

RESEARCH

Preceptor Perceptions of the Importance of Experiential Guidelines

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Objectives. To assess preceptors' perceptions of the importance of experiential guidelines and identify and compare differences in perceptions.

Methods. Active advanced and introductory pharmacy practice experience preceptors for the University of New Mexico were invited to participate in an anonymous electronic survey regarding the importance of specific tasks and abilities expected in new pharmacist practitioners as outlined in Appendix C of the Accreditation Council for Pharmacy Education (ACPE) Standards and Guidelines.

Results. While the majority of preceptors rated most tasks (eg, communication, patient counseling) as very important or important, emerging tasks (eg, health literacy, public health, physical assessment) were not rated as highly by a majority of preceptors.

Conclusion. The deficiencies identified in the study suggest potential reductions in the transfer of learning from preceptors to experiential students. Preceptor training programs should be structured to raise the perceived level of importance of these tasks.

Keywords: experiential education, preceptor, Accreditation Council for Pharmacy Education

INTRODUCTION

In 2009, the American Association of Colleges of Pharmacy (AACP) Curricular Change Summit Supplement published a list of competencies to be included in pharmacy education curricula to meet these anticipated changes in practice.¹ Communication, critical thinking, problem solving, motivational interviewing, cultural competence, and professionalism are examples of recommended topics to be addressed in both classroom lectures and experiential pharmacy education. Although these topics are expressed to students as important aspects of experiential education, student feedback suggests that experiential preceptors may not recognize or value these recommended skills depending on the applicability or extent of use in their practices. Practicing pharmacists may not be aware of the need for specific task training, may not know how to effectively train students in a specific skill set, or may simply not consider the task to be relevant or important in their particular practice setting. For tasks that preceptors consider to be not as important, learning transfer could be negatively impacted in pharmacy students.

The pharmacy practice experiences required of pharmacy students provide reinforcement of classroom

instruction within a work environment.² Work environment experiences, specifically supervisory support and opportunities to perform tasks, are critical components to the transfer of learning, which is defined as the degree to which a learner effectively applies the knowledge, skills, and attitudes acquired during the learning process. There is a negative correlation to transfer of learning in those instances in which the supervisor (preceptor) does not consider the learning to be relevant, applicable, or important to job performance.³ The value the preceptor places on the learning directly impacts the opportunity for students to practice applying that knowledge. Tasks not perceived as important may be neglected or addressed at only minimal levels.

Creating congruency between the ACPE Appendix C framework and what preceptors teach in the "real world" is not only a challenge, but an integral component in the experiential training and education of pharmacy students. Preceptors are one of the critical links between pharmacy education in the classroom and actual practice. Preceptors must be aware of those areas valued by both ACPE and the college to provide optimal experiential education. Experiential education staff members must consider preceptor values when preparing programs for preceptor development and provide sufficient direction and education to ensure that all skills are adequately addressed in the experiential setting.

While preceptor training programs or sessions are commonly conducted by colleges and schools of pharmacy

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in order to improve experiential programs, the emphasis appears to be focused on teaching precepting skills rather than on the student tasks and activities to be reinforced.^{4,5} The AACP Professional Affairs Committee has suggested that programs “. . . include the competencies of leadership/management skills, embodiment of practice philosophy, role modeling as a practitioner, commitment to excellence in scholarly teaching, effective communication skills, and encouragement of self-directed learning.”⁵ Experiential education staff members need to provide preceptor development programs that not only enhance teaching and professionalism skills, but also educate preceptors about current and future trends in pharmacy education as indicated by ACPE and AACP.

The intent of preceptor development programs is to provide preceptors with tools to incorporate new educational trends into their daily practices. Based on preceptors’ perceptions of the importance of topics covered in the classroom curriculum, preceptor development must also address the importance of incorporating current ACPE requirements with practice setting needs. A review of pharmacy literature found few articles discussing preceptor perceptions.⁶⁻⁹ However, no research addressed perceptions of the importance of the ACPE requirements. Although preceptor training programs are necessary to improve practical education, an area that has not yet been assessed is the value or importance that preceptors place on the ACPE Appendix C guidelines and how this might influence preceptor training programs at colleges and schools of pharmacy.

