

# Assessment of the Need for a Re-Entry/Career Change Program for Pharmacists<sup>1</sup>

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For pharmacists who are currently not practicing pharmacy full-time, keeping up-to-date is difficult. Similarly, pharmacists desiring to change their field within the profession may also experience difficulties because the various areas of pharmacy have become so specialized. Thus, the purpose of this study was to determine the need for an update/refresher course for pharmacists either re-entering the work force after interrupting their careers or for pharmacists changing areas of practice. A second objective was to determine how best this need could be met. A questionnaire was mailed to 1,000 pharmacists licensed and residing in Missouri and had a response rate of 60.9 percent. The survey was designed to determine answers to several questions: (i) Does a sufficient population exist for an update course? (ii) Is there a need for such a course? (iii) Is there an interest in such a course? (iv) What topics and formats would be the most suitable? Results of this survey indicate there is a need for a refresher/update course for pharmacists. Of the pharmacists surveyed, 25.4 percent have interrupted their careers and 45.1 percent have changed areas of practice within pharmacy. Responses indicate there is a perceived usefulness and interest in an update course. Preference for topics and course formats for an update course were also expressed: pharmacology/new drugs and correspondence classes, respectively, were found most suitable.

## INTRODUCTION

The practice patterns of a significant portion of male and female pharmacists include career interruptions with the intent of returning to pharmacy. One study(1) found that 34.7 percent of women pharmacists and 8.4 percent of male pharmacists have interrupted their careers at least once since graduation. Reasons given for these breaks include furthering their education, illness, job transfers, bearing children, and raising a family. Significantly, 89.2 percent of the women and less than 20 percent of the men who were not currently practicing said they would return to pharmacy after their interruption. Another study found "49 percent of the women surveyed had left practice at least once because of child-care responsibilities but had later returned to practice"(2).

In addition, other studies have examined the issue of inactive or nonpracticing pharmacists. One such study(3) found 14.8 percent of the respondents to be nonpracticing pharmacists. Of this group, 40.3 percent were males and 59.7 percent were females. Another study(4) reported the inactive professional status of pharmacists to be 18.5 percent. Women constituted 65 percent and men, 35 percent of the respondents in this group. The reasons for inactivity were primarily divided into four categories: (i) family issues; (ii) a different career; (iii) retirement; and (iv) advancing one's education. In these two studies, more than 50 percent of the nonpracticing pharmacists planned on returning to pharmacy practice, 53.9 percent and 55 percent, respectively. For those pharmacists who are currently not practicing pharmacy or who are practicing pharmacy part-time, keeping up to date with the different facets of pharmacy practice is more difficult than it is for those working full-time. As such, they may require an update in current skills and knowledge to improve their self-confidence before they re-enter the profession.

A related concern is that of pharmacists changing their field within the profession (*e.g.*, switching from retail to hospital practice). A study in 1988(5) indicated that of the pharmacists surveyed, 77 percent had worked in other pharmacy settings before their current setting. Another 1988 study(6) investigated the degree of mobility between pharmacy practice settings that pharmacists in different graduating classes experienced. The study revealed that females experienced more settings than males, but pharmacists may expect to experience on average at least two practice settings during their careers(6). These data were similar for graduating classes from 1966, 1971, 1976, and 1981. In addition, because these graduates are still working, more settings may be experienced in the future. This is especially true for the later graduates, as they have additional work years before retirement. A 1980 study (3) found that of those nonpracticing pharmacists planning to return to pharmacy, 31.5 percent would not return to their past setting. The above findings are important because the various areas of pharmacy have become so specialized in terms of drugs utilized and skills needed, that it may be difficult to switch from one area to another without additional training. In the above example, for a typical community pharmacist switching to hospital pharmacy, a knowledge of different drugs, dosage forms, and preparation of parenteral products would be required.

A review of the pharmacy literature in the United States(4,7-10) describes studies of continuing education for nonpracticing pharmacists and surveys and papers that mention the need for an update/refresher course. However, no studies could be found that specifically addressed the educational needs of pharmacists who have interrupted

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their careers, moved from part-time to full-time work, or changed careers within pharmacy upon that transition. This finding is in contrast to literature from England. Educators there have delved further into this area of updating nonpracticing or part-time pharmacists to ease their pharmacy manpower shortage. One study(11) investigated the attitude towards, and involvement in, continuing education of married women pharmacists. Another study(12) also assessed sources of keeping up to date in addition to present and future career patterns of women pharmacists. Additionally, in the literature are two "return to practice" courses designed for women pharmacists(13, 14), as well as an evaluation of one such course(15).

