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Description of a pediatric degree option program in a doctorate of pharmacy curriculum and its impact on pediatric-focused advanced pharmacy practice experience rotations and faculty scholarly productivity

Peter N. Johnson^{a,*}, Brooke L. Gildon^b, Michelle Condren^c, Jamie L. Miller^d, Tracy M. Hagemann^e, Teresa V. Lewis^f, Bob John^g, Kevin Farmer^h^a Department of Pharmacy, Clinical and Administrative Sciences, University of Oklahoma College of Pharmacy, O'Donoghue Research Building, Suite ODON4415, 1122, Northeast 13th Street, Oklahoma City, OK 73117, United States^b Department of Pharmacy Practice, Southwestern Oklahoma State University College of Pharmacy, United States^c Department of Pediatrics, University of Oklahoma School of Community Medicine, United States^d Department of Pharmacy, Clinical and Administrative Sciences, University of Oklahoma College of Pharmacy, United States^e Department of Pharmacy Practice, University of Tennessee College of Pharmacy, United States^f Department of Pharmacy, Clinical and Administrative Sciences, University of Oklahoma College of Pharmacy, United States^g NICU Clinical Specialist, The Children's Hospital at Saint Francis, United States^h Department of Pharmacy, Clinical and Administrative Sciences, University of Oklahoma College of Pharmacy, United States

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ABSTRACT

Purpose: To describe the development of a Pediatric Degree Option program and its impact on pediatric-focused advanced pharmacy practice experiences (APPEs) and faculty scholarly productivity.**Educational activity:** The Pediatric Degree Option program was established in 2011 and requires 16 h of didactic coursework and APPEs. The number of pediatric-focused APPEs and mean number of APPEs per pediatric faculty per year was compared pre- (2005–2010) and post-implementation (2011–2016). In addition, the median number of scholarship activities per student pre- and post-implementation was compared. The initial position obtained by graduates completing the degree option was collected.**Findings:** Thirty students have completed the program. There were 146 pediatric-focused APPEs for the pre-implementation period and 259 post-implementation. However, there was an increase in pediatric faculty during the post-implementation, so there was no difference in the mean number of pediatric-focused APPEs per pediatric faculty in the pre- versus post-implementation period, 8.4 + 2.7 versus 6.9 + 1.0, $p = .224$. A significant increase in the median number of pediatric-focused scholarly activities per student was observed pre-versus post-implementation, 3 (2–5) versus 5 (3–7), $p = .005$. Twenty-six (86.7%) students in the post-implementation period participated as a research assistant or coauthor in an original research or manuscript writing project. Students accepted a variety of positions after graduation including twelve (40%) accepting a PGY1 residency and eight (36.7%) as community pharmacists.**Summary:** Although the number of pediatric-focused APPEs increased in the post-implementation, this did not result in an increase in the mean number of mean pediatric-focused APPEs per

* Corresponding author.

E-mail addresses: peter-johnson@ouhsc.edu (P.N. Johnson), brooke.gildon@swosu.edu (B.L. Gildon), michelle-condren@ouhsc.edu (M. Condren), jamie-miller@ouhsc.edu (J.L. Miller), thageman@uthsc.edu (T.M. Hagemann), teresa-lewis@ouhsc.edu (T.V. Lewis), bmjohn@saintfrancis.com (B. John), kevin-farmer@ouhsc.edu (K. Farmer).<https://doi.org/10.1016/j.cptl.2018.01.002>

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pediatric faculty member. However, it did allow a unique opportunity for 30 students with interest in pediatrics and allowed for content and skill development. The Pediatric Degree Option program allowed students to gain experience with pediatric-focused scholarly activities that also enhanced faculty productivity in scholarship and research.

