

## RESEARCH ARTICLES

### Pharmacy Students' Perspectives on the Value of Taking Call During Acute Care Practice Experiences

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**Objective.** Determine graduates' perceptions of the benefits and limitations of taking call with the medicine team while in the experiential portion of the doctor of pharmacy (PharmD) degree program.

**Methods.** Survey questionnaires were mailed to graduates who completed a medicine advanced pharmacy practice experience offering an on-call experience. Data collected included on-call requirements, participation, and perceptions of the benefits and limitations of participating in on-call activities.

**Results.** Respondents generally agreed that they learned more about disease states and healthcare logistics during on-call experiences. Respondents also agreed it was a teambuilding experience and would encourage other students to take call.

**Conclusions.** Taking call as a pharmacy student provides a unique opportunity to learn about disease states and build professional relationships with other healthcare professionals. This initial survey suggests that the perceived benefits of taking call outweigh the limitations, and that the experience incorporates professional development into pharmacy education.

**Keywords:** on call, inpatient medicine, advanced pharmacy practice experience

#### BACKGROUND

Pharmacy education has changed dramatically over the last several years. The bachelor of science in pharmacy (BS Pharm) degree has been phased out and replaced with the development of first-professional degree doctorate programs ("entry level" PharmD).<sup>1</sup> The doctor of pharmacy (PharmD) program has traditionally been expected to produce practitioners with an advanced level of knowledge and skills. The 1995 American Council on Pharmaceutical Education (ACPE) Accreditation Standards differentiated the PharmD curriculum from the BS Pharm curriculum stating the former "should prepare students to be practitioners who are mature in the clinical practice of pharmacy."<sup>2</sup> With the implementation of first professional degree PharmD programs, concerns of maintaining the educational experience and teaching the professional values of the PharmD student have arisen.<sup>3-5</sup> A recent American Association of Colleges of Pharmacy (AACP) Excellence Series Paper defines the components of professionalism and explores opportunities to incorporate it into pharmacy education. The paper identifies practice experiences as one such

opportunity: "It is during this period in students' training that students most notably develop and accept the lifelong commitment to the responsibilities to patients, pharmacy colleagues, the profession, and society as a whole. Preceptors should provide not only the environment but also the appropriate attitudes and behaviors that invite students to explore their health care belief systems and emulate the positive behavior that is modeled by the practitioner and required by the profession."<sup>3</sup>

In teaching institutions, the general medicine practice experience involves pharmacy students working with medical teams consisting of a pharmacy faculty preceptor, an attending physician, physician residents and interns, and medical students. These medical teams rotate covering overnight call during which they evaluate and admit patients for inpatient medical care. This involvement in patient care outside of usual practice experiences is a good opportunity for professional development. However, including call as part of the pharmacy practice experience requirements varies with practice sites and pharmacy preceptors. An evaluation of the educational experience of pharmacy students taking call has not been previously published. Exploring the benefits and limitations of this practice experience is needed in light of the current issues of PharmD program development, first to determine the value of this experience, and second to explore if participation in opportunities for professional development has changed with the different degree pro-

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grams. While pharmacists taking call has not traditionally been fundamental to patient care, providing the opportunity is perceived by pharmacy faculty practitioners to have many benefits, including providing pharmacy students with a unique opportunity to enhance their practical education and to build professional relationships with physicians. Participation as an active member of the team, including working with the team outside of the usual rotation hours, demonstrates a commitment to the profession and to the patients. Participating in call can also broaden the students' exposure to health care systems in general. However, arguments such as the following have been raised against expecting students to take call with their team: students learn little when not working directly with the pharmacy preceptor, students must always be under the direct visual supervision of the pharmacy preceptor, there is nothing for pharmacy students to contribute to the team during call, and it is an uncomfortable, unconventional practice environment.