Although little has been written about updating nonpracticing pharmacists, much literature can be found concerning this subject for inactive members of other health professions. Needs assessment studies, refresher courses, and course evaluations are available for physical therapists, medical technologists, and, especially, for nurses(16-20). Refresher courses have been developed in response to the needs of the profession experiencing manpower shortages and the returning professional faced with rapid technological change. In addition, some states require a refresher course for inactive nurses returning to work.

Thus, the primary objective of this study was to determine the need for an update/refresher course for pharmacists either re-entering the work force after interrupting their careers or for pharmacists changing areas of practice within pharmacy. A second objective was to determine how best this need could be met. A survey was developed to answer the following questions:

To determine the need for an update/refresher course

- Does a significant population for such a course exist?
- Is there a perceived need?
- Is there an interest?

To determine how best this need could be met

- What topics would be most suitable?
- What formats would be most suitable?

## METHODS

In August 1991, questionnaires were mailed to 500 female and 500 male registered pharmacists and were coded for confidentiality. These pharmacists were randomly selected from a list of registered pharmacists residing in Missouri provided by the Missouri Board of Pharmacy. The number of questionnaires was derived from Krejcie's table for determining sample size (21). The number of males and females was chosen to ensure an adequate female response to the study, because only 28 percent of Missouri pharmacists were women as of June, 1990.<sup>2</sup> Two additional mailings were sent to nonresponders in October, 1991 (postcard reminder) and November, 1991 (full survey) to obtain the data.

The twenty-one question survey was divided into five sections to obtain answers to several questions. The first section was designed to determine if there was a sufficient population for an update/refresher course. This population was defined as pharmacists who have interrupted their pharmacy careers, changed areas of pharmacy practice or moved from part-time to full-time positions in the past or

who plan to do so in the future. A sufficient number of pharmacists was defined to be 30, the average number required for continuing education courses at the St. Louis College of Pharmacy. The pharmacists were asked if they had experienced these transitions (or were currently doing so), and why they occurred. The term "interruption" was interpreted by each individual pharmacist; it was not defined for them (*i.e.*, six-month hiatus). Their anticipated future work status was also requested: were they planning any changes and, if so, would the change in work status be to another area of pharmacy, to an area other than pharmacy or to not work at all?

Those pharmacists who had interrupted their careers, changed areas of pharmacy practice, or moved from part-time to full-time positions continued with the next section: determining the need for an update course. (Those pharmacists who did not meet this criteria completed the demographic section only.) They were asked to indicate any educational steps taken and/or difficulties experienced before returning to practice full-or part-time or changing field of practice. They were also asked to respond, using a five-point Likert scale, to a statement concerning how prepared they felt to make this transition. This scale was also utilized in section three, which sought to assess the interest of the pharmacists in an update course. In this section, they were asked to respond to statements concerning usefulness of such a course and whether they would be interested in participating in such a course.

The fourth section was designed to determine what the topics and course formats should be for an update course. The pharmacists were presented with ten potential topics to include in an update course and were asked to respond, using the Likert-type scale from above, with their preferences. Other topics could also be suggested. Similarly, a list of potential course formats were presented, and the pharmacists rated them on their suitability. The last section requested demographic information and included the following data: date of birth, sex, zip code, year of initial pharmacy degree, marital status, offspring, and employment status. Of the 1000 surveys mailed, ten were returned undelivered for a baseline of 990. By the beginning of December, 1991, 603 questionnaires had been received for a 60.9 percent response rate. Data were analyzed using StatPac Gold Statistical Analysis Package Version 3.2 (22). Frequency analysis, individual item means and standard deviations, correlation, chi square, and two-tailed *t*-tests were performed as appropriate.

## RESULTS/DISCUSSION

### Demographics

The demographic data is presented in Table I. A fairly equal number of men and women responded to the questionnaire: 290 men and 313 women. The women pharmacists had a mean age of 35 and the men had a mean age of 46. The mean year they received their initial pharmacy degree also differed: 1969 for the men and 1980 for the women. This is probably due to the larger numbers of women entering pharmacy in the past two decades. At the time of the study, more women than men were single (22.9 percent vs 13.1 percent) and did not have children (42.9 percent vs 18.7 percent). In addition, 77.7 percent of the men and women were employed full-time, 15.4 percent part-time (less than 36 hours per week) and 6.9 percent were not employed in

<sup>2</sup> Personal Communication, Missouri State Board of Pharmacy, June, 1990.

