

Creation and Dissemination of a Multispecialty Graduate Medical Education Curriculum in Pediatric and Adolescent Gynecology: The North American Society for Pediatric and Adolescent Gynecology Resident Education Committee Experiences



Carol Wheeler MD^{1,*}, Karen-Jill Browner-Elhanan MD², Yolanda Evans MD, MPH³, Nathalie Fleming MD⁴, Patricia S. Huguelet MD⁵, Nicole W. Karjane MD⁶, Meredith Loveless MD⁷, Hina J. Talib MD⁸, Paritosh Kaul MD⁹

¹ Department of Obstetrics and Gynecology, Alpert Medical School of Brown University, Providence, Rhode Island

² Mercer College of Medicine, Division of Adolescent Medicine, Savannah, Georgia

³ Seattle Children's Hospital, Division of Adolescent Medicine, University of Washington School of Medicine, Seattle, Washington

⁴ Pediatric and Adolescent Gynecology, Children's Hospital of Eastern Ontario, University of Ottawa, Ottawa, Ontario, Canada

⁵ Pediatric and Adolescent Gynecology, Children's Hospital Colorado, Department of Obstetrics and Gynecology, University of Colorado School of Medicine, Denver, Colorado

⁶ Department of Obstetrics and Gynecology, Virginia Commonwealth University School of Medicine, Richmond, Virginia

⁷ Pediatric and Adolescent Gynecology, Norton Children's Hospital, Louisville, Kentucky

⁸ Division of Adolescent Medicine, Children's Hospital at Montefiore, Albert Einstein College of Medicine, Bronx, New York

⁹ Division of Adolescent Medicine, Children's Hospital Colorado, University of Colorado School of Medicine, Denver, Colorado

ABSTRACT

Study Objective: The goal was to develop a multispecialty committee to address deficiencies in pediatric and adolescent gynecology (PAG) resident education through curricular development under the auspices of the North American Society for Pediatric and Adolescent Gynecology.

Design, Setting, Participants, Interventions, and Main Outcome Measures: A multispecialty North American committee was organized to develop short as well as long curricula in PAG through a combination of conference calls and face-to-face meetings. Content was guided by objectives of national accrediting organizations. The curricula used print as well as interactive electronic resources.

Results: After publication of the short and long curricula, a dissemination strategy was developed to present the information at national meetings. A curricular study was performed after introduction of the curriculum to evaluate its efficacy. Long-term plans for further curricular components and expansion of educational tools are ongoing.

Conclusion: We gathered a diverse multispecialty group of doctors to collaborate on a unified educational goal. This committee developed and disseminated resident PAG curricula using a variety of learning tools. This curricular development and implementation can occur with a minimal financial burden.

Key Words: Resident education, Curriculum, Graduate medical education

Introduction

The practice of pediatric and adolescent gynecology (PAG) synthesizes the unique content and skills of 5 distinct disciplines; gynecology, pediatrics, adolescent medicine, pediatric surgery, and endocrinology. Optimal PAG patient care encompasses the ability to perform the procedural skills of gynecology, effectively communicate with the pediatric patient and her guardian, and connect with the adolescent patient sensitively and directly. Education in PAG is an evolving discipline that requires a special set of skills and knowledge to train learners of diverse

backgrounds in all these different skill sets. This article describes the work of a North American multispecialty graduate medical education (GME) committee in its creation of a new PAG resident education curriculum. First, we describe the inception of the committee and the processes used. Next, outcomes of this process are enumerated and reflect on the journey. Finally we share lessons learned and future directions of this group of educators.

Background

Residency training programs with PAG expertise in North America are limited. Barriers to formalized training include: lack of trained and dedicated faculty, limited opportunity to evaluate and treat pediatric patients, and absence of formalized teaching curricula in PAG. Programs without this expertise or curriculum might have difficulty fulfilling GME training requirements. Studies have shown that formal PAG teaching is limited, with some obstetrics and gynecology (Ob/Gyn) residency programs completely lacking an

The authors indicate no conflicts of interest.

This work was presented, in part, as a poster presentation at the Association of Academic Professionals in Obstetrics and Gynaecology of Canada meeting on December 4-7, 2015 in Toronto, Ontario, Canada, and at the North American Society of Pediatric and Adolescent Gynecology Annual Meeting on April 7-9, 2016 in Toronto, Ontario, Canada.

