

# Planning and Implementation of Certificate Programs in Pharmacy: A Review of Six Programs in the Literature

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Certificate programs are currently recognized as a critical component in continuing pharmaceutical education in the U.S. The purpose of this paper is to address planning and implementation issues related to the use of certificate programs in pharmacy including collaboration amongst providers and comparison to ACPE standards in the area of needs assessment, instructional design and evaluation. A literature search in Current Contents was conducted and six recent articles on certificate programs for pharmacists in the U.S. were identified. The literature reviewed provides a good indication that certificate programs meeting high standards are being conducted and that provider organizations are using sound educational methods in the design and delivery of these programs. Institutions offering certificate programs should continue to publish their experiences and evaluation results so the profession can determine the most appropriate methods and strategies for program planning and evaluation.

## INTRODUCTION

Certificate programs, as defined by Holt(1), are “concentrated studies developed most often for career enhancement and personal enrichment” and are “conceived as a result of increasing specialization of careers and individual and professional needs for additional job skills, updating, and expanded work opportunities.” In recent years, institutions of higher education have been moving aggressively into the market of postbaccalaureate certificate programs to prepare working adults for new demands in the workplace and global markets(2). These institutions recognize that an alternative to the academic degree is needed to respond to changes in the educational geography of an increasingly learning-oriented society. Creative and innovative organizations are responding to the challenges of these new programs by developing contemporary curricula for evolving and emerging fields of practice(1).

Changes in the U.S. health-care system have created a need for specialization within the profession of pharmacy, and certificate programs can offer pharmacists the education and training necessary to provide specialized pharmaceutical care. In late 1998, national professional organizations and the National Association of Boards of Pharmacy asked the American Council on Pharmaceutical Education (ACPE), the regulatory body for continuing pharmaceutical education in the U.S., to assume responsibility for developing guidelines for certificate programs(3). Subsequently in 1999, ACPE adopted and implemented “Standards and Quality Assurance Procedures for ACPE-Approved Providers of Continuing Pharmaceutical Education Offering Certificate Programs in Pharmacy”(4). This ACPE document describes certificate programs in pharmacy as “structured and systematic post-graduate continuing education experiences for pharmacists that are generally smaller in magnitude and shorter in time than degree programs, and that impart knowledge, skills, attitudes, and performance behaviors designed to meet specific pharmacy practice objectives.”

The development of these standards is a strong indication that certificate programs are currently recognized as a critical component in continuing pharmaceutical education in the U. S. and that the profession places value on the quality and outcomes of certificate programs. To that end, this paper is an attempt to address issues and concerns in the development and implementation of certificate programs in pharmacy by review of recent literature. Specific issues addressed include collaboration amongst providers and comparison to ACPE standards in the area of needs assessment, instructional design and evaluation. This paper does not address certification by national boards.

A literature search was conducted in Current Contents, a multidisciplinary database produced by ISI for GALILEO(5). This comprehensive database has an extensive review process, is updated weekly, covers 1992 to present, and includes thousands of scholarly journals including over a hundred in the area of pharmacy. Six descriptive articles on certificate programs for pharmacists were identified. These articles discuss experiences and assessments of specific offerings from the perspective of the provider. These programs were developed and implemented both prior to and following implementation of the ACPE approved standards and quality assurance procedures.

## COLLABORATION

Collaboration amongst providers in the development and implementation of continuing education programs is viewed by some as a desirable and necessary programmatic strategy(6) and can present an opportunity for educational institutions and/or external agencies to take advantage of academic networks, and to share resources and expertise(7). Collaborative relationships can also present obstacles such as turf problems (*i.e.* Who will be in charge? Who will give up what?), higher costs, and the possibility that these efforts may not produce the

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best programs(6). Although there are potential obstacles, opportunities for collaboration are important to explore given the time and budget constraints of most educational organizations.

Several of the articles reviewed identified a collaborative effort in the development and delivery of their certificate programs. Patterson(8) mentions that two universities produced instructional materials for a year-long pharmaceutical care certificate program in North Dakota. A diabetes pharmacotherapy certificate program in North Carolina(9) was a statewide effort through a regional area health education center and a school of pharmacy. A disease management training program for diabetes in South Carolina(10) was the result of collaborative efforts from faculty at two colleges of pharmacy, a school of medicine, and experts in the field from the professions of pharmacy, nursing, and allied sciences. In addition, the program had support for initial development from a legislatively funded diabetes initiative, as well as partial financial support from a pharmaceutical company.