The purpose of this study was to explore whether preceptors for the University of New Mexico College of Pharmacy agree with the curricular importance of the activities recommended in the ACPE Appendix C¹⁰ guidelines and to analyze the areas of congruency and discrepancy among practice areas and number of years pharmacist preceptors have been in practice. The null hypothesis was that the preceptors would agree with the authors of the ACPE Appendix C guidelines that each activity was important. The objectives of this study were (1) to create and administer a survey to preceptors assessing perceived importance of the components of the ACPE Appendix C guidelines; (2) to identify areas of congruency and discrepancy on perceived importance of each experiential skill between the ACPE Appendix C guidelines and the UNM COP preceptors; and (3) to identify differences in perceived importance of recommended activities between preceptors in different practice settings and/or of different years of practice.

METHODS

Eligible study participants were pharmacists actively serving as experiential preceptors either in the introductory or advanced pharmacy practice experience settings at

the college between June 4, 2012, and May 31, 2013. Preceptors of experiential students are working pharmacists who have met the preceptor requirements of the New Mexico Board of Pharmacy. These are pharmacists currently practicing in a particular pharmacy setting who have agreed to work with experiential students before they graduate from pharmacy school. They also routinely work with recent graduates beginning their professional careers. Preceptors were identified using the database maintained by the college’s experiential office.

An exploratory survey instrument was constructed to assess how preceptors value the relative importance of specific skills and abilities that should be well-developed in new pharmacist practitioners. Items to be assessed for importance in entry-level pharmacists were constructed from the activities listed by ACPE in Appendix C.¹⁰ The 20 activities suggested for introductory pharmacy practice experiences and the 18 suggested for advanced practice experience were reviewed and synthesized to the 24 items listed in Table 1. Participants were instructed to rank each skill using a 4-item Likert-type scale: 5 = very important; 4 = important; 3 = nice but not important; 2 = not at all important, and a response of 1 = not applicable to my practice. Demographics included the participant’s practice setting and year of graduation from pharmacy school.

An electronic survey instrument was created in Opinio (Object Planet, Oslo, Norway) and designed to minimize nonresponse rates. No identifiers were requested and all items to be assessed for importance were placed at the beginning of the survey instrument and restricted to 24 to allow participants to see all items without scrolling.¹¹ Demographic items were placed at the end of the survey instrument. The survey instrument was beta-tested by 6 current preceptors for clarity, ease of navigation, and confirmation of the estimated 10-minute completion time. The survey instrument and protocol were reviewed and approved by the UNM Human Research Review Committee.

An e-mail with a link to the anonymous survey instrument was sent to all eligible preceptors on July 14,

Table 1. Practice Settings of Pharmacy Preceptors (n=177) for the University of New Mexico Who Participated in a Survey Regarding the Importance of Experiential Guidelines

Setting	No. (%)
Community	36 (20.3)
Hospital	64 (36.2)
Institutional	18 (10.2)
Outpatient Clinic	36 (20.3)
Other	23 (13.0)

2012. Of the 411 e-mails sent, 32 (7.8%) were undeliverable, while 379 (92.2%) were assumed to have reached the designated recipient. E-mail reminders were sent to all potential participants on a weekly basis and the survey was closed on August, 11, 2012. Data analysis was conducted using Predictive Analytics SoftWare (PASW) Statistics, 17.0 (SPSS Inc., Chicago, IL), with a *p* value less than 0.05 considered significant.

RESULTS

Of the 379 preceptors on the mailing list, 183 preceptors responded to the survey instrument (48% response rate). Six respondents who failed to indicate their practice settings were removed from the analysis. The remaining 177 participants represent 5 practice settings: community, hospital, institutional, outpatient clinic, and other. Hospital, community, and outpatient clinic each represented $\geq 20\%$ of the respondents, making them the 3 largest practice sites reported in this study. Thirteen percent or less of the respondents practiced in either institutional or other practice settings. The other category included participants working in nuclear pharmacy, academia, management, research, and managed care. The practice settings are reported in Table 1.

