Original Study

Enhancing Postgraduate Training in Pediatric and Adolescent Gynecology: Evaluation of an Advanced Pelvic Simulation Session

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A B S T R A C T

Study Objective: To describe and evaluate a Canadian simulation session designed to teach pediatric and adolescent gynecology (PAG) history taking, examination and operative skills, and an approach to the child and adolescent.
Design: Obstetrics and gynecology residents in a single academic center participated in a PAG simulation session and rated their gain in knowledge on 6 aspects of PAG care.
Setting: Academic half-day at the University of Ottawa Skills and Simulation Centre.
Participants: Twenty-four Obstetrics/Gynecology residents at the University of Ottawa.
Interventions: Participants completed 4 stations teaching PAG-appropriate history taking, genital examination, Tanner staging, vaginal sampling and flushing, hymenectomy, vaginoscopy, laparoscopic adnexal detorsion, and approach to the child/adolescent. Advanced pelvic models were used for procedure specific stations. Participants completed an anonymous evaluation form at the end of the session.
Main Outcome Measure: Self-perceived increase in knowledge and PAG specific skills after the simulation session.
Results: Twenty-four residents completed the simulation session and post-session evaluation. All residents (100%) agreed that they had gained knowledge in PAG history taking, examination techniques, office procedures, operative skills, approach to child, and approach to the adolescent. Qualitative feedback stressed the excellence of instruction, interaction, immediate feedback, and hands-on experience. All residents (100%) stated the PAG simulation session should continue.
Conclusions: This advanced PAG simulation session increased resident self-perceived knowledge. Other obstetrics/gynecology training programs should consider implementing advanced PAG simulation sessions to increase resident knowledge and confidence in delivering care to the pediatric/adolescent patient.
Key Words: Pediatric, Adolescent, Simulation, Curriculum, Session, Teaching, Gynecology, Post graduate medical education

Introduction

Although Pediatric and Adolescent Gynecology (PAG) is a subspecialty within Obstetrics and Gynecology (Ob/Gyn), residents receive limited exposure to the concepts and techniques associated with PAG despite recommendations by the Association of Academic Professionals in Obstetrics and Gynecology (APOG) and the Council on Residency Education in Obstetrics and Gynecology (CREOG) to teach this subspecialty.[1,2] Currently, there are few formal curricula in PAG in postgraduate Ob/Gyn training programs in North America.

Resident education is challenged by work-hour limitations and limited PAG patient encounters. Simulation training in medical education is a method of gaining valuable experience and technical skills in areas where experience is limited. To date, there is only 1 published example using simulation models to teach pediatric gynecology physical examinations. This study by Loveless et al[3] demonstrated that using pediatric gynecology pelvic simulation improved residents' knowledge, technical skills, and comfort level in the pediatric examination.

Appropriate communication with children and adolescents is of the utmost importance to gain their trust and obtain an appropriate history. In 2009, Beyth et al[4] reported on a simulated patient-based medical simulation training program for gynecologists interacting with adolescents. The recommendation was made to include this simulation program within their residency program.

Current Curriculum

The University of Ottawa is one of the few Canadian Ob/Gyn residency programs that offers a comprehensive PAG subspecialty rotation. Currently postgraduate Ob/Gyn trainees at the University of Ottawa complete a mandatory 8-week PAG rotation during their senior years, receive 1 lecture on various PAG topics every year as part of their academic lecture series, and perform a PAG Objective Structured Clinical Examination (OSCE) station twice a year. Clinical assessments, physical examinations, and operative techniques are taught during their PAG subspecialty rotation. Depending on the patient population during that time, exposure to various types of exams and procedures may be limited and variable among residents. Although residents of all levels cover PAG consults at the Children's Hospital of Eastern Ontario after hours and are expected to take a

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history and perform an appropriate exam, these residents may not have received any training or developed competencies in this area if these consults occur before their PAG subspecialty rotation.

Goals and Objectives

An innovative Pediatric and Adolescent Gynecology curriculum that included Simulation Sessions was designed and piloted at our center in January 2013. The session was designed to be given to all levels of postgraduate trainees and to be repeated every 1 to 2 years, thus ensuring maximal exposure and participation for all program trainees. The goals of the session were to ensure resident competency in the evaluation of various PAG pathologies, PAG examination, and PAG specific procedures and surgeries. Specifically the simulation session addressed: (1) Age-appropriate interaction with children and adolescents, including focused and detailed history-taking on various PAG pathologies (vaginal bleeding, contraception, and amenorrhea); (2) Performing a pediatric genital exam including Tanner staging, labial retraction, vaginal sampling, and vaginal flushing; and (3) Common PAG surgical procedures such as vaginoscopy, hymenectomy, and adnexal detorsion.

The objectives of this paper are to describe the PAG simulation session at our center, to evaluate self-perceived increase in PAG knowledge and skills in residents participating in the Simulation Sessions, and to provide guidance for other centers to assist them in implementing similar PAG training and simulation in their centers.

Methods

A Pediatric and Adolescent Gynecology Simulation Session was designed and piloted at the University of Ottawa Skills and Simulation Centre (UOSSC) in January 2013 during the Ob/Gyn postgraduate academic half-day. Residents from post-graduate years 1 to 5 were included and thus had varied experience with simulation from no previous exposure to a significant amount of experience in simulation. Advanced pelvic models were developed prior to the session in collaboration with UOSSC. The simulation session consisted of four 45-minute stations (Table 1). A specialist in Pediatric and Adolescent Gynecology was assigned to each station and residents were divided into 4 groups by level of training. The 4 stations addressed patient counseling, examination techniques, as well as basic and intermediate operative procedures. Ethics approval from the Ottawa Hospital Research Ethics Board (OHREB) was obtained for this session including the collection of anonymous session evaluations from the residents. The details of the curriculum can be found in Appendix A.

Station 1 - Patient Counseling Station

In this station, simulated patient encounters were in the form of an OSCE station. Participants worked in pairs and dealt with 3 different clinical scenarios. One participant (A) acted as the patient and chose an index/evaluation card and a second participant (B) acted as the physician. Index cards contained clear instructions about the case for both the patient (participant A) and the physician (participant B). Alternatively, with adequate financial resources standardized patients could be utilized. Each clinical scenario was allocated 12 minutes to perform the OSCE and 3 minutes for participant A to give feedback to participant B. The instructor was present to give feedback and answer questions on the various topics. The topics addressed during the pilot session were *prepubertal vaginal bleeding*, *primary amenorrhea*, and *contraception*. The station's goals were to increase knowledge, enhance communication and collaboration skills with colleagues, and provide immediate direct feedback from the instructor. (Competencies: knowledge, communication, collaboration)

Table 1
Pediatric Adolescent Gynecology Simulation Session Schedule

Introduction	15 minutes
Station 1: Patient Counseling Station	45 minutes
• Prepubertal vaginal bleeding	(15 minutes per clinical scenario)
• Primary amenorrhea	
• Contraception	
Station 2: Examination Techniques	45 minutes
• Tanner staging	
• Patient positioning	
• Vaginal sampling	
• Vaginal flushing	
Break	20 minutes
Station 3: Basic operative procedures	45 minutes
• Vaginoscopy	
• Hymenectomy	
Station 4: Medium level operative procedure	45 minutes
• Ovarian detorsion	
Wrap-up and Evaluations	15 minutes

Station 2 - Examination Techniques

Participants were taught office examination techniques. The instructor verbally explained *Tanner staging* and optimal *patient positioning* for the genital exam and demonstrated with posters and instructions. The instructor then demonstrated the ideal *labial retraction technique* to examine the hymen/lower vagina in children and/or adolescents on a pelvic model (retracting the labia towards you then laterally to form the base of a triangle). Participants then practiced this skill on advanced pelvic models with instructor supervision and feedback. Appropriate indications for *vaginal sampling* were then reviewed and included the child's/parent's report of an abnormal persistent green/purulent vaginal discharge with or without odor, suspicion of sexual abuse, or vaginal bleeding. The instructor reviewed the importance of using an urethrogenital swab (smaller diameter then traditional vaginal/cervical swab), of moistening the tip to minimize its diameter, and of avoiding touching the hymen while the specimen is being collected (Fig. 1). Signs and symptoms of foreign bodies were discussed including persistent vaginal discharge and/or bleeding despite negative investigations or when a child divulges placement of an object in her vagina. Indications for *vaginal flushing* as an outpatient or during examination under anesthesia (EUA) were reviewed. The instructor first demonstrated vaginal sampling and vaginal flushing using a 2-person technique on the pelvic model. Participants then practiced on the pelvic models