**Table I. Demographic profile of respondents**

Demographic variable	Male		Female		Total	
Mean Age (Years)	46	(SD 13.35)	35	(SD 8.47)	40	(SD 12.44)
Gender	290	(48.1%)	313	(51.9%)	603	
Mean year of initial pharmacy degree	1969	(SD 13.22)	1980	(SD 8.090)	1975	(SD 12.24)
Marital Status						
Married	251	(86.9%)	239	(77.1%)	490	(81.8%)
Single (separated), divorced, widowed)	38	(13.1%)	71	(22.9%)	109	(18.2%)
Children						
Yes	235	(81.3%)	177	(57.1%)	412	(68.8%)
No	54	(18.7%)	133	(42.9%)	187	(31.2%)
Employment						
Full-time	241	(84.3%)	222	(71.6%)	463	(77.7%)
Part-time	23	(8.0%)	69	(22.3%)	92	(15.4%)
None	22	(7.7%)	19	(6.1%)	41	(6.9%)
Primary practice setting	N=587					
Retail	147	(51.6%)	157	(52.3%)	304	(51.8%)
Hospital	76	(26.7%)	93	(31.0%)	169	(28.8%)
Academia	4	(1.4%)	5	(1.7%)	9	(1.6%)
Industry	5	(1.8%)	4	(1.3%)	9	(1.6%)
Consultant	9	(3.1%)	2	(0.7%)	11	(1.9%)
Sales representative	6	(2.1%)	2	(0.7%)	8	(1.4%)
Government	9	(3.1%)	1	(0.3%)	10	(1.7%)
Nursing Home	3	(1.1%)	10	(3.3%)	13	(2.2%)
Managed Care	4	(1.4%)	12	(4.0%)	16	(2.8%)
Other Pharmacy	14	(4.9%)	12	(4.0%)	26	(4.5%)
Nonpharmacy	8	(2.8%)	2	(0.7%)	10	(1.7%)

Note: Questions were not answered by all respondents. Percents are derived from the total who did respond.

pharmacy or nonpharmacy area. A smaller percentage of women pharmacists was employed full-time (or not at all), yet a larger percentage of women was employed part-time (22.3 percent vs 8.0 percent). The primary practice settings for those employed are given in Table I. While a similar percentage of male and female pharmacists was employed in retail pharmacy as their primary setting, a slightly higher percentage of women was working in hospital pharmacy.

### Population for Update Course

The first consideration in determining the need for an update/refresher course is whether a sufficient population exists for such a course. Utilizing the definition given in the Methods section, the results indicate that there is such a population. Table II presents the percent of respondents who have interrupted their pharmacy careers, changed area of pharmacy practice, or moved from part-time to full-time pharmacy work. It is interesting to note that the numbers and percentages of female pharmacists are greater than those of male pharmacists in each of these categories.

A total of 25.4 percent of those surveyed have interrupted their careers: 21.4 percent of the men and 29.1 percent of the women pharmacists. These figures are somewhat different from the study by Mercadante et al.(1), where 8.4 percent of the men and 34.7 percent of the women pharmacists experienced career interruptions. These differences may be partly due to current societal trends. Fewer women are staying home for extended periods after the birth of a child and, therefore, are not interrupting their careers. A negative correlation was found between the length of the interruption and the pharmacists' date of birth ( $r = -0.4279$ ,  $P < 0.01$ ), supporting this observation. Younger female pharmacists experienced shorter career interrup-

**Table II. Population for an update course: Past work history**

History	Male N (Percent) <sup>a</sup>	Female N (Percent) <sup>b</sup>	Total N (Percent) <sup>c</sup>
Pharmacists who have interrupted their pharmacy careers	62 (21.4)	91 (29.1)	153 (25.4)
Pharmacists who have changed areas of pharmacy practice	124 (42.8)	148 (47.3)	272 (45.1)
Pharmacists who have moved from part-time to full-time pharmacy practice	22 (7.6)	85 (27.2)	107 (17.7)

<sup>a</sup>percent based on number of male respondents (N=290).

<sup>b</sup>percent based on number of female respondents (N=313).

