

ORIGINAL RESEARCH

Creating an evidence-based pediatric urology advanced practice provider orientation program

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ABSTRACT

The authors sought to understand the background and training of pediatric urology advanced practice providers (APP) to create an orientation program that improves APP preparation for subspecialization in pediatric urology. Obtaining these data will allow for the development of an evidence-based approach to educating the new pediatric urology APP at a national level. An anonymous survey was sent to the 331 members of the Pediatric Urology Nurses & Specialists (PUNS) professional organization to assess the qualities of orientation and training at institutions across the nation. Descriptive statistics were used to characterize the results of the survey for this group of participants. A total of 49 participants (15% response rate) participated in this survey. Most participants reported completion of a one to three-month orientation program (57.2%) that was moderately structured (57.1%). The overall mean self-rating of preparedness was 6.2 out of 10 at the conclusion of their training. However, this rating varied between participants who had training programs under and over three months duration ($p < .001$). Most respondents felt that they were not optimally prepared to enter the field. The survey results show that longer training programs (at least three months) lead to higher levels of self-assuredness. The pediatric urology APP orientation program at the authors' institution will be adjusted to meet the concerns of the survey participants to ensure a more equipped team of advanced practice providers. The authors hope that this will serve as a guideline for institutions across the country to train pediatric urology APPs.

Key Words: Pediatric urology, Advanced practice provider, Education, Orientation

1. INTRODUCTION

Pediatric urology is a complex and unique field that is often not well-developed in advanced practice degree curricula. In the certified pediatric nurse practitioner, primary care (CPNP-PC) exam, urology is combined with nephrology as the tenth clinical problem on a ranked list of conditions listed by volume.^[1] The Physician Assistant National Certifying Examination (PANCE) allocates only 5% of the medical content to the genitourinary system.^[2]

Due to a lack of previous experience or knowledge on the subject, the new advanced practice provider (APP) in pediatric urology is disadvantaged in providing competent and

confident patient care. A narrative exploration of nurse practitioner (NP) students in this transition period includes feelings of, "overwhelm, frustration, and defeat".^[3]

The transition of the newly graduated APP to its first clinical role is not a novel topic. There has been widespread research on APP anxiety and turmoil,^[4] their delay in feeling proficient, and their increasing tendency to seek employment with structured mentoring programs.^[5]

The current three-month training period for urology APPs at the authors' institution follows a classical apprenticeship model, whereby the APP shadows the various urologic providers, as is the general trend in other programs. Rather

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than include a formal structure, guideline, resources, or defined objectives as has become the norm for urology residents and pediatric urology fellows, the APP is expected to assimilate the field of pediatric urology while “on-the-job”.

Prior to creating a pathway towards building APP expertise in pediatric urology, the authors sought to gain insight from current pediatric urology nurses and APPs regarding their experiences with training for such a role. The authors intend to use this insight to refine their current local pediatric urology APP orientation program. Thus, experience gained locally could be disseminated nationally through the PUNS organization as a means of standardizing care.

2. MATERIALS AND METHODS

This is a national survey with a timeline beginning June 1, 2021, and ending February 15, 2022.

To assess the quality of orientation and training of pediatric urology APPs at institutions across the nation, the authors selected candidates by surveying active APP members of the Pediatric Urology Nurses & Specialists (PUNS) professional organization. Prior to distribution, this de novo survey was reviewed and approved by the PUNS, the institution’s nursing research advisory committee, and the institutional review board.

To minimize the risk of bias, the survey was sent to all participants without exclusion. This organization is composed of nurses, nurse practitioners, and physician assistants specializing in pediatric urology from across the country. However, it was specified that this survey was intended solely for APPs. In reviewing the responses, 100% of the respondents fit the role criteria.

The survey was distributed via the PUNS email list serv to the 331 active members in the form of a REDCap link.^[6] A reasonable estimated response rate of 30%-40% would make the goal sample size 108-145 participants. The first email was sent on September 21, 2021; a reminder email on October 5, 2021; and a final reminder on October 19, 2021. It did not include identifiers or protected health information (PHI). The survey included ten multiple-choice questions to characterize participant demographics and the general perspective of their orientation programs. It also contained two free-response questions to gather more qualitative data about what APPs valued most, and wished was included in their orientation.

The authors used R statistical software (version 4.0.3) to analyze and summarize the results of the APP survey,^[7] and included these data in Table 1. They also compared the survey responses by various subgroups of participants (e.g.,

pediatric nurse practitioner vs. other, duration of being a pediatric urology APP < 5 years vs. > 5 years, practice settings inpatient and/or outpatient vs. outpatient only, practice’s adult patient population or combined adult/pediatric center vs. pediatric-only hospital or clinic, and duration of orientation period < 3 months vs. > 3 months). The subgroup of orientation period duration is included in Table 2 as the only comparison with significance. An unpaired *t*-test (for continuous data) and chi-square test/Fisher’s exact test (for categorical data) were used for statistical comparisons between subgroups. Statistical significance is indicated by bold font ($p < .05$).

