | 0.05% |
| Rich County | -- | 0.08% |
| Salt Lake County | 52.50% | 36.07% |
| San Juan County | 0.70% | 0.52% |
| Sanpete County | 0.81% | 0.97% |
| Sevier County | 0.58% | 0.69% |
| Summit County | 0.93% | 1.30% |
| Tooele County | 1.05% | 2.17% |
| Uintah County | 0.35% | 1.17% |
| Utah County | 11.29% | 20.01% |
| Wasatch County | 0.93% | 1.01% |
| Washington County | 5.59% | 5.40% |
| Wayne County | -- | 0.09% |
| Weber County | 7.45% | 7.94% |
| | 99.88% | 100.00% |

*Total does not equal 100% due to non-response

¹⁸ Cache, Davis, Salt Lake, Utah, Washington, and Weber Counties were classified as urban. All remaining counties were classified as rural.

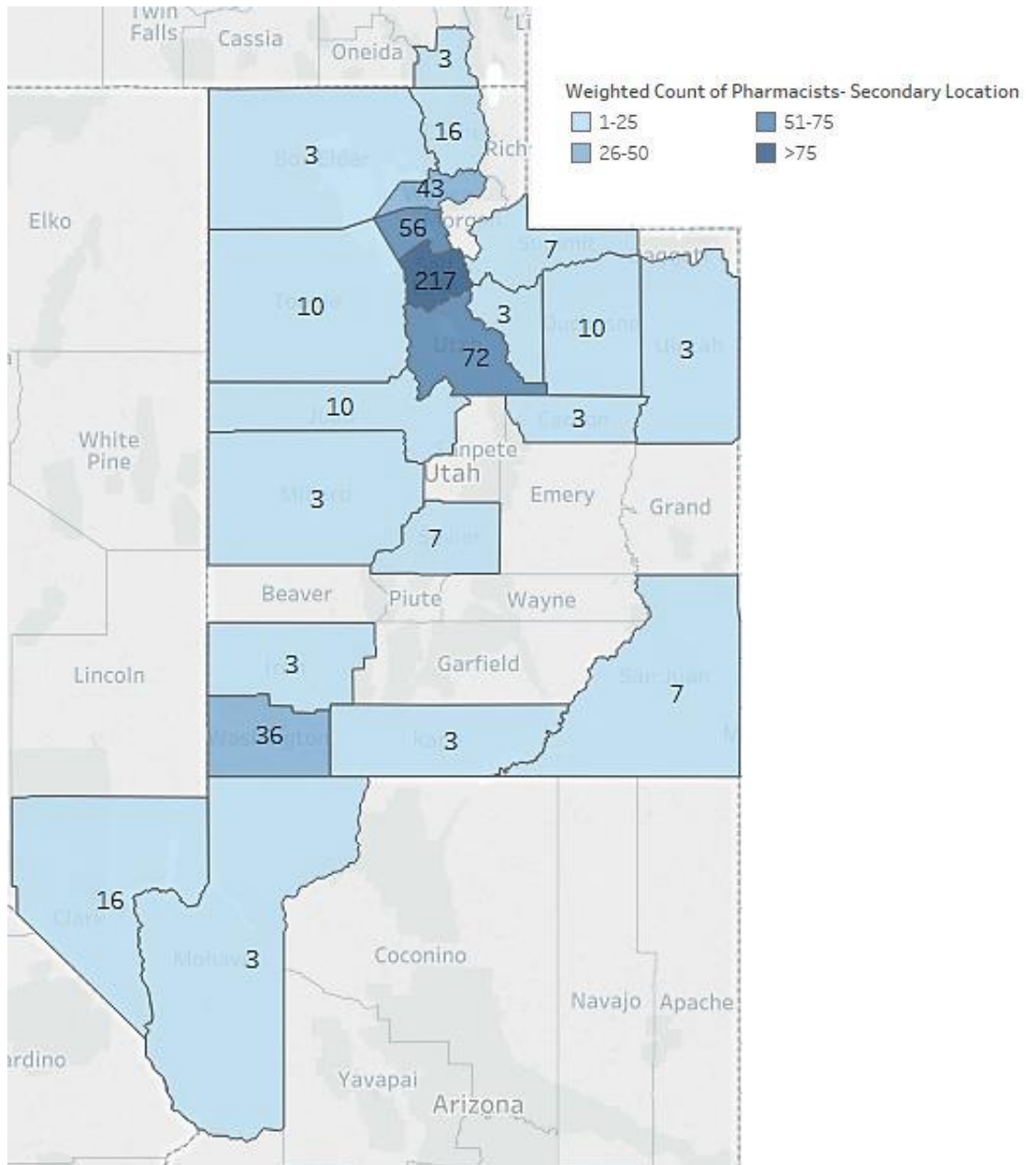
Figure 12: PRIMARY LOCATION DISTRIBUTION OF UTAH PHARMACISTS BY COUNTY



Note: Respondents were asked to report the zip code of their primary work location. Those counts were grouped by county and weighted to reflect the total number of pharmacists estimated to be working in each county. A large majority of pharmacists reported working in Salt Lake County, with a weighted estimate of 1,484. The second highest was Utah county with a weighted estimate of 319.

In this survey, respondents were also given the option of reporting the geographic information for secondary work settings, in order to help provide greater insight into where services are being provided. The distribution is similar to primary locations- out of 215 responses, 70.2% of were also located within Davis, Salt Lake, Utah, and Weber Counties. 4.7% of secondary work settings were located in other states: Nevada, Arizona, and Idaho.

Figure 13: SECONDARY LOCATION DISTRIBUTION OF UTAH PHARMACISTS BY COUNTY



Note: Respondents were asked to report the zip code of their secondary work location. Those counts were grouped by county and weighted to reflect the total number of pharmacists estimated to be working a secondary position in each county. A large majority of pharmacists reported working in Salt Lake County, with a weighted estimate of 217. The second highest was Utah county with a weighted estimate of 72.

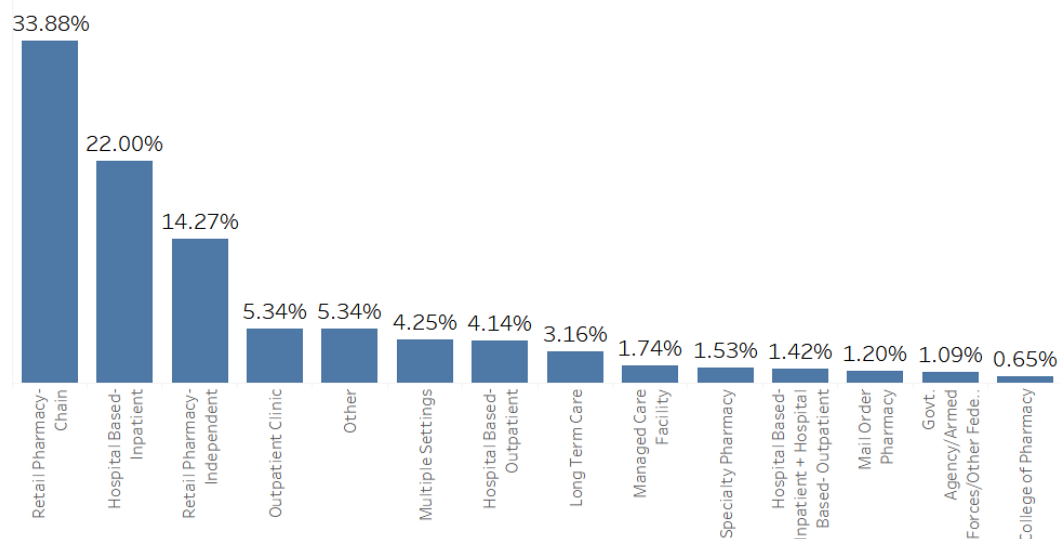
2.2: WORKPLACE SETTINGS AND HOURS WORKED

A majority of pharmacists still work in retail roles (approximately 52%).¹⁹ This number has not changed significantly since 2013. However, there are some changes in work settings that may indicate the need for flexibility from pharmacists in the future.

Results from this survey might indicate an increase in role flexibility of pharmacists, with 4.25% of pharmacists indicating multiple primary work settings.²⁰

Those who classified their work setting as “Other” were asked to specify their primary work setting in an open-ended follow up question. Responses included supervisor of pharmaceuticals, informatics, home infusion workers/home health, investigative pharmacy/research, consulting, and poison control centers. 22.8% have a secondary work setting. Of the 215 respondents who reported a secondary work setting, 51.2% worked in a retail pharmacy chain or independent retail pharmacy. The next highest category was hospital based inpatient pharmacy (11.6%).

Figure 14: PRIMARY WORK SETTING OF PHARMACISTS IN UTAH, 2018²¹

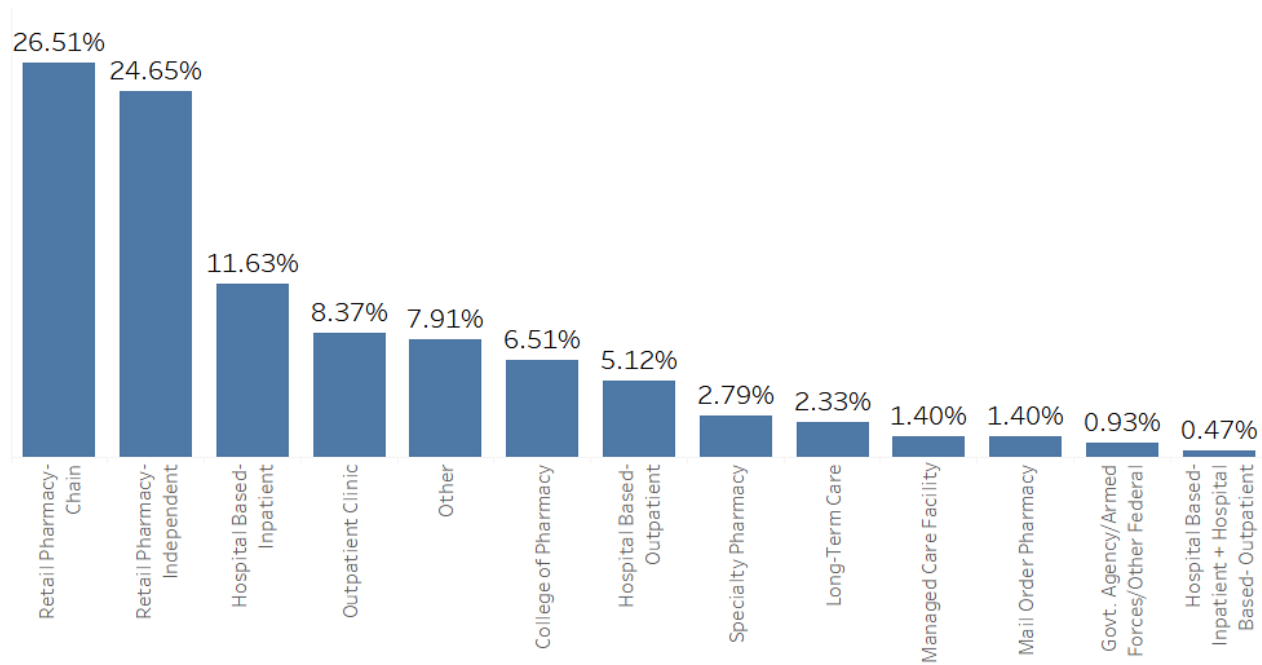


¹⁹ The Department of Workforce Services (DWS) estimates retail pharmacists make up 52.4% of the workforce based on North American Industry Classification System (NAICS) codes: “Health and Personal Care Stores” (26.61%); “Grocery Stores” (16.13%); and “Other General Merchandise Stores” (9.68%).

²⁰ Survey questions regarding work setting did not allow for a ranked option, and respondents could not specify how much time was spent at each setting. Therefore, those who marked multiple primary or secondary settings were categorized as “Multiple Settings” for analysis. Responses included hospital settings, retail settings, and outpatient clinics, and “other.”

²¹ “Hospital Based- Inpatient” and “Hospital Based- Outpatient” were provided as survey options. However, multiple respondents indicated that they identified *both* as their primary work setting. Therefore, a separate category “Hospital Based Inpatient + Outpatient” was created.

Figure 15: SECONDARY WORK SETTING OF PHARMACISTS IN UTAH, 2018

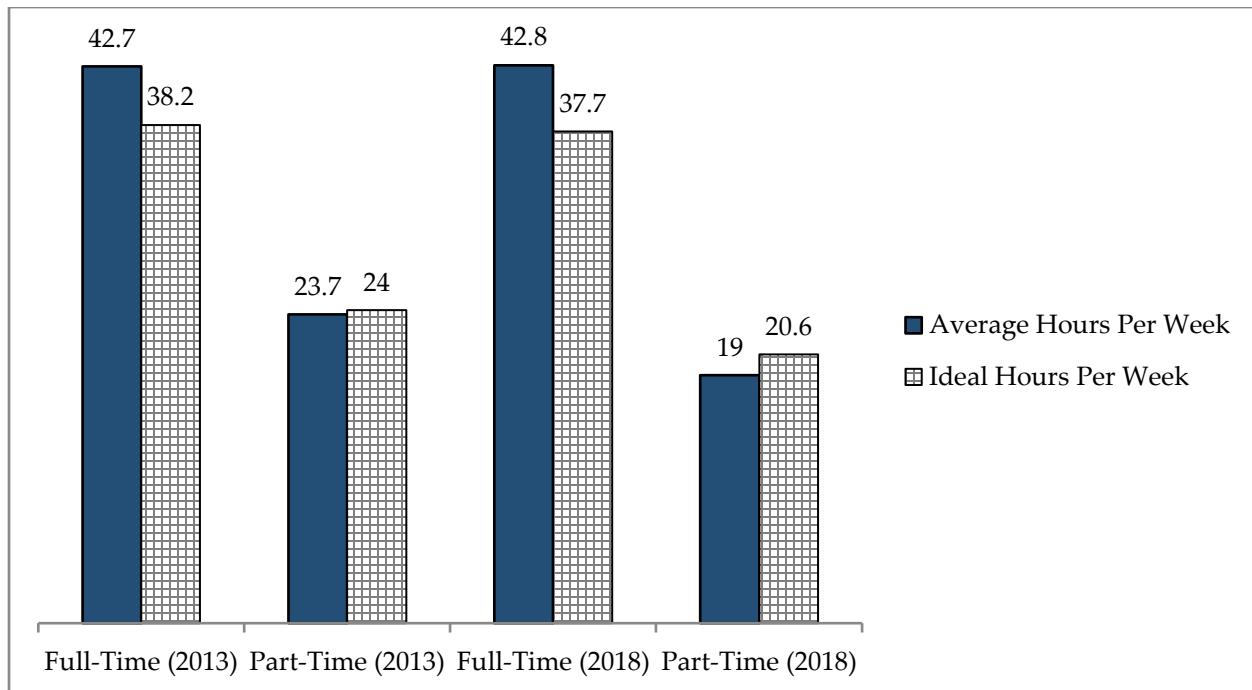


2.2.a: Practice Hours

Average hours worked per week for full-time pharmacists have remained stable since 2013. They worked an average of 43.2 hours per week in 2013 and currently work an average of 42.8 hours per week. Part-time pharmacists worked an average of 21.6 hours per week in 2013 and currently work an average of 19 hours per week.

