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Research

Survey of critical care education in US Colleges of Pharmacy

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Abstract

Objective: To describe the extent to which critical care is included in Doctor of Pharmacy curricula in US Colleges of Pharmacy.
Methods: A representative at each US College of Pharmacy was contacted to complete the online survey, which was distributed via e-mail.
Results: The survey response rate was 54.1%. All the responding programs indicated that critical care topics were included in their curricula. Nearly all institutions responding indicated that critical care topics were included in the core curriculum and as available advanced pharmacy practice experiences (APPEs), though markedly fewer institutions offered elective courses in critical care. Among the most commonly included topics were acute myocardial infarction and acid–base balance. Faculty commonly did not have an active critical care practice.
Conclusions: Overall, exposure to critical care is prevalent, although there is variability in the nature and extent of exposure. Classic critical care topics are commonly discussed, whereas subspecialty topics are rarely included.

Keywords: Intensive care; APPE; Education; Pharmacy

The specific content of a Doctor of Pharmacy curriculum is largely at the discretion of each institution, because the accreditation standards for professional training do not provide detail on specific subject matter that should be taught to pharmacy students.[1] Currently, the standards only prescribe content related to medication therapy management skills and requirement of a specific advanced pharmacy practice experiences (APPE) sites (including inpatient/acute care general medicine). As a consequence, each institution may select the focus of their clinical education. Students in their formative years of education often identify their professional interests through the preceptors and faculty that they are exposed to in their course work and experiential education.[2,3] Accordingly, the content of the Doctor of Pharmacy curriculum may greatly affect the career direction of students. Therefore, it is important for a Doctor of Pharmacy curriculum to have balance not only in the breadth and depth of the content and experiences, but also in the scope of pharmacy that is revealed to students in order to maximize perceived career options.

In reality, important therapeutic areas are often compressed or discussed in lesser depth than would be desirable for various reasons. Specialty areas in pharmacy and patient care often give way to an increased emphasis on the fundamental disease states and medication classes. In many colleges, specialty areas such as oncology, pediatrics, nutrition, or critical care may be minimized or entirely omitted

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to include other foundational material in the interest of time or faculty expertise. Unfortunately, in this era of increasing specialization in practice, a focus away from specialty areas may further limit the numbers of students interested in (or even aware of) these areas as career options.

The focus for the present study was the area of critical care. Critical care (intensive care) is a unique area of pharmacy practice in that the knowledge base of critical care is centered on the severity of a patient's illness rather than a specific disease state or condition.[4,5] As such, it typically involves an amalgam of all the disease states and medication classes discussed in the average Doctor of Pharmacy curriculum. Based on the number of pharmacists practicing in this area and the estimated need for each critically ill patient to have direct patient care from a pharmacist with some training in the area, the US appears to be dramatically low in the supply of critical care pharmacists (as are most specialty areas of practice, given the mandates for further training for those who will ultimately provide direct patient care).[6-8] The expanding role of pharmacists in this area further compounds the need to have qualified, educated practitioners in this area.[9] We feel that by students understanding that critical care is an option for their career, this may lead to the student developing an interest in a specialty practice and therefore the desire to pursue further training in this area (i.e., residency). This should ultimately increase the number of individuals trained to provide specialized patient care. The goal of the present study was to describe the extent to which critical care is discussed in United States Colleges of Pharmacy, including the characteristics of the educators, topics taught, and the type of course in which it is offered.

Methods

In building our survey, we developed a series of questions with the following objectives:

1. Identify basic demographics of each Doctor of Pharmacy program responding
2. Determine more specific information about what critical care topics are discussed in their curriculum
3. Ascertain what type of course (e.g., core curriculum course vs. elective course vs. APPE) provides this education
4. Discern the type and qualifications of the faculty teaching the content
5. Discover other pertinent descriptive information.

Critical care topical areas were identified using several published resources that focus on basic critical care education.[10,11] At this point, the survey questions were beta-tested with several faculty preceptors at our site to gauge bias and clarity of the questions (see Appendix A). These questions were put into the online survey tool SurveyMonkey™ (Palo Alto, CA) and piloted again to ensure reasonable flow and logical programming for the electronic version of the survey.

We identified contact information for each US College of Pharmacy from the American Association of Colleges of Pharmacy listserv. A faculty member at each school knowledgeable about the inclusion of various pharmacotherapy topics throughout their Doctor of Pharmacy curriculum was contacted by e-mail. The link to the survey was provided and the faculty member was encouraged to complete the survey. In some instances, researchers conferred with the faculty member contacted to identify a more appropriate faculty member to engage in the survey. An individualized follow-up reminder was sent out approximately two weeks after the initial contact to ensure survey completion. We anticipated a response rate of 80%.[12] The survey was conducted from December 3, 2009 through April 1, 2010.

Data were downloaded from the survey tool website on the last day of the study. All entries were screened, and incomplete or duplicate entries were discarded and not included in the analysis. Demographic data were analyzed using descriptive statistics. Nominal data were compared using χ^2 or Fisher's exact test, as appropriate. This study was approved via exempt nonmedical review by our institutional review board.

Results

We contacted each of the 98 Doctor of Pharmacy programs in the US and Puerto Rico that were in operation at the time of our survey. Fifty-three programs responded for a response rate of 54.1%. The characteristics common to programs responding were public universities (62%), programs with a four-year Doctor of Pharmacy Curriculum (75%), and programs affiliated with a pharmacy residency program (83%). Most programs were >5 years in existence (83%). Responders to the survey were varied. Seventeen (32.1%) department chairs responded on behalf of their College of Pharmacy, whereas 16 (30.2%) curriculum development/academic affairs faculty responded. Other respondents included 11 critical care faculty (20.8%), seven therapeutics course coordinators (13.2%), and two associate deans (3.8%).

All 53 responding institutions include some aspects of critical care in their curriculum (Table 1). The vast majority of respondents indicated that the critical care is included in their core pharmacotherapy curriculum, not including APPEs (83%), whereas only 27 of the respondents (50.9%) offered an elective course in critical care. All programs also indicated that they offer APPEs in critical care, with 92.4% being elective options and, somewhat surprisingly, 20.7% as a required APPE.

We queried each responder about the inclusion of a variety of critical care topics in their curriculum (Fig. 1). Doctor of Pharmacy programs that offered an elective course were able to include a greater breadth of topics than programs that only discussed critical care in the core pharmacy curriculum, primarily by extending material to subspecialty pharmacotherapeutic areas, such as neurocritical