Preceptors were asked to report the year in which they earned their degree in pharmacy. The average number of years in practice was 15 with a range of 1 to 52 years. To facilitate analysis, data were arranged into decades since graduation and is shown in Table 2. No distinction was made between those who had earned a bachelor of science degree and those who had earned a doctor of pharmacy (PharmD) degree.

Descriptive statistics included a summary of all responses by importance rating. The majority of responses (87.2%) rated skills as very important or important, with less than 10% of responses rating skills as not important. Data were sorted by practice setting to determine the percentage of respondents who rated a specific skill as very important (Table 3). The task “effective communication

and interactions with patients and other healthcare workers” was the highest-rated task overall, with 85.8% of participants marking this activity as very important. This was also the highest-rated task for those in hospital practice, with 89.1% indicating that communication was very important. The task with the next highest overall rating was counseling patients, with 81.3% of all respondents rating this task as very important. Counseling was the highest-rated task (higher than effective communication) for those in community, institutional, and outpatient clinic practice settings. The tasks with the lowest percentage ratings of very important were “conducting physical assessment” (13.6%) and “preparing and compounding extemporaneous products” (27.2%).

A Kruskal-Wallis nonparametric one-way ANOVA was performed to determine any differences in task rating among the 5 practice settings. The analysis showed 6 activities with *p* values less than 0.01 and 5 activities with *p* values less than 0.05. The results for all 24 tasks are also listed in Table 3. A Mann Whitney U test was used to evaluate the differences in activity ratings between paired practice setting groups. Each practice setting was compared to all others to determine differences between paired groups. Significant differences between paired groups of preceptor settings are listed in Table 4.

A Kruskal-Wallis evaluation of task rating among years since graduation showed no significant difference among tasks with the exception of conducting physical assessment (*p* < 0.036). Respondents who had entered practice in the 1980s rated physical assessment higher than those who entered practice after 2000 as determined by nonparametric independent *t* test (*p* = 0.004).

DISCUSSION

Preceptors are responsible for reinforcing the knowledge, skills, attitudes, and values taught in the classroom and laboratories, as well as for serving as role models to demonstrate the application of important concepts in practice. Preceptors spend more one-on-one time with students than most faculty members and are key in the delivery of 30% of pharmacy students’ education (minimum requirement for experiential education).¹⁰ These individuals must recognize, understand, and value the performance outcomes recommended by professional leaders to successfully guide students during the experiential process in order for transfer of learning to occur.

Student experiential education allows students to transfer classroom lecture learning and apply it in actual practice settings. This transfer of learning requires an appropriate and supportive learning environment. Studies on learning transfer have identified supervisory support (encouragement in trying new tasks with feedback and

Table 2. Year When Responding Preceptors for the University of New Mexico Earned a Pharmacy Degree

Year	No. (%)
After 2009	13 (7.3)
2000-2009	61 (34.5)
1990-1999	52 (29.4)
1980-1989	22 (12.4)
1970-1979	22 (12.4)
Before 1970	4 (2.3)
No Response	3 (1.7)
Total	177 (100.0)

Table 3. Pharmacy Preceptors' Ratings of Importance of Entry-Level Practitioner Training by Practice Setting