## **OBJECTIVE**

The objectives of this survey were (1) to determine the perceived benefits and limitations to pharmacy students of taking call in the hospital with the medical team while in the practice experience portion of the PharmD program, and (2) to compare the on-call experience between students in different pharmacy degree programs at this institution in light of changes occurring in the professional pharmacy curriculum.

## **METHODS**

The study design was a cross-sectional survey using a mail survey instrument. The study was approved by the University of Oklahoma Health Sciences Center Institutional Review Board. All graduates of the University of Oklahoma College of Pharmacy who had successfully completed an adult medicine practice experience between 1996 and 2002 with a full-time faculty member at the university teaching hospital where an on-call experience was offered were included in the study. Eighty-seven survey instruments were mailed to the following graduates: 16 BS Pharm degree recipients, 18 first-professional degree PharmD recipients, 33 track-in PharmD degree recipients, 18 post-BS PharmD degree recipients, and 2 alternative path PharmD degree recipients (students who completed a post-BS degree program in an "after-hours" environment).

Data collected included pharmacy degree obtained, on-call requirements, participation in on-call activities, and perceptions of the benefits and limitations of participating in on-call activities. Benefits surveyed included

enhanced learning experiences regarding medications, disease states, patient care, and health care logistics; building relationships with the team and the patients; and positive influence on current pharmacy practice. Potential limitations of participating in taking call were surveyed, including a negative impact on overall rotation performance (due to fatigue, time demands) or family and financial obligations. Subjects were asked to indicate their level of agreement with the statements using a Likert scale with choices of 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree. The responses were then summated and the means determined for BS Pharm degree students, first professional degree, track-in, post-BS, and alt-path PharmD students. Alternate-path experiential rotations in this adult medicine setting required traditional, full-time commitment to rotation activities. The Kruskal-Wallis non-parametric test was used to compare the medians between groups.

While enrolled in the program, practice experiences are randomly assigned based on student preference ranking and preceptor availability. Students in the adult medicine practice experience included in this study had been assigned to a medicine teaching team that was on call every fifth night. All students were encouraged but not required to take call with the team. Pharmacy students were given access to call rooms with sleeping and bathroom accommodations.

## **RESULTS**

Of the 87 questionnaires mailed, 5 were returned as undeliverable. None of the BS or alternate-path PharmD respondents reported taking call during their medicine rotation; therefore, these students were dropped from the study. Thirty-eight completed survey instruments were received from the other degree recipients for a usable response rate of 59%.

Participation in on-call activities differed significantly among graduates from different degree programs (Table 1). Of the post-BS PharmD respondents, 93% took overnight call, and 79% took 4 or more nights of call. All of the track-in PharmD respondents took overnight call, and 85% took call 3 or more nights. In comparison, 60% of the first-professional degree PharmD graduates took evening call, 30% did not take any call, and 90% took call no more than 2 times.

Responses to survey items pertaining to the on-call experience were similar for each group, and no significant differences were found. Generally respondents agreed they learned more about disease states, health care logistics, and the impact of hospitalization on patients by

Table 1. Type and Number of Calls Taken by PharmD Graduates While in the Experiential Portion of the Doctor of Pharmacy (PharmD) Degree

	Post-BS PharmD, n = 14	Track-In PharmD, n = 14	First Professional Degree PharmD, n = 10
<b>Type of Call Taken</b>			
None, n (%)	0	0	3 (30)
Evening, n (%)	1 (7)	0	6 (60)
Overnight, n (%)	13 (93)	14 (100)	1 (10)
<b>Number of Calls Taken</b>			
Mean (SD)	4.21 (1.25)	3.85 (1.46)	1.2 (1.29)

taking call. Taking call was perceived as a team-building experience and was not believed to negatively impact their performance on the rotation, their financial or family obligations, or their safety. Overall, respondents agreed the benefits outweighed the limitations and would encourage future pharmacy students to take call.

Twenty-one responders (55%) included additional comments, and 16 (76%) of these comments expressed positive opinions about the on-call experience. Comments from respondents with negative opinions of taking call as determined by responses to the survey indicate areas for improving the experience for students, such as defining for both the student and the team clear expectations for the pharmacy student's role while on call.

