



National
Pharmacist
Workforce Survey:
2000

FINAL REPORT OF THE NATIONAL PHARMACIST
WORKFORCE SURVEY: 2000

Prepared by:
The Midwest Pharmacy Workforce Research Consortium

The Ohio State University
University of Wisconsin-Madison
University of Minnesota
University of Michigan
University of Iowa

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Authors:

Craig A. Pedersen, RPh, PhD, Project Director
Assistant Professor
Division of Pharmacy Practice and Administration
College of Pharmacy
The Ohio State University
Columbus, OH 43210

William R. Doucette, RPh, PhD
Associate Professor
Division of Clinical and Administrative Pharmacy
College of Pharmacy
The University of Iowa
Iowa City, IA 52242

Caroline A. Gaither, RPh, PhD
Associate Professor
Department of Social and Administrative Sciences
College of Pharmacy
The University of Michigan
Ann Arbor, MI 48109-1065

David A. Mott, RPh, PhD
Assistant Professor
Division of Social and Administrative Sciences
School of Pharmacy
University of Wisconsin-Madison
Madison, WI 53706-1515

Jon C. Schommer, RPh, PhD
Associate Professor
Department of Pharmaceutical Care & Health Systems
University of Minnesota
College of Pharmacy
Minneapolis, MN 55455-0343

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Executive Summary:

INTRODUCTION:

Perhaps at no other time in the history of pharmacy in the United States has the current state of the workforce been of such interest. Currently (2000), the Bureau of Health Professions (via P.L. 106-129) has an extremely high level of interest in the supply of pharmacy given the congressional mandate to examine the issue. What makes this issue timely is that there appears to be an imbalance in the supply and demand of pharmacists. Demand for pharmacists has greatly outstripped the supply. Coupled with the implementation of entry-level Doctor of Pharmacy programs, this imbalance is likely to persist in the near future. This imbalance has led to drastic increases in wages, as companies are competing for workers using salary and sign-on bonuses as recruitment incentives.

This investigation was commissioned by the Pharmacy Manpower Project (PMP). The PMP is comprised of Academy of Managed Care Pharmacy [AMCP], American Association of Colleges of Pharmacy [AACP], American College of Apothecaries [ACA], American Pharmaceutical Association [APhA], American Society of Consultant Pharmacists [ASCP], American Society of Health-System Pharmacists [ASHP], Bureau of Health Professions [BHPr], National Association of Chain Drug Stores [NACDS], National Association of Boards of Pharmacy [NABP], National Community Pharmacists Association [NCPA], National Council of State Pharmacy Association Executives [NCSPA], National Pharmaceutical Association [NPhA], National Wholesale Druggists' Association [NWDA], Pharmaceutical Research and Manufacturers Association

[PhRMA], and Pharmacy Technicians Certification Board [PTCB]. The American Association of College of Pharmacy serves as secretary to the organization.

Design and analysis was conducted by members of the Midwest Pharmacy Workforce Research Consortium (MPWRC) consisting of five principal investigators from five universities:

William R. Doucette, Ph.D. University of Iowa

Caroline A. Gaither, Ph.D., University of Michigan

David A. Mott, Ph.D., University of Wisconsin-Madison

Craig A. Pedersen, Ph.D., The Ohio State University, Project Director

Jon C. Schommer, Ph.D., University of Minnesota

Highlights of these findings are discussed in this overview and more detailed descriptions of the national pharmacist workforce are provided in later sections of the report.

OBJECTIVES AND METHODS:

The overall objective of this survey was to obtain reliable information on demographic and practice characteristics of the pharmacist workforce in the United States during 2000. The survey was designed to collect such information from a nationally representative sample of pharmacists. Specific objectives included:

1. Describe the pharmacist workforce in the United States in terms of demographic and practice characteristics
2. Examine factors influencing hours worked annually by pharmacists.
3. Describe work patterns in terms of setting and hours worked.

Questionnaire Design: An 11-page questionnaire was designed to collect the data for this study (See Appendix A, pp. 149-160). The questionnaire consisted of eight sections: general employment status, primary employment, compensation and work schedules (primary and secondary), labor market information, work-related attitudes, and individual background information. The questions that comprised each section were taken from previously conducted workforce surveys conducted by the principal investigators. Each of the items was found to be reliable and valid and thus included in the study instrument. The basic structure of each section of the questionnaire was outlined by the principal investigators and the appropriate questions included. The researchers then reviewed each section numerous times. After several iterations of this process, the final instrument was approved.