<sup>c</sup>percent based on number of total respondents (N=603).

tions. The increase in the percentage of male pharmacists who have interrupted their careers is perhaps indicative of an increase in job dissatisfaction, which along with education, were the main reasons for their career interruptions. Table III presents this data. Mercadante, et al.(1) also found male pharmacists interrupt their practice primarily to further their education. In their study, job dissatisfaction was not found as a separate reason, yet could have been the motivation to furthering education. In addition, female

**Table III. Reasons for interruption of pharmacy career<sup>a</sup>**

Reasons	Male N (Percent) <sup>b</sup>	Female N (Percent) <sup>c</sup>
Family	0	64 (70.3)
Education	12 (19.4)	6 (6.6)
Illness	3 (4.8)	4 (4.4)
Job transfer	5 (8.1)	10 (11.0)
Job dissatisfaction	10 (16.1)	11 (12.1)
Other—includes:	33 (53.2)	15 (16.5)
New job/Career changes		
Maternity leave		
Store closed		
Military		
Retired		

<sup>a</sup> Respondents could have indicated more than one reason.

<sup>b</sup> Percent based on number of male respondents (N=62).

<sup>c</sup> Percent based on number of female respondents (N=91).

**Table IV. Length of Interruption of pharmacy career**

Years	Male N (Percent) <sup>a</sup>	Female N (Percent) <sup>c</sup>
<1	7 (12.1)	19 (21.8)
1-3	33 (56.9)	49 (56.3)
4-9	10 (17.2)	13 (15.0)
≥10	8 (13.8)	6 (6.9)

<sup>a</sup> percent based on number of male respondents (N=58).

<sup>b</sup> percent based on number of female respondents (N=87).

pharmacists in Mercandante's study most often cited family reasons as the basis for career interruptions, which is consistent with the study results in Table III. Table IV indicates the length of the interruption. The average interruption length was 3.38+4.67 years. The male and female breakdown is 2.82+3.40 and 4.22+6.01 years, respectively. It is apparent from this table the majority of respondents, male and female, had been inactive for three years or less. This data concurs with that of Mercandante *et al.*(1).

A total of 45.1 percent of respondents have changed areas of pharmacy practice at some point during their careers. The majority (65 percent) have switched evenly from hospital to retail, or retail to hospital work. There were many reasons why pharmacists changed areas. Those that were expressed most often include a change for better pay/benefits, better hours, job satisfaction, opportunities, and challenge. Those pharmacists who have moved from part-time to full-time work also constitute a significant number (17.7 percent); more females (27.2 percent) than males (7.6 percent) have made this transition.

In addition to the respondents' past work history, it is also important to ascertain their future work plans in determining the population for an update/ refresher course. Table V presents this data. A total of 10.1 percent of the pharmacists working in a pharmacy-related area are planning to switch to another pharmacy area. For those pharmacists who are working in a nonpharmacy area or who are not working at all, 8.6 percent and 19.0 percent, respectively, are planning to work in a pharmacy-related area in the future. Of the pharmacists who are working, 2.6 percent are planning not to work at some point in the future.

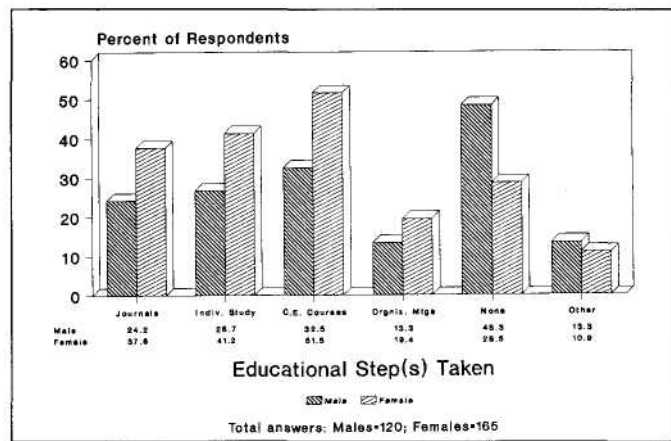


Fig. 1. Educational steps taken before returning to or changing practice.

