

Curricular Considerations of a Nontraditional Doctor of Pharmacy Degree Program: Implications of a Bi-State Pharmacist Survey

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This study was conducted to determine the preferences of pharmacists with respect to their level of interest and academic structure in a part-time, entry-level PharmD degree program. Six page, self-administered questionnaires were sent to 12,269 pharmacists residing in the states of Arizona and Illinois in 1996, realizing a response rate of 28.8 percent (n=3,532). Respondents provided demographic information, their perceived need for the PharmD for future pharmacy practice, and whether they would be interested in enrolling in a nontraditional PharmD (NTPD) program similar to one described in a cover letter. Those interested in enrolling also indicated their preferences for programmatic structure and costs. 1,119 respondents (31.9 percent) indicated that they may enroll in the proposed nontraditional PharmD program. The typical pharmacist interested in enrolling in the NTPD program is either a community or hospital pharmacist who: (i) plans on completing the program in a 2-3 year period while working full-time; (ii) prefers Wednesday evening or Saturday morning classes; (iii) finds videotapes, pre-printed materials and live lectures the preferred delivery method for course materials; (iv) would drive less than 1 hour to courses; and (v) wants to complete the experiential component on a part-time basis. Those interested would be willing to pay a mean of \$10,891 (SD \$4,491) in tuition for the entire program. The results of this study help identify issues for pharmacists interested in pursuing a nontraditional PharmD degree, and have implications for those in pharmacy education and pharmacy practice. Well designed NTPD programs that are responsive to pharmacists' needs may assist some pharmacists desiring to upgrade their knowledge base and practice skills.

INTRODUCTION

In 1990 and 1991, the AACP House of Delegates adopted Background Papers I and II. Background Paper I(1) supported the opinion that the mission of pharmacy practice is to deliver pharmaceutical care(2). This fundamental mission for the profession requires pharmacists take an active role that fosters the safe, appropriate, and cost-effective use of medications and other therapies to achieve desired outcomes in patients. Background Paper II(3) described the curricular outcomes and content requisite to the preparation of entry-level graduate pharmacists to render pharmaceutical care. The adoption of these Background Papers by the Association supports the concept of pharmaceutical care and the curricular outcomes and competencies necessary to educate pharmacy students as entry-level practitioners(4).

Many colleges and schools of pharmacy have begun to embark upon curricular reforms that are necessary to carry out what is called for in both Background Papers I and II. Such curricular changes, when fully implemented, will impact current and future pharmacy graduates. The number of pharmacy students receiving the PharmD as their first professional degree has increased from 454 in 1981 to 1,619 in 1995, thus increasing the percentage of students receiving

the PharmD as their first professional degree from 6.2 to 20.7 percent over the same period(5).

The number and percentage of students receiving the PharmD as their first professional degree is almost certain to increase as pharmacy schools begin to offer the PharmD in addition to the BS in Pharmacy at the entry-level, or discontinue their BS programs and replace them with the entry-level PharmD. In the Fall of 1995, of the 33,415 students enrolled in professional pharmacy degree programs, 9,346 (28 percent) were enrolled in PharmD programs(6). The number of schools offering the PharmD as the only entry-level degree increased from 13 in 1993-94 to 40 in 1996-97¹.

With the movement toward the PharmD degree as the sole entry-level professional pharmacy degree and various marketplace demands, many practicing baccalaureate pharmacists are looking for ways to obtain both the knowledge and skills necessary to provide pharmaceutical care in their practice settings and in some cases, advance their professional degree status for the marketplace. Several colleges of pharmacy have been responsive to the needs of the profession and its practitioners by developing educational programs (curricular based and continuing education) to meet these needs.

¹American Association of Colleges of Pharmacy Home Page [Resource on World Wide Web]. Academic Pharmacy's Vital Statistics. URL:<http://www.aacp.org>. Available on the Internet. Accessed 1997, May 28.

Whether these educational programs developed by colleges of pharmacy have been reasonable and convenient for practicing pharmacists, is beyond the scope of this paper.