The questionnaire was pre-tested on a small sample of pharmacists who were asked to complete the survey and comment on ambiguous questions and to indicate how long it took to complete the questionnaire. Since the pre-test indicated no major problems, the final instrument was compiled.

Sample selection. KM List, Inc. was contacted in March 2000 to provide a mailing list of pharmacists for this survey. KM Lists is a national medical marketing data warehouse. At that time, KM had a list of 216,982 licensed pharmacists in the United States from all of the contiguous 48 states. These are unduplicated licensed individuals, cleaned, and updated whenever a state board of pharmacy gives them the updated file. They have no states that refuse to give them the information. The file contains names and home addresses of the pharmacists only.

It was our intent to survey a sample of all registered pharmacists in the KM List database. Therefore, we were not interested in identifying those pharmacists most likely to be practicing. To get an accurate assessment of the state of the workforce, we were interested in the population of licensed pharmacists, including those working in pharmacy in non-traditional roles, those working outside of pharmacy, retired, or not in the pharmacy workforce for other reasons.

A systematic sample of 5,000 pharmacists was obtained from KM lists ([Table A](#)). A systematic sample was chosen to obtain a distribution of pharmacists representative of their mailing addresses and thus mimic the distribution of pharmacists in the U.S. Due to undeliverable mail, only 4,895 of these pharmacists were presumed to have been reached by the mailed survey instrument.

Survey Mailings. Each individual in the sample was contacted up to 5 times ([Table B](#)). The announcement letter was sent to all members of the sample on April 7, 2000. It informed the recipients they were selected for the survey and would be receiving a questionnaire. The first questionnaire packet was mailed a week after the announcement letter (April 14, 2000), and provided a letter describing the study, the questionnaire, and a postage paid return envelope. A follow-up / reminder postcard was sent one week following the first packet mailing on April 21, 2000. This served to thank those who had already completed the survey and to request a response from those not yet responding. Three weeks after the first questionnaire was mailed, a second questionnaire packet was sent to non-responding individuals (May 5, 2000). The second questionnaire packet was followed 11 days later, on May 16, 2000, by a reminder postcard to non-respondents. This methodology follows that recommended by Dillman. However, it is

slightly modified in that Dillman recommends a certified letter with telephone follow up instead of the last postcard reminder that we sent. Our methodology was dictated by two factors: 1) project funding did not allow for a certified letter, and 2) phone numbers were not available.

Response Rate: This rigorous survey method with up to five contacts for each individual in the sample resulted in a total of 2,250 sampled subjects returning the survey form. The overall response rate of 46.0% (2,250/4,895) was achieved. Among the surveys received, a total of 29 responses were deleted. Reasons for deletion included deceased subjects (n = 14), respondent refusal to participate (n = 12), and non-pharmacist respondents (n = 3). An additional 78 respondents were deleted because they failed to report their current employment status. Finally, a total of 51 respondents were removed because they did not report all information for a minimum set of demographic variables. Thus, of the 2,250 responses a total of 158 (7.0%) were excluded from analysis and the net usable responses to the survey were 42.9% (2092/4880).

Assessment of Response: The impact of first and second mailings was assessed. The first questionnaire mailing produced 74% of the total responses ([Figure 1](#)). The remaining 26% respondents resulted from the second questionnaire mailing. In this national survey, response lagged mailing by approximately 1.5 weeks for both the first and second survey packet mailings. Additionally, approximately 50% of all responses were received within three weeks of mailing the first survey packet. These findings are not unexpected and match our experience on other surveys.

After initially evaluating the impact of a second mailing on response rate, the various factors to influence response rate were then examined. Demographic

characteristics of first and second mailing respondents were compared to assess if respondents to the second mailing differed from those from the first mailing. Additionally, we evaluated the demographic characteristics of early respondents vs. late respondents (1st quintile vs. 5th quintile). Research suggests that non-respondents may be more like late respondents. Thus, if the demographic characteristics of the early and late respondents are similar, then the respondent population is thought to be representative of non-respondents.

