

## INSTRUCTIONAL DESIGN AND ASSESSMENT

### A Model for Continuing Pharmacy Education

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**Objective.** To develop and implement a continuing pharmacy education (CPE) program at Kaiser Permanente Colorado (KPCO)

**Design.** To address the continuing education needs of its diverse pharmacy staff, an internal continuing pharmacy education (CPE) program was developed. The pharmacy department became an accredited provider by the Accreditation Council for Pharmacy Education (ACPE). Live, interactive, and evidence-based CPE programs, presented by highly qualified internal staff members, utilized videoconferencing and a Web-based learning management system. Cross-accreditation of medical and pharmacy educational programs was offered to KPCO staff members.

**Assessment.** Annual needs assessments were conducted to ensure the provision of relevant educational topics and to assess learning needs. To demonstrate outcomes of the CPE programs, 2 methods were utilized: objective effectiveness assessment and knowledge acquisition assessment. This program met the objectives for CPE activities a large majority of the time (usually over 90%), demonstrated statistically significant ( $p < 0.05$ ) improvement in knowledge from before to after the CPE activity in 11 of 13 questions asked, and minimized the cost to acquire CPE credit for both the pharmacy department and its staff members.

**Conclusion.** The KPCO continuing pharmacy education program has developed a high quality and cost-favorable system that has resulted in significant improvements in attendee knowledge.

**Keywords:** continuing education, videoconferencing

## INTRODUCTION

Kaiser Permanente Colorado is a group-model, non-profit health maintenance organization that provides integrated health care services to more than 470,000 members at 17 medical offices in the Denver-Boulder metropolitan area. Its pharmacy department comprises 2 services including clinical pharmacy and pharmacy operations and support. The services are integrated to provide comprehensive care through medication use management.<sup>1</sup> The pharmacy department operates 24 pharmacies and provides 6 areas of clinical pharmacy services. As of September 2008, approximately 775 employees were on staff, including 159 staff pharmacists, 105 clinical pharmacists and clinical pharmacy specialists, 64 pharmacists in supervision, and 447 pharmacy operation technicians and administrative support staff members.

In order to address the continuing education (CE) needs of its diverse pharmacy staff, the pharmacy

department developed an internal continuing pharmacy education (CPE) program. In January 1994, the pharmacy continuing education committee was created to oversee the development and implementation of educational programs for the pharmacy staff. The first CE program for pharmacists was provided in March 1995, well before any CE requirements were mandated by the Colorado State Board of Pharmacy.

The Colorado Pharmacy Practice Act of 2001-2002 mandates 24 hours of continuing education every 2 years for license renewal. Up to 6 hours of pharmacy-related American Medical Association (AMA) category 1 continuing medical education (education activities developed and presented in compliance with all Accreditation Council for Continuing Medical Education accreditation requirements) can be obtained to meet the requirement. Up to 4 hours of continuing education may be obtained by attending a regularly scheduled Pharmacy Board meeting during a licensure period. The remaining hours must be approved by ACPE.<sup>2</sup> There are no specific requirements for live- or home-study continuing pharmacy education credits. The KPCO Department of Pharmacy employs 328 pharmacists, all of whom need to comply with CE requirements.

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As defined by ACPE, “Continuing pharmacy education for the profession of pharmacy is a structured educational activity designed or intended to support the continuing development of pharmacists and/or pharmacy technicians to maintain and enhance their competence. CPE should promote problem-solving and critical thinking and be applicable to the practice of pharmacy.”<sup>3</sup> KPCO views CPE as a means for pharmacy staff members to maintain competency in pharmaceutical knowledge, receive unbiased updates on evidence-based practices, and improve clinical performance. Through CPE, pharmacists can continue professional growth following completion of their formal education, meet relicensure requirements, and enhance their overall educational experience. Continuing education that is ongoing, interactive, contextually relevant and based on needs assessment can improve knowledge, skills, attitudes, behaviors, and health care outcomes.<sup>4</sup> The purpose of this paper is to describe the evolution of the CPE program at KPCO, highlighting its use of innovation and integration to achieve outcomes.