Perhaps the most unique collaborative effort was discussed in "Internet Delivery of an Anticoagulation Therapy Management Certificate Program"(11). This certificate program is a joint effort of regional health care providers, a national certification board, an institution of higher education and a pharmaceutical company and is available for nurses, pharmacists, physicians and other health care professionals.

Although collaborative efforts were identified in these articles, the incentives, motivators and/or obstacles of such relationships were not discussed. With the adoption of the ACPE standards for certificate programs in pharmacy, an increase in collaboration could be expected in an effort for organizations to join their unique strengths to provide better programming and to avoid duplication of efforts. These types of relationships should be explored in greater depth to prepare program planners to make decisions on when these relationships are appropriate and to work efficiently and effectively amongst different organizational contexts and cultures when there is an agreement to collaborate.

## COMPARISON TO ACPE STANDARDS

The newly implemented ACPE accreditation document(4) states that the ACPE-approved provider should establish and employ a systematic planning process for the development, delivery and evaluation of each certificate program to be offered and includes nine standards and three quality assurance procedures to assist the provider through the program planning process. This planning process is based on interplay between the general standards for continuing pharmaceutical education programs and the distinctive standards for providers offering certificate programs in pharmacy. For example, where general standards for continuing education in pharmacy require planning and outcomes based on learning objectives, distinctive standards require a Certificate Program Plan (CPP) and outcomes based on competencies.

Although four of the articles reviewed were published after the implementation of the ACPE standards, only one article, "Experience with objective structured clinical examinations as a participant evaluation instrument in disease management certificate programs"(10), had mention of meeting the ACPE standards. The authors state that their program reflects all of the critical elements of participant evaluation and that their approach can be used as a model for organizations wishing to develop evaluation tools for certificate programs in pharmacy.

It was an important and necessary step for ACPE to develop standards and procedures for quality assurance for certificate programs. There is now a need for providers to continue to publish and share their experiences and evaluation results. As providers are held accountable for creating certificate programs that meet the standards while also showing evidence of a positive impact on practice over time, ACPE may find they need to refine or even surpass their current standards.

## Needs Assessment

According to Queeney(12), needs assessment offers a means of identifying a professional's areas of strength and weakness, can provide data that is useful in determining content and methods for educational activities, and is essential if the intended outcome is to improve professional practice. ACPE's Standard No. 1(4), Systematic Planning, states that needs assessment should provide a "sound, defensible and documented reason for developing the program and should result in a well-defined, comprehensive and written Certificate Program Plan (CPP) for each certificate program." In addition, a description of the educational needs assessment is a core element of the CPP as described in Standard No. 2. Educational needs can be identified by such methods as focus groups, surveys, interviews, tests, supervisor evaluations, performance assessments, and/or observation of actual or simulated practice(12). Five of the six articles reviewed stated an educational need for the respective certificate programs, and three of these articles discuss the need for pharmacists to upgrade their skills and assume greater responsibility for patient care outcomes.

Patterson's article(8), states that a need for a pharmaceutical care certificate program was identified at a consensus conference. Practitioners attending this conference identified a lack of skills as a barrier to providing pharmaceutical care and voiced a greater interest in certificate programs than in Doctor of Pharmacy degree program to obtain the necessary skills. Kirk *et al.*(9) state that a diabetes pharmacotherapy certificate program was requested by practicing pharmacists in their state to improve the delivery of diabetes care. An overview of curriculum of a diabetes management certificate program in South Carolina by Cervený *et al.*(10) states that the program was developed based on input from faculty and a survey of community pharmacists. Coudret and Oertel(11) discuss a need for anticoagulation therapy assessment and management due to an increased use of anticoagulant drugs. Hak, Foster, McColl and Bradberry(13) discuss the need to train pharmacy students to administer immunizations due to limited participation by pharmacists in the American Pharmaceutical Association (APhA) immunization certificate program.

