

CLINICAL PRACTICE

Considerations for subspecialty preparation for nurse practitioners

Celicia Williams Little,* Sharon Dudley-Brown

School of Nursing, Johns Hopkins University, Baltimore, MD, USA

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ABSTRACT

The number of nurse practitioners (NP) entering pediatric gastroenterology is increasing. Most nurse practitioners acquire knowledge and skills through special NP fellowship programs and on-the-job training. However, professional competencies have yet to be defined or standardized. The authors sought to evaluate subspecialty nursing organizations' role in developing education programs that improve NP preparation for practice. Nurse Practitioners completed an assessment survey to determine the need for an education program and the type of education program desired. Based on the survey feedback, the authors created a pediatric gastroenterology-focused education program through the National Association of Pediatric Nurse Practitioners (NAPNAP) in partnership with the Association of Pediatric Gastroenterology and Nutrition Nurses (APGNN). A pre-test/post-test design was utilized to determine knowledge obtainment. Post-test knowledge scores supported the program's ability to increase preparation. A post-test score increase was noted among new NPs and those who were members of specialty organizations. The development, implementation, and evaluation of standardized competencies and education programs through specialty organizations should be considered.

Key Words: Nurse practitioner, Nurse practitioner education, Specialty practice, Specialty education program, Specialty competencies

1. INTRODUCTION

Nurse Practitioners (NPs) have general education, which prepares them to provide high-quality care.^[1] However, additional education is needed to care for those with health problems, generally considered beyond general practice.^[1] Safe practice, quality of care, and patient outcomes may be affected without adequate preparation for specialty practice.^[2] Historically nursing has relied on experienced NPs and physicians to provide on-the-job-training for new NPs.^[3] To support preparation efforts, NPs have also searched for educational opportunities through specialty organizations, such as mentorships within or outside of their institution.^[4]

There is reasonable data to demonstrate the value of educational opportunities such as fellowships, orientation programs, webinars, and other asynchronous learning programs to bridge the education gap, support preparation, and promote safe and quality care for NPs wishing to enter specialty or subspecialty practice.^[5] Specialty-specific education programs can provide NPs with expert knowledge in their designated specialty.^[6] Access to valuable online resources and tools offered through many professional nursing organizations' websites has proven invaluable.^[5] This project aims to analyze a professional support network or professional nursing organization's role in developing and implementing a

*Correspondence: Celicia Williams Little; Email: celiciajw@gmail.com; Address: School of Nursing, Johns Hopkins University, Baltimore, MD, USA.

pediatric gastroenterology-focused online education program to support NP preparation for practice in a subspecialty.

2. METHODS/DESIGN

The Johns Hopkins Institutional Review Board (IRB) granted the project's ethical approval. Subsequently, the authors created a needs assessment survey peer-reviewed by the National Association of Pediatric Nurse Practitioners (NAPNAP) education committee and the Association of Pediatric Gastroenterology and Nutrition Nurses' (APGNN) research committee. Three hundred fifty members of the Association of Pediatric Gastroenterology and Nutrition Nurses (APGNN) and 300 members of the Chesapeake chapter of the NAPNAP were recruited to participate in the survey through each organization's email distribution list. Participants were informed of the purpose of the survey and the online gastroenterology NP education course that would be developed based on the survey results. Participants were informed that they could contact the PI by email or phone for a detailed explanation of the project and that they would receive continuing education credits to complete the education program. The 15-question anonymized survey was launched using Qualtrics online survey program from September 15, 2017, to November 15, 2017. Demographic variables obtained in the survey included type of NP certification, years of experience, practice status, practice setting, and membership in a specialty organization. The survey focused on an NP's perception of preparation for practice, method of practice proficiency, completion of post-graduate specialty education program, desire to complete a program if given the opportunity, and the preferred format for the post-graduate education program.

Table 1 displays the demographic variables received from survey participants prior to the educational intervention, including the type of NP training, type of NP certification, practice status, and years of experience.

The education program was developed based on the feedback from the NPs who participated in the needs assessment survey and with the assistance of the NAPNAP's education committee, expert Pediatric Gastroenterologists, NPs, and established clinical practice guidelines. The education program included five self-paced, peer-reviewed online modules with voice-over PowerPoint. This design was determined to increase the likelihood of participation of working of NPs. The 10-question pre and post-test design assessed prior knowledge and knowledge gained after completing the entire online course. The online program was launched on NAPNAP's continuing education website on December 9, 2017. The pre-test was taken at the start of the online education program, and the post-test was taken after completing the final online

module. Demographic data collected during the pre-test included years of experience, practice setting, and membership in a specialty organization.

Table 1. Demographic variables for survey participants

Variables for Survey Participants	N = 38
NP training	
Acute Care	2 (5.26%)
Primary Care	35 (92.11%)
Both	1 (2.63%)
NP certification	
PNP	33 (86.84%)
FNP	5 (13.16%)
Currently Practicing	
Yes	36 (94.74%)
No	2 (5.26%)
Years of Experience	
Less than one year	3 (7.89%)
1-5 years	8 (21.05%)
5-10 years	3 (7.89%)
Greater than ten years	24 (63.16%)

Table 2 represents the differences among demographic characteristics for the 102 Nurse Practitioners that participated in the online GI education intervention. The majority of the NPs were currently practicing and primary care trained. Other characteristics displayed here include NP certification type (Pediatric Nurse Practitioner vs. Family Nurse Practitioner), current practice setting, years of practice experience, and specialty organization membership. Pediatric certification and the pediatric practice setting were most common among the NP participants. Over 60% had over 5-10 years of experience, and over half of the NP participants were members of a specialty organization.