## DISCUSSION

This survey of pharmacy students' perceptions regarding taking call suggests the benefits outweigh the limitations. Overall, responders agreed with statements surveying the benefits and disagreed with statements surveying the limitations of taking call. Responses with the strongest agreement were the benefits of learning more about disease states and health care logistics by seeing the patient during the initial presentation. As indicated by responses to survey items and in additional comments provided, responders felt taking call was a team-building experience: "I think the team appreciated that I was there, too. Obviously, not because I was a great clinician, so it was probably because they felt like I had a vested interest in helping the team and the patients that the team cared for." No items surveying limitations elicited a strong response; however, additional comments suggest one limitation was that the expectations of both the pharmacy student and the team concerning the pharmacy student on call were unclear, eg, "The resident did not feel there were compelling reasons for a pharmacy student to

be on-call." Therefore, requiring participation in call activities should be carefully implemented in order to maximize this experience. Optimizing the team's acceptance of the pharmacy student by clearly orienting the pharmacy student and the other team members to how the student can (and can not) assist while on call is critical. Explicit instructions regarding what practices in which students should (and should not) engage and strict instructions to contact their preceptor when necessary should also be communicated to the student by the pharmacy practice preceptor. Of course, the applicable laws regarding these practices should be followed, and access to the preceptor or appropriate designee should always be available. Because of the survey findings describing call as a team-building experience, communicating to students that their presence on-call with the team, whether it happens to be a busy call night or not, provides the student the opportunity to develop as a professional through improving communication skills, collaborating with health-care professionals, accepting responsibility for patients, and promoting the professional image of pharmacists as members of the healthcare delivery team. In all, clearly defining the goals and expectations and communicating these to the student and to the other members of the team will emphasize the benefits and minimize the limitations of the on-call experience.

There were no differences in response to survey items between the groups. The limited sample size may have restricted the power to detect significance between small differences in responses (Table 2). The observation of differing participation in call between the different degree programs is interesting considering the current debate over maintaining the quality of the PharmD curriculum through the recent changes in pharmacy education. Perhaps more participation in the team's on-call activities by the post-BS PharmD group reflects greater professional motivation, as they were pursuing advanced clinical training subsequent to their BS Pharm degree completion. This survey suggests more experiences should be included in today's first professional degree doctorate programs in order to produce practitioners with the advanced level of professional values that has traditionally been expected of a PharmD.

The results of this survey also suggest that one way of incorporating the professional development of pharmacy students into the curriculum is by including an on-call component in practice experiences. It is important to consider whether the responders' opinions are similar to the non-responders. Possibly, motivation to respond was highest in those with the strongest opinions about the experience. Therefore the strength of the respondents'

Table 2. Graduates' Responses to Items on a Questionnaire Regarding the Benefits and Limitations of Taking Call With a Medicine Team While in the Experiential Portion of a PharmD Degree Program