Those who identify as providing voluntary or occasional services reported an average of 6.78 hours worked per week. Those who identify as providing “other” types of services in Utah (including informatics, consulting, interns, and medical science liaisons) reported working an average of 14.9 hours per week.

Figure 16: AVERAGE HOURS PER WEEK VS. IDEAL HOURS PER WEEK BY STATUS



UMEC also asked pharmacists how many hours per week they would ideally like to work. Those actively working full-time averaged 5.1 hours more per week than they would ideally like to work. Those working part-time averaged 1.6 hours less per week than their ideal.

The biggest differences between actual and ideal hours worked per week was for those providing occasional services (averaging 5.2 hours less per week than their ideal) and those providing other types of services (averaging 10.13 hours less per week than their ideal).

Average hours worked and ideal hours have some variation between primary work settings.

Figure 17: AVERAGE HOURS PER WEEK BY PRIMARY WORK SETTING AND POSITION TYPE

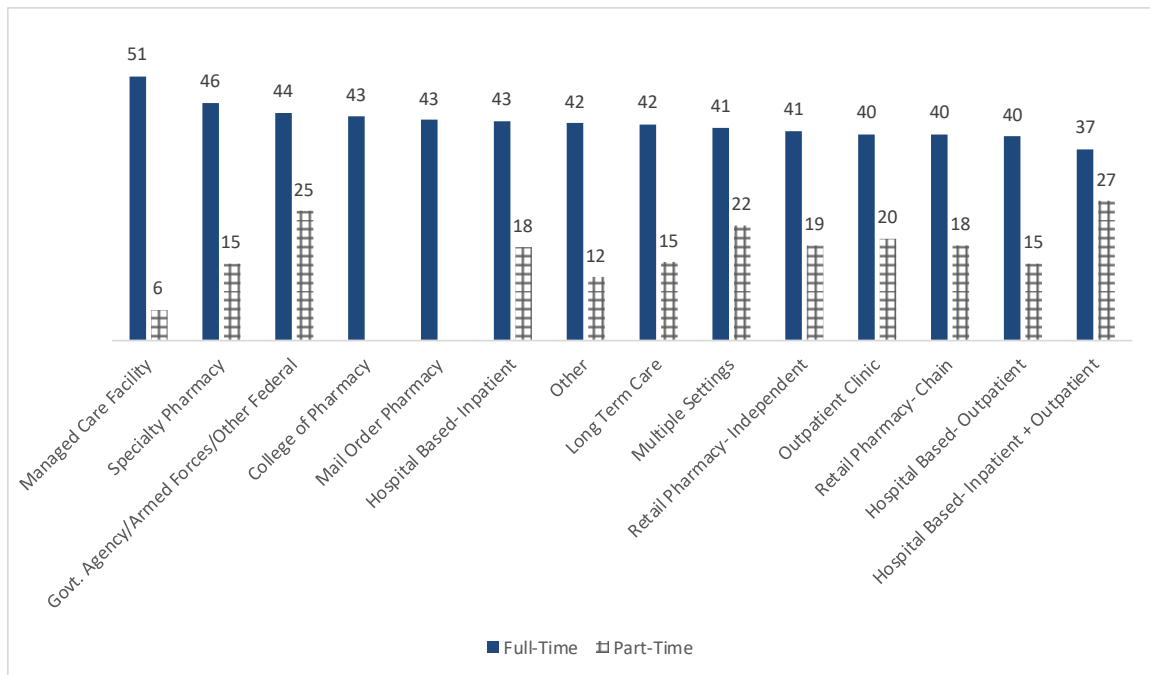
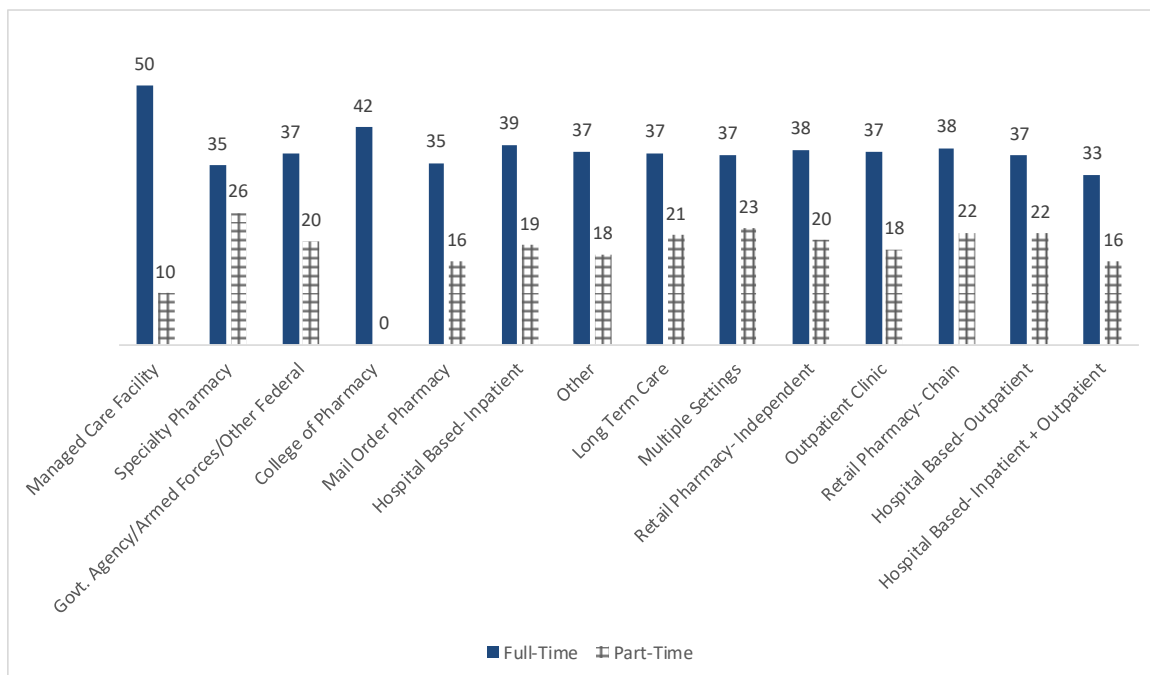


Figure 18: IDEAL HOURS PER WEEK BY PRIMARY WORK SETTING AND POSITION TYPE



2.2.b: Full-Time Equivalent Employees (FTEs) Produced, 2013

As of 2018, there are an estimated 2,519 FTEs²² in Utah's pharmacist workforce. 54.9% are under the age of 46, a useful indicator when estimating workforce supply over the next two decades. This is only a marginal decrease from the 2013 estimate of 55%.

Those over the age of 56, likely to retire within the next two decades, constitute around 24.5% of all FTEs, an increase from the 2013 estimate of 23%.

2.3: COMPENSATION

Pharmacists were asked to report their average annual gross compensation in an open-ended question. The average annual wage for all pharmacists is \$114,536. 50.5% of all pharmacists earn between \$120,000-\$149,000 per year.

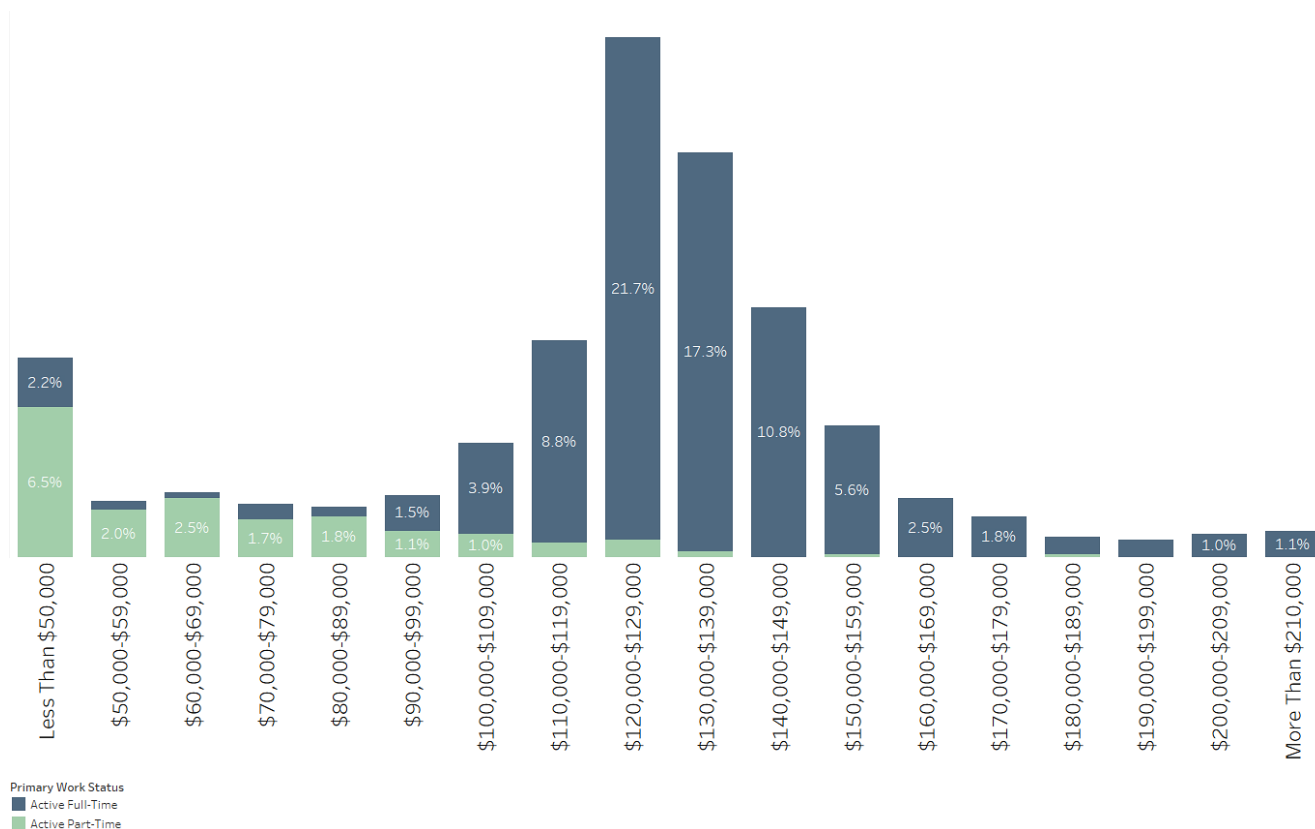
Average compensation is \$129,657 for those actively working full-time, up from the 2013 estimate of \$118,658. Those actively working part-time had an average annual compensation of \$60,629. 62.2% of respondents indicated their income has increased within the last 5 years.

The unadjusted average salary for male pharmacists is \$124,378 and the average salary for females is \$99,225. This is due to a variety of factors, particularly because there are more females than males in part-time pharmacist positions.

2017 estimates by the BLS put the national mean wage for pharmacists at \$121,710 and the annual mean wage for Utah pharmacists at \$111,110.^{xvi}

²² 1.0 Full-Time Equivalent (FTE) is calculated as a pharmacist working 40 hours per week, 50 weeks per year (assuming 2 weeks of vacation time per year). For example, a part-time pharmacist working 20 hours per week would produce .5 FTE, whereas a pharmacist working 60 hours would be producing 1.5 FTEs.

Figure 19: WAGE BY ALL ACTIVE PHARMACISTS

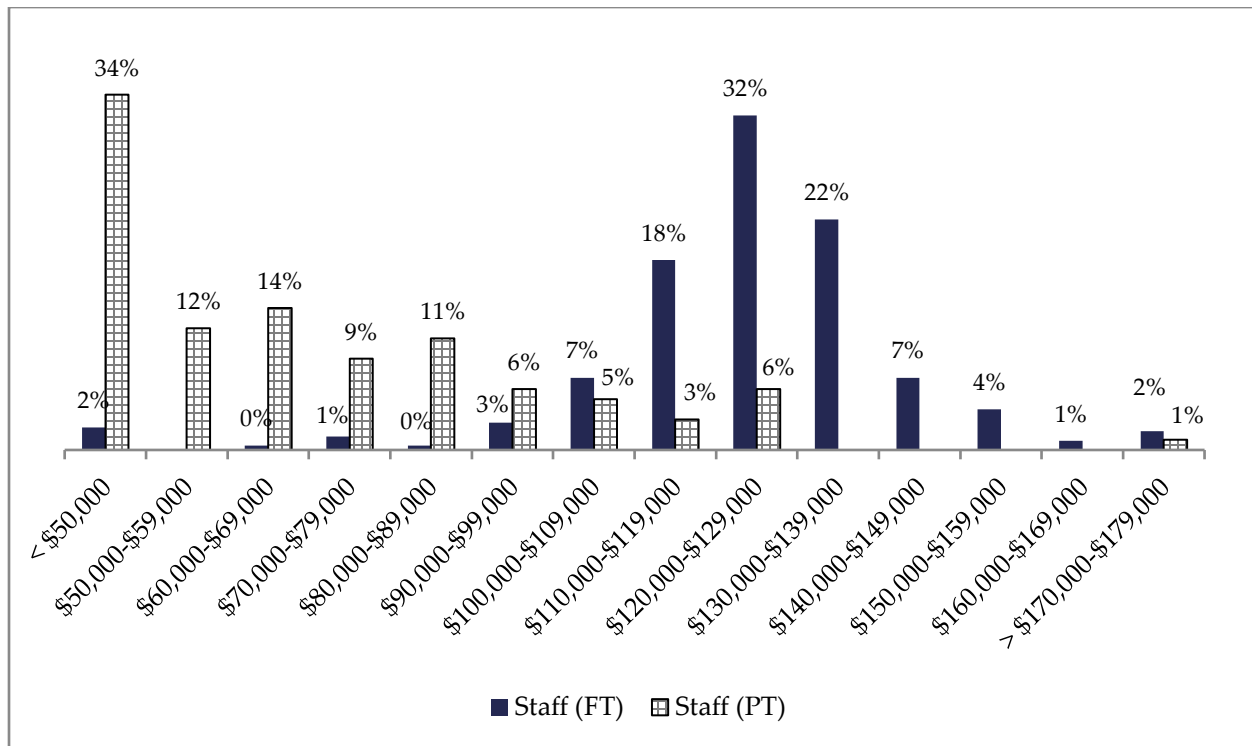


2.3.a: Compensation for Staff Pharmacists

The average annual mean wage for all full-time staff pharmacists²³ is \$121,281. Female staff pharmacists working full-time make an average of \$117,595, and male staff pharmacists make an average of \$122,806. The average annual salary for all part-time pharmacists is \$60,660. 34.3% of staff pharmacists working part-time report making less than \$50,000 per year. Females working part-time report average annual incomes of \$60,451. This is comparable to males working part-time, who make an average of \$61,402 per year.

²³ Respondents were asked about their position at their *primary* place of employment. Some identified multiple positions/titles. 60.1% of question respondents (396/659) identified “staff pharmacist” as one of their current positions. These individuals include clinical pharmacists, consultants, staff pharmacists, and relief pharmacists.