Demographic characteristics examined include gender, age, age by gender, marital status, presence of children, year pharmacy license obtained, type of pharmacy degree, and region of the country. All characteristics were categorical variables.

Region: The distribution of respondents by region is presented in Figure 2. The response rate by region is presented in [Figure 3](#). These results show a statistically higher response rate from the Midwest than other regions. We believe this to be a function of one primary factor, that all members of the Midwest Pharmacy Workforce Research Consortium (MPWRC) are located in the Midwest. Also, pharmacists from the five states where consortium institutions are located are accustomed to receiving workforce surveys on a regular basis. Workforce surveys have recently been conducted in Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin. Nevertheless, the Midwest is overrepresented by respondents to this national workforce survey.

First mailing vs. second mailing respondents: Results from this evaluation of the data did not show any significant differences ([Table C](#)). Therefore, the use of the second mailing resulted in receipt of additional responses, and the characteristics of those respondents were not different from those received from the first mailing of the survey.

Early vs. late respondents: Nonresponse error is the result of people who respond to a survey being different from sampled individuals who did not respond, in a way relevant to the study. One method for detecting evidence of nonresponse error is to compare early and late respondents, with the assumption that late respondents closely reflect the characteristics of nonrespondents. We defined early respondents as the first quintile of respondents and late respondents as the fifth quintile of respondents, based on date of receipt for the response. Results of our comparisons are presented in [Table D](#) and show that larger proportions of late respondents (vs. early respondents) were female (specifically older females), held a Pharm.D. degree, and were from the West or South regions which happen to have longer mail delivery times to and from the survey distribution point (Columbus, OH). Upon further analysis of all respondents, we found relationships between region and age, region and gender, and region and type of degree that are consistent with those presented in [Table D](#). Therefore, the differences between early and late respondents shown in Table D most likely are due to differential mail delivery times for various regions in the United States. This comparison of early and late respondents does not suggest the presence of nonresponse error in our study. We conclude that the results of this report are generally descriptive of pharmacists who reside in the United States.

However, in order to investigate the potential for nonresponse error further, we are developing a one-page follow-up survey that will be mailed to each nonrespondent in this study. Each person will be asked to report his or her primary reason for not completing the study (e.g. too busy, not interested, survey too intrusive) and also his or her age, gender, type of degree, year of licensure, employment status, and current

employment setting so that we can compare these demographics with those of respondents. Analysis of these results will allow us to further identify any potential for nonresponse error and will help us identify ways to adjust our findings so that they are as valid as possible for the U.S. pharmacist population.

RESULTS:

All Licensed Pharmacists: Only 73.3% of all licensed pharmacists were working full-time (>30 hours per week) in pharmacy during 2000 ([Table 1.1](#)). Part-time pharmacy employment accounted for another 14.9% of licensed pharmacists. There were differences in employment status based on gender. Over 21% of females were employed in pharmacy part-time compared to 9.9% of males. Overall, 91.2% of females were employed either full-time or part-time in pharmacy compared to 85.8% of males.

Nearly 12% of licensed pharmacists were not actively engaged in pharmacy practice in 2000. Pharmacists who were retired accounted for 6.2% of licensed pharmacists. Only 2.6% of licensed pharmacists were not working at all.

The proportion of males and females varied across employment categories. Over 40% (43.3%) of licensed pharmacists were females. Female pharmacists were represented in smaller proportions among full-time pharmacists (41.3%), pharmacists not working in pharmacy (29.0%), and retired pharmacists (14.6%). Females were represented in greater proportion among part-time pharmacists (62.1%) and pharmacists not working (76.4%). [Tables 1.2-1.4](#) summarize employment status by select demographic variables for all licensed pharmacists.

Non-retired Licensed Pharmacists: Among all non-retired licensed pharmacists, 93.1% of females and 94.8% of males are actively practicing pharmacy ([Table 2.1](#)). Whereas 4.1% of males are not working in pharmacy, 4.7% of females are not working at all. Overall, 78.2% of non-retired licensed pharmacists were working full-time during 2000. Tables 2.1-2.4 summarize employment status by select demographic variables for non-retired licensed pharmacists.