The authors recognize that the roles and responsibilities of nurse practitioners and physician assistants differ across states and institutions. This was addressed in the survey collection by asking participants to identify their title. They also considered the potentially varied responses during the creation of the orientation program; therefore, they do not assume that a generic guideline fits all role types.

Research ethics

The main regulatory and ethical considerations throughout this study were the protection of participant privacy. Multiple measures were taken to prevent breach of confidentiality.

There were no physical, psychological, social, economic, or legal risks to the subjects. There is a risk of violation of subject privacy, and a breach of confidentiality is a concern. There is potential psychological harm that could result from the use of subject data for this study, particularly due to the private nature of data collection. To minimize the risk of violation of subject privacy, the surveys did not include identifiers.

The study team ensured that this study was conducted in full conformity with the Regulations for the Protection of Human Subjects of Research, codified in 45 Part 46 of the Code of Federal Regulations, the institution’s policies and procedures, and good clinical practices.

3. RESULTS

A total of 88 recipients opened the email between the initial and the two reminder messages; it is possible that some participants opened the email more than once. A total of 49 participants (15% response rate) participated in this survey.

The overall survey responses of this cohort are summarized in Table 1. Survey responses were summarized as frequencies with percentages (n (%)) for categorical responses and means with standard deviation (SD) for any continuous responses.

Most participants reported completion of a one to three-month orientation program (57.2%) that was moderately

structured (57.1%). A moderately structured program was defined as having “some resources provided” and a “general schedule.” An example could include relevant journal articles for the orientee’s review and a calendar of preceptors.

Table 1. Overall survey responses

Survey responses	N = 49
Credentials, n (%)	
Certified Nurse Specialist	1 (2.0)
Family Nurse Practitioner	8 (16.3)
Nurse clinician	1 (2.0)
Pediatric Nurse Practitioner	36 (73.5)
Physician Assistant	3 (6.2)
How long have been a Pediatric Urology APP? n (%)	
Less than 1 year	2 (4.1)
1-5 years	15 (30.6)
5-10 years	15 (30.6)
10-15 years	6 (12.2)
15+ years	11 (22.5)
Practice settings, n (%)	
Inpatient	2 (4.1)
Inpatient and Outpatient	8 (16.3)
Outpatient	39 (79.6)
Practice’s patient population, n (%)	
Adult and pediatric patients	1 (2.0)
Pediatric-only hospital or clinic	40 (81.6)
Pediatric patients only within a combined adult/pediatric center	8 (16.4)
How long was the orientation period? n (%)	
Less than 1 month	5 (10.2)
1-3 months	28 (57.2)
4-6 months	13 (26.5)
7-12 months	3 (6.1)
Competencies included in training, n (%)	
General pediatric urology	43 (87.8)
Voiding dysfunction	44 (89.8)
Urologic surgery	32 (65.3)
Portable bladder ultrasonography	27 (55.1)
Non-video and video urodynamics	27 (55.1)
Uroflowmetry	34 (69.4)
Biofeedback therapy	22 (44.9)
Advanced urotherapy	2 (4.1)
Resources provided during orientation, n (%)	
Links/websites	20 (40.8)
Articles or books	41 (83.7)
Video or audio tutorials	9 (18.4)
Hands-on simulation	26 (53.1)
None of the above	4 (8.2)
How structured was the orientation program? n (%)	
Minimal	17 (34.7)
Moderate	28 (57.1)
Very	4 (8.2)
On a scale of 1-10, how prepared did you feel to practice independently at the end of your orientation? mean (SD)	6.2 (2.5)

The results of the study support longer orientation programs for advanced practice providers in the field of pediatric urology. When asked to rate their level of preparedness after completion of their orientation programs, study participants who completed less than three months of training answered on average 5.3 out of 10. Those who were oriented for more than three months answered an average 7.9 out of 10; with a

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comparative p value of $< .001$ (see Table 2).

Many participants had hands-on experience with either a urologist or an advanced practice provider as the most valued aspect of training. Alternatively, the most common aspect that the APPs had wished to include was a more structured training program. Many APPs also voiced that a longer orientation would be preferred.

4. DISCUSSION

An investigation into postgraduate NP residency and fellowship programs resulted in 68 active programs in the US, with a significant majority (89.7%) lasting 12 months.^[8]

While several adult urology fellowships exist for APPs, to the authors’ knowledge, none exist for pediatric urology APP training. However, even among adult programs in the United States, training options are limited.^[9]

Globally, this concept and the role of pediatric urology APP vary. In the Netherlands, it has been reported that the pediatric urology nurse practitioner “is the case manager, who coordinates the total process of planning”^[10] and other administrative functions. In Brazil, a university extension program “valuing empowerment, informed and shared decision making”^[11] has been created and well established for pediatric APPs. This extension program includes “peer-mentoring and team-based learning principles. . . to expand and develop cognitive, procedural, and attitudinal skills for APN in the context of pediatric urology”.^[11]

Successful patient care centers should carefully consider these challenges and provide a supportive educational environment for their new graduate APPs. This formal training programme may include clinical skills specific to practice, leadership roles, and research opportunities. Unfortunately, few of these programs exist today; a study of 352 nurse practitioners showed that only 33% of them had a formal orientation.^[5]

The main limitation of this study was the low response rate of the emailed survey. The final number of participants was less than the goal response rate of 30%-40% of the PUNS active members. This may be attributed to members changing email addresses or not participating in the PUNS organization. A larger sample size would further guarantee accurate representation of these issues.

Another limitation is the challenge in representing the current variety of pediatric urology APP roles. Institutions vary in their designated responsibilities for pediatric urology APPs, from outpatient voiding dysfunction to operating room assistance. While this orientation program is designed to provide comprehensive education to the new pediatric urology APP, it cannot meet the unique and specific needs of all institutions.

Table 2. Survey responses stratified by the duration of orientation period

Survey responses	3 months or less (N = 33)	> 3 months (N = 16)	p value
Competencies included in training, n (%)			
General pediatric urology	27 (81.8)	16 (100)	.069
Voiding dysfunction	28 (84.8)	16 (100)	.100
Urologic surgery	20 (60.6)	12 (75.0)	.321
Portable bladder ultrasonography	16 (48.5)	11 (68.8)	.181
Non-video and video urodynamics	19 (57.6)	8 (50.0)	.617
Uroflowmetry	23 (69.7)	11 (68.8)	.946
Biofeedback therapy	16 (48.5)	6 (37.5)	.468
Advanced urotherapy	0 (0.0)	2 (12.5)	.038
Resources provided during orientation, n (%)			
Links/websites	13 (39.4)	7 (43.8)	.771
Articles or books	26 (78.8)	15 (93.8)	.184
Video or audio tutorials	4 (12.1)	5 (31.2)	.105
Hands-on simulation	17 (51.5)	9 (56.2)	.755
None of the above	3 (9.1)	1 (6.2)	.733
How structured was the orientation program? n (%)			
Minimal	13 (39.4)	4 (25.0)	.519
Moderate	18 (54.5)	10 (62.5)	
Very	2 (6.1)	2 (12.5)	
On a scale of 1-10, how prepared did you feel to practice independently at the end of your orientation? mean (SD)	5.3 (2.2)	7.9 (2.0)	< .001

Note. p-values were obtained from unpaired t-test for continuous data and Chi-square test/Fisher’s exact test for categorical data.

Another consideration and possible limitation of implementation is funding. The cost of a postgraduate education residency for nurse practitioners can reach \$100,000 per provider, which includes the salaries of the NP and residency director and loss of preceptor productivity.^[12] The new APP may offer limited revenue during this time because they are shadowing another provider and not yet billing independently. This may be a monetary issue for some institutions. Thankfully, the authors can financially support the new APP during their orientation program through their regular salary.

The pediatric urology advanced practice provider orientation program at the authors’ institution will reflect both the quantitative and qualitative responses to this survey. Research has shown that clearly defining roles for an APP will benefit the provider and employer in the immediate and long-term.^[13] This training will consist of a structured 4-month period with weekly objectives and resources. Each orientee will be assigned preceptors in advance to sign off vital skills and competencies. Finally, the orientee will have scheduled meetings with the chief at the halfway point and end of the programme to assess progress and any concerns.

Robust education will lead to higher levels of preparedness for advanced practice providers at the completion of training. Evidence suggests that “higher nurse education is associated

with lower risks of mortality”.^[14] The immediate goal is to cultivate a division of proficiently trained APPs that will contribute to better patient outcomes and satisfaction.^[15]

The broader goal was to provide an excellent example of orienting pediatric urology APPs to institutions across the nation. This will benefit the education, confidence, and competence of these APPs throughout the United States. It will also contribute to a more standardized expectation of the pediatric urology APP’s knowledge and skill base. Continued collaboration with professional organizations such as PUNS will allow the authors to disseminate this orientation programme to a wider audience.

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CONFLICTS OF INTEREST DISCLOSURE

Salary support for this study was provided by the authors’ institution’s division of urology. All key study personnel followed the Human Research Protection Program Investigator, Study Staff, and Family Member Conflicts of Interest (COI) policy. The authors declare that they have no conflicts of interest.

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