Figure 20: COMPENSATION FOR STAFF PHARMACISTS BY POSITION TYPE, 2018



2.3.b: Compensation for Pharmacists in Management Positions

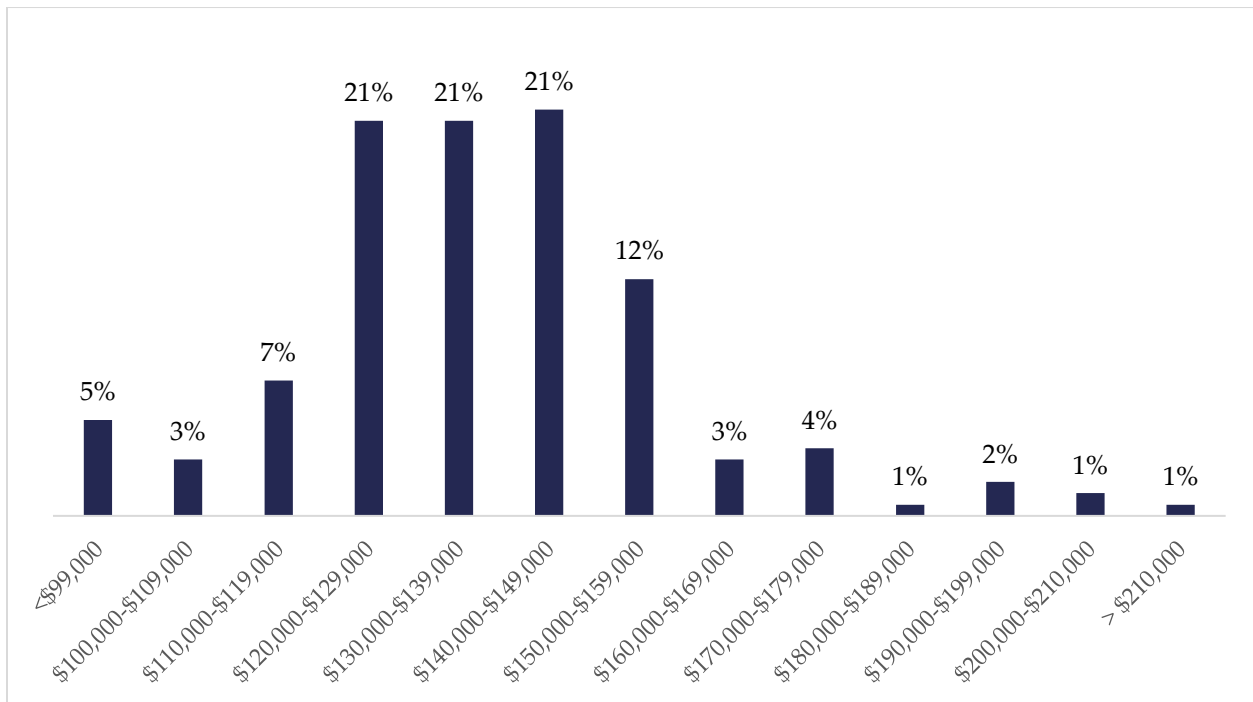
Approximately 30% of question respondents identified as management in their primary place of employment, and 74.1% of those in management are male.²⁴ See Appendix A- Figure 35 for a breakdown of male and female pharmacists in management positions by primary setting.

On an annual basis, 59.5% of those managers earn \$120,000-\$149,000. The average gross income for those in management positions is \$130,086. Females working full-time in management roles earn an average of \$119,155, compared to males in management positions who earn a reported average of \$137,716.²⁵

²⁴ Respondents were asked about their position at their *primary* place of employment. Some identified multiple positions/titles. 29.9% of question respondents identified “management” as one of their current positions. These individuals include directors, managers, assistant managers, and staff supervisors.

²⁵ There are multitudes of contributing factors that influence income. Analysis of this survey data showed a statistically significant association between age, primary setting, position, hours worked per week, and gender. Specific causation cannot be determined with the information captured in this survey.

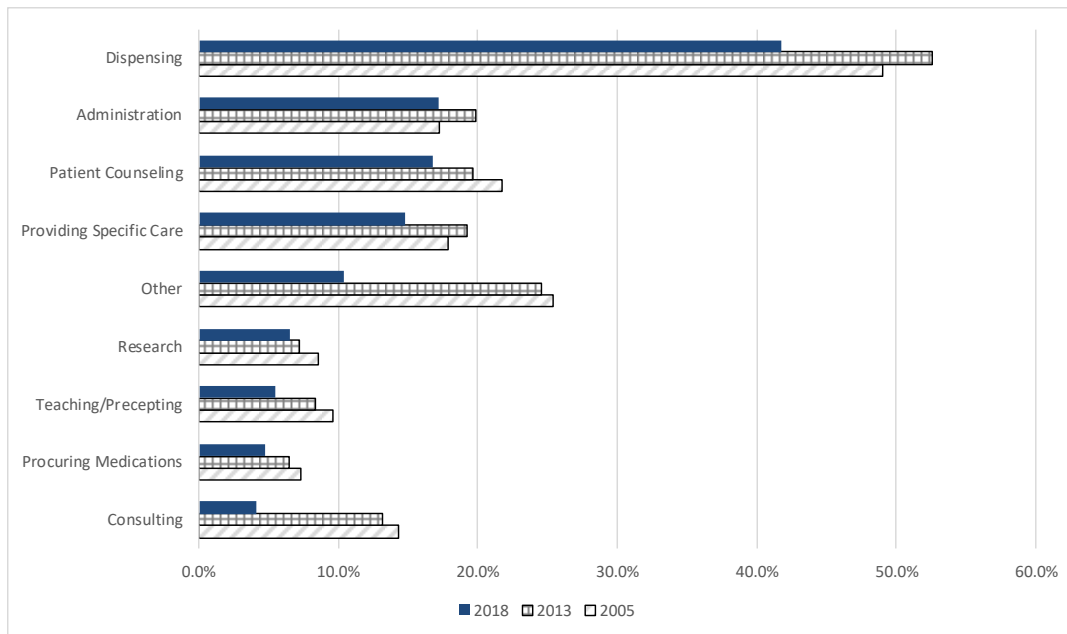
Figure 21: COMPENSATION FOR FULL-TIME PHARMACISTS IN MANAGEMENT, 2018



SECTION 3: PRACTICE WORKLOAD

While pharmacist roles continue to expand and include more patient care activities, the overall amount of time spent in various weekly activities has remained similar to previous reports by UMEC. On average, a majority of time is still spent dispensing prescriptions, followed by administrative tasks and patient counseling.

Figure 22: PERCENTAGE OF TIME SPENT IN VARIOUS ACTIVITIES BY UTAH PHARMACISTS



Note: Respondents were asked to describe the proportion of their weekly work hours, adding up to 100%. Due to some non-response and some mis-calculation by respondents, totals do not add up to 100%. Proportions vary slightly by work setting, but the relevance of each activity has remained fairly consistent since 2005.

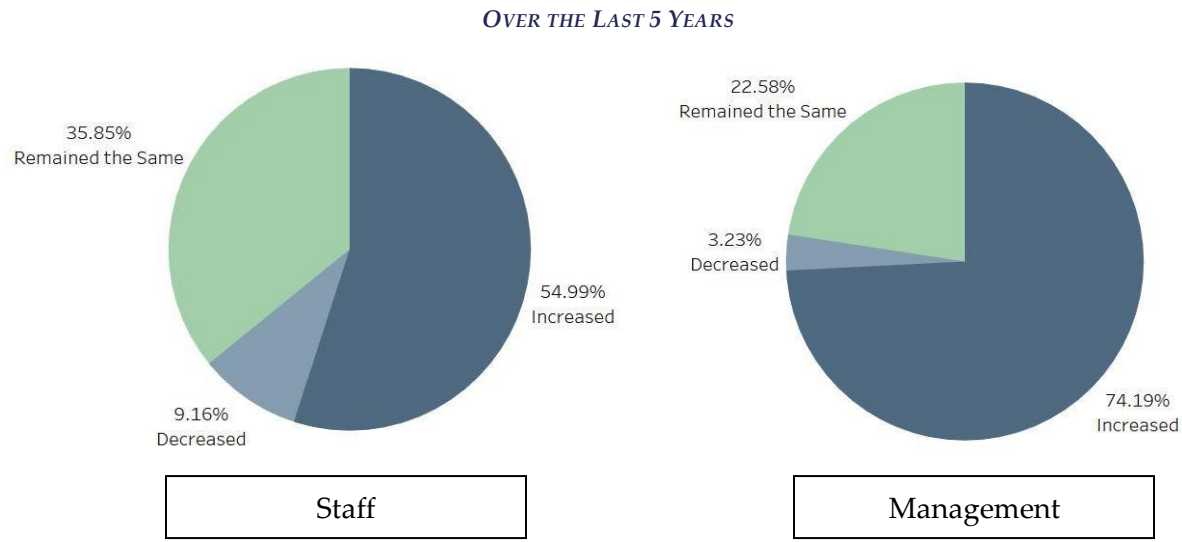
3.1: COUNSELING PATIENTS

In 2013, 28% of pharmacists indicated they do not have sufficient time to council patients on prescriptions. That proportion has increased in 2018 to 30.3%. The two primary groups that indicate they do not have sufficient time to council patients work in retail chain pharmacies (15.4% of question respondents) and hospital inpatient settings (8.8% of question respondents).

3.2: WORKLOAD

As of 2018, pharmacists are able to fill an average of 23 prescriptions per hour. Among staff pharmacists, 58.8% report that the number of prescriptions to be filled daily has increased over the last 5 years. 55% of staff pharmacists and 74% of management report an increase in the time they spend dealing with insurance issues relative to 5 years ago.

Figure 23: CHANGE IN TIME SPENT DEALING WITH INSURANCE, 2018



3.3: MANAGEMENT-SPECIFIC EXPERIENCES AND APPROACHES

37.6% of pharmacists identify themselves as managers, owners, or executive officers. Managers face unique challenges in their day-to-day roles to address shifts in the workforce, as well as meeting population prescription demand.

3.3.a: Filling Positions

Across all work settings, 78.5% of managers can fill open positions within 3 months. 83.2% of retail management report it takes 0-3 months to fill open positions, and 93.5% can fill positions within 6 months. Hospital management reported similar results- 75.9% can fill positions within 3 months and 94.8% within 6 months.

3.3.b: Managerial Experiences

Pharmacists in management positions provided insight into adverse experiences over the last twelve months. Almost half (49.5%) reported having to restructure pharmacist work schedules to save on labor costs. One-third (30.4%) reported having to implement mandatory reduction in pharmacists' work hours. Only 16% reported having to implement pharmacist layoffs, but the proportion is significantly higher than reported in 2013 (with only 6.5% reporting layoffs).

3.3.c: Managerial Coping Techniques for Prescription Growth

57.7% of managers indicate that the number of daily prescriptions has increased compared to five years ago. Managers were asked to indicate their top 3 methods for coping with that increased prescription demand. The three leading techniques were 1) increasing pharmacy technician workload/hours, 2) increasing automation, and 3) recruiting/hiring additional pharmacy technicians. The top approaches have not changed since the 2013 report. While 43%

indicated that they would increase pharmacist workload/hours, only 22% indicated they would hire additional pharmacists to meet demand.

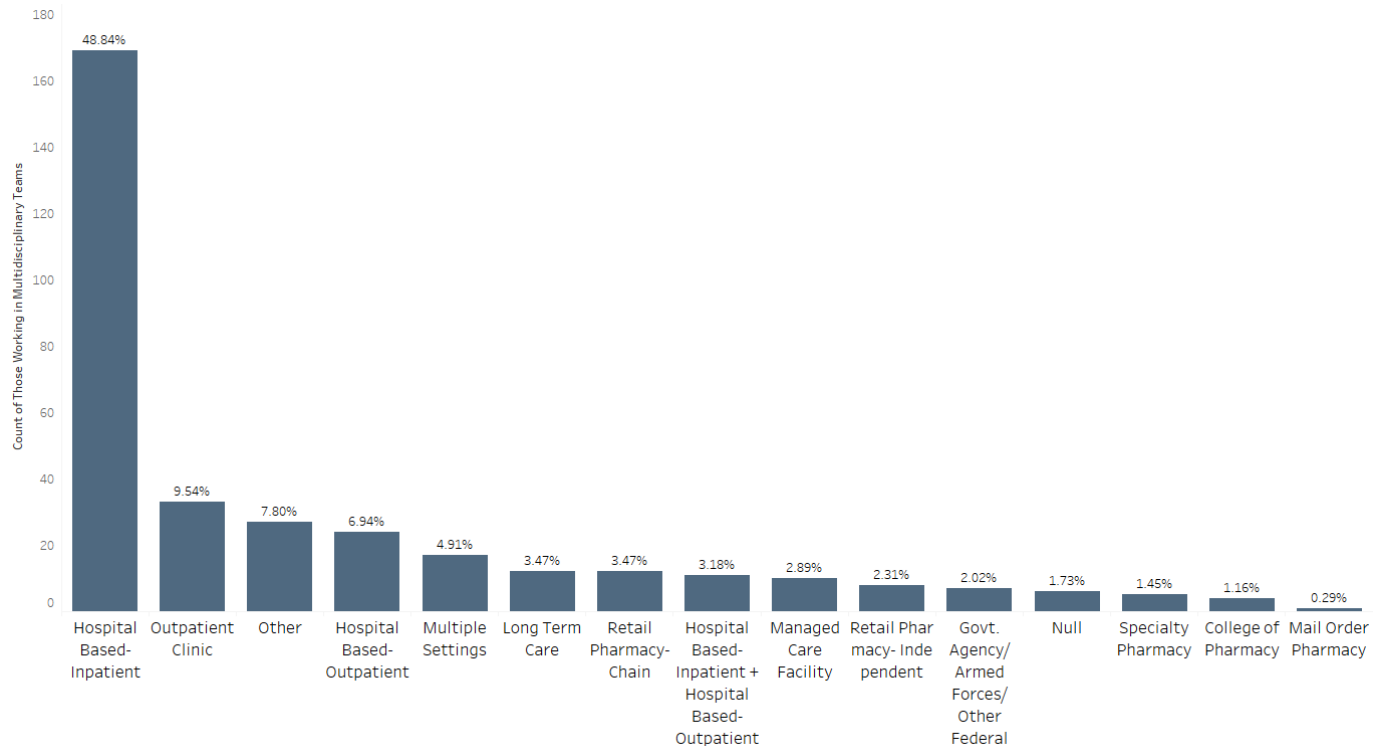
Table 3: MANAGERIAL COPING TECHNIQUES FOR INCREASED PRESCRIPTION DEMAND

| Technique | UMEC, 2005 | UMEC, 2013 | UMEC, 2018 |
|--|------------|------------|------------|
| <i>Increase Technician Workloads/Hours</i> | 36.60% | 55.20% | 56.04% |
| <i>Recruit Additional Pharmacy Technicians</i> | 39.40% | 49.10% | 46.07% |
| <i>Increase Automation</i> | 37.90% | 39.50% | 49.85% |
| <i>Increase Pharmacist Workloads/Hours</i> | 58.60% | 38.50% | 43.35% |
| <i>Recruit Additional Pharmacists</i> | 34.30% | 19.00% | 21.75% |
| <i>Increase Prepackaging</i> | 12.00% | 10.90% | 11.63% |
| <i>Other</i> | 4.70% | 2.70% | 9.67% |

3.4: TEAM WORK

It is becoming increasingly apparent that compiling care teams can contribute to effectiveness of health care services and help improve patient outcomes. Pharmacists will continue to play an important role in these care teams.