ACPE does not suggest preferred methods for conducting a needs assessment, so providers have the responsibility to determine the most appropriate method for their given situation. Since time and resources of providers are typically limited, use of even the simplest method of needs assessment should help identify pertinent educational needs of practitioners(12). The organization will then need to determine if a certificate program is the most appropriate educational method to meet the stated need.

## Instructional Design and Delivery

ACPE's standards and quality assurance procedures(4) state that the instructional design of certificate programs should be rationally sequenced, curricular in nature, and sup-

portive of achievement of the outcome expectations for the stated competencies. In addition, the programs should generally be a minimum of 15 contact hours, the educational materials, teaching techniques, and delivery methods should be specified as part of the instructional design, and the instructional methods should include practice experiences, simulations or other activities so as to assure demonstration of application of the stated competencies. The articles reviewed discuss a variety of teaching and delivery formats and a range of program lengths.

The anticoagulation therapy management certificate program(11) was the only program delivered entirely via distance learning. This program was a total of 40 hours over a six-week period including five content modules, and was derived from the knowledge domains of the National Certification Board of Anticoagulation Providers. The program was delivered online and included videotapes, readings, cases, written assignments and a proctored exam.

The diabetes pharmacotherapy certificate program in North Carolina(9) was 57 hours including 15 hours for home study and a posttest, 13 skills sessions at a two-day seminar, 24 cases at the pharmacists' practice site, and five case presentations. In addition, pharmacists completing this program can renew their certificate on an annual basis by attending a one-day continuing education seminar and completing required documentation on six patient cases.

Patterson(8) discussed a year-long pharmaceutical care certificate program appropriate for the community pharmacist. The program included six separate modules that were two months each. Participants were required to attend an introductory workshop and then could enroll in specific modules or the entire program. In addition to the workshops, participants were expected to complete readings, view videotapes, follow two patients per module, attend monthly half-day case discussion workshops via videoconference, and complete post-tests.

The most rigorous of the certificate programs reviewed was the diabetes management program in South Carolina(10). The total program length was 125-150 hours delivered over four months and included 10-15 hours of reading, 30-35 hours of didactics and workshops over two weekends, and 80-100 hours of practice experiences including small group discussions. This program requires 1.5 full-time equivalent for program administration and regional preceptors.

The diabetes program in Nebraska(14) and the immunization program for pharmacy students in Tennessee(13) were of a different scope and purpose from the programs already mentioned. The Nebraska diabetes program(14) was a pilot training program developed to evaluate if the continuing education format used was appropriate to improve pharmacists' knowledge, skills, and confidence in diabetes care. This program had six contact hours and included lecture and small group work. Content was based on the core curriculum for diabetes education by the American Association of Diabetes Educators. Participants took a pre-test and post-test and were also asked to take a follow-up test-set that was mailed 14 months after program completion. This follow-up test was an attempt to determine if the program format was effective in improving long-term cognitive knowledge and attitudes in diabetes management skills. Hak *et al.*(13) provide a good example of an innovative educational approach to meet a specific practice need. The APhA certificate program on immunization was incorporated into the traditional pharmacy curriculum to prepare graduating pharmacists to practice to the extent of a new pharmacy

practice act that allows pharmacists to administer medications. This was seen as the most efficient method to expand the role of pharmacists as immunizers. The program used all materials provided by APhA, as well as self-study, lectures, small group case-based discussions and practice sessions.

The requirement by ACPE for an experiential component in certificate programs is important because these activities can provide the practitioner a way to connect what is being taught with actual practice. The literature reviewed shows evidence that a variety of methods of instructional design including practice experiences, simulations and other experiential activities have been successfully utilized in certificate programs for pharmacists. Compared to the traditional didactic delivery formats of many continuing education programs that comparatively have lower cost and can serve a larger audience, certificate programs typically will be designed to serve a limited audience and will have higher development and delivery costs. However, certificate programs are an excellent opportunity for providers to integrate experiential learning into the continuing education mix in order to address very specific practice needs.

