Inclusion of Cardiopulmonary Resuscitation-Basic Life Support Training in the Pharmacy Curriculum

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This study was performed to explore the appropriateness of inclusion of cardiopulmonary resuscitation-basic life support (CPR-BLS) in the pharmacy curriculum. Specifically, we designed our study to determine the number and types of professional pharmacy degree programs which require CPR-BLS and whether the skills taught by the CPR-BLS program are applicable to the practice of pharmacy. Data were collected via two surveys: (i) U.S. colleges of pharmacy, and (ii) graduates (1986-1990) of the University of Michigan (UM) College of Pharmacy. Responses were received from 62 of the 73 U.S. Colleges of Pharmacy (86 percent); 160 of the 197 (81 percent) surveys mailed to UM pharmacy graduates were returned. CPR-BLS certification was a requirement for graduation at 29 (46 percent) of the colleges and was more likely to be required for the PharmD as the first professional degree programs (17 of 31 programs; 55 percent). Despite the fact that basic life support skills are rarely utilized by pharmacists, most graduates (77 percent) felt that CPR-BLS certification should continue to be a requirement in the pharmacy curriculum. Pharmacy faculty will need to consider both the attitudes of graduates and the applicability of curricular content to practice to determine whether CPR-BLS should be a required component of the pharmacy curriculum.

INTRODUCTION

Within the last several years ACPE issued revised guidelines for the professional program leading to a Doctor of Pharmacy degree (1). The guidelines endorsed changes in both curricular content and teaching methods to prepare graduates to practice pharmaceutical care. Discussions of curricular change invariably focus on re-evaluating curricular content. As demands imposed by new topics and teaching styles become apparent a reexamination of existing curricular components becomes necessary. This study was performed to explore the appropriateness of inclusion of cardiopulmonary resuscitation-basic life support (CPR-BLS) in the pharmacy curriculum. Specifically, we designed our study to determine the number and types of professional pharmacy degree programs which require CPR-BLS and whether the skills taught by the CPR-BLS program are applicable to the practice of pharmacy.

METHODS

Data were collected via two surveys: (i) U.S. colleges of pharmacy, (“college survey”); and (ii) graduates (1986-1990) of the University of Michigan (UM) College of Pharmacy (“graduate survey”). Both surveys were approved by the IRB. The surveys were mailed during the fall of 1991. The college survey included questions on professional degree programs offered, whether CPR-BLS certification was offered and/or was a requirement for graduation, source of instructors and certifying organization. The graduate survey included questions regarding the respondent's practice setting, current status of CPR-BLS certification, use of CPR-BLS or related CPR activities, and attitudes towards CPR-BLS certification. Respondents were selected so that their initial one-year certification from the college of pharmacy had expired. Attitudinal responses were based on a Likert-type scale of 1 to 5 with 1 the most negative response and 5 the most positive response. In this report the term CPR-BLS is used to denote the basic life support activities of artificial respiration and chest compressions; the term CPR refers to a variety of resuscitation-related activities including CPR-BLS, medication preparation and dosage calculations and other resuscitation activities of the medical team.

Data collected by the questionnaires were analyzed using the statistical program Systat®. Simple descriptive measures were tallied for many questions in the surveys. For dependent variables of the continuous type, the Student t-test was used to compare groups. The relationship between categorical variables was analyzed using the chi-square test. Finally, some relationships were examined using one-way ANOVA, where appropriate. The a priori level of significance was set at P<0.05.

RESULTS

The college survey was sent to all 73 colleges of pharmacy in the United States as listed by the American Association of Colleges of Pharmacy 1990-91 roster (2). Responses were received from 62 (86 percent). The colleges varied with respect to the professional degree programs offered; 50 (80.6 percent) offered a Bachelor of Science in Pharmacy, 31 (50 percent) offered a PharmD as the first professional degree and 37 (59.7 percent) offered the PharmD as a post baccalaureate degree. The majority of colleges (54.8 percent) awarded degrees to 75-150 students per year and over 75 percent of institutions awarded degrees to 50-150 students per year; few had fewer than 50 (14.5 percent) or more than 150 (9.6 percent) first professional degree students graduate per year. CPR-BLS certification was a requirement

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for graduation at 29 (46 percent) of the colleges and was available, on an elective basis, at an additional 14 (23 percent) of the colleges. Over half (52 percent) of the colleges with CPR-BLS certification as a requirement for graduation have had the requirement for seven years or more. CPR-BLS certification was more likely to be a requirement for graduation for the PharmD as the first professional degree programs (17 of 31 programs; 55 percent), however approximately one-third of the Bachelor of Science in Pharmacy programs (19 of 50 programs; 38 percent) and the postbaccalaureate PharmD programs (12 of 37 programs; 32 percent) required CPR-BLS certification for graduation. Instructors for CPR-BLS were most commonly drawn from the clinical faculty (38 percent of programs), faculty from another academic unit (43 percent of programs), or from non-academic certifying organizations (38 percent of programs). Most programs certified students via the American Heart Association (55 percent): many colleges certified students via the American Red Cross (33 percent) and several colleges reported certifying students by either program (12 percent).