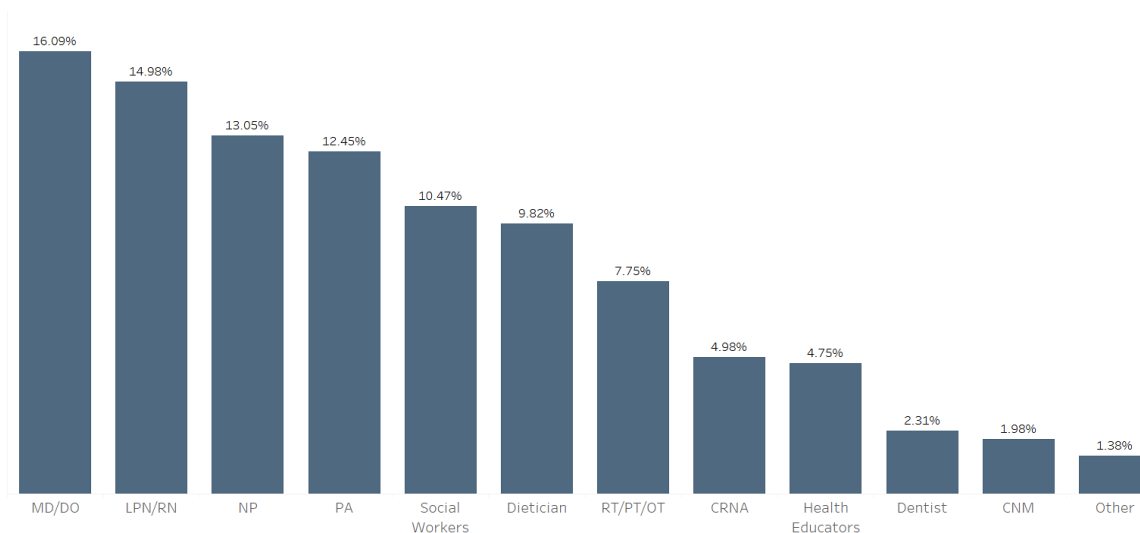
Figure 24: UTAH PHARMACISTS IN MULTI-DISCIPLINARY TEAMS BY PRIMARY SETTING



3.4.a: Multi-disciplinary Care Team Members

36.7% of Utah pharmacists report working in a multidisciplinary care team. Almost half of those who work in a care team work in a hospital based inpatient setting as their primary employment. MD/DO, LPN/RN, and NP were the most commonly reported team member professions.

Figure 25: UTAH PHARMACISTS IN MULTI-DISCIPLINARY TEAMS BY TEAM MEMBERS, 2018



3.4.b: Supervising Pharmacy Technicians

Pharmacists across all work settings are responsible for supervising pharmacy technicians. 81.1% of pharmacists supervise pharmacy technicians during their shifts. Pharmacists supervise an average of 3 technicians per shift. On average, pharmacists were comfortable supervising 4 technicians per shift. As the Utah population continues to grow and the number of prescriptions to be filled increases, there may be an increase in the number of pharmacy technicians utilized.

3.4.c: Precepting Pharmacy Students

The proportion of pharmacists precepting pharmacy students has decreased from 50% in 2013 to 46.8% in 2018. The majority (38.5%) precept Advanced Pharmacy Practice students, 27.9% precept Introductory Pharmacy Practice students, and 33.7% precept both.

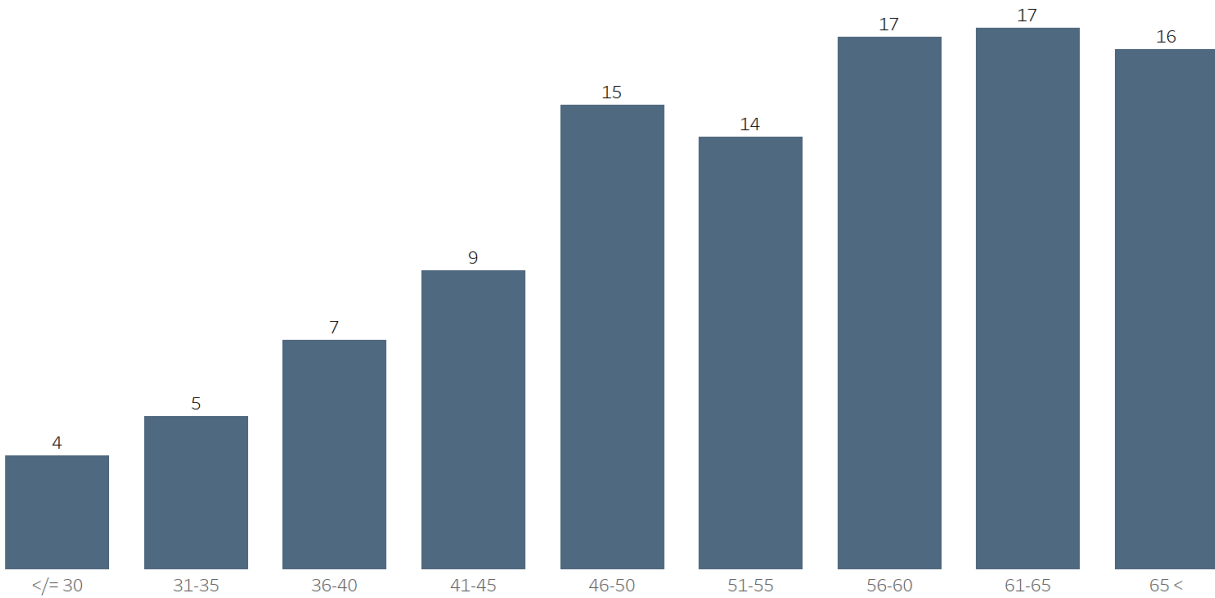
SECTION 4: WORK EXPERIENCES AND OUTLOOK

The following questions were asked to help provide insight into workforce trends. It is important to identify how frequently pharmacists change work locations, which settings have the most turnover, and which adverse experiences employees are experiencing.

4.1: AVERAGE YEARS WITH CURRENT EMPLOYER

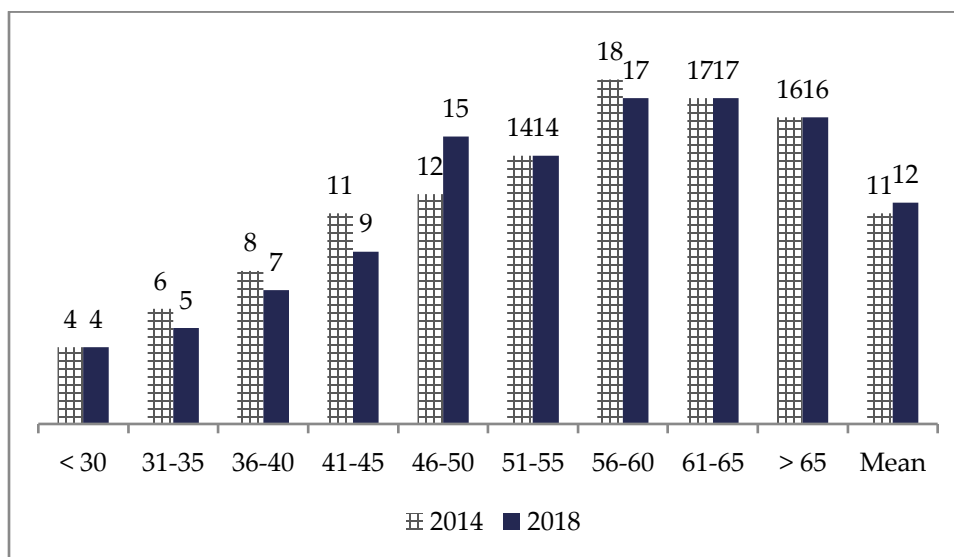
The length of time with current employers can provide insight into how frequently pharmacists are changing work locations. Examining the average duration by age cohort can also help examine trends that may be emerging between different age groups.

Figure 26: AVERAGE YEARS WITH CURRENT EMPLOYER ACROSS AGE COHORTS, 2018



Utah's pharmacist tends to be relatively stable, staying with their employer for long periods of time. As age increases, so do the number of years with their current employer. However, when compared to 2014, there does seem to be a reduction in time with their current employer among younger age cohorts. It may be important to capture employer turnover rates in future workforce studies to see if those entering the workforce are more likely to frequently change employers.

Figure 27: AVERAGE YEARS WITH CURRENT EMPLOYER, 2014 VS. 2018



4.2: ADVERSE EXPERIENCES IN PAST TWO YEARS

Approximately 1,135 pharmacists (36.6%) of Utah pharmacists reported adverse experiences that occurred during the past two years, and some reported multiple adverse experiences. Of those who had adverse experiences, 29.2% reported having to work two or more positions at the same time, 22.4% had their hours decreased involuntarily, and 11.5% had to work a part-time or temporary position while they would have preferred a more stable position. 7.8% became unemployed involuntarily. 26.4% switched employers or practices.

4.2.a: Change in Work Setting During the Past Two Years

Chain pharmacies and hospital inpatient pharmacies appear to experience the highest rates of turnover, with the highest rates of people leaving and moving to those facilities. College of Pharmacy settings appear fairly stable, with only 0.26% reporting that they left positions within that setting. A majority of those who changed work settings reported that preferred hours, professional advancement, a desire for change, or personal/family reasons were the primary motivators for the change. 11.76% had to change locations because of lay-offs or position eliminations.

Figure 28: WORK SETTING CHANGE FROM THE PAST TWO YEARS, 2018

“LEFT FROM” AND “WENT TO”

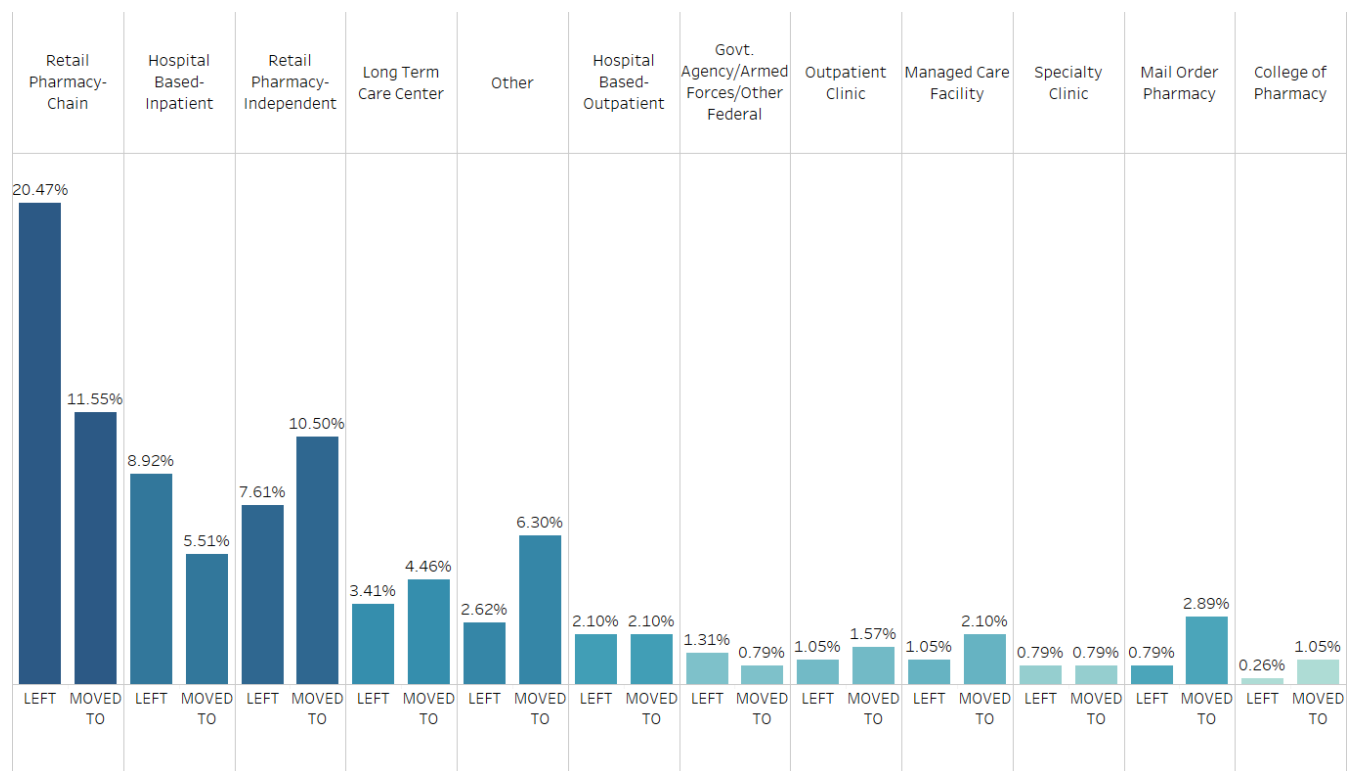


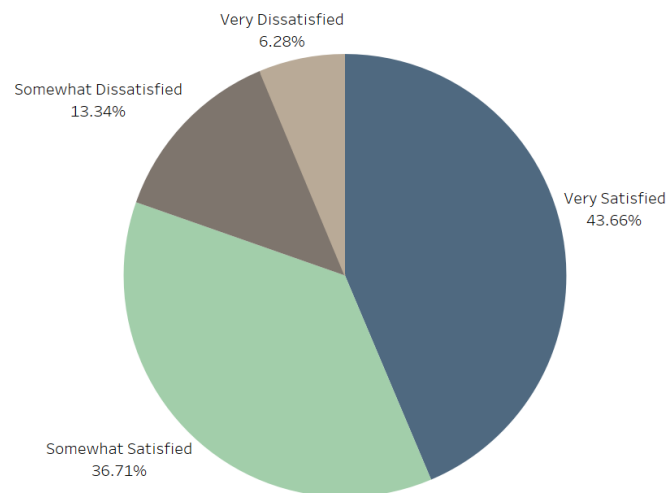
Table 4: REASONS FOR WORK SETTING CHANGE

| Reason for Setting Change | % of Adverse Experience Employees | % of Total Pharmacist Population |
|---------------------------|-----------------------------------|----------------------------------|
| Preferred Hours | 16.37% | 11.66% |
| Professional Advancement | 13.99% | 9.97% |
| Desire for Change | 10.71% | 7.64% |
| Personal/Family Reason | 10.27% | 7.32% |
| Higher Pay | 9.08% | 6.47% |
| Work Responsibilities | 8.33% | 5.94% |
| Better Work/Education Fit | 6.99% | 4.98% |
| Laid Off | 6.70% | 4.77% |
| Other | 5.80% | 4.14% |
| Position Elimination | 5.06% | 3.61% |
| More Challenging | 3.57% | 2.55% |
| Moved | 3.13% | 2.23% |

4.3: OUTLOOK

Over two-thirds of pharmacists indicated that their workload has increased over the past year. Despite this workload change, 44% indicate they are “very satisfied” with their current employment and 37% are “somewhat satisfied” (80.4% total). While this is a decrease from the 87% of the workforce that was satisfied in 2013, it is still a positive indicator for the state of the workforce overall.