Actively Practicing Pharmacists: Over 44% of all actively practicing pharmacists were female and 76% of actively practicing pharmacists were married ([Table 3.1](#)). Over 85% (88.4%) of males were actively practicing pharmacy (full or part-time) on a full-time basis ([Table 3.1](#)). Conversely, only 76.6% of females actively practicing pharmacy were engaged in full-time practice ([Table 3.1](#)). In terms of age, over 80% of females were less than 46 years of age compared to only 42% of males ([Table 3.2](#)). Part-time work was most common among pharmacists between ages 31 and 45. This differed however, for males and females. A majority of males working part-time were over age 60 (61.8%). Conversely, 77.7% of females working part-time were between age 23 and 45 ([Table 3.2](#)). This suggests that female pharmacists tend to work part-time much earlier in their careers than male pharmacists ([Table 3.4](#)). Additionally, female pharmacists show a higher percentage of part-time practitioners for all experience categories.

Tables [3.5](#) and [3.6](#) contain the distribution of actively practicing pharmacists across practice setting and position type. Over half (55.4%) of actively practicing pharmacists practice in a community pharmacy setting. More specifically, the largest proportion of all full-time pharmacists work in chain settings (25%), followed by hospitals (24.8%), other practice settings (13.6%), and independent pharmacies (13.3%).

Other practice settings included clinics, HMO pharmacies, long term care, home health care, mental health facilities, and prisons. The largest proportion of part-time pharmacists work in independent settings (30.9%), followed by hospitals (20.3%) and chains (16.1%).

In terms of position, the largest proportion of full-time pharmacists are in staff positions (55.7%) and 33.3% are in management positions. Over 88% of part-time pharmacists are in staff positions.

Table 3.7 shows the distribution of actively practicing pharmacists across positions within settings. The largest proportion of full-time pharmacists are hospital staff pharmacists (17.7%) followed by chain staff (16.6%), positions in other patient care settings (15.8%) and chain management (8.5%). The largest proportion of pharmacists working part-time are independent staff (26.7%) followed by hospital staff (18.0%) and chain staff (15.1%).

There were differences in the distribution of full-time and part-time pharmacists across practice setting and position by gender (Table 4.1). The largest proportion of males working full-time worked in chains (25.4%), followed by hospitals (22.3%) and independent pharmacies (16.8%). The largest proportion of females worked in hospitals (28.4%), followed by chains (24.5%) and other practice settings (13.4%). In terms of position for male and female full-time pharmacists, a smaller proportion of females were in management positions (28.9%) and were owners (2.5%) compared to males (36.4% management, 11.1% owners).

For part-time pharmacists, the largest proportion of males were in independent pharmacies (48.3%) followed by chains (17.8%) and hospitals (14.4%) (Table 4.5).

Conversely, a larger proportion of females were in hospitals (23.8%), followed by other

practice settings (20.7%) and independent pharmacies (20.2%). For both males and females, over 80% of part-time pharmacists were in staff positions.

Tables [5.1-5.7](#) contain the mean age of pharmacists. Overall males working full-time (46.2 years) were older than females (37.4 years). The difference in age was larger for part-time pharmacists as males (61.1 years) were older than females (40.8 years). Additionally, the mean age of pharmacists working full-time (37.9 years) and part-time (43.2 years) with a Pharm.D. as their highest degree was less than males and females with other degrees as their highest degree.

Tables [6.1-6.8](#) contain information about the work experience of pharmacists. Overall, full-time pharmacists had worked for an average of 3.7 employers in 17.8 years of pharmacy practice. This differed by gender. Males working full-time had worked for 4 employers in 21.6 years of practice compared to females who had worked for 3.1 employers in 12.3 years.

Hours Worked: Tables [7.1-7.9](#) report the mean hours worked per week and weeks worked per year by actively practicing pharmacists. Overall, full-time pharmacists worked an average of 44.2 hours per week and worked 48.7 weeks per year. Full-time pharmacists in independent pharmacies worked the most hours (47.7 per week) and pharmacists in supermarkets worked the fewest hours (41.9 per week). In terms of position, owners worked 51.5 hours per week and staff worked 42.0 hours per week. Full-time males worked 45.1 hours per week compared to 42.9 hours per week for females. Males and females worked comparable weeks per year.

Part-time pharmacists worked an average of 19.0 hours per week and 44.2 weeks per year. Males worked fewer hours per week (17.6 hours) and weeks per year (42.5 weeks) relative to females (19.9 hours per week, 45.1 weeks per year).