## DESIGN

The charge of the CPE committee was to coordinate high quality, pharmacy-related educational activities. The committee was comprised of members from pharmacy management, clinical pharmacy services, and outpatient pharmacy services, including union-represented and salaried pharmacists. The CPE committee was co-chaired by a pharmacist from clinical pharmacy services and a pharmacist from outpatient pharmacy services. The objectives of the CPE committee were to:

- Guide the planning, development, and implementation of CPE programs, including core (6 planned programs provided during the work day throughout the year) and non-core (evening program) ACPE-accredited continuing pharmacy education activities;
- Provide oversight of educational program content for quality, objectivity, and appropriateness;
- Develop, revise, disseminate, implement, and review the quality of policies, procedures, guidelines, and standards for internally developed education programs;
- Advise and seek approval from the Pharmacy Leadership Team regarding professional development issues;
- Promote awareness of internally developed CPE programs to regional and interregional Kaiser Permanente pharmacists;
- Collaborate with the Colorado Permanente Medical Group (CPMG) to share education programs

between physicians and pharmacists by accrediting applicable CME programs with ACPE credit for pharmacists, and accrediting pharmacy education activities with *AMA category 1 CME*<sup>™</sup> credit for physicians and nurses through the CPMG Department of Education.

The CPE committee met on a monthly basis to review the department’s educational needs, plan upcoming programs, and evaluate feedback from previous programs. With the help of the annual needs assessment, a survey for attendees to assess their educational needs, the committee developed presentation topics for a calendar year. During monthly meetings, the committee generated presentation objectives and hosted speakers to review the outlines of the upcoming presentations. Additionally, 1 or 2 committee members were available as mentors to the presenters during their preparation process. All speakers were provided with specific feedback by the committee for quality improvement. The committee also reviewed and utilized feedback from the program participants for the purpose of enhancing future programs.

Live and interactive CPE programs were presented on a bimonthly schedule for a total of 6 core curriculum programs annually. These programs were accredited for 1.5 hours of continuing pharmacy education and delivered twice each day during working hours on 2 consecutive days to provide an opportunity for all pharmacists in the region to attend. An evening dinner program also was provided annually. These 7 programs, as well as the technician programs, were internally funded by the pharmacy department; no commercial support was used for the programs. Internal pharmacy staff members served as site facilitators for the CPE programs.

Because all presentations were developed and delivered by highly qualified internal staff members (eg, clinical pharmacy specialists who are residency trained and board certified), the evidence-based programs were tailored to KPCO-specific drug therapy and quality initiatives. The opportunity for internal clinical staff members to present CPE programs to our regional and interregional colleagues increased job satisfaction and professional growth. By accrediting select CME offerings, the core curriculum and the evening presentation, the program offered dozens of hours of CPE credit in a wide variety of clinical topics, with more than 2,000 pharmacist participants each year (Table 1).

## Program Delivery

**Videoconferencing.** The program used information-sharing and conferencing technologies to improve the educational experience and curtail communication barriers. To expand the program and enhance accessibility to pharmacists throughout the region, videoconferencing

Table 1. Continuing Pharmacy Education Programs at Kaiser Permanente Colorado

Year	CPE Programs Offered	CPE Credit Hours Offered	Pharmacist Participants
2005	31	58.5	2543
2006	26	49.5	2007
2007	30	61.0	2061
2008 <sup>a</sup>	29	64.5	1509

<sup>a</sup> Through August 2008.

began in 1996. Since the program was delivered in a video production studio, the presentation was broadcast throughout the region to the 17 medical offices. This interactive system allowed the presenters to speak with and see the participants, as well as allow participants to answer case studies and ask questions. This also allowed the presentation to be recorded and used as home study by those individuals unable to attend a live presentation. With the 2005 expansion of our videoconferencing capabilities to 6 other Kaiser Permanente regions (Northern California, Northwest, Group Health, Georgia, Ohio and Mid-Atlantic), the numerous benefits of the CPE presentations were shared, promoting exchange of information, enrichment of communication, and collaboration with interregional colleagues. The CPE committee also developed an internal Web site for participants to access information regarding upcoming CPE programs, as well as handouts for past and current programs.

**Learning management system.** In late 2004, the KPCO CPE program implemented a Web-based learning management system to allow convenient and efficient administration of presentation evaluations, program needs assessments, and statements of CPE credit for pharmacy staff members. The online system allowed pharmacists to track and print all their CPE statements of credit, providing accessibility to their record for internal use and State Board of Pharmacy requirements. The system also allowed the committee to measure outcomes of continuing education programs. The online evaluation functionality immensely improved program evaluation and needs assessment response rate, allowing for timely feedback to the CPE committee and presenters.

**ACPE accreditation.** Accreditation of the aforementioned activities was awarded by an outside accrediting provider until 2004. Since then, the Kaiser Foundation Health Plan of Colorado Department of Pharmacy submitted and received recognition from ACPE as an accredited provider of continuing pharmacy education.

