



Short communication

Evaluation of immunization training in the curriculum of first- and third-year pharmacy students

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Abstract

Objective: To assess student pharmacists' perspectives on the curricular timing of the American Pharmacists Association (APhA) Pharmacy-Based Immunization Program and their confidence in providing immunization services.

Methods: First (P1) and third (P3) professional year students were required to complete the APhA Immunization Certification. An Institutional Review Board-approved, anonymous, voluntary online survey was sent to all participants ($N = 454$) to assess the curricular timing and students' confidence in providing immunization services.

Results: Overall, there were no statistical differences between the P1 and P3 classes in terms of confidence in their knowledge of vaccine-related diseases or in the actual administration. Most P1 students (mean = 4.17) thought it was an appropriate skill to be placed in the P1 year, as did the majority of P3 students (mean = 3.75), although this difference was statistically significant ($P = 0.001$).

Conclusions: Immunization training was well received by all students, with the majority finding it appropriate to complete immunization training in the P1 year. Early placement of immunization training in the curriculum should provide students more opportunities to administer vaccinations during IPPE and places of employment as state law permits.

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Introduction

As of 2012, all 50 states, including the District of Columbia and Puerto Rico, recognize pharmacists as providers of immunizations.¹ Regulatory practices vary from state to state regarding the utilization of a protocol or a prescription, the types of vaccines that pharmacists are allowed to administer, and the patient populations they are allowed to administer them to. Many states also differ in regulatory language allowing student pharmacists to administer vaccines. The American Pharmacists Association

(APhA) and Student Affairs Administration in Higher Education (NASPA) National Survey of State Immunization Laws and Rules determined that 40 states and/or territories allow student pharmacists to administer immunizations, although some of these states, as well as many employers, may further require students to complete an advanced training program such as the APhA program prior to engaging in immunization delivery.²

In 2009, approximately 38% of US pharmacy schools, including the University of Rhode Island College of Pharmacy, reported having implemented immunization education and training certification as part of their professional degree curriculum.^{1,3} Once considered a supplemental skill, this program has evolved into a core competency that has been incorporated into Domain 2.3 of the 2013

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American Association of Colleges of Pharmacy's Center for the Advancement of Pharmaceutical Education (CAPE).⁴ Under this outcome, students should be able to "provide prevention, intervention, and educational strategies" under Health and Wellness (Promoter), which includes immunization practices. In addition, the 2016 draft Accreditation Council for Pharmacy Education (ACPE) Standards in Appendix 1 states that in a didactic pharmacy curriculum there must be "Exploration of national and community-based programs and implementation of activities that advance public health and wellness, as well as provide an avenue through which students become certified in immunization delivery."⁵

Prioritizing a curricular location to place the APhA Pharmacy-Based Immunization Delivery Program has been a challenge. The APhA training program is recognized by the Centers for Disease Control and Prevention (CDC) and consists of 12 hours of self-study modules with case studies, plus an eight-hour seminar series and hands-on injection assessment. The didactic portion covers more in-depth discussion on immunology and vaccine development, vaccine-preventable diseases, identifying patient needs, role of the pharmacist, patient screening, managing adverse reactions, and injection technique. Other colleges of pharmacy justified placing it in the third professional year (P3) after designated instruction of infectious disease and immunology or in the second professional year (P2) during influenza season.^{6,7} The University of Rhode Island originally included the immunization training as part of the curriculum in Fall 2010 for third professional year (P3) students. It was believed that this would ensure that students have adequate background knowledge before completing the training. However, in 2012, faculty members within the College requested through the curriculum committee that the certification program be integrated into the first professional year (P1) fall semester curriculum. This change was prompted because as immunization providers, the students would be allowed more patient-care opportunities during their Introductory Pharmacy Practice Experiences (IPPE). Once switched, the remaining P3 classes, who had not yet been immunization-certified, would continue to receive immunization training for the next two years. As a result of this change in curriculum during the 2012 and 2013 fall semesters, both P1 and P3 students were trained and certified simultaneously.

Incorporating the immunization training into the curriculum for P1 students may be considered controversial as some faculty may believe the P1 year is too early to provide required immunization training. In this scenario, timing of this training would occur before or concurrently with infectious diseases courses that often are considered as pre-requisites for the training.⁷ In 2009, the American Association of Colleges of Pharmacy (AAPC) charged a special task force with the development of Introductory Pharmacy Practice Experience (IPPE) competencies.⁸ The group determined that students were required to

demonstrate basic familiarity in "practice involvement" and moreover, achieve mastery in areas related to public health prior to entering their advanced practice experiences. We believe that an immunization training program included in the first professional year of the curriculum not only offers the students an opportunity for practice involvement but also teaches them the public health benefits they can provide. Additionally, in a study completed at the University of Alberta, Canada, patient satisfaction rates were very high with student pharmacist immunizers.⁹ First professional year students are able to attain competency in this skill, given the training and opportunity. The authors, in agreement with the AACP task force, believe that students must develop mastery through early experiences. This can be accomplished through an early immunization training program. The earlier the students are given patient-care opportunities, the better prepared they should be for their pharmacy practice experiences.

Material and methods

The primary goal of this project is to assess the curricular timing of the APhA Pharmacy-Based Immunization Delivery Program and student confidence in providing immunization services. By assessing how comfortable students are with the didactic material and administration skills practicum, educators can place the education and training in the most appropriate year of the PharmD curriculum.

The APhA Pharmacy-Based Immunization Delivery Program was originally placed into the curriculum in the three-credit Health Systems course in the fall semester of the P3 year. One of the objectives of this course included the ability to recognize essential public health services and understand ways in which pharmacists contribute to population health aims. The seminar portion of the immunization program was completed once a week over four weeks in two-hour blocks. The practicum, consisting of administration of two intramuscular injections and one subcutaneous injection, was completed in the P3 pharmacy practice laboratory course, over four periods where each section included about 30 students. This allowed for more manageable review of the immunization technique of each student by faculty trainers. The laboratory also allowed students to properly complete their vaccinations in an environment that best correlated with what they might see in clinical practice. Students were paired with a partner during their scheduled skills laboratory and were required to demonstrate each injection utilizing appropriate technique, correct documentation, and appropriate screening questions in order to pass the practicum.

The immunization portion of the curriculum was transitioned to the P1 year in Fall 2012 (Class of 2016). It was placed in a course titled Pharmacy Practice in Contemporary Health Care, which is a course that provides students with introductory concepts to a career in pharmacy. This three-credit course consists of two hours of didactic lecture each week along with a one-hour small-group recitation. The

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