A total of 160 of the 197 (81 percent) surveys mailed to UM pharmacy graduates were returned. Most graduates (77 percent) felt that CPR-BLS certification should continue to be a requirement in the pharmacy curriculum; the remainder of graduates (23 percent) supported the continued availability of CPR-BLS as an elective course. None of the graduates felt CPR-BLS should be deleted from the curriculum. Furthermore, the majority of graduates (66 percent) agreed with the statement that CPR-BLS certification should be required for initial pharmacy licensure. Fewer, (34 percent) felt that licensure renewal should be contingent upon maintenance of CPR-BLS certification. When asked if they would be likely to attend a continuing education program which would offer CPR-BLS recertification almost half of the graduates (47 percent) indicated that they were likely to attend such a program. The results of the survey of UM graduates have been further described in a previous report(3).

DISCUSSION

CPR-BLS focuses on teaching the basic resuscitations skills of artificial respiration and chest compressions to circulate oxygenated blood. The rapid initiation of CPR-BLS has consistently been shown to be an important determinant of survival for out-of-hospital cardiac arrests(4-9). Recent studies suggest that survival is best when CPR-BLS is begun within 4-6 minutes and defibrillation and advanced cardiac life support occurs within 8-10 minutes(5,6). CPR-BLS is thought to exert a positive effect by prolonging ventricular fibrillation, the cardiac rhythm associated with the best survival prognosis, and thus the potential for defibrillation(6,8,10). Unfortunately, in only a minority (16-18 percent) of cases, of out-of-hospital cardiac arrest, does implementation of by-stander initiated CPR-BLS occur(8,11). Programs to increase the number of community members knowledgeable of CPR-BLS are necessary to increase early initiation of CPR-BLS(12). The American Heart Association estimates that 400,000 out-of-hospital cardiac arrests occur annually in the United States and that early recognition, early CPR-BLS, and rapid defibrillation and advanced care would save 80,000 lives yearly(4).

Colleges of pharmacy appear divided on the question of whether CPR-BLS should be a required component of the pharmacy curriculum. Currently, fewer than one-half of the colleges of pharmacy surveyed require CPR-BLS certification. Some of the barriers to a CPR-BLS requirement are the logistics of teaching the material (requires a high faculty: student ratio), time demands (certification requires a block of time for learning and testing of skills), adequate numbers of trained instructors, and monetary costs (rental of manikins, purchase of books). One way to examine the value of a component of the curriculum is to assess its application in pharmacy practice. Utilization of the knowledge and/or skills of a curricular component can be ascertained by comparing the factual content of the curricular component and the content which is applied in pharmacy practice and by asking graduates about the perceived usefulness of the curricular component to their pharmacy practice.

Hospital-based pharmacy practitioners are most likely to use CPR-BLS skills on-the-job. However, only 30 percent of hospitals report pharmacist participation on a CPR team(13). Furthermore, it is unlikely that pharmacists, as members of a hospital CPR team, would be responsible for these basic life support activities. Two surveys of CPR-BLS certified pharmacy graduates found that fewer than 10 percent of graduates had ever administered artificial respiration or chest compressions(3,14). A survey of hospital pharmacy directors found that the majority of hospitals with pharmacist participation on a CPR team (59 percent) did not require CPR-BLS certification of the pharmacist staff (3). While physicians and nurses rated pharmacists as valuable members of the CPR team, their value was described in terms of the accurate and efficient preparation of medications and dosage calculations(15). Activities most commonly characterized as pharmacist responsibilities are preparing medications, calculating dose and drip-rates and providing drug information(3,15,16). This is consistent with the CPR-related activities the UM graduates reported performing most frequently(3).