In constructing academic degree and continuing education programs, it is imperative that colleges are aware of the perceived value and need for such programs as well as their potential constituents' preferences for program structure. This bi-state study was conducted to determine the preferences of pharmacists with respect to their level of interest in a part-time, nontraditional entry-level PharmD degree program and the academic structure of such a program. This report describes the demographics and preferences of pharmacists interested in pursuing a nontraditional PharmD degree and specific factors that may be useful in designing nontraditional PharmD degree programs. Also described is an example entry-level PharmD degree curriculum, encompassing some of the preferences reported by the respondents.

BACKGROUND

Pharmacists' responsibilities are currently expanding beyond distribution functions to include monitoring and documenting therapeutic progress of patients. This position was reaffirmed by the international community at the Second International Conference on Pharmaceutical Competence. At this conference a consensus statement was put forward stating: "As a redefined pharmacy practice, pharmacists are engaged in and responsible for a collaborative patient-centered practice designed to obtain optimal patient outcomes through appropriate assessments, rational drug therapy, education, monitoring, evaluation and an ongoing dialogue with health care providers."⁽⁷⁾ To meet these changes in professional practice and educational standards, pharmacists are investigating ways in which they can obtain the knowledge and skills they need to effectively provide patient-centered care.

Continuing education and certificate programs can provide a portion of the necessary knowledge and skills, and may be sufficient for some practitioners depending on their baseline knowledge and the degree to which they need to apply these skills in their practice settings. Many pharmacists have responded to the need for more clinical knowledge and skills as well as the trend toward new entry-level graduates entering the job market with the PharmD by obtaining the PharmD as a post-graduate degree. The number of post-graduate PharmD degrees awarded annually by US colleges of pharmacy has increased from 210 in 1981 to 704 in 1995⁽⁵⁾.

These increases in post-graduate PharmD degrees awarded may be due in part by statements made by the American Council on Pharmaceutical Education (ACPE) that they will no longer accredit BS in pharmacy degree programs after the year 2004⁽⁸⁾. ACPE also states in the revised Accreditation Standards and Guidelines that colleges of pharmacy develop academic programs for baccalaureate pharmacists to obtain the PharmD degree⁽⁸⁾. A mechanism for an equitable degree upgrade has been supported by APhA, ASHP, and NARD for pharmacists currently possessing the BS degree.² What exactly is considered equitable by these and other organizations, academic institutions, and potential students is not universally agreed upon.

Previous surveys have shown that pharmacists are interested in pursuing the PharmD in a nontraditional format

which allows them to work toward the degree on a part-time, self-paced basis⁽⁹⁻¹¹⁾. Additional studies have examined the perceived needs, interests, and desires of pharmacists interested in pursuing a PharmD, though most were conducted well over ten years ago⁽¹²⁻¹⁶⁾.

In 1996, Buerki *et al.*, reported the educational and administrative profiles of eighteen nontraditional PharmD programs³. There were wide variations in admission requirements, number of credits required, credit for prior learning assessment (PLA), elective course offerings, experiential education requirements, maximum number of years allowed to complete the degree requirements, and total tuition costs. Diversity in academic program structure is expected to continue as the number of institutions offering the nontraditional PharmD increases in response to changes in health care and pharmacy practice, accreditation, political pressures, and the demand for such programs by pharmacists.

Generally, in the field of adult education within higher education, nontraditional educational degree programs do not require students to leave employment fully in order to complete the didactic and experiential components of the respective program, hence the term "nontraditional" education. The focus in nontraditional education tends to be on the attainment of competencies, rather than time spent in the traditional classroom. Currently, some colleges of pharmacy that offer the PharmD degree to baccalaureate pharmacists require individuals to come to the site where the campus is located to complete any or all of the following: attend didactic courses, complete experiential rotation requirements, or take examinations. Relatively few pharmacists have been able to make such drastic life changes to accommodate these requirements for post-baccalaureate PharmD degree programs. Hence, the desired preferences of pharmacists should be sought by colleges of pharmacy before entering the marketplace of nontraditional PharmD education.