### Integration

KPCO is accredited to provide *AMA category 1 CME* credit, continuing nursing education credit, as well as

continuing pharmacy education credit. Prior to 2005, each profession provided educational opportunities for their respective health professionals. In 2001, the clinical co-chair for the continuing pharmacy education committee joined the Colorado Permanente Medical Group Education Committee, which included nursing representatives, in order to promote collaboration. In 2005, a pharmacy continuing education activity was accredited with *AMA category 1 CME* credit for the first time so physicians and nurses could take advantage of the program. In the same year, a CME was given ACPE credit to allow pharmacists to utilize the program. The internal ACPE administrator has accredited many of the CME presentations since 2005. This provision provided pharmacists with additional opportunities to earn CPE credit, but more importantly, facilitated ongoing collaboration with our physician partners. The faculty members for the CPE activities were encouraged to review clinical content with our physician colleagues in order to promote multidisciplinary care, provide consistent regional practice information, and enhance the educational experience. This approach cultivated higher quality of care, improved service, better communication, and teamwork.

## EVALUATION AND ASSESSMENT

### Needs Assessment

Annual needs assessments were conducted via the learning management system to ensure the provision of relevant educational topics for the target audience and to assess learning needs. Participants were asked to select 3 to 6 topics from an 80-item list that would help meet their professional education needs. They also had the opportunity to write in topics that were not listed. The topics selected most frequently are presented during the upcoming year. The needs assessments also included questions about program attendance and reasons, if any, participants were unable to attend. This survey also helped assess whether the programs were applicable to the participants' practice and if they were presented at an appropriate level. Finally, the needs assessment was used to evaluate the CPE committee to determine whether the participants' needs were met (Table 2).

The 2007 and 2008 needs assessments indicated that 82% and 75%, respectively, of pharmacists indicated that the CPE committee met their educational needs. In addition, the majority of participants agreed that KPCO programs were both applicable and presented at an appropriate level for their practices. Over the past 2 years, more than 70% of the pharmacists in the department attended at least half of the core curriculum CPE presentations offered, with 45% attending 5 or more. Staffing issues and vacation were the primary reasons why participants

Table 2. Kaiser Permanente Colorado Needs Assessment Data

Question	2007 (%) (n = 281)	2008 (%) (n = 295)
Attendance		
<30%	25	26
30 to 70%	30	29
>70%	45	45
Reasons unable to attend		
Lack of interest		
Agree	6	10
Neutral	25	27
Disagree	69	63
Staffing issues		
Agree	55	50
Neutral	19	20
Disagree	26	30
Lack of supervisor support		
Agree	6	3
Neutral	24	21
Disagree	70	76
Vacation/voluntary absence		
Agree	31	44
Neutral	33	27
Disagree	36	29
CPE program		
Applicable to practice		
Agree	82	79
Neutral	16	18
Disagree	2	3
Appropriate level for practice		
Agree	82	78
Neutral	16	18
Disagree	2	4
CPE committee meeting needs		
Agree	82	75
Neutral	16	22
Disagree	2	3

were unable to attend a KPCO CPE program. Action is taken by the CPE committee to minimize barriers to CPE program attendance.

### Knowledge Acquisition

Two methods were used to demonstrate outcomes of CPE programs: objective effectiveness assessment and knowledge acquisition assessment. For each program objective, a question on the program evaluation asked, “As a result of this program, I am better able to . . . (objective).” Participants were asked to respond as to how well that particular objective was met in relation to how well they learned the content (Table 3). More than 90% of

participants felt that program objectives were met the majority of the time, enabling them to learn and utilize the information.

Preprogram and postprogram questions that related to the program objectives were asked of participants to gauge changes in knowledge. Improvements in knowledge were demonstrated by participants’ responses to multiple-choice questions administered in the learning management system. Table 3 shows these changes for 2008 programs. Of the 13 questions asked from the first 4 programs in 2008, 11 questions showed a significant ( $p < 0.05$ ) improvement in knowledge from before to after the program.

### DISCUSSION

The numerous enhancements and expansions since the program’s inception demonstrate commitment to continuing education and quality improvement. Despite the rigors of offering 4 live presentations every other month, the pharmacy department has been committed to interactive educational activities that are accessible to a large number of attendees, usually more than 200 pharmacists per program. The partnership between pharmacy management and staff members is critical to sustain and encourage CPE attendance. The utilization of annual needs assessments has guided the CPE committee to produce education programs that are ongoing, interactive, and contextually relevant to improve knowledge and skills that may translate to health care outcomes. It is increasingly important to demonstrate outcomes of CPE programs. KPCO assesses objective effectiveness and knowledge acquisition. However, studies have demonstrated that a mere improvement in knowledge may not translate to improved clinical outcomes<sup>5</sup> or pharmacy practice activities.<sup>6</sup> While we only assessed knowledge during this time period, we are developing methods to measure practice-level outcomes in the future to comply with ACPE’s new Accreditation Standards for Continuing Pharmacy Education, which went into effect January 2009.

