

INSTRUCTIONAL DESIGN AND ASSESSMENT

Basic Life Support and Cardiopulmonary Resuscitation Training for Pharmacy Students and the Community by a Pharmacy Student Committee

Kara B. Goddard, PharmD, Heather D. Eppert, PharmD, Elizabeth L. Underwood, PharmD, Katie Maxwell McLean, PharmD, Shannon W. Finks, PharmD, and Kelly C. Rogers, PharmD

University of Tennessee College of Pharmacy

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Objective. To create a self-sufficient, innovative method for providing cardiopulmonary resuscitation (CPR) education within a college of pharmacy using a student-driven committee, and disseminating CPR education into the community through a service learning experience.

Design. A CPR committee comprised of doctor of pharmacy (PharmD) students at the University of Tennessee College of Pharmacy provided CPR certification to all pharmacy students. The committee developed a service learning project by providing CPR training courses in the community. Participants in the course were required to complete an evaluation form at the conclusion of each training course.

Assessment. The CPR committee successfully certified more than 1,950 PharmD students and 240 community members from 1996 to 2009. Evaluations completed by participants were favorable, with 99% of all respondents ($n = 351$) rating the training course as either “excellent” or “good” in each of the categories evaluated.

Conclusion. A PharmD student-directed committee successfully provided CPR training to other students and community members as a service learning experience.

Keywords: cardiopulmonary resuscitation, basic life support, service learning, doctor of pharmacy student

INTRODUCTION

Cardiovascular disease remains the leading cause of death in the United States, accounting for 1 of every 2.6 deaths in 2006.¹ Sudden cardiac arrest accounts for approximately half of all cardiovascular deaths.² Of the sudden cardiac arrests that occur in locations outside of the hospital, roughly 80% occur in private or residential settings.¹ Without bystander CPR, a victim’s chance for survival decreases approximately 7% to 10% for each minute that defibrillation is delayed if CPR is not provided.³ Factors that affect survival include response time of trained emergency providers, the initial presenting cardiac rhythm, whether the sudden cardiac arrest was witnessed, and whether the victim received effective bystander CPR.⁴ Unfortunately, bystander CPR is provided to only 15% to 30% of sudden cardiac arrest victims.⁴⁻⁶

CPR training for all health care professionals has been recommended since the inception of formal CPR

guidelines more than 40 years ago.⁷ The majority of colleges and schools of pharmacy require current CPR certification of pharmacy students during enrollment.⁸ There are several reasons for pharmacy students to maintain CPR certification, which include meeting experiential site requirements, participating in advanced training opportunities in the administration of immunizations, and participating in advanced resuscitation learning opportunities, including Advanced Cardiac Life Support. However, the majority of colleges and schools of pharmacy receive CPR education and training from an outside entity. This paper describes the creation of a student-directed, innovative method for providing CPR education to students within a college or school of pharmacy using a student-directed committee of CPR instructors, and disseminating CPR education into the community through a service-learning project.

DESIGN

The University of Tennessee College of Pharmacy (UTCOP) offers education and training for the PharmD degree. The main campuses for the college are divided across the state, and are located in Knoxville and Memphis, Tennessee. A subcommittee of the local chapter of

Corresponding Author: Heather D. Eppert, PharmD, BCPS, Clinical Specialist, Emergency Medicine, Blount Memorial Hospital, and Assistant Professor, University of Tennessee College of Pharmacy, Department of Clinical Pharmacy. 1924 Alcoa Highway, Box 117, Knoxville, TN 37920. Tel: 865-974-2100. Fax: 865-974-2022. E-mail: heppert@uthsc.edu

the American Pharmacists Association-Academy of Student Pharmacists (APhA-ASP) was formed, with a charge from the college of pharmacy to provide Basic Life Support training to all pharmacy students enrolled in the pharmacy program. In response to this charge, an APhA-ASP CPR committee was formed, comprised of 23 basic life support instructors, all of whom were students actively enrolled in the pharmacy program. Three of these instructors were elected to the position of vice chair during the second year of the curriculum, and then served as chair during the third year. The vice chair was responsible for coordinating and planning for training courses, while the chair was responsible for oversight of the committee. Instructors received elective academic credit for participation on the committee. Additionally, there were 3 faculty members who served as advisors for the 2 campuses.