METHODS

The primary objective of this research project was to gather information regarding the demand and preferred structure for a proposed nontraditional PharmD program to be offered by one university with campuses in both Illinois and Arizona. A six-page self-administered questionnaire was developed in November of 1995 to gather information about respondents' demographics, perceived need for the PharmD for pharmacy practice in the year 2000, and whether they would be interested in enrolling in a proposed nontraditional PharmD program described in the cover letter. Those that indicated interest in enrolling were asked to complete the questionnaire by providing information regarding their reasons for pursuing a PharmD, support they would receive from their employer, tuition they would be willing to pay, and preferred program structure and delivery methods. The instrument was pretested on a convenience sample of Illinois pharmacists and revised to improve clarity before

²"Joint Statement on the Entry-Level Doctor of Pharmacy Degree." Adopted by American Pharmaceutical Association, American Society of Hospital Pharmacists, and NARD: Representing Independent Retail Pharmacy. (1991)

³Buerki, R.A., Escovitz, A. Nontraditional PharmD programs: An educational and administrative profile, II. Presentation to the Section of Continuing Professional Education, American Association of Colleges of Pharmacy, Reno NV, July 1996.

Table I. Questionnaire response

	Illinois (Feb. '96)	Arizona (June '96)	Total
Questionnaires mailed	9460	3161	12621
Returned undeliverable	310	42	352
Received by sample	9150	3119	12269
Returned completed	2742	790	3532
Response rate (percent)	30.0	25.3	28.8

distribution to the intended target populations.

In February 1996 questionnaires were mailed to all registered pharmacists with mailing addresses in Illinois, according to State Board of Pharmacy records. This procedure was repeated in May 1996 by mailing questionnaires to registered pharmacists residing in Arizona. Mailing labels were obtained from the respective state regulatory agencies. Follow-up with nonrespondents was not performed. A college of pharmacy provided funds to support the costs associated with this study.

Data were entered into a database and analyzed using SPSS for Windows version 6.1, (Base System, Advanced, and Professional Statistics packages)(17). Descriptive statistics were used to examine demographics, the number of respondents interested in enrolling in the proposed nontraditional PharmD program, and preferences for programmatic structure and costs. The *chi*-square test was used to compare the responses of Illinois and Arizona pharmacists. An alpha level of 0.05 was applied to all statistical tests, with $P \leq 0.05$ indicating statistical significance.

RESULTS

By July 1996, 3,532 pharmacists from both states had responded for a total response rate of 28.8 percent (see Table I). As seen from Table II, the typical respondent was less than 50 years of age, working full-time in either a community or hospital practice setting, and was employed in their current position six years or less.

There were relatively few statistically significant differences between the respondents from the respective states. In comparing the hours worked as a pharmacist, Arizona respondents were more likely to work full-time (e.g., > 37.5 hours per week) than those in Illinois (76.4 versus 71.8 percent, $P < 0.001$). Pharmacists from Arizona also were more likely to be employed in a chain pharmacy (40.2 versus 29.5 percent, $P < 0.001$) or managed care setting (6.1 versus 2.0 percent, $P < 0.001$) as compared to their Illinois counterparts. Illinois respondents tended to be more likely to practice in independent pharmacy (18 versus eight percent, $P < 0.01$) or hospital pharmacy (28.4 versus 22.6 percent, $P < 0.001$) when compared to Arizona respondents. Illinois pharmacists also tended to have been in their current jobs longer, as a higher percentage of Arizona respondents indicated that they had been employed for less than three years at their current site (45.4 versus 36.5 percent, $P < 0.001$).

The majority of respondents (93.8 percent) agreed that the standard of pharmacy practice in the year 2000 would require more responsibility of pharmacists in the management and monitoring of medication therapy of patients. When asked if the PharmD degree would be needed for the level of pharmacy practice provided in the year 2000, 58 percent of respondents believed that it would definitely or probably be needed. Hospital-based and home health care