Entry-Level Practitioner Activity	P ^a	Respondents Ranking Tasks as Very Important by Practice Setting					All
		Community	Hospital	Institutional	Outpatient	Other	
Process and dispense new/refill medication orders.	0.11	80.6	60.9	50.0	66.7	52.2	63.8
Interpret and evaluate patient information (history, assessment and laboratory tests).	0.003 ^c	80.6	45.3	77.8	66.7	78.3	64.4
Conduct patient interviews and create patient profiles.	0.56	66.7	79.7	66.7	72.2	69.6	72.9
Counsel patients	0.003 ^c	94.4	70.3	83.3	94.4	68.2	81.3
Assess patient health literacy and compliance and adherence factors.	0.11	47.2	37.5	50.0	62.9	52.2	47.7
Identify patient specific factors that affect health, pharmacotherapy, or disease state management.	0.17	63.9	68.3	55.6	72.2	43.5	63.6
Respond to drug information inquiries from patients and other healthcare providers.	0.16	77.8	71.9	66.7	77.8	52.2	71.2
Monitor patient drug therapy plan: evaluate appropriateness of drug, dosing regimen, dosage form, route.	0.025 ^b	69.4	84.4	66.7	72.2	52.2	72.9
Recommend appropriate drug therapy: medication, doses and dosage schedule.	0.02 ^b	61.1	84.4	66.7	72.2	52.2	71.2
Consult with patients and recommend self-care products: nonprescription medications, dietary supplements, nondrug and alternative therapies.	0.03 ^b	61.1	37.5	50.0	50.0	52.2	48.0
Consider and integrate ethical, social and cultural influences in healthcare management.	0.02 ^b	36.1	23.8	22.2	52.8	30.4	33.0
Perform calculations required to compound, dispense and administer medications.	0.005 ^c	88.9	76.6	44.4	61.1	69.6	71.8
Prepare and compound extemporaneous products and preparations	0.16	30.6	35.9	16.7	22.2	17.4	27.7
Prepare and compound sterile products.	0.004 ^c	25.0	52.4	29.4	36.7	43.5	40.0
Recommend appropriate medication dosing using pharmacokinetic principles.	0.001 ^c	36.1	68.8	61.1	48.6	39.1	53.4
Calculate and evaluate pharmacokinetic properties of drug therapy.	<0.001 ^c	30.6	68.8	50.0	41.7	39.1	49.7
Document information, interventions and recommendations of pharmacist delivered patient care.	0.55	55.6	56.3	52.9	66.7	47.8	56.8
Identify and report medication errors and adverse drug reactions.	0.40	72.2	67.2	50.0	75.0	65.2	67.8
Retrieve, evaluate, and use clinical/scientific publications in decision-making.	0.01 ^b	33.3	60.9	61.1	57.1	43.5	52.3
Communicate and interact effectively with patients and other healthcare professionals.	0.07	94.3	89.1	77.8	86.1	69.6	85.8

(Continued)

Table 3. (Continued)

Entry-Level Practitioner Activity	P ^a	Respondents Ranking Tasks as Very Important by Practice Setting, %				All	
		Community	Hospital	Institutional	Outpatient		Other
Provide patient-centered pharmaceutical care.	0.28	77.8	79.7	64.7	77.1	60.9	74.9
Participate in educational activities designed to benefit the health of the general public.	0.64	27.8	31.3	23.5	38.9	26.1	30.7
Participate and contribute as member of an interprofessional healthcare team.	0.56	52.8	62.5	55.6	55.6	47.8	56.5
Conduct physical assessment.	0.08	13.9	15.9	11.1	19.4	0	13.6

^a Non-parametric analysis of variance of importance among activities by practice setting

^b Significant difference when $H > 9.488$ (4, $N=177$), $p < 0.05$

^c Significant difference when $H > 13.277$ (4, $N=177$), $p < 0.01$

coaching) and the opportunity to practice new skills as critical components to learning environments in which positive learning transfer and reinforcement occur.^{3,4} Preceptors probably will not encourage or model behaviors that they do not rate as important in practice and therefore the opportunities to practice will be limited in such environments. Our study was designed to investigate the relative importance that practitioners place on the tasks and activities listed in the ACPE guidelines.

