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Research

Oncology pharmacy education and training in the United States Schools of Pharmacy

Janet Kwon, PharmD[a], Derrick Ledvina, PharmD[a], Michael Newton, PharmD, BCOP[b], Myke R. Green, BS Pharm, PharmD, BCOP[c,d], Robert Ignoffo, PharmD, FASHP, FCSHP[a,e,*]

[a] College of Pharmacy, Touro University California, Vallejo, CA
[b] Department of Clinical Pharmacy, West Virginia University School of Pharmacy, Morgantown, WV
[c] Section of Blood and Marrow Transplantation, Department of Pharmacy Services, University of Arizona Medical Center, Tucson, AZ
[d] Division of Hematology-Oncology, University of Arizona Cancer Center, Tucson, AZ
[e] University of California, San Francisco, CA

Abstract

Objectives: (1) To assess the number of hours devoted to oncology education in both the didactic and experiential rotations; (2) to further identify the specific oncology topics that are offered in pathophysiology, pharmacology, and pharmacotherapy; and (3) to delineate activities that are required of students during their experiential activities.
Methods: Surveys were sent to Chairs or Associate Chairs of Clinical Departments of 131 pharmacy schools. Qualtrics Survey Software was utilized to administer the survey.
Results: Overall, 62 schools responded for a 47% response rate. All schools reported teaching oncology in the didactic portion of its curriculum and nearly all schools (92%) offered Advanced Pharmacy Practice Experience (APPE) electives in oncology. Most schools (64%) incorporated pharmacotherapy into a block of lectures during a general therapeutics course, while 34% of schools taught it as an individual required course. We found that the median number of hours spent on didactic oncology coursework was 42 hours. The median number of hours spent teaching oncology pathophysiology, pharmacology, and pharmacotherapy was 10, 9, and 20 hours, respectively. About 73% offered fewer than 30 oncology APPE rotation slots to students each year. Schools established more than 15 years ago offered a median of 30 slots compared to 16 slots for schools <7 years old. A median of 15% of students took a required or an elective APPE oncology rotation annually, lasting four to six weeks. With the median school size of 100 students, about 30% of a class was exposed to an oncology experience.
Conclusions: These results expand upon the prior recommendations about the amount of didactics and the types of oncology practice experiences offered to students attending pharmacy school. We recommend that 40 hours of didactics and four to six weeks of experiential rotations be the minimum standard that pharmacy schools provide as oncology education.

Keywords: Oncology; Pharmacy; Education; United States; Schools of Pharmacy

Introduction

The 2014 American Society of Clinical Oncologists (ASCO) State of Cancer Care in America report estimates that by 2025 there will be a shortage of about 1487 oncologists.[1] ASCO attributes the shortage to an aging

* Corresponding author at: Robert Ignoffo, PharmD, FASHP, FCSHP, College of Pharmacy, Touro University California, 1310 Club Dr, Mare Island, Vallejo, CA 94592.
E-mail: robert.ignoffo@tu.edu; bob@rignoffo.com

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population, increasing cancer survival, retirement of aging oncologists, and oncologist burnout. As a solution to the shortage, ASCO proposes the need to leverage the oncology workforce through collaboration of oncologists with other health care providers such as nurse practitioners (NPs), physician assistants (PAs), and pharmacists.[1]

Clinical pharmacists have an established role in direct patient care in both clinic and hospital settings. A systematic review of 298 studies found that pharmacists working in the ambulatory care setting significantly reduced the adverse effects of medication and helped patients achieve better outcomes.[2] In the inpatient setting, a comprehensive review found that through medication reconciliation, pharmacists were able to significantly reduce emergency room visits and hospitalizations within 30 days of hospital discharge.[3] Some states such as North Carolina have established the role of the clinical pharmacist practitioner (CPP) who under the direction of a physician can provide drug therapy management such as ordering lab tests and changing therapy.[4] In the oncology setting, a CPP can support the oncologist by providing management of pain, nausea, vomiting, anemia, and other symptoms commonly experienced by cancer patients. At the Lineberger Comprehensive Cancer Center of the University of North Carolina, board-certified oncology CPPs have enabled physicians to spend less time on symptom management and more time on the treatment of disease.[4]

In addition to symptom management, pharmacists will be increasingly relied upon to identify drug interactions and perform clinical interventions as advances in cancer care become increasingly complex. Furthermore, a greater proportion of new anticancer drugs have been oral agents, which require patient education and symptom management in the outpatient setting. In 2013, the US Food and Drug Administration (FDA) approved 18 new cancer treatment drugs and biologic agents, of which nine were oral agents.[1] In addition to board-certified oncology pharmacists, all pharmacists in the community, clinic, and hospital setting will need the training to support and manage a growing population of cancer patients.

There is a paucity of studies assessing oncology training in schools of pharmacy in the United States or elsewhere. Cheung et al.[5] survey of Canadian pharmacy schools found that only 20% of these schools provided more than one week of oncology training. In the only study performed in the United States, Newton et al.[6] reported a mean of 28 "contact hours" taught in oncology, which reflected didactic lecture time. While Newton's study examined various teaching methods and oncology experiential rotations offered, it did not inquire about the specific activities performed on rotations.[6]

The purpose of this study was to (1) reassess the total number of hours devoted to oncology in both the didactics and clinical oncology training (APPEs); (2) further identify the specific oncology topics that are discussed in the pathophysiology, pharmacology, and pharmacotherapy courses offered by pharmacy schools; and (3) delineate activities that are required of students during their clinical experiences. The results are intended to serve as a reference for schools of pharmacy to develop or modify their oncology curricula.

Methods

This study was developed in joint by the Colleges of Pharmacy at Touro University California, University of Arizona, and West Virginia University. The study was funded by Touro University College of Pharmacy and approved by the Touro University Institutional Review Board (IRB). The survey consisted of 40 questions regarding the college of pharmacies' demographics, oncology course information, teaching methodology and chronology, quantity and quality of the didactic coursework, and APPE experiences. The survey was tested by ten board-certified oncology pharmacists who offered constructive feedback.

The Chairs or Department Heads of Pharmacy Practice were identified using the Roster of Faculty and Professional Staff available at the American Association of Colleges of Pharmacy website (permission granted by AACP editorial office).[7] When additional contact information was needed, individual school websites were searched to avoid contacting multiple individuals from a single college. Both accredited and non-accredited schools (as determined by the Accreditation Council for Pharmacy Education) were included in the study. No United States school of pharmacy was excluded. Each Chair or Department Head was sent a cover letter explaining the purpose of the survey and a unique survey link on August 27, 2013. Participants were informed that respondents would remain anonymous but compared in terms of region. Participants were required to provide informed consent prior to survey start. Reminder emails were sent out on October 23, 2013 and January 2, 2014 to Chairs or Department Heads who did not complete the survey.

A goal response rate of 60% was selected based on the recommendation of Draugalis et al.[8] A response rate less than 60% may reflect response bias or nonresponse error and may impact the results.

The Qualtrics Survey Software Program[9] was used to provide descriptive statistics from the survey data. The data was then exported in a Microsoft Excel (Office 2011) spreadsheet, from which the mean, standard deviation, median, and 95% confidence interval were calculated for the number of hours spent on didactic pathophysiology, pharmacology, and pharmacotherapy coursework. To tabulate the total number of didactic coursework, the averages of the three topics were combined.[10]

Results

Demographics

Of the 131 U.S. colleges of pharmacies invited, 62 (47%) school representatives responded and 51 (39%)