Table II. Demographics of responding pharmacists from Illinois and Arizona

	n	Percent
Gender (n=3525)		
Male	1993	56.5
Female	1532	43.5
Hours worked as a pharmacist per week (n=3522)		
> 37.5 hours/week	2566	72.9
21–37 hours/week	318	9.0
11–20 hours/week	196	5.6
< 10 hours/week	138	3.9
Not working as a pharmacist	304	8.6
Age (n=3518)		
<30 years	570	16.2
30–39 years	975	27.7
40–49 years	1076	30.6
50–59 years	496	14.1
> 60 years	401	11.4
Year received pharmacy degree (BS) (n=3520)		
1994–1995	254	7.2
1990–1993	393	11.2
1985–1989	447	12.7
1980–1984	572	16.3
1975–1979	558	15.9
before 1975	1296	36.8
Current practice site (n=3482)		
Chain	1109	31.8
Hospital	939	27.0
Independent	548	15.7
Managed care	100	2.9
Home health care	84	2.4
Consultant	85	2.4
Pharmaceutical industry	81	2.3
Ambulatory clinic	58	1.7
Mail order	50	1.4
Not currently employed	143	4.1
Other	239	8.2
Number of years in current position (n=3531)		
0–3 years	1310	37.1
4–6 years	659	18.7
7–10 years	513	14.5
11–14 years	291	8.2
15–18 years	219	6.2
> 18 years	413	11.7

pharmacists were the most certain that the PharmD would be needed, while only 48 percent of chain pharmacists felt the degree would be necessary for the standard of practice (Table III).

When all respondents were asked to assess the time necessary to complete a nontraditional PharmD degree while working full-time, over one-half (54.6 percent) felt that a realistic time frame should be between 19–30 months, while 22.7 percent suggested that a realistic time frame was 31–48 months (Figure 1). When analyzing the responses of those individuals that indicated they would not choose to pursue the PharmD degree because they either already have the PharmD degree (n=403) or are currently enrolled in a PharmD degree program (n=53), 57.1 percent and 40.4 percent, respectively felt a realistic time frame would be 19–30 months, while 29.6 percent and 50.9 percent felt 31–48 months was more realistic to complete the degree. These differences in time frames to complete the degree were not

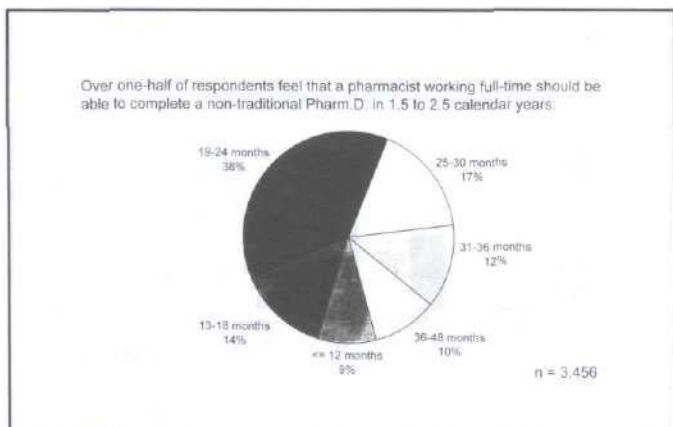


Fig. 1. Time frame to PharmD completion

Table III. PharmD needed by the year 2000 by practice setting (n=3462)

Practice Site	n	Percent			
		AN ^a	PN ^b	PNN ^c	ANN ^d
Hospital	933	18	50	29	3
Home health care/ Consultant	167	21	46	32	2
Managed care	99	9	49	39	3
Community— Independent	545	10	41	43	6
Community—Chain	1107	9	39	44	8
All others	611	17	46	30	7
Totals (mean percent)	3462	14	44	36	6

^aAN = Absolutely Needed

^cPNN = Probably Not Needed

^bPN = Probably Needed

^dANN = Absolutely Not Needed

Table IV. Interest in nontraditional PharmD by current practice setting

Current practice setting	Responses	Active BS practitioners	Interested in PharmD	Percent active BS interested in PharmD
Independent	548	487	138	28.3
Hospital	939	714	382	53.5
Home health care	84	68	33	48.5
Industry	81	65	26	40.0
Chain	1109	970	326	33.6
Consultant	85	68	32	47.1
Ambulatory clinic	58	42	17	40.5
Mail order	50	48	14	29.2
Managed care	100	85	45	52.9
Others	285	172	76	44.2
Not currently employed	143	57	19	33.3
Current job setting missing	50	29	11	37.9
Totals	3532	2805	1109	39.5

statistically significant between groups.