Background and purpose

Pediatrics is a heterogeneous population composed of patients ranging from newborns to adolescents. It is estimated that approximately 23% of the U.S. population is < 18 years of age.¹ Thus children are an important portion of the population that pharmacists serve.² Evidence suggests that many pharmacists report filling a prescription for a child on a daily basis, and few pharmacists practice in environments without pediatric pharmacotherapy opportunities.³ Furthermore, children are at significant risk for medication errors, including dosing errors, compared to other populations. In 2008, the Joint Commission issued a sentinel alert emphasizing the increased risk of medication errors in children.⁴ This sentinel alert highlights the greater potential for harm when a medication error occurs in a child and further calls for pharmacists with pediatric training to work with this high-risk population. In addition, the American Academy of Pediatrics has stressed the need for and benefit of pediatric-trained pharmacists.^{2,5,6}

To fulfill the Accreditation Council for Pharmacy Education (ACPE) mandate to produce general practitioners, professional pharmacy curricula must include an adequate number of hours dedicated to children.² However, the amount of time the typical pharmacy curricula devotes to pediatric pharmacotherapy is inadequate and must be improved. The American College of Clinical Pharmacy's (ACCP) Educational Affairs Committee and Pediatric Practice and Research Network (PRN) have published recommendations for pediatric pharmacy content to be incorporated in the required pharmacy curricula.^{2,7} The ACCP Pediatric PRN also provided specific recommendations for advanced pharmacy practice experience (APPE) rotations for students interested in pediatric pharmacy.² They further recommended that pediatric instruction should begin in the first year of the professional program, and content experts in pediatrics should teach specific pediatric topics, when possible.

With the desire to enhance the training of pharmacists in the care of this vulnerable population, faculty at the University of Oklahoma created the Pediatric Degree Option program to address these concerns. Previous curricular tracks have been described in the literature; however, none have involved pediatrics.⁸⁻¹⁰ The overarching goal of our program is to provide pharmacy students with additional skills and experiences in pediatrics that translate into the hospital, community, and other pharmacy settings. The purpose of this article was to describe the implementation of the program and its impact on pediatric-focused APPE rotations and faculty scholarly productivity.

Educational activity

Specialty-track program description

The OUCOP is currently comprised of two campuses in Oklahoma City and Tulsa where didactic coursework was simultaneously delivered. The University of Oklahoma established specialized degree option programs in 2010. Currently, the University of Oklahoma has six programs: psychiatric pharmacy, pediatric pharmacotherapy, nuclear pharmacy, ambulatory care, research, and leadership development. The degree option programs provide an opportunity for specialization within one of these six areas that share a common core of approximately 50% of content in the Doctor of Pharmacy curriculum. Students are required to complete educational requirements consisting of didactic coursework and APPE rotations in a specific area of focus of the program. Following completion of the educational requirements, the students' diplomas list Doctor of Pharmacy, but they receive a designation for their specific degree option on their transcripts.

Pharmacy students are introduced to the various degree option programs during their first professional year. Specialty program tracks are not a requirement for graduation. In the last curriculum review in 2014, it was noted that approximately 30% of students at University of Oklahoma participated in a degree option program. Interested students must submit a curriculum vitae, application packet, letter of intent, and three professional letters of reference. In addition, they must have a minimum professional grade point average and be in good academic standing. Application packets are then reviewed by an appointed ad-hoc committee. The final step in the application process is an interview with the ad-hoc committee. Each program has established a maximum number of students accepted per year, and this varies per program.

The purpose of the Pediatric Degree Option program is to improve competence in pediatric pharmacotherapy for graduates interested in pursuing postgraduate-education, graduate education, and other areas of pharmacy practice that serve children. Through the didactic and pediatric-focused APPE opportunities, students enhance their communication skills, drug information skills, mathematical calculation skills (e.g., weight-based dosing, pharmacokinetic calculations, compounding calculations, parenteral nutrition calculations, individualized insulin dosing based on carbohydrate counting), and medication error prevention skills in children. [Appendix A](#) provides the global program objectives.

The Pediatric Degree Option is overseen by two program directors with support from primary faculty and support preceptors. The program directors and primary faculty consist of full-time faculty members at University of Oklahoma that have completed post-graduate pediatric pharmacy residency training and/or hold pediatric board certification. The program directors participate in a

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