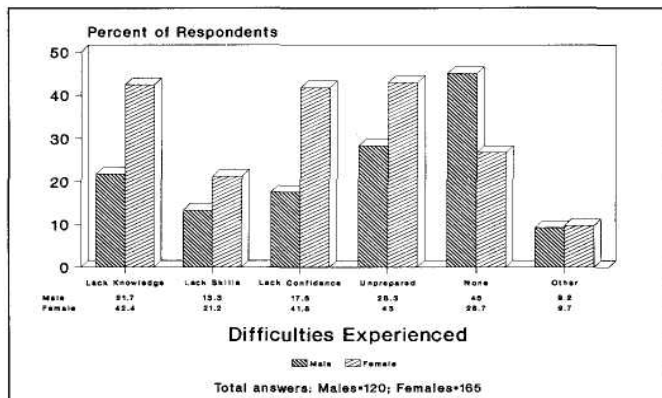


Fig. 2. Difficulties experienced in returning to or changing practice.

**Perceived Need for Update Course**

Another aspect in determining whether an update/ refresher course is warranted is to ask those pharmacists who have made an interruption(s) in their career, changed areas of pharmacy practice, or have gone from part- to full-time work, how they prepared for and felt about the transition they made. Figure 1 indicates the educational steps taken by these individuals. Three points should be noted from this data. First, the most common method of keeping up-to-date was through continuing education courses. Second, a profound male/female difference is evident. The average level of participation by the female pharmacists in all categories was significantly higher (53 percent) than for the male pharmacists. In fact, more male pharmacists (48.3 percent) did not prepare at all versus 28.5 percent of female pharmacists. Lastly, these numbers themselves indicate that a significant population felt the need to take educational steps before returning to work or making a career change. The pharmacists were also asked to indicate any difficulties experienced before they returned to practice full- or part-time or made a career change. These responses are indicated in Figure 2. It was found a substantial portion of pharmacists do feel unprepared and that they lacked the knowledge, skills, and confidence in these situations. The female pharmacists were much more inclined to indicate a difficulty experienced. Nearly one-half (45 percent) of the male respondents indicated they did not experience any

**Table V. Population for an update course: Future work plans**

Category	Male N (Percent)	Female N (Percent)	Total N (Percent)
Pharmacists working in a pharmacy – related area			
No Change	206 (83.1)	241 (83.7)	447 (83.4)
Change to Another Pharmacy Area	30 (12.1)	24 (8.3)	54 (10.1)
Change to Nonpharmacy Area	6 (2.4)	15 (5.2)	21 (3.9)
To Not Work	6 (2.4)	8 (2.8)	14 (2.6)
Total	248 (100.0)	288 (100.0)	536 (100.0)
Pharmacist working in a nonpharmacy area			
No Change	20 (87.0)	11 (91.7)	31 (88.6)
Change to a pharmacy Area	2 (8.7)	1 (8.3)	3 (8.6)
Change to another nonpharmacy Area	1 (4.3)	0 (0.0)	1 (2.8)
To not work	0 (0.0)	0 (0.0)	0 (0.0)
Total	23 (100.0)	12 (100.0)	35 (100.0)
Unemployed pharmacists			
No Change	20 (83.3)	12 (66.7)	32 (76.2)
Change to a pharmacy Area	3 (12.5)	5 (27.8)	8 (19.0)
Change to a nonpharmacy Area	1 (4.2)	1 (5.5)	2 (4.8)
Total	24 (100.0)	18 (100.0)	42 (100.0)

Note: More than one category could have been chosen by each pharmacist.

**Table VI. “I feel/felt prepared to make this transition” (Returning to practice or making a career change)**

	Strongly disagree 1	2	3	4	Strongly agree 5	Mean <sup>a</sup> ±SD
	N (Percent)	N (Percent)	N (Percent)	N (Percent)	N (Percent)	
Male	5 (4.1) <sup>b</sup>	11 (9.2)	27 (22.5)	47 (39.2)	30 (25.0)	3.7±1.07
Female	9 (5.5) <sup>c</sup>	25 (15.2)	55 (33.3)	38 (23.0)	38 (23.0)	3.4±1.16

<sup>a</sup>Differences between males and females was statistically significant ( $t=2.1257$ ,  $df=283$ ,  $P<0.05$ ).

<sup>b</sup>Percent based on total male response for question (N=120).