Graduates of two colleges of pharmacy (University of Michigan, University of Wisconsin) who were previously certified in CPR-BLS were asked specifically their perception of the value of CPR-BLS to their current practice. The majority (70 percent) of Wisconsin graduates(14) felt CPR-BLS was of value to their current practice while the minority of Michigan graduates(3) (39 percent) felt these skills were valuable to their current practice. The difference in perception between these two groups may be partially explained by the different presentation of the question; the Wisconsin survey used a yes-no question format while the Michigan survey used a Likert rating scale. Adding the respondents who were "neutral" to those who agreed or strongly agreed would increase to 66 percent the number of respondents in the Michigan survey who felt that CPR-BLS was valuable. Interestingly, in both studies a greater numbers of graduates felt that CPR-BLS would be valuable to their future practice than indicated it was valuable in their current practice. The majority of both groups of graduates felt that CPR-BLS should continue to be a required component of the curriculum (72-77 percent) while the remainder favored having CPR-BLS available on an elective basis (23-28 percent). None of the respondents for either group of graduates (0 percent) thought that CPR-BLS should be deleted from the curriculum. Many graduates of both colleges (42-66 percent) also showed their support for the continuation of CPR-BLS certification by indicating that they felt CPR-BLS certification should be required for initial licensure. Fewer (about 30 percent) felt that CPR-BLS certification
should be required for renewal of licensure.

There is an interesting discrepancy between the positive perceptions of graduates about the knowledge and skills imparted by CPR-BLS training and the potential usefulness of this knowledge for pharmacy practice. It is unclear from the surveys why this discrepancy exists. Pharmacists may feel a social responsibility as a health care provider to be able to effectively act, if the need arises, in the event of a cardiac emergency. In addition, pharmacists may feel that the skills of CPR-BLS might be useful to them as individuals who may encounter the need to perform CPR-BLS on a family member until advanced cardiac life support arrives. The fact that both community and hospital practitioners had similar feelings about the value of CPR-BLS certification(3) indicates that factors other than practice setting may influence the perception of the usefulness of these skills. Further, it seems that pharmacists may feel that exposure to CPR-BLS during their education is important but that continued certification is less important. Only about 40 percent of either group of graduates had maintained their certification and larger numbers of graduates supported CPR-BLS certification as a requirement for initial licensure as opposed to licensure renewal(3,14).

This attitude is consistent with the notion that knowledge of CPR-BLS is important for all health care professionals but maintenance of skills which are unlikely to be utilized in a professional capacity is less important. In contrast, there was strong interest expressed in the addition of information directly related to the responsibilities of a pharmacist - 91 percent of Michigan graduates favored the addition of information about the drugs used during CPR to the CPR-BLS class(3).

As faculty continue to revise the pharmacy curriculum debate will arise as to the merit of CPR-BLS as a required component of the curriculum. Arguments against its inclusion are that the skills of CPR-BLS are rarely used by pharmacy practitioners, they can be acquired outside of the curriculum and the inclusion of this component carries certain logistical and monetary demands. The belief that health care professionals or those whose serve the public have a special responsibility to know basic life support skills has prompted the inclusion of CPR-BLS in the pharmacy curriculum. In addition, there was strong support voiced by practitioners who had been certified as pharmacy students for keeping CPR-BLS a required component of the curriculum.

The primary focus of the pharmacy curriculum should be to prepare graduates to perform the responsibilities which are uniquely those of the pharmacist. As the competition for inclusion in the pharmacy curriculum intensifies it may be necessary to distill the essential portions of a curricular topic and provide instructions on facets which are most applicable to the practice of pharmacy. With regard to CPR, this refers to education about drug therapy used during resuscitation attempts, as this information would prepare students for the CPR-related activities most commonly performed by pharmacists. If CPR-BLS is kept as a required component of the curriculum, faculty should supplement the standard American Heart Association or American Red Cross CPR-BLS courses with drug therapy information as these courses do not include this material. Conversely, information on drug therapy for resuscitation activities can be included in the curriculum without requiring CPR-BLS training. Informing students about the basic life support activities, but not requiring the acquisition of the skills of artificial respiration and chest compressions, may provide an adequate context for teaching them about the responsibilities of the pharmacist as a member of the CPR team. Completion of a program to learn the basic life support skills can be offered as an elective course or is something a pharmacy student can decide to pursue on their own. In addition, colleges might consider offering CPR training in conjunction with college-sponsored CE programs as a way to help graduates acquire and maintain their CPR-BLS skills.

CONCLUSION

When considering the merit of including CPR-BLS in the curriculum it must be recognized that the skills of CPR-BLS are not skills likely to be used in pharmacy practice. However there may exist a social or civic responsibility for learning these life-saving skills. When faculty consider the inclusion of CPR-BLS in the pharmacy curriculum, they will have to weigh the value of the social importance of these skills against the knowledge that the skills of CPR-BLS are unlikely to prepare a graduate for the typical pharmacist responsibilities in cardiac arrest situations.

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References

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