

Pediatric Degree Option Program Graduates in a Doctor of Pharmacy Curriculum: Confidence and Employment Characteristics



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Background

- A curricular degree option was created at the University of Oklahoma College of Pharmacy to improve competence in pediatric pharmacotherapy
- University of Oklahoma College of Pharmacy created the pediatric degree option in 2010 with the first graduate in 2011
- As part of the program, students complete one of the following tracks:
 - Track 1: 6 hours of didactic electives and 3 APPE rotations
 - Track 2: 8 hours of didactic electives and 2 APPE rotations
- Forty-eight students have been enrolled in the program with 30 graduates (62.5%) completing the program between 2011-2016
- The purpose of this study was to identify confidence with pediatric knowledge and skill statements in Pediatric Degree Option program graduates from 2011-2016

Objectives

- Primary objective:**
 - Identify confidence with pediatric pharmacotherapy knowledge statements
- Secondary objectives:**
 - Identify perceptions of the program from graduates
 - Compare confidence in pediatric pharmacotherapy knowledge statements among residency trained versus non-residency trained graduates
 - Categorize initial employment position following graduation

Methods

- IRB-exempt study
- Survey of graduates from 2011-2018
- 29-item questionnaire developed with 2 sections:
 - 17 questions focused on global objectives of the program
 - 12 questions focused on perceptions and employment characteristics
- Development and dispersion of questionnaire:
 - Initial email notification requesting physical mailing address
 - Mailed to physical address of graduates
 - Two follow-up reminders were sent
 - If no response following the reminders, graduates were considered lost to follow-up
- Validity of instrument:
 - Survey reviewed and approved by all investigators
 - Feedback obtained from four P4 students not in the program

Statistical Analysis

- Descriptive statistics for demographic and clinical variables
- Analysis of variance (ANOVA) utilized to compare responses between graduates completing residency training vs those who did not
- a priori* alpha set at < 0.05

Results

- Nineteen graduates (63.3%) responded to the survey (Table 1)

Table 1: Number (%) Respondents Per Year

Year of Graduation	Number of Graduates Per Year	Number (%) of Respondents Per Year
2011	1	1 (100)
2012	3	2 (66.7)
2013	5	2 (40)
2014	5	5 (100)
2015	8	2 (25)
2016	8	7 (87.5)

- Table 2 provides an overview of the didactic and pediatric-focused APPE rotations completed by graduates

Table 2: Didactic and Pediatric-Focused APPE Rotations

Variable	Number (%)
<i>Didactic Coursework</i>	
Required Courses:	
Introduction to Pediatric Pharmacotherapy	19 (100)
Pharmacotherapy Considerations in Pediatrics	19 (100)
Optional Courses:	
Pediatric Medication Safety	13 (68.4)
Independent Study for Self-Directed Learning	15 (78.9)
<i>Advanced Pharmacy Practice Experiences</i>	
In-Patient Rotations:	
General Pediatrics	16 (84.2)
PICU	4 (21.1)
NICU	3 (15.8)
Hematology/Oncology	0
Other Direct Patient Care Rotations:	
Nephrology/Renal Transplant	4 (21.1)
Ambulatory Care	3 (15.8)
Diabetes Camp	8 (42.1)
Non-Patient Care Rotations:	
Pediatric Research	17 (89.5)

- Table 3 provides an overview of the initial position following graduation

Table 3: Employment Following Graduation

Variable	Number (%)
First position following graduation	
Community pharmacy	6 (31.6)
Hospital pharmacy	3 (15.8)
PGY1 Residency	10 (52.6)
PGY1 Residency (n=10):	
PGY1 residency in children's hospital	5 (50)
PGY1 residency in primarily adult facility	4 (40)
Combined PGY1/PGY2 Pharmacotherapy residency	1 (10)
PGY2 Residency or Fellowship (n=7)	
Pediatric PGY2 residency or pediatric-focused research fellowship	3 (42.9)
Other PGY2 non-pediatric focused residency	4 (57.1)

Results Continued

- Table 4 provides responses to the pharmacotherapy statements, and Table 5 provides additional perceptions

Table 4: Statements with Very High/High Confidence

Ques #	Knowledge Statements	% Respondents
2	Calculate specific dose (mg) based on weight and medication	100
3	Calculate an oral liquid dose in mL's when provided with the product concentration (mg/mL) and patient weight	100
4	Describe the first line drug therapy in pediatric patients for otitis media	100
16	Gain confidence counseling caregivers about drug therapy	100
4	Describe the first line drug therapy in pediatric patients with asthma	94.7
9	Identify the steps involved and the sources of information needed to perform a satisfactory drug information search	94.7
10	Perform and execute a drug information search using biomedical databases	94.7
11	Identify the approach required for documenting evidence based medicine guidelines	94.7
14	Perform and execute a medication counseling session with parents or guardians	94.7
15	Discover errors in pediatric prescriptions	94.7
16	Gain confidence counseling healthcare providers about drug therapy	94.7
17	Identify drug information sources for pediatric patients	94.7
4	Describe the first line drug therapy in pediatric patients for CAP	89.5
5	Perform an assessment of a new prescription for a pediatric patient related to appropriate dose for age and weight and for patient age	89.5
6	Identify the purpose of a growth chart when evaluating a pediatric patient	89.5
13	Apply evidence-based approach for common pediatric disease states	89.5
1	Identify the age-related pharmacokinetic differences (ADME principles) between children and adults	84.2
5	Perform an assessment of a new prescription for a pediatric patient related to indication for therapy	84.2
7	Plot a patient on a growth chart	84.2
12	Perform and execute an evidence-based approach for common pediatric disease states	84.2
16	Gain confidence counseling children about drug therapy	73.7
8	Utilize information obtained from a growth chart to make a therapeutic recommendation	68.4
14	Perform and execute a medication counseling session with pediatric patients of all ages	68.4
1	Identify the age-related pharmacokinetic differences (ADME principles) between neonates and children	63.2

- The only difference between knowledge statements between graduates completing residency vs no residency was "identify drug information sources for pediatric patients" (Question 17), p=0.08

Table 5: Beneficial Themes of the Program Identified by Graduates

Question 18	Response
What was the most beneficial portion of the Pediatric Degree Option program?	Medication safety: <ul style="list-style-type: none"> Performing dose calculations Monitoring/catching dosing errors Weight-based dosing calculations Experience: <ul style="list-style-type: none"> Clinical experience in children's hospital Participating in clinical research

Conclusions

- Graduates noted high confidence in pharmacotherapy statements
- Ten of the 19 respondents (52.6%) completed a post-graduate residency
- No differences in very high/high confidence between those completing residency versus those who did not
- Program was well received and provides opportunity for additional knowledge and skill development in pediatrics