



University of Pittsburgh

School of Pharmacy

Area of Concentration in Pediatrics (ARCO-Peds) in the Doctor of Pharmacy (PharmD) Program

Purpose

The purpose of the Area of Concentration in Pediatrics (ARCO-Peds) is to allow students to pursue an area of emphasis in pediatric pharmacy practice so as to prepare them to better meet the specialization of pediatric pharmacy while completing the PharmD degree.

Description

In April 2013, the Board of Pharmacy Specialties Board of Directors voted to recognize pediatric pharmacy as the 8th BPS specialty in response to a petition by ACCP, APhA, ASHP and PPAG national organizations. Pediatric pharmacy practice has therefore been defined as specialization in "...the delivery of patient care services by pharmacists that ensures the safe and effective use of medications for all children from neonates through adolescents. The practice includes direct patient care for children, often provided through inter-professional healthcare teams, as well as advocacy and education for children and their families, wellness and health promotion, and activities that advance knowledge and skills in pediatric pharmacy..."

Children represent approximately 25% of the US population and it is estimated that up to 13% of children take medications on a regular basis. Children across the age continuum of pharmacy practice require specialized pharmacy services to assure appropriate selection, dosing, preparation and distribution, as well as competent medication therapy management and medication safety. Approximately 70% of all pediatrics hospital bed days are for chronic illnesses and up to 80% of pediatric health care costs are expended for 20% of children.

Significant contributions by pharmacists to patient care have been demonstrated in many pediatric practices including general practice and intensive care. It is estimated that approximately 4000-5,000 pharmacists practice in specialized pediatric practice. Additionally, there are 39 ASHP-accredited pediatric pharmacy residencies (increased 129% in past 10 years) graduating 44 pharmacists per year. However, to meet the challenges of health care that is continually evolving in complexity, pharmacists will be challenged to be direct patient care providers. Pharmacists with an understanding of the needs of pediatric patients are needed to improve the care of these vulnerable patients.

The ARCO-Peds is designed as an educational experience that will result in a concentrated background in pediatric healthcare principles. It is intended that the majority of students in this ARCO will continue their education and experience through post-graduate education in residency training programs so as to meet the specialization as defined in the consensus document "Petition to the Board of Pharmacy Specialties Requesting Recognition of Pediatric Pharmacy Practice as a Specialty".

The ARCO-Peds in the University of Pittsburgh PharmD curriculum does not require students to take additional credits beyond what is required for the PharmD degree, but rather is a mechanism for students to organize their classroom-based and experiential-based electives and a special project in a focused way.

As such, the credits satisfy requirements for both the ARCO-Peds and the PharmD degree. The ARCO-Peds is available only to students enrolled in the PharmD curriculum.

Students successfully completing the ARCO-Peds will receive special recognition on their official academic transcript.

The low student/faculty ratio and tailored curriculum of the ARCO-Peds offers a special opportunity for students to acquire an important skill set. While new skills may be acquired throughout the School's curriculum, the ARCO-Peds is an educational experience that will result in a concentrated background in pediatric pharmacy practice.

For purpose of this program, the following definition will be used, as proposed in the "Petition to the Board of Pharmacy Specialties Requesting Recognition of Pediatric Pharmacy Practice as a Specialty" document:

Pediatric pharmacy practice is "...the delivery of patient care services by pharmacists that ensures the safe and effective use of medications for all children from neonates through adolescents. The practice includes direct patient care for children, often provided through interprofessional healthcare teams, as well as advocacy and education for children and their families, wellness and health promotion, and activities that advance knowledge and skills in pediatric pharmacy..."

At the completion of the ARCO-Peds, students must achieve a level of competence at the Intermediate or Proficient levels (as rated in APPE experiences) in the following domains as defined through consensus in the "Petition to the Board of Pharmacy Specialties Requesting Recognition of Pediatric Pharmacy Practice as a Specialty":

- **Patient Management** – Tasks related to the comprehensive management of a pediatric patient including collecting, interpreting, and integrating pertinent clinical data, and designing, implementing, monitoring, and modifying patient--specific plans of care for pediatric patients in collaboration- with the health care team.
- **Practice Management** – Tasks related to advancing pediatric pharmacy practice and recommending, designing, implementing, and monitoring systems and policies to optimize the care of pediatric patients.
- **Information Management and Education** – Tasks related to retrieval, generation, interpretation, and dissemination of knowledge related to pediatric pharmacy, and education of health care providers, trainees, patients/caregivers.

The functions and skills associated with these domains include gathering, assessing, and integrating clinical data and information from multiple sources; managing and optimizing medication use in pediatric patients; developing individualized care plans; and developing effective long-term relationships with patients, caregivers, and other health professionals. Additional skills include conducting and evaluating research; employing evidence---based medicine and clinical guidelines; and using communication, motivation, and negotiation strategies.