Students interested in obtaining certification as an American Heart Association Basic Life Support instructor were required to submit an application to the committee during the first professional year. All applications were reviewed, and applicants were interviewed by the CPR committee and faculty advisors. After the interviews were completed, the committee selected the candidates most appropriately suited for the instructor positions. These students were then required to obtain instructor certification by attending a 2-day certification class provided by an independent American Heart Association certified instructor, which was sponsored by the college. Completion of these requirements provided American Heart Association instructor certification for a 2-year term, a term defined by the American Heart Association.

In return for the college's efforts in providing the training for CPR instructors and maintaining a record of teaching hours, every student instructor was required to teach a minimum of 2 CPR courses per year, consistent with the requirements set forth by the American Heart Association. Student CPR instructors were required to provide Basic Life Support Health Care Provider certification for all incoming pharmacy students, as well as renewal certification for third-year students. Additionally, CPR certification was provided annually to UTCOP faculty and staff members.

In 2007, the CPR committee expanded its mission to include community outreach activities, and required that all instructors participate in a minimum of 2 service learning projects per year. Depending on participants' needs, the committee taught courses including Heartsaver CPR and Friends and Family CPR. These events met the requirements for a service-learning project, in that students were required to prepare, deliver, and reflect on each training course held.⁹

Student instructors were responsible for identifying and contacting community groups at greatest need for CPR training.¹⁰ These groups focused on those individuals with a family member or acquaintance affected by cardiovascular disease, as these people are more likely to witness an out-of-hospital sudden cardiac arrest. The committee placed particular emphasis on identifying such groups, and also offered training courses at senior residential living facilities, as well as to those who may not have had other opportunities to attend basic life support training courses. Each service-learning project involved individuals with an assortment of interests and talents (Table 1). Additionally, the committee offered training courses concurrently with local health fairs, particularly those focusing on cardiovascular disease.

The committee provided training courses as a one-time event, as well as recurring events. Perhaps the largest single community service event was the annual "Free CPR Training and Health and Wellness Fair," where mass CPR training was provided at no charge to approximately 60 to 80 community members. While the committee did not require that community groups initially certified by the college receive renewal certification, the college offered recertification courses to interested groups. One interesting opportunity that was developed was the incorporation of CPR training into Explorer Units (a co-educational organization led by the Boy Scouts of America). These Explorer Units gave middle to high school-aged inner city students the opportunity to develop skills that typically were not available to them due to their domestic environments. Starting in 2009, CPR training was required for all members of newly created Explorer Units.

The committee did not discriminate based on race, gender, ethnicity, nationality, or religious preference. However, age, specifically young age, was a limiting

Table 1. List of Training Courses Provided by the Cardiopulmonary Resuscitation Committee

Community Training Courses (Heartsaver CPR)
● Senior residential retirement center members
● Scouting group members/parents
● Church staff members/volunteers
● High school students
● Daycare workers
● Local health fair (Friends and Family CPR)
Healthcare Provider Courses (Health Care Provider CPR)
● College of pharmacy faculty/staff members
● Third-year pharmacy students
● Incoming pharmacy students
● Community pharmacists

factor that had to be considered, as participants had to be mature enough to understand the importance and significance of all that encompasses a resuscitation attempt. The committee set the requirement that individual participants had to be 14 years of age to participate individually; however, family training courses, in which parents and their children participated together, were welcomed.

Comfort and convenience were identified as key aspects for accomplishing successful community service events with optimal attendance. With each community event that was offered, every effort was made for training to take place in a familiar environment. A central location or the common meeting place for each respective group or organization was often used for training courses. All services were free of charge, unless a participant desired proof of certification through the American Heart Association, in which case a minimal fee was charged.

ASSESSMENT

Consistent with the requirements of the American Heart Association, each course participant in the Basic Life Support course was required to complete a standardized course evaluation form. The evaluation form included 5 assessment questions, which included an overview of the content presented, knowledge of the presenters, and use of equipment (Table 2). Participants were asked to evaluate the course using a Likert 4-point ranking scale, with a score of 1 indicating an assessment of excellent, and a score of 4 indicating poor performance (Table

2). Course participants were also given an opportunity to provide additional written comments at the bottom of the assessment form. After completion of the course, the assessment forms were collected, and the responses were tabulated and reviewed. As required by the American Heart Association, all evaluation forms were returned to the main testing center, to be maintained in permanent files.