### Evaluation

According to ACPE (4), providers of certificate programs in pharmacy should evaluate the achievement of each participant in the certificate program. This evaluation process should include both formative and summative evaluation, and should require demonstration of the predetermined minimum level of performance on the outcome expectations for the stated professional competencies. In addition to maintaining and improving knowledge and skills, continuing education can also enhance a professional's ability to function competently within a practice context(12). Success for organizations providing continuing education must be viewed not only in market terms, but in the context of whether learning translates into excellent performance in practice(2). ACPE's final standard(4) addresses this issue calling not only for the evaluation of the program in meeting stated goal(s), but also for the evaluation of the certificate program's effectiveness over time. This effectiveness should be determined by a measure of improvement in patient care outcomes. Most of the articles reviewed discuss assessment of learning and/or use of evaluation data to make program modifications, and several articles discuss the use of evaluation to determine if this learning is translated into improvements in practice.

Coudret and Oertel(11) discuss use of formative evaluation in an anticoagulation therapy management program. Evaluation data from participants, practitioners, faculty and a national advisory board contribute to program refinement and improvement.

Monaghan *et al.*(14) used the same test set for both pre-test and post-test in their pilot training program. The evaluation of data from these tests led them to the conclusion that a continuing education format that provides hands-on experience can significantly improve short-term cognitive knowledge and confidence in the participant's ability to provide comprehensive professional services to a person with diabetes. Unfortunately, the evaluation set mailed 14 months after their diabetes program had a low response rate and the lack of data limited their ability to assess the program's long-term effects. The authors conclude their article with a call for outcomes data to be published to aid in the advancement of certificate programs in disease state management.

The pharmaceutical care certificate program in North

Dakota(8) was the only program to use both a control group and a study group. The purpose was to assess the effectiveness of this program in producing changes in pharmacy practice within a rural state. In addition to post-tests, the providers visited practice sites of both groups and used self-reports when observation was not practical. Data was collected from both groups prior to and after completion of the program. The final evaluations were conducted three months after the program, and from the data collected, Patterson noted an increase in the number and degree of intervention documentations. Although she discusses the limitations of the study and barriers for community pharmacists to implement changes in practice, she concludes that changes in knowledge consistently occurred and that there was significant improvement in problem solving ability among the study group. Like other authors, she also suggests that future studies look at changes in practice.

Kirk *et al.*(9) discuss a method in the annual renewal process of their diabetes pharmacotherapy certificate program that asks pharmacists to document interventions and patient care outcomes. This optional component measures health care utilizations such as hospitalizations, physician visits, complications, diabetes control and quality of life assessments. As the program continues to be offered, participants will hopefully choose to participate in this optional process so that actual improvement in patient outcomes can be documented.

As mentioned previously, comprehensive formative and summative evaluations were described in the article on a diabetes management program in South Carolina(10). This program used a case-based multiple-choice exam to evaluate didactics, and portfolios, case presentations and objective structured clinical examinations (OSCEs) to evaluate clinical aspects of the program. Although clinical evaluations, particularly OSCEs, involve a high level of administration and cost and there is no indication that the participant will use a particular skill with the appropriate problem, the authors state that this level of evaluation is necessary due to the responsibility and care expected of pharmacists.

By publishing their findings, providers of certificate programs in pharmacy are reinforcing the belief that these programs can produce necessary knowledge and skills. In addition, a relationship between participation and changes in professional practice are beginning to be documented. Since patient interventions and outcomes are the all important ends to pharmacy certificate programs, there is a critical need for these programs to continue to evaluate and publish the learning outcomes, performance changes, and long-term effectiveness related to participation.

## CONCLUSION

Certificate programs have the potential to raise the level of pharmacy practice. The literature reviewed provides a good indication that certificate programs meeting high standards are being conducted for pharmacists in the U.S. and that the provider organizations are using sound educational methods in the design and delivery of these programs. It is also apparent that an effort is being made to perform evaluations that measure both learning and performance outcomes based on specif-

ic competencies, and that evaluation data is being used to make improvements to existing programs. Several authors indicate a desire to build on the limited literature base in order to confirm that certificate programs can maintain and enhance pharmacists' knowledge, skills and confidence to meet specific objectives and to use these skills in their pharmacy practice. A practical issue that should also be addressed in the literature is the cost associated with development and delivery of certificate programs in comparison to more traditional forms of continuing education programs. Since the ACPE standards are newly published and more certificate programs meeting distinctive standards are either under development or being offered for the first time, continuing education providers should continue to publish and share their experiences and evaluation results so providers can determine the most appropriate methods and strategies for program planning and evaluation.

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