Figure 29: WORKFORCE JOB SATISFACTION, 2018



FUTURE UTAH PHARMACIST WORKFORCE

SECTION 5: UTAH'S FUTURE PHARMACIST WORKFORCE – FUTURE DEMAND

Estimates for future demand incorporate future retail demand, total FTE estimates, population projections by age cohort, and retirement/attrition rates. It can be difficult to predict future population growth and prescription utilization, but current estimates can help establish a reliable estimation for predicating future need for pharmacists. These estimates may change as pharmacist roles continue to expand and incorporate direct patient care roles, particularly in multidisciplinary care teams.

5.1: POPULATION GROWTH

As of 2018, Kem C. Gardner Policy Institute estimates Utah's population reached 3,166,647²⁶. This is an average annual growth rate of 1.76% over the past 5 years. Their most recent state and county population projections estimate that the population will reach 3,889,310 by 2030. Estimated age cohorts predict that 26.8% of the population will be ages 0-18, 58.7% ages 18-64, and 14.5% over the age of 65. These age demographics will play an important role in pharmacy demand- prescription use tends to increase as age increases.²⁷

5.2: RETAIL PRESCRIPTIONS^{xvii}

The 2005 UMEC report indicated that there were roughly 612 retail FTEs in Utah who filled 23.2 million prescriptions (approximately 17 prescriptions per hour). In 2013, the number of retail FTEs increased to 952 and retail prescription volume increased to 30.9 million, indicating that retail FTEs filled approximately 15 prescriptions per hour.

Approximately 1,329 of current FTEs work in the state's retail pharmacy settings to fill prescription demand.²⁸ Respondents indicated they are able to fill an average of 23 prescriptions per hour, significantly more per hour than the 16 prescription per hour predicted in 2013. This increase in efficiency, as well as utilization of pharmacy technicians, will impact demand estimates for the pharmacist workforce.

In 2017, retail prescriptions usage estimates for Utah increased to 31 million. This translates to 10.2 retail prescriptions per capita, a decrease from 10.7 per capita in 2013. This may be

²⁶ <https://gardner.utah.edu/wp-content/uploads/PopEstDec2018.pdf>

²⁷ Most recent per-capita-by-age estimates from Kaiser Family Foundation consisted of: 3.5 (0-18 years old), 14.8 (16-64 years old), and 25.5 (65 years old and over). These estimates were adjusted by cohort to match the total per-capita for the state, which decreased to 10.2 in 2017 from 10.7 in 2013.

²⁸ FTEs were analyzed by primary work settings. Retail FTEs were determined by grouping independent, chain, and specialty retail pharmacies.

partially due to mail-order pharmacy usage, which filled an average of 0.33 prescriptions per capita in 2017.²⁹ Based on population growth for the state, there will be an estimated 52.2 million prescriptions utilized in the state by 2030. Based on the current prescription projections, the increase in mail-order pharmacy prescriptions, and increased efficiency techniques (such as pharmacists reporting an average of 23 prescriptions filled per hour, up from 15 in 2013), the retail workforce supply will produce approximately 16.25 more retail FTEs per year than needed to fill demand for filling prescriptions over the next decade.

While pharmacist roles may be incorporating more patient care, a majority of pharmacists' time is still spent dispensing prescriptions. For the foreseeable future, retail prescription demand will remain an important indicator when estimating future pharmacist demand.

5.3: RETIREMENT AND ATTRITION

The average age Utah pharmacists plan on retiring has increased steadily with each workforce survey: 63.8 in 2005, 65.5 in 2013, and 66.4 in 2018 – indicating that pharmacists are remaining in the workforce longer. Additionally, 4% of the total survey population indicated that although they are retired, they still provide voluntary or occasional services in the state. 27.2% of current FTEs plan to retire within the next decade- an increase from the 2013 workforce 25.80% anticipated retiring within the next decade).

According to UMEC survey data and DOPL license expirations, the pharmacist workforce will lose approximately 1,005 FTEs over the next decade- 684 to retirement, and 321 to attrition. This translates to roughly 71.8 FTEs per year.

SECTION 6: UTAH'S FUTURE PHARMACIST WORKFORCE – FUTURE SUPPLY

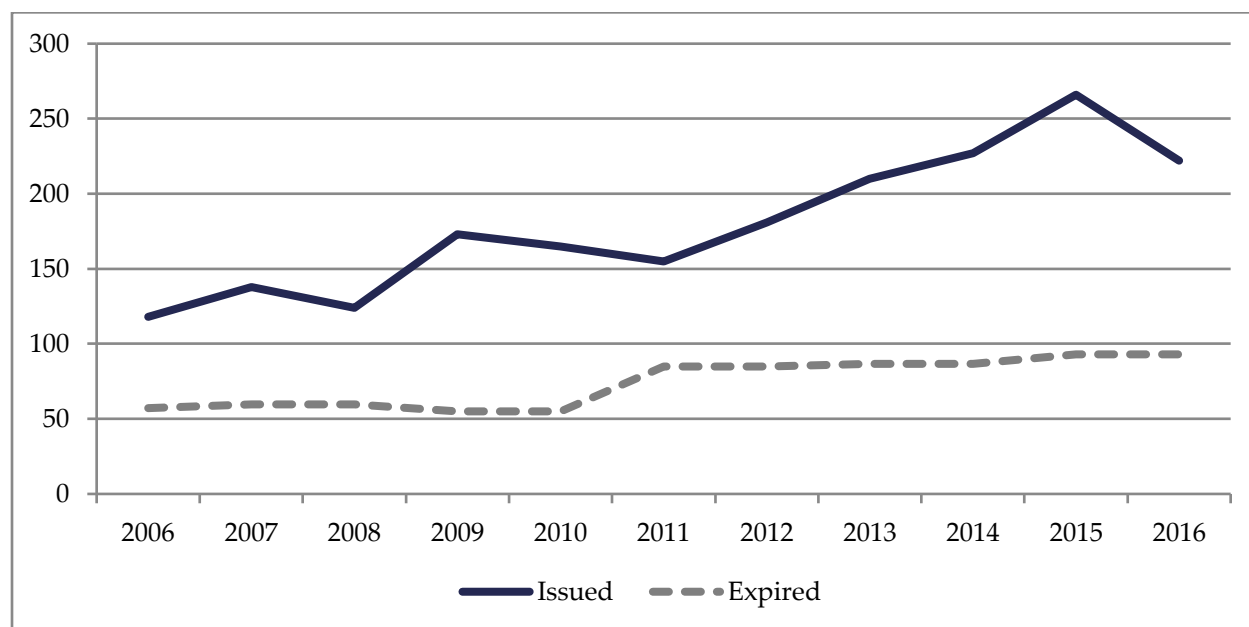
Future workforce supply can be estimated by analyzing license issuances from DOPL and class size trends from pharmaceutical programs. Pharmacist supply is predicted to increase steadily over the next decade.³⁰

²⁹ Mail order prescriptions are included in the total prescription estimate for demand, since there are Utah pharmacists currently working in mail order pharmacy settings. It may be important in future surveys to examine the reach of mail order pharmacies more in-depth to account for their unique contributions to both supply and demand.

³⁰ All Pharmacist Interns were excluded from supply model projections. While those working as pharmacy interns provide insight into current educational and workforce conditions, intern licenses are not an accurate predictor of long term workforce supply. Those who transition to full pharmacist licenses are captured in the educational institution and DOPL data and accounted for in the supply model.

Supply estimates can be estimated by analyzing DOPL 5-year averages and 10-year averages for new active licenses. Over the last decade, DOPL has issued an average of 180 new licenses per year. Over the last 5 years, that average has increased to 221 new licenses per year.

Figure 30: DOPL CHANGE IN ACTIVE PHARMACIST LICENSES, 2006-2016



The University of Utah and Roseman University of Health Sciences both supply a steady stream of pharmacists into the workforce, and have retained those workers at reliably consistent rates. Roseman University graduating class size was 134 in 2018³¹, larger than previous supply estimates predicted³².

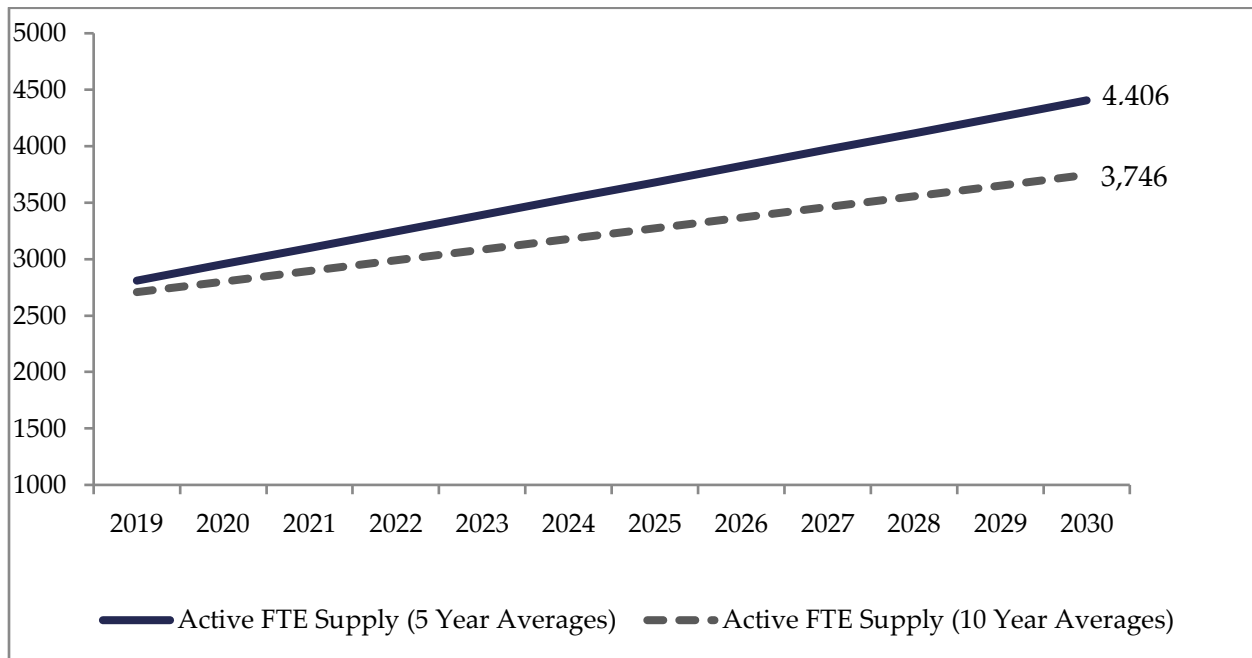
Using average new license issuances and expirations over 5 year and 10 year periods, educational estimates, and active FTE adjustments help create a projected growth range for the pharmacist workforce over the next 10 years.

³¹ Graduating class information for Roseman University comes from their website: <https://www.roseman.edu/2018/06/06/2018-graduation-synopsis/>

³² An annual adjustment factor of 13.3 was added to previous supply estimates, to account for this increase of students from Roseman University and factoring in a lower rate of retention.

Figure 31: ACTIVE FTE PROJECTIONS THROUGH 2030

5 YEAR VS. 10 YEAR AVERAGES

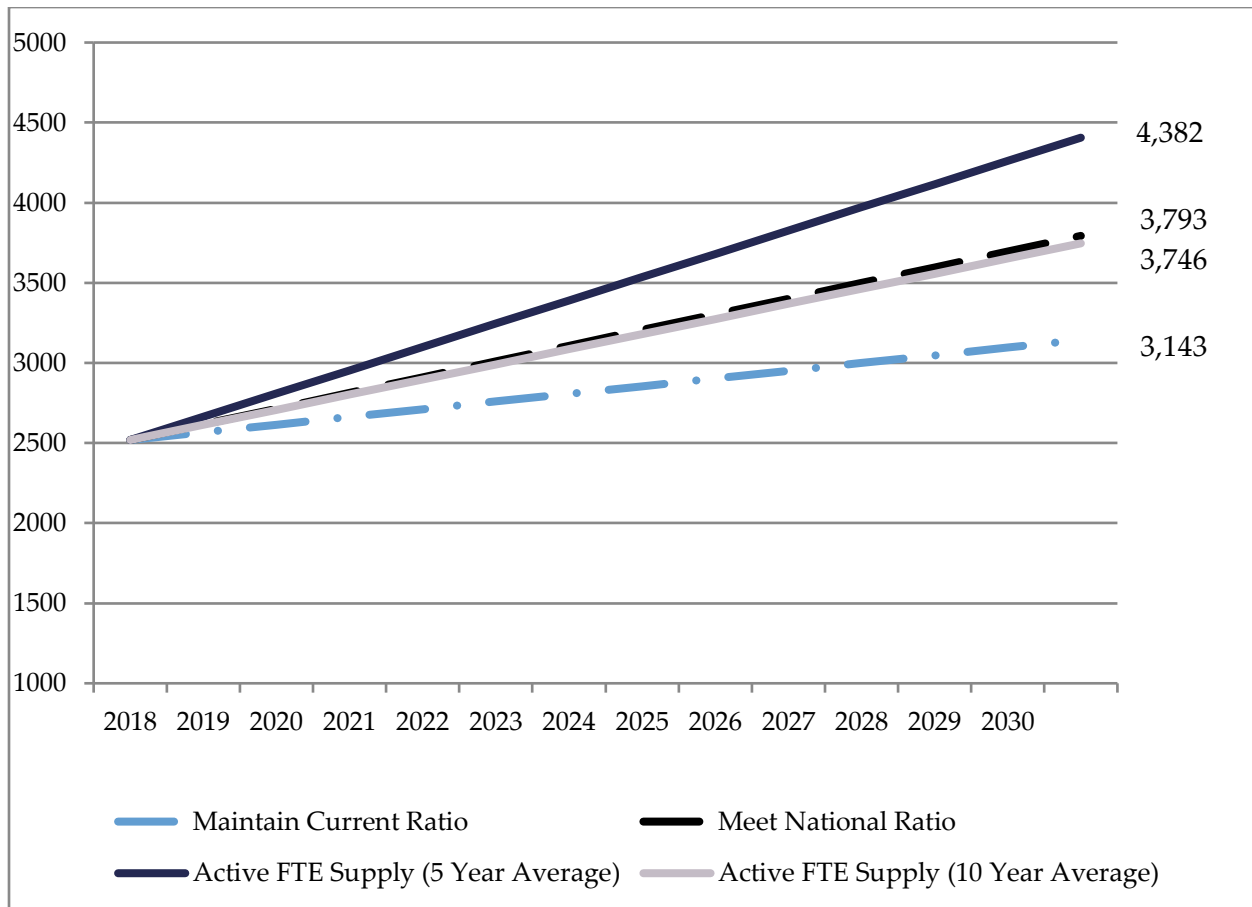


6.1: MATCHING PROJECTED DEMAND WITH PROJECTED SUPPLY

When the UMEC began surveying pharmacists in 2002, there was a definitive shortage of pharmacists providing services in the state. 2013 results showed the state had reached equilibrium of supply and demand.