From 1996 to 2009, the CPR committee has successfully trained all pharmacy students enrolled in the college – over 1,950 students. Overall, course participants have provided positive evaluations of the education and training provided by the committee (Table 2). Of all of the assessment forms completed, 99% of all respondents surveyed after completion of a training course (n = 351) ranked the course as either excellent or good in each of the 5 assessment categories evaluated. The student instructors have displayed a high level of positive feedback in terms of the role that they have served as a CPR instructor, both in their role in education to peers and to the community. Several past student CPR instructors have renewed their instructor certification after graduation from pharmacy school.

Since the inception of the requirement for community service-learning projects, nearly 170 participants in Memphis and 70 participants in Knoxville have been trained. When the committee began providing community service-learning projects, individual participants initially provided feedback to instructors. The college has created an assessment form specific for the layperson, based on the form provided by the American Heart Association which

Table 2. Assessment of Courses Taught by Pharmacy Students by Cardiopulmonary Resuscitation Provider Course Participants, Mean Score (SD)^a

Assessment Question	College of Pharmacy Class of 2009 (n = 55)	College of Pharmacy Class of 2010 (n = 94)	College of Pharmacy Class of 2011 (n = 137)	College of Pharmacy Class of 2012 (n = 51)	College of Nursing Faculty (n = 5)	Community Pharmacists (n = 9)
Was the content presented in a clear and concise manner?	1.2 (0.4)	1.0 (0)	1.2 (0.4)	1.1 (0.3)	1.2 (0.5)	1.2 (0.4)
Were the instructors knowledgeable regarding the content?	1.1 (0.3)	1.0 (0.1)	1.2 (0.4)	1.0 (0)	1.0 (0)	1.1 (0.3)
Did the instructors present the material in a professional manner?	1.3 (0.6)	1.0 (0)	1.2 (0.4)	1.1 (0.0)	1.0 (0)	1.0 (0)
Were the audiovisuals, i.e., manikins, study guides, or manuals used properly?	1.3 (0.6)	1.0 (0)	1.2 (0.4)	1.0 (0)	1.0 (0)	1.3 (0.7)
Do you believe your training would enable you to administer CPR in the work setting?	1.4-4 (0.6)	1.1 (0.3)	1.3 (0.6)	1.0 (0)	1.0 (0)	1.0 (0)

^a A score of 1 = excellent, 2 = good, 3 = fair, 4 = poor

includes the same questions posed to the health care provider certification course, with the exception of the final question, which asks participants if they believe that the course will allow them to provide CPR in the community setting.

DISCUSSION

Offering CPR certification and training courses by student peers can offer several advantages for a college or school of pharmacy, as well as for other health care professional programs. First, students are provided with the training necessary to become an American Heart Association certified instructor. This certification allows the students to assume a leadership position within the college, while also performing a professional duty; allows the college to become self-sufficient in providing CPR education and training; and provides a unique opportunity for service-learning projects. Second, students who are taught resuscitation skills by their peers are more likely to attend training sessions and are more likely to be successful on performance examinations.¹¹ Finally, providing CPR training courses using instructors within the college allows flexibility in scheduling CPR certification courses. However, this endeavor necessitates a commitment by all student instructors, requiring all instructors to be actively involved in planning to ensure that an adequate number of training courses are offered, as well as to ensure that appropriate documentation of CPR certification is maintained within student profiles.

Increasing the frequency of bystander CPR through improved awareness and decreased fear and misinformation is the ultimate goal of the service-learning projects in the community. To improve survival through early administration of resuscitative efforts, potential barriers to participation in resuscitative efforts must be considered. Several barriers have been identified by the American Heart Association, and include that the steps required for CPR are complex and difficult, or are forgotten shortly after training has been completed.⁶ Considering these known barriers, the committee placed emphasis on the steps of CPR to ensure both competency and comfort level. For example, one major concern expressed during several community service learning events was the risk of acquiring a potentially contagious disease when performing rescue breaths. Participants are educated that in the event of witnessed sudden cardiac arrest in an adult, performing chest compressions alone can result in survival benefits. This is based upon the recent American Heart Association advisory statement detailing an option for “hands-only” CPR, in which studies have shown that chest compressions are the most vital part of the resuscitation attempt, and compression-only CPR can lead to successful outcomes.¹²

CONCLUSIONS

There is a genuine need for bystander CPR education efforts both in the health care professions and in the community. The University of Tennessee College of Pharmacy sponsors the education and training necessary to certify student CPR instructors, who then provide CPR certification to all students, faculty and staff members at the college, allowing the college to be self-sufficient in providing CPR education and training. Additionally, this CPR committee developed a service-learning project that allows dissemination of the most up-to-date recommendations of CPR to members of the community.

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