<sup>c</sup>Percent based on total female response for question (N=165).

difficulties at all, yet only 26.1 percent of the female respondents made this indication. This trend is also evidenced by the pharmacists' response to the statement, “I feel/felt prepared to make this transition” (return to practice or make a career change), shown in Table VI. On a five-point Likert scale with 1 = strongly disagree and 5 = strongly agree, the overall mean was  $3.55 \pm 1.13$ , the male mean was 3.7, and the female mean was 3.4. The male/female difference is statistically significant ( $t = 2.1257$ ,  $df = 283$ ,  $P < 0.05$ ). Since male pharmacists feel more prepared to make these transitions than female pharmacists, it is not surprising they took fewer educational steps and expressed fewer difficulties. Interestingly, more women took educational steps but still perceived greater difficulties and felt less prepared to return to practice or make a career change. Perhaps this difference is due in part to the nature of the career interruption itself: while men cited education as a main reason for their interruption, the majority of women primarily cited family-related reasons. Therefore, the men would not feel the return to work to be as difficult because they had remained in an academically challenging and stimulating environment.

A significant correlation was not found between the length of pharmacy career interruption and feeling prepared to return to practice or make a change in area of practice ( $r = -0.1143$ ,  $P = 0.2043$ ). Even though a pharmacist

had interrupted his/her career for a longer length of time, one cannot assume he/she would not feel prepared to return to practice. Also, for individuals with less lengthy interruptions, it cannot be assumed they will feel prepared to return to practice.

Although a significant portion of pharmacists do not refresh their knowledge before returning to practice or making a career change, many felt prepared to do so to some degree even though they may have experienced difficulties in their transition. This would lead one to conclude that because they felt prepared, these pharmacists would not be interested in an update/refresher course. However, the data presented below indicates this was not necessarily true.

#### Interest in Update Course

To ascertain the interest level in an update/refresher course, the questionnaire contained two statements to which the pharmacists responded, using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The results from the statement, “In the event of a return to practice full- or part-time or change in area of practice, I feel that an update or refresher course would be useful” are shown in Table VII. The overall mean was  $3.7 \pm 1.14$ . The pharmacists felt prepared to make this transition but still felt an update course would be useful. Again, there is a difference in male/female response. The male and female means for this question were

**Table VII. "In the event of a return to practice full-or-part-time or change in area of practice, I feel that an update or refresher course would be useful"**

	Strongly disagree				Strongly agree	
	1	2	3	4	5	Mean <sup>a</sup> ±SD
	N (Percent)	N (Percent)	N (Percent)	N (Percent)	N (Percent)	
Male	7 (5.8) <sup>b</sup>	15 (12.5)	33 (27.5)	39 (32.5)	26 (21.7)	3.5±1.13
Female	5 (3.0) <sup>c</sup>	18 (10.9)	37 (22.4)	45 (27.3)	60 (36.4)	3.8±1.13

<sup>a</sup>Difference between males and females was statistically significant ( $t=2.3075$ ,  $df=283$ ,  $P<0.05$ ).

<sup>b</sup>Percent based on total male response for question (N=120).

<sup>c</sup>Percent based on total female response for question (N=165).

**Table VIII. "If such a course were offered, in the format most suitable for me, I would be interested in participating"**

	Strongly disagree				Strongly agree	
	1	2	3	4	5	Mean <sup>a</sup> ±SD
	N (Percent)	N (Percent)	N (Percent)	N (Percent)	N (Percent)	
Male	10 (8.1) <sup>b</sup>	8 (6.5)	30 (24.4)	47 (38.2)	28 (22.8)	3.6±1.15
Female	9 (5.7) <sup>c</sup>	4 (2.5)	31 (27.4)	43 (27.4)	70 (44.6)	4.0±1.12

<sup>a</sup>Difference between males and females was statistically significant ( $r=3.0374$ ,  $df=278$ ,  $P<0.01$ ).

<sup>b</sup>Percent based on number of male respondents (N=123).

<sup>c</sup>Percent based on number of female respondents (N=157).

respectively, 3.5 and 3.8. The female pharmacists felt this course would be more useful than the male pharmacists, and this difference was statistically significant ( $t = 2.3075$ ,  $df = 283$ ,  $P<0.05$ ). These results are consistent with previous findings of this study: female pharmacists took more educational steps before returning to work or making a career change, had more difficulties in doing so, felt less prepared and thus would be expected to feel an update/refresher course would be more useful than did male pharmacists.