However, as predicted in 2013, current supply of pharmacists is beginning to outpace demand. The UMEC estimates there are many factors contributing to this shift, including increased automation, utilization of pharmacy technicians, and the utilization of mail-order pharmacies by the population. Based on current supply projections, the current estimated surplus will only continue to widen over the coming years. If average new licenses can decrease to 180 from the current 221 and retirement/attrition rates remain steady, Utah's projected growth could track closely with national rates (approximately 95 pharmacists per-100,000 residents). Even with a reduction in new active licenses, supply will still far outpace the current ratio of 79.5 pharmacists per 100,000.

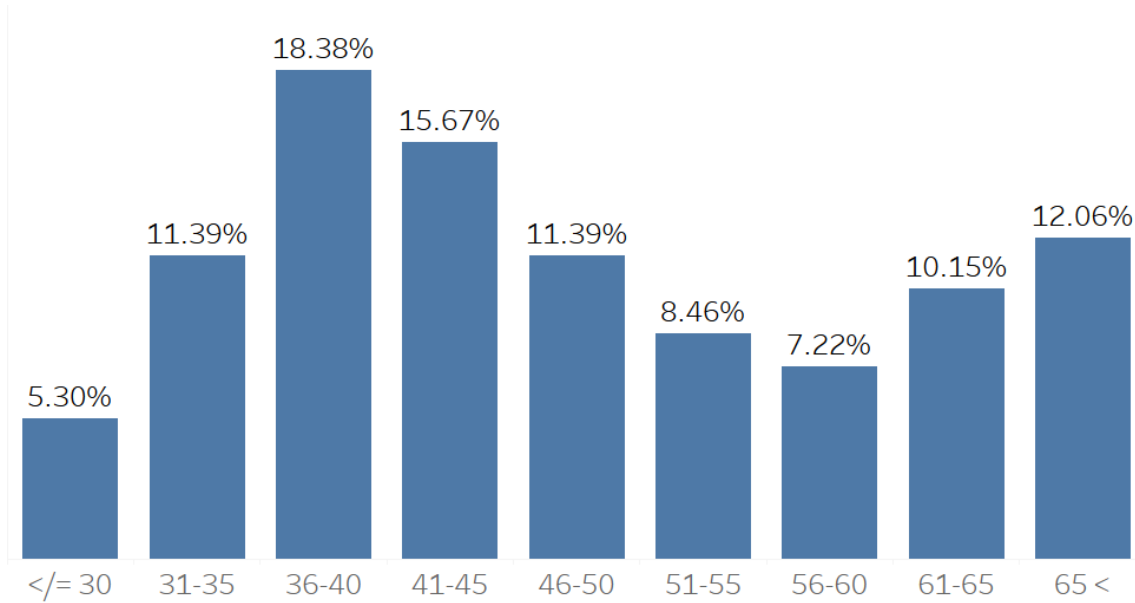
Figure 32: ACTIVE FTE PROJECTIONS THROUGH 2030



There are many factors that can impact these supply and demand projections, including incorporating pharmacists into more direct patient care and primary care roles, improved dispensing technologies, utilizing pharmacy technicians, and increasing the number of mail-order pharmacist roles could create a shift in future demand. Developing methods to more accurately measure pharmacy intern retention rates may help better estimate supply of the future workforce.

APPENDIX A: ADDITIONAL TABLES

Figure 33: AGE DISTRIBUTION OF ALL PHARMACISTS IN UTAH



Percentages represent the **total** proportion of pharmacist workforce population providing services in Utah, including those actively providing services *and* those retired but providing voluntary or occasional services.

Table 5: GEOGRAPHIC DISTRIBUTION OF ACTIVE UTAH PHARMACISTS BY COUNTY

| County | Workforce Percentage (2005) | Workforce Percentage (2013) | Workforce Percentage (2018) |
|----------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Beaver County | -- | 0.10% | 0.23% |
| Box Elder County | 1.30% | 1.10% | 1.05% |
| Cache County | 3.60% | 3.60% | 3.03% |
| Carbon County | 1.10% | 0.70% | 0.93% |
| Daggett County | -- | -- | 0.12% |
| Davis County | 9.50% | 8.00% | 8.73% |
| Duchesne County | 0.80% | 1.10% | 0.70% |
| Emery County | 0.25% | 0.10% | 0.23% |
| Garfield County | 0.50% | 0.30% | 0.23% |
| Grand County | -- | 0.30% | 0.23% |
| Iron County | 2.00% | 1.50% | 0.93% |
| Juab County | -- | 0.50% | 0.47% |
| Kane County | -- | 0.30% | 0.35% |
| Millard County | -- | 0.50% | 0.47% |
| Morgan County | <1.0% | 0.20% | -- |
| Piute County | -- | -- | -- |
| Rich County | -- | 0.30% | -- |
| Salt Lake County | 50.70% | 50.70% | 52.50% |
| San Juan County | -- | 0.70% | 0.70% |
| Sanpete County | 0.80% | 1.30% | 0.81% |
| Sevier County | 0.50% | 0.70% | 0.58% |
| Summit County | 1.10% | 1.20% | 0.93% |
| Tooele County | 0.60% | 1.20% | 1.05% |
| Uintah County | 0.75% | 0.70% | 0.35% |
| Utah County | 12.60% | 11.40% | 11.29% |
| Wasatch County | -- | 1.00% | 0.93% |
| Washington County | 4.90% | 5.50% | 5.59% |
| Wayne County | -- | -- | -- |
| Weber County | 8.40% | 7.50% | 7.45% |

Figure 34 AVERAGE ANNUAL GROSS INCOME, STATE V. PRIVATE SCHOOLS

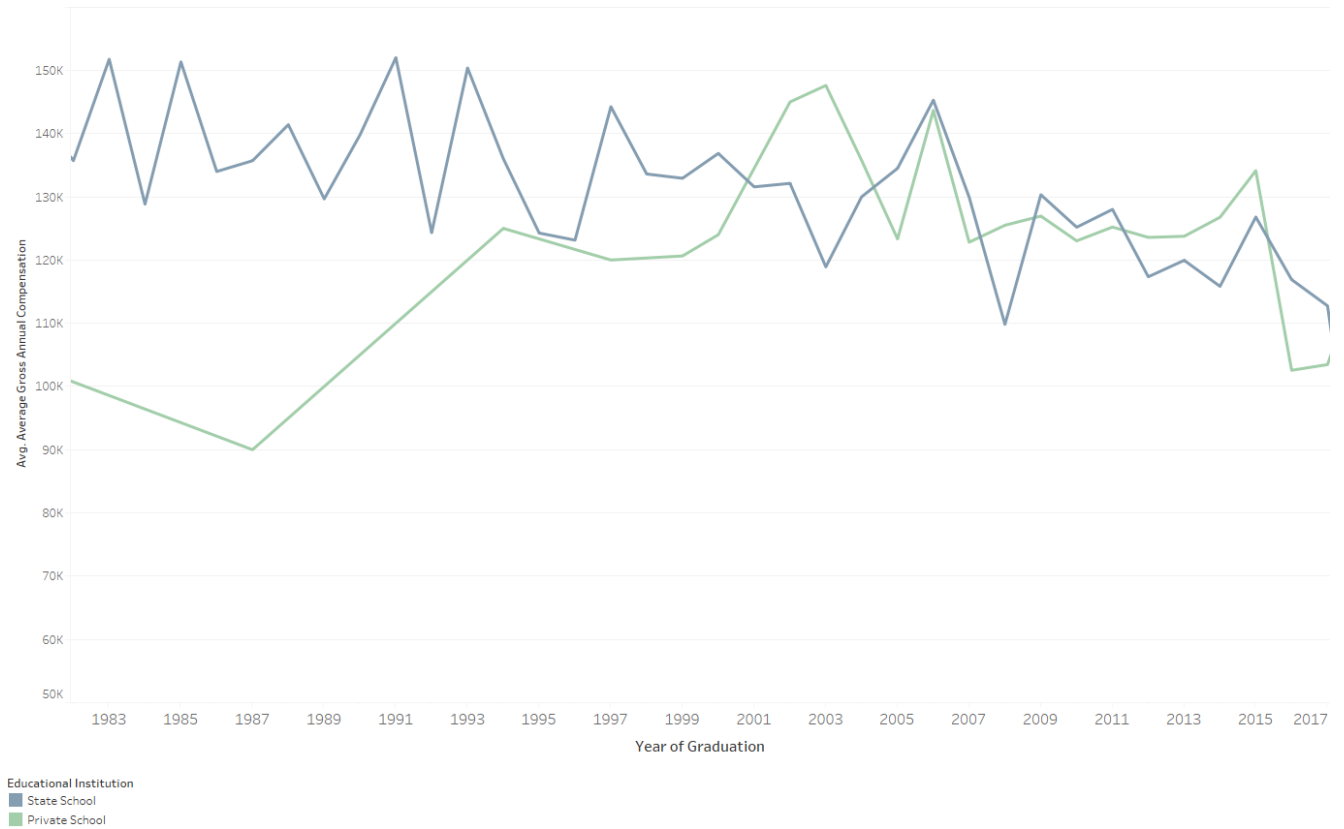


Figure 35 MALES v. FEMALES IN MANAGEMENT POSITIONS BY PRIMARY SETTING

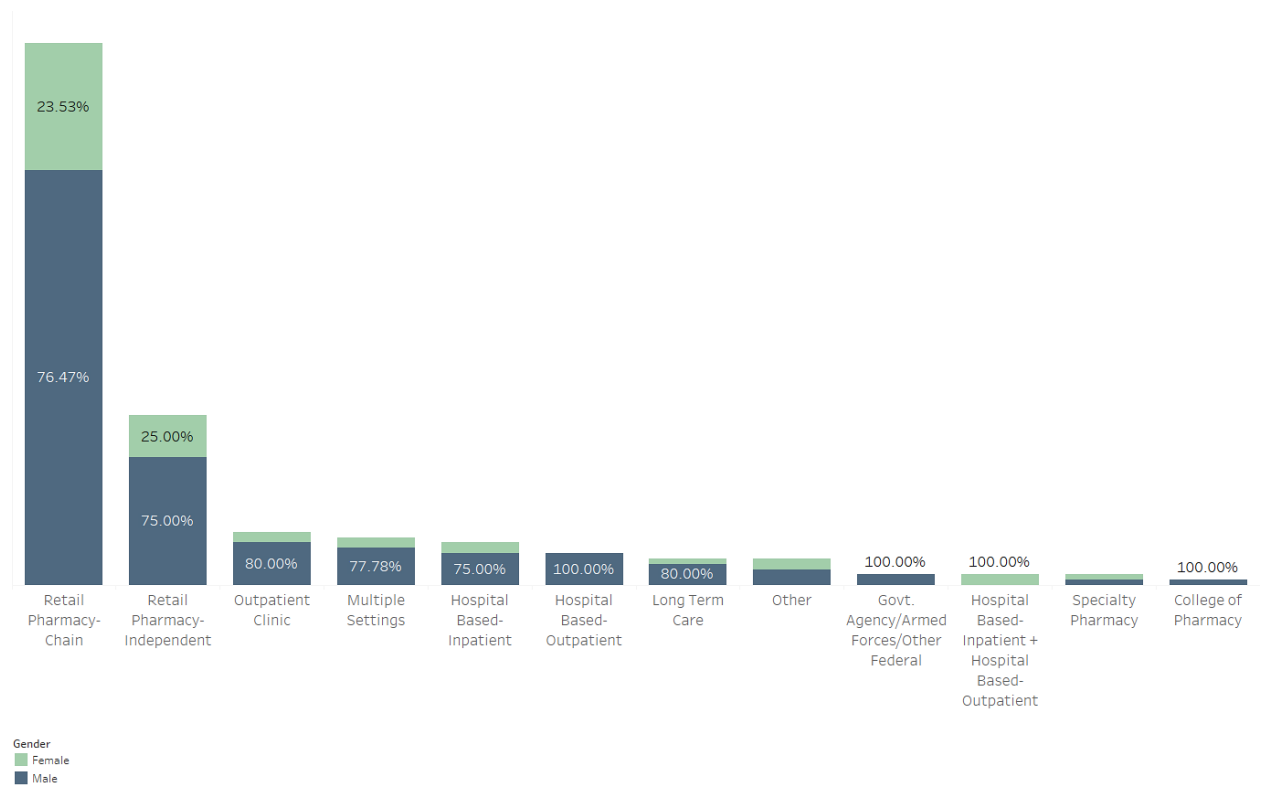


Table 6 PHARMACISTS PER 100,000. 2014 V. 2018

| | 2013-2014 | | | 2017-2018 | | | Change |
|-------------------------------|----------------------|--------------------|------------------------------|----------------------|--------------------|------------------------------|-------------------|
| Western Region (BLS) | Pharmacists Employed | Population* | Pharmacist-per-100,000 Ratio | Pharmacists Employed | Population* | Pharmacist-per-100,000 Ratio | Per-100,000 Ratio |
| Arizona | 5,630 | 6,626,624 | 85.0 | 6,740 | 7,016,270 | 96.1 | 11.1 |
| California | 26,810 | 38,332,521 | 69.9 | 29,860 | 39,536,653 | 75.5 | 5.6 |
| Colorado | 4,350 | 5,268,367 | 82.6 | 5,270 | 5,607,154 | 94.0 | 11.4 |
| Idaho | 1,330 | 1,612,136 | 82.5 | 1,400 | 1,716,943 | 81.5 | -1.0 |
| Montana | 1,210 | 1,015,165 | 119.2 | 1,190 | 1,050,493 | 113.3 | -5.9 |
| Nevada | 2,100 | 2,790,136 | 75.3 | 2,460 | 2,998,039 | 82.1 | 6.8 |
| New Mexico | 1,550 | 2,085,287 | 74.3 | 1,550 | 2,088,070 | 74.2 | -0.1 |
| Oregon | 3,420 | 3,930,065 | 87.0 | 4,040 | 4,142,776 | 97.5 | 10.5 |
| Washington | 5,650 | 6,971,406 | 81.0 | 5,940 | 7,405,743 | 80.2 | -0.8 |
| Wyoming | 510 | 582,658 | 87.5 | 510 | 579,315 | 88.0 | 0.5 |
| Western Region (BLS) | 52,560 | 69,214,365 | 75.9 | 58,960 | 72,141,456 | 81.7 | 5.8 |
| National | 287,420 | 316,128,839 | 90.9 | 309,330 | 325,719,178 | 95.0 | 4.1 |
| Utah (BLS, 2017) | 2,340 | 2,900,872 | 80.7 | 2,460 | 3,101,833 | 79.3 | -1.4 |
| Utah FTEs (UMEC, 2018) | 2,135 | 2,900,872 | 73.6 | 2,519 | 3,166,647** | 79.5 | 5.9 |