The overall response from all practice settings was positive, with almost 90% of all respondents rating the listed tasks as very important or important. Participant ratings were actually limited to (1) yes, task was important with a choice of very important (56.9%) or important (30.3%) or (2) task was not important with choices of nice but not important (9.4%) or not at all important (0.5%). Because the majority of preceptors responded “very important,” we chose to focus on this group, sorting the responses by practice setting for further analysis. We had anticipated that there would be some strong consistencies among practice settings such as seen with Task 20 communication with 85.8% rating it very important. It was rated as important by only 13.6%, 1 respondent marked it as “nice,” and no respondents marked it as “not at all important.” The single difference in ratings by practice setting was among community practitioners who rated communication as more important than did other practitioners in the “other” category. These results suggest that communication is universally recognized and valued as being an important task for entry-level pharmacists and is most likely encouraged and modeled by preceptors in most practice settings.

As would be expected, tasks practiced only in specific settings were rated differently by practice setting. For example, sterile products preparation was rated as very important by only 40% of all participants, with 32.2% rating it important and 18.1% rating it nice but not important. No respondents ranked it as not at all important and an additional 9% indicated it was not applicable to their practice. Approximately 52% of hospital practitioners rated sterile products as very important and 31.2% rated it as important. Hospital rating of this task had a significant difference from ratings by other practice settings, demonstrating the importance of this task in the hospital practice setting.

One unexpected result was the responses to the item regarding the importance of the task participation in public health activities. Only 30.7% of all respondents rated this task as very important, while 37.9% rated it as important. A surprising 27.7% considered the task to be nice but not important, and there was no significant difference in ratings by preceptors at different practice settings. This

Table 4. Differences Among Practice Sites in Importance of Entry Level Practitioner Training

Tasks Rated Higher in Importance	Compared With How These Tasks Were Rated by			
	Community Practice Sites, <i>p</i>	Hospital Practice Sites, <i>p</i>	Institutional Practice Sites, <i>p</i>	Outpatient Clinic Sites, <i>p</i>
By community practice sites:				
Process and dispense		0.043	0.025	NS
Patient history		0.001	NS	NS
Counseling patients		0.004	NS	NS
Nonprescription medicine (OTC)		0.002	NS	NS
Calculations		NS	0.001	0.006
By hospital practice sites:				
Recommend therapy	0.007		NS	NS
Calculations	NS		0.009	NS
Sterile products	<0.001		0.042	NS
Pharmacokinetics	<0.001		NS	0.014
Evaluate kinetics	<0.001		NS	0.004
Literature in decisions	0.002		NS	NS
By institutional practice sites:				
Pharmacokinetics	0.048	NS		NS
Literature in decisions	0.025	NS		NS
By outpatient clinic sites:				
Assess health literacy	NS	0.009	NS	
Sterile products	0.028	NS	NS	
Literature in decisions	0.018	NS	NS	

Abbreviations: NS = not significant.

raises some concerns that students may not be getting appropriate experiential exposure to the pharmacist's role in public health. Preceptors may not recognize that routine activities (eg, immunization) are public health activities, or preceptors may not consider public health activities as important to their practice. These findings should prompt additional investigation into the delivery of experiential education specific to public health and may indicate an area in which preceptor education can alter perspectives.

Two related tasks, health literacy and integration of ethical, social and cultural influences in healthcare management, both received ratings of very important from less than 50% of respondents, with a difference in ratings found only among those in outpatient clinics. Combining responses for very important and important raised the totals for health literacy to 88.7% and for integration of influences to 77.1%. The concern here is that the 7.9% and 19.2%, respectively, of preceptors who rated these tasks as nice but not important may not provide the support, encouragement, and opportunity for students to practice these tasks. Further investigation should be conducted and any gaps in preceptor perceptions should be identified and remedied to promote stronger reinforcement of these concepts.

Physical assessment was rated as very important by only 13.6% of respondents. While an additional 29.4% rated it as important, 44% rated it as nice but not important and 4% rated it not at all important. The outpatient clinic practice setting showed the only significant difference among practice settings. A possible explanation is that this task is just emerging in the majority of practice settings with outpatient clinics leading the development. The education and training of preceptors in physical assessment may be a challenge too large for most pharmacy colleges and schools. However, it identifies a possible deficiency in preceptors and should alert experiential office coordinators to accurately identify sites that include physical assessment and take steps to place students at those sites.