A total of 1,119 respondents (31.9 percent) indicated that they would be interested in enrolling in the proposed nontraditional PharmD program outlined in the cover letter. Hospital pharmacists represented the largest group of those interested in enrolling (n = 382), followed by chain pharmacists (n = 326) and independent pharmacists (n = 138). When only actively practicing BS pharmacists who were not enrolled in nontraditional PharmD programs were considered, almost 40 percent were interested in enrolling in the program (see Table IV). Over half of all active BS hospital and managed care pharmacists were interested (53.5 percent and 52.9 percent respectively), while less than 30 percent of all active BS independent pharmacists were interested. Excluding those pharmacists which already have the PharmD, the primary reason indicated for not choosing to pursue the PharmD was that the degree was perceived as not necessary for their level of practice (see Table V).

Of those responding positively to enrolling in the proposed nontraditional PharmD program, 31.9 percent indicated they would enroll within one year, 50.1 percent within three years, 15.3 percent within five years, and 2.6 percent by ten years. Most respondents indicated they would devote between 4–12 hours per week attending classes, studying, and completing class assignments (see Table VI). Most would travel one hour or less (one-way) to attend classes or workshops. However, Arizona respondents indicated more willingness to travel greater than 90 minutes (14.1 versus 5.9

Table V. Primary reason for respondents not to enroll in the proposed nontraditional PharmD program (n=2322)

	n	Percent
Do not need a PharmD Degree for level of practice	748	32.2
Already have the PharmD Degree	403	17.4
Too hard to balance family obligations	375	16.1
Do not want to spend the money	242	10.4
Retired from the profession	202	8.7
Do not know how to handle the clerkships	105	4.5
Do not want to put forth the effort	83	3.6
Currently enrolled in a PharmD program	53	2.3
Left the profession	52	2.2
Live outside Illinois or Arizona	33	1.4
Prefer a traditional "on campus" program full-time	10	0.4
Other	16	0.7

percent, $P < 0.001$). The most preferred weekday class would be Wednesday evenings (Figure 2).

Video tapes for home use were the most preferred method of delivery of course materials, though live lectures (including via satellite), pre-printed materials, and computer modems were also appealing to potential applicants (Table VII). Most respondents would prefer to complete a 160-hour clerkship requirement on a less than 40 hour per

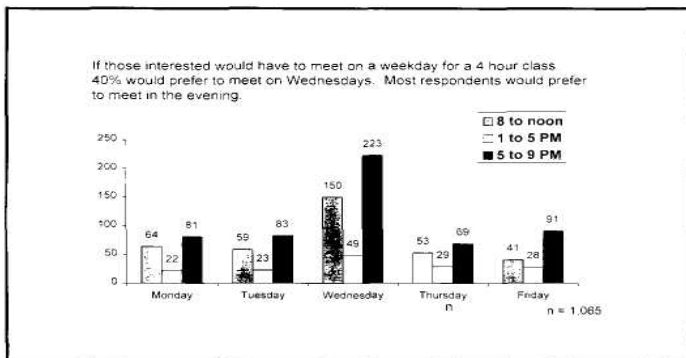


Fig 2. Preferences for course meetings.

Table VI. Factors impacting pharmacist enrollment in nontraditional PharmD programs

	n	Percent
Hours per week willing to spend in attending classes, studying, and completing assignments (n=1107)		
Less than 4 hours	89	8.0
4–8 hours	537	48.5
8–12 hours	400	36.1
Greater than 12 hours	81	7.3
Maximum travel time (one way) willing to go to didactic classes and workshops, 1–2 times/month (n=1109)		
30 minutes or less	149	13.4
31–45 minutes	360	32.5
46–60 minutes	329	29.7
61–75 minutes	103	9.3
76–90 minutes	80	7.2
Greater than 90 minutes	88	7.9
Best weekday to attend class (n=1070)		
Monday	167	15.6
Tuesday	167	15.6
Wednesday	424	39.6
Thursday	151	14.1
Friday	161	15.0
Best time during a weekday to attend class (n=1094)		
8 am – 12 noon	378	34.6
1 pm – 5 pm	159	14.5
5 pm – 9 pm	557	50.9
Appeal of weekend classes (n=1106)		
Very appealing	362	32.7
Somewhat appealing	516	46.7
Not very appealing	147	13.3
Not at all appealing	81	7.3

week basis, thus extending the commitment over an eight to 20 week period (Table VIII). Pharmacists were also asked to respond to their preferences for a specialty track within a PharmD degree program if available. Managed care and institutional care were selected most frequently, followed by home health care, ambulatory care, and long-term care.