Academic Requirements

Students who complete the ARCO-Peds will have completed a total of 16 credits: a) in pediatric-related didactic courses (minimum 6 credits), b) in two APPE rotations (minimum 10 credits), and c) a project that may be "for credit" (but does not have to be) under the direction of a program mentor. Students will also be preferentially placed in IPPE rotations in pediatrics during the P-3 year as available.

Coursework

Students may complete coursework prior to the third professional year that will count toward the ARCO-Peds provided that the coursework (including independent study) is reviewed and approved by the ARCO-Peds Oversight Group. Students must complete six credits of coursework and receive a grade of B or better in any courses selected from the list of approved courses below.

Within the School of Pharmacy, three courses will be available in the concentration, as well as other approved courses outside of the School of Pharmacy. Students may select any combination of courses to fulfill the requirements. Additional courses outside the School of Pharmacy may also be accepted on a case-by-case basis with prior approval of the oversight group, the course instructor, and the School of Pharmacy Curriculum Committee

School of Pharmacy courses in place or to be submitted for approval to the Curriculum Committee include:

- Introduction to Pediatric Pharmacy Practice - 2 credits
- Advanced Pediatric Pharmacotherapy - 2 credits
- Special Projects (PHARM 5800) – 1 to 3 credits

Approved course outside the School of Pharmacy:

- [PITT PSY 0310 – Developmental Psychology](#) - focus on the development of the child from birth to adolescence, the current theory and research concerning social, emotional, intellectual, perceptual and language development.

Experiential Rotations

As part of the ARCO-Peds students must complete at least two advanced pharmacy practice experiences (APPEs), each representing 5 credits. It is recommended that one APPE be conducted in advanced institutional practice in pediatrics and one in an APPE with pediatric patient care focus in a student area of interest. An approved rotation must address multiple skills outlined in this document.

Students accepted for participation in the ARCO-Peds will be given preferential placement in IPPEs and APPEs in the focus area of pediatric pharmacy.

Project

As part of the ARCO-Peds, students must complete a project under the supervision of a program mentor. Once accepted into the ARCO-Peds, students will meet with the ARCO-Peds coordinator to discuss suitable project ideas and identify mentors in areas of interest. While the project is required, completing it for credit is not. Students may elect to work on the project for credit by enrolling in a Special Topics course. Students should consult the School of Pharmacy registrar for enrollment information for Special Topics courses. To enroll in a Special Topics course students must receive approval from the chair of the School of Pharmacy Curriculum Committee.

Students must propose their projects to and have the projects approved by the ARCO-Peds coordinator and project preceptor prior to the beginning of the term in which it is to be completed. Project assessment will be based on the student's formal presentation to the oversight group and the written project report. Students are encouraged to present their work at local, national, and international conferences (PPAG, ASHP, etc).

Student Application Process

The ARCO-Peds is not able to accommodate all interested students due to resource limitations. As a result, enrollment in the ARCO-Peds is not guaranteed and is only open to 4 students per class. Students interested in pursuing this concentration are required to apply to the program. The application process requires a(an):

- Letter of intent, including a discussion of the anticipated value of the ARCO to desired career
- Professional portfolio, including résumé or curriculum vitae
- Permission for the oversight group to review the applicant's University of Pittsburgh academic transcript
- Interview with at least one member of the oversight group (if requested by the oversight group)

Within the PharmD curriculum, classroom-based elective courses are generally taken in the P3 year. To facilitate selection of targeted courses and research rotations, the deadline for applications is February 15 during the P2 year. Students will be notified regarding the status of their application prior to registration for the fall term of the P3 year. Complete applications will be screened by a minimum of two members of the ARCO-Peds oversight group.

Members of the ARCO-Peds oversight group are available to answer questions and discuss the ARCO-Peds program. Contact information is provided below.

ARCO-Peds Oversight Group

Coordinator: Denise L. Howrie, Pharm.D.
Associate Professor of Pharmacy & Pediatrics
709 Salk Hall, School of Pharmacy; Howrie@pitt.edu

Members: Carol Vetterly, Pharm.D., BCPS
Adjunct Assistant Professor of Pharmacy
Clinical Coordinator, Pharmacy Services
PICU Clinical Pharmacy Specialist
Children's Hospital of Pittsburgh of UPMC
Carol.vetterly@chp.edu

Emily Polischuk, Pharm.D.
Adjunct Faculty, School of Pharmacy
NICU Clinical Pharmacy Specialist
Children's Hospital of Pittsburgh of UPMC
Emily.polischuk@chp.edu