When data were analyzed for ratings of importance by years since graduation from pharmacy school, there was no difference found except that respondents graduating during the 1980s rated physical assessment higher than those graduating after 2000. There is no explanation for this finding. Further investigation is needed to determine if this was an anomaly in data or a true difference.

Pharmacy students must be given encouragement, support, and opportunity in the experiential setting to practice the skills and behaviors presented in the classroom.

Identifying tasks rated as less important by preceptors provides opportunities for preceptor development that can raise awareness of low-rated tasks with a goal to improve transfer of learning in the experiential setting. Additionally, data could be used for students assignment to experiential sites in order to ensure that students will have the opportunity to practice all the tasks recommended in Appendix C. Future research should include assessment of the importance placed by preceptors on ACPE-recommended activities to better identify perception deficiencies. Identification would provide foundational analysis to develop educational strategies to address any discrepancies found.

Limitations to this study include potential nonresponse bias. However, the study included the entire population of New Mexico preceptors and ensured that all had equal opportunity to respond, suggesting strong external validity. While the specific statistics by practice setting may vary by state and practice setting, the results suggest that the level of importance that a preceptor places on a particular task are not uniform and should be investigated further. The use of a 4-item Likert-type scale may have limited quantification of importance ratings. In future studies, a survey instrument with a broader scale (eg, 7-item) should be used to improve analysis.

CONCLUSION

While most preceptors in our study rated ACPE-recommended practice tasks as important, not all preceptors rated all tasks as equally important. Some differences in ratings by practice setting are to be expected; however, the lower ratings given by a majority of preceptors to emerging tasks (health literacy, public health, physical

assessment) raises concerns and should be investigated further.

REFERENCES

1. Accreditation Council for Pharmacy Education. Accreditation standards and guidelines for the professional program in pharmacy leading to the doctor of pharmacy degree. Adopted January 23, 20011. <https://www.acpe-accredit.org/pdf/FinalS2007Guidelines2.0.pdf>. Accessed March 29, 2012.
2. Jungnickel PW, Kelley KW, Hammer DP, Haines ST, Marlowe KF. AACP Curricular Change Summit Supplement: Addressing competencies for the future of professional curriculum. *Am J Pharm Educ.* 2009;73(8): Article 156.
3. Burke LA, Hutchins HM. Training transfer: an integrative literature review. *Hum Resour Dev Rev.* 2007;6(3): 263-296.
4. Baldwin TT, Ford JK. Transfer of training: a review and directions for future research. *Pers Psychol.* 1988;41:63-105.
5. Assemi M, Corelli RL, Ambrose PJ. Development needs of volunteer pharmacy practice preceptors. *Am J Pharm Educ.* 2011; 75(1): Article 10.
6. Boyle CJ, Morgan JA, Layson-Wolf C, de Bittner MR. Developing and implementing an academy of preceptors. *Am J Pharm Educ.* 2009;73(2): Article 34.
7. Cherson RS, Bilger R, Mohr S, Wuller C. Design of a pharmaceutical care laboratory: a survey of practitioners. *Am J Pharm Educ.* 2005;69(1): Article 3.
8. Hill LH, Kirkwood CK. Student and preceptor perception of performance in advanced pharmacy practice experiences. *Am J Pharm Educ.* 2005;69(4): Article 63.
9. Kairuz T, Noble C, Shaw J. Preceptors, interns, and newly registered pharmacists' perceptions of New Zealand pharmacy graduates preparedness to practice. *Am J Pharm Educ.* 2010;74(6): Article 108.
10. Sonthisombat P. Pharmacy student and preceptor perceptions of preceptor teaching behaviors. *Am J Pharm Educ.* 2008;72(5): Article 110.
11. Vicent P, Reis E. Using questionnaire design to fight nonresponse bias in web surveys. *Soc Sci Comput Rev.* 2010;28(2): 251-267.