A negative correlation was found between feeling prepared to return to practice or make a change in area of practice and feeling that an update/refresher course would be useful ( $r = -0.2665$ ,  $P<0.01$ ). Those pharmacists who felt less prepared also felt such a course would be more useful. This finding appears to contradict a result discussed earlier, that pharmacists felt prepared to make this transition but still felt an update course would be useful. However, a crosstab analysis of the data shows the majority of pharmacists (68 percent) who felt prepared (indicated  $\geq 3$  on the Likert scale) also felt a course would be useful (indicated  $\geq 3$  on the Likert scale). There was not a significant correlation between the length of pharmacy career interruption and feeling that an update/refresher course would be useful ( $r = 0.1544$ ,  $P = 0.0855$ ).

The pharmacists were also asked to respond to the following statement, using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree): "If such a course were offered, in the format most suitable to me, I would be interested in participating." The total mean was 3.8±1.15. The male and female means, as shown in Table VIII, were 3.6 and 4.0 respectively. The difference here was also statistically significant ( $t = 3.0374$ ,  $df = 278$ ,  $P < 0.01$ ). Feeling an update course would be useful was positively correlated with interest in participating in such a course ( $r = 0.3095$ ,  $P < 0.01$ ). This is expected; those pharmacists who felt an update course would be useful also were more interested in partici-

pating in such a course. Another positive correlation was found between interest in such a course and date of birth ( $r = 0.2365$ ,  $P < 0.01$ ). Younger pharmacists had more interest in participating in an update/refresher course. A significant correlation was not found between the length of pharmacy career interruption and interest in participating in an update/refresher course ( $r = -0.0831$ ,  $P = 0.3687$ ).

The interest level of each of the three subgroups of the study population were also assessed. It was thought those individuals who worked fewer hours would have a greater interest in an update course. Thus, those who had interrupted their careers (were not working in pharmacy at all) would have a higher interest level than those working part-time, who would have a higher interest level than those changing areas within pharmacy. However, this was not the case. Responses to the questions concerning usefulness of an update course and interest in participating in such a course were similar. On a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), those who had interrupted their careers indicated a mean of 3.8 for usefulness in an update course, those who had gone from part-time to full-time also indicated 3.8, and those who had experienced a career change indicated 3.7. The responses for interest in participating in an update course (same scale) were 3.9, 3.8, and 3.9, respectively.

From this data, it would appear that there is an interest in this type of course. Female pharmacists expressed a higher interest than male pharmacists. However, male pharmacists were interested even though they took fewer educational steps before making the aforementioned transitions, had fewer difficulties, and felt more prepared.

### How To Meet the Need

Respondents were asked to indicate their preference of topics and formats for an update/refresher course. These results are given in order of preference in Tables IX and X, respectively. The topic most preferred was pharmacology/

**Table IX. Topic preferences<sup>a,b</sup>**

Topic	Mean (SD)
Pharmacology/New Drugs	4.44 (0.99)
Pharmacy Law	3.89 (1.14)
Computer Application	3.66 (1.25)
IV Admixture	3.61 (1.17)
Patient Counseling	3.58 (1.22)
Pharmacy Management	3.17 (1.27)
Pharmacokinetics	3.18 (1.23)
Biopharmaceutics	3.08 (1.22)
Practical Experience	3.00 (1.40)
Compounding	2.38 (1.12)
Other—includes:	4.56 (0.60)
Communications	
Nursing home	
Drug information services	
Drug interactions	
Third party	

<sup>a</sup>Likert scale for response: 1 = strongly disagree to 5 = strongly agree.

<sup>b</sup>Total number of respondents = 285.

new drugs, with a mean of 4.44 on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). This is consistent with the findings of Kirk *et al.*(8), who assessed topic preferences for continuing education of nonpracticing pharmacists. Pharmacy law was the second most preferred, with a mean of 3.89. The next three topics (computer applications, IV admixture, and patient counseling) had slightly different means, but were not significantly different from each other ( $P > 0.05$ ). Likewise, pharmacy management, pharmacokinetics, biopharmaceutics, and practical experience also had ratings that were not statistically different ( $P > 0.05$ ) except biopharmaceutics and pharmacokinetics. However, the difference here is so small that it is negligible. Compounding was least preferred. The “other” category included topics preferred by individuals (a topic could be suggested by the pharmacists if a preference was not listed), and therefore had a high rating.