In an open-ended response, the mean dollar amount for total tuition individuals were willing to pay was \$10,891 (SD \$4,491), with the distribution of responses reported in Figure 3. A total of 43.6 percent of pharmacists indicated that they would have tuition assistance available. One-third of respondents said they would be able to take a leave-of-absence to further their education.

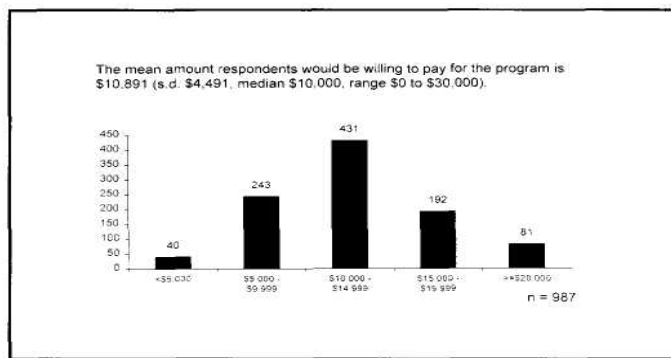


Fig 3. Total tuition willing to pay.

DISCUSSION

Pharmacists interested in pursuing a nontraditional PharmD do so for a number of reasons. Kelly, *et al.* found that improving their clinical skills and the quality of their work were the most important reasons why Pennsylvania pharmacists would pursue a nontraditional PharmD (9). Many career and job-related factors also influence pharmacists' decisions to obtain a PharmD degree. Pharmacists may feel that the PharmD will help them be more competitive in a job market in which an increasing number of entrants already have the degree. Pharmacists may also feel that having the PharmD will help them garner more respect, a better work schedule, a raise, or a promotion at their current practice sites.

The typical pharmacist enrolled in a nontraditional/external PharmD degree program is married, with dependents, and practices predominately in a hospital setting (18–20). The predominance of hospital pharmacists interested in the nontraditional PharmD degree was seen in this study (n=382), though chain respondents (n=326) did exhibit interest as well. Clearly, significant enrollment opportunity exists for colleges of pharmacy, which desire to attract community-based practitioners from the profession to enroll in nontraditional PharmD programs.

Nontraditional PharmD curricula should provide basic competencies to graduates necessary to provide pharmaceutical care irrespective of practice setting. After all, the majority of patient-care is rendered in ambulatory settings, where the majority of pharmacists practice today. The ability of pharmacists to foster their education through elective course selections may be desirable to nontraditional students. Thus, courses and experiential components may need to be tailored to particular sectors of the profession and geographic locations. Yet some colleges of pharmacy have not embraced nontraditional course delivery methods, elective course offerings, or technology and require nontraditional students to complete all or portions of their courses and rotations on the campus. Having students come to the campus does provide benefits to both students and faculty, regardless of their program though a balance must be achieved. Such ideas were expressed over fifteen years ago by Hanson(21) as he described the following, related to external PharmD degree programs:

“The majority of the program could be offered on a part-time basis. The bulk of the education and training can take place at off-campus sites, *i.e.*, the

Table VII. Preference for educational materials

	Percent (Number of respondents)			
	VA ^a	SA ^b	NVA ^c	NAA ^d
Live lectures (n=1076)	32.9 (354)	40.2 (433)	18.7 (201)	8.2 (88)
Video tapes for use at home (n=1087)	58.4 (635)	31.3 (340)	7.5 (81)	2.8 (30)
Live lectures provided via satellite at a site (n=1066)	13.9 (148)	41.1 (438)	30.5 (325)	14.5 (155)
Computer modems (n=1067)	29.1 (311)	33.4 (356)	23.1 (247)	14.2 (152)
Pre-printed materials (n=1076)	45.9 (494)	38.6 (415)	11.3 (122)	4.2 (45)

^aVery appealing (VA) ^bSomewhat appealing (SA) ^cNot very appealing (NVA) ^dNot at all appealing (NAA)

Table VIII. Responding pharmacists preference for completing a 160-hour clerkship (n=1119)

	Percent			
	40hr/week for 4 weeks	20hr/week for 8 weeks	16hr/week for 10 weeks	8hr/week for 20 weeks
Very willing	14.2	11.5	25.4	52.9
Willing	14.9	26.6	47.9	29.0
Unwilling	18.0	33.0	16.0	8.0
Very unwilling	52.9	28.9	10.8	10.1

part-time student's hometown and/or regional sites."