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Occupational Employment and Wages, May 2017: Pharmacists," Occupational Employment Statistics. Available at: <https://www.bls.gov/oes/2017/may/oes291051.htm>

*U.S. Department of Commerce, United States Census Bureau, "State and County Quick Facts, 2017." Available at <https://www.census.gov/quickfacts/az>

**Utah 2018 Population Estimate from Kem C. Gardner Policy Institute, released December 4. 2018

APPENDIX B: SURVEY INSTRUMENT

Utah Pharmacist Workforce Survey 2017

- Q1 Are you providing pharmacy related services in Utah? (Please check ONE of the following):
- ☐ I Do Not Provide Any Services in Utah ☐ Retired and Provide Voluntary or Occasional Service in Utah
- ☐ Active Practitioner and/or Pharmacy School Faculty ☐ Other (specify) _____
- Other (please specify): _____
- Q2 If you **DO NOT PROVIDE** pharmacy services in Utah, on a scale of 1-5 (1 being the most influential and 5 being the least influential), please rank the following factors that have influenced your choice:
- | | 1 - Influential | 2 | 3 | 4 | 5 - Least influential |
|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Climate | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Family | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Wages/Pay scale | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Work Environment | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lifestyle | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (please specify): | _____ | | | | |
- IF YOU DO NOT PROVIDE SERVICES IN UTAH STOP HERE AND RETURN THE SURVEY. THANK YOU.**
- Q3 If you **PROVIDE** services in Utah, on a scale of 1-5 (1 being the most influential and 5 being the least influential), please rank the following factors that have influenced your choice:
- | | 1 - Influential | 2 | 3 | 4 | 5 - Least influential |
|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Climate | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Family | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Pay scale/Wages | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cost of Living | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lifestyle | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (please specify): | _____ | | | | |

Demographics

- Q4 Are you of Hispanic ethnicity?
- ☐ Yes ☐ No
- Q5 What is your race?
- ☐ American Indian/Alaska Native ☐ African American/Black ☐ Asian
- ☐ Native Hawaiian/Pacific Islander ☐ White/Caucasian ☐ Other (specify) _____
- Other (please specify): _____
- Q6 Where did you spend the majority of your upbringing?
- ☐ Rural ☐ Suburban ☐ Urban
- State: _____

Education

- Q7 Degree conferred ☐ PharmD ☐ B.S. Pharm
- Q8 Please provide the information about the institution from which you received your pharmacy degree.
- ☐ State School ☐ Private School
- State: _____ Year of Degree: _____
- Q9 If you received a post-pharmacy degree, please indicate the degree conferred:
- ☐ Ph.D ☐ Masters of Business Administration ☐ Masters of Public Health
- ☐ Masters of Science ☐ Masters of Arts ☐ Other

Q10 Please provide the following information regarding your residency options:

- ☐ I am not interested in a residency
 ☐ I have completed a residency
 ☐ I am seeking enrollment in a residency
☐ I did not complete a residency
 ☐ I am currently enrolled in a residency

Educational Debt and Income

Q11 What was your educational debt AT TIME OF GRADUATION? (exclude pre-pharmacy and non-educational debt)

\$

Q12 What is your CURRENT educational debt? (exclude pre-pharmacy and non-educational debt)

\$

Q13 What is your average gross compensation? (Before taxes AND excluding benefits)

\$

Q14 Compared to five years ago, your gross income has:

- ☐ Increased
 ☐ Decreased
 ☐ Remained the same

Practice Settings and Characteristics

Q15 What is your primary work status?

- ☐ Active Full-time
 ☐ Active Part-Time
 ☐ Retired
 ☐ Other

Q16 What is the average number of hours you work per week?

Hr/wk

Q17 Please indicate the percentage of time you spend in a typical week on the following activities: (Please make sure total percent equals 100)

| | |
|---|----------------------|
| Administration/Supervising (planning, budgeting, personnel management, insurance issues, etc.) | <input type="text"/> |
| Consulting (nursing homes, home health care, pharmaceutical companies, etc.) | <input type="text"/> |
| Dispensing/Drug distribution (order entry and clarification, drug distribution) | <input type="text"/> |
| Patient counseling (medication counseling without teaching of students/residents) | <input type="text"/> |
| Procuring Medications/Retailing (ordering/receiving drugs from wholesale/pharmaceutical industry) | <input type="text"/> |
| Providing disease or patient specific care (multidisciplinary care teams; patient monitoring) | <input type="text"/> |
| Research/seeking drug information | <input type="text"/> |
| Teaching/Precepting | <input type="text"/> |
| Other | <input type="text"/> |

Q18 Please indicate the practice CITY, ZIP CODE, HOURS and WORKED per week per year of your PRIMARY and SECONDARY practice settings

Primary Zip
 Code:
 Primary Hours/week:

Secondary Zip
 Code:
 Secondary Hours/week:

Q19 Please describe your PRIMARY and SECONDARY practice settings

| | Primary Setting | Secondary Setting |
|---|--------------------------|--------------------------|
| Retail Pharmacy- Chain | <input type="checkbox"/> | <input type="checkbox"/> |
| Retail Pharmacy- Independent | <input type="checkbox"/> | <input type="checkbox"/> |
| Hospital Based-Inpatient | <input type="checkbox"/> | <input type="checkbox"/> |
| Hospital Based - Outpatient | <input type="checkbox"/> | <input type="checkbox"/> |
| Outpatient Clinic | <input type="checkbox"/> | <input type="checkbox"/> |
| Govt. Agency/Armed Forces/Other Federal | <input type="checkbox"/> | <input type="checkbox"/> |
| College of Pharmacy | <input type="checkbox"/> | <input type="checkbox"/> |
| Mail Order Pharmacy | <input type="checkbox"/> | <input type="checkbox"/> |
| Managed Care Facility | <input type="checkbox"/> | <input type="checkbox"/> |
| Specialty Pharmacy | <input type="checkbox"/> | <input type="checkbox"/> |
| Long-Term Care | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (please specify): | <input type="text"/> | |

PLEASE ANSWER QUESTIONS 20-23 ONLY IF YOU WORK IN RETAIL, NON-INSTITUTIONAL SETTING(S). PLEASE SKIP TO QUESTION 26 IF YOU WORK IN AN INSTITUTIONAL/HEALTH SYSTEM SETTING(S)

- Q20 What is the average number of prescriptions you fill per hour? RX/HR
- Q21 Over the last five years, have the average number of prescriptions you fill each day:
☐ Increased ☐ Decreased ☐ Remained the same
- Q22 Over the last five years, have the percentage of time you spend dealing with insurance issues:
☐ Increased ☐ Decreased ☐ Remained the same
- Q23 At your primary place of employment, what best describes your current position? (Please CHECK ALL THAT APPLY)
☐ Owner/Partner/Executive Officer ☐ Management ☐ Staff ☐ Other

PLEASE ANSWER QUESTIONS 24-25 IF YOU WORK AS AN OWNER/PARTNER/EXECUTIVE OFFICER/MANAGERIAL POSITION. PLEASE SKIP TO QUESTION 26 IF YOU DO NOT WORK IN THIS CAPACITY.

- Q24 Please indicate the average time to fill an open or budgeted pharmacist position at your location.
☐ 0-3 Months ☐ 6-9 Months ☐ More than one year
☐ 3-6 Months ☐ 9-12 Months
- Q25 Have any of the following taken place during the past year at your place of employment?
☐ Pharmacist layoff(s) ☐ Early retirement incentive(s) for pharmacists
☐ Mandatory reduction(s) in pharmacist hours ☐ Restructuring of pharmacist work schedule(s) to save labor costs
- Q26 The annual number of prescription has been increasing significantly over the last 10 years. Please select the top three steps that you have or are planning to implement to meet the growing demand for prescriptions.
☐ Increase pharmacist workload/hours ☐ Increase automation ☐ Recruit additional pharmacy technicians
☐ Recruit additional pharmacists ☐ Increase pharmacy technician workload/hours ☐ Other (specify)
☐ Increase prepackaging

Q27 In your primary place of employment, what is the TOTAL NUMBER OF:

| STAFF | | VACANT | |
|-----------------------|----------------------|-----------------------|----------------------|
| Full-Time Pharmacists | <input type="text"/> | Full-Time Pharmacists | <input type="text"/> |
| Part-Time Pharmacists | <input type="text"/> | Part-Time Pharmacists | <input type="text"/> |
| As-needed Pharmacists | <input type="text"/> | As-needed Pharmacists | <input type="text"/> |

- Q28 In your primary place of employment, do you supervise pharmacy technicians? ☐ Yes ☐ No
- Q29a If YES, how many pharmacy technicians do you supervise per shift? Q29b How many pharmacy technicians do you currently feel comfortable supervising per shift?
- Q30 Do you work in a multidisciplinary care team? ☐ Yes ☐ No
- Q30a If YES, which healthcare professionals do you work with?
☐ MD/DO ☐ CNM ☐ Social Workers
☐ LPN/RN ☐ NP ☐ Dietician
☐ PA ☐ Dentist ☐ RT/PT/OT
☐ CRNA ☐ Health Educators ☐ Other
- Q31 Do you currently precept pharmacy students? ☐ Yes ☐ No
- Q31a If YES, what areas do you generally precept in?
☐ Introductory Pharmacy practices ☐ Advanced pharmacy practices ☐ Both
- Q32 What is the number of years you have been employed by your present employer?
- Q33 At what age are you planning to retire completely from pharmacy?
- Q34 Are you planning to reduce the number of hours you work before retirement? ☐ Yes ☐ No

Q34a If YES, in how many years do you plan to reduce your hours?

- ☐ Less than 5 years ☐ 11-15 years ☐ 21-25 years ☐ 31 to 35 years
☐ 5-10 years ☐ 16-20 years ☐ 26-30 years ☐ More than 35 years

Q34b If YES, how many hours per week will you practice after this reduction?

- ☐ Less than 5 hours ☐ 11-15 hours ☐ 21-25 hours ☐ 31-35 hours ☐ More than 40 hours
☐ 5-10 hours ☐ 16-20 hours ☐ 26-30 hours ☐ 36-40 hours

Q35 Within the PAST TWO YEARS, have you experienced any of the following? (Check all that apply)

- ☐ Voluntary unemployment ☐ Involuntary unemployment
☐ Switched employers/practices ☐ Worked two or more positions at the same time
☐ Worked part-time or temporary positions, but would have preferred a full-time or permanent position ☐ Hours decreased involuntarily

Q35 If you have switched employers/practices within the past two years, please indicate the work setting you left and the work setting you moved to.

| | Left | Moved To |
|---|--------------------------|--------------------------|
| Retail Pharmacy- Chain | <input type="checkbox"/> | <input type="checkbox"/> |
| Retail Pharmacy- Independent | <input type="checkbox"/> | <input type="checkbox"/> |
| Hospital Based-Inpatient | <input type="checkbox"/> | <input type="checkbox"/> |
| Hospital Based - Outpatient | <input type="checkbox"/> | <input type="checkbox"/> |
| Outpatient Clinic | <input type="checkbox"/> | <input type="checkbox"/> |
| Govt. Agency/Armed Forces/Other Federal | <input type="checkbox"/> | <input type="checkbox"/> |
| Specialty Clinic | <input type="checkbox"/> | <input type="checkbox"/> |
| Long Term Care Center | <input type="checkbox"/> | <input type="checkbox"/> |
| College of Pharmacy | <input type="checkbox"/> | <input type="checkbox"/> |
| Mail Order Pharmacy | <input type="checkbox"/> | <input type="checkbox"/> |
| Managed Care Facility | <input type="checkbox"/> | <input type="checkbox"/> |
| Other | <input type="checkbox"/> | <input type="checkbox"/> |

Q36 If you have changed work settings within the past two years, please check the reason(s) for this change of work setting. Select all that apply.

- ☐ Higher Pay ☐ Work responsibilities ☐ More challenging
☐ Professional advancement ☐ Moved ☐ Desire for change
☐ Preferred hours ☐ Better work/education fit ☐ Personal/family reason
☐ Laid off ☐ Position elimination ☐ Other

OUTLOOK

Q37 Ideally, how many hours would you choose to work at your primary place of employment each week?

Q38 In your primary place of employment, do you have sufficient times to counsel patients? ☐ Yes ☐ No

Q39 Compared to last year at this time, how has your workload changed?

- ☐ Increased ☐ Decreased ☐ Remained the same

Q40 Overall, and taking into account all positions you fill, how satisfied are you with your *current* employment/work situation?

- ☐ Very satisfied ☐ Somewhat satisfied ☐ Somewhat dissatisfied ☐ Very dissatisfied

Thank you for your participation. Please return the survey in the enclosed envelope.