The cost incurred to support and acquire CPE credit can be enormous; however, our program has minimized these costs for both the pharmacy staff and pharmacy department. Each attendee earned 1.5 credit hours for attending a core CPE program, 2 credit hours for a CME program, and 1 credit hour for an evening program. These credit hours would otherwise have to be fulfilled by attending programs outside KPCO, including those at local and national conventions. These programs typically cost approximately \$80 to \$100 per day per pharmacist, while our internal programs are provided at no charge.



Table 3. Knowledge Outcomes for Kaiser Permanente Colorado's 2008 Continuing Education Programs

Program (Attendance)	Achieved (%)	Questions	Preprogram, %	Postprogram, %	<i>p</i> <sup>a</sup>
Stroke (247)					
Evaluation Completion = 85%					
Objective 1	96	Question 1	57	70	0.004
Objective 2	95	Question 2	28	65	<0.001
Objective 3	97	Question 3	50	76	<0.001
Objective 4	96				
Objective 5	96				
Diabetes (220)					
Evaluation Completion = 82%					
Objective 1	97	Question 1	42	67	0.008
Objective 2	98	Question 2	37	86	<0.001
Objective 3	97	Question 3	73	80	0.080
Objective 4	96				
Alcoholism (188)					
Evaluation Completion = 76%					
Objective 1	93	Question 1	83	85	0.535
Objective 2	90	Question 2	79	90	<0.001
Objective 3	94	Question 3	44	56	0.021
Objective 4	87				
Objective 5	91				
Nephrology (225)					
Evaluation Completion = 76%					
Objective 1	91	Question 1	30	83	<0.001
Objective 2	87	Question 2	55	87	<0.001
Objective 3	80	Question 3	85	93	0.007
		Question 4	74	90	<0.001

<sup>a</sup> Chi-square test of association

In 2007, we provided 61 hours of continuing pharmacy education credit, which would have cost the 2,061 pharmacist attendees approximately \$1.26 million, conservatively assuming the average cost of CPE is about \$10 per hour per pharmacist. By utilizing videoconferencing capabilities within KPCO, we have virtually eliminated commuting time and costs for education, thereby increasing productivity. Assuming 90% of the pharmacists in the region would need to travel to a single, central location in order to attend a non-videoconferenced presentation, at an average distance of 15 miles at 59 cents per mile, we saved approximately \$16,000 in travel expenses in 2007. This figure does not take into account the amount of unproductive paid time during commuting or travel costs that may be incurred by pharmacists from other regions. In addition, as a result of internalizing our accreditation process and utilizing electronic evaluations, KPCO has saved approximately \$35,000 annually. The expenses incurred by providing continuing pharmacy education programs are budgeted within the pharmacy department. The largest expense is the time of the CPE committee and speakers,

but also includes technology and administrative support. No analysis to date has been completed to quantify the expense of the CPE program for KPCO.

By taking advantage of the expertise of the clinical pharmacy specialists on staff and utilizing technology innovation through videoconferencing and the learning management system, a cost-favorable education system has been developed for the Colorado and other Kaiser Permanente regions. KPCO has invested in maintaining and enhancing the clinical knowledge and skills of its pharmacy staff members. The KPCO Department of Pharmacy is internally funding a study on Continuing Professional Development (CPD).<sup>7</sup> This randomized, controlled trial is designed to compare the traditional continuing education system to a new model based on the CPD concept.

## CONCLUSION

The KPCO Continuing Pharmacy Education program has developed a high quality, efficient, and cost-favorable system that serves a large and diverse pharmacy staff that

is required to comply with mandated continuing education requirements. Our comprehensive CPE program not only provides educational activities, but also assesses the department's educational needs and resources, collaborates to accredit numerous relevant presentations, measures outcomes, and is committed to professional development. The strengths of our programs are evidence-based medicine and practices. Continuing education attendees receive unbiased information relevant to KPCO goals and quality service. The CPE programs have demonstrated significant improvements in attendee knowledge. By utilizing technology innovation and integration of health professions, our continuing pharmacy education program continues to advance the practice of pharmacy.

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