The results of this bi-state survey were used in the construction of a nontraditional PharmD degree program at one university. Generally, potential applicants were found to be willing to put forth an effort that does not disrupt their lifestyles considerably or their ability to maintain some level of employment as a pharmacist while earning the degree in a reasonable time period. Thus, nontraditional PharmD degree programs should be designed with the consumer in mind.

EXAMPLE NONTRADITIONAL PHARM D PROGRAM

Midwestern University Chicago College of Pharmacy (MWU/CCP) designed an academic nontraditional PharmD degree program initially offered in 1997 at both its university campus locations in Illinois and Arizona. Annual enrollment is projected to be 50 pharmacists admitted each year. The 66 quarter credit hour program is intended to be completed by participants over a 2-4 year period and consists of 34 didactic quarter hour credits and 32 experiential quarter hour credits. The 40 semester credits described in the questionnaire is almost equivalent to the 66 quarter credits adopted by MWU/CCP in its program. The maximum allowable time to complete the program is four years. Students can petition for advanced course standing in both didactic and experiential components of the curriculum. A minimum of one-half of the didactic credits and one-half of the experiential credits must be completed while enrolled at MWU/CCP.

The program utilizes home study materials supplemented by on-campus workshops conducted once monthly, with future satellite locations possible. Small group teaching, similar to that employed in the undergraduate curriculum at the College is used. Philosophically, the College wants its students and faculty to interact and enjoy the benefits of the collegial university environment. The curriculum is outlined in Appendix A. Full tuition costs for the program are approximately \$16,500 per student.

The results of this study were used to design several

components of the program at MWU/CCP. For example, the most preferred weekday and times for on-campus gatherings were Wednesdays. Additionally, almost 80 percent of respondents indicated that Saturday mornings were also a preferred meeting time. With this in mind, students can elect to attend either Wednesday night or Saturday morning gatherings at the Illinois campus or Saturday mornings on the Arizona campus. The decision not to offer Wednesday night meetings in Arizona was based on limited enrollments and faculty resources. As a benefit to those students desiring traditional campus-based teaching, several pharmacy courses offered in the traditional program can be taken during regular weekdays and applied for credit toward the nontraditional courses. Examples include the Clinical Pharmacokinetics, Drug Literature Evaluation and Research Methodology courses.

When asked about the one-way travel times that respondents would be willing to commute for live class sessions, interest falls off markedly over one hour. If clusters of pharmacists in a geographic location are identified, colleges may want to consider having satellite locations for such gatherings. Interactive video technology may help facilitate such encounters, though this would be course specific. Ongoing assessments of student satisfaction with days, times, and locations will be conducted by MWU/CCP as the program progresses.

Often the experiential education requirement of nontraditional PharmD programs pose great difficulty to students in trying to attain the required rotational objectives/competencies in the pre-defined period of time. Many programs require students to complete rotations with the university or college faculty (either full-time or affiliate and adjunct) that are located at the college or schools clinical sites. Rotational requirements for both traditional and nontraditional pharmacy students are frequently full-time (40 hours or more per week) conducted over three to 10 week block periods.

As more and more health care is provided in ambulatory, home health and extended care settings, additional

experiences and competencies in these areas must be provided to both traditional and nontraditional PharmD students. Frequently, care provided in these environments does not occur on a continual 40 hour per week basis. Examples may include: an anticoagulation service (or other ambulatory care services/clinics) may see patients only on weekday mornings or evenings on specific days; consulting may take place at a nursing home on the weekends; and home visitations may be scheduled at both the patients' and practitioners convenience, seven days a week. Thus there may be ample opportunities to fulfill the experiential education requirements of nontraditional PharmD programs in the communities that surround the students in which they live. These "non-campus based" practitioners must be tapped into as a valuable resource for both traditional and nontraditional pharmacy students as entry-level PharmD enrollments continue to grow.