* Address correspondence to: Carol Wheeler, MD, 101 Dudley St, Providence, RI 02905; Phone: (401) 274-1122 x48461

E-mail address: cawheeler@wihri.org (C. Wheeler).

outpatient PAG rotation.^{1,2} Solomon et al surveyed 105 US Ob/Gyn residency programs and reported that 63% (65/105) have no formal, dedicated PAG clinic, whereas 83% (87/105) have no outpatient PAG rotation.³ Kershner et al surveyed residents in pediatric, family medicine, and Ob/Gyn programs and reported the residents needed additional training in specific areas of adolescent health care.⁴ Thus, the degree of exposure might be insufficient to meet the PAG learning objectives in most training programs as defined by the accreditation bodies for resident education.^{5–7}

The North American Society for Pediatric and Adolescent Gynecology (NASPAG) is an organization of health care professionals dedicated to PAG, which was founded in 1986. Its current mission is to provide multidisciplinary leadership in education, research, and gynecologic care to improve the reproductive health of youth. NASPAG's goals include: (1) to serve and be recognized as the lead provider in PAG education, research, and clinical care; (2) to conduct and encourage multidisciplinary and interprofessional programs of medical education and research in PAG; and (3) to advocate for the reproductive well-being of children and adolescents, and the provision of unrestricted, unbiased and evidence-based practice of PAG.⁸ NASPAG developed a resident education committee to create, establish, and implement methods to improve resident education in PAG. It is valuable to share this specialty team approach, which could have applicability to other areas in medicine that involve collaborative efforts of more than 1 medical specialty.

Materials and Methods

At the annual 2011 NASPAG Board of Directors meeting, it was proposed to develop a resident education committee to address the gaps in training and exposure to PAG education. The committee's goal was to share ideas and work collaboratively to develop NASPAG-approved materials for resident education. Faculty members with an interest in PAG resident education were solicited from the NASPAG membership and members were selected on the basis of expertise and region. The committee chairs were appointed by the NASPAG board. Members attended the first meeting held at the 2012 annual meeting. The membership of the committee consisted of 4 general obstetrician gynecologists with PAG fellowship training, 3 adolescent medicine physicians (also trained in pediatrics, 1 in fellowship training), and 1 Ob/Gyn/reproductive endocrinologist. The committee was diverse geographically within the United States and Canada. The committee members had various educational leadership positions such as GME rotation directors, residency program directors, and fellowship directors.

After the initial face-to-face meeting in April 2012, the committee communications occurred via e-mail correspondence (once a month initiated by chairs with deadlines for responses) and quarterly conference calls (Table 1). As the committee established its goals and its role evolved, the NASPAG board developed terms of reference in 2013, which included purpose, objectives, committee composition, and deliverables.

By consensus, the first goal chosen by the committee was to develop a PAG curriculum for GME programs for pediatric and Ob/Gyn residencies. In addition, the committee believed that curriculum needed flexibility, with diverse learners including medical students and residents in other disciplines such as family medicine and postgraduate fellows in adolescent medicine or PAG. The first educational scholarly product developed was the Short Curriculum in PAG, a basic overview core curriculum⁹ (http://c.ymcdn.com/sites/www.naspag.org/resource/resmgr/PDF's/Resident_Education_Curriculum.pdf). The learning objectives were established by the committee from PAG-specific objectives, from the Council on Resident Education in Obstetrics and Gynecology,⁵ Royal Colleges of Physicians and Surgeons of Canada,⁶ and the American Academy of Pediatrics.⁷ These objectives were considered to be most critical among all of the PAG learning objectives by the committee. The short curriculum was designed for use as 10 one-hour sessions over a 2-week rotation or spread out as 10 sessions over the 3- to 4-year resident experience. The rationale for the flexibility was an acknowledgement of the limited training time and/or exposure in PAG during residency.

The Short Curriculum was then followed by a comprehensive Long Curriculum, which incorporated detailed learning objectives¹⁰ (http://c.ymcdn.com/sites/www.naspag.org/resource/resmgr/PDF's/Long_Curriculum_in_Residency.pdf). The Long Curriculum was designed ideally for a 1-month training experience but could also be used over a more extended time period. The focus for Ob/Gyn and Pediatrics differed in that one was surgical whereas the other was nonsurgical. However, the curriculum was designed to encompass the needs of both groups. Certain topics were highlighted as more surgical, such as performing vaginoscopic procedures. The resources used in both of the curricula were standard textbooks as well as available electronic resources, including those from the leading professional organizations. Some of these resources were free whereas others required a small fee by non-Ob/Gyn residents. Resources on simulation were also built into the curriculum.

Content topics for the curriculum were divided on the basis of expertise and interest. There was general consensus within the committee, with co-chairs facilitating the division of content topics. In general, larger content topics were covered by 2 committee members. The committee member(s) reviewed the literature and available learning tools, and translated them into the outline created by the committee. Content and design of the curriculum were reviewed via conference calls by the entire committee. The committee chairs collated the various sections for the long as well as short curricula. When the short and long curricula were developed, a plan was made for publication in the *Journal of Pediatric and Adolescent Gynecology* under NASPAG board approval and branding.^{9,10} The 2 committee co-chairs, who did most of the organizational work, were determined to be first and senior authors, whereas the remainder of the committee was given authorship alphabetically. Creation and publication of the curricula in the NASPAG journal was deemed to be a critical first step in sharing them with PAG educators.

