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Research

# Impact of an oncology pharmacy elective course on guiding Doctor of Pharmacy students toward specializing in oncology pharmacy

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## Abstract

**Objective:** To assess the impact an elective course in oncology pharmacy has on students' career interests.

**Methods:** A written survey was offered to Doctor of Pharmacy students taking part in an elective oncology pharmacy course. The first part of the survey was administered prior to the start of the course and the second part was given after completion of the final exam.

**Results:** Of the 54 students who took the course offered in two consecutive spring semesters, 45 and 53 students completed the first and second parts, respectively. Although most students had some pharmacy experience prior to the course, few of them were exposed to oncology pharmacy activities or were familiar with the medications used in oncology pharmacy. While taking part in the course greatly increased this familiarity, decreases were observed in the number of students who were definitely interested in becoming an oncology pharmacist, taking part in an oncology specialty residency, or becoming a Board-Certified oncology pharmacist.

**Conclusion:** Providing educational opportunities in areas of specialty pharmacy practice enables students to make informed decisions about their career plans, encouraging some to pursue their interests, while discouraging others.

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**Keywords:** Oncology pharmacy; Careers; Students; Pharmacy specialties

## Introduction

Upon graduation, pharmacy students have multiple career pathways from which they can select. The American Association of Colleges of Pharmacy (AACP) lists options including academia, ambulatory care, community pharmacy, consultant pharmacy, federal armed and public health services pharmacy, hospital pharmacy, informatics, managed care, and the pharmaceutical industry.<sup>1</sup> Within some of these categories, pharmacists have additional options. For example, hospital pharmacists can decide on an administrative, staff, or clinical specialist route. This latter category

provides additional options based on the medical area of focus with the option to become pharmacy specialty certified. The Board of Pharmacy Specialties currently offers board certification in eight areas of practice including nutrition support, nuclear pharmacy, oncology, pediatric, pharmacotherapy, psychiatry, critical care, and ambulatory care, with the opportunity to apply for added qualifications in infectious disease and cardiology.<sup>2</sup> Pharmacists can also specialize in non-certification areas such as organ transplant, nephrology, and more.

For pharmacists to follow paths toward these focused areas of practice, the seed of interest must be planted at some point. Previous personal or family experiences are a common source of such interests. But for many students, the decision on a career pathway is uncertain upon their commencement from pharmacy school or it may change

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from their original plans due to exposure to previously unfamiliar areas of practice. For many students, oncology pharmacy is one of the areas about which little is known due to the limited exposure most students have to this practice specialty.

In the Worcester, MA and Manchester, New Hampshire, campuses of MCPHS University (formerly Massachusetts College of Pharmacy and Health Sciences) three-year accelerated Doctor of Pharmacy program, each academic year is divided into three semesters, starting in the fall and continuing into the spring and then summer. Students receive their most significant exposure to oncology pharmacy during the third semester of the pharmacotherapy course, that occurs in the summer of their second year, just prior to starting advanced pharmacy practice experiential rotations. Information covered in the oncology module (Table 1) includes basic strategies of cancer chemotherapy and disease and supportive care management. Students are also exposed to the pharmacology and medicinal chemistry aspects of chemotherapy drugs in sections of these respective courses taught concomitantly with the pharmacotherapy course. Unfortunately, time limitations and an overwhelming amount of oncology pharmacy practice information restrict the amount of information covered in these core curricular courses. To supplement these educational experiences and meet the needs of students who are seeking a more comprehensive introduction to oncology pharmacy practice, students are offered the opportunity to take part in an oncology elective course coordinated by two Board-Certified oncology pharmacists. Although not ideally placed relative to when oncology is covered in the pharmacotherapeutics course, the elective course is typically offered to second-year pharmacy students during the spring semester, before discussion of oncology in pharmacotherapeutics. Topics covered in this elective course provide a foundation

to understanding oncology pharmacy and only minimally overlap with material covered in the pharmacotherapeutics oncology module (Table 1). Due to the relative lack of exposure, many of the topics are presented at an introductory level. Students enrolled in this course have varying degrees of interest in oncology pharmacy. Therefore, the objective of our study was to identify the degree to which our oncology pharmacy elective course affected the students' interest in considering oncology pharmacy for their future career pathway. A secondary objective was to observe the impact our course had on students' familiarity with oncology pharmacy.

## Methods

This project was approved by MCPHS University's Institutional Review Board. The oncology pharmacy elective course is well established and has been offered to students several times since its inception in 2004. During the spring semesters of 2012 and 2013, all students who were registered for the course were asked to complete a two-part written survey (Table 2) at the beginning and end of the course. Hard copies of the surveys were distributed to students during the first class meeting. Time was provided for completion of the survey prior to the start of the first lecture and again after final exam submission. Written consent was requested from the students prior to completion of the surveys each time. The first part of the survey used a modified Likert scale and sought to establish the students' exposure to oncology pharmacy and chemotherapy, as well as their knowledge and interest in working in an oncology pharmacy department, completing a specialty residency in oncology pharmacy, and becoming a Board-Certified oncology pharmacist. The second phase of the survey asked the students to answer the same questions regarding their

Table 1  
Comparison of topics covered in the oncology module of pharmacotherapeutics versus the oncology pharmacy elective

Hematology/oncology module of pharmacotherapeutics	Oncology pharmacy elective course
Strategies of cancer chemotherapy	Activities of an oncology pharmacist
Management of breast cancer	Processing chemotherapy orders
Management of colon cancer	Preparation of chemotherapy products
Management of prostate cancer	Cancer screening and preventive care
Management of anemia	Review of chemotherapy classes and side effects
Management of chronic and acute leukemia	Management of chemotherapy and cancer-related anemia
Management of Hodgkin lymphoma	Management of chemotherapy-induced nausea and vomiting
Management of non-Hodgkin lymphoma	Management of tumor lysis syndrome
Management of multiple myeloma	Management of febrile neutropenia
Management of chemotherapy-induced nausea and vomiting	Drug interactions with chemotherapy
Management of tumor lysis syndrome	Use of herbal therapies and alternative medicines in oncology
Management of febrile neutropenia	Process and complications of stem cell transplant
	Process of oncology drug research and development
	Vaccines in oncology
	Small molecules as anticancer agents
	Monoclonal antibodies as anticancer agents

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