If only full-time (40 hours/week rotations) were offered, few pharmacists would be willing and possibly able to complete them. Based on respondent preferences, some experiential rotations in the nontraditional PharmD at MWU/CCP will be offered in environments that can support student learning at nontraditional days and times, though some rotations may need to be completed on a full-time basis. Sites willing and able to accommodate students in these unconventional rotations must be identified, cultivated, and maintained by pharmacy educators and administrators, as the exact number and viability of such sites is often unknown. Students in the nontraditional program at MWU/CCP can also complete the elective rotation at their own practice site under the guidance of a faculty member that would be willing to help oversee the student implement a patient-care service at the site.

Rotations completed under the supervision of non-pharmacist health care providers (e.g., physicians, nurse practitioners, physician assistants) also pose opportunities for students and colleges, though this must be approached cautiously with attention given to accreditation guidelines and institutional educational philosophy. Some skills and competencies which pharmacists desire could be provided via other practitioners, while not compromising the integrity of the educational experience for the PharmD degree. Additional benefits of interdisciplinary education, such as an enhanced understanding of the roles of various health care providers in patient care could be realized by such interactions.

Clearly these described experiences are not traditional in nature. Such changes in the delivery of courses and experiences may concern some faculty as well as pose hurdles for students. Many practitioners and educators must undertake a paradigm transformation when it comes to teaching and learning. Ultimately, the demonstration of outcomes and competencies by the learner (i.e., what the student has learned) is what faculty must focus on, not solely the academic programmatic structure. Caution however, must be exercised as not to compromise the educational quality of any components of the educational process, in both didactic and experiential courses.

CONCLUSIONS

As pharmacists look to increase their knowledge and skills in today's rapidly evolving health care environment, they are faced with a variety of important issues that will impact the future of the profession. Some will be able to augment

their knowledge and skills through self study, continuing educational programs, certificate programs, residencies, and nontraditional PharmD degree programs. One can only speculate on the impact of patient care that may result, as increasing numbers of pharmacists pursue nontraditional PharmD programs as well as those completing other post-graduate training and education and ultimately begin to put to practice this additional knowledge and learned skills.

The results of this study help to identify some of these issues for pharmacists interested in pursuing a nontraditional PharmD degree, and have implications for those in pharmacy education and pharmacy management. To fully support the profession's mission to be responsible for patient-centered care that is designed to obtain optimal patient outcomes through appropriate assessments, rational drug therapy, education, monitoring, and evaluation, colleges and schools of pharmacy must provide various educational opportunities to support this mission.

Places of employment must also support pharmacists desiring to advance their knowledge and skills to support this mission while also providing an environment that will allow pharmacists the ability to apply their newly acquired skills and knowledge. Practice settings that provide opportunities to apply clinical knowledge and skills will be very attractive to pharmacists who graduate from nontraditional PharmD programs. Further work demonstrated that pharmacists which would be provided tuition assistance with their education were more likely to wish to remain in their current area of practice and as a result may be less likely to leave their employer after degree completion(22).

Well designed nontraditional PharmD programs that are responsive to pharmacists' needs is a step forward, though it may not be the answer for all pharmacists desiring to upgrade their knowledge base and practice skills. It is necessary for administrators, faculty, and students to "think outside of the box," when involved in nontraditional educational programs, as Albert Einstein said,

"The significant problems we face cannot be solved at the same level of thinking we were at when we created them."

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APPENDIX A.

Midwestern University Chicago College of Pharmacy Nontraditional PharmD Program

Didactic Courses (34 quarter hour credits)^a

- Concepts in Pharmaceutical Care (4)
- Clinical Pharmacokinetics (2)
- Drug Literature Evaluation (2)
- Research Methods (2)
- Contemporary Biotechnology (4)
- Novel Drug Delivery Systems (1)
- Advances in Targets for Drug Action (4)
- Management Applications in Health Care Systems (3)
- Advanced Therapeutics (12)

Experiential Rotations (32 quarter hour credits)^a

- Three Clinical Rotations
- One Elective Rotation

Some rotations may be scheduled on a part-time basis and extended over a longer time than the traditional full-time, five week period. Each rotation is equivalent to a 200-hour experience.

^aStudents who can document that they have already achieved the desired outcomes of courses and rotations within the curriculum may petition for advanced standing.