Table 1
Activities of the NASPAG Resident Education Committee

| Time | Activity | Outcome |
|---|--|---|
| Spring 2012 September 2012– January 2013 | Creation of the Resident Education Committee Ongoing meetings for development of the short curriculum in PAG | Priorities and tasks identified Completed short curriculum |
| April 2013 January 2013–April 2014 Fall 2014–Spring 2015 Fall 2013–Spring 2015 | Manuscript preparation of short curriculum Draft of long curriculum on the basis of national learning objectives Manuscript preparation for long curriculum Abstract submissions to annual meetings (4) for training of professionals teaching PAG—PowerPoint developed, Trainer in a box | Publication in the <i>Journal of Pediatric and Adolescent Gynecology</i> Completed long curriculum Publication in the <i>Journal of Pediatric and Adolescent Gynecology</i> Workshop presentations at: Association of Professors in Obstetrics and Gynecology; North American Society for Pediatric and Adolescent Gynecology; American Society of Reproductive Medicine; Society for Adolescent Health and Medicine |
| April 2014–October 2015 | Designed a multicenter research study to evaluate the short curriculum | Institutional review board-approved, completed across 12 residency programs; Published in the <i>Journal of Pediatric and Adolescent Gynecology</i> |
| April 2014–present October 2015–April 2016 | Web-based learning modules developed Abstracts prepared on committee work and research study | Review existing resources and create new cases Presented at: World Congress on PAG: poster; Association of Academic Professionals in Obstetrics and Gynaecology of Canada: poster; NASPAG (2 posters, including prize poster) |
| April 2016–present | Expansion of curriculum research study to additional pediatrics and family medicine programs | Currently in data analysis and manuscript preparation |

NASPAG, North American Society for Pediatric and Adolescent Gynecology; PAG, pediatric and adolescent gynecology.

Results

A dissemination strategy was created to make the curricula available to as wide an audience as possible. The committee developed a “trainer in a box,” which included: (1) paper copies of the short as well as long curriculum; (2) clinical cases to test knowledge; (3) simulation models for the pediatric pelvic examination; and (4) Power Point slides to introduce the target audience to the educational program. Presenters from the committee (as well as NASPAG member volunteers) held workshops at national meetings to include the curriculum, teaching tools, and hands-on simulation training. Electronic resources such as PAG-webED (PAG e-learning system, a free online case-based tool available to NASPAG members; http://pagwebed.org/users/sign_in) and the CD Rom were demonstrated (Table 1).

The committee also developed an institutional review board-approved educational research study to evaluate the Short Curriculum. The goal of the study was to determine if the Short Curriculum improved self-perceived knowledge in PAG among Ob/Gyn residents at programs without PAG-trained faculty. Data from this study¹¹ showed that self-improved knowledge increased in 8 of 10 topics. These data were presented as a poster presentation at the 2016 NASPAG annual meeting and won the Sally Perlman Award for the best poster. Plans are under way for a phase 2 of this study to explore this curriculum in all Ob/Gyn, pediatric and family medicine residency programs, including those with PAG-trained faculty.

With NASPAG Board support, the PAGwebED resource was acquired from the Association of Professors of Gynecology and Obstetrics. Modifications are currently under way to upgrade Web access, review the existing 20 cases, and prepare additional cases.

Future directions include expanding the dissemination efforts by bringing PAG directly to programs without PAG faculty using a traveling team of PAG educators. The

committee is also working to develop additional online modules, simulation programs, and dissemination of the curriculum through peer-reviewed online educational sources such as MedEdPORTAL <https://www.mededportal.org>.¹²

Discussion

Teaching PAG uniquely falls between the specialties of pediatrics and Ob/Gyn and crosses the subspecialties of adolescent medicine, pediatric gynecology, and reproductive endocrinology. These disciplines are surgical and nonsurgical, leading to different strengths and exposures in residency training. It is natural that an alliance of these specialties across North America would be an ideal group to identify knowledge gaps and to create tools to answer those gaps in residency training. This is a specialty (like many in medicine) in which uncommon pathology and infrequent conditions can challenge the learner. In addition, developing expertise in normal anatomy and the pediatric gynecologic exam during training is critical. This highly effective committee organized learning tools for Ob/Gyn as well as pediatric residents guided by the objectives of national organizations, ensuring that training programs have the tools they need to succeed. The committee members are working to ensure dissemination of these learning tools by educational presentations and scholarship.

Other curricula have been designed by national groups for resident and nurse education in areas including global health, thrombosis, preventive medicine, and cardiovascular disease.^{13–16} Our committee is unique in its multidisciplinary and geographic diversity. The incorporation of existing electronic resources allows for easier implementation. The “trainer in a box” provides the opportunity for other educators to become familiar with the curriculum and its dissemination.