The most preferred format expressed by these pharmacists was correspondence classes with a mean of 3.68. However, this value was not statistically different from the next format, video presentations (3.62) ( $t = 0.8843$ ,  $df = 284$ ,  $P > 0.05$ ). The least preferred formats were teleconferencing and short course (several consecutive class days). Their means (2.67 and 2.64, respectively) were not statistically different ( $t = 0.3631$ ,  $df = 284$ ,  $P > 0.05$ ). The “other” category again included formats preferred by individuals.

#### LIMITATIONS OF THE STUDY

There were several potential limitations of this study that may have influenced the results. The study population was composed of pharmacists residing in Missouri at that time. Since it is possible that regional values played an important role, conclusions are only representative of this region. Another limitation is a result of the survey requesting historical information. The further back information is requested, the greater the chance of an error in recall. This could thus alter the survey results to some extent. In addition, the data are from late 1991. OBRA 90 legislation had been passed, but, as the guidelines and expectations were

**Table X. Format preferences<sup>a,b</sup>**

Topic	Mean (SD)
Correspondence Class	3.68 (1.24)
Video Presentation	3.62 (1.21)
Current C.E. Format	3.53 (1.25)
Evening Classes	3.44 (1.49)
Weekend Classes	3.30 (1.46)
Teleconferencing	2.67 (1.31)
Short Course Format	2.64 (1.39)
Other—includes:	4.75 (0.43)
Morning classes	
At national meetings	
During school hours	

<sup>a</sup> Likert scale for response: 1 = strongly disagree to 5 = strongly agree.

<sup>b</sup> Total number of respondents = 285.

not defined until late 1992, not much attention was given to this area before this time. Thus, results of this survey may be somewhat altered if given today (interest and topic preferences, for example), because the data were collected before the implementation of OBRA 90. Lastly, 48 pharmacists (13.9 percent), who had either interrupted their careers, changed area of pharmacy practice, or moved from part-time to full-time work, omitted answering the questions in sections two through four of the survey. These concerned the need for and interest in an update course as well as the topics and formats for such a course. Thus, caution should be utilized in generalizing from this data to other populations.

#### CONCLUSION

The results of this study have shown there is a need for an update/refresher course by pharmacists who have interrupted their careers, changed areas of pharmacy practice, or gone from part-time to full-time work. These pharmacists expressed such difficulties as lack of knowledge, skills, and confidence in returning to practice or changing pharmacy careers. They felt an update/refresher course would be useful and were interested in participating in one.

The difference in male/female response is a noteworthy outcome from this study. Much has been written over the past twenty years about this topic. The literature is replete with articles and studies concerning the changing ratio of male and female pharmacists graduating from schools of pharmacy, the differences between them in areas such as career longevity and commitment to the profession, and future implications of such differences. Although it was felt that an update course might be in greater demand by female pharmacists, especially for those who have interrupted their careers or gone from part-time to full-time work, it was not the intent of the authors to further delineate the male/female issue. However, one cannot ignore the data from this study. Female pharmacists constituted a higher percentage of the population for such a course. They took more educational steps, yet expressed more difficulties upon returning to work or changing pharmacy careers than male pharmacists. In addition, they felt less prepared to make this transition and expressed more interest in an update/refresher course. These observations are noteworthy based on current and predicted future trends of women in pharmacy and should not be overlooked.

In addition to the pharmacists' personal need for an update/refresher course, the importance of maintaining quality standards within the profession cannot be overstated. Twenty years ago it was easier for pharmacists to return to practice after an interruption or change in pharmacy career; the onslaught of new drugs and drug entities on the market in recent years, the change in practice trends (*i. e.*, emphasis on pharmaceutical care, advent of OBRA legislation), the use of biotechnology in pharmaceuticals, and other technological changes have made pharmacy a much more complex profession today. To ensure professional competency and growth, issues may arise as to the length of time someone can remain inactive in pharmacy and whether a pharmacist is able to change careers in pharmacy without specific refreshment or retraining. These issues need to be addressed by our profession before they are addressed for us as has occurred in the past.

An update/refresher course could also benefit other areas of the pharmacy profession. One area in particular is the current manpower shortage. The pool of inactive pharmacists could, at least in part, ease this shortage. One method of enticing their return to work is through refresher courses. These types of courses have been shown to be successful not only in updating their participants, but also in helping them return to practice. Two follow-up studies to nursing refresher courses (19, 20) have shown return rates of over 70 percent.

Thus, an update/refresher course is an area of education that could be addressed by pharmacy schools in light of pharmacists' needs, maintenance of professional competency, and projected manpower shortages.

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