Utah Medical Education Council • 230 S. 500 E. Ste. 210, Salt Lake City, Utah, 84102
 Phone: 801-526-4554 • Fax: 801-526-4551 • www.utahmec.org

APPENDIX C: ITEM RESPONSE RATES

| Question 1: Are you providing pharmacy related services in Utah? | N |
|---|--------------------|
| I do not provide any services in Utah | 423 (31%) |
| Active practitioner and/or Pharmacy School Faculty | 827 (60.5%) |
| Retired and provide voluntary/occasional service in Utah | 60 (4.4%) |
| Other (specify) | 56 (4.1%) |
| Total | 1366 (100%) |

| Question 2: If you DO NOT provide pharmacy services in Utah, on a scale of 1-5 (1 being the most influential and 5 being the least influential), please rank the following factors that have influenced your choice: | N |
|---|-------------------|
| Climate | 346 (81.8%) |
| Family | 364 (86.1%) |
| Wages/Pay Scale | 348 (82.3%) |
| Work Environment | 347 (82%) |
| Lifestyle | 343 (81.1%) |
| Other (specify) | 161 (38.1%) |
| Total Not Providing Services in Utah | 423 (100%) |

| Question 3: If you PROVIDE pharmacy services in Utah, on a scale of 1-5 (1 being the most influential and 5 being the least influential), please rank the following factors that have influenced your choice: | N |
|--|-------------------|
| Climate | 838 (88.9%) |
| Family | 840 (89.1%) |
| Pay scale/Wages | 837 (88.8%) |
| Cost of Living | 841 (89.2%) |
| Lifestyle | 851 (90.2%) |
| Other (specify) | 71 (7.5%) |
| Total Providing Services in Utah | 943 (100%) |

| Question 4: Are you of Hispanic ethnicity? | N |
|---|-------------------|
| Yes | 13 (1.4%) |
| No | 910 (98.6%) |
| Total | 923 (100%) |

| Question 5: What is your race? | N |
|---------------------------------------|-------------------|
| American Indian/Alaska Native | 1 (0.1%) |
| Native Hawaiian/Pacific Islander | 2 (0.2%) |
| African American/Black | 1 (0.1%) |
| Caucasian/White | 846 (93%) |
| Asian | 50 (5.5%) |
| Other (specify) | 10 (1.1%) |
| Total | 910 (100%) |

| Question 6: Where did you spend the majority of your upbringing? | N |
|---|-------------------|
| Rural | 291 (31.4%) |
| Suburban | 550 (59.3%) |
| Urban | 87 (9.4%) |
| Total | 928 (100%) |

| Question 7: Degree Conferred | N |
|-------------------------------------|-------------------|
| PharmD | 533 (57.3%) |
| B.S. Pharm | 361 (38.8%) |
| Both | 37 (4%) |
| Total | 931 (100%) |

| Question 8: Please provide the information about the institution from which you received your pharmacy degree. | N |
|---|-------------------|
| State school | 710 (76%) |
| Private school | 224 (24%) |
| Total | 934 (100%) |
| State | 887 (100%) |
| Year of Degree | 796 (100%) |

| Question 9: If you received a post-pharmacy degree, please indicate the degree conferred. | N |
|--|-------------------|
| Ph.D. | 7 (6.5%) |
| Masters of Science | 25 (23.4%) |
| Masters of Business Administration | 49 (45.8%) |
| Masters of Arts | 6 (5.6%) |
| Masters of Public Health | 3 (2.8%) |
| Other | 17 (15.9%) |
| Total | 107 (100%) |

| Question 10: Please provide the following information regarding your residency options. | N |
|--|-------------------|
| I am not interested in a residency | 192 (22.5%) |
| I did not complete a residency | 500 (58.6%) |
| I have completed a residency | 149 (17.5%) |
| I am currently enrolled in a residency | 5 (0.6%) |
| I am seeking enrollment in a residency | 7 (0.8%) |
| Total | 853 (100%) |

| Question 11: What was your educational debt AT TIME OF GRADUATION? (exclude pre-pharmacy and non-educational debt) | N |
|---|-------------------|
| Total | 900 (100%) |

| Question 12: What is your CURRENT educational debt? (exclude pre-pharmacy and non-educational debt) | N |
|--|-------------------|
| Total | 889 (100%) |

| Question 13: What is your AVERAGE GROSS COMPENSATION? (Before taxes and excluding benefits) | N |
|--|-------------------|
| Total | 823 (100%) |

| Question 14: Compared to five years ago, your gross income has: | N |
|--|-------------------|
| Increased | 547 (58%) |
| Decreased | 138 (15.7%) |
| Remained the same | 194 (22.1%) |
| Total | 879 (100%) |

| Question 15: What is your primary work status? | N |
|--|-------------------|
| Active full-time | 701 (75.5%) |
| Active part-time | 169 (18.2%) |
| Retired | 46 (5%) |
| Other | 13 (1.4%) |
| Total | 929 (100%) |

| Question 16: What is the average number of hours you work per week? | N |
|---|-------------------|
| Total | 889 (100%) |

| Question 17: Please indicate the percentage of time you spend in a typical week on the following activities (answer <u>all</u> that apply): | N |
|---|-------------------|
| Administration/Supervising (planning, budgeting, personnel management, insurance issues, etc.) | 733 (81.3%) |
| Consulting (nursing homes, home health care, pharmaceutical companies, etc.) | 588 (65.2%) |
| Dispensing/Drug distribution (order entry and clarification, drug distribution, etc.) | 815 (90.4%) |
| Patient Counseling (medication counseling without teaching of students/residents) | 789 (87.5%) |
| Procuring Medications/Retailing (ordering/receiving drugs from wholesale/pharmaceutical industry) | 669 (74.2%) |
| Providing disease or patient specific care (multidisciplinary care teams, patient monitoring, etc.) | 686 (76.1%) |
| Research/seeking drug information | 643 (71.3%) |
| Teaching/Precepting | 644 (71.4%) |
| Other | 300 (33.3%) |
| Total | 902 (100%) |

| Question 18: Please indicate the practice city, zip code, and ours worked per week per year of your PRIMARY and SECONDARY practice settings | N |
|---|-------------|
| Primary zip code | 881 (100%) |
| Primary hours per week | 862 (97.8%) |
| Secondary zip code | 178 (20.2%) |
| Secondary hours per week | 173 (19.6%) |

| Question 19: Please indicate your PRIMARY and SECONDARY practice settings | <u>PRIMARY</u> N | <u>SECONDARY</u> N |
|--|-------------------------|---------------------------|
| Retail Pharmacy- Chain | 323 (32.9%) | 57 (25.6%) |
| Retail Pharmacy- Independent | 142 (14.5%) | 55 (24.7%) |
| Hospital Based- Inpatient | 224 (22.8%) | 26 (11.7%) |
| Hospital Based- Outpatient | 63 (6.4%) | 13 (5.8%) |
| Outpatient Clinic | 63 (6.4%) | 19 (8.5%) |
| Govt. Agency/Armed Forces/Other Federal | 16 (1.6%) | 2 (0.9%) |
| College of Pharmacy | 8 (0.8%) | 14 (6.3%) |
| Mail Order Pharmacy | 16 (1.6%) | 3 (1.3%) |
| Managed Care Facility | 16 (1.6%) | 3 (1.3%) |
| Specialty Pharmacy | 20 (2%) | 7 (3.1%) |
| Long-Term Care | 35 (3.6%) | 6 (2.7%) |
| Other (specify) | 55 (5.6%) | 18 (8.1%) |
| Total | 981 (100%) | 223 (100%) |

| Question 20: What is the average number of prescriptions you fill per hour? | N |
|--|-------------------|
| Total | 580 (100%) |

| Question 21: Over the <u>last five years</u>, have the average number of prescriptions you fill per day... | N |
|---|-------------------|
| Increased | 330 (56.3%) |
| Decreased | 115 (19.6%) |
| Remained the same | 141 (24.1%) |
| Total | 586 (100%) |

| Question 22: Over the <u>last five years</u>, has the percentage of time you spend dealing with insurance issues... | N |
|--|-------------------|
| Increased | 329 (56.8%) |
| Decreased | 48 (8.3%) |
| Remained the same | 202 (34.9%) |
| Total | 579 (100%) |

| Question 23: At your primary place of employment, what best describes your current position? (Check <u>all</u> that apply) | N |
|---|-------------------|
| Owner/Partner/Executive officer | 50 (7.6%) |
| Management | 197 (29.9%) |
| Staff | 396 (60.1%) |
| Other | 16 (2.4%) |
| Total | 659 (100%) |

| Question 24: Please indicate the average time to fill an open or budgeted position at your location (Management only) | N |
|--|-------------------|
| 0-3 months | 248 (78.5%) |
| 3-6 months | 44 (13.9%) |
| 6-9 months | 13 (4.1%) |
| 9-12 months | 3 (0.9%) |
| More than one year | 8 (2.5%) |
| Total | 316 (100%) |

| Question 25: Have any of the following taken place during the <u>past year</u> at your place of employment? (Management only, select <u>all</u> that apply) | N |
|--|-------------------|
| Pharmacist layoff(s) | 52 (27.4%) |
| Mandatory reduction(s) in pharmacist hours | 97 (51.1%) |
| Early retirement incentive(s) for pharmacists | 12 (6.3%) |
| Restructuring of pharmacist work schedule(s) to save on labor costs | 158 (83.2%) |
| Total | 190 (100%) |

| Question 26: The annual number of prescriptions has been increasing significantly over the last 10 years. Please select the <u>top three</u> steps you have or are planning to implement to meet the growing demand for prescriptions. | N |
|---|-------------------|
| Increase pharmacist workload/hours | 287 (43.4%) |
| Recruit additional pharmacists | 144 (21.8%) |
| Increase prepackaging | 77 (11.6%) |
| Increase automation | 330 (49.8%) |
| Increase pharmacy technician workload/hours | 371 (56%) |
| Recruit additional pharmacy technicians | 305 (46.1%) |
| Other (specify) | 64 (9.7%) |
| Total | 662 (100%) |

| Question 27: In your PRIMARY place of employment, what is the TOTAL number of | <u>STAFF</u> N | <u>VACANT</u> N |
|--|-----------------------|------------------------|
| Full-time pharmacists | 821 (100%) | 342 (100%) |
| Part-time pharmacists | 683 (83.2%) | 316 (92.4%) |
| As-needed pharmacists | 545 (66.4%) | 307 (89.8%) |

| Question 28: In your primary place of employment, do you supervise pharmacy technicians? | N |
|---|-------------------|
| Yes | 728 (82.4%) |
| No | 156 (17.6%) |
| Total | 884 (100%) |

| Question 29a: If YES, how many pharmacy technicians do you supervise per shift? | N |
|--|-------------------|
| Total | 727 (100%) |

| Question 29b: How many pharmacy technicians do you feel comfortable supervising per shift? | N |
|---|-------------------|
| Total | 681 (100%) |

| Question 30: Do you work in a multidisciplinary care team? | N |
|---|-------------------|
| Yes | 346 (39.7%) |
| No | 526 (60.3%) |
| Total | 872 (100%) |

| Question 30a: If YES, which healthcare professionals do you work with? (Check <u>all</u> that apply) | N |
|--|-------------------|
| MD/DO | 349 (89.9%) |
| LPN/RN | 325 (83.8%) |
| PA | 270 (69.6%) |
| CRNA | 108 (27.8%) |
| CNM | 43 (11.1%) |
| NP | 283 (72.9%) |
| Dentist | 50 (12.9%) |
| Health Educators | 103 (26.5%) |
| Social Workers | 227 (58.5%) |
| Dietician | 213 (54.9%) |
| RT/PT/OT | 168 (43.3%) |
| Other | 30 (7.7%) |
| Total | 388 (100%) |

| Question 31: Do you currently precept pharmacy students? | N |
|--|-------------------|
| Yes | 404 (45.2%) |
| No | 489 (54.8%) |
| Total | 893 (100%) |

| Question 31a: If YES, what areas do you generally precept in? | N |
|---|-------------------|
| Introductory pharmacy practices | 105 (27.9%) |
| Advanced pharmacy practices | 145 (38.5%) |
| Both | 127 (33.6%) |
| Total | 377 (100%) |

| Question 32: What is the number of years you have been employed by your present employer? | N |
|---|-------------------|
| Total | 900 (100%) |

| Question 33: At what age are you planning to retire completely from pharmacy? | N |
|---|-------------------|
| Total | 854 (100%) |

| Question 34: Are you planning to reduce the number of hours you work before retirement? | N |
|--|-------------------|
| Yes | 389 (43.6%) |
| No | 504 (56.4%) |
| Total | 893 (100%) |

| Question 34a: If YES, in how many years do you plan to reduce your hours? | N |
|--|-------------------|
| Less than 5 years | 107 (26%) |
| 5-10 years | 96 (23.3%) |
| 11-15 years | 65 (15.7%) |
| 16-20 years | 48 (11.7%) |
| 21-25 years | 42 (10.2%) |
| 26-30 years | 26 (6.3%) |
| 31-35 years | 11 (2.7%) |
| More than 35 years | 17 (4.1%) |
| Total | 412 (100%) |

| Question 34b: If YES, how many hours per week will you practice after this reduction? | N |
|--|-------------------|
| Less than 5 hours | 20 (4.9%) |
| 5-10 hours | 35 (8.6%) |
| 11-15 hours | 25 (6.1%) |
| 16-20 hours | 75 (18.3%) |
| 21-25 hours | 117 (28.6%) |
| 26-30 hours | 79 (19.3%) |
| 31-35 hours | 48 (11.7%) |
| 36-40 hours | 8 (2%) |
| More than 40 hours | 2 (0.5%) |
| Total | 409 (100%) |

| Question 35: Within the <u>past two years</u>, have you experienced any of the following? (Check <u>all</u> that apply) | N |
|--|-------------------|
| Voluntary unemployment | 15 (4.3%) |
| Switched employers/practices | 143 (41.4%) |
| Worked part-time or temporary position(s), but would have preferred a full-time or permanent position | 62 (18%) |
| Involuntary unemployment | 42 (12.2%) |
| Worked two or more positions at the same time | 158 (45.8%) |
| Hours decreased involuntarily | 121 (35.1%) |
| Total | 345 (100%) |

| Question 35a: If you have SWITCHED EMPLOYERS/PRACTICES within the <u>past two years</u>, please indicate the work setting you left and the work setting you moved to | <u>LEFT</u> N | <u>MOVED TO</u> N |
|---|----------------------|--------------------------|
| Retail Pharmacy- Chain | 78 (40.6%) | 44 (23.3%) |
| Retail Pharmacy- Independent | 29 (15.1%) | 40 (21.2%) |
| Hospital Based- Inpatient | 34 (17.7%) | 21 (11.1%) |
| Hospital Based- Outpatient | 8 (4.2%) | 8 (4.2%) |
| Outpatient Clinic | 4 (2.1%) | 6 (3.2%) |
| Govt. Agency/Armed Forces/Other Federal | 5 (2.6%) | 3 (1.6%) |
| Specialty Clinic | 3 (1.6%) | 3 (1.6%) |
| Long-Term Care Center | 13 (6.7%) | 17 (9%) |
| College of Pharmacy | 1 (0.5%) | 4 (2.1%) |
| Mail Order Pharmacy | 3 (1.6%) | 11 (5.8%) |
| Managed Care Facility | 4 (2.1%) | 8 (4.2%) |
| Other (specify) | 10 (5.2%) | 24 (12.7%) |
| Total | 192 (100%) | 189 (100%) |

| Question 36: If you have changed work settings within the past two years, please check the reason(s) for this change of work setting. (Check <u>all</u> that apply) | N |
|--|-------------------|
| Higher pay | 61 (23.7%) |
| Professional advancement | 94 (36.6%) |
| Preferred hours | 110 (42.8%) |
| Laid off | 45 (17.5%) |
| Work responsibilities | 56 (21.8%) |
| Moved | 21 (8.2%) |
| Better work/education fit | 47 (18.3%) |
| Position elimination | 34 (13.2%) |
| More challenging | 24 (9.3%) |
| Desire for change | 72 (28%) |
| Personal/family reason | 69 (26.8%) |
| Other | 39 (15.2%) |
| Total | 257 (100%) |

| Question 37: Ideally, how many hours would you choose to work at your primary place of employment each week? | N |
|---|-------------------|
| Total | 899 (100%) |

| Question 38: In your primary place of employment, do you have sufficient time to counsel patients? | N |
|---|-------------------|
| Yes | 578 (69.7%) |
| No | 251 (30.3%) |
| Total | 829 (100%) |

| Question 39: Compared to last year at this time, how has your workload changed? | N |
|--|-------------------|
| Increased | 610 (67.9%) |
| Decreased | 61 (6.8%) |
| Remained the same | 227 (25.3%) |
| Total | 898 (100%) |

| Question 40: Overall, and taking into account all positions you fill, how satisfied are you with your current employment/work situation? | N |
|--|-------------------|
| Very satisfied | 396 (43.6%) |
| Somewhat satisfied | 333 (36.7%) |
| Somewhat dissatisfied | 121 (13.4%) |
| Very dissatisfied | 57 (6.3%) |
| Total | 907 (100%) |

APPENDIX D: REFERENCES

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