The ongoing work for the committee is to keep the curriculum and tools up to date and continue its dissemination.

The committee is pursuing a mechanism for PAG experts to conduct workshops and trainings at local residency programs. Expanded modules, videos, and simulation training will be developed under the committee's guidance.

The strength of the process that has been described is that it can serve as a framework for resident educators in other disciplines. The financial burden, apart from volunteer time and expertise, was limited to transport of the “trainer box.” The committee, with their scholarship and dissemination, continue to be recognized by the leadership of the organization. The work created by the committee has been a winning situation for the committee members, the organization, and the practice of PAG.

The success of this group of educators was a result of the support of organizational leadership (NASPAG), hard work and dedication of the committee chairs, and the passion that each of the committee members brought to the process. Challenges included the minimal amount of face to face time with the only in-person opportunity during the annual meeting. Time for quarterly phone conferences was also limited because of busy clinical schedules and time zone differences in places of residence. With the evolution in medical education to identify ways to assess learning, we would like to develop assessment tools for each section that would include competencies and milestones. This might help direct the future goals of the committee. This work is described in detail so that other educational groups can have a guide as they develop plans to create educational resources and share them on a national as well as an international level.

The committee continues to work together, inspired that the work in the past will serve as a foundation for the work ahead. Although the subject is unique, we are confident that our process can serve as a framework for educators in other disciplines.

References

1. Wagner EA, Schroeder B, Kowalczyk C: Pediatric and adolescent gynecology experience in academic and community OB/GYN residency programs in Michigan. *J Pediatr Adolesc Gynecol* 1999; 12:215
2. Nayak SR, Racek C, Sanfilippo JS: Resident education in pediatric and adolescent gynecology from a residency program director's perspective. *J Reprod Med* 2012; 57:489
3. Solomon ER, Muffly TM, Hood C, et al: Residency training in pediatric and adolescent gynecology across obstetrics and gynecology residency programs: a cross-sectional study. *J Pediatr Adolesc Gynecol* 2013; 26:180
4. Kershner R, Hooper C, Gold M, et al: Adolescent medicine: attitudes, training, and experience of pediatric, family medicine, and obstetric-gynecology residents. *Yale J Med* 2009; 82:129
5. CREOG: Educational Objectives: Core Curriculum in Obstetrics and Gynecology, (9th ed.). New York, Professional Publishing Group, 2009
6. Royal College of Physicians and Surgeons of Canada. Available at: <http://www.royalcollege.ca/cs/groups/public/documents/document/ltaw/mti0/-edisp/rcp-00124201.html>. Accessed October 13, 2017.
7. American Board of Pediatrics: ACGME program requirements for graduate medical education in adolescent medicine. American Board of Pediatrics, General Pediatrics Content Outline. Available at: https://www.abp.org/sites/abp/files/pdf/gp_contentoutline_2017.pdf. Accessed October 13, 2017.
8. North American Society for Pediatric and Adolescent Gynecology: Mission and goals. Available at: <https://naspag.site-ym.com/?missiongoals>. Accessed May 27, 2016.
9. Fleming N, Amies Oelschlager AM, Browner-Elhanan KJ, et al: Resident education curriculum in pediatric and adolescent gynecology: the short curriculum. *J Pediatr Adolesc Gynecol* 2014; 27:117
10. Loveless M, Amies Oelschlager AM, Browner-Elhanan, et al: Long curriculum in resident education. *J Pediatr Adolesc Gynecol* 2015; 28:196
11. Huguelet PS, Browner-Elhanan KJ, Fleming N, et al: Does the NASPAG short curriculum increase resident knowledge in pediatric and adolescent gynecology? *J Pediatr Adolesc Gynecol* 2016; 29:623
12. AAMC. American Association of Medical Colleges: MedEdPortal. Available at: <https://www.mededportal.org>. Accessed June 6, 2016.
13. Zink T, Solberg E: Development of a global health curriculum for family medicine based on ACGME competencies. *Teach Learn Med* 2014; 26:174
14. Gonsalves CL, Ajjawi R, Rodger M, et al: A novel approach to needs assessment in curriculum development: going beyond consensus methods. *Med Teach* 2014; 36:422
15. Jani AA, Trask J, Ali A: Integrative medicine in preventive medicine education: competency and curriculum development for preventive medicine and other specialty residency programs. *Am J Prev Med* 2015; 49(5 Suppl 3):S222
16. Astin F, Carroll DL, Ruppar T, et al: A core curriculum for the continuing professional development of nurses: developed by the Education Committee on behalf of the Council on Cardiovascular Nursing and Allied Professions of the ESC. *Eur J Cardiovasc Nurs* 2015; 14:190