Tables 8.1-8.10 summarize the mean full-time equivalent (FTE) of pharmacists working in their primary job. Mean FTE is summarized for both full-time and part-time pharmacists by select demographic variables in the tables.

Second Jobs: Pharmacists were asked if they held part-time jobs (Tables 9.1-9.6). Of full-time pharmacists, 12.3% reported holding a second job compared to 18.0% of pharmacists working part-time. Approximately 14% of males and 10% of females working full-time held second jobs. Of part-time pharmacists, 16.9% of males and 18.7% of females held a second job. Full-time pharmacists practicing in hospitals were most likely to have a second job (20.5%) and part-time pharmacists practicing in independent pharmacies were most likely to have a second job (25.0%).

Pharmacists held second jobs across a variety of practice settings (Tables 10.1-10.16). For full-time pharmacists the largest proportion of second jobs were in hospitals (28.7%) followed by other practice settings (26.6%), independent pharmacies (12.2%) and chains (10.6%). For pharmacists working part-time, the largest proportion of part-time jobs were found in independent pharmacies (33.9%), followed by hospitals (25.0%) and other practice settings (14.3%).

In terms of hours worked at second jobs, full-time pharmacists worked an average of 8.7 hours per week and worked 36.4 weeks per year (Tables 11.1-11.8). Males worked 8.8 hours per week and worked 38.3 weeks per year at second jobs. Females worked 8.4 hours per week and 32.6 weeks per year at second jobs. Part-time pharmacists holding a

second job worked an average of 12.0 hours per week and 35.8 weeks per year. Males worked 13.9 hours per week and 37.7 weeks per year at second jobs. Females worked 11.0 hours per week and 34.9 weeks per year at second jobs.

Past Work Experience: Pharmacists were asked whether they worked in 1995, the hours and weeks they worked in 1995, and in which setting they worked in 1995. These variables were then compared with similar data in 2000 to examine changes in work patterns for the cohort of pharmacists working in 1995. [Tables 12.1- 12.3](#) summarizes these variables. Over 90% (92.3%) of pharmacists working in pharmacy in 1995 were actively practicing in 2000. The remaining 7.7% were either retired or not working. A noticeable difference between 1995 and 2000 is the larger percentage of females working part-time in 2000 compared to 1995. Another trend is the increase in the percentage of all pharmacists working in mass merchandiser and supermarket pharmacies in 2000 compared to 1995. Although the proportion of pharmacists working in chain pharmacy dropped slightly from 1995 to 2000 (24.8% vs. 23.3% respectively), a greater drop occurred in independent settings (from 19.0% in 1995 to 16.5% in 2000).

[Tables 13.1-13.6](#) contain a summary of information for males and females who were working in 1995 and corresponding data for 2000. [Table 13.6](#) shows that the proportion of females working part-time between 1995 and 2000 has increased in all but two practice settings (chain and industry).

[Table 14.1](#) classifies work setting in 1995 of pharmacists working in 1995 by work setting in 2000. These tables can be used to examine the prevalence of pharmacists remaining in the same practice setting between 1995 and 2000. Over one-third of pharmacists working in chain, mass merchandiser and supermarket pharmacies in 1995

no longer work in these same settings. Comparatively, only 25.4% of pharmacists working in a hospital setting in 1995 do not work in a hospital setting in 2000. For pharmacists working in 1995 and working in 2000 in mass merchandiser and supermarket pharmacies, 13.5% and 24.8%, respectively, were working in chain settings in 1995.

Tables 15.1 and 15.2 cross-classify job setting in 1995 with job setting in 2000 for males and females working in 1995. Comparing these tables suggest that males appear more likely to work in the same practice setting (not necessarily for the same employer) between 1995 and 2000 relative to females. Additionally it appears that for many practice settings in which male pharmacists work in 2000, most were working in independent or chain settings in 1995. This same pattern is not as evident for females.

CONCLUSIONS:

This report provides a descriptive overview for the demographic and practice characteristics of the pharmacist workforce in the United States during 2000. The principal investigators will perform more in-depth analyses that focus on the interrelationships among the variables collected in this survey and the findings will be disseminated in peer-reviewed scientific journals. Our goal is to uncover key patterns and relationships that will be useful for decision-making regarding the future pharmacist workforce.