Questionnaire Item	Post-BS PharmD, Mean (SD), n = 14	Track-In PharmD, Mean (SD), n = 14	First Professional Degree PharmD, Mean (SD), n = 7
<b>What students learned</b>			
Because I observed the initial presentation of patients and the affects of the early therapy while on-call, I am more aware of the impact of medications on patients.	3.93 (1.38)	4.29 (0.73)	3.33 (0.82)
I learned more about disease states and symptoms by seeing patients during the initial presentation than I would have learned by seeing them the next day after the patient was stabilized.	4.00 (1.36)	4.21 (0.80)	4.17 (0.75)
Seeing patients during their acute presentation, admission to the hospital, and initial workup gave me a greater understanding of the logistics of our health care system.	3.93 (1.27)	4.50 (0.65)	4.17 (0.75)
Seeing patients during their acute presentation, admission to the hospital, and initial workup made me more empathetic to the impact of the process on the patient.	3.64 (1.28)	4.57 (0.51)	4.00 (0.71)
<b>Impact on patient</b>			
I obtained information from patients while on-call that altered that patient's immediate plan of care.	3.64 (1.28)	3.71 (0.99)	2.67 (0.52)
The patients viewed me as a more integral member of their health care team because of my participation with the team while on-call.	3.57 (1.22)	3.79 (1.12)	3.17 (0.75)
<b>Impact on team</b>			
Taking call with the residents and medical students was a team-building experience.	4.21 (1.19)	4.57 (0.85)	3.71 (1.25)
Because I took call, I feel my team had more professional respect for me.	4.07 (1.27)	4.07 (1.14)	3.57 (0.79)
My recommendations were received better by the team when I was "in the trenches" on-call with them than when presented the next day post-call after the therapeutic plan had already been implemented.	3.86 (1.35)	3.86 (1.23)	3.50 (0.55)
I made more suggestions for patient's plan of care while on call than during rounds with physicians.	3.43 (1.28)	3.86 (1.10)	3.29 (0.76)
<b>Impact on career now</b>			
I am more comfortable interacting with physicians now because of my experience taking call with my team.	3.57 (1.40)	3.93 (1.27)	3.17 (1.17)
I view the potential role of hospital pharmacists as more proactive clinicians because of my impact on the acute care of my patients while taking call with my team.	3.43 (1.34)	4.00 (1.11)	3.17 (1.33)
<b>Limitation of taking call</b>			
The time commitment of taking call distracted me from performing well on the other days of the rotation.	2.43 (0.94)	2.64 (1.08)	2.50 (0.84)
Taking call significantly jeopardized my ability to meet obligations to my family.	2.36 (1.45)	2.79 (0.97)	2.00 (1.10)
The time commitment of taking call created significant financial difficulties as it interfered with my ability to work while finishing my education.	2.36 (1.15)	2.36 (0.93)	1.83 (0.75)
Taking call put me in situations that I did not feel safe.	2.00 (1.04)	2.00 (1.11)	2.33 (1.03)
<b>Overall</b>			
I was involved in experiences while on-call that were not available during "usual" rotation hours.	4.29 (1.27)	4.36 (0.93)	3.57 (1.51)
Overall, the education and experience I gained from taking call with my team outweighed the inconvenience.	4.07 (1.44)	4.14 (0.95)	3.67 (1.03)
I would encourage PharmD students to take call with their medicine team during an Adult Medicine rotation.	4.14 (1.41)	4.43 (0.85)	4.17 (0.98)

\*All results are reported as the mean (standard deviation) response using a Likert Scale of 5 = strongly agree to 1= strongly disagree. There were no statistically significant differences in responses ( $P > 0.05$ ).

agreement concerning the benefits of being on call may have been overestimated. However, strong negative opinions of a experience can also serve as a motivation for responding to a questionnaire. While there were comments made about corrections that could improve the on-call experience, overall the feedback suggested that the benefits of the experience outweighed the limitations. Another potential limitation is that this survey was conducted in only one institution. Whether findings would be different in another university might depend on the resources the institution had available to provide a structured, quality on-call experience. Moreover, this institution does not require all medicine practice experiences to provide on-call experience, so differences in the students electing to take these rotations and thus be included in this sample should also be considered. However, because adult medicine is a required rotation and there are limited sites for placement, some of the students on these rotations with on-call experiences were assigned the rotation despite their preferences. Yet, having completed the rotation, even responders who had been assigned the rotation against their preference indicated they would recommend the experience.

## CONCLUSIONS

Providing pharmacy students with an on-call experience is a unique opportunity to learn about disease states, inpatient acute care, and building professional relationships within the healthcare team. The results of this sur-

vey suggest that students in current pharmacy programs may not be taking advantage of this opportunity, which incorporates professional development in the practice experiences. In addition, the value of providing an on-call experience in the current PharmD curriculum is demonstrated by the pharmacy students' positive perceptions, which suggest the benefits outweigh the limitations.

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