Needs assessment survey results were stored using a unique numerical identifier and were exported into and analyzed within the Statistical Package for the Social Sciences (SPSS) software program for Windows, version 24.^[7] Pre and post-test data were collected from December 9, 2017, to February 9, 2018, and were housed within NAPNAP's data collection system by its web design team. The demographic variables and scores were matched with the unique identification numbers. They were securely sent to the PI and then exported into SPSS software on an encrypted computer for analysis. The pre and post-test questions were worth one point each for a total possible score of 10 points. Pre-test and post-test scores were entered answer by answer (1-4), then re-coded to correct/incorrect answers and totaled within SPSS to reveal the sum of knowledge scores for each. Descriptive statistics compared the demographic variables obtained during the online

education program to pre- and post-test outcomes. A paired *t*-test notes the difference between two subjects; thus, a paired *t*-test was used to gather and compare the sum of knowledge scores and to determine the mean difference and statistical significance of scores from the pre-test to the post-test. A One-way ANOVA helps investigate if any factors have any measurable effects on a dependent variable.^[2] Therefore, a one-way ANOVA test was completed to determine whether there was any statistically significant relationship in terms of years of experience and pre and post-test scores. An independent samples *t*-test compares the means of two groups. It was performed to assess the relationship between specialty organization membership and its effects on pre and post-test scores. Matching and randomization were the methods used to control confounding variables.

Table 2. Demographic variables for education intervention

Demographic Variables	N = 10
NP certification	N (%)
PNP	99 (97.1%)
FNP	3 (2.9%)
Current Practice Setting	
Pediatrics	101 (98%)
Family Medicine	1 (2%)
Years of Experience	
Less than one year	17 (16.7%)
2-5 years	22 (21.6 %)
5-10 years	36 (35.3%)
Greater than ten years	27 (26.4%)
Specialty Organization Membership	
Non-member	40 (40%)
Member	62 (60%)

3. RESULTS

Of the 38 survey participants, most NPs were educated in primary care, obtained pediatric certifications, were currently practicing, and had over ten years of experience. Forty-four percent of the participants felt they received "somewhat" of adequate preparation for their current practice position, while 27% percent stated they did not. Fifty percent of participants became proficient in their specialty from physicians on the job, and 33% became proficient through the combination of training from Physicians and NPs while on the job. Eighty-nine percent of survey participants stated they did not complete an NP specialty education program, and 70 percent of those stated they would complete an NP specialty program if given the opportunity. Sixty percent of participants chose online education programs as their preferred format for specialty education when given choices between a 12-month fellowship program, a 1-2-day boot camp course

at a specialty conference, a 1-week immersion at a pediatric specialty center, and a post-masters certificate program or other.

One hundred and two NPs participated in the online education program. Most participants had five to ten years of experience, followed by more than ten years. Over half of the NP participants were certified in pediatrics and were members of a professional nursing organization. Knowledge score findings revealed a higher mean score post-education program implementation (pre-test mean 8.63, SD = 1.16; post-test mean 9.45, SD .767). The difference between the post and pre-test scores was an increase in knowledge by a mean of 0.83 (*p*-value < .001). An independent samples *t*-test revealed that those with more than one year of experience had higher mean baseline scores (mean of 8.97, SD 1.2), and novice NPs had a more significant change in scores (an increase of 2.2, SD 1.21). NPs who are members of a professional nursing organization had higher pre-test scores and had statistically significant improvements in post-test scores vs. pre-test scores (*T*-statistic = 4.02, *df* = 52, *p*-value of < .001).

Table 3. Comparison of differences in mean scores among specialty organization members vs non-specialty organization members based on an independent samples *t*-test

	Mean Difference	SD of Difference	Significance (<i>p</i> -value)
Member	.49	.67	.00
Non-member	1.4	1.3	

4. DISCUSSION

This study was limited to participants in the Chesapeake chapter of the NAPNAP and one specialty organization, the Association of Pediatric Gastroenterology Nurses (APGNN). Although the NPs participants closely reflect the characteristics of the intended population, regional participation may still affect the ability to generalize the results to the overall NP population. Most participants had greater than five years of experience, resulting in an uneven distribution in pre and post-test scores as those with less experience. The pre and post-test study design yields a limitation in assessing an actual increase in knowledge as NAPNAP allows participants to retake the post-test up to three times to achieve a passing score. To further prevent bias associated with repeated exposure to test questions, repeat studies should consider limiting pre/post-testing to one per participant and withholding pre and post-scores until after the education program, and post-test are complete.

Previous literature demonstrates the value NPs see in ed-

education programs developed for specialty practice. This education program, offered over one year, demonstrated the benefit of education programs for specialty practice. Participants with less experience gained more knowledge from this program than those with more experience. There was also a statistically significant association between increased knowledge scores for NPs who were members of specialty organizations. Clinical significance can be inferred in the context of involving specialty organizations in developing education for NPs in that specialty practice. In collaboration with specialty organizations, focused educational programs can be developed to increase NP depth of knowledge in their designated areas. Future larger-scale and quantitative studies

may focus on the specialty organization's role in standardization, implementation, and evaluation, as well as